SECTION No. 4

Association of American Railroads

OPERATIONS AND
MAINTENANCE DEPARTMENT

MECHANICAL DIVISION

RULES GOVERNING

THE

Loading of Miscellaneous Commodities Including Machinery On Open Top Cars

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SECTION No. 4

PART 1

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Loading of Miscellaneous Commodities On Open Top Cars

NOTICE

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Preface.

Attention Shippers.

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General Rules.

Instructions—Experimental Loads.

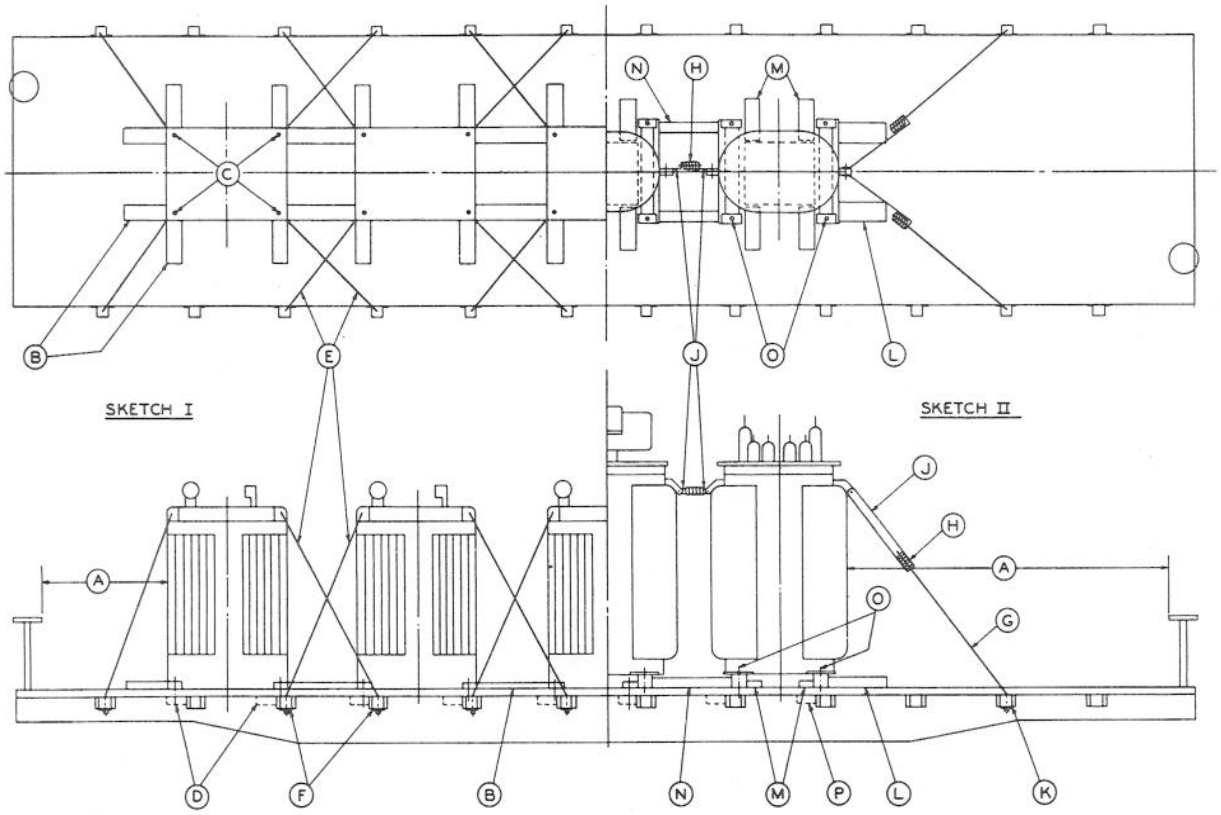
Dictionary for Car and Loading Terms.

Table Nos. 1 to 35, inclusive.

Where reference is made in the specifications of any of the figures in these rules to Fig. Nos. 1-B, 2, 3, 4, 5, 5-A or 5-B, see General Rules—Section No. 1.

Sec. 4—Fig. 1

TRANSFORMERS, TRANSFORMER TANKS, CIRCUIT BREAKERS AND SIMILAR UNITS—FLAT CARS



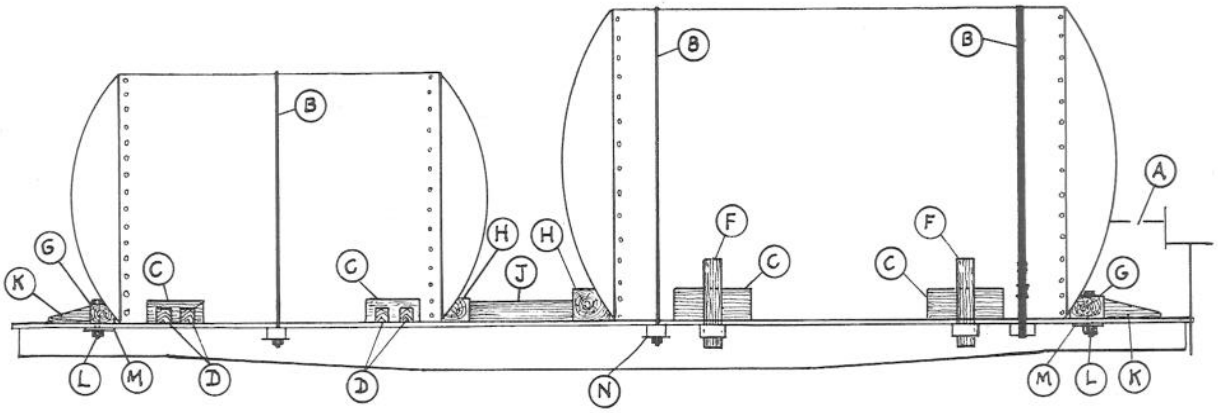
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
		Sketch 1. For transformers up to and including 35,000 lbs.
B	As required.	Each to consist of two pieces 2 in. x 6 in. hardwood, length to suit at ends, and 18 in. at sides of units. Nail lower piece to floor with four 30-D nails and top piece to one below with four 40-D nails.
C	4 ea. unit.	¾ in. dia. bolts through bolting lugs, floor and Items "D".
D	4 ea. unit.	4 in. x 4 in. x 18 in. hardwood, or ½ in. x 4 in. x 18 in. plates.
E	4 ea. unit.	¾ in. dia. rods. Secure to lifting lugs and pass through stake pockets and Items "F". Substitute, if desired, ⅝ in. dia. steel cable. Use thimbles to protect cables at sharp turns and secure with two 2-bolt cable clamps at each end.
F	1 ea. Item "E".	½ in. x 4 in. x 10 in. plate. Not required when steel cable is used.
		Sketch 2. For transformers 7 ft. high or less, weighing 8,000 lbs. or less.
G	2 ea. end unit.	½ in. dia. rod. Secure to lifting lugs or Items "H" when used and pass through stake pockets and Items "K".
H	1 ea. Item "G" and 1 between each two units.	Coil springs 2,300 lbs. at 1 in. compression, maximum compression 1½ in. Use optional.
J	3 ea. end unit and 2 ea. intermediate unit.	Coil spring brackets ⅜ in. x 2 in., design and length to suit, secured to lifting lugs with suitable bolts.
K	1 ea. Item "G".	½ in. x 4 in. x 10 in. plate.
L	2 ea. end unit.	Each to consist of two pieces 2 in. x 6 in. x 18 in. hardwood, cut to fit channel flange. Nail lower piece to floor with four 30-D nails and top piece to one below with four 40-D nails.
M	4 ea. unit.	2 in. x 6 in. x 18 in. hardwood. Secure to floor with four 30-D nails.
N	As required.	Each to consist of two pieces of 2 in. x 4 in. hardwood, length to suit, ends cut to fit channel flange. Nail lower piece to floor with four 30-D nails and top piece to one below with four 40-D nails.
O	4 ea. unit.	¾ in. dia. bolts through bolting lugs, floor and Items "P".
P	4 ea. unit.	4 in. x 4 in. x 18 in. hardwood, or ½ in. x 4 in. x 18 in. plate.

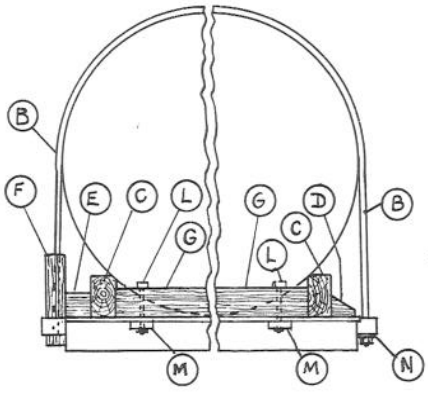
When weight exceeds 35,000 lbs., per Sketch 1, increase dimensions and strength of Items "B", "C" and "E" proportionately.

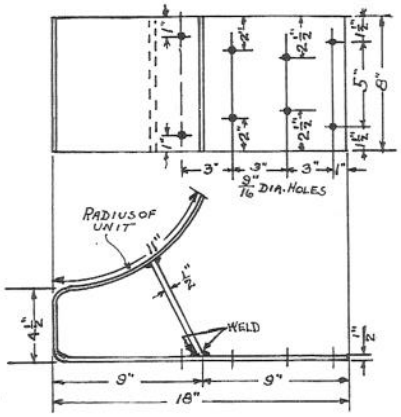
Items "B" to "F" inclusive not required on units per Sketch 2. Items "G" to "P" inclusive not required on units per Sketch 1.

See General Rules 4, 5, 7, 9, 14 and 15 for further details.

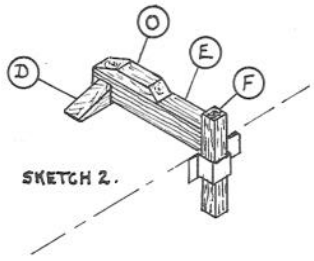
BOILER SHELLS, TANKS, OR SECTIONS, 8 FT. LONG OR OVER, LOADED LENGTHWISE, ONE OR MORE PER CAR—FLAT OR GONDOLA CARS







SKETCH 1.



SKETCH 2.

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	As required.	Rods, Flat Bands of equal strength, or high tension bands.

Weight of Unit	Diameter of Unit	5/8" dia. Rod	3/4" dia. Rod	Flat band of equal strength with threaded ends	2" x .050" HT Band
20,000 lbs. or less	8 ft. or less	1	0	1	1
	Over 8 ft. to 10 ft. 6 in., inc.	2	0	2	2
Over 20,000 lbs.	8 ft. or less	0	1	1	2
	Over 8 ft. to 10 ft. 6 in., inc.	0	2	2	4
All Weights	Over 10 ft. 6 in.	0	2	2	4

When Items "G", "H", "J", "K", "L" and "M" are used, only three 2 in. x .050 in. high tension bands are required on units over 8 ft. in diameter, weighing over 20,000 lbs. and on units over 10 ft. 6 in. in diameter, regardless of weight.

When units are loaded in gondola cars with end gates closed and fastened, rods or bands are not required.

Sec. 4—Fig. 2

BOILER SHELLS, TANKS, OR SECTIONS, 8 FT. LONG OR OVER, LOADED LENGTHWISE, ONE OR MORE PER CAR—FLAT OR GONDOLA CARS

Item	No. of Pcs.	Description
C	4 ea. unit.	8 in. wide, 10 in. high, 16 in. long, cut at top edge to provide 2 in. bearing against unit. Toe-nail to floor with six 30-D nails. Substitute, if desired, metal blocking, per Sketch 1, or of equal height and strength. Secure each to floor with eight ½ in. dia. bolts, eight ½ in. x 3 in. lag screws, or with sixteen 40-D nails. Nails, when used, should be bent over at top at 1 inch. Items "C" are not required when Items "E", per Sketch 2, are used.
D	2 ea. Item "C" or "E".	4 in. x 5 in. x 12 in., hardwood, wedge shaped. Nail each to floor with four 30-D nails and toe-nail to Items "C" or "E" with two 30-D nails.
E	4 ea. unit.	4 in. x 4 in., hardwood, long enough to fill space between Items "C" and "F" and between Item "C" and gondola car sides, or 4 in. x 6 in., hardwood, length to suit, when used between unit and Items "F" or between unit and gondola car sides. Toe-nail each to floor with six 30-D nails. Not required when Items "D" are used against Item "C" or when Item "C" fills space between units and Item "F" or car sides.
F	4 ea. unit.	4 in. x 5 in. x 18 in., hardwood stakes, suitably located. Not required when Items "D" are used, nor when units are loaded in gondola cars.
G	1 ea. end of load.	4 in. x 4 in. x 48 in., hardwood, for units 8 ft. or less in diameter, 6 in. x 6 in. x 48 in., hardwood, for units over 8 ft., in diameter, cut to fit contour of unit.
H	As required.	4 in. x 4 in. x 48 in., hardwood, for units 8 ft. or less in diameter, 6 in. x 6 in. x 48 in., hardwood, for units over 8 ft. in diameter, cut to fit contour of units. Toe-nail each to floor with four 60-D nails.
J	2 ea. pr. Items "H".	4 in. x 4 in., hardwood, length to suit. Locate between Items "H", space about 2 ft. apart. Toe-nail each to floor with four 30-D nails.
K	2 ea. Item "G".	4 in. x 5 in. x 12 in., hardwood, wedge shaped. Nail to floor with four 30-D nails in each. Not required when Item "G" is secured with bolts per Item "L".
L	2 ea. Item "G".	⅝ in. dia. bolts, with nuts and washers, for units weighing 20,000 lbs. or less; ¾ in. dia. bolts, with nuts and washers, for units weighing over 20,000 lbs. Locate about 36 in. apart, pass through Items "G", "M" and floor.
M	1 ea. Item "L".	4 in. x 4 in. x 18 in., hardwood cleats, or ½ in. x 4 in. x 18 in. plates. Use two per rod when Items "B" pass through floor of car.
N	2 ea. Item "B".	½ in. x 4 in. x 10 in. plates. Not required when high tension bands are used or when Items "B" pass through floor.
O	As required.	4 in. x 4 in. x 16 in., hardwood, cut to fit radius of unit. Nail each end to Item "E" with five 30-D nails. Required only when Item "E", per Sketch 2, is used.

Note.—Cylindrical objects subject to rotating and having protruding appurtenances which may become involved in clearances, must be properly secured.

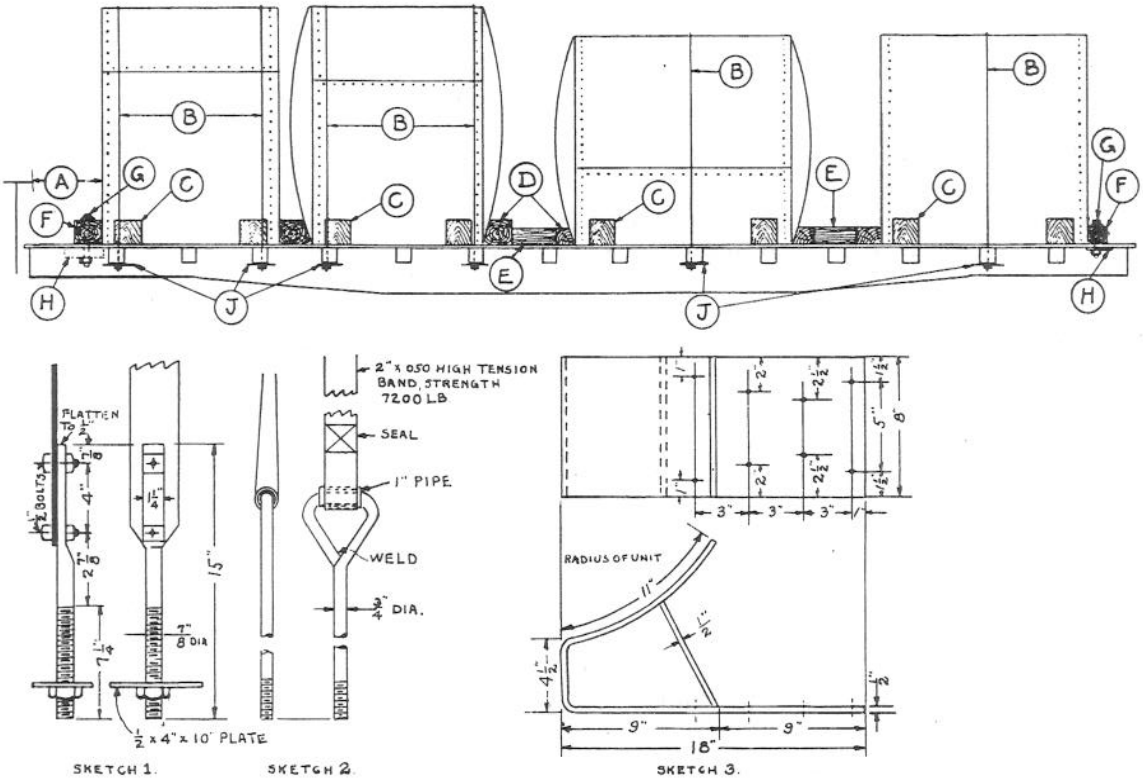
Length of tanks to be determined from that portion resting on floor. Diameter of tanks excludes rivets, welds, etc.

End blocking, consisting of Items "G", "H", "J", "K", "L" and "M" not required for single, or multiple units, including fixtures, or other material loaded three ft. or more apart.

See General Rules 4, 5, 9, 10, 14 and 15 for further details.

Sec. 4—Fig. 3

BOILER SHELLS, TANKS, OR SECTIONS, LESS THAN 8 FT. LONG—FLAT OR GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	As required.	One 5/8 in. dia. rod, or flat band of equal strength with threaded ends, for units 8 ft. or less in dia., 2 such rods or bands for units over 8 ft. in dia. Permissible substitutes: Flat band of equal strength, per sketch 1; or 2 in. x .050 in. high tension band, per sketch 2, or high tension band, when passed around stake pocket and sealed. Rods or bands are not required when units are loaded in gondola cars with sides 30 in. high or over when end gates are closed and fastened, except that when the diameter of unit exceeds its length, one rod or band must be used.
C	4 ea. unit.	6 in. x 6 in. x 16 in., wedge shaped, cut at top edge to provide 2 in. bearing against tank. Nail to floor with 60-D nails. Metal blocking, per sketch 3, or of equal height and strength, secured with bolts, lag screws or spikes 1/4 in. dia. may be substituted for Items "C".
D	1 or 2 between units.	4 in. x 4 in., for units 8 ft. or less in dia., 6 in. x 6 in., for units over 8 ft. in dia. Cut to fit contour of units. Nail to floor with 60-D nails.
E	As required.	4 in. x 4 in., length to suit, nailed to floor and Items "D" with 60-D nails. Use only when 1 or 2 Items "D" will not fill space.
F	1 ea. outside end of load.	4 in. x 4 in., hardwood, for units 8 ft. or less in dia., 6 in. x 6 in., hardwood, for units over 8 ft. in dia. Cut to fit contour of units.
G	2 ea. Item "F".	5/8 in. dia. bolts, through Items "F", "H" and floor.
H	1 ea. Item "G".	4 in. x 4 in. x 18 in., hardwood; or 1/2 in. x 4 in. x 18 in. plates under floor.
J	2 ea. Item "B".	1/2 in. x 4 in. x 10 in. plates under pockets. When Items "B" pass through floor use 1 Item "H" at each end of each Item "B". For steel floors block out between load and car sides and ends to prevent shifting, or secure Items "C" with bolts.

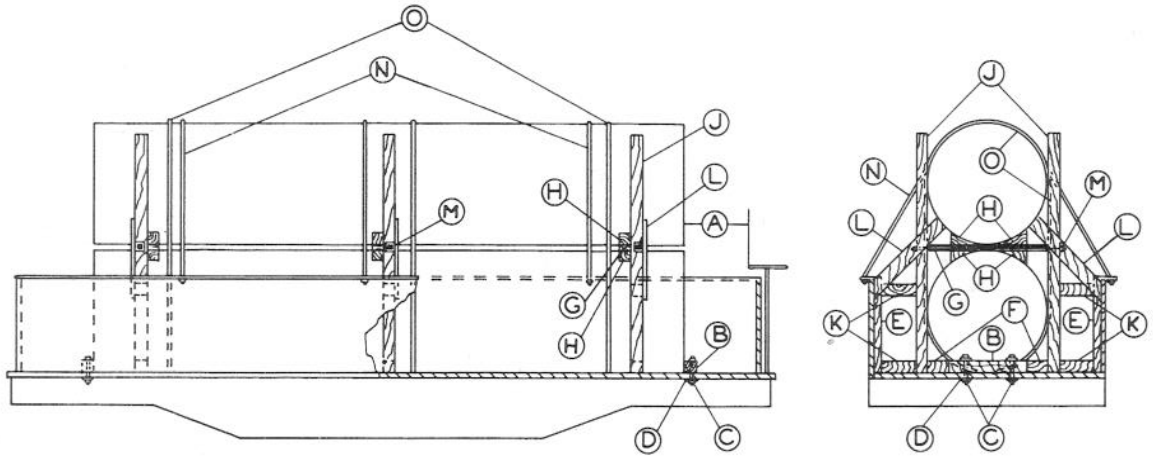
Note.—Cylindrical objects subject to rotating and having protruding appurtenances which may become involved in clearances, must be properly secured.

Length of tanks to be determined from that portion resting on the floor. Diameter of tanks excludes rivets, welds, etc.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 4

BOILER SHELLS AND TANKS, 60 INCHES AND OVER IN DIAMETER—GONDOLA CARS



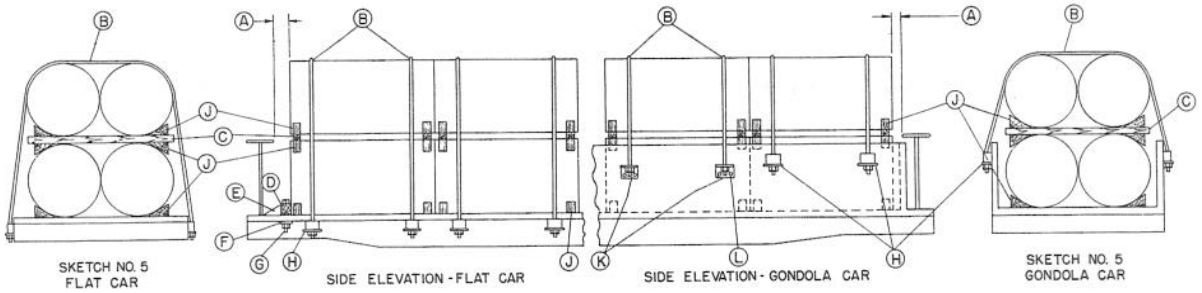
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. pile.	6 in. x 6 in., hardwood, length to suit. Cut to fit contour of tank head.
C	2 ea. Item "B".	5/8 in. diameter bolts, with washers.
D	1 ea. Item "C".	4 in. x 4 in. x 18 in., hardwood, or 1/2 in. x 4 in. x 18 in. plates.
E	2 ea. pr. Items "J".	2 in. x 6 in., hardwood, height of car sides. Nail with 20-D nails.
F	2 ea. pr. Items "J".	6 in. x 6 in., hardwood, cut to fit contour of tank, long enough to extend from tank to stakes. Nail with 60-D nails.
G	1 ea. pr. Items "J".	2 in. x 6 in., hardwood, length to suit.
H	4 ea. Item "G".	6 in. x 6 in., hardwood, wedge shaped. Nail to Item "G" with 30-D nails.
J	12 ft. long or less, 2 pr. Over 12 ft. long to 24 ft. long, 3 pr. Add 1 for ea. additional 8 ft. or less.	6 in. x 6 in., hardwood.
K	2 ea. Item "J".	6 in. x 6 in., hardwood, length to suit. Toe-nail bottom pieces to floor, Items "E" and "J". Toe-nail top pieces to Items "E" and "J" with 30-D nails.
L	2 ea. pr. Items "J".	2 in. x 6 in., hardwood, length to suit. Nail to Items "E", "J" and "K" with 30-D nails.
M	1 ea. pr. Items "J".	5/8 in. diameter rod, length to suit with 1/4 in. x 4 in. x 4 in. plate washers.
N	12 ft. long or less, 2. Over 12 ft. long to 24 ft. long, 3. Add 1 for ea. additional 8 ft. or less.	3/4 in. diameter rods or bands of equal strength, with threaded ends. When rods pass through floor, use cleats or plates, per Item "D". Substitute, if desired, at each location, one 2 in. x .050 in. high tension band.
O	12 ft. long or less, 2. Over 12 ft. long to 24 ft. long, 3. Add 1 for ea. additional 8 ft. or less.	2 in. x .050 in. high tension bands. Substitute, if desired, at each location, one 3/4 in. diameter rod, bent to fit contour of tank on top and bear against sides of tank and pass through floor and Item "D".

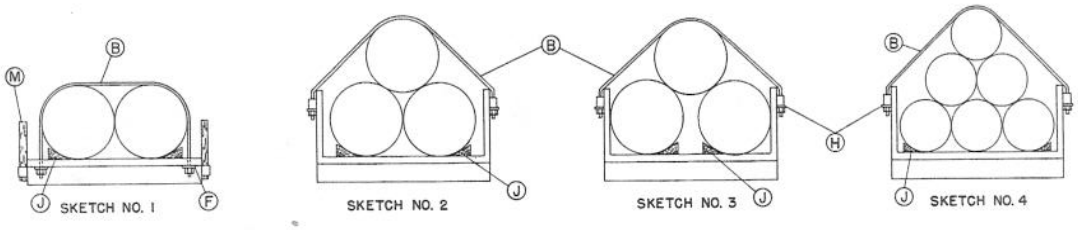
Tanks less than 12 ft. long must be loaded below top of car sides.

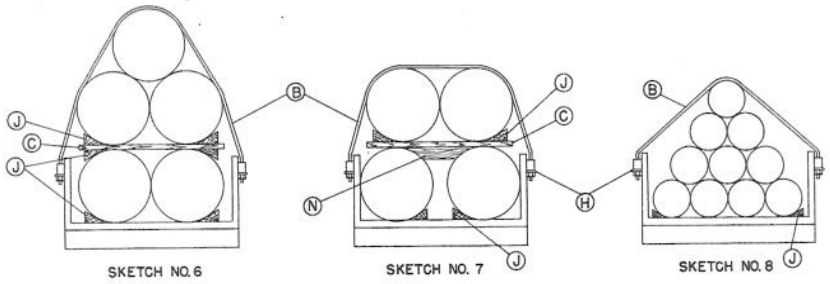
See General Rules 4, 5, 9, 10, 14 and 15 for further details.

Sec. 4—Fig. 5

SMALL DIAMETER TANKS, OVER 12 FT. IN LENGTH—FLAT OR GONDOLA CARS







Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	As required.	Sketch 1. 5/8 in. dia. 1 centrally located on piles 12 ft. long or less and 2 on piles over 12 ft. long. Not required when Items "M", are used. Sketches 2 and 3. 5/8 in. dia. 2 per end pile, 1 per intermediate pile, except when dia. of top tank exceeds dia. of bottom tanks, or when pile is over 12 ft. long, in which case 2 must be used. Diameter of top tank must not exceed the inside width of car. Sketch 4. 5/8 in. dia. 2 per pile 12 ft. long or less. 3 per pile over 12 ft. long. Sketches 5, 6, 7, and 8. 3/4 in. dia. 2 per pile 12 ft. long or less. 3 per pile over 12 ft. long. When width of load extends beyond flat car floor, add one rod per pile to the number now specified for loads per sketches 1, 2, 4, 5, 6 and 8.
C	2 per pile, sketches 5, 6 and 7.	3 in. x 4 in.
D	1 to outer end of end piles.	4 in. x 4 in., width of load, secured to floor with 60-D nails, or 3/4-in. bolts.
E	3 per end pile.	4 in. x 4 in. x 12 in., wedge shaped, nailed to floor. Not required when Item "D" is bolted.
F	2 ea. Item "B". and 1 Item "G".	4 in. x 4 in. x 18 in., hardwood, or 1/2 in. x 4 in. x 18 in. plate.
G	2 ea. Item "D".	3/4 in. dia. Not required when Items "E" are used.
H	2 ea. Item "B".	1/2 in. x 4 in. x 10 in.
J	4 per pile, sketches 1, 2, 3, 4 and 8. 8 per pile, sketch 7. 12 per pile, sketches 5 and 6.	4 in. wide x 6 in. high, wedge shaped, length to suit, nailed to floor and Items "C".
K	2 ea. Item "B".	3 in. x 3 in. x 1/4 in. x 6 in. angles. Not required when stake pockets are available.
L	1 or 2, ea. Item "K".	2 bolts, 3/4 in. dia., or 1 bolt, 1 in. dia.
M	Sketch 1. 2 pr. per pile 12 ft. long or less; 3 pr. per pile over 12 ft. long	Stakes, hardwood, must extend 14 in., or over, vertically above floor. Not required when Items "B", are used.
N	2 per pile, sketch 7.	4 in. x 4 in., length to suit.

Tanks loaded as shown in sketches 3 and 7, must be confined to gondola cars.

Tanks not loaded in pyramidal form, except sketch 7, must be placed directly in line with those underneath.

When subject to damage from rivets, place 1 in. x 4 in. strips between tanks.

The largest number of tanks, end to end longitudinally, above gondola car sides or flat car floor, determines number of piles in car.

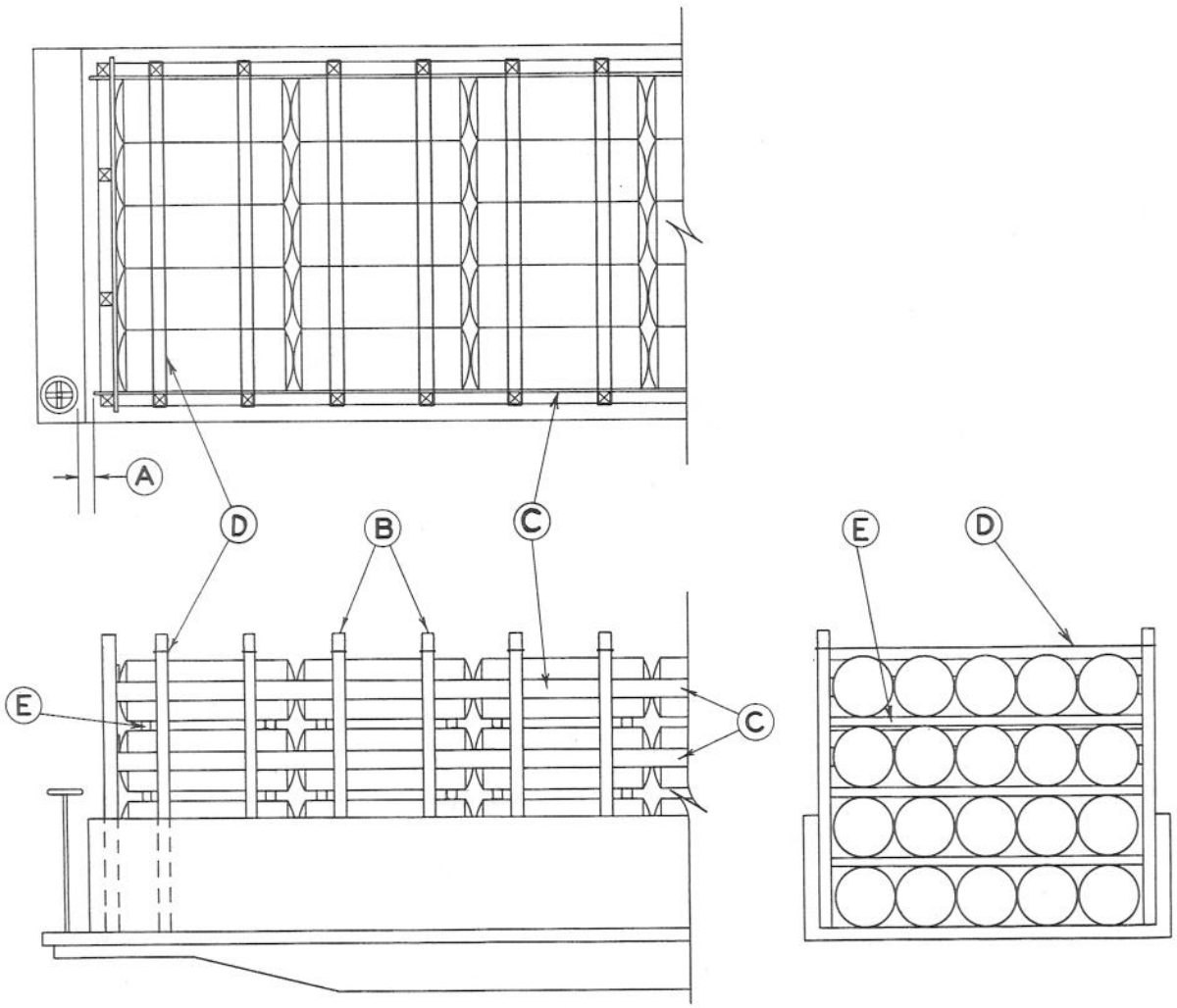
Bands of equal strength, with threaded ends, may be substituted for Items "B", sketches 1, 2, 3, 4, 5, 6, 7 and 8. One 2 in. x .050 in. high tension band, may be substituted for each Item "B". When using high tension bands for Item "B" in sketches 5, 6 and 8, add 1 circumferential band, as above, at center of each pile 12 ft. long or less, and 2 such bands for each pile over 12 ft. long about 1/4 the length of pile from each end.

When loads, per sketch 7, are secured with high tension bands, use 3 per pile, 12 ft. long or less, and 4 per pile over 12 ft. long, and secure all bands to car sides.

See General Rules 4, 5, 9, 10, 14 and 15 for further details.

Sec. 4—Fig. 6

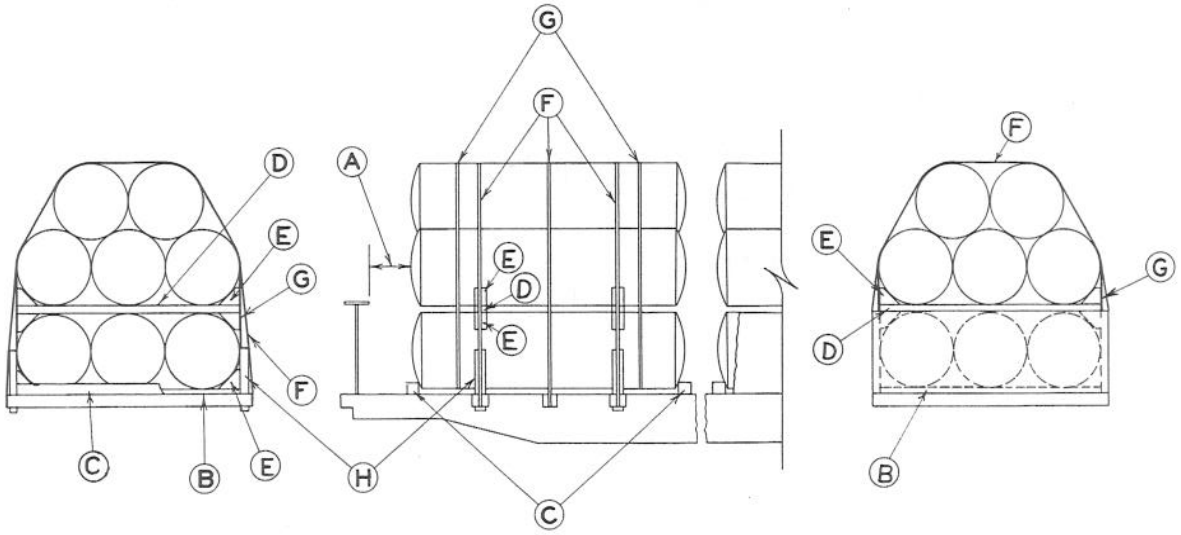
SMALL DIAMETER, LIGHT WEIGHT, TANKS, UNDER 5 FT. IN LENGTH—GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	As required on sides and ends of car.	Stakes, spaced not over 5 ft. apart, long enough to apply Items "D".
C	As required.	1 in. x 6 in., nailed to inside of Items "B". Locate at center of each layer of tanks extending more than one-half their height above top of car sides.
D	As required.	4 strands, No. 11 gage wire.
E	As required.	2 in. x 4 in., separators, long enough to extend to inside face of side stakes, Items "B", may be used between layers.

See General Rules 4, 5, 9, 10, 14 and 15 for further details.

SMALL DIAMETER, LIGHT WEIGHT, TANKS, 5 FT. AND OVER TO 12 FT., INCLUSIVE, IN LENGTH—FLAT OR GONDOLA CARS

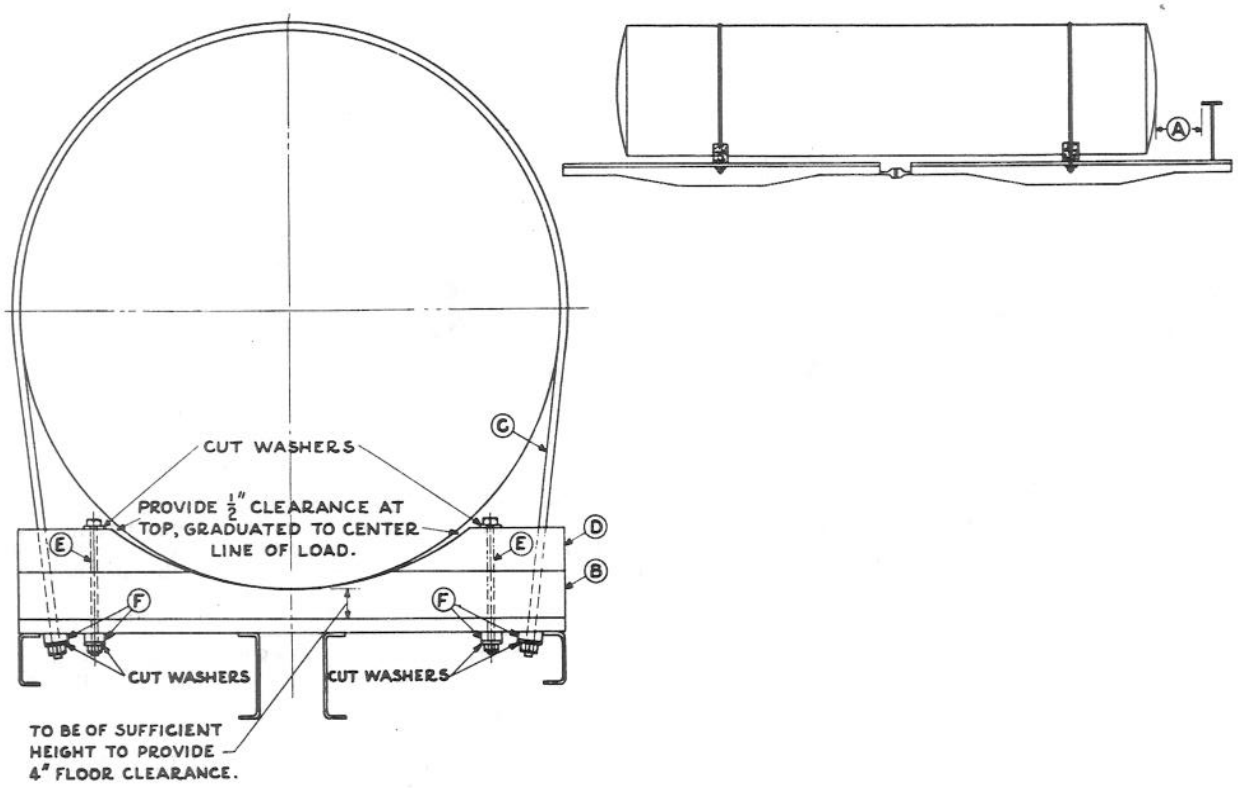


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 per pile.	2 in. x 4 in., long enough to apply Items "E", suitably spaced.
C	2 per pile.	4 in. x 4 in., length equal to width of pile. Locate against ends of pile and secure to floor with 60-D nails, or ¾ in. diameter bolts.
D	2 per pile between ea. successive layers.	2 in. x 4 in., long enough to apply Items "E", suitably spaced. Not required between nested layers.
E	2 ea. Item "B". 4 ea. Item "D".	4 in. x 6 in., wedge shaped, nailed to Items "B" and "D", as shown, with 60-D nails.
F	2 per pile, 9 ft. or less; 1 additional for piles exceeding 9 ft. in length.	2 in. x .050 in. high tension bands, suitably spaced, secured to opposite stake pockets, or top of car sides.
G	2 per pile.	2 in. x .050 in. high tension bands, encircling entire pile, suitably spaced.
H	4 per pile.	Stakes, long enough to extend to center of tanks in bottom layer. Not required for gondola cars.

See General Rules 4, 5, 9, 10, 11, 14 and 15 for further details.

Sec. 4—Fig. 8

LONG BOILERS, SHELLS, TANKS, ETC., NOT EXCEEDING 30,000 LBS., NOR 80 FT. IN LENGTH, AND NOT SUBJECT TO DAMAGE BY STATIONARY BOLSTERS—TWO FLAT CARS



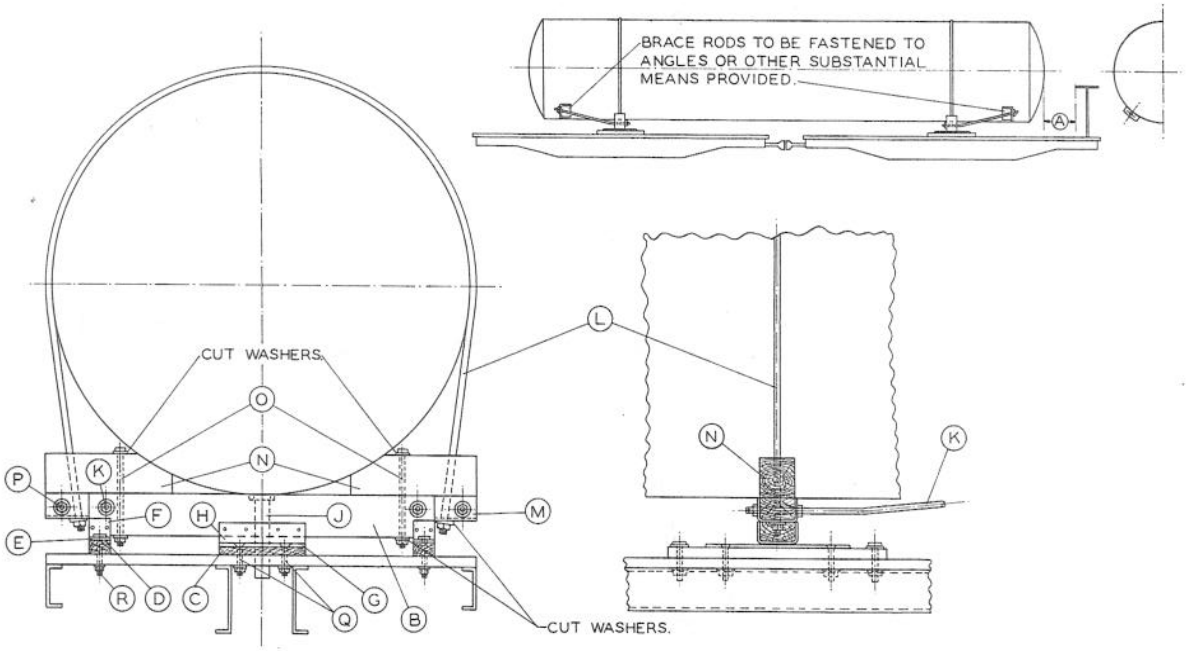
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2	10 in. x 12 in., hardwood.
C	2	1 in. dia., with washers.
D	4	6 in. high, hardwood, same width as bolsters.
E	4	¾ in. dia. bolts, with washers, length to suit.
F	8	4 in. x 4 in. x 18 in., hardwood, or ½ in. x 4 in. x 18 in. plate.

Note.—Cylindrical objects subject to rotating and having protruding appurtenances which may become involved in clearances, must be properly secured.

See General Rules 4, 5, 6, 7, 9, 12, 14, 15, 18 and 21 for further details.

Sec. 4—Fig. 9

LONG BOILER SHELLS, TANKS, ETC., ON PIVOTED BOLSTERS—TWO OR MORE FLAT CARS



Description	Item	No. of Pcs.	Loads 15,000 lbs. or less per bolster	Loads over 15,000 lbs. but not exceeding 36,000 lbs. per bolster	Loads over 36,000 lbs. but not exceeding 57,500 lbs. per bolster	Loads over 57,500 lbs. but not exceeding 100,000 lbs. per bolster
Brake Wheel Clearance	A		See Fig. 2	See Fig. 2	See Fig. 2	See Fig. 2
Bolster	B	2	8 in. x 10 in. x 9 ft. 6 in.	10 in. x 14 in. x 9 ft. 6 in.	12 in. x 16 in. x 9 ft. 6 in.	14 in. x 20 in., or 12 in. x 22 in. x 9′ 6″
Center Plate Backing	C	2	3 in. x 12 in. x 5 ft.	3 in. x 12 in. x 5 ft.	3 in. x 12 in. x 5 ft.	4 in. x 12 in. x 5 ft.
Side Bearing Backing	D	4	3 in. x 10 in. x 5 ft.	3 in. x 10 in. x 5 ft.	3 in. x 10 in. x 5 ft.	4 in. x 10 in. x 5 ft.
Side Bearing Plate, Bottom	E	4	6 in. x ⅜ in. x 3 ft. 6 in.	6 in. x ⅜ in. x 3 ft. 6 in.	6 in. x ⅜ in. x 3 ft. 6 in.	6 in. x ⅜ in. x 4 ft.
Side Bearing Plate, Top. (Bent)	F	4	6 in. x ¼ in. x 1 ft. 3 in.	6 in. x ¼ in. x 1 ft. 7 in.	6 in. x ¼ in. x 1 ft. 9 in.	6 in. x ⅜ in. x 2 ft. 1 in.
Center Plate, Bottom	G	2	12 in. x ⅜ in. x 12 in.	12 in. x ⅜ in. x 12 in.	12 in. x ⅜ in. x 12 in.	12 in. x ½ in. x 12 in.
Center Plate, Top (Bent)	H	2	12 in. x ⅜ in. x 1 ft. 3 in.	12 in. x ⅜ in. x 1 ft. 7 in.	12 in. x ⅜ in. x 1 ft. 9 in.	12 in. x ⅜ in. x 2 ft. 1 in.
Center Pin	J	2	2½ in. Dia.	2½ in. Dia.	2½ in. Dia.	2½ in. Dia.
Brace Rods	K	4	1 in. Dia.	1⅛ in. Dia.	1¼ in. Dia.	1½ in. Dia.
Clamping Rods	L	2	1 in. Dia.	1⅛ in. Dia.	1¼ in. Dia.	1½ in. Dia.
Bolster Plates, Bent to fit bolster	M	4	¼ in. x 6 in. x 1 ft. 6 in.	¼ in. x 7 in. x 1 ft. 10 in.	¼ in. x 9 in. x 2 ft.	¼ in. x 10 in. x 2 ft. 4 in.
Chock Blocks	N	4	10 in. x 10 in.	10 in. x 14 in.	10 in. x 16 in.	10 in. x 20 in., or 10 in. x 22 in.
Chock Block Bolts	O	4	¾ in. Dia.	¾ in. Dia.	¾ in. Dia.	¾ in. Dia.
Bolster Split Bolts	P	4	⅝ in. Dia.	⅝ in. Dia.	⅝ in. Dia.	⅝ in. Dia.
Center Plate Backing Bolts	Q	8	¾ in. Dia.	¾ in. Dia.	¾ in. Dia.	¾ in. Dia.
Side Bearing Bolts	R	16	⅝ in. Dia.	⅝ in. Dia.	⅝ in. Dia.	⅝ in. Dia.

Note.—Cylindrical objects subject to rotating and having protruding appurtenances which may become involved in clearances, must be properly secured.

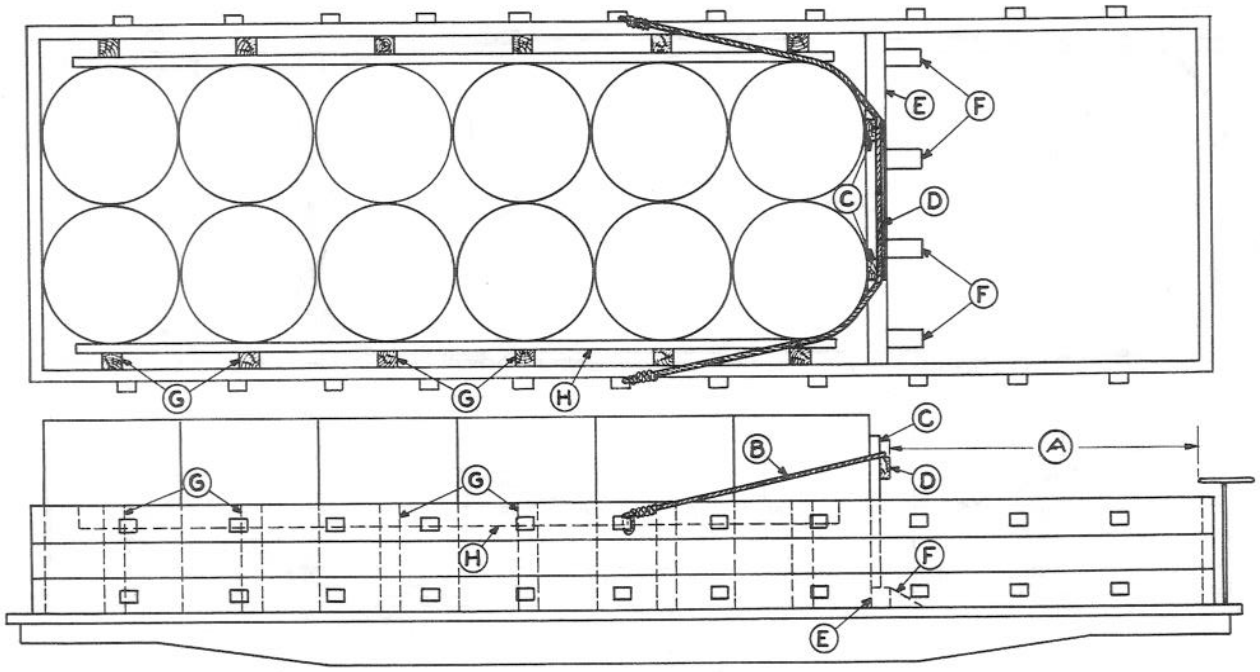
For length of slotted center pin hole, see Fig. 5.

All wooden items must be hardwood.

See General Rules 4, 5, 6, 7, 9, 12, 14, 15, 18 and 21 for further details.

Sec. 4—Fig. 10

TANKS WITH FLAT END ON FLOOR WHEN NOT EXCEEDING TWICE THE INSIDE HEIGHT OF CAR—GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	1	6 strands, No. 11 ga. wire; high tension wire or bands, equaling total strength, may be used.
C	2	2 in. x 4 in.
D	1	2 in. x 4 in., nailed to Item "C".
E	1	4 in. x 4 in., length equal to width of car, nailed to floor, or secured with 2 bolts ¾ in. dia. with 4 in. x 4 in. x 18 in. hardwood cleats, or ½ in. x 4 in. x 18 in. plate under floor.
F	4	4 in. x 5 in. x 12 in., wedge shaped, nailed to floor. Not required if Item "E" is bolted.
G	1 at center of ea. tank.	4 in. wide, thickness to suit, height from floor to top of car sides.
H	2	1 in. x 4 in., nailed to Items "G".

Items "B" to "H", inclusive, are not required when all space in car is filled.

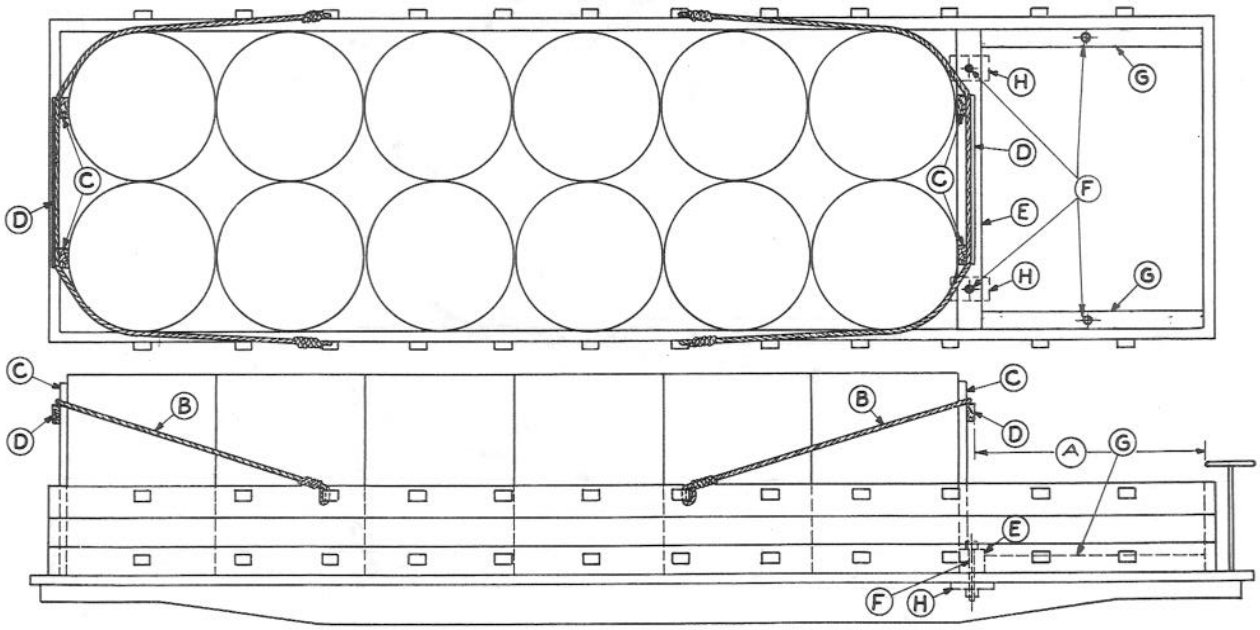
Items "G" and "H" not required when load fills width of car.

Pipe not less than ¾ in. dia., inserted in threaded outlet of tank may be substituted for Items "C" and "D", if similarly located.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 11

TANKS WITH FLAT END ON FLOOR WHEN MORE THAN TWO TIMES BUT NOT MORE THAN TWO AND ONE-HALF TIMES THE INSIDE HEIGHT OF CAR—GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2	10 strands, No. 11 ga. wire; high tension wire or bands, equaling total strength may be used.
C	4	2 in. x 4 in.
D	2	2 in. x 4 in., nailed to Item "C".
E	1	6 in. x 6 in., length equal to width of car, secured by means of either Items "F" or "G".
F	2	¾ in. dia. bolts.
G	2	4 in. x 4 in., extending between Item "E" and end of car. Secure with Items "F".
H	2	4 in. x 4 in. x 18 in., hardwood, or ½ in. x 4 in. x 18 in. plates, when Item "F" is used.

Items "E", "F", "G" and "H" not required when all space in car is filled.

When all space in car is filled and diameter of tanks are one-half or more their length, the above fastenings are not required. If entire space is not filled the open end must be secured as above specified.

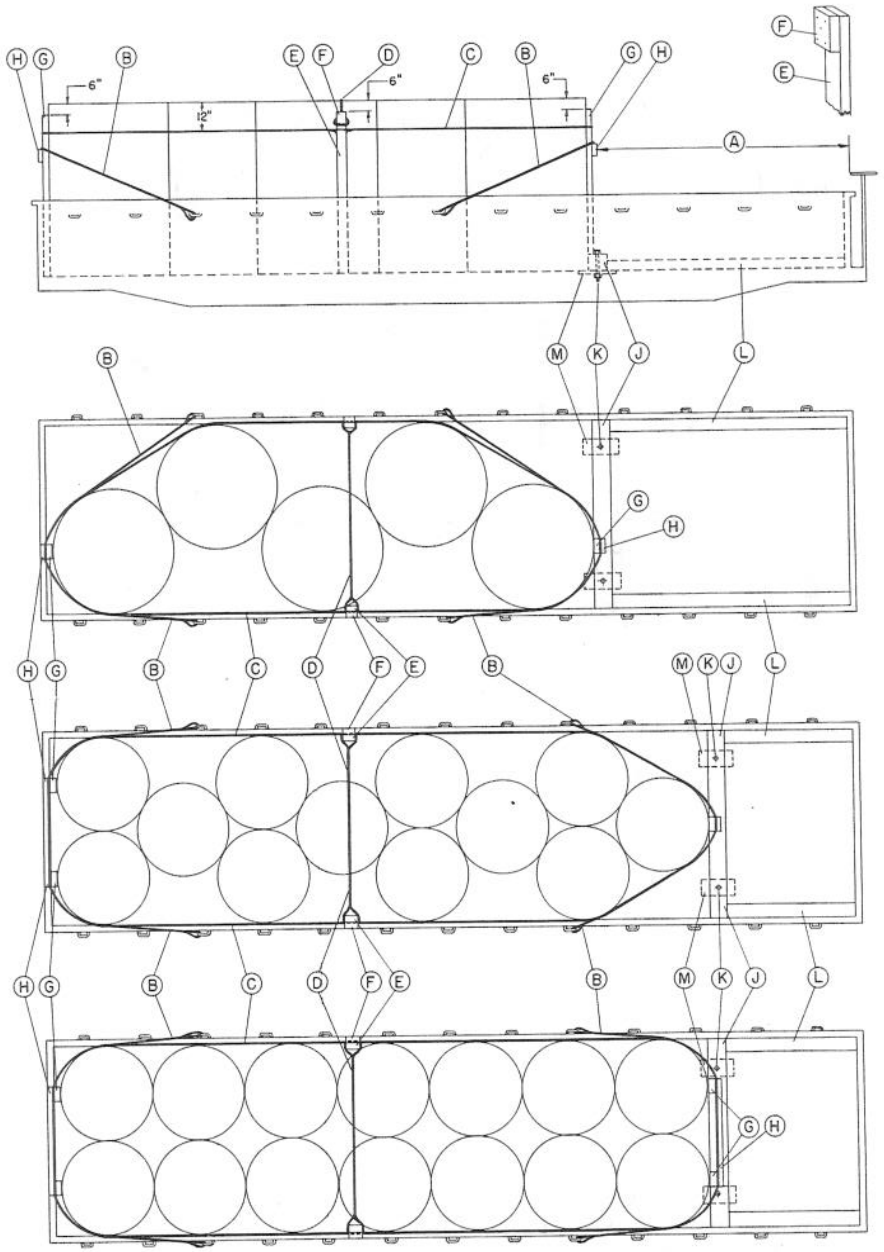
Pipe not less than ¾ in. dia., inserted in threaded outlet of tank may be substituted for Items "C" and "D", if similarly located.

Place fillers not less than 4 in. wide in space, equalized, both sides, between load and car sides, held upright at center of each tank by nailing a 1 in. x 4 in. board to upper portion.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 12

TANKS WITH FLAT END ON FLOOR WHEN MORE THAN TWO AND ONE-HALF TIMES THE INSIDE HEIGHT OF CAR—GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2	10 strands, No. 11 ga. wire, located ⅓ length of tank from top as shown.
C	1	10 strands, No. 11 ga. wire, encircling load and secured to Items "E" and "G".
D	1	10 strands, No. 11 ga. wire, secured to Items "E".
E	2	4 in. x 4 in.
F	2	4 in. x 12 in., thickness of car side and nailed to inside face of stake.
G	2, 3, or 4 as required.	2 in. x 4 in.
H	2	2 in. x 4 in., length to suit, nailed to Items "G".
J	1	6 in. x 6 in., length equal to width of car.
K	2	¾ in. dia. bolt.
L	2	4 in. x 4 in., length to suit. Secure to car floor with nails or bolts.
M	2	4 in. x 4 in. x 18 in., hardwood, or ½ in. x 4 in. x 18 in. plate.

When all space in car is filled and diameter of tanks are one-half, or more, their length, the above fastenings not required. If entire space is not filled the open end must be secured as above specified.

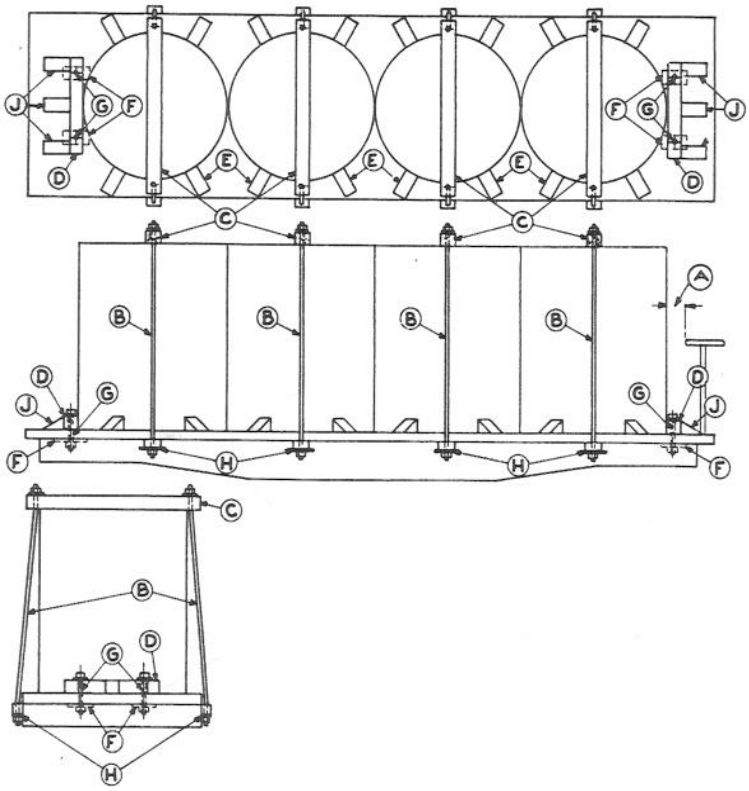
Pipe ¾ in. dia., or over, inserted in threaded outlet of tank may be substituted for Items "G" and "H", if similarly located.

High tension wires or bands, equaling total strength may be substituted for Items "B", "C" and "D".

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 13

TANKS WITH FLAT END ON FLOOR—FLAT CARS



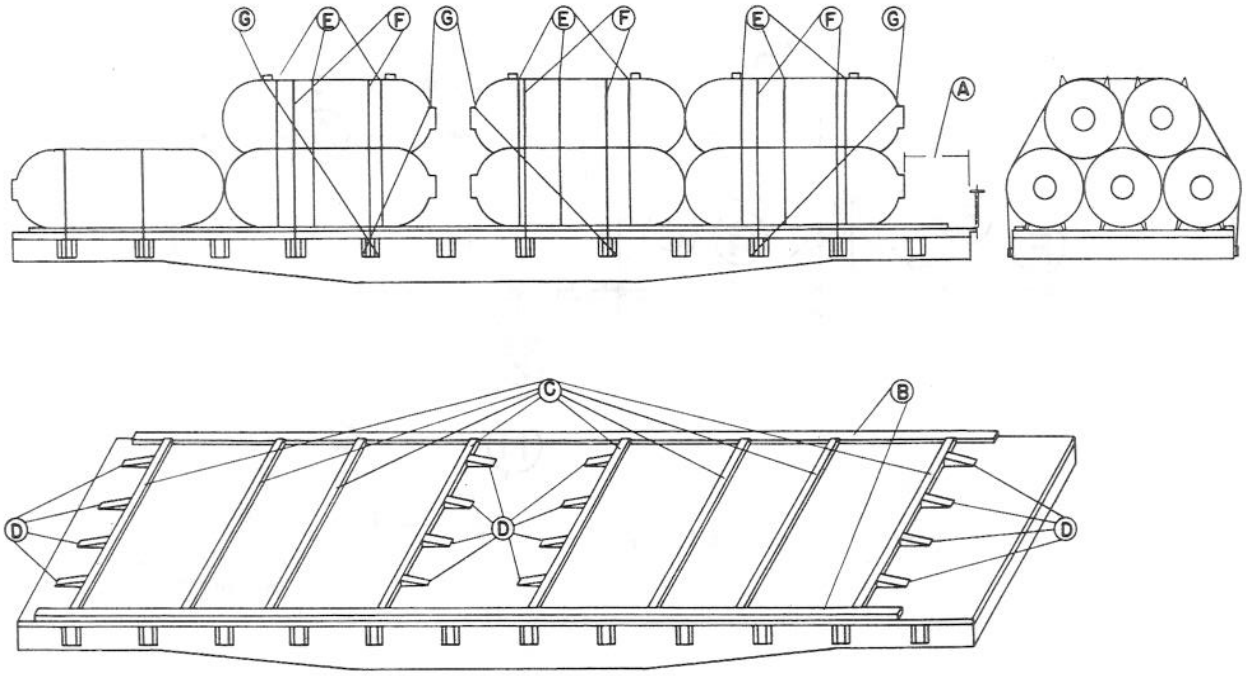
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. tank.	5/8 in. dia. rods or two 2 in. x .050 in. high tension bands, as shown.
C	1 ea. tank.	4 in. x 4 in., hardwood, with one bolt, 1/2 in. dia., crosswise, with washers, at each end to prevent splitting. Substitute if desired lugs welded or riveted to tank at center or above, if equally as strong as Item "B".
D	2	4 in. x 4 in. x 3 ft. as shown.
E	4 ea. tank.	4 in. x 4 in. x 12 in., wedge shaped, nailed to floor, as shown.
F	4	4 in. x 4 in. x 18 in., hardwood, or 1/2 in. x 4 in. x 18 in. plates if Item "G" is used.
G	4	3/4 in. dia. bolts or Item "J".
H	1 ea. rod.	1/2 in. x 4 in. x 10 in. plate, as shown.
J	6	4 in. x 4 in. x 12 in., wedge shaped, nailed to floor. Not required when Items "F" and "G", are used.

When necessary to put Item "B" through car floor, use Item "F", longitudinally under floor. Items "B", "C" and "H" not required when length does not exceed diameter of tanks.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 14

TANKS—L. P. G. CYLINDRICAL—EMPTY—FLAT CARS

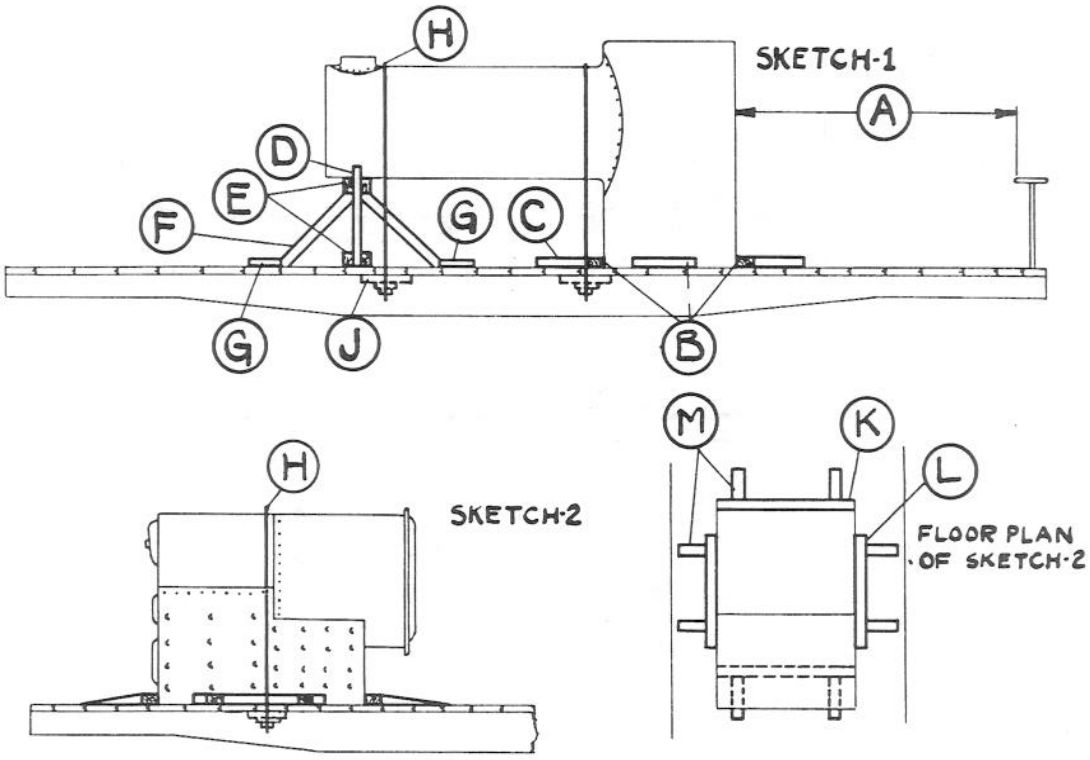


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 per pile.	2 in. x 4 in. x length of load. Locate against tank feet and nail to car floor with 20-D nails, spaced about 18 in. apart.
C	2 per pile.	3 in. x 4 in. length equal to distance between Items "B". Locate against outside face of tank feet and nail each to floor with eight 40-D nails.
D	4 ea. outside Item "C".	3 in. x 4 in. x 16 in. wedge shaped blocks. Locate against outside face of Items "C", suitably spaced, and nail each to floor with three 20-D nails each. Not required on inside Items "C" on end to end piles.
E	3 per pile.	2 in. x .050 in. high tension bands encircling pile. Locate one band back of tank feet at each end of pile and one near center.
F	2 per pile.	2 in. x .050 in. high tension bands, suitably spaced. Pass over top of pile and through opposite stake pockets.
G	End to end piles, 1. Single pile, 2.	8 strands No. 9 ga. black annealed wire, cable twisted before application. Pass over valve chamber or in front of tank feet of tanks in top layer and through opposite stake pockets. Twist taut. Not required for piles consisting of one layer.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 15

SMALL AND LOCOMOTIVE TYPE BOILERS—FLAT OR GONDOLA CARS



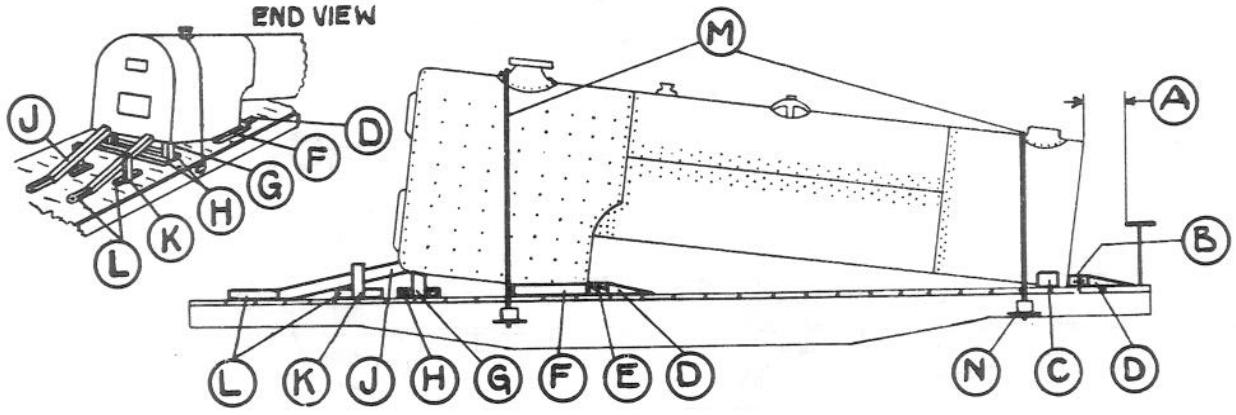
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	4	2 in. x 4 in. x 15 in., hardwood, nailed to floor as shown.
C	4	2 in. x 4 in. x 12 in., nailed to floor as shown.
D	2	2 in. x 4 in., hardwood, length to suit as shown.
E	4	2 in. x 4 in., hardwood, length to suit, nailed to Items "D" and floor as shown.
F	4	2 in. x 4 in., hardwood, length to suit, nailed to Items "D", "E", "G" and floor. Angularity must not exceed 45 degrees with floor.
G	4	2 in. x 4 in. x 12 in., nailed to floor. Locate as shown.
H	Sketch One, 2. Sketch Two, 1.	$\frac{5}{8}$ in. dia., with washers, length to suit. When rods pass through stake pockets use $\frac{1}{2}$ in. x 4 in. x 10 in. plate under stake pockets. 2 in. x .050 in. high tension bands, may be substituted.
J	4	4 in. x 4 in. x 18 in., hardwood, or $\frac{1}{2}$ in. x 4 in. x 18 in. plate.
K	2	4 in. x 4 in., hardwood, length equal to $\frac{2}{3}$ width of fire box, nailed to floor. Locate as shown.
L	2	4 in. x 4 in., hardwood, length equal to $\frac{1}{2}$ length of fire box, nailed to floor. Locate as shown.
M	8	4 in. x 4 in., wedge shaped, nailed to floor. Locate as shown.

Boilers per sketch 2, having an overhang of 18 in., or over, on smoke box end, must be supported same as for sketch 1.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 16

LARGE STATIONARY AND LOCOMOTIVE TYPE BOILERS—FLAT OR GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2
B	1	4 in. x 4 in., hardwood, length equal to width of smoke box, nailed to floor.
C	2	6 in. x 6 in. x 14 in., wedge shaped block, nailed to floor.
D	4	4 in. x 4 in. x 12 in., wedge shaped block, nailed to floor.
E	1	4 in. x 4 in., length equal to width of fire box, nailed to floor.
F	2	4 in. x 4 in. x 20 in., nailed to floor.
G	2	4 in. x 6 in., length to suit, nailed to floor and Items "H".
H	2	2 in. x 4 in., length equal to width of fire box, nailed to floor and Items "G".
J	2	4 in. x 4 in., length to suit, cut to fit face of fire box and floor.
K	2	2 in. x 4 in., length to suit, nailed to Items "J" and "L".
L	2	2 in. x 4 in. x 12 in., nailed to floor.
M	2	¾ in. dia., rods, or three 2 in. x .050 in. high tension bands.
N	4	½ in. x 4 in. x 10 in., plate.

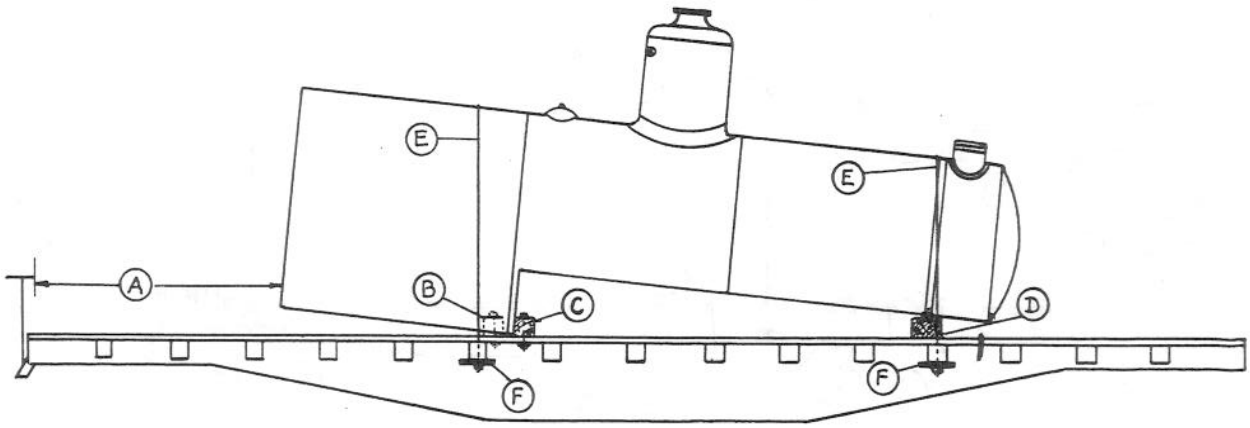
Items "M", if secured through floor, must have 4 in. x 4 in. x 18 in., hardwood cleat, or ½ in. x 4 in. x 18 in., plate, applied.

All items, unless otherwise specified, to be located as shown.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 17

LARGE STATIONARY AND LOCOMOTIVE TYPE BOILERS—FLAT OR GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	1	4 in. x 4 in., hardwood, long enough to contact both sides of fire box.
C	1	4 in. x 4 in. x 36 in., hardwood, beveled to fit contour of boiler.
D	1	4 in. x 4 in. x 24 in.
E	2	$\frac{5}{8}$ in. dia. rods, or two 2 in. x .050 in. high tension bands.
F	4	$\frac{1}{2}$ in. x 4 in. x 10 in. plates.

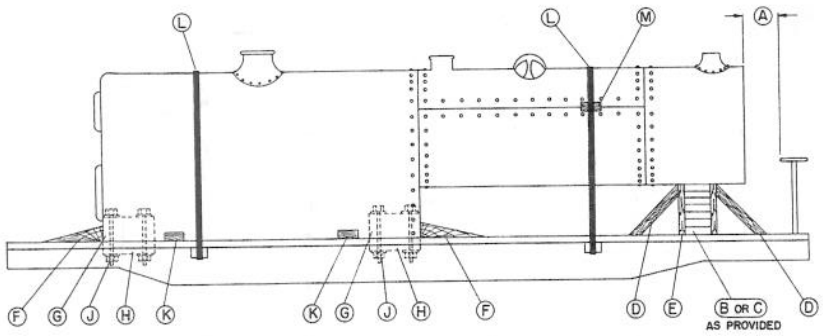
Secure each Item "B", "C" and "D" to floor with two $\frac{5}{8}$ in. dia. bolts, passing through $\frac{1}{2}$ in. x 4 in. x 18 in. plates, or 4 in. x 4 in. x 18 in. hardwood cleat underneath floor.

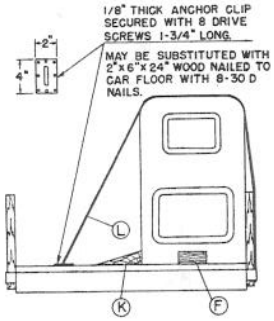
All items, unless otherwise specified, to be located as shown.

See General Rules 4, 5, 9 and 15 for further details.

Sec. 4—Fig. 18

LOCOMOTIVE TYPE BOILERS—FLAT CARS





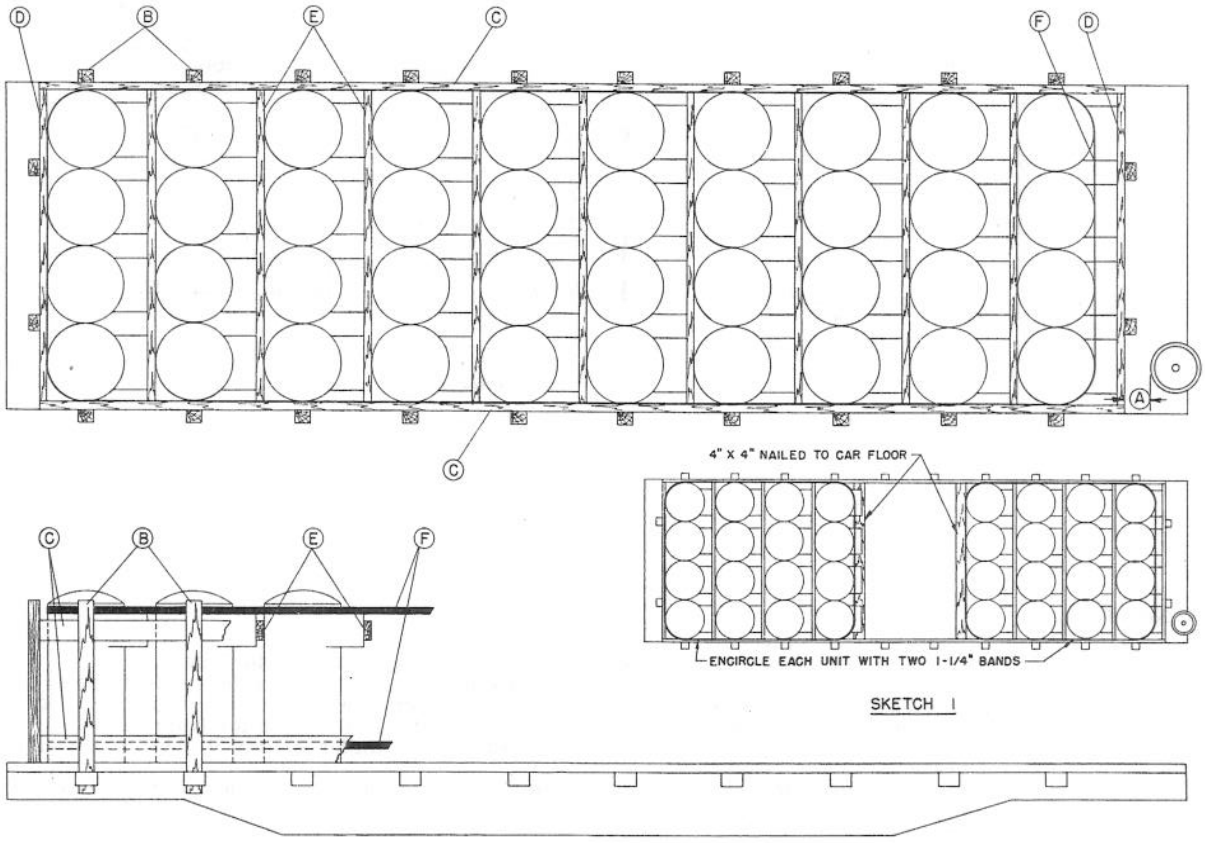
SKETCH 1

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	To suit.	2 in. x 8 in., length to suit, crosswise of car, nailed together with 40-D nails.
C	1	4 in. x 4 in. for boilers weighing 10,000 lb. or less; 6 in. x 6 in. for boilers weighing over 10,000 lb. and less than 30,000 lb. Place in vertical position between bottom of cylinder and floor. Toe nailed to car floor with 40-D nails. Permitted as substitute for Item "B", for boilers weighing less than 30,000 lbs., provided weight of cylinder is 1,000 lb. less than weight of firebox.
D	2	4 in. x 4 in. nailed to Items "E" or "C" and floor with 40-D nails. Angle about 45 degrees, with top end contacting bottom of boiler. Not required when height of Items "B" or "C" are less than 16 in.
E	2	2 in. x 6 in. extending from floor to bottom of cylinder. Nailed to sides of Item "B" with 30-D nails. Not required when Item "C" is used.
F	Weight 10,000 lb. or less, 4; over 10,000 lb. and less than 20,000 lb., 6; over 20,000 lb. and less than 30,000 lb., 8. Weight exceeding 30,000 lb., use Items "G", "H" and "J".	3 in. x 6 in. x 18 in. wedge shaped, nailed to floor with 40-D and 60-D nails. Locate at each end either inside or outside of firebox. If car is equipped with end stake pockets, 4 in. x 4 in. stakes or green saplings may be substituted for outside end blocks. Not required when Item "G" is used.
G	4	6 in. x 8 in. x 24 in., located at each end, either inside or outside of firebox, or 4 in. x 4 in. stakes or green saplings in end stake pockets with a 6 in. x 6 in. timber long enough to extend at least 6 in. beyond outside of each stake and nailed to stakes and floor with 60-D nails, placed between stakes and load. Not required on boilers weighing 30,000 lb. or less.
H	1 ea. Item "G".	3 in. x 6 in., length to suit.
J	2 ea. Item "G".	$\frac{7}{8}$ in. dia. bolts with washers top and bottom, passing through Items "G" and "H".
K	4	3 in. x 6 in. x 18 in. wedge shaped, nailed to floor with 40-D and 60-D nails. If space does not permit their use, substitute for each, one 4 in. x 4 in. stake; or green sapling.
L	Boilers with protruding cylinders: 4 ft. and less than 8 ft. 2; 8 ft. and less than 12 ft., 3; 12 ft. and over, 4. Boilers without protruding cylinders: 6 ft. high or less, 1; over 6 ft. and less than 10 ft., 2; 10 ft. and over, 3.	$1\frac{1}{4}$ in. x .035 in. high tension bands. Band may extend across top of two or more boilers loaded side by side. When boiler, (not over 5 ft. high and weighing not over 2,500 lb.) is located adajcent to stake pockets, secure as per Sketch No. 1.
M	To suit.	2 in. thick and 6 in. long, wide enough to fit snugly between rivets, placed to separate band from rivet heads.

See General Rules 4, 5, 9, 10, 14 and 15 for further details.

Sec. 4—Fig. 19

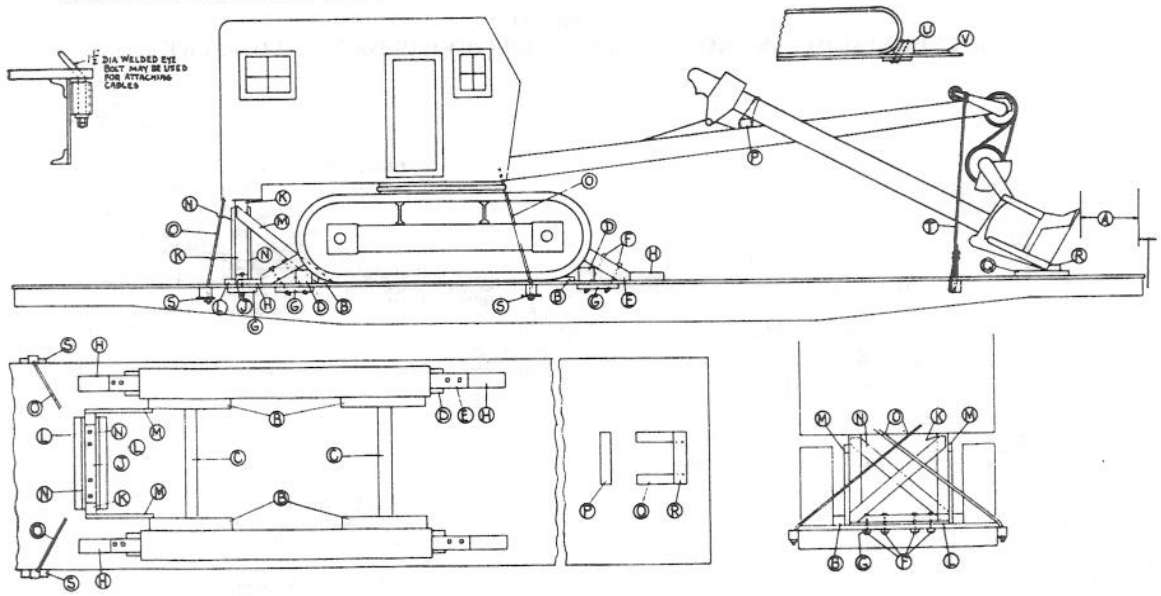
BOILERS WEIGHING 1,000 LBS., OR LESS, AND 4 FT. 6 IN., OR LESS, IN HEIGHT—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	To suit.	4 in. x 4 in., hardwood, extending at least 36 in. above floor. Locate side stakes not more than 4 ft. apart. When load does not extend to end stake pockets, be governed by sketch No. 1.
C	4	1 in. x 6 in., nailed to inside of Items "B", length equal to length of load.
D	4	2 in. x 6 in., nailed to inside of Items "B", length equal to width of load.
E	To suit.	Thick enough to protect smoke box. Nail both ends to Item "C".
F	2	1¼ in. x .035 in. high tension bands, encircling entire unit. Locate lower band about 12 in. above car floor, and top band about 6 in. below top of load.

See General Rules 4, 5, 9, 10, 14 and 15 for further details.

Sec. 4—Fig. 20
CRAWLER TYPE SHOVELS—ROTATING BODIES—BOOMS ATTACHED—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2	4 in. x 6 in., hardwood, length equal to that portion of crawler tread resting on floor. Locate on floor, against crawlers, and secure each with four ⅝ in. dia. bolts or eight 60-D nails. Substitute, if desired, four pieces 4 in. x 6 in. x 4 ft. Locate as shown and secure each with two ⅝ in. dia. bolts or four 60-D nails.
C	2	4 in. x 4 in., hardwood, long enough to fit between Items "B". Secure each to floor with two ⅝ in. dia. bolts or four 60-D nails.
D	4	4 in. x 6 in. x 21 in., hardwood, for machines weighing 45,000 lbs. or less; 6 in. x 6 in. x 21 in., hardwood, for machines weighing over 45,000 lbs. Toe-nail each to floor with four 40-D nails. Not required when Items "U" and "V" are used.
E	4	6 in. x 6 in., hardwood, length to suit. Locate on top of Items "D", with one end against crawler and secure each with two ⅝ in. dia. bolts, Items "F". Not required when Items "U" and "V" are used.
F	8	⅝ in. dia. bolts, with nuts and washers, long enough to pass through Items "E", "G" and floor.
G	As required.	4 in. x 4 in. x 18 in., hardwood cleats, or ½ in. x 4 in. x 18 in. plates.
H	4	2 in. x 4 in. x 18 in., hardwood. Locate on floor, with one end against Item "E" and secure each with six 30-D nails.
J	1	4 in. x 6 in., hardwood, length to suit, for machines weighing 45,000 lbs. or less; 6 in. x 6 in., hardwood, for machines weighing over 45,000 lbs. Secure to floor with four ⅝ in. dia. bolts, with nuts and washers.
K	As required.	Two 4 in. x 6 in., hardwood, for machines weighing 45,000 lbs. or less; two 6 in. x 6 in., hardwood, for machines weighing over 45,000 lbs. to 120,000 lbs.; four 6 in. x 6 in., hardwood, for machines weighing over 120,000 lbs. They must be long enough to fit between Item "J" and body of machine.
L	2	2 in. x 6 in., hardwood, length to suit. Locate against Item "J" and secure each to floor with six 30-D nails.
M	2	2 in. x 6 in., hardwood, length to suit. Secure top ends to Items "K" and bottom ends to Items "B" with four 30-D nails at each location.
N	2	2 in. x 6 in., hardwood, length to suit. Locate diagonally and secure ends to opposite Items "K" with six 20-D nails at each location.
O	2	1¼ in. diameter rods. Attach two at front and two at rear of rotating portion and pass through opposite stake pockets and Items "S". 1 in. diameter rods may be used for machines weighing 45,000 lbs. or less. Substitute, if desired, ⅝ in. x 6 x 7 steel cable, doubled, for 1¼ in. diameter rods, or ½ in. x 6 x 19 steel cable, doubled, for 1 in. diameter rods. Items "O" may be applied at front end of machines, crossed between rotating portion and crawler structure, or applied on same side of machines equipped with two brackets cast integral on both rotating and crawler structures.
P	1	6 in. x 6 in., hardwood, length to suit. Wire in position after weight of boom has been placed on same.
Q	2	6 in. x 6 in., hardwood, length to suit. Toe-nail each to floor with six 40-D nails.
R	1	1 in. x 8 in., length to suit. Locate on top of Items "Q", ahead of bucket, and secure to each Item "Q" with four 20-D nails.
S	1 ea. Item "O".	½ in. x 4 in. x 10 in. plates. Not required when Items "O" consists of cable.
T	1	⅝ in. x 6 x 7 steel cable, doubled. Loop over and around boom near front end and through opposite stake pockets.
U	4	8 in. x 8 in. x 36 in., hardwood, cut to fit contour of crawler treads, for machines weighing 45,000 lbs. to 120,000 lbs. Secure each with three ¾ in. dia. bolts through floor and Item "G". 12 in. x 12 in. x 36 in., hardwood, cut to fit contour of crawler treads, for machines weighing over 120,000 lbs. Secure each with three ⅞ in. dia. bolts through floor and Item "G". Not required when Items "D" and "E" are used.
V	4	2 in. x 12 in. x 36 in., hardwood cleats, for machines weighing 45,000 to 120,000 lbs. 3 in. x 4 in. x 18 in., hardwood cleats, for machines weighing over 120,000 lbs. Locate on floor against Items "U" and secure each to floor with six 30-D nails. Not required when Items "D" and "E" are used.

Booms with buckets attached must not extend beyond end of carrying car.

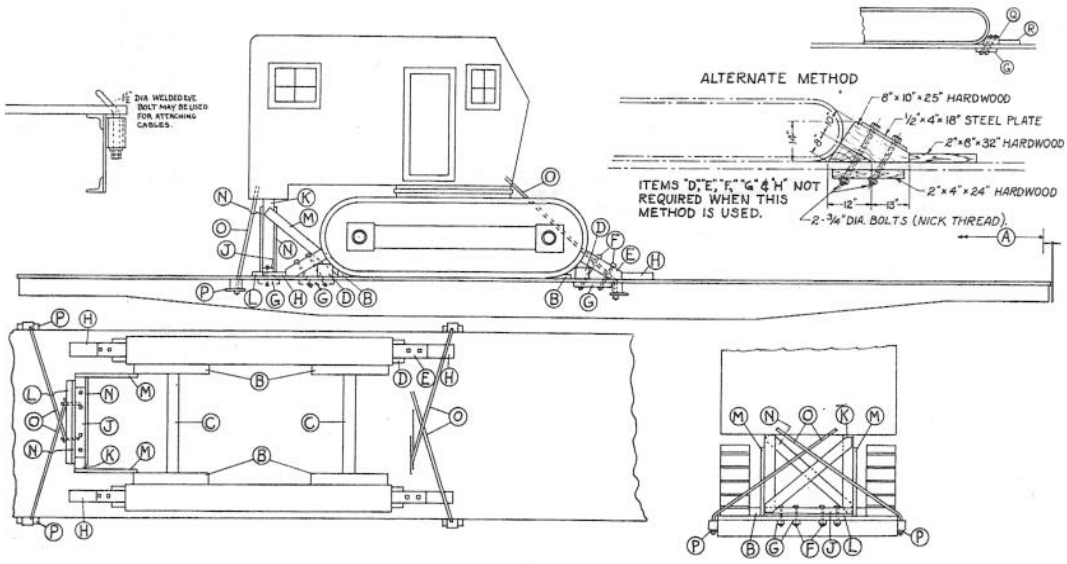
Loading machines with treads extending beyond floor of car is permitted, provided machines are centrally located on car and not more than one-half of tread extends beyond outside face of side sill.

Machines equipped with locking devices should have such devices placed in locked position by shippers.

For proper location of load on car, see Fig. 34.

See General Rules 4, 5, 9, 14, 15, 19 and 19A for further details.

Sec. 4—Fig. 21
CRAWLER TYPE MACHINES—ROTATING BODIES—BOOMS DETACHED—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2	4 in. x 6 in., hardwood, length equal to that portion of crawler tread resting on floor. Locate on floor, against crawlers, and secure each with four ⅝ in. dia. bolts or eight 60-D nails. Substitute, if desired, four pieces, 4 in. x 6 in. x 4 ft. Locate as shown and secure each with two ⅝ in. dia. bolts or four 60-D nails.
C	2	4 in. x 4 in., hardwood, long enough to fit between Items "B". Secure each to floor with two ⅝ in. dia. bolts or four 60-D nails.
D	4	4 in. x 6 in. x 21 in., hardwood, for machines weighing 45,000 lbs. or less; 6 in. x 6 in. x 21 in., hardwood, for machines weighing over 45,000 lbs. Toe-nail each to floor with four 40-D nails. Not required when Items "P" and "Q" are used.
E	4	6 in. x 6 in., hardwood, length to suit. Locate on top of Items "D", with one end against crawler and secure each with two ⅝ in. dia. bolts, Items "F". Not required when Items "P" and "Q" are used.
F	8	⅝ in. dia. bolts, with nuts and washers, long enough to pass through Items "E", "G" and floor.
G	As required.	4 in. x 4 in. x 18 in., hardwood cleats, or ½ in. x 4 in. x 18 in. plates.
H	4	2 in. x 4 in. x 18 in., hardwood. Locate on floor with one end against Item "E" and secure each with six 30-D nails.
J	1	4 in. x 6 in., hardwood, length to suit, for machines weighing 45,000 lbs. or less; 6 in. x 6 in., hardwood, for machines weighing over 45,000 lbs. Secure to floor with four ⅝ in. dia. bolts, with nuts and washers.
K	As required.	Two 4 in. x 6 in., hardwood, for machines weighing 45,000 lbs. or less; two 6 in. x 6 in., hardwood, for machines weighing over 45,000 lbs. to 120,000 lbs.; four 6 in. x 6 in., hardwood, for machines weighing over 120,000 lbs. They must be long enough to fit between Item "J" and body of machine.
L	2	2 in. x 6 in., hardwood, length to suit. Locate against Item "J" and secure each to floor with six 30-D nails.
M	2	2 in. x 6 in., hardwood, length to suit. Secure top ends to Items "K" and bottom ends to Items "B" with four 30-D nails at each location.
N	2	2 in. x 6 in., hardwood, length to suit. Locate diagonally and secure ends to opposite Items "K" with six 20-D nails at each location.
O	4	1¼ in. diameter rods. Attach two at front and two at rear of rotating portion and pass through opposite stake pockets and Items "P". 1 in. diameter rods may be used on machines weighing 45,000 lbs. or less. Substitute, if desired, ⅝ in. x 6 x 7 steel cable, doubled, for 1¼ in. diameter rods, or ½ in. x 6 x 19 steel cable, doubled, for 1 in. diameter rods. Items "O" may be applied at front end of machine, crossed between rotating portion and crawler structure, or applied on same side of machine equipped with two brackets cast integral on both rotating and crawler structures, providing two additional rods are applied attached to crawler structure and passed through opposite stake pockets and Items "P", or through floor and Items "G".
P	1 ea. Item "O"	½ in. x 4 in. x 10 in. plates. Not required when Items "O" consists of cable.
Q	4	8 in. x 8 in. x 36 in., hardwood, cut to fit contour of crawler treads, for machines weighing 45,000 lbs. to 120,000 lbs. Secure each with three ¾ in. dia. bolts through floor and Item "G". 12 in. x 12 in. x 36 in., hardwood, cut to fit contour of crawler treads, for machines weighing over 120,000 lbs. Secure each with three ⅞ in. dia. bolts through floor and Item "G". Not required when Items "D" and "E" are used.
R	4	2 in. x 12 in. x 36 in., hardwood cleats, for machines weighing 45,000 lbs. to 120,000 lbs. 3 in. x 4 in. x 18 in., hardwood cleats, for machines weighing over 120,000 lbs. Locate on floor against Items "Q" and secure each to floor with six 30-D nails. Not required when Items "D" and "E" are used.

Loading machines with treads extending beyond floor of car is permitted, provided machines are centrally located on car and not more than one-half of tread extends beyong outside face of side sill.

Machines equipped with locking devices should have such devices placed in locked position by shippers.

For proper location of load on car, See Fig. 34.

See General Rules 4, 5, 9, 14, 15, 19 and 19A for further details.

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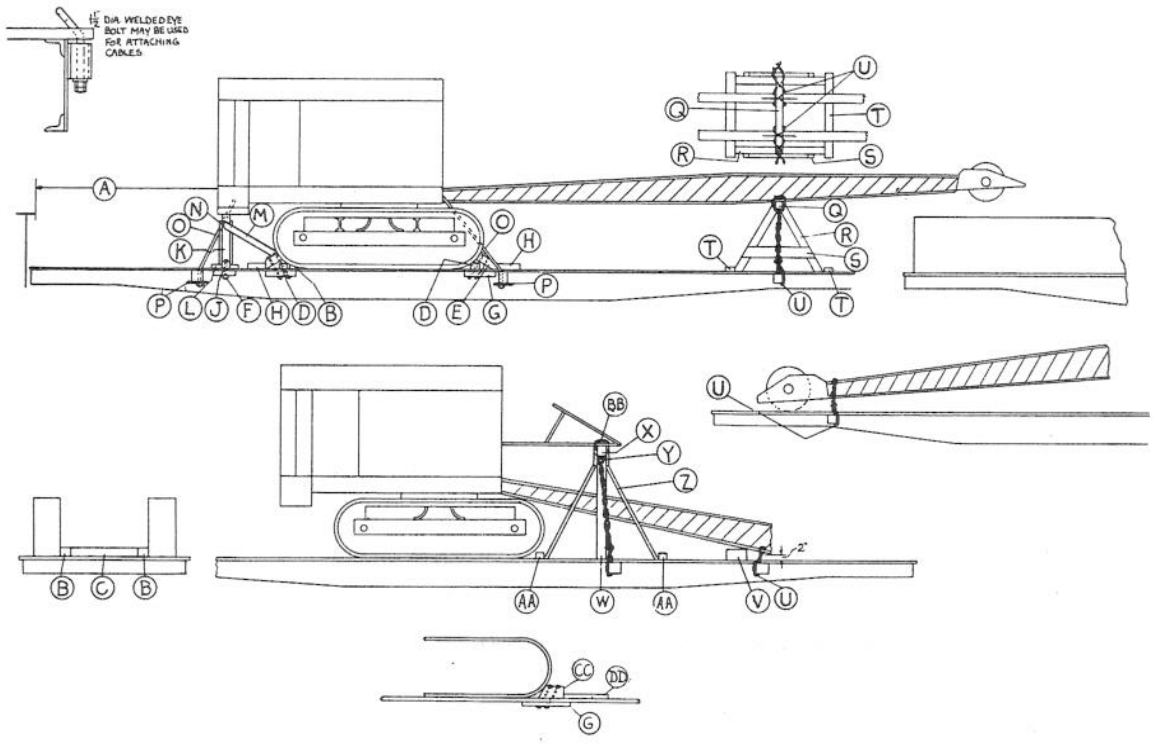
Sec. 4—Fig. 22

CRAWLER TYPE CRANES, DRAGLINES, ETC.—ROTATING BODIES—BOOMS ATTACHED—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2	4 in. x 6 in., hardwood, length equal to that portion of crawler tread resting on floor. Locate on floor, against crawlers, and secure each with four ⅝ in. dia. bolts or eight 60-D nails. Substitute, if desired, four pieces 4 in. x 6 in. x 4 ft. Locate as shown and secure each with two ⅝ in. dia. bolts or four 60-D nails.
C	2	4 in. x 4 in., hardwood, long enough to fit between Items "B". Secure each to floor with two ⅝ in. dia. bolts or four 60-D nails.
D	4	4 in. x 6 in. x 21 in., hardwood, for machines weighing 45,000 lbs. or less; 6 in. x 6 in. x 21 in., hardwood, for machines weighing over 45,000 lbs. Toe-nail each to floor with four 40-D nails. Not required when Items "CC" and "DD" are used.
E	4	6 in. x 6 in., hardwood, length to suit. Locate on top of Items "D", with one end against crawler and secure each with two ⅝ in. dia. bolts, Items "F". Not required when Items "CC" and "DD" are used.
F	8	⅝ in. dia. bolts, with nuts and washers, long enough to pass through Items "E", "G" and floor.
G	As required.	4 in. x 4 in. x 18 in., hardwood cleats, or ½ in. x 4 in. x 18 in. plates.
H	4	2 in. x 4 in. x 18 in., hardwood. Locate on floor, with one end against Item "E" and secure each with six 30-D nails.
J	1	4 in. x 6 in., hardwood, length to suit, for machines weighing 45,000 lbs. or less; 6 in. x 6 in., hardwood, for machines weighing over 45,000 lbs. Secure to floor with four ⅝ in. dia. bolts, with nuts and washers.
K	As required.	Two 4 in. x 6 in., hardwood, for machines weighing 45,000 lbs. or less; two 6 in. x 6 in., hardwood for machines weighing over 45,000 lbs. to 120,000 lbs.; four 6 in. x 6 in., hardwood, for machines weighing over 120,000 lbs. They must be long enough to fit between Item "J" and body of machine.

Sec. 4—Fig. 22

CRAWLER TYPE CRANES, DRAGLINES, ETC.—ROTATING BODIES—BOOMS ATTACHED—FLAT CARS

Item	No. of Pcs.	Description
L	2	2 in. x 6 in., hardwood, length to suit. Locate against Item "J" and secure each to floor with six 30-D nails.
M	2	2 in. x 6 in., hardwood, length to suit. Secure top ends to Items "K" and bottom ends to Items "B" with four 30-D nails at each location.
N	2	2 in. x 6 in., hardwood, length to suit. Locate diagonally and secure ends to opposite Items "K" with six 20-D nails at each location.
O	4	1¼ in. diameter rods. Attach two at front and two at rear of rotating portion and pass through opposite stake pockets and Items "P". 1 in. diameter rods may be used for machines weighing 45,000 lbs. or less. Substitute, if desired, ⅝ in. x 6 x 7 steel cable, doubled, for 1¼ in. diameter rods, or ½ in. x 6 x 19 steel cable, doubled, for 1 in. diameter rods. Items "O" may be applied at front end of machines, crossed between rotating portion and crawler structure, or applied on same side of machines equipped with two brackets cast integral on both rotating and crawler structures.
P	1 ea. Item "O".	½ in. x 4 in. x 10 in. plates. Not required when Items "O" consists of cable.
Q	1	4 in. x 6 in., hardwood, long enough to extend 6 in. beyond each side of boom.
R	4	4 in. x 6 in., hardwood, length to suit. Secure each piece to Item "Q" with four 30-D nails and to floor with five 30-D nails. Items "R" must be long enough to keep boom at least six inches above top of sides and ends of idler car.
S	2	2 in. x 6 in., hardwood, length to suit. Secure to Items "R" with four 30-D nails in each end.
T	2	2 in. x 6 in., hardwood, long enough to extend beyond Items "R". Secure each to floor with six 30-D nails.
U	1	⅝ in. x 6 x 7 steel cable, doubled. Loop over and around boom, near front end, and through stake pockets on opposite sides of car.
V	1	6 in. x 6 in., hardwood, long enough to extend beyond each side of boom. Locate so as to maintain 2 in. clearance between end of boom and floor and toe-nail to floor with six 60-D nails in each side. Not required when sheave wheel rests on floor.
W	2	4 in. x 6 in., hardwood, length to suit.
X	1	4 in. x 6 in., hardwood, long enough to extend 6 in. beyond each side of gantry. Toe-nail to each Item "W" with four 30-D nails.
Y	4	2 in. x 6 in. x 12 in., hardwood. Locate one on front and one on back face of each Item "W" and secure each to Items "W" and "X" with six 20-D nails.
Z	4	2 in. x 6 in., hardwood, length to suit. Toe-nail bottom end of each to floor with two 30-D nails and top end of each to Item "W" with three 30-D nails.
AA	4	2 in. x 6 in. x 12 in., hardwood cleats. Locate one against each Item "Z" and secure each to floor with four 30-D nails.
BB	1	⅜ in. steel cable, doubled. Loop over and around gantry, and through opposite stake pockets.
CC	4	8 in. x 8 in. x 36 in., hardwood, cut to fit contour of crawler treads, for machines weighing 45,000 lbs. to 120,000 lbs. Secure each with three ¾ in. dia. bolts through floor and Item "G". 12 in. x 12 in. x 36 in., hardwood, cut to fit contour of crawler treads, for machines weighing over 120,000 lbs. Secure each with three ⅞ in. dia. bolts through floor and Item "G". Not required when Items "D" and "E" are used.
DD	4	2 in. x 12 in. x 36 in., hardwood cleats, for machines weighing 45,000 lbs. to 120,000 lbs. 3 in. x 4 in. x 18 in., hardwood cleats, for machines weighing over 120,000 lbs. Locate on floor against Items "CC" and secure each to floor with six 30-D nails. Not required when Items "D" and "E" are used.

Items "Q", "R", "S" and "T" not required when Items "V" are used, or vice versa.

Loading machines with treads extending beyond floor of car is permitted, provided machines are centrally located on car and not more than one-half of tread extends beyond outside face of side sill.

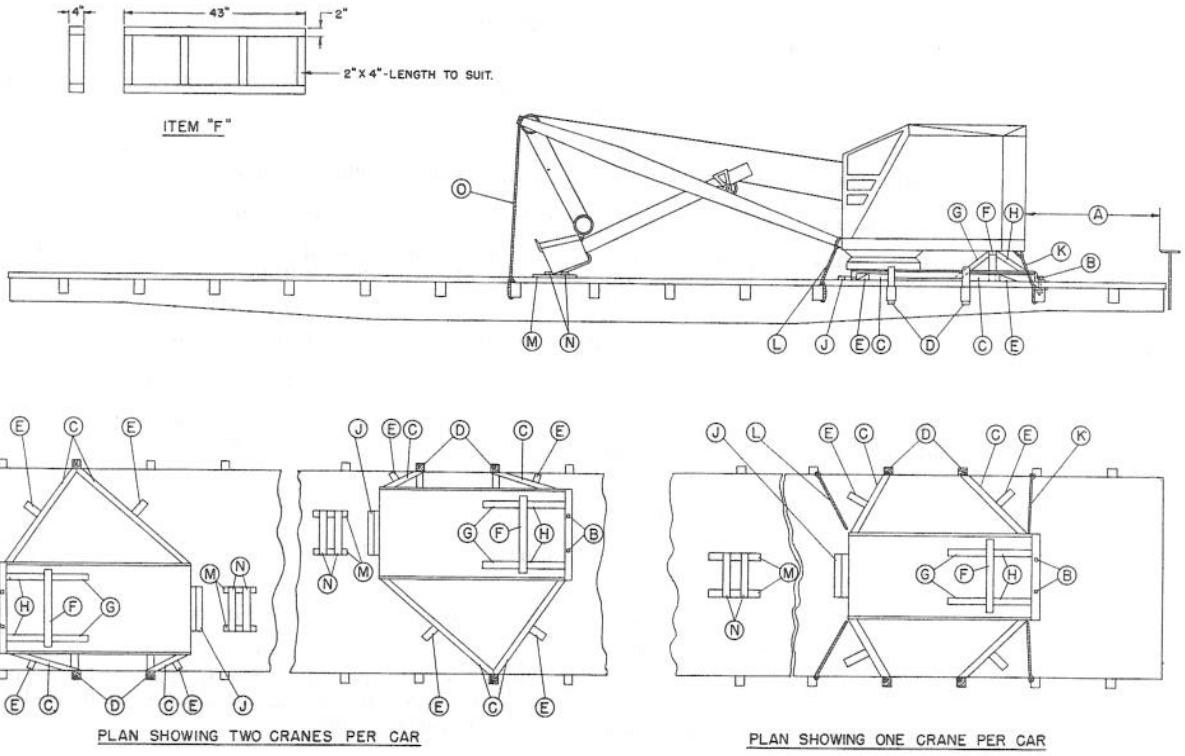
Machines equipped with locking devices should have such devices placed in locked position by shippers.

For proper location of load on car, see Fig. 34.

See General Rules 4, 5, 8, 9, 14, 15, 19, 19A and 21 for further details.

Sec. 4—Fig. 23

ROTATING TRUCK SHOVELS (WITHOUT CRAWLERS)—ONE OR TWO—FLAT CARS



Item	*No. of Pcs. (*-See first paragraph)	Description
A		Brake wheel clearance. See Fig. 2.
B	2	¾ in. dia. bolts with nuts and washers. Pass through frame, floor and cleat under floor.
C	4	4 in. x 6 in., length to suit. Locate between corner of bed frame and Items "D". Nail each to floor with six 60-D nails.
D	4	4 in. x 5 in., long enough to extend 8 in. above floor.
E	4	4 in. x 4 in. x 12 in. wedge shaped blocks. Locate against Item "C" and nail each to floor with four 30-D nails.
F	1	Frame as per sketch. Locate near rear of rotating portion of machine. Nail lower piece to floor with eight 20-D nails.
G	2	2 in. x 4 in., length to suit. Nail top end to Item "F" and bottom end to floor with three 30-D nails at each location.
H	2	2 in. x 4 in., long enough to extend from Item "F" to rear of frame. Nail top end to Item "F" and bottom end to floor with three 30-D nails at each location.
J	1	To consist of two pieces of 2 in. x 4 in., length equal to width of frame. Locate one piece against frame and second piece against first piece. Nail each to floor with seven 30-D nails.
K	2	5/16 in. seven-strand steel cable, doubled. Attach to rear of rotating portion of machine and to stake pockets.
L	2	5/16 in. seven-strand steel cable, doubled. Attach to front of rotating portion of machine and to stake pockets.
M	2	2 in. x 4 in. x 24 in. Locate under bucket, lengthwise of car, and nail to floor with six 20-D nails in each.
N	2	2 in. x 4 in., length to suit. Locate against bucket, on top of Items "M" and nail each end to Item "M" with three 20-D nails.
O	1	5/16 in. seven-strand steel cable, doubled. Loop over and around boom near front end and through opposite stake pockets.

*Number of pieces shown are for one machine. When two machines are loaded double all pieces, except 6 pieces required for Item "D".

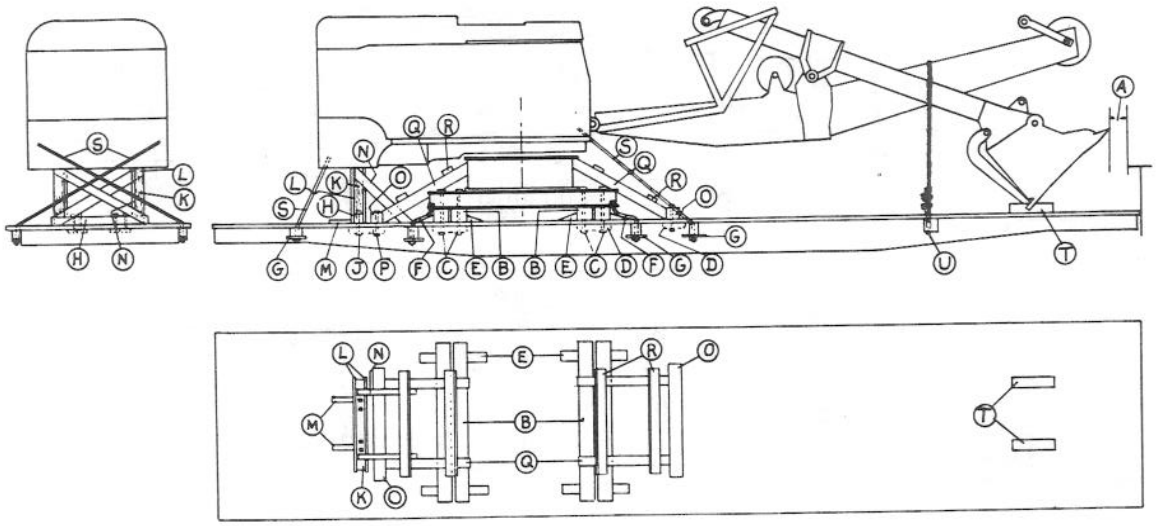
For proper location of load on car, see Fig. 34.

Machines equipped with locking devices must have such devices placed in locked position by shippers.

See General Rules 4, 5, 9, 10, 14, 15, 19 and 19-A for further details.

Sec. 4—Fig. 24

CRAWLER TYPE SHOVELS, CRAWLERS REMOVED, ROTATING BODIES, BOOMS AND BUCKETS ATTACHED—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	4	10 in. x 10 in., hardwood, length to suit, higher and wider if necessary. Locate under base of machine, near each end. Secure each to floor with four ⅝ in. dia. bolts.
C	16	⅝ in. dia. bolts, with nuts and washers, long enough to pass through Items "B", floor and Items "D".
D	As required.	4 in. x 4 in. x 18 in., hardwood, or ½ in. x 4 in. x 18 in. plates.
E	8	4 in. x 6 in. x 12 in., hardwood wedges. Nail two to floor against each Item "B" with four 30-D nails in each.
F	4	1¼ in. dia. rods. Attach to base of machine and pass through stake pockets and Items "G".
G	8	½ in. x 4 in. x 10 in. plates.
H	1	6 in. x 6 in., hardwood, length to suit. Secure to floor with four ⅝ in. dia. bolts.
J	4	⅝ in. dia. bolts, with nuts and washers, long enough to pass through Items "H", floor, and Items "D".
K	As required.	Two 6 in. x 6 in., hardwood, for machines weighing 120,000 lbs. or less; four 6 in. x 6 in., hardwood, for machines weighing over 120,000 lbs. They must be long enough to fit between Item "H" and body of machine. Toe-nail each to Item "H" with four 30-D nails.
L	2	2 in. x 6 in., hardwood, length to suit. Locate diagonally. Secure to Items "K" and, to Item "H" at bottom, with four 30-D nails at each location.
M	2	2 in. x 4 in. x 18 in., hardwood. Nail to floor against Item "H" with six 30-D nails in each.
N	2	2 in. x 6 in., length to suit. Secure top ends to Items "K" and bottom ends to Items "Q" with four 30-D nails at each location.
O	2	4 in. x 6 in., hardwood, length to suit. Secure to floor with four ⅝ in. dia. bolts.
P	8	⅝ in. dia. bolts, with nuts and washers, long enough to pass through Items "O", floor, and Items "D".
Q	As required.	Four 6 in. x 6 in., hardwood, for machines weighing 120,000 lbs. or less; eight 6 in. x 6 in. hardwood, for machines weighing over 120,000 lbs. They must be long enough to fit between Items "O" and body of machine. Toe-nail to Items "O" with two 40-D nails.
R	4	2 in. x 6 in., hardwood, long enough to extend beyond outside Items "Q". Secure to Items "Q" with three 20-D nails at each location.
S	4	1¼ in. dia. rods, length to suit, for machines weighing 120,000 lbs. or less; 1½ in. dia. rods for machines weighing more than 120,000 lbs. Attach to front and rear of rotating portion. Pass bottom ends through and secure underneath stake pockets and Items "G" on opposite sides of car. Substitute, if desired, ⅝ in. x 6 x 7 steel cable, doubled.
T	2	6 in. x 6 in. x 30 in. Secure each to floor with two ⅝ in. dia. bolts or six 60-D nails.
U	1	⅝ in. x 6 x 7 steel cable, doubled. Loop over and around boom, near front end and through opposite stake pockets.

Booms with buckets attached must not extend beyond end of carrying car.

Detached parts must be loaded as far from car sides and ends as practicable and secured to prevent displacement.

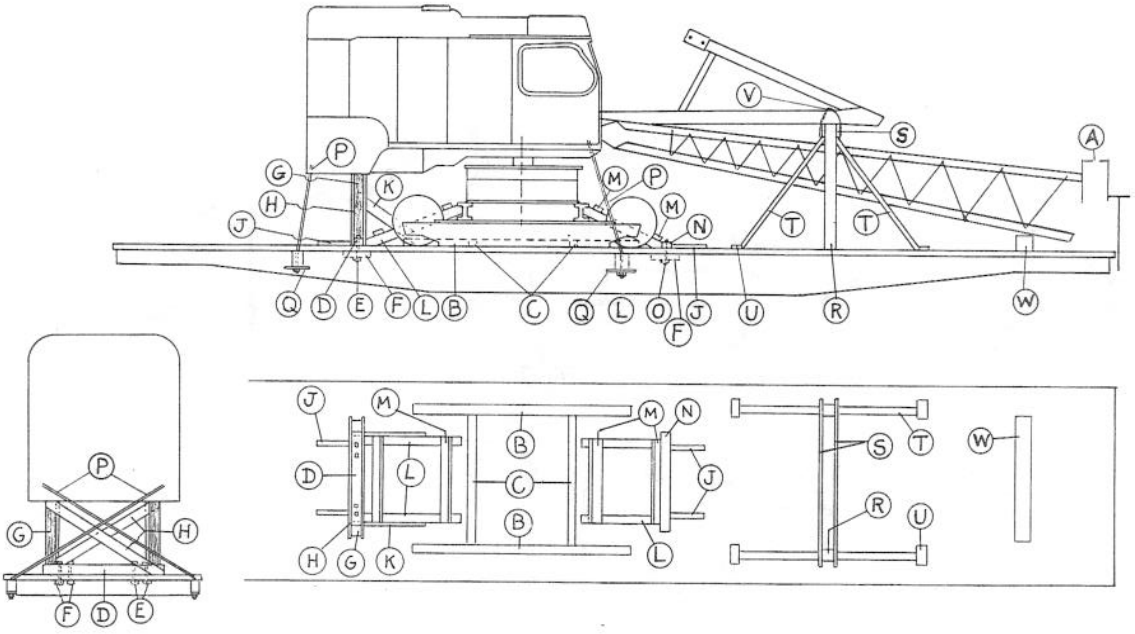
Machines equipped with locking devices must have such devices placed in locked position by shippers.

For proper location of load on car, see Fig. 34.

See General Rules 4, 5, 7, 9, 14, 15, 19 and 19-A for further details.

Sec. 4—Fig. 25

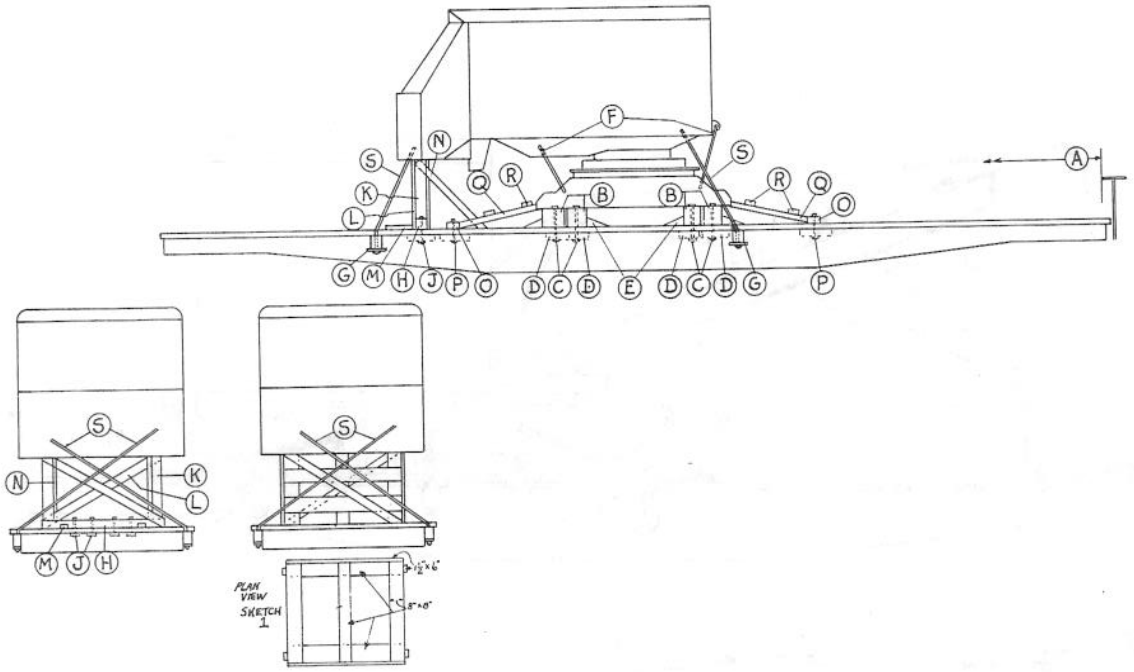
CRAWLER TYPE CRANES, CRAWLERS REMOVED, ROTATING BODIES, BOOMS ATTACHED—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2	4 in. x 6 in., hardwood, length equal to base of machine. Locate on floor, against crawler frame and secure each with four ⅝ in. dia. bolts, or eight 60-D nails. Substitute, if desired, four pieces 4 in. x 6 in. x 4 ft. Secure each with two ⅝ in. dia. bolts, or four 60-D nails.
C	2	4 in. x 4 in., hardwood, long enough to fit between Items "B". Secure each to floor with two ⅝ in. dia. bolts, or four 60-D nails.
D	1	6 in. x 6 in., hardwood, length to suit. Secure to floor with four ⅝ in. dia. bolts.
E	4	⅝ in. dia. bolts, with nuts and washers, long enough to pass through Items "D", floor, and Items "F".
F	As required.	4 in. x 4 in. x 18 in., hardwood, or ½ in. x 4 in. x 18 in. plates.
G	As required.	Two 6 in. x 6 in., hardwood, for machines weighing 120,000 lbs. or less; four 6 in. x 6 in., hardwood for machines weighing over 120,000 lbs. They must be long enough to fit between Items "D" and body of machine. Toe-nail each to Item "D" with four 30-D nails.
H	2	2 in. x 6 in., hardwood, length to suit. Locate diagonally. Secure to Items "G" and to Item "D" at bottom, with four 30-D nails at each location.
J	4	2 in. x 4 in. x 18 in., hardwood. Nail to floor against Items "D" and "N" with six 30-D nails in each.
K	2	2 in. x 6 in., hardwood, length to suit. Secure top ends to Items "G" and bottom ends to Items "L", with four 30-D nails at each location.
L	As required.	Four 6 in. x 6 in., hardwood, for machines weighing 120,000 lbs. or less; eight 6 in. x 6 in., hardwood, for machines weighing over 120,000 lbs. They must be long enough to fit between Item "D", "N", and base of machine. Toe-nail bottom end to Items "D" and "N" with four 30-D nails.
M	4	2 in. x 6 in., hardwood, long enough to extend beyond outside Items "L". Secure with three 20-D nails at each location.
N	1	4 in. x 6 in., hardwood, length to suit. Locate about six feet from base of machine. Secure to floor with four ⅝ in. dia. bolts.
O	4	⅝ in. dia. bolts, with nuts and washers, long enough to pass through Item "N", floor and Items "F".
P	4	1¼ in. dia. rods, length to suit, for machines weighing 120,000 lbs. or less; 1½ in. dia. rods for machines weighing more than 120,000 lbs. Attach to front and rear of rotating portion. Pass bottom ends through and secure underneath stake pockets and Items "Q" on opposite sides of car. Substitute, if desired, ⅝ in. x 6 x 7 steel cable, doubled.
Q	4	½ in. x 4 in. x 10 in. plates.
R	2	4 in. x 6 in., hardwood, length to suit. Toe-nail each to floor with four 30-D nails.
S	2	2 in. x 6 in., hardwood, long enough to extend 6 in. beyond each side of gantry. Nail to Items "R" with four 30-D nails at each location.
T	4	2 in. x 6 in., hardwood, length to suit. Toe-nail top ends to Items "R" with three 30-D nails and bottom ends to floor with two 30-D nails.
U	4	2 in. x 4 in. x 12 in., hardwood. Locate one against each Item "T" and nail to floor with four 30-D nails.
V	1	Suitable wire or cable to prevent gantry from moving upward.
W	1	6 in. x 6 in., hardwood, long enough to extend 6 in. beyond each side of boom. Locate so as to maintain 2 in. clearance between boom and floor. Toe-nail to floor with six 60-D nails in each side. Not required when sheave wheel rests on floor.

Machines equipped with locking devices must have such devices placed in locked position by shippers.
Detached parts must be loaded as far from car sides and ends as practicable and secured to prevent displacement.
For proper location of load on car, see Fig. 34.
See General Rules 4, 5, 7, 9, 14, 15, 19 and 19-A for further details.

Sec. 4—Fig. 26
CRAWLER TYPE SHOVELS, CRAWLERS REMOVED, ROTATING BODIES, BOOMS DETACHED—FLAT CARS

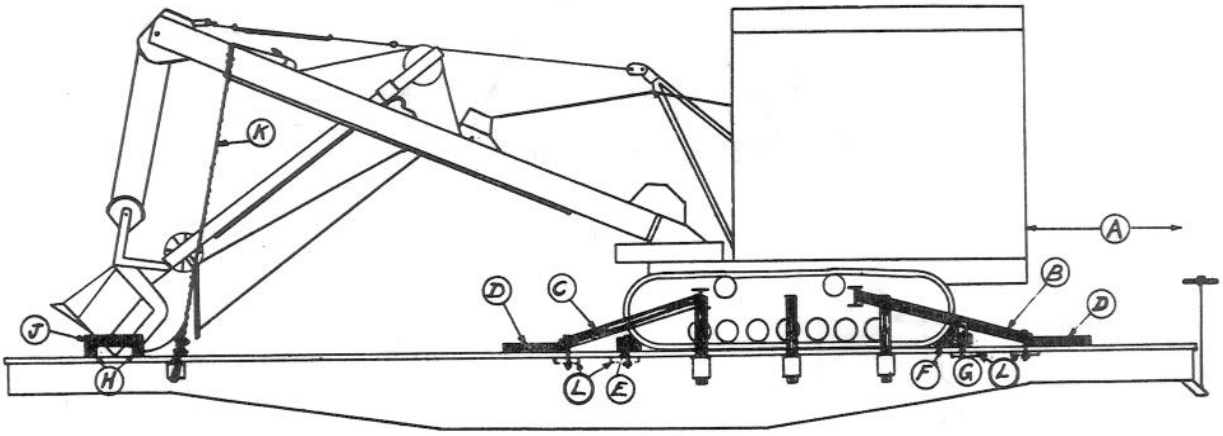


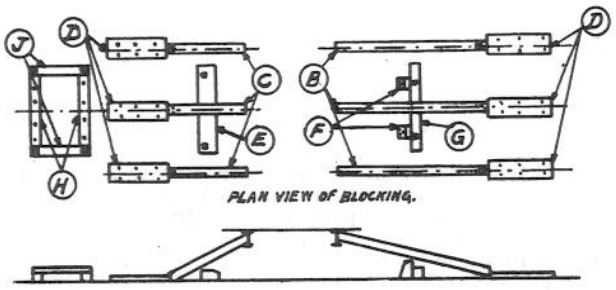
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	4	10 in. x 10 in., hardwood, length to suit, higher and wider if necessary. Locate under base of machine, near each end. Secure each to floor with four ⅝ in. dia. bolts.
C	16	⅝ in. dia. bolts, with nuts and washers, long enough to pass through Items "B", floor and Items "D".
D	As required.	4 in. x 4 in. x 18 in., hardwood, or ½ in. x 4 in. x 18 in. plates.
E	8	4 in. x 6 in. x 12 in., hardwood wedges. Nail two to floor against each Item "B" with four 30-D nails in each.
F	4	1¼ in. dia. rods, length to suit. Attach two to front and two to rear of rotating portion and to opposite sides of crawler structure. Substitute, if desired, ⅝ in. x 6 x 7 steel cable, doubled, at each location. Where machines are equipped with two brackets cast integral on both rotating portion and crawler structure, Items "F", need not be crossed but may be applied to same side of machine.
G	As required.	½ in. x 4 in. x 10 in. plates.
H	1	6 in. x 6 in., hardwood, length to suit, for machines weighing 120,000 lbs. or less; 8 in. x 8 in., hardwood, for machines weighing more than 120,000 lbs. Secure to floor with four ⅝ in. dia. bolts.
J	4	⅝ in. dia. bolts, with nuts and washers, long enough to pass through Item "H", floor and Items "D".
K	As required.	Two 6 in. x 6 in., hardwood, for machines weighing 120,000 lbs. or less; four 8 in. x 8 in., hardwood, for machines weighing more than 120,000 lbs. They must be long enough to fit between Item "H" and body of machine. Toe-nail each to Item "H" with four 30-D nails.
L	2	2 in. x 6 in., hardwood, length to suit. Locate diagonally. Secure to Items "K" and to Item "H" at bottom, with four 30-D nails at each location.
M	2	2 in. x 4 in. x 18 in., hardwood. Nail to floor against Item "H" with six 30-D nails in each.
N	2	2 in. x 6 in., length to suit. Secure top ends to Items "K" and bottom ends to Items "Q" with four 30-D nails at each location.
O	2	4 in. x 6 in., hardwood, length to suit. Secure to floor with four ⅝ in. dia. bolts.
P	8	⅝ in. dia. bolts, with nuts and washers, long enough to pass through Items "O", floor, and Items "D".
Q	As required.	Four 6 in. x 6 in., hardwood, for machines weighing 120,000 lbs. or less; eight 6 in. x 6 in., hardwood, for machines weighing more than 120,000 lbs. They must be long enough to fit between Items "O" and body of machine. Toe-nail to Items "O" with four 30-D nails.
R	4	2 in. x 6 in., hardwood, long enough to extend beyond outside Items "Q". Secure to Items "Q" with three 20-D nails at each location.
S	4	1¼ in. dia. rods, length to suit, for machines weighing 120,000 lbs. or less; 1½ in. dia. rods for machines weighing more than 120,000 lbs. Attach to front and rear of rotating portion. Pass bottom ends through and secure underneath stake pockets and Items "G" on opposite sides of car. Substitute, if desired, ⅝ in. x 6 x 7 steel cable, doubled.

Cribbed blocking, per Sketch 1, may be substituted for Items "H", "J", "K", "L", "M" and "N".
Detached parts must be loaded as far from car sides and ends as practicable and secured to prevent displacement.
Machines equipped with locking devices must have such devices placed in locked position by shippers.
For proper location of load on car, see Fig. 34.
See General Rules 4, 5, 7, 9, 14, 15, 19 and 19-A for further details.

Sec. 4—Fig. 27

MACHINES ON WHICH BOOM ONLY ROTATES—FLAT CARS





PLAN VIEW OF BLOCKING.

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	3	4 in. x 4 in., length to suit, outside braces bolted, center braces nailed.
C	3	4 in. x 4 in., length to suit, outside braces bolted, center braces nailed.
D	6	3 in. x 8 in., nailed to floor with six, 60-D nails.
E	1	5 in. x 8 in. x 30 in., secured to floor with two ½ in. bolts.
F	2	5 in. x 5 in. x 8 in., against crawler portion, nailed with three 60-D nails.
G	1	5 in. x 5 in. x 30 in., secured to floor with two ½ in. bolts.
H	2	4 in. x 4 in. x 36 in., nailed to floor with four 60-D nails.
J	2	2 in. x 4 in. x 24 in., secured with two ½ in. bolts passing through Items "H" and floor.
K	1	⅜ in. x 6 x 19 steel cable, doubled. Attach to front of boom and body of car. Substitute, if desired, ⅝ in. dia. rods or 8 strands No. 11 gage wire.
L	8	4 in. x 4 in. x 18 in., hardwood cleat, or ½ in. x 4 in. x 18 in. plate.

Other suitable blocking may be used in cases where the design of the machine does not permit the use of the blocking specified.

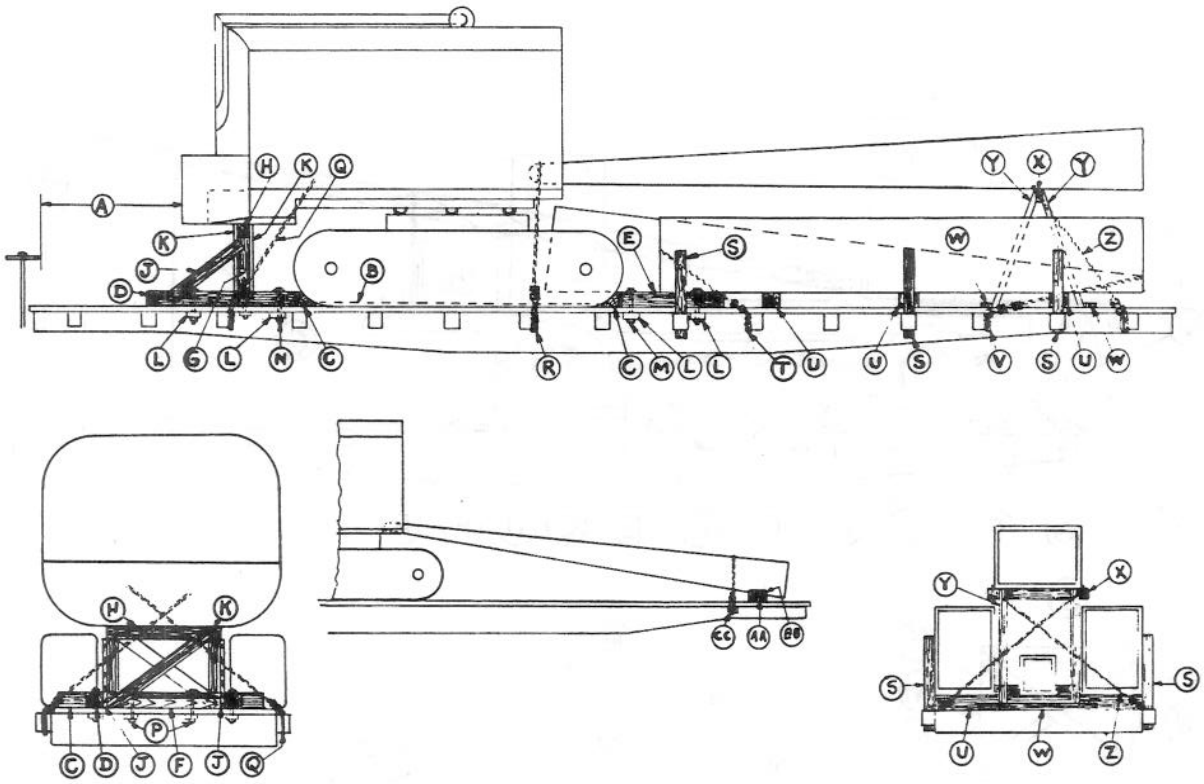
For proper location of load on car, see Fig. 34.

Machines equipped with locking devices must have such devices placed in locked position by shippers.

See General Rules 4, 5, 9, 10, 14, 15, 19 and 19A for further details.

Sec. 4—Fig. 28

MACHINE WITH BOOM ATTACHED AND NOT EXTENDING BEYOND END OF CAR—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2	2 in. x 6 in., length of crawler, inside or outside, nailed to floor with 20-D nails.
C	2	8 in. x 8 in. x 9 ft., cut to fit contour of crawler treads. Secure each to floor with two $\frac{5}{8}$ in. dia., bolts with nuts and washers.
D	2	8 in. x 8 in. x 6 ft. 6 in.
E	2	8 in. x 8 in. x 4 ft. 6 in.
F	1	6 in. x 6 in., length to suit.
G	2	6 in. x 6 in., length to suit, nailed to Items "F" and "H".
H	1	6 in. x 6 in., length to suit, nailed to Items "G".
J	2	2 in. x 6 in., length to suit, nailed to Items "D" and "G".
K	2	2 in. x 6 in., length to suit, nailed to Items "F", "G" and "H".
L	8	4 in. x 4 in. x 18 in., hardwood cleat, or $\frac{1}{2}$ in. x 4 in. x 18 in. plate.
M	4	Bolts, $\frac{5}{8}$ in. dia., with nuts and washers, through Items "E", "L" and floor.
N	8	Bolts, $\frac{5}{8}$ in. dia., with nuts and washers, through Item "C", "D", "L" and floor.
O		VACANT.
P	2	Bolts, $\frac{5}{8}$ in. dia., with nuts and washers, through Items "F", "L" and floor.
Q	2	$\frac{5}{8}$ in. x 6 x 7 steel cable, doubled. Attach to rotating portion of machine, near rear end, and to opposite stake pockets.
R	2	$\frac{5}{8}$ in. x 6 x 7 steel cable, doubled. Attach to rotating portion of machine, near front end, and to opposite stake pockets.
S	6	Stakes, extending 30 in. above floor.
T	1	$\frac{5}{8}$ in. x 6 x 7 steel cable. Pass through lattice work of three lower sections of boom and secure to stake pockets.
U	3	8 in. x 8 in. x 9 ft. Toe-nail to floor with 20-D nails.
V	1	$\frac{5}{8}$ in. x 6 x 7 steel cable. Pass through lattice work of three lower sections of boom nearest end of car, and secure to stake pockets.
W	2	2 in. x 6 in., length to suit, nailed to floor and Items "Y" with 20-D nails.
X	1	4 in. x 6 in., hardwood, length to suit.
Y	4	4 in. x 4 in., hardwood, length to suit, nailed to Item "X" and floor with 40-D nails.
Z	1	$\frac{5}{8}$ in. x 6 x 7 steel cable. Pass through lattice work of boom above Item "X" and secure to stake pockets.
AA	1	4 in. x 4 in., hardwood, length to suit, toe-nailed to floor with 20-D nails.
BB	2	4 in. x 4 in. x 12 in., hardwood. Secure each to Item "AA" with one $\frac{5}{8}$ in. dia. bolt, long enough to pass through Item "AA" and floor.
CC	1	$\frac{5}{8}$ in. x 6 x 7 steel cable. Pass over top of boom and secure to stake pockets.

Items "AA", "BB" and "CC" required only when boom rests on floor.

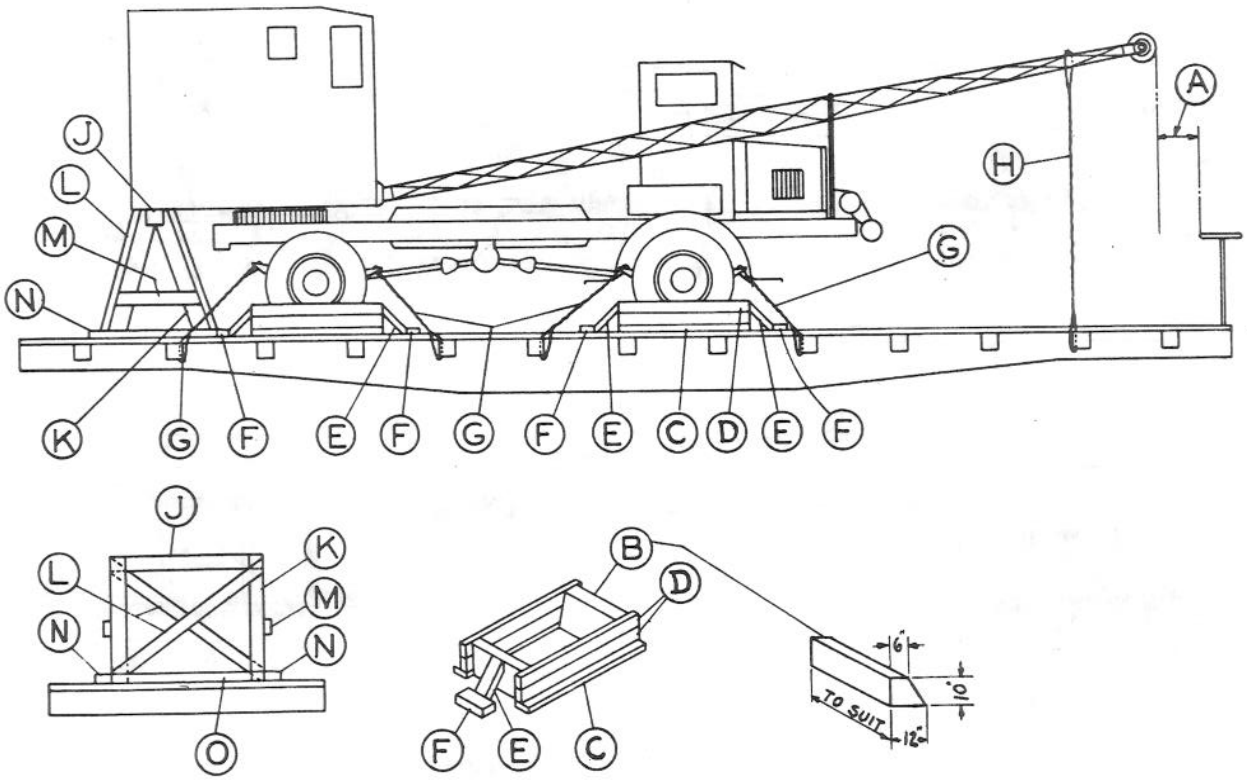
For proper location of load on car, see Fig. 34.

Machines equipped with locking devices must have such devices placed in locked position by shippers.

See General Rules 4, 5, 9, 10, 14, 15, 19, 19-A and 19-B for further details.

Sec. 4—Fig. 29

ROTATING SHOVEL, (TRUCK CHASSIS) HAVING PNEUMATIC TIRES—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. front wheel. 2 ea. pr. dual wheels.	6 in. x 10 in. x 12 in., hardwood, length to suit. Locate against wheels and toe-nail each to floor with three 40-D nails.
C	2 ea. pr. Items "B".	2 in. x 4 in., hardwood, long enough to extend 1 in. beyond Items "B". Locate on inside and outside of wheels and nail each to floor with six 30-D nails.
D	4 ea. pr. Items "B".	2 in. x 4 in., hardwood, long enough to extend 1 in. beyond Items "B". Locate above Items "C" and nail 4 in. face to each Item "B" with three 30-D nails.
E	1 ea. Item "B".	2 in. x 4 in., hardwood, length to suit. Toe-nail to Items "B" and floor with two 30-D nails at each end.
F	1 ea. Item "E".	2 in. x 4 in. x 12 in., hardwood. Locate against each Item "E" and nail to floor with four 30-D nails.
G	8	Each to consist of six strands, No. 7 gage wire, (cable shaped). Securely attach one end to spring shackle of machine and opposite end to stake pocket so as to provide effective angularity. Twist taut.
H	1	To consist of six strands, No. 7 gage wire, (cable shaped). Loop around near end of and pass through boom and securely attach ends to opposite stake pockets. Twist taut.
J	1	6 in. x 6 in., hardwood, length equal to width of and cut to fit projections underneath cab.
K	4	4 in. x 5 in., hardwood, length to suit, notched to fit under and against Items "J". Nail to Item "J" and toe-nail to floor with three 30-D nails at each end.
L	2	2 in. x 4 in., hardwood, length to suit. Nail each end to Items "K" with three 30-D nails.
M	2	2 in. x 4 in., hardwood, length to suit. Locate about 18 in. above floor and nail each end to Item "K" with three 30-D nails.
N	2	1½ in. x 3 in., hardwood, long enough to extend to outside face of Items "O". Locate against Items "K" and nail each end to floor with six 30-D nails.
O	2	1½ in. x 3 in., hardwood, length equal to distance between inside face of Item "N". Locate against Items "K" and nail each to floor with six 30-D nails.

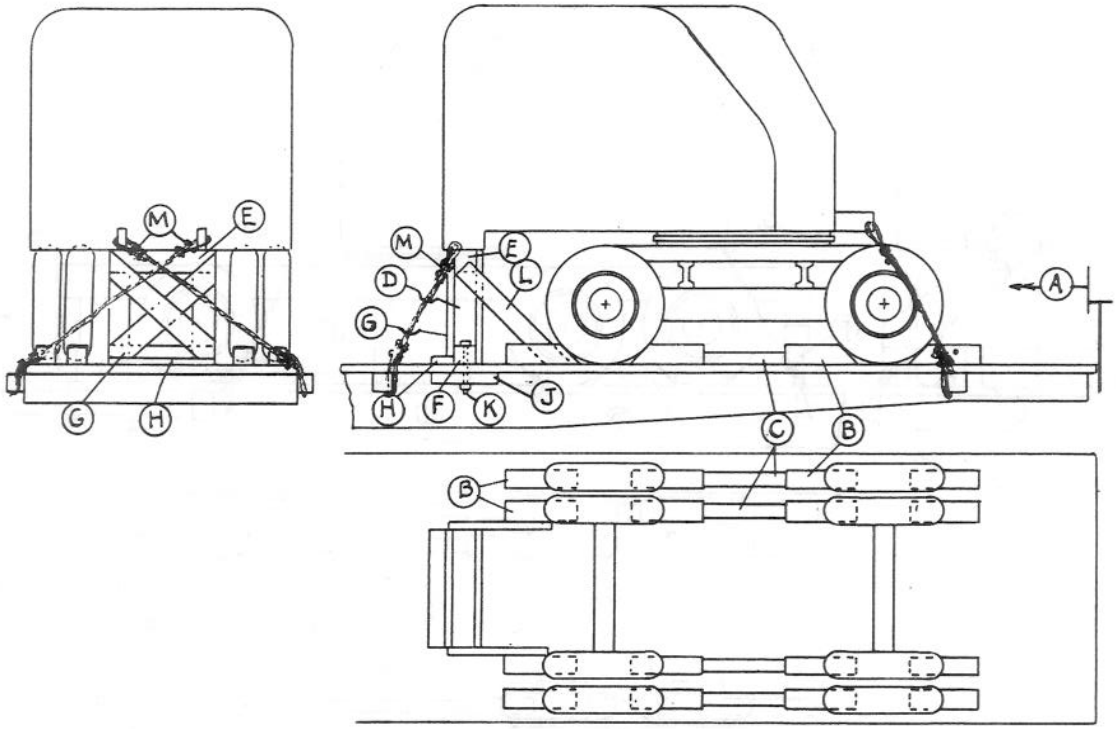
For proper location of load on car, see Fig. 34.

Machines equipped with locking devices must have such devices placed in locked position by shippers.

See General Rules 4, 5, 9, 14, 15, 19, 19-A and 19-B for further details.

Sec. 4—Fig. 30

ROTATING CRANES, HAVING PNEUMATIC TIRES, BOOM DETACHED—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	16	8 in. x 8 in. x 36 in., hardwood. Locate on floor, against tires and secure each with four ¾ in. dia. bolts, with nuts and washers.
C	4	3½ in. x 5½ in., hardwood, long enough to fit between Items "B". Nail each to floor with four 60-D nails.
D	2	6 in. x 6 in., hardwood, long enough to fit between Items "E" and "F".
E	1	6 in. x 6 in. x 30 in., hardwood. Locate on top of Items "D".
F	1	6 in. x 6 in., hardwood, length to suit. Secure to floor, under Items "D", with four Items "K".
G	2	2 in. x 6 in., hardwood, length to suit. Locate diagonally and secure to Items "E", "F" and to opposite Items "D".
H	1	2 in. x 6 in., hardwood, length to suit. Locate against Item "F" and nail to floor with six 30-D nails.
J	As required.	4 in. x 4 in. x 18 in., cleats or ½ in. x 4 in. x 18 in. plates.
K	4	¾ in. dia. bolts, with nuts and washers, long enough to pass through Items "F", "J" and floor.
L	2	2 in. x 6 in., hardwood, length to suit. Nail top ends to Items "D" and bottom ends to Items "B" with four 30-D nails at each location.
M	4	1¼ in. dia. rods, with threaded ends, length to suit. Attach two to boom connection brackets and two to counterweight. Pass bottom ends through stake pockets and ½ in. x 4 in. x 10 in. plates underneath stake pockets on opposite sides of car. 1 in. dia. rods may be used on machines weighing 45,000 lbs. or less. Substitute, if desired, ⅝ in. x 6 x 7 steel cable, doubled.
N	4	Each to consist of two pieces 2 in. x 4 in. x 18 in. Locate one against each front and each rear wheel. Nail lower pieces to floor with four 20-D nails in each and top pieces to those below in like manner.

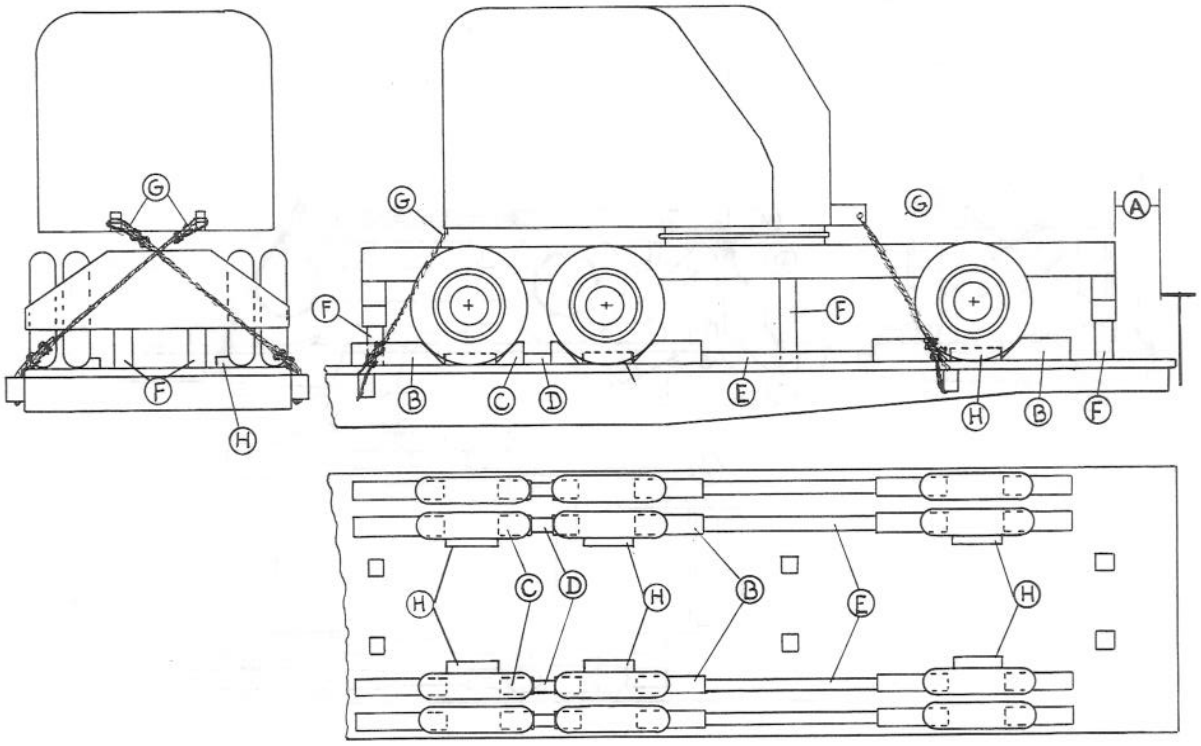
For proper location of load on car, see Fig. 34.

Machines equipped with locking devices must have such devices placed in locked position by shippers.

See General Rules 4, 5, 9, 14, 15, 19, 19-A and 19-B for further details.

Sec. 4—Fig. 31

ROTATING CRANE, HAVING PNEUMATIC TIRES, BOOM ATTACHED—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	16	8 in. x 8 in. x 36 in., hardwood. Locate on floor against tires and secure each with ¾ in. dia. bolts with nuts and washers.
C	8	8 in. x 8 in. x 8 in., hardwood. Locate on floor against tires and secure each with two ¾ in. dia. bolts.
D	4	3½ in. x 5 in., hardwood, long enough to fit between Items "C". Nail each to floor with four 60-D nails.
E	4	3½ in. x 5 in., hardwood, long enough to fit between Items "B". Nail each to floor with eight 60-D nails.
F	6	8 in. x 8 in., hardwood, length to suit. Locate under front center and rear of crane and toe-nail each to floor with four 60-D nails.
G	4	1¼ in. dia. rods, with threaded ends, length to suit. Attach two to boom connection brackets and two to counterweight. Pass bottom ends through stake pockets and ½ in. x 4 in. x 10 in. plates underneath stake pockets on opposite sides of car. 1 in. dia. rods may be used on machines weighing 45,000 lbs. or less. Substitute, if desired, ⅝ in. x 6 x 7 steel cable, doubled.
H	4	Each to consist of two pieces 2 in. x 4 in. x 18 in. Locate one against each front and each rear wheel. Nail lower pieces to floor with four 20-D nails and top pieces to those below in like manner.

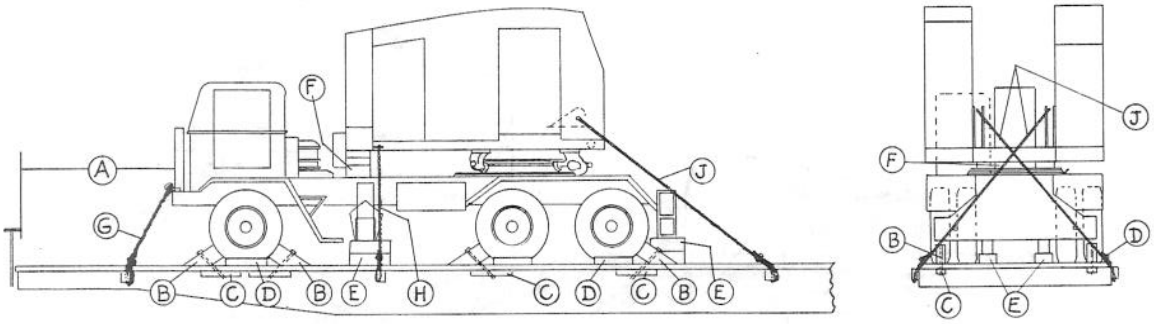
For proper location of load on car, see Fig. 34.

Machines equipped with locking devices must have such devices placed in locked position by shippers.

See General Rules 4, 5, 9, 14, 15, 19, 19-A and 19-B for further details.

Sec. 4—Fig. 32

ROTATING CRANE, HAVING PNEUMATIC TIRES, BOOM DETACHED—FLAT CARS



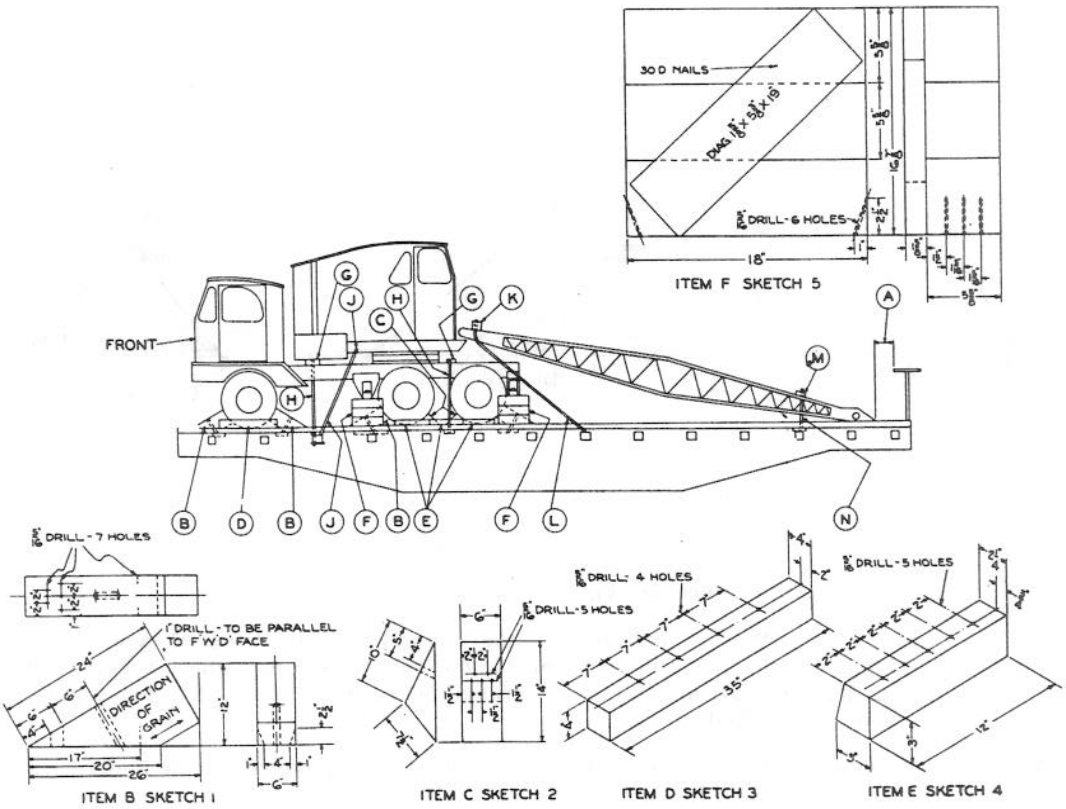
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	8	8 in. x 8 in. x 21½ in., hardwood. Locate one in front and at rear of each front wheel, one in front of each intermediate wheel, and one behind each rear wheel. Secure each with one ¾ in. dia. rod, with nuts. Pass rod through plate washer, Item "B", floor and Item "C". Use bevel washer under Item "C".
C	8	4 in. x 4 in. x 18 in., hardwood, or ½ in. x 4 in. x 18 in. plates. Locate under floor as required.
D	6	4 in. x 4 in. x 28 in., hardwood. Locate one against outside of each wheel. Nail each to floor with six 40-D nails.
E	4	Each to consist of two pieces, 6 in. x 8 in. x 18 in., hardwood. Locate under each side at center and rear of chassis. Toe-nail lower piece to floor with six 40-D nails and top piece to the one below with four 40-D nails.
F	2	6 in. x 6 in. x 15 in., hardwood. Locate between rotating and body portion of unit. Secure to prevent displacement.
G	2	½ in. dia. steel cable, doubled. Attach one to each side of body of unit, at front, and to stake pocket.
H	2	½ in. dia. steel cable, doubled. Attach one to each side of rotating portion of unit and to opposite stake pocket.
J	2	½ in. dia. steel cable, doubled. Attach one to each side of rotating portion of unit and to opposite stake pocket.

For proper location of load on car, see Fig. 34.

Machines equipped with locking devices must have such devices placed in locked position by shippers.

See General Rules 4, 5, 7, 9, 14, 15, 19, 19-A and 19-B for further details.

Sec. 4—Fig. 33
ROTATING CRANES, HAVING PNEUMATIC TIRES—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	8	Blocks, 6 in. x 10 in. x 24 in., Sketch 1. Locate one in front and one in rear of each front wheel, one in front of each intermediate wheel and one in rear of each rear wheel. Secure each to floor with one ¾ in. dia. x 22 in. rod passed through floor and 2 in. x 4 in. x 12 in. cleat under floor, five 60-D nails in heel of block and toe-nail each side of block with one 60-D nail.
C	4	Blocks, 6 in. x 7½ in. x 10 in., Sketch 2. Locate one in front of each rear wheel and one in rear of each intermediate wheel. Nail each to floor with five 60-D nails.
D	4	Blocks, 4 in. x 4 in. x 35 in., Sketch 3. Locate one against inside and outside of each front wheel. Nail each to floor with four 60-D nails.
E	4	Blocks, 3 in. x 3 in. x 12 in., Sketch 4. Locate one against outside of each rear and intermediate wheel. Nail each to floor with five 60-D nails.
F	4	Blocks, each to consist of three pieces 5⅝ in. x 5⅝ in. x 18 in. and one piece 1⅝ in. x 5⅜ in. x 19 in., Sketch 5. Locate one under each outrigger on each side of unit. Toe-nail each to floor with six 60-D nails.
G	2	4 in. x 6 in. x 62 in. Locate on top of frame of unit, secure with Items "H".
H	4	¾ in. dia. rods. Pass through each end of Items "G" and through ½ in. x 4 in. x 10 in. plates under stake pockets or 4 in. x 4 in. x 18 in. hardwood cleats, or ½ in. x 4 in. x 18 in. plates under floor.
J	2	1¼ in. dia. rods, with threaded ends, length to suit. Attach two to front of rotating portion and pass bottom ends through stake pockets and ½ in. x 4 in. x 10 in. plates underneath stake pockets on opposite sides of car, or through floor and 4 in. x 4 in. x 18 in. cleats, or ½ in. x 4 in. x 18 in. plates under floor on opposite sides of car. 1 in. dia. rods may be used on machines weighing 45,000 lbs. or less. Substitute, if desired, ⅝ in. x 6 x 7 steel cable, doubled.
K	1	4 in. x 4 in. x 4 ft. Locate on top of boom and secure with Item "L".
L	2	1¼ in. dia. rods, with threaded ends, length to suit. Pass through Items "K" and ½ in. x 4 in. x 10 in. plates underneath stake pockets on opposite sides of car. 1 in. dia. rods may be used on machines weighing 45,000 lbs. or less. Substitute, if desired, ⅝ in. x 6 x 7 steel cable, doubled. When boom is detached, attach rods to boom connection bracket.
M	1	2 in. x 4 in., long enough to extend beyond sides of boom. Secure with two Items "N".
N	2	¾ in. dia. rods. Pass through each end of Item "M" and through floor and 4 in. x 4 in. x 18 in. cleat, or ½ in. x 4 in. x 18 in. plate under floor.

Items "K", "M" and "N" not required when boom is detached.

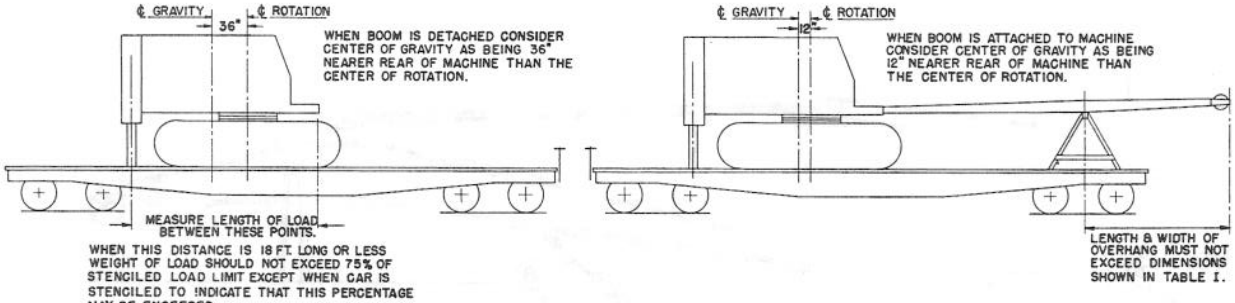
On units where counterweight of rotary portion extends beyond rear of frame, overhanging portion must be supported by suitable built-up frame.

Machines equipped with locking devices must have such devices placed in locked position by shippers.

For proper location of load on car, see Fig. 34.

See General Rules 4, 5, 9, 14, 15, 19, 19-A and 19-B for further details.

Sec. 4—Fig. 34



WHEN THIS DISTANCE IS 18 FT. LONG OR LESS WEIGHT OF LOAD SHOULD NOT EXCEED 75% OF STENCILED LOAD LIMIT EXCEPT WHEN CAR IS STENCILED TO INDICATE THAT THIS PERCENTAGE MAY BE EXCEEDED.

TO AVOID OVERLOADING TRUCK AT EITHER END OF CAR; DIVIDE ONE-HALF OF THE STENCILED LOAD LIMIT OF CAR BY THE WEIGHT OF MACHINE. MULTIPLY THE FIGURE THUS OBTAINED BY THE DISTANCE BETWEEN TRUCK CENTERS. THE RESULT WILL BE THE MAXIMUM DISTANCE FROM TRUCK AT LIGHT END OF CAR AT WHICH THE CENTER OF GRAVITY OF MACHINE SHOULD BE LOCATED.

EXAMPLE:

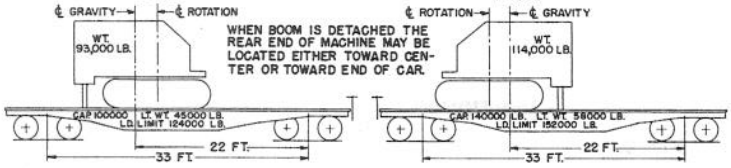
	50-TON CAR	70-TON CAR
WEIGHT OF MACHINE	93,000 LBS.	114,000 LBS.
ONE-HALF STENCILED LOAD LIMIT	62,000 LBS.	76,000 LBS.
DISTANCE BETWEEN TRUCK CENTERS	33 FT.	33 FT.

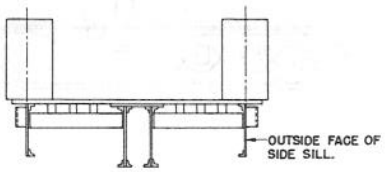
93000 | 62000.00 | .66⅔
558000
620000
558000
62000
93000 = ⅔

.66⅔
33
198
198
22
22.00 FT.

114000 | 7600000 | .66⅔
684000
760000
684000
76000
114000 = ⅔

.66⅔
33
198
198
22
22.00 FT.

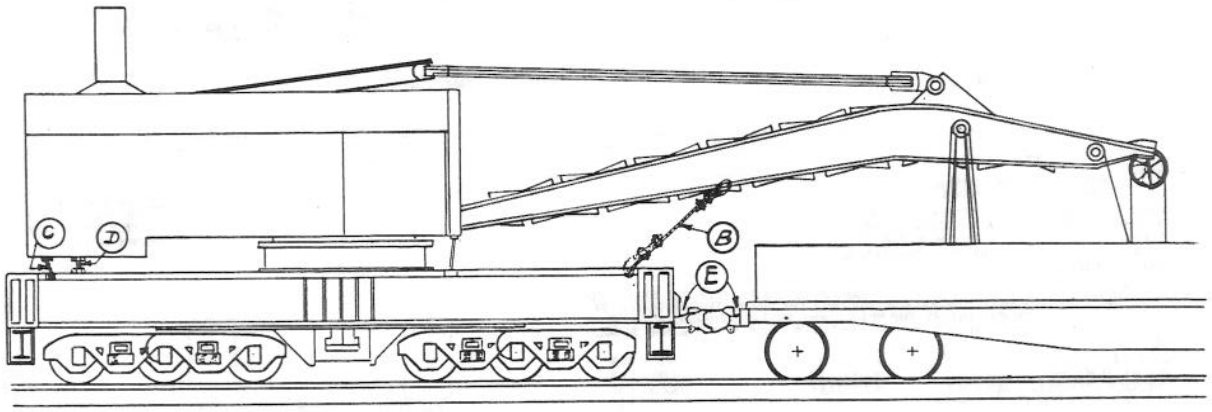




LOADING MACHINES WITH TREADS EXTENDING BEYOND FLOOR OF CAR IS PERMITTED PROVIDED THEY ARE CENTRALLY LOCATED ON CAR & NOT MORE THAN ONE-HALF OF TREAD EXTENDS BEYOND OUTSIDE FACE OF SIDE SILL OR METAL EXTENSION THERETO.

SEE GENERAL RULE 7.

WRECKING CRANES SHIPPED WITH BOOMS SUPPORTED EXCLUSIVELY BY THEIR CABLES



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2	1 in. steel cables 6 x 9, secured with two "U"- bolt cable clips at each end. Sharp turns must be protected with thimbles.
		Permanent anchors acceptable as substitutes.
C	2	1¼ in. rods, length to suit, or anchors equivalent in strength. Parts to which anchors are secured must be equally as strong as the anchors. Rods with hooked ends must not be used.
D		Rear jacks must be screwed tight to eliminate vertical motion.
E		Uncoupling mechanism must be made inoperative.

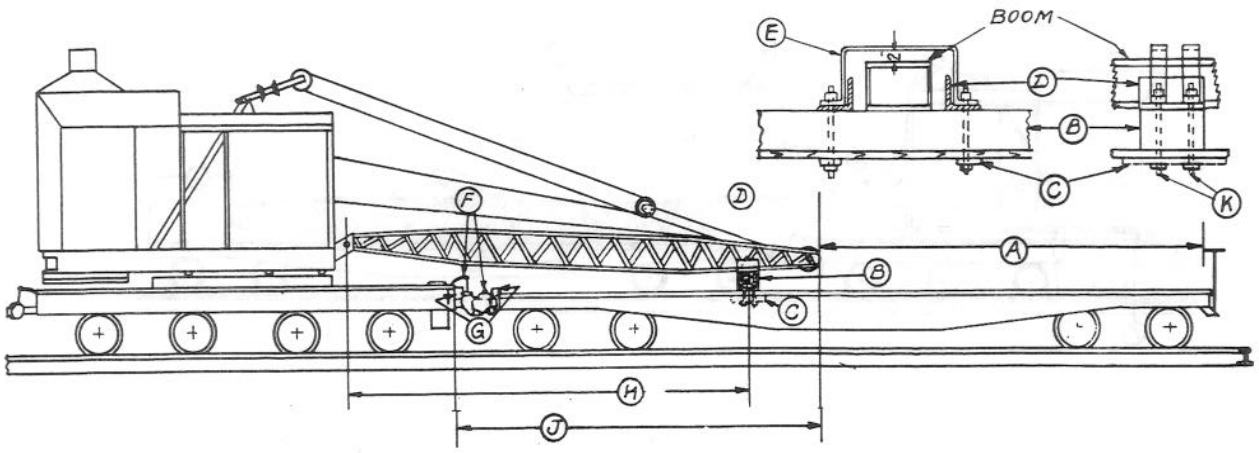
Cable blocks may be detached, pulled up to boom head, or lay loose on idler car with cables sufficiently slack to negotiate curves.

Boom end of crane must trail.

See General Rules 4, 5, 15, 16, 19, 19A and 21 for further details.

Sec. 4—Fig. 36

DERRICKS, CRANES, ETC., ON THEIR OWN WHEELS, WITH BOOMS ATTACHED, WHEN LENGTH OF BOOM DOES NOT EXCEED 30 FT. BEYOND END SILL OF THE CAR ON WHICH THE MACHINE IS MOUNTED



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	1	Hardwood 10 in. wide, high enough to keep boom 4 in. from floor. Secure to floor with four ¾ in. bolts.
C	4	4 in. x 4 in. x 18 in., hardwood cleats, or plates ½ in. x 4 in. x 18 in.
D	2	6 in. x 6 in. x ⅜ in. x 10 in. angles, or 8 in. x 8 in. x 24 in., hardwood blocks. Clearance between boom and angles, or boom and blocks, must be at least 3 in.
E	2	Straps, wrought iron, ½ in. x 2 in., formed to suit.
F		Uncoupling mechanism must be made inoperative.
G		Spacing blocks to be applied after draft gears have been fully compressed and slack taken out by jacking cars apart.
H		Item "B" must be located not more than 25 ft. from point where boom is attached to body of derrick.
J		When this distance exceeds 30 ft., be governed by Fig. 37.
K	2 ea. Item "D".	¾ in. dia. bolts, through Items "B", "C", "D", and "E".

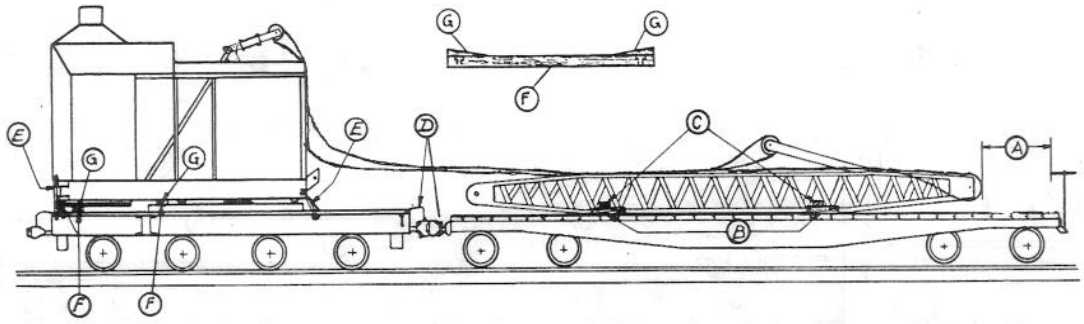
Rotating portion of derrick must be free to swing without any impediment.

All coal must be removed from bunkers. Water must be removed from boiler and reservoir.

Boom end of crane must trail.

See General Rules 4, 5, 9, 14, 15, 16, 19, 19A and 21 for further details.

DERRICKS, CRANES, ETC., ON THEIR OWN WHEELS, WITH BOOMS, DETACHED, CABLES NOT REMOVED



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	4	4 in. wide, 18 in. long, high enough to permit application of Items "C", nailed to floor against boom.
C	2	2 in. x 4 in., long enough to extend beyond Items "B", nailed to Items "B".
D		Uncoupling mechanism must be made inoperative.
E	4	1¼ in. rods with nuts and washers, for machines weighing 150,000 lbs. or less. For machines weighing more than 150,000 lbs. 1½ in. rods or equivalent must be used. Threads must be riveted over or nuts secured with lock nuts or nut locks. Anchors must be attached to extreme front and rear of rotating portion. If construction of machine will not permit application to extreme rear, they must be placed as close to rear as construction will permit. Rods with hooked ends must not be used.
F	2 ea. machine.	Hardwood, 6 in. wide, long enough to extend beyond rotating portion. Thickness 2 in. less than distance between rotating portion and carriage. Secure to floor with one ¾ in. dia. bolt at each end with head countersunk.
G	2 ea. Item F.	2½ in. x 4 in. x 12 in., hardwood, driven between Items "F" and machine. Nail to Items "F" with 40-D nails.

Items "F" and "G" not required at center, unless machine has two piece bed casting, nor at rear end of machine equipped with jacks.

Pivoted machines equipped with jacks must have jacks screwed tight to prevent vertical motion of rotating portion.

Jacks must not be used to apply Items "F" and "G".

All coal must be removed from bunkers. Water must be removed from boiler and reservoir.

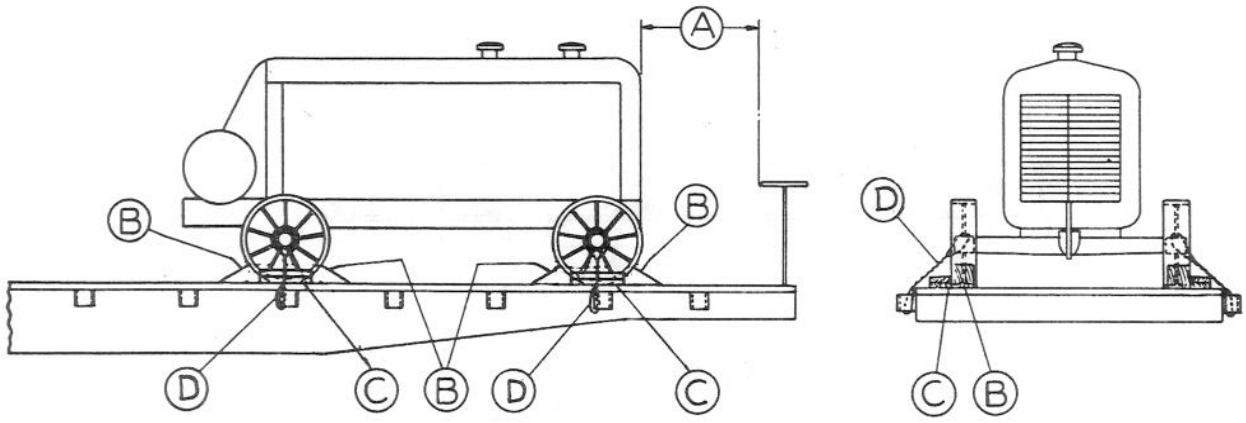
Boom end of crane must trail.

Remove key or nut from center pin of trailing truck.

See General Rules 4, 5, 9, 14, 15, 19, 19A and 21 for further details.

Sec. 4—Fig. 38

COMPRESSORS, WITH OR WITHOUT PNEUMATIC TIRES—FLAT CARS



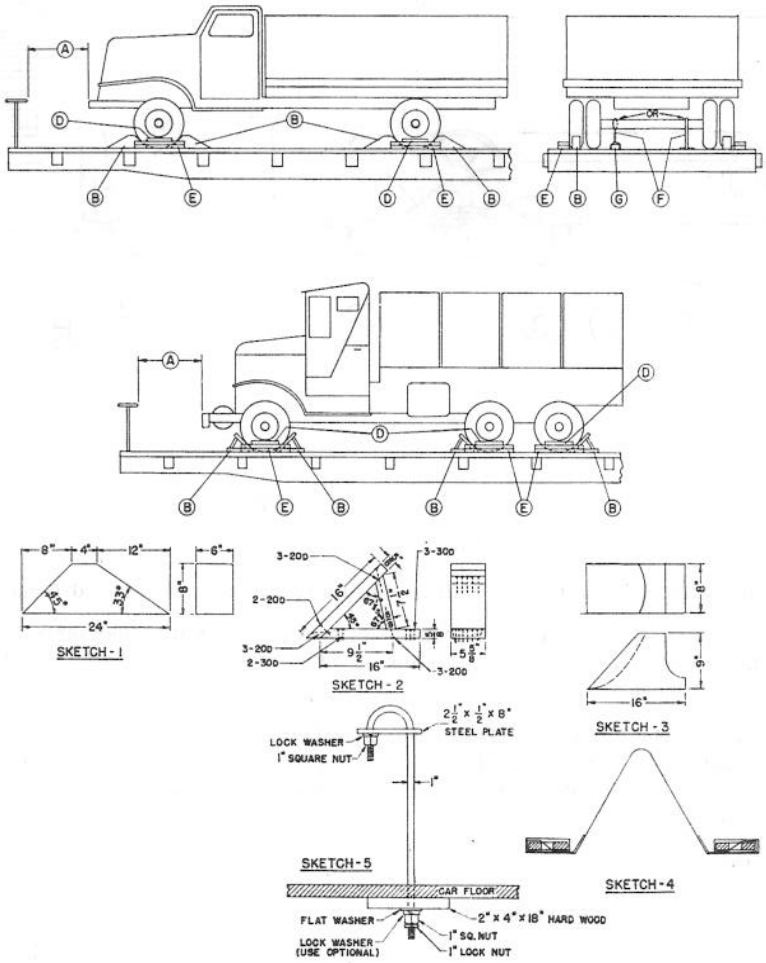
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. wheel.	6 in. x 8 in. x 24 in. blocks. Nail heel of block to floor with five 40-D nails.
C	1 ea. wheel.	2 in. x 4 in. x 24 in., each to consist of two pieces. Nail lower piece to floor with three 40-D nails and nail top piece to the one below with three 40-D nails. Locate either inside or outside of wheels.
D	1 ea. wheel.	6 strands, No. 11 ga. wire. Pass around spokes on top of hub and through stake pocket directly below and twist taut with bolt or rod. If stake pocket is not located directly below hub of wheel, each end of wire must be attached to adjoining stake pockets and twisted taut with bolt or rod.

Brake and clutch must be tightly set.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 39

FOUR OR SIX WHEEL TRUCKS AND OTHER MOTOR VEHICLES (SINGLE OR DUAL WHEELS)—FLAT CARS AND GONDOLA CARS WITH WOODEN FLOORS



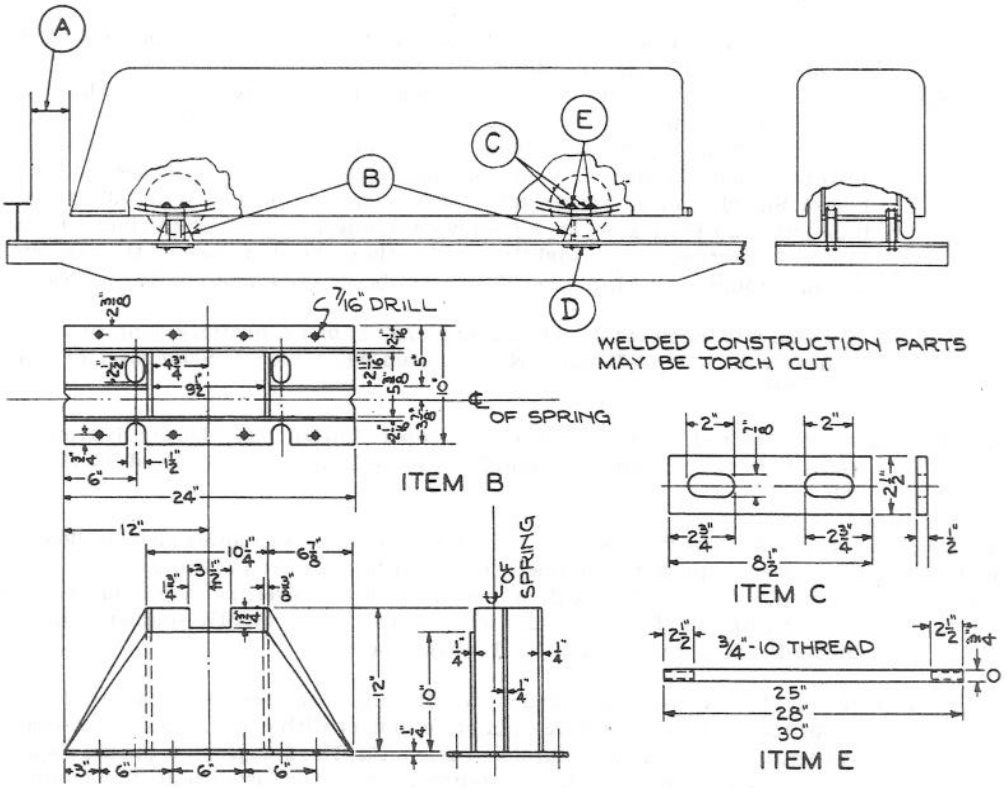
FOUR OR SIX WHEEL TRUCKS AND OTHER MOTOR VEHICLES (SINGLE OR DUAL WHEELS)—FLAT CARS AND GONDOLA CARS WITH WOODEN FLOORS

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	8 for four wheel trucks and 8 or 12 for six wheel trucks.	6 in. x 8 in. x 24 in. blocks, Sketch 1. Locate 45 degree portion of block against front and rear of front wheels, in front of outside intermediate wheels and in back of outside rear wheels for units weighing 8,000 lbs. or less, and against front and rear of front wheels, front of intermediate wheels and in back of rear wheels for units weighing over 8,000 lbs. Nail heel of block to floor with three 40-D nails and toe-nail that portion under tire to floor with two 40-D nails before Items "D" and "E" are applied. Substitute, if desired, at each location, blocks, Sketch 2, or blocks, Sketch 3, each secured to floor with four 30-D nails. Substitute, if desired, two ½ in. x 3½ in. lag screws and one 20-D nail for the four 30-D nails in block, Sketch 3. Vertical holes, slightly smaller than the diameter of the lag screws, must be drilled through all such blocks. They must be screwed, and not driven into position.
C	8	2 in. x 4 in. x 12 in. cleats. Locate one end against block, Sketch 3, lengthwise of car, and nail to floor with four 20-D nails. Not required when blocks, Sketches 1 or 2, are used with Items "H".
D	1 ea. Item "E".	Suitable material, such as waterproof paper, burlap, etc. Locate bottom portion under Items "E", top portion to extend 2 in. above Items "E". Required for Military shipments only.
E	4 for four wheel trucks and 6 for six wheel trucks.	Each to consist of two pieces of 2 in. x 4 in. x 36 in. Nail lower piece to floor with four 20-D nails and top piece to the one below with four 20-D nails. Substitute, if desired, at each location, one 3 in. x 3 in. x 12 in. hardwood block, beveled at top to prevent chafing. Secure to floor with four 50-D nails in each. Vertical holes, slightly smaller than the diameter of the 50-D nails, must be drilled through blocks.
F	2 ea. axle, or 1 ea. spring or spring shackle.	1 in. No. 14 B. W. gage hot rolled steel, with anchor plates, Sketch 4. Locate over axle, spring or spring shackle, and secure each plate to floor with eight 20-D cement-coated nails. Substitute, if desired, at each location, 4 strands, No. 9 gage wire, passed over axle, spring or spring shackle, underneath and around Item "G", twisted taut. Not required when Items "H" are used.
G	1 ea. Item "F".	2 in. x 4 in. x 18 in. cleats. Bolt to floor, lengthwise of car, with two ⅜ in. bolts, with washers under floor. Not required when steel straps, Items "F", or when Items "H" are used.
H	2 ea. axle or 1 ea. spring or spring shackle for four wheel trucks, and for six wheel trucks weighing 22,000 lbs. or less; 2 ea. on 2 axles, or 1 ea. spring or spring shackle. Units weighing over 22,000 lbs.; 2 on each axle, or 1 on each front spring or spring shackle and 2 on each rear spring or spring shackle.	"J" bolt, Sketch 5. Apply, as shown, to axle, spring or spring shackle. No required when Items "F" are used.

See General Rules 4, 5, 9, 14, 15 and 19-A for further details.

Sec. 4—Fig. 40

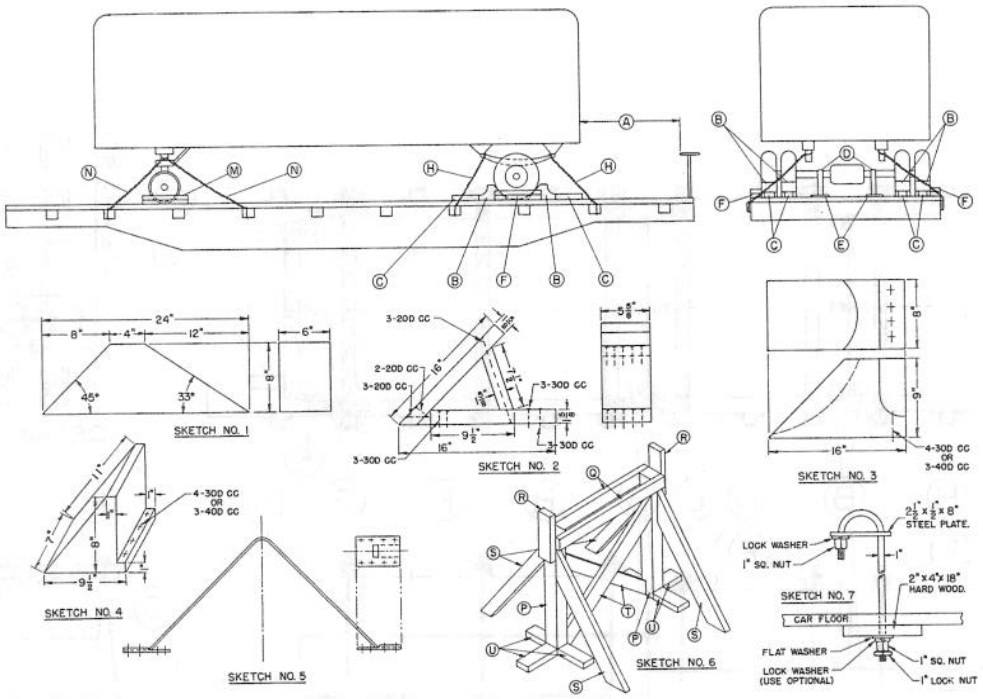
FOUR WHEEL TRACKLESS TROLLEYS AND OTHER MOTOR VEHICLES—FLAT CARS WITH WOODEN FLOORS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	4 ea. machine.	Steel cradles of welded construction. Locate under each end of axle inside of wheel and secure each to floor with eight ⅜ in. x 2 in. lag screws.
C	2 ea. Item "B".	½ in. x 2½ in. x 8½ in. plate. Locate over springs on each side of axle.
D	2 ea. Item "B".	½ in. x 4 in. x 18 in. plate or 4 in. x 4 in. x 18 in. hardwood cleat. Not required where bolts pass through under frame member.
E	4 ea. Item "B".	Bolts ¾ in. dia., with double nuts and washers. Pass two through Item "C" on each side of axle, and through Items "B", floor and Item "D".

See General Rules 4, 5, 9 and 15 for further details.

Sec. 4—Fig. 41
TRUCK TRAILERS, ALL TYPES—FLAT OR GONDOLA CARS WITH WOODEN FLOORS

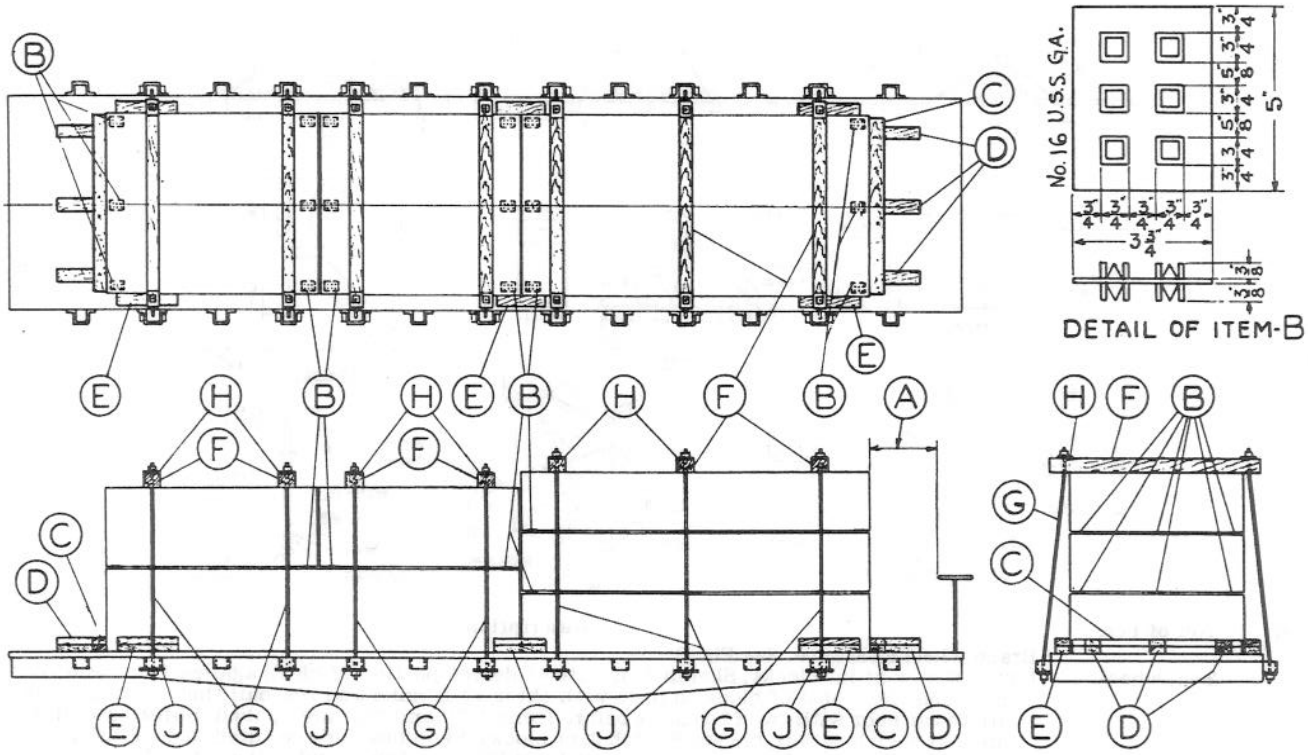


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. wheel.	6 in. x 8 in. x 24 in. blocks, Sketch 1. Locate 45 degree portion of block against front and rear of wheels. Nail heel of block to floor with three 40-D nails and toe-nail that portion under tire to car floor with two 40-D nails before Items "C" and "G" are applied. Substitute, if desired, at each location, blocks, Sketch 2, or blocks, Sketches 3 or 4, secured to floor, as shown.
C	2 ea. wheel.	2 in. x 4 in. x 12 in. Locate one end against Item "B", Sketch 3, and nail each to floor, lengthwise of car, with four 20-D nails. Not required when Items "B", Sketches 1, 2 or 4, are used.
D	2 ea. axle.	1 in. No. 14 B. W. gage hot rolled steel, with anchor plates. Sketch 5. Locate over axles and secure each plate to floor with eight 20-D cement-coated nails. Substitute, if desired, at each location, 4 strands, No. 9 gage wire, or wires of equivalent strength. Pass over axle, underneath and around Item "E" and twist taut after Item "E" has been nailed in place. Not required when Items "V" are used.
E	2 ea. Item "D".	2 in. x 4 in. x 18 in. Nail each to floor, lengthwise of car, with four 20-D nails. Not required when Items "D", Sketch 5, are used.
F	1 ea. outside wheel.	Each to consist of two pieces of 2 in. x 4 in. x 36 in. Nail lower piece to floor with four 20-D nails and top piece to the one below with four 20-D nails.
G		VACANT.
H	1 ea. spring shackle.	4 strands, No. 9 gage wire, or wires of equivalent strength. Attach to spring shackles and to stake pockets on flat cars and underneath and around Item "J" in gondola cars and twist taut with rod or bolt, after Item "J" has been nailed in place.
J	1 ea. Item "H".	2 in. x 4 in. x 18 in. Nail to floor, lengthwise of car, with four 20-D nails. Not required for flat cars.
K		VACANT.
L		VACANT.
M	2 each outside front support wheel.	2 in. x 4 in. x 18 in. long. Locate against outside face of front support wheel lengthwise of car. Secure lower pieces to floor with three 20-D nails and top pieces to those below with three 30-D nails in each.
N	2 ea. support leg.	Each to consist of 4 strands, No. 9 gage wire, or wires of equivalent strength. Attach to support leg and to two stake pockets on flat cars and under and around Item "O" in gondola cars and twist taut with rod or bolt, after Item "O" has been nailed in place.
O	2 ea. Item "N".	2 in. x 4 in. x 18 in. Nail each to floor, lengthwise of car, with four 20-D nails. Not required for flat cars.
P	2	4 in. x 4 in. vertical body blocks, length to suit. Locate one at each outside edge of trailer and toe-nail to floor with four 30-D nails in each.
Q	2	2 in. x 4 in. cross ties, length to suit. Locate flush with top of and nail to each Item "P" with three 20-D nails.
R	2	2 in. x 4 in. x 12 in. cleats. Locate top portion against body or frame of trailer and nail lower portion of each to outside face of Items "P" with four 20-D nails.
S	4	2 in. x 4 in. diagonal braces, length to suit. Locate diagonally and nail each top end to Item "P" with three 20-D nails and toe-nail each bottom end to floor with three 20-D nails.
T	4	2 in. x 4 in. diagonal braces, length to suit. Locate diagonally and nail each end to top and bottom of opposite Items "P" with three 20-D nails.
U	3 ea. Item "P".	2 in. x 4 in. x 12 in. longitudinal floor blocks. Locate one ahead of, behind and outside of each Item "P" and nail each to floor with four 20-D nails.
V	2 ea. axle.	"J" bolt, Sketch 7. Apply, as shown, to axle. Not required when Items "D" are used.

Items "P" to "U", inclusive, not required for trailers with positive locking front supports.
For four wheel trailers use Items "B" to "H" inclusive at both ends and omit Items "M" to "U" inclusive.
"Item "M" not required when Items "P" to "U" are used, or vice versa, provided Items "N" are used at all times.
See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 42

AUTOMOBILES AND OTHER MATERIALS (BOXED) ONE OR MORE LAYERS—FLAT OR GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	6 per box.	Anti-Skid Plates. Place between box and wooden floor, and between boxes, as shown. Load must be stenciled on both sides in one inch letters to read, "ANTI-SKID PLATES".
C	1 ea. end of load.	Each shall consist of two pieces of 2 in. x 4 in., length equal to width of bottom box. Secure bottom piece to floor with six 20-D nails and top piece to one below with four 20-D nails. Secure to steel floors with three $\frac{5}{8}$ in. dia. bolts with washer under head of bolt and underneath floor. Not required for gondola cars with wooden floors.
D	3 ea. Item "C".	Each shall consist of two pieces of 2 in. x 4 in. x 16 in. Secure bottom piece to floor with three 20-D nails and top piece to one below with three 20-D nails. Not required for gondola cars.
E	6	Each shall consist of two pieces of 2 in. x 4 in. x 24 in. Secure bottom piece to floor with three 20-D nails and top piece to one below with three 20-D nails. Secure to steel floors with two $\frac{5}{8}$ in. dia. bolts with washer under head of bolt and underneath floor. When floor space does not permit application, substitute for the six Items "E", eight 4 in. x 5 in. stakes, extending not less than 6 in. above top of car floor, with one 40-D nail driven into stake directly below and with head even with outside of stake pocket. Not required for gondola cars with wooden floors.
F	Pile 10 ft. long or less; 2. Pile over 10 ft. long; 3.	4 in. x 4 in., hardwood, length to suit. Use one bolt, $\frac{1}{2}$ in. dia., crosswise, with washers, at each end to prevent splitting.
G	2 ea. Item "F".	$\frac{1}{2}$ in. dia. rod, length to suit.
H	1 ea. Item "G".	$\frac{3}{16}$ in. x 4 in. x 4 in. plate washer on top of Item "F".
J	1 ea. Item "G".	$\frac{1}{2}$ in. x 4 in. x 10 in. plate when rods pass through stake pockets, $\frac{1}{2}$ in. x 4 in. x 18 in. plate or 4 in. x 4 in. x 18 in. hardwood cleat when rods pass through car floor.

When two or more single boxes are loaded side by side on a flat car, they must be tied together with two $1\frac{1}{4}$ in. x .035 in. high tension bands or 4 No. 8 ga. high tension wires.

When box in third layer is 10 ft. long or less, and each end of the box below extends 2 ft. or more beyond it, use one additional Item "F" to "J" inclusive, at each end of second layer.

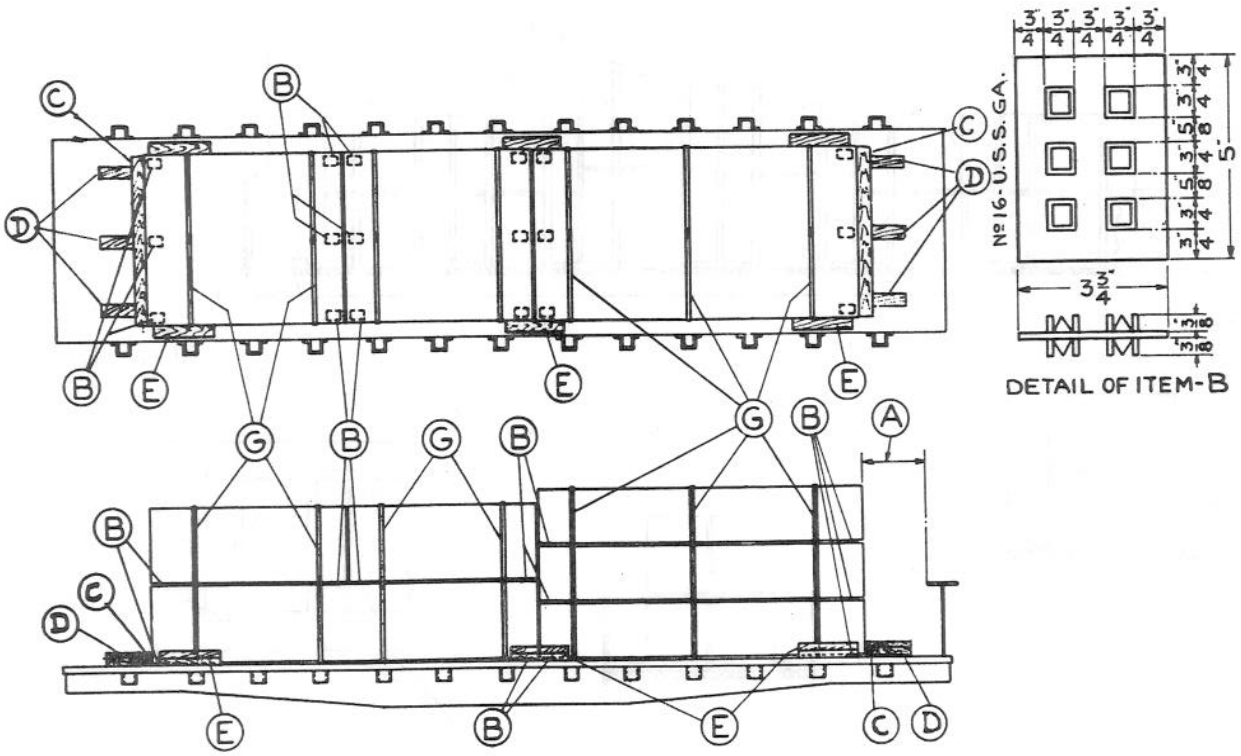
Items "F" to "J" inclusive, not required for single layers or when more than $\frac{1}{2}$ the height of the top layer extends below top of gondola car sides.

Boxes must be strong enough to prevent failure in transit and to resist the pressure of clamps.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 43

AUTOMOBILES AND OTHER MATERIALS (BOXED) ONE OR MORE LAYERS—FLAT OR GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	6 per box.	Anti-Skid Plates. Place between box and wooden floor, and between boxes, as shown. Load must be stenciled on both sides in one inch letters to read, "ANTI-SKID PLATES".
C	1 ea. end of load.	Each shall consist of two pieces of 2 in. x 4 in., length equal to width of bottom box. Secure bottom piece to floor with six 20-D nails and top piece to one below with four 20-D nails. Secure to steel floor with three ⅝ in. dia. bolts with washer under head of bolt and underneath floor. Not required for gondola cars with wooden floors.
D	3 ea. Item "C".	Each shall consist of two pieces of 2 in. x 4 in. x 16 in. Secure bottom piece to floor with three 20-D nails and top piece to one below with three 20-D nails. Not required for gondola cars.
E	6	Each shall consist of two pieces of 2 in. x 4 in. x 24 in. Secure bottom piece to floor with three 20-D nails and top piece to one below with three 20-D nails. Secure to steel floors with two ⅝ in. dia. bolts with washer under head of bolt and underneath floor. When floor space does not permit application, substitute for the six Items "E", eight 4 in. x 5 in. stakes, extending not less than 6 in. above top of car floor, with one 40-D nail driven into stake directly below and with head even with outside of stake pocket. Not required for gondola cars with wooden floors.
F		VACANT.
G	Pile 10 ft. long or less, 2.	1¼ in. x .035 in. high tension bands, encircling all layers. Substitute, if desired, at each location, 2 strands, No. 8 ga. high tension wires.
	Pile over 10 ft. long, 3.	Not required for single layers or when more than ½ the height of top layer extends below top of gondola car sides.

When two or more single boxes are loaded side by side on a flat car, they must be tied together with two 1¼ in. x .035 in. high tension bands or 4 No. 8 ga. high tension wires.

When box in third layer is 10 ft. long or less, and each end of the box below extends 2 ft. or more beyond it, use one additional Item "G" at each end of second layer.

For each pile more than twice as high as its width at its base (crosswise of car), add two 1¼ in. x .035 in. high tension bands, or four No. 8 ga. high tension wires, attached to stake pockets or car sides between top and second side plank, to, prevent pile from tipping.

Boxes must be strong enough to prevent failure in transit and to resist the pressure of bands or wires.

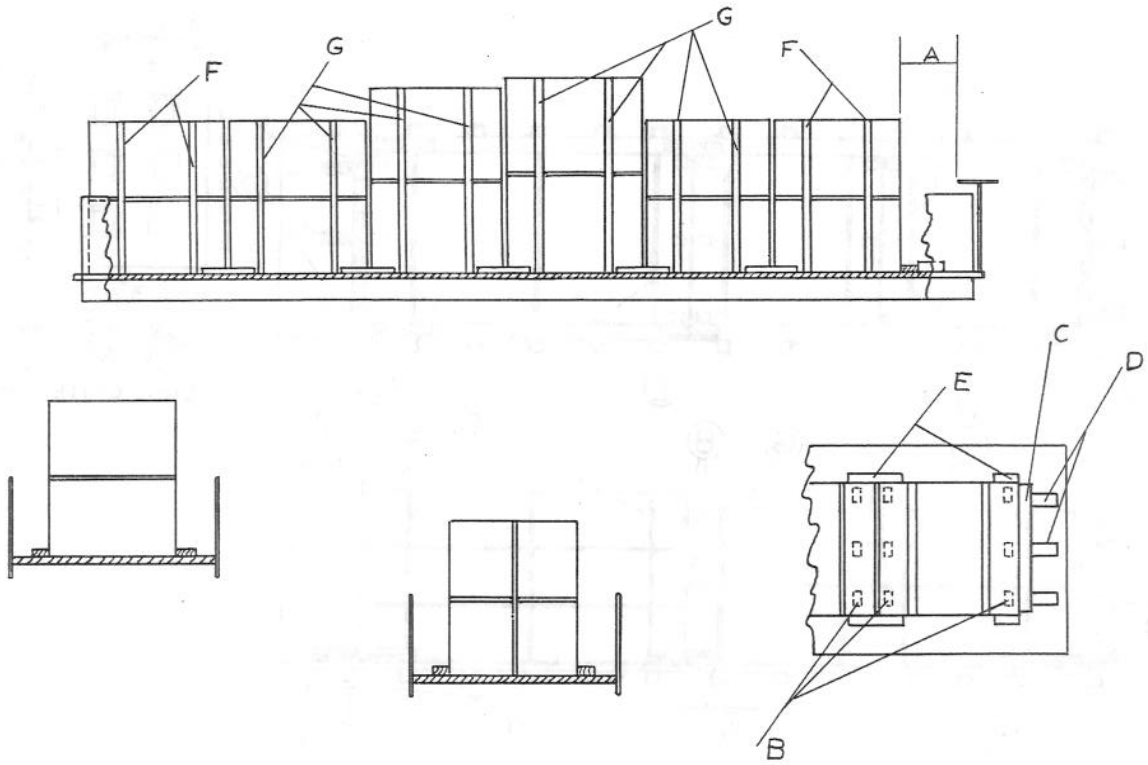
When platform width of car will not allow application of Items "E", substitute two 2 in. x .050 in. high tension bands for each pile. Pass bands through stake pockets and seal at least 18 in. above stake pockets and on top of load at center.

Where width of boxes exceeds the distance between the inside face of stake pockets, suitable protectors must be used to prevent shearing of bands at lower ends of boxes.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 44

AUTOMOBILES AND OTHER MATERIALS (ALL BOXES WEIGHING 4000 LBS. OR LESS) ONE OR MORE LAYERS —GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	6 per box.	Anti-Skid Plates. Place between box and wooden floor, and between boxes, as shown. Load must be stenciled on both sides in one inch letters to read, "ANTI-SKID PLATES".
C	1 ea. end of load.	Each shall consist of two pieces of 2 in. x 4 in., length equal to width of bottom box. Secure to steel floors with three $\frac{5}{8}$ in. dia. bolts with washer under head of bolt and underneath floor. Not required for wood floors.
D		VACANT.
E	As required.	Each shall consist of two pieces of 2 in. x 4 in. x 24 in. Secure to steel floors with two $\frac{5}{8}$ in. dia. bolts with washer under head of bolt and underneath floor. Not required for gondola cars with wooden floors.
F	2 ea. end pile.	$1\frac{1}{4}$ in. x .035 in. high tension bands, encircling all layers. Substitute, if desired, at each location, 1 strand No. 8 gage high tension wire.
G	2 ea. intermediate pile.	High tension band or wire, strength 2000 lbs. each, encircling all layers.

Items "F" and "G" not required for single layers or when more than $\frac{1}{2}$ the height of the top layer extends below top of car sides.

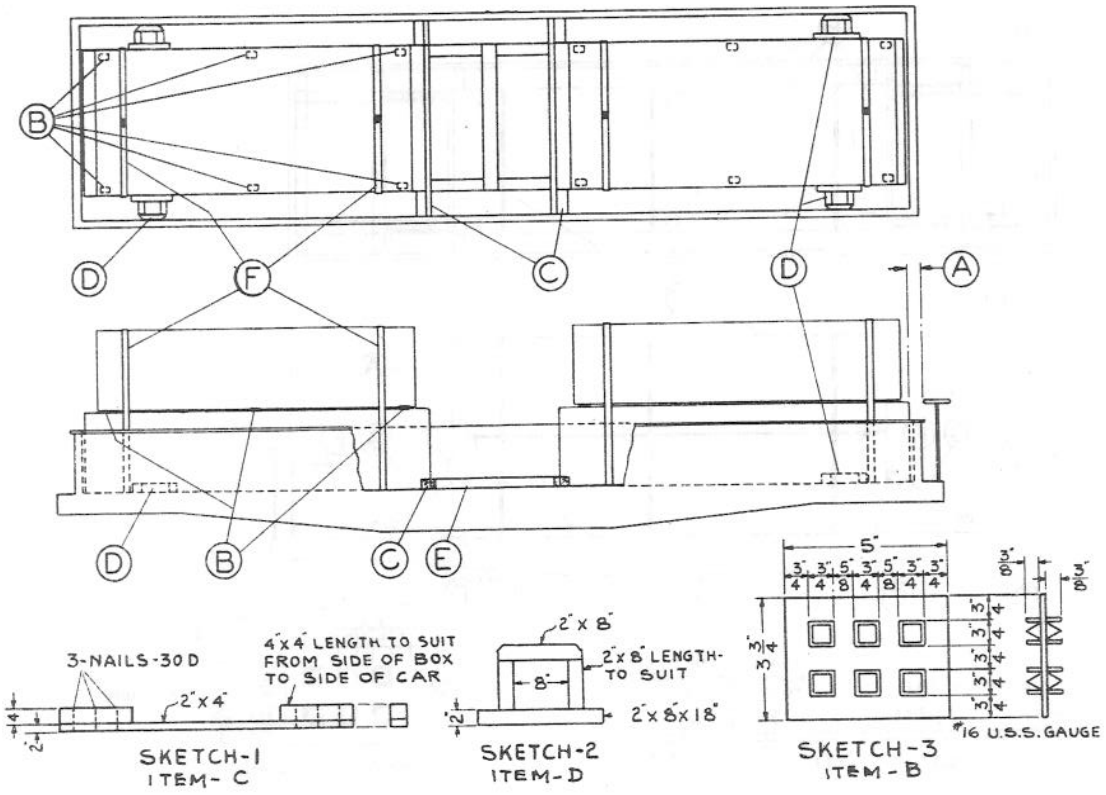
For each pile more than twice as high as its width at its base, (crosswise of car), add two $1\frac{1}{4}$ in. x .035 in. high tension bands, or four No. 8 ga. high tension wires, attached to stake pockets or car sides between top and second side plank, to prevent pile from tipping.

Boxes must be strong enough to prevent failure in transit and to resist the pressure of bands or wires.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 45

AUTOMOBILES AND OTHER MATERIALS (BOXED) END FOR END PILES, ONE OR MORE LAYERS—GONDOLA CARS WITH STEEL FLOORS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	6 per box.	Anti-Skid Plates. Place between boxes as shown. Load must be stenciled on both sides in one inch letters to read, "ANTI-SKID PLATES".
C	Sketch One, 2.	1 section, nailed to end of each box with 20-D nails spaced about 12 in. apart. Required only in cases of open spaces between end for end boxes.
D	Sketch Two, 4.	Locate about 12 in. from end of box and nail each to side of box with six 20-D nails. Bevel both ends of the side of block contacting side of car.
E	2	4 in. x 4 in., long enough to fit in between and toe-nailed to each Item "C" with 20-D nails, to suit.
F	Pile 10 ft. long or less; 2. Pile over 10 ft. long; 3.	1¼ in. x .035 in. high tension bands, encircling all layers. Substitute, if desired, at each location, 2 strands No. 8 ga. high tension wire.

When boxes in bottom layers do not contact ends of car, use suitable blocking between box and end of car.

When box in third layer is 10 ft. long or less, and each end of the box below extends 2 ft. or more beyond it, use one additional Item "F" at each end of second layer.

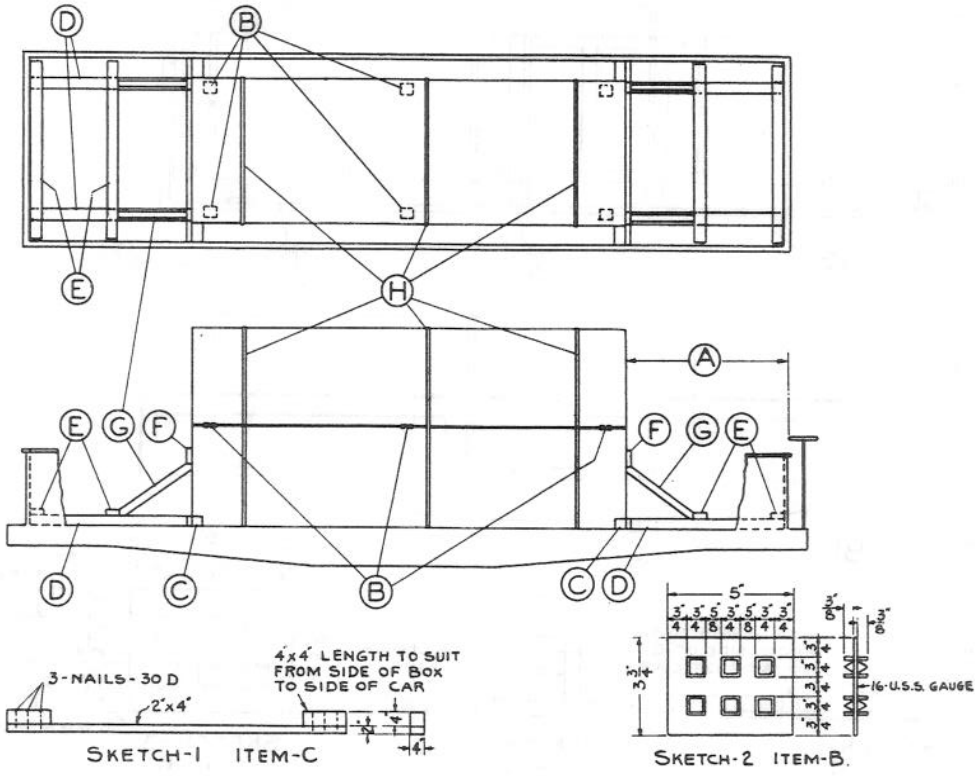
For each pile more than twice as high as its width at its base, (crosswise of car), add two 1¼ in. x .035 in. high tension bands, or four No. 8 ga. high tension wires, attached to stake pockets or car sides between top and second side plank, to prevent pile from tipping.

Boxes must be strong enough to prevent failure in transit and to resist the pressure of bands or wires.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 46

AUTOMOBILES AND OTHER MATERIAL (BOXED) SINGLE PILE, ONE OR MORE LAYERS—GONDOLA CARS WITH STEEL FLOORS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	6 per box.	Anti-Skid Plates. Place between boxes as shown. Load must be stenciled on both sides to read. "ANTI-SKID PLATES".
C	Sketch One, 2.	1 Section, nailed to each end of box, with 20-D nails, spaced about 12 in. apart.
D	2 ea. end.	4 in. x 4 in., long enough to fit between end of car and Item "C". Locate in line with edge of bottom box. Toe-nail to Item "C".
E	2 ea. end.	2 in. x 4 in., length about equal to width of car floor. Nail to each Item "D" with three 20-D nails.
F	4	2 in. x 4 in. x 12 in. Locate vertically and nail each to end and corner post of box with five 20-D nails.
G	2 ea. end.	2 in. x 4 in., long enough to provide suitable angularity and to fit tightly, between Items "E" and "F". Nail each to box and Items "D" with 20-D nails, to suit.
H	Pile 10 ft. long or less; 2. Pile over 10 ft. long; 3.	1¼ in. x .035 in. high tension bands, encircling all layers. Substitute, if desired, at each location, 2 strands, No. 8 ga. high tension wire.

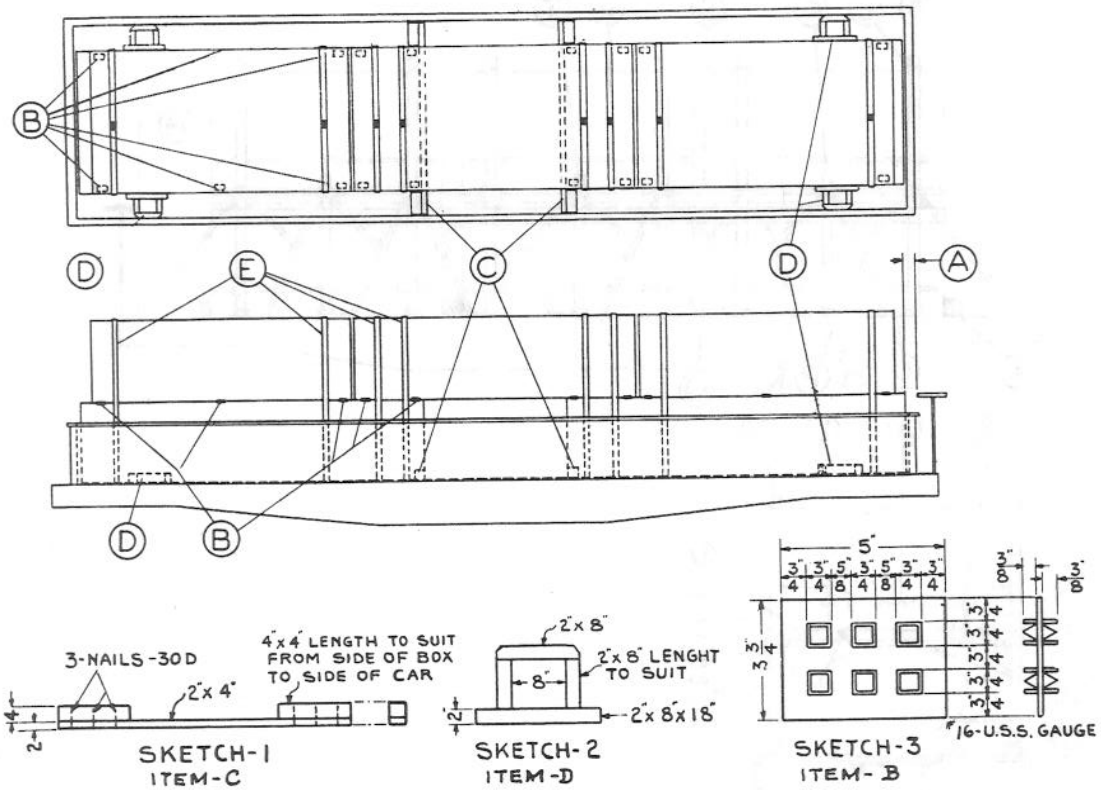
When box in third layer is 10 ft. long or less, and each end of box below extends 2 ft. or more beyond it, use one additional Item "H" at each end of second layer.

For each pile more than twice as high as its width at its base, (crosswise of car), add two 1¼ in. x .035 in. high tension bands, or four No. 8 ga. high tension wires, attached to top of car side, to prevent pile from tipping.

Boxes must be strong enough to prevent failure in transit and to resist the pressure of bands or wires.

See General Rules 4, 5, 9, 14 and 15 for further details.

AUTOMOBILES AND OTHER MATERIALS (BOXED) ONE OR TWO LAYERS—OVERLAPPED—GONDOLA CARS WITH STEEL FLOORS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	6 per box.	Anti-Skid Plates. Place between boxes as shown. Four must be placed under each overlapping end, the length of which must be not less than 6 ft. Load must be stenciled on both sides in one inch letters to read, "ANTI-SKID PLATES".
C	Sketch One, 2.	1 section, nailed to end of each box with 20-D nails spaced about 12 in. apart. Required only in cases of open spaces between end for end boxes.
D	Sketch Two, 4.	Locate about 12 in. from end of box and nail each to side of box with six 20-D nails. Bevel both ends of the side of block contacting side of car.
E	8 per overlapped unit.	1¼ in. x .035 in. high tension bands, encircling all layers. Substitute, if desired, at each location, 2 strands, No. 8 ga. high tension wire. Locate and space about as shown.

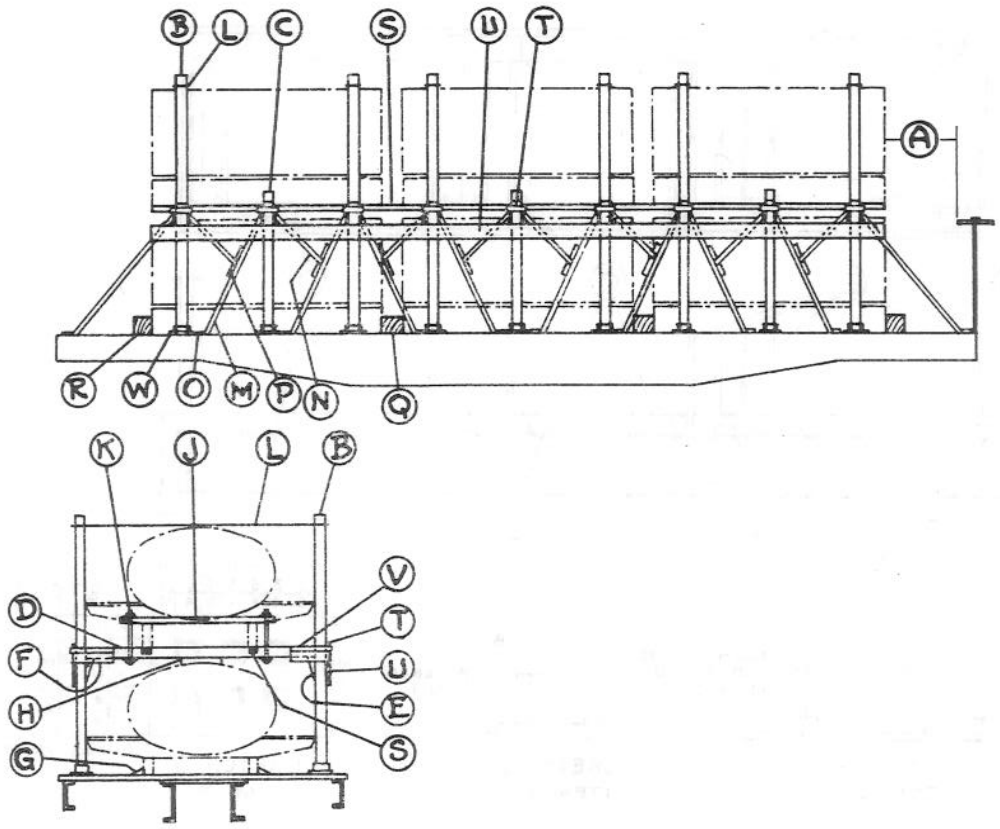
When boxes in bottom layer do not contact ends of car, use suitable blocking between box and end of car.

Boxes must be strong enough to prevent failure in transit and to resist the pressure of bands or wires.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 48

AUTOMOBILE TRUCK BODIES—FLAT OR GONDOLA CARS

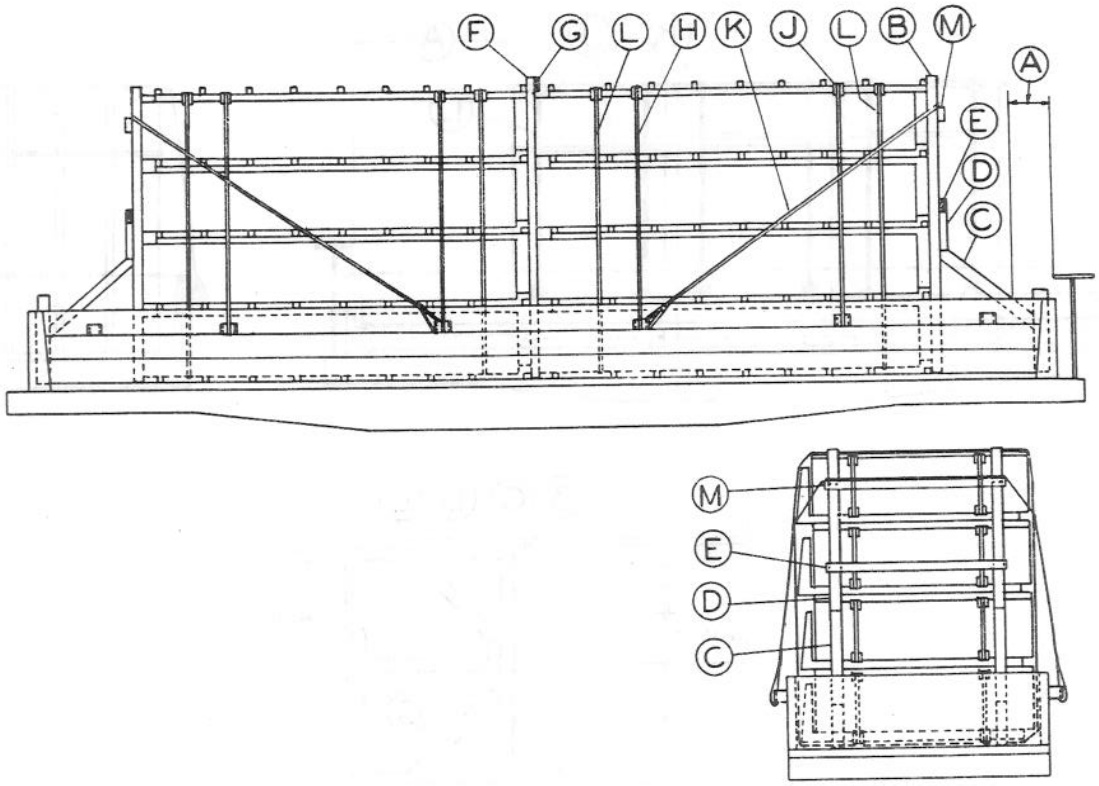


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 pr. per pile.	4 in. x 4 in., hardwood.
C	1 pr. per pile.	4 in. x 4 in., hardwood.
D	1 ea. pr. Items "B" and "C".	4 in. x 4 in., hardwood.
E	2 ea. Item "D".	4 in. x 4 in. x 6 in., nailed to Items "B" and "D".
F	2 ea. Item "E".	1 in. x 6 in., suitable length, nailed to Items "B", "C", "D", "E" and "T".
G	2 ea. side of lower truck body.	4 in. x 4 in., wedge shaped, nailed to floor.
H	1 ea. Item "D".	4 in. x 4 in., cut to shape, nailed to Item "D".
J	1 ea. Item "D".	2 in. x 4 in.
K	2 ea. Item "J".	¾ in. dia. rods with washers and nuts, through Items "D" and "J", ends of rods riveted over nuts.
L	1 ea. pr. Items "B".	4 strands, 2 wrappings, No. 11 ga. wire.
M	As shown.	2 in. x 4 in., hardwood, nailed to floor and Items "B" and "C".
N	As shown.	2 in. x 4 in., hardwood, nailed to Items "B", "C" and "M".
O	1 ea. Item "M".	1 in. x 4 in. x 6 in., nailed to floor and against Item "M".
P	2 ea. Item "N".	1 in. x 4 in. x 9 in., nailed to Item "M".
Q	As required.	6 in. high, length to suit, width to fill space between piles.
R	2	6 in. x 6 in., length to suit.
S	As required.	2 in. x 2 in. fastened to underside of truck body sills and fitted against Items "D".
T	1 ea. Items "B" and "C".	1 in. x 6 in., length to suit, nailed to Items "B" and "C".
U	1 per side.	1 in. x 6 in., full length, placed on inside and nailed to Items "B", "C", "M" and "N".
V	1 ea. Items "B" and "C".	2¼ in. No. 22 ga. strap, long enough to pass around Items "B" and "C" and nailed to Item "D".
W	4 ea. Items "B" and "C".	5 in. x 5/16 in. x 4 in., bent to form an angle against each side of Items "B" and "C" and nailed to floor and Items "B" and "C".

See General Rules 4, 5, 9, 10, 14 and 15 for further details.

Sec. 4—Fig. 49

AUTOMOBILE TRUCK BODIES, HORIZONTALLY—GONDOLA CARS



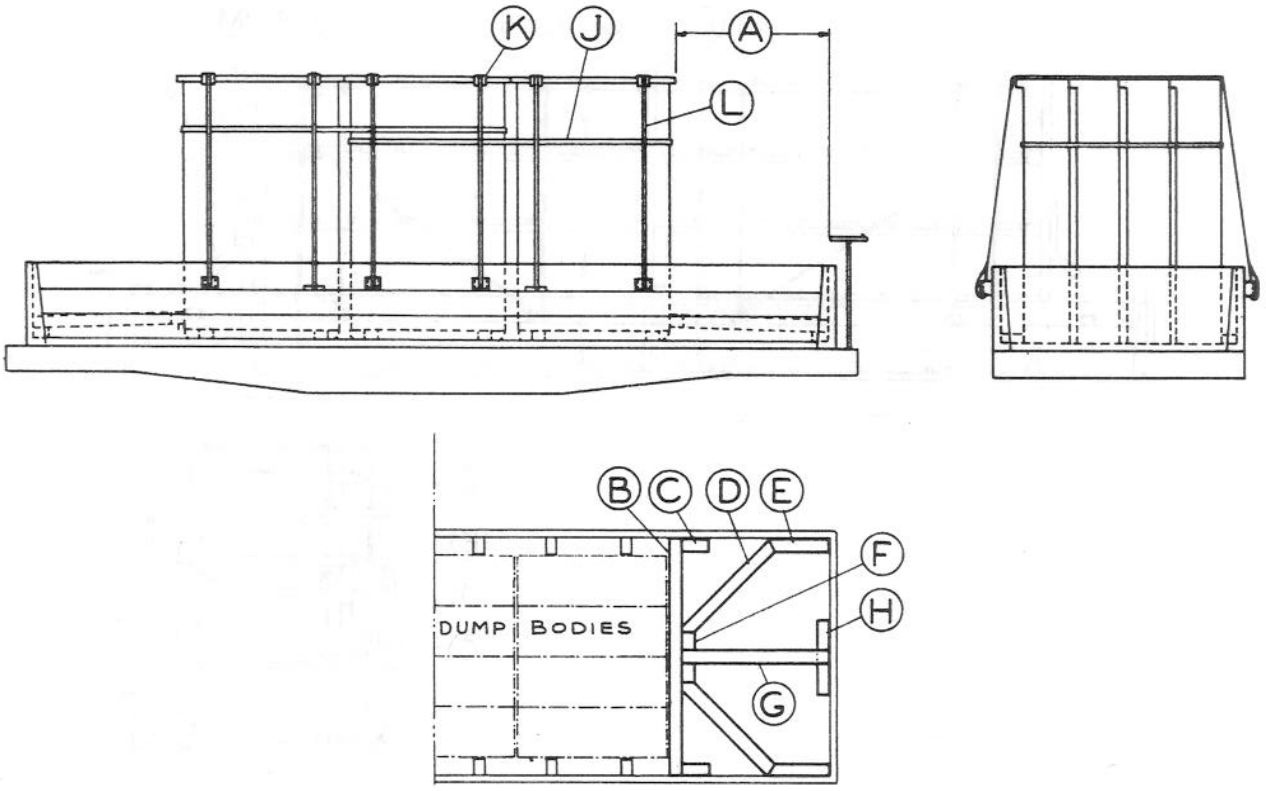
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. end of load.	4 in. x 4 in., hardwood, length to suit.
C	2 ea. end of load.	4 in. x 4 in., hardwood, length to suit. Nailed to Items "B" and to ends of car. Not required when Items "B" are placed against ends of car.
D	1 ea. Item "B".	2 in. x 4 in., hardwood, nailed to Item "B" above Item "C". Required only when Items "C" are used.
E	1 ea. end of car.	2 in. x 4 in., hardwood, nailed to Items "B".
F	As required.	2 in. x 4 in., hardwood, length to suit. Place 2 between each two tiers, suitably placed.
G	As required.	1 in. x 6 in., hardwood, nailed to each pair Items "F".
H	2 ea. tier.	2 in. x .050 in. high tension bands. Thread through stake pockets or car sides between top and second side plank and seal at least 18 in. above top of car side and on top of load.
J	As required.	2 in. x 3 in. metal corner protectors under bands at all sharp corners.
K	2 ea. end of load.	2 in. x .050 in. high tension bands, threaded through stake pockets or car sides between top and second side plank and sealed about 18 in. above stake pocket or top of car sides and above Item "M". Substitute, if desired, No. 8 gage high tension wire, totaling load strength.
L	2 ea. tier.	2 in. x .050 in. high tension bands, encircling entire pile not less than 12 in. from ends of pile.
M	1 ea. end of load.	2 in. x 4 in., hardwood, long enough to extend beyond Items "B". Nail to Item "B" with three 20-D nails on each end.

Vacant spaces between load and car sides must be protected with suitable bracing and blocking.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 50

AUTOMOBILE TRUCK BODIES, VERTICALLY—GONDOLA CARS

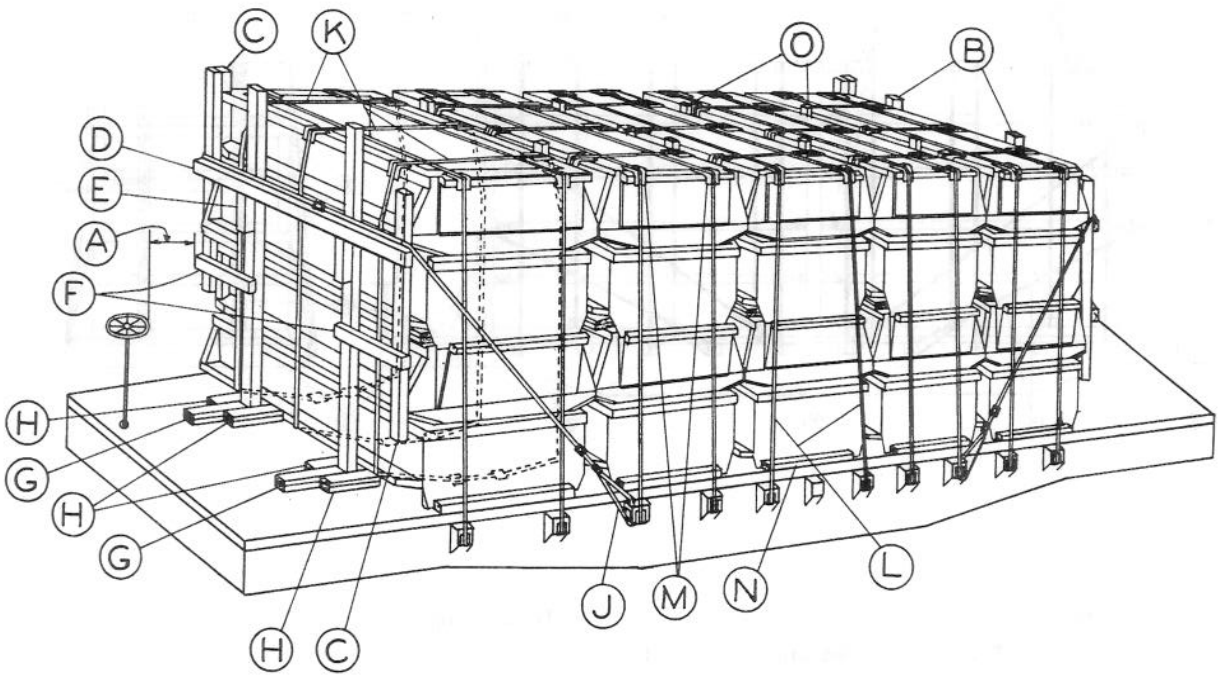


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	1 ea. end of load.	4 in. x 4 in., hardwood, length to suit.
C	2 ea. Item "B".	2 in. x 4 in., hardwood. Nail to Items "B" and to car sides.
D	2 each Item "B".	2 in. x 4 in., hardwood. Bevel ends to fit against Items "B", "E" and "F". Nail to Items "B", "E", "F" and side of car.
E	1 ea. Item "D".	2 in. x 4 in., hardwood, long enough to extend from Item "D" to end of car. Nail to car sides.
F	2 ea. Item "B".	2 in. x 4 in. x 18 in., hardwood. Nail to Items "B".
G	1 ea. Item "B".	4 in. x 4 in., hardwood, long enough to extend from Item "B" to end of car. Nail to Items "B" and "H".
H	1 ea. Item "G".	2 in. x 4 in. x 24 in., hardwood. Nail to end of car beneath lower edge of Item "G".
J	1 ea. two rows.	2 in. x .050 in. high tension bands. Locate about two-fifths height of load from top and seal at end of tier.
K	As required.	2 in. x 3 in. metal corner protectors under bands at all sharp corners.
L	2 ea. row.	2 in. x .050 in. high tension bands. Thread through stake pockets or car sides between top and second side plank and seal at least 18 in. above top of car side and on top of load.

Vacant spaces between load and car sides must be protected with suitable bracing and blocking.

See General Rules 4, 5, 9, 14 and 15 for further details.

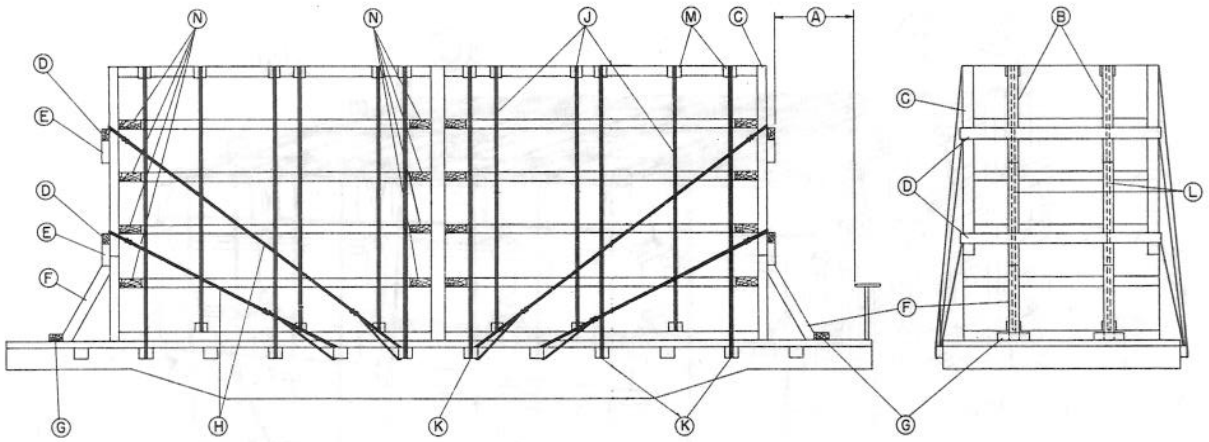
AUTOMOBILE TRUCK BODIES—CROSSWISE, WITH HIGH TENSION BANDS—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. end of load.	4 in. x 4 in., hardwood, length equal to height of pile.
C	2 ea. end of load.	4 in. x 4 in., hardwood, long enough to contact three top rows of bodies.
D	1 ea. end of load.	2 in. x 4 in., hardwood, long enough to extend beyond Items "C". Nail to Items "B" and "C" with 40-D nails.
E	2 ea. Item "D".	2 in. x 4 in. x 10 in., hardwood. Locate directly under Item "D" and nail to Items "B" with 40-D nails.
F	2 ea. end of load.	2 in. x 4 in. x 10 in., hardwood. Locate one on each side of load about ⅓ height of load from floor and nail to Items "B" and "C".
G	2 ea. Item "B".	2 in. x 4 in. x 10 in., hardwood. Locate against Items "B", lengthwise of car. Nail lower piece to floor with three 40-D nails and the top piece to the one below with three 40-D nails.
H	4 ea. Item "B".	2 in. x 4 in. x 10 in., hardwood. Locate against each side of Items "B" and "G", lengthwise of car. Nail lower piece to floor with three 40-D nails and the top piece to the one below with three 40-D nails.
J	1 ea. end of load.	2 in. x .050 in. bands. Attach to stake pockets at each side of car. Seal at least 18 in. above stake pockets and on top of Item "D", at center.
K	3 ea. tier.	1¼ in. x .035 in. bands. Place under anchor plates on car floor and around each tier. Locate outside bands about ⅕ the length of body from end and inside band at center of tier. Seal on top of load.
L	2 ea. tier.	1¼ in. x .035 in. bands. Locate about ⅕ the width of load from ends. Attach to stake pockets at each side of car and seal at least 18 in. above stake pockets. Pass across top of tier and seal at top of load.
M	As required.	2 in. x 3 in. metal corner protectors. Locate under band sat all sharp corners.
N	1 ea. side of ea. tier.	3 in. x 3 in. x 5 ft., hardwood. Use on cars 9 ft. 3 in. or more in width. When width of car is less than 9 ft. 3 in., use one 4 in. x 4 in. hardwood stake in stake pocket on each side of each tier, wedged to prevent displacement.
O	As required.	2 in. x 3 in., hardwood, length to suit, secured to prevent displacement.

See General Rules 4, 5, 9, 14 and 15 for further details.

AUTOMOBILE TRUCK BODIES—LENGTHWISE, WITH HIGH TENSION BANDS—FLAT CARS

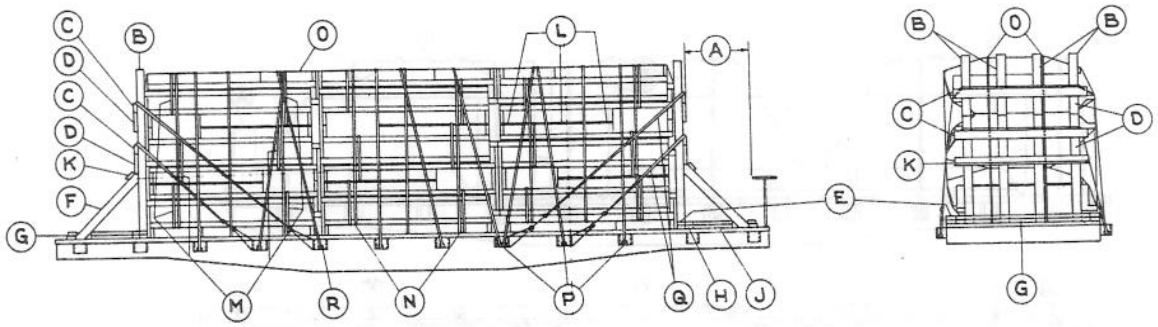


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. end of load.	4 in. x 4 in., hardwood, length equal to height of pile.
C	2 ea. end of load.	4 in. x 4 in., hardwood, long enough to contact three top bodies in pile.
D	2 ea. end of load.	2 in. x 4 in., hardwood, long enough to extend beyond Items "C". Locate at second and fourth bodies in pile and nail to Items "B" and "C" with 40-D nails.
E	2 ea. Item "D".	2 in. x 4 in. x 10 in., hardwood. Locate directly under Items "D" and nail to Items "B" with 40-D nails.
F	1 ea. Item "B".	4 in. x 4 in., hardwood, located under lower Items "E". Bevel ends to fit against Items "B" and floor. Nail to Items "B" and floor with 40-D nails.
G	1 ea. Item "F".	2 in. x 4 in. x 10 in., hardwood. Locate against Items "F", crosswise of car and nail to floor with three 40-D nails.
H	2 ea. end of load.	2 in. x .050 in. bands. Locate around end of load above Items "D" and attach to stake pockets at sides of car. Seal at least 18 in. above stake pockets. Use a 24 in. length of 2 in. band at corners where bands contact Items "C" and seal to Items "H".
J	3 per pile.	1¼ in. x .035 in. bands, spaced to suit length of load. Place under anchor plates on floor, around entire pile and seal at top of pile at center.
K	3 per pile.	1¼ in. x .035 in. bands. Pass through stake pockets and seal at least 18 in. above stake pockets and on top of load at center.
L	2 per pile.	2 in. x .050 in. bands. Place under anchor plates on floor and around load lengthwise. Seal on top of load at center.
M	As required.	2 in. x 3 in. metal corner protectors. Locate under bands at all sharp corners.
N	As required.	Suitable fillers to equalize load.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 53

AUTOMOBILE TRUCK BODIES, LENGTHWISE, WITH HIGH TENSION BANDS—FLAT CARS

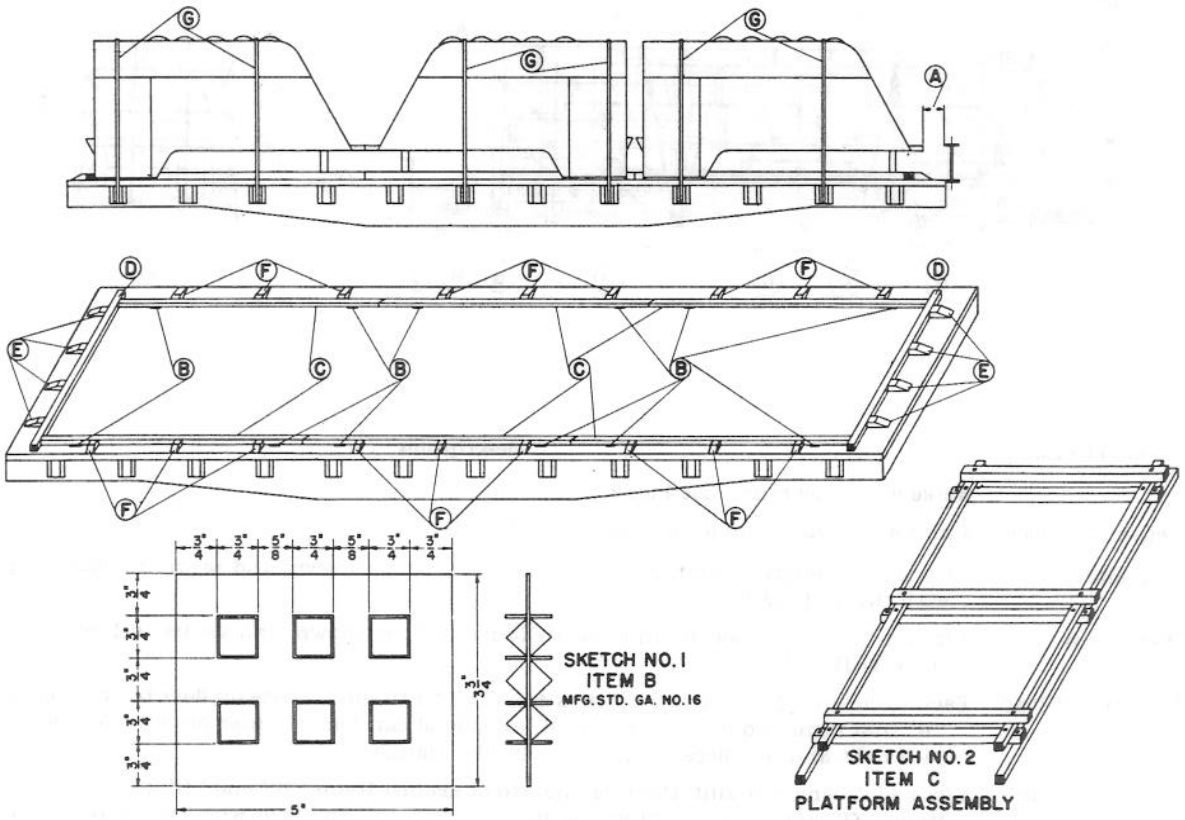


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	4 ea. end of load.	4 in. x 4 in., length equal to height of pile.
C	2 ea. end of load.	2 in. x 4 in., length to suit. Locate suitably spaced, as shown, and secure to each Item "B" with two 40-D nails.
D	4 ea. Item "C".	2 in. x 4 in. x 10 in. Locate underneath Items "C", as shown, and secure to Items "B" with three 30-D nails.
E	5 ea. end of load.	Each to consist of two pieces of 2 in. x 4 in., length to suit. Locate on floor between each Item "B" and from two outside Items "B" to side of car. Secure lower piece to floor with three 30-D nails and top piece to one below in like manner.
F	1 ea. Item "B".	4 in. x 4 in., length to suit. Chamfer ends to fit against Items "B" and "D" at top, and against Items "G" and floor at bottom. Secure to Items "B" and floor with two 40-D nails at each location.
G	1 ea. end of load.	Each to consist of two pieces of 2 in. x 4 in., length to suit. Locate, as shown, against Items "F" and secure lower piece to floor with 30-D nails spaced about 12 in. apart and top piece to one below in like manner.
H	1 ea. end of load.	Each to consist of two pieces of 2 in. x 4 in., length to suit. Locate, as shown, against Items "B" and "E" and secure lower piece to floor with 30-D nails spaced about 12 in. apart and top piece to one below in like manner.
J	4 ea. end of load.	Each to consist of two pieces of 2 in. x 4 in., length to suit. Locate, as shown, between Items "F" and "H" and secure lower piece to floor with four 30-D nails and top piece to one below in like manner.
K	1 ea. end of load.	2 in x 4 in., length to suit. Locate, as shown, on top of Items "F" and secure with two 30-D nails at each location.
L	As required.	1 in. x 6 in., length to suit. Locate three pieces between each two bodies, as shown.
M	As required.	1¼ in. x .035 in. bands encircling each set of two bodies suitably spaced, as shown.
N	3 per pile.	1¼ in. x .035 in. crosswise encircling bands with anchor plates, pattern 84. Locate, as shown, crosswise around pile and secure each anchor plate to floor with eight 20-D cement-coated nails.
O	2 per pile.	2 in. x .050 in. longitudinal encircling bands with anchor plates, pattern 84. Locate, as shown, lengthwise around pile and secure each plate to floor with eight 20-D cement-coated nails.
P	3 per pile.	2 in. x .050 in. bands. Locate, suitably spaced, over pile and attach to stake pockets.
Q	2 ea. end of pile.	2 in. x .050 in. bands. Locate, as shown, around end of load above Items "C" and attach to stake pockets.
R	As required.	Protection angles, 20 gage, 4 in. wide, applied so as to prevent displacement.

See General Rules 4, 5, 9, 11, 14 and 15 for further details.

Sec. 4—Fig. 54

TRUCK TANKS—FLAT CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	4 ea. unit.	Anti-skid plates, per Sketch 1. Locate between floor and platform side members, Item "C", as shown.
C	1 ea. unit.	Bolted platform of 4 in. x 4 in. material, per Sketch 2. Locate as shown. (Side members only shown in plan view.)
D	1 ea. end unit.	4 in. x 4 in., length to suit. Locate at each end of car against Item "C", and nail each to floor with nine 60-D nails.
E	4 ea. Item "D".	3 in. x 4 in. x 12 in. wedge-shaped blocks. Locate suitably spaced against Item "D", as shown, and secure each to floor with three 20-D nails.
F	6 ea. unit.	3 in. x 4 in. x 12 in. wedge-shaped blocks. Locate three suitably spaced on each side of Item "C", as shown, and secure each to floor with three 20-D nails.
G	2 ea. unit.	2 in. x .050 in. high tension bands. Locate suitably spaced over top of tank and through stake pockets.

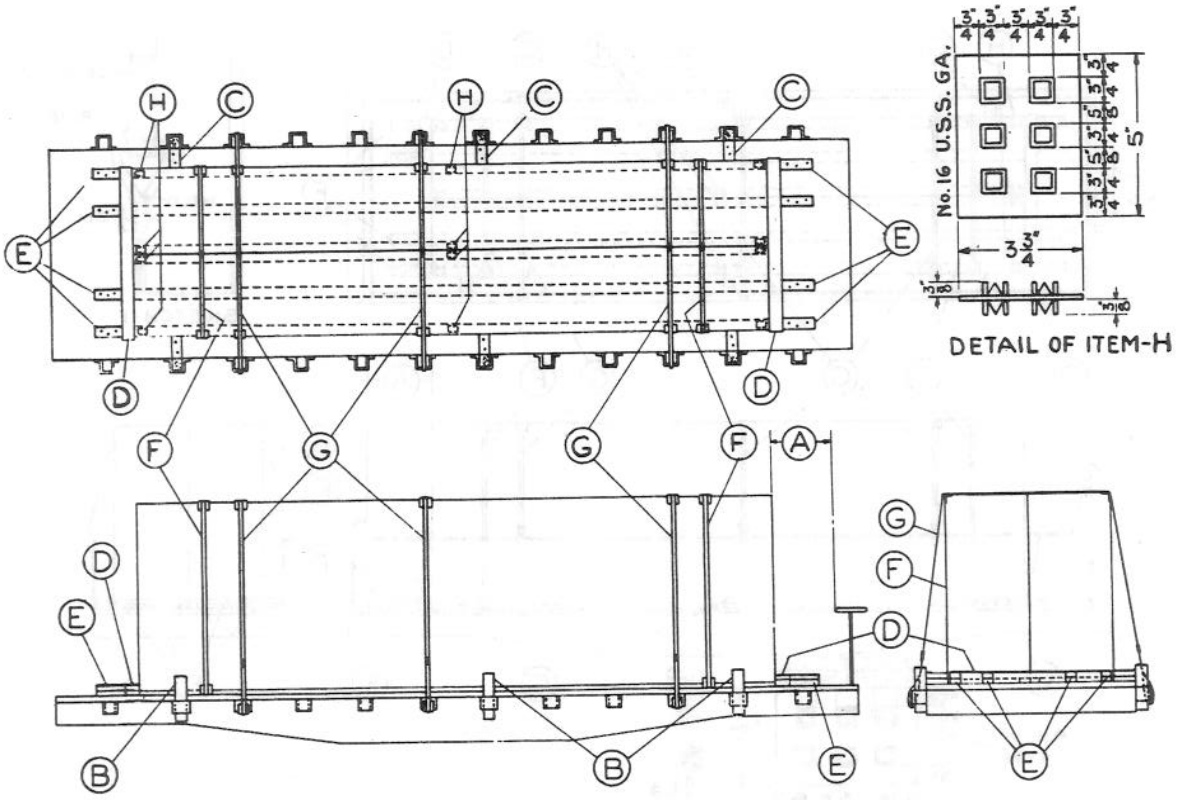
Items "B", "D" and "E" not required when Item "C" is bolted to floor with six $\frac{5}{8}$ dia. bolts.

Tanks must be securely bolted to platform assembly.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 55

BOXED AIRPLANES—FLAT CARS



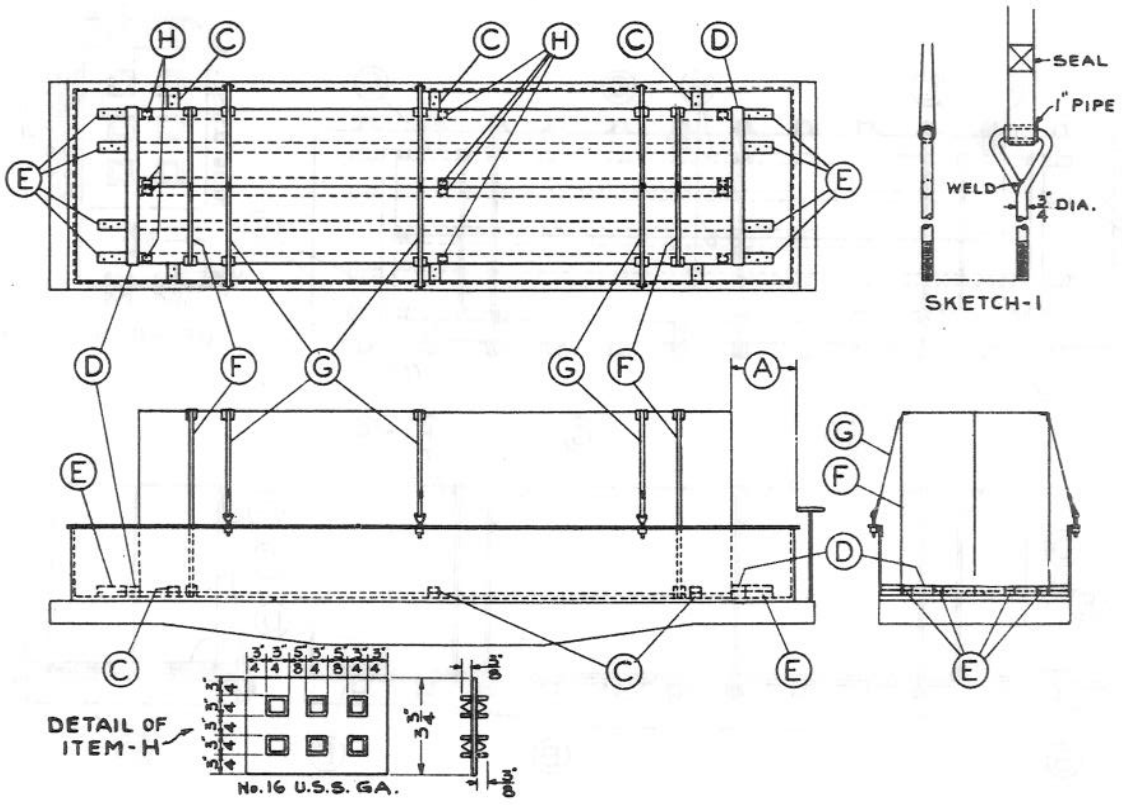
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	3 pr. per pile.	Side stakes, 4 in. x 5 in., hardwood, long enough to extend 4 in. below bottom of stake pocket and 6 in. above bottom of load. When width of pile, any length, will not permit application of side stakes, use one additional Item "F" and "G" for each pile over 20 ft. long.
C	2 ea. Item "B".	2 in. x 4 in., hardwood, length equal to distance between Item "B" and side of load. Securely nail bottom piece to floor with 20-D nails and the top piece to the one below in a like manner. Not required when load completely fills the distance between Items "B".
D	1 or 2 ea. end of load.	Each shall consist of two pieces of 2 in. x 4 in., length equal to width of load when the end of one box does not extend beyond the end of adjacent box. When end of one box extends beyond the other, place one, length equal to width of box, against each box. Nail bottom piece to the floor with six 20-D nails and the top piece to the one below with four 20-D nails.
E	Boxes 5 ft. wide or less, 2 ea. end. Boxes over 5 ft. wide, 4 ea. end.	Each shall consist of two pieces of 2 in. x 4 in. x 16 in. Locate against Item "D" and nail bottom piece to floor with three 20-D nails and the top piece to the one below with three 20-D nails.
F	2 per pile.	2 in. x .050 in. high tension bands, encircling pile and sealed on top of load. Required only when two or more boxes are loaded side by side.
G	3 per pile.	2 in. x .050 in. high tension bands. Pass through stake pockets and seal at least 18 in. above stake pockets and on top of load.
H	6 per box.	Anti-Skid Plates. Place between box and floor, as shown. Load must be stenciled on both sides to read, "ANTI-SKID PLATES".

When box is more than twice as high as its width at base, add two clamps, each to consist of one 4 in. x 6 in. timber, across top of box with one ¾ in. dia. rod through each end of same and through one ½ in. x 4 in. x 10 in. plate underneath stake pocket. Locate about ¼ the length of box from each end. Use suitable plate washer on top of clamping piece to prevent splitting.

See General Rules 4, 5, 9, 10, 14 and 15 for further details.

Sec. 4—Fig. 56

BOXED AIRPLANES—GONDOLA CARS



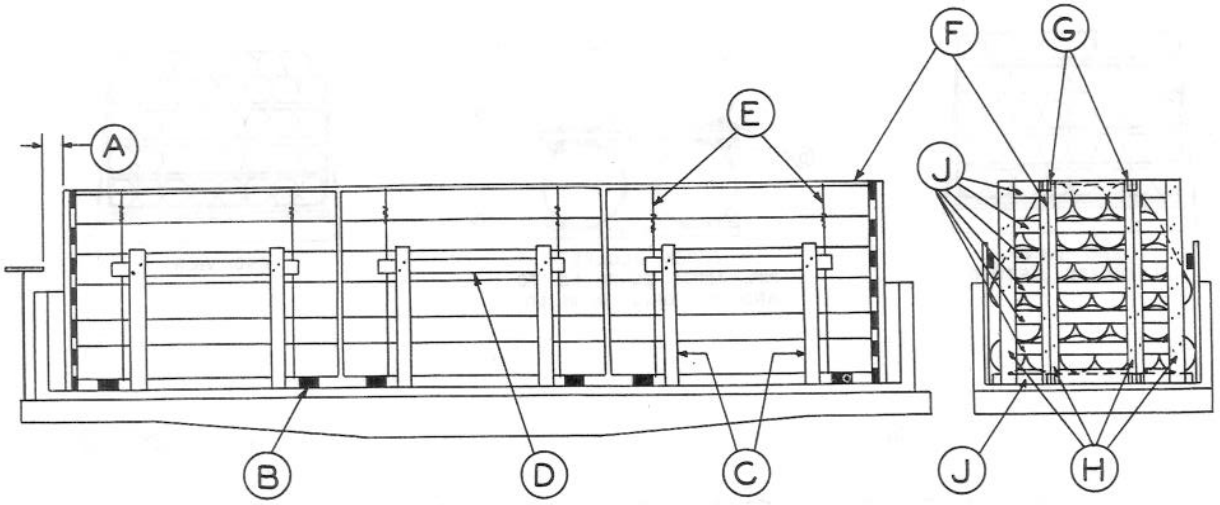
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B		Not required.
C	3 ea. side of pile.	Each shall consist of two pieces of 2 in. x 4 in., hardwood, length equal to distance between side of car and side of load. Securely nail bottom piece to floor with 20-D nails and the top piece to the one below in a like manner. Bolt to steel car floors with two 5/8 in. dia. bolts, with washers.
D	1 or 2 ea. end of load.	Each shall consist of two pieces of 2 in. x 4 in., length equal to width of load when the end of one box does not extend beyond the end of the adjacent box. When end of one box extends beyond the other, place one, length equal to width of box, against each box. Nail bottom piece to the floor with six 20-D nails and the top piece to the one below with four 20-D nails. Bolt to steel car floors with three 5/8 in. dia. bolts, with washers.
E	Boxes 5 ft. wide or less, 2 ea. end. Boxes over 5 ft. wide, 4 ea. end.	Each shall consist of two pieces of 2 in. x 4 in. x 16 in. Locate against Item "D" and nail bottom piece to floor with three 20-D nails and the top piece to the one below with three 20-D nails. Bolt to steel car floors with two 5/8 in. dia. bolts, with washers.
F	2 per pile.	2 in. x .050 in. high tension bands, encircling pile and sealed on top of load. Required only when two or more boxes are loaded side by side.
G	3 per pile.	2 in. x .050 in. high tension bands. Attach to top side angle as per sketch 1, or by equally effective method, or thread, through car side between top and second side plank and seal at least 18 in. above car side and on top of load.
H	6 per box.	Anti-Skid Plates. Place between box and floor, as shown. Load must be stenciled on both sides to read, "ANTI-SKID PLATES".

When box is more than twice as high as its width at base, add two clamps, each to consist of one 4 in. x 6 in. timber across top of box with one 3/4 in. dia. rod through each end of same and through top chord angle or through car floor and through one 1/2 in. x 4 in. x 18 in. plate or one 4 in. x 4 in. x 18 in. hardwood cleat underneath floor. Locate about 1/4 the length of box from each end. Use suitable plate washer on top of clamping piece to prevent splitting.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 57

CEMENT PIPE CONTAINING ASBESTOS FIBERS 26 INCHES OR LESS IN DIAMETER IN PYRAMIDAL FORM, WITH NO. 8 GAGE HIGH TENSION WIRE OR 1¼ IN. X .035 IN. HIGH TENSION BANDS—GONDOLA CARS

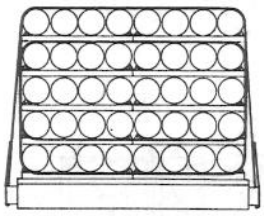


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 per pile.	2 in. x 4 in., length equal to width of pile. Locate about ⅕ the length of pile from each end.
C	2 pr. per pile.	1 in. x 4 in. when ½ the diameter or less of the base layer of pyramid extends above the top of car sides; 2 in. x 6 in. when more than ½ the diameter of base layer of pyramid extends above top of car sides; substitute, if desired, 3 in. x 4 in. Nail to these items whatever additional fillers may be necessary to fill space between load and car sides. Locate about ⅕ the length of pile from each end.
D	2 per pile.	½ in. x 4 in. nailed to inside of Items "C".
E	2 per pile.	Wires or bands. Locate about ⅕ the length of pile from each end.
F	2	Wires or bands, lengthwise, around entire load and Items "H". Locate near each side of load.
G	8	Suitable metal corner protection, located at top and bottom of Items "H", as shown.
H	8	1 in. x 6 in., length to suit.
J	As required.	1 in. x 4 in., nailed to inside of Items "H". Locate so as to contact the ends of each layer of pipe.

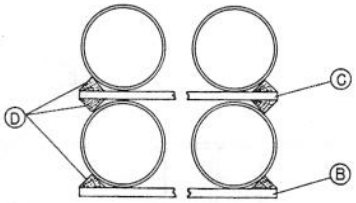
Place suitable cushioning material between ends of piles, to prevent pipe from contacting each other.

See General Rules 4, 9, 14 and 15 for further details.

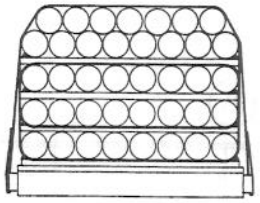
Sec. 4—Fig. 58
CEMENT PIPE CONTAINING ASBESTOS FIBERS, 36 IN. OR LESS INSIDE DIAMETER, HEIGHT NOT TO EXCEED 10 FT. ABOVE CAR FLOOR—FLAT CARS



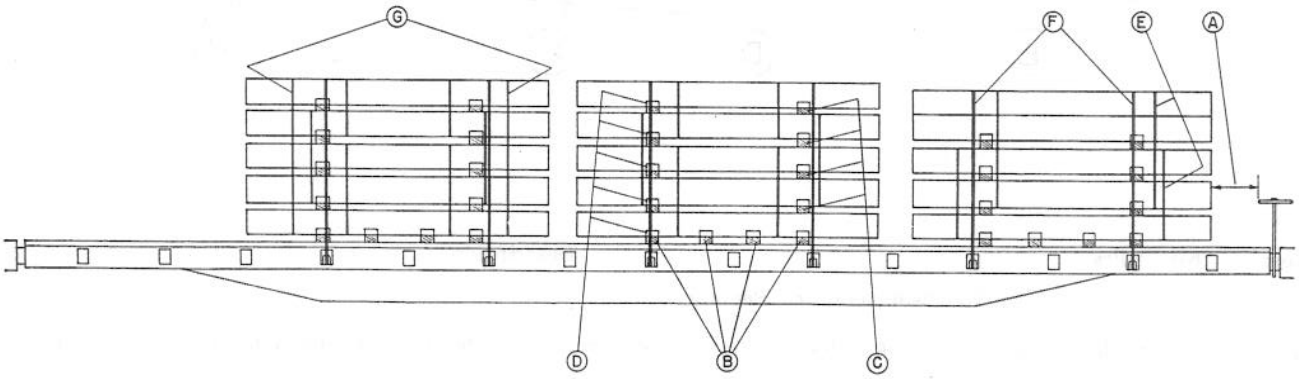
END VIEW
(ALTERNATE METHOD)



CHOCK BLOCKS
PIPE- ABOVE 20 IN. I.D. TO
AND INCLUDING 36 IN. I.D.



END VIEW



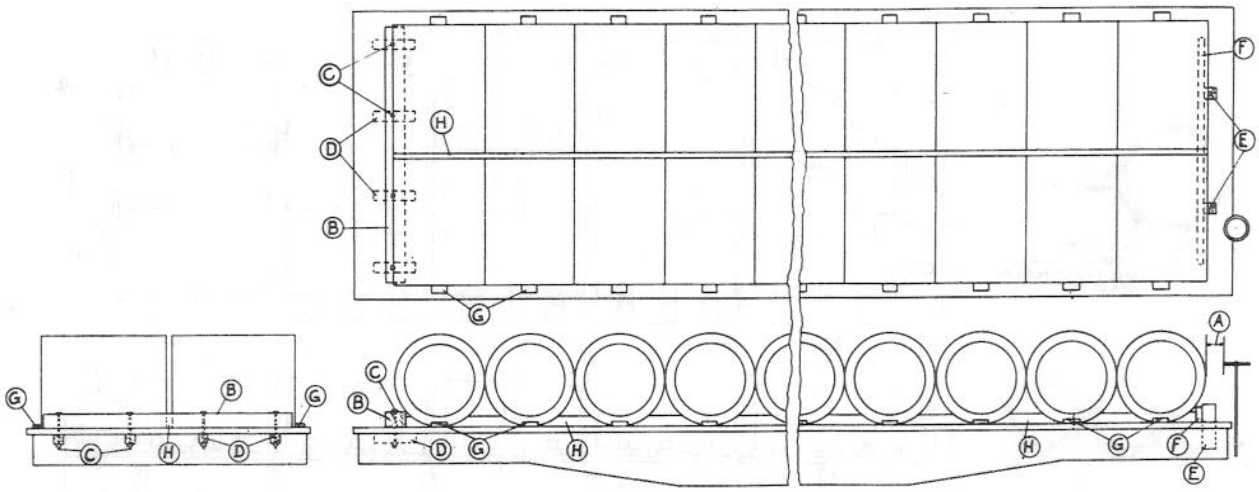
SIDE ELEVATION VIEW
(ILLUSTRATING THREE DIFFERENT PILES)

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	4 per pile.	Bearing pieces, 2 in. x 4 in., length equal to width of pile, nail to car floor with six 40-D nails. Locate two about ¼ the length of pipe from each end and other two equally spaced between.
C	2 per layer.	Separators, for pipe 3 in. to 6 in. I. D.: 1 in. x 4 in. x required length, equal to width of pile. Separators, for pipe over 6 in. I. D.: 2 in. x 4 in. x required length, equal to width of pile. Separators must align vertically, one above the other, with outer bearing pieces, Item "B". Top layer of pipe may be nested as shown in end view or similar to alternate method view.
D	2 each Items "B" and "C"	Triangular chock blocks. Minimum width of Items "B" and "C"
	Pipe under 18 in. I. D.	2 in. x 2 in. x 2 in. for pipe thru 8 in. I. D. 3 in. x 3 in. x 3 in. for pipe sizes above 8 in. I. D. thru 20 in. I. D.
	2 each Item "B" 4 each Item "C" Pipe 18 in.-36 in. I. D. incl.	4 in. x 4 in. x 4 in. above 20 in. I. D. to and including 36 in. I. D.
E	As required.	1¼ in. x .031 in. high tension bands. Bands located at each end of each layer of pipe and as close as possible to separators, Items "C"; except a minimum of 12 in. from bearing pieces, Item "B"; and Item "F" at top of load. Bands shall be applied to encircle a minimum of 2, and a maximum of 4 layers of pipe, to be so applied that the curvature of each outside pipe on each layer shall be partially encircled. These to encircle the same layers at each end, also partially encircling the nested top layer, when so loaded.
F	2 per pile.	2 in. x .050 in. high tension bands. Align with outer Items "B" and "C". Pass over top of load and attach to opposite stake pockets.
G	2 per pile.	1¼ in. x .031 in. high tension bands. Encircling each end of each pile. Locate 12 in. from outer bearing pieces Item "B". Required only for loads in excess of 96 inches from car floor to 120 inches high.

There shall be a minimum of 8 in. between ends of each adjacent pile.
See General Rules 4, 5, 7, 9, 14 and 15 for further details.

Sec. 4—Fig. 59

CONCRETE PIPE NOT OVER 48 INCHES IN DIAMETER OR LENGTH, CROSSWISE—FLAT OR GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2	6 in. x 8 in., length equal to width of load.
C	4 ea. Item "B".	¾ in. dia. bolts, with nuts and washers. Pass through Item "B", car floor and Item "D".
D	1 ea. Item "C".	4 in. x 4 in. x 18 in., hardwood, or ½ in. x 4 in. x 18 in. plate.
E	2 ea. end of load.	4 in. x 5 in. stakes, long enough to extend 6 in. above floor.
F	1 ea. end of load.	2 in. x 6 in., length equal to width of load. Nail to inside face of each Item "E" with five 30-D nails.
G	1 ea. pipe.	2 in. x 4 in. x 6 in. Nail each to floor with two 30-D nails. Substitute, if desired, one 2 in. x 4 in., full length of load, against each side and nail to floor with 30-D nails spaced about 18 in. apart.
H	As required.	Suitable strips on edge to prevent pipe contacting.

Items "B", "C" and "D" may be substituted for Items "E" and "F", or vice versa. Not required for gondola cars when load completely fills length of car.

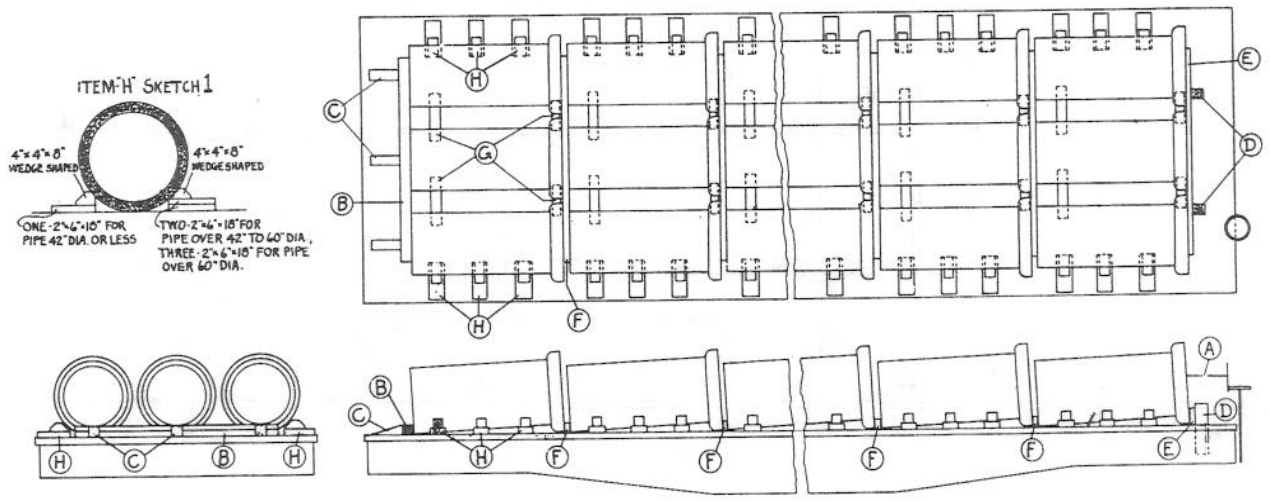
Items "G" not required for gondola cars when the total vacant space across car between pipe and between pipe and car sides does not exceed 18 in.

Alternate pipe with bell ends when loaded in one row. When end to end, in two rows, locate bell ends toward sides of car.

See General Rules 4, 5, 9, 10, 14 and 15 for further details.

Sec. 4—Fig. 60

CONCRETE PIPE (WITH BELL ENDS), LENGTHWISE—FLAT OR GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2	Each to consist of two pieces of 2 in. x 4 in., length equal to width of load resting on floor. Nail lower piece to floor with four 30-D nails and top piece to the one below in like manner.
C	3 ea. Item "B".	4 in. x 4 in. x 12 in. wedge shaped hardwood blocks, equally spaced, against Item "B". Nail each to floor, lengthwise of car, with four 30-D nails.
D	2 ea. end of load.	4 in. x 5 in. stakes, long enough to extend 6 in. above floor.
E	1 ea. end of load.	2 in. x 6 in., length equal to width of load resting on car floor. Nail to inside face of each Item "D" with five 30-D nails.
F	1 between ea. row of pipe.	2 in. x 4 in., length equal to width of load resting on floor. Toe-nail to floor with four 30-D nails.
G	2 between ea. pipe.	4 in. x 4 in., long enough to keep pipe from contacting. Toe-nail each to floor with three 30-D nails.
H	Pipe 30 in. or less in dia., 3 ea. outside pipe. Pipe over 30 in. in dia., 4 ea. outside pipe. Sketch 1.	Nail lower piece to floor with five 20-D nails and top piece to the one below in like manner. Locate wedge block against side of pipe and nail to the piece below with three 30-D nails.

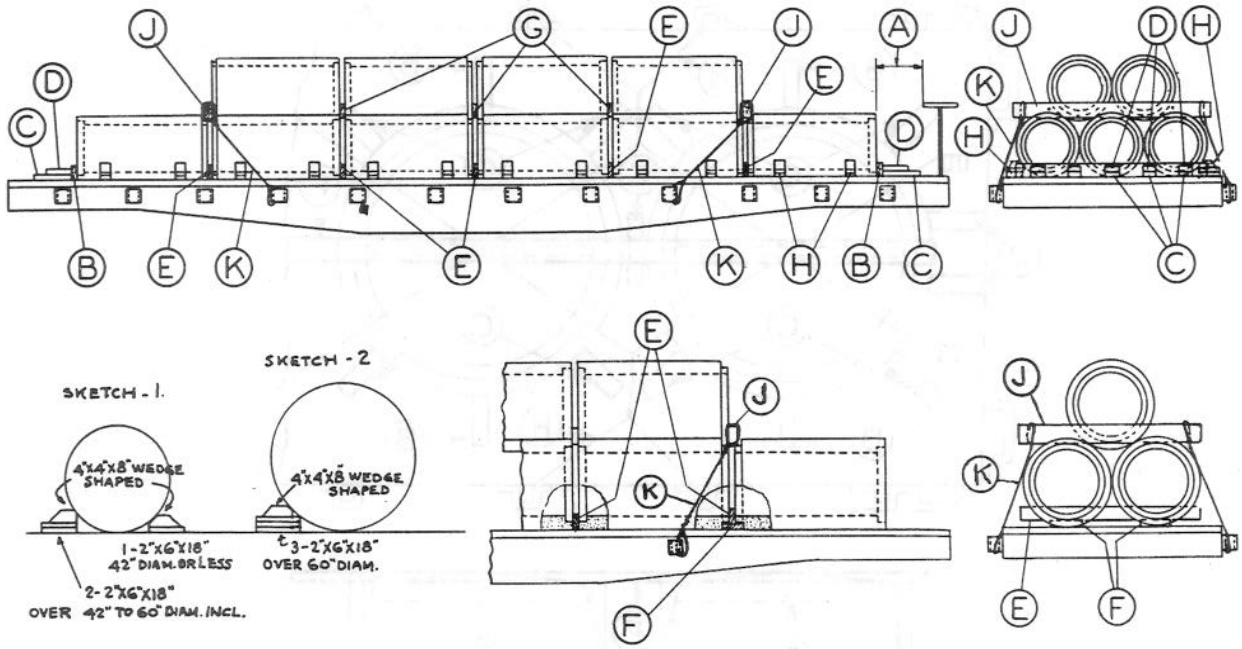
Items "B" and "C" may be substituted for Items "D" and "E" or vice versa. Not required for gondola cars when load completely fills length of car.

Items "H" not required when pipe is loaded against gondola car sides.

See General Rules 4, 5, 9, 10 and 14 for further details.

Sec. 4—Fig. 61

CONCRETE PIPE—FLAT CARS

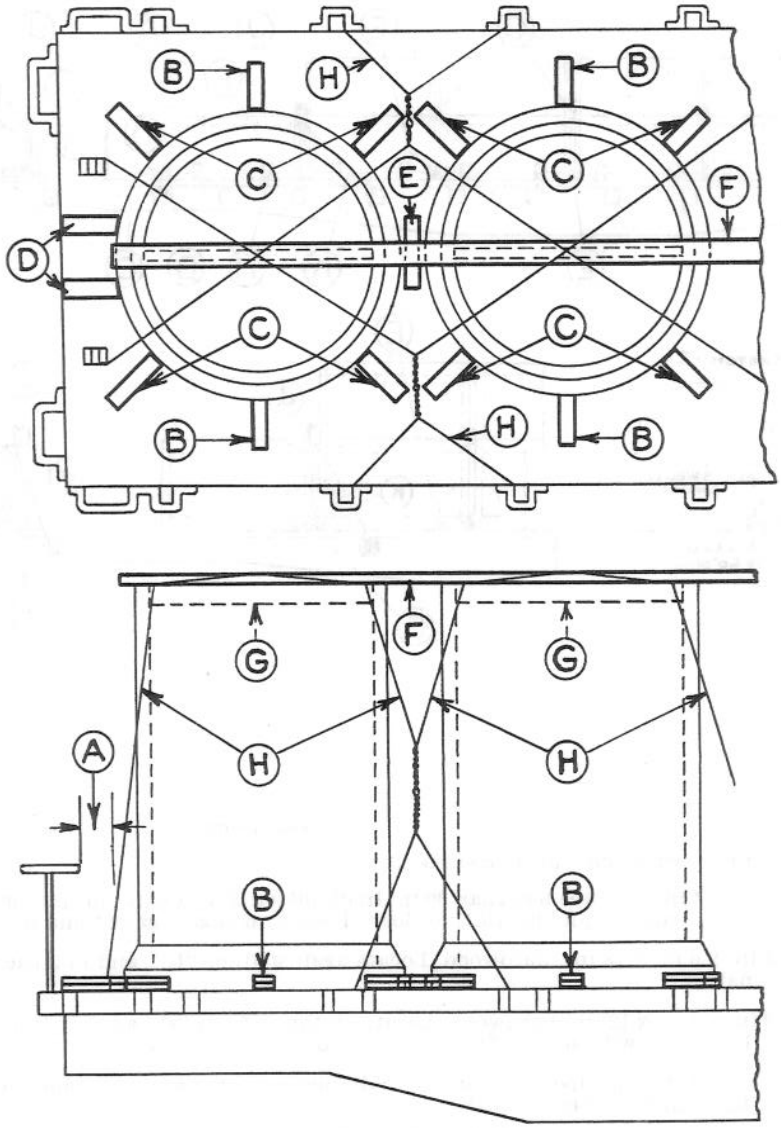


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	1 ea. end of load.	2 in. x 4 in., for pipe less than 30 in. in diameter. 2 in. x 6 in., for pipe 30 in. and over in diameter. Length equal to width of load. Locate on edge, against end of load.
C	5 ea. Item "B".	2 in. x 6 in. x 18 in., hardwood. Locate against Item "B", and nail each to floor with six 30-D nails.
D	5 ea. Item "B".	2 in. x 6 in. x 12 in., hardwood. Locate on top of Item "C" against Item "B". Toe-nail each to Item "B" with one 20-D nail and secure each to Item "C" with five 20-D nails.
E	1 between ea. bottom row.	1 in. x 4 in., for pipe 24 in. or less in diameter. 1 in. x 6 in., for pipe over 24 in. in diameter to 42 in. in diameter, inclusive. 2 in. x 6 in., for pipe over 42 in. in diameter. Length equal to width of load, hardwood. Place on edge, crosswise of car and toe-nail to floor or Items "F" with four 20-D nails.
F	As required.	2 in. thick, 12 in. long, wide enough to fit snugly between tongue end shoulders. Locate under each Item "E" at tongue end shoulders and nail each to floor with four 20-D nails. Not required for pipe 42 in. or less in diameter.
G	1 between each top row.	1 in. x 4 in., for pipe 24 in. or less in diameter. 1 in. x 6 in., for pipe over 24 in. in diameter to 42 in. in diameter, inclusive. 2 in. x 6 in., for pipe over 42 in. in diameter. Length equal to width of load, hardwood. Place on edge, crosswise of car, and drive a 40-D nail half way through to prevent working out sidewise.
H	4 each pile. Sketches 1 and 2.	Hardwood. Nail bottom piece to floor with five 20-D nails and top pieces to those below in like manner. Locate wedge block against side of pipe and secure with three 30-D nails.
J	1 ea. end of top row.	2 in. x 6 in., hardwood, length equal to width of load. Place on edge, crosswise of car.
K	2 each Item "J".	Each to consist of 6 strands, No. 11 gage wire, or 4 strands, No. 9 gage wire. Attach to Item "J" and stake pocket so as to provide an angularity of about 45 degrees. Use staple or nail bent over to prevent the wires from working off Item "J".

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 62

CONCRETE PIPE ON END—FLAT OR GONDOLA CARS



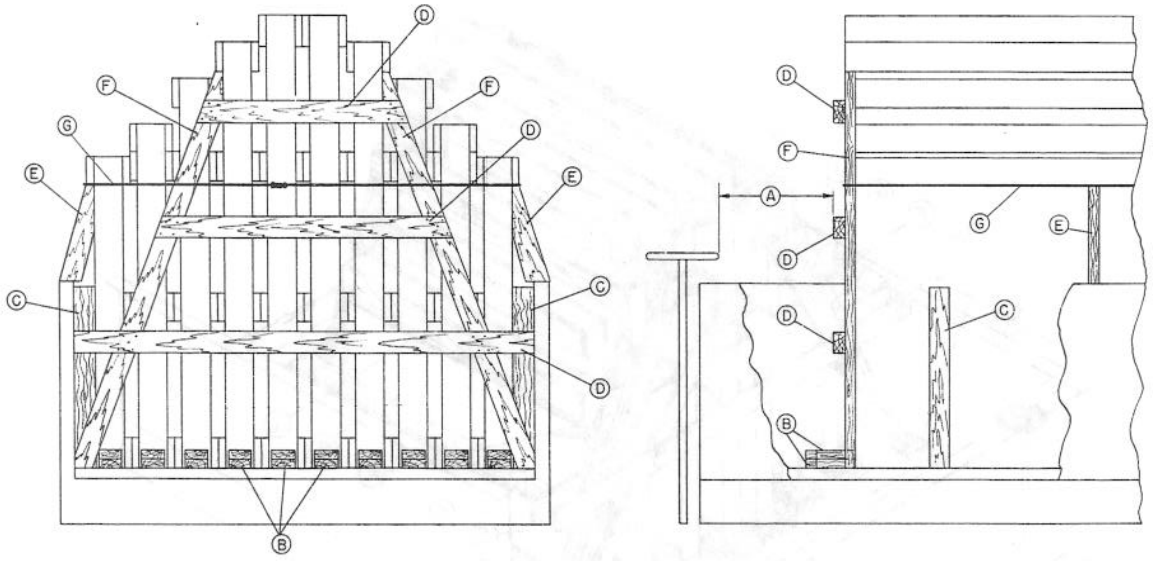
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. pipe.	Each consisting of two, 2 in. x 4 in. x 12 in., nailed to floor.
C	4 per pipe.	Each consisting of two, 2 in. x 4 in. x 18 in., nailed to floor.
D	2 per end pipe.	Each consisting of two, 2 in. x 4 in. x 18 in., nailed to floor.
E	As required.	Each consisting of two, 2 in. x 4 in., length to suit.
F	1	1 in. x 4 in., length to suit, nailed to Item "G".
G	1 per pipe.	2 in. x 4 in., length equal to inside dia. of pipe, on edge.
H	As required.	4 strands, No. 11 ga. wire applied taut as shown, secured to Item "F", with staples.

Items "F", "G" and "H" not required when height of pipe does not exceed 1½ times its dia.

Pipe more than 48 in. dia., may be loaded with bell end upward.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 63
GLASS IN BOXES—GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 each end of each box.	2 in. x 6 in. x 10 in. Substitute, if desired, 2 pieces 2 in. x 6 in., full width of load, where ends of boxes in one group are even.
C	2 or 4 each set of boxes.	Width and thickness to suit. Not required when load completely fills space between car sides.
D	6 each set of boxes.	2 in. x 6 in., length to suit, equally spaced. Length of bottom brace equal to inside width of car. Nail all braces to Items "F" and boxes.
E	4 each set of boxes.	2 in. x 6 in., length to suit. Apply as shown. Nailed to box and car side.
F	4 each set of boxes.	2 in. x 6 in., length to suit. Apply as shown. Nailed to boxes and floor.
G	1 per pile.	Eight strands, No. 11 gage wire; two strands, No. 8 gage high tension wire; or two $\frac{3}{8}$ in. x .050 in. high tension bands. Locate, as shown, above Items "E" encircling all boxes. Substitute, if desired, blocks $1\frac{1}{2}$ in. x 6 in., length to suit, secured to side by side boxes at top, near center, or $1\frac{1}{4}$ in. x .035 in. punched high tension bands, passed over top of pile and secured to each box and car sides.

Items "D", "E" and "F" required only when height of load extends more than 50 per cent above top of car sides.

Where all boxes in pile are loaded with one end flush, one set of Items "F" may be used extending from top of car sides to top of load.

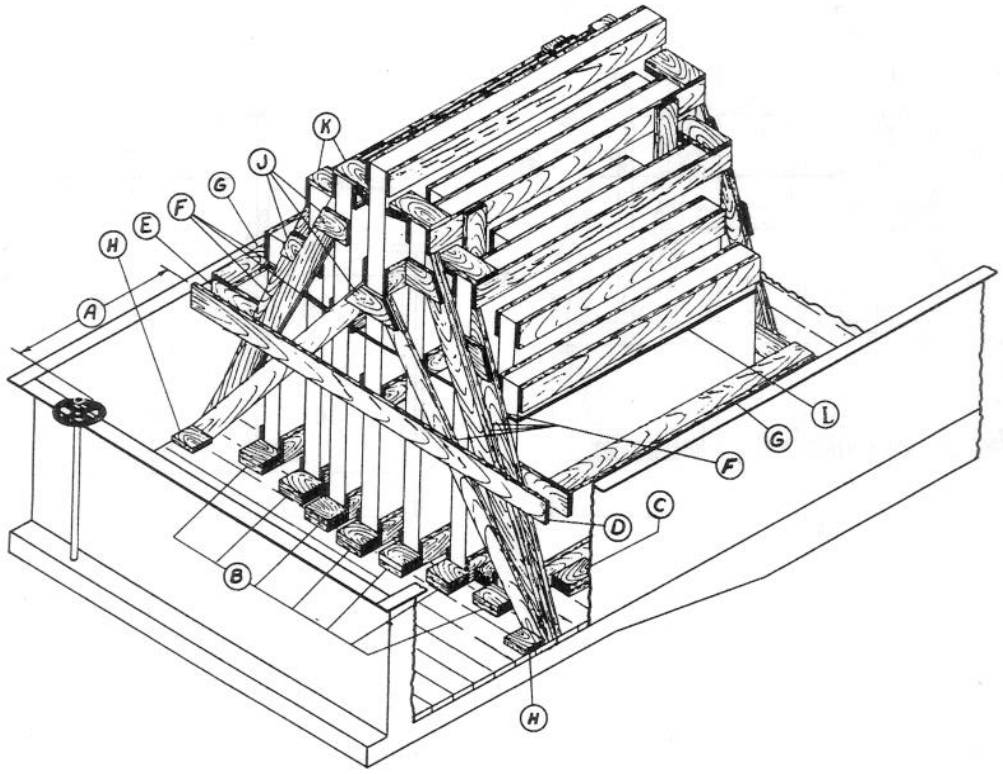
Where double blocking is shown, the lower block must be nailed to floor with 20-D nails and top block nailed to lower block with 30-D nails.

To obtain uniform load and provide proper bracing, place highest boxes at center of load with smaller boxes toward outside of load.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 64

GLASS IN BOXES—GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. end ea. box.	1½ in. x 6 in., length equal to width of box. Substitute, if desired, two pieces 1½ in. x 6 in. full width of load where ends of boxes in one group are even.
C	2 ea. side of piles.	Each to consist of two pieces of 1½ in. x 6 in. x 12 in., locate about 12 in. from end of pile. Nail lower piece to floor with four 20-D nails and top piece to one below with four 20-D nails. When space will not permit application of cleats, use suitable fillers between box and car side, applied so as to prevent displacement.
D	1 ea. end ea. pile.	1½ in. x 6 in., length about equal to width of car. Nail to Item "F" and boxes.
E	4 ea. set of boxes.	1 in. x 6 in., length to suit. Must be long enough to extend from box to side of car. Nail to box, Items "F" and "G".
F	Piles 6 ft. high or less, 4. Pile over 6 ft. high, 6.	1½ in. x 6 in., length to suit. Apply as shown, nail to boxes, Items "J", "H" and floor.
G	2 ea. set of boxes.	1½ in. x 6 in., length to suit. Nail to Items "E".
H	4 ea. set of boxes.	1½ in. x 6 in. x 10 in., locate as shown, nail to car floor with four 20-D nails.
J	1 ea. Item "F".	1½ in. x 6 in., length to suit. Apply as shown, nail to Items "F" and boxes.
K	1 ea. box over 6 ft. high.	1½ in. x 6 in., length to suit. Nail to boxes as shown.
L	2	No. 8 gage high tension wires or ¾ in. x .035 in. high tension bands. Locate near top of outside boxes.

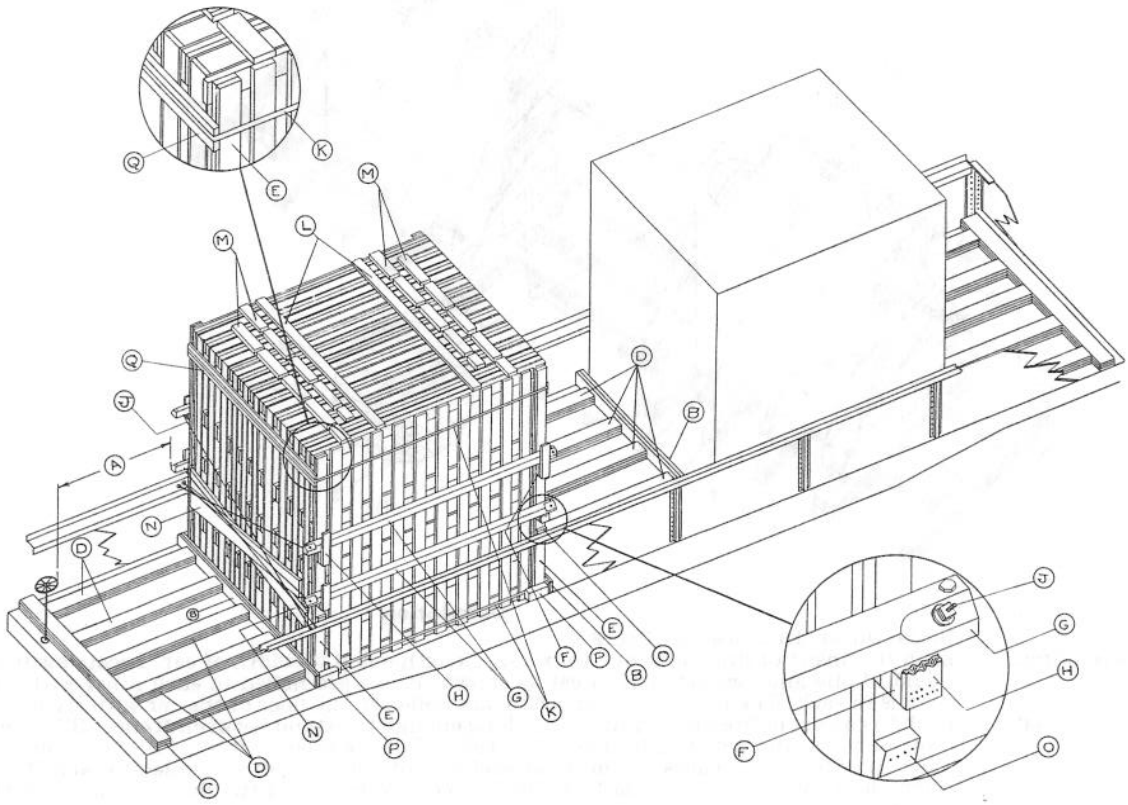
To obtain uniform load and provide for better bracing, place highest boxes at center of load.

Items "E" and "G" not required when the outside cases are far enough away from the sides of car to permit proper application of Items "F".

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 65

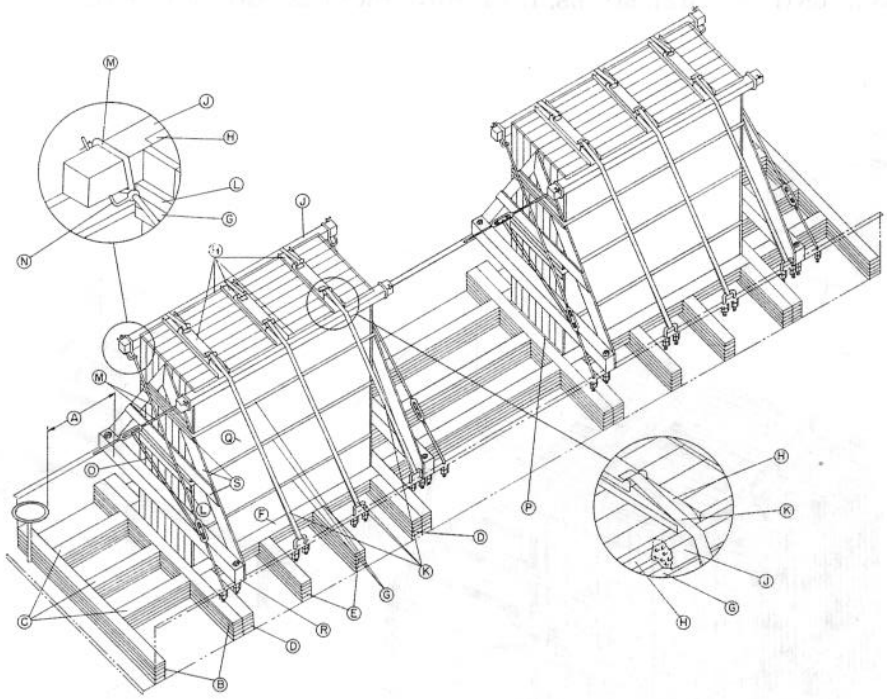
GLASS IN UNIFORM SIZE BOXES, 12 FT. HIGH OR LESS—GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 per pile.	Each to consist of two pieces 2 in. x 6 in., length equal to width of car. Locate against each end of pile. Nail inside piece to Items "E" with two 20-D nails at each location, and outside piece in similar manner.
C	2	Each to consist of three pieces of 2 in. x 6 in., length equal to width of car. Locate against ends of car, as shown, and nail to floor and to each other with six 20-D nails in each.
D	As required.	Each to consist of three pieces of 2 in. x 6 in., long enough to extend between Items "B" at center of car, and between Items "B" and "C" at ends of car. Locate five siutably spaced at each end of pile and nail to floor and to each other with six 20-D nails in each.
E	4 per pile.	Each to consist of two or more 2 in. x 6 in., length to suit. Locate one at each end of each side of pile, as shown, and nail to boxes and to each other with six 20-D nails in each.
F	8 per pile.	Each to consist of two pieces of 2 in. x 6 in., length to suit. Locate two on each side, as shown, near center of pile, and two midway between lower Items "F" and top of pile. Nail to Items "E" and to each other with three 20-D nails in each. Not required when Items "G" are located on top of two outside pieces of Items "E".
G	4 per pile.	4 in. x 4 in., hardwood, length to suit. Use one bolt, ½ in. dia., with washers at each end, to prevent splitting. Locate on top of Items "F", as shown.
H	8 per pile.	2 in. x 6 in., length to suit. Locate, as shown, and nail to Items "F" with three 20-D nails in each.
J	8 per pile.	¾ in. dia. rods with nuts and washers, passed through Items "G" and opposite car sides.
K	2 per pile.	1¼ in. x .035 in. high tension circumferential bands. Locate one near bottom and one near top of pile.
L	2 per pile.	2 in. x 6 in., length equal to width of pile. Locate, as shown, and nail to each outside box with two 20-D nails, and to each intermediate box with one 20-D nail.
M	As required.	2 in. x 6 in., length to suit. Locate, as shown, and nail each with four 20-D nails.
N	2 per pile.	Each to consist of sufficient 2 in. x 6 in. to completely fill space between lower Items "J" and pile. Nail to boxes and to each other with 20-D nails.
O	As required.	2 in. x 6 in., wedge blocks. Locate, as shown, between Items "E" and car sides and nail each with two 20-D nails.
P	As required.	Filler blocks, as shown, 4 in. in height, length to suit, and wide enough to fill space between Items "E" and car sides. Nail to floor with 20-D nails.
Q	2 per pile.	2 in. x 6 in., length to suit. Locate under top Item "K", as shown and secure each to Items "E" with two 20-D nails at each location.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 66
PACKAGED ROUGH ROLLED GLASS—TWO UNITS—SIZE 130 IN. X 144 IN.—GONDOLA CARS

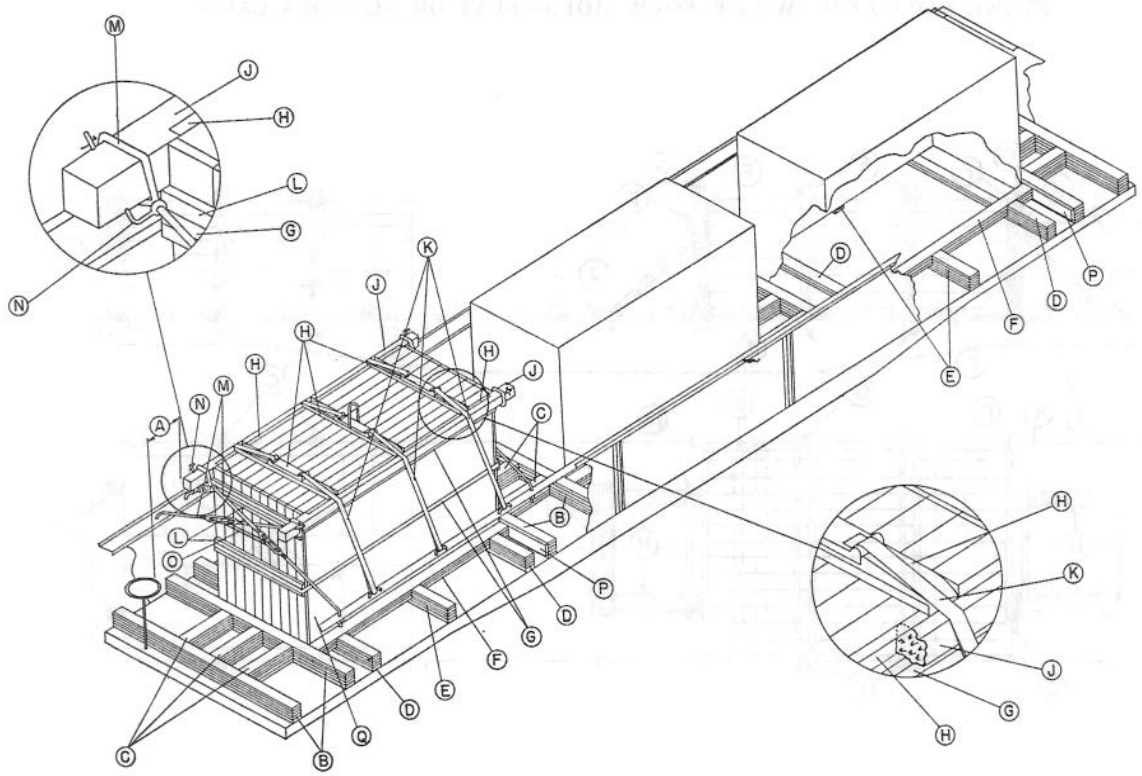


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	As required.	Each to consist of five pieces of 2 in. x 6 in., length equal to width of car. Locate against each end of pile and against ends of car as shown. Pieces are nailed to each other with six 60-D nails in each. The first three 2 in. x 6 in. are nailed to the floor of the car with six 40-D nails.
C	As required.	Each to consist of five pieces 2 in. x 6 in., long enough to extend between Items "B" at the ends of the piles, and between Items "B" at the end of the piles to Items "B" at the ends of the car. Locate three, spaces as shown, at each end of piles. Pieces are nailed to each other with four 60-D nails in each. The first three pieces are nailed to the floor of the car with four 40-D nails.
D	2 Assemblies per pile.	Each to consist of two pieces 2 in. x 6 in., length equal to width of car with three pieces 2 in. x 6 in. on each end to extend between Items "F" and sides of car. Locate one at each end of pile as shown, with bottom two 2 in. x 6 in. placed under Items "F". Pieces nailed to each other with 60-D nails. Two bottom 2 in. x 6 in. are nailed to the floor with six 40-D nails.
E	2 Assemblies per pile.	Each to consist of two pieces 2 in. x 6 in., long enough to extend from side of pile to sides of car, and three pieces 2 in. x 6 in. long enough to extend from Items "F" to sides of car. Locate between Items "D" as shown, with bottom two 2 in. x 6 in. placed under Item "F". Pieces nailed together with two 60-D nails in each. Two bottom 2 in. x 6 in. nailed to floor with three 40-D nails.
F	2 Assemblies per pile.	Each to consist of three pieces 2 in. x 6 in., length equal to length of pile. Locate along each side of pile on top of first two pieces of Items "D" and Items "E". Pieces are nailed to each other with eight 60-D nails. Nailed to Items "E" and "D" with one 40-D nail at each location.
G	3 per pile.	2 in. x .050 in. high tension circumferential band. Locate one near top, one near center and one low on pile.
H	1 Assembly per pile.	Each to consist of three pieces 6 in. steel channel, length slightly longer than width of pile. Upon each is centered and welded a two foot piece of 4 in. steel channel with 2-in. dia. rod welded to each end. The pieces are evenly spaced and welded to two paralleled 6 in. steel channels, length equal to length of the pile, forming a cap which is placed over the top of the pile.
J	2 per pile.	4 in. x 4 in. hardwood, length to suit. Locate at top of pile in lateral 6 in. steel channels of Item "H".
K	6 per pile.	2 in. x .050 in. high tension band to extend from Item "H" to 1 in. dia. "U" bolts on top side rail of car. "U" bolts may be either bolted or welded.
L	4 per pile.	2 in. x 6 in., length to suit. Locate under two lower Items "G" as shown.
M	4 per pile.	⅞ in. dia. tie rods with ⅞ in. x 6 in. turnbuckle. Loop on one end of rod fits over Item "J" and is held in place by Item "N". The other end of the rod is bolted to the opposite top side rail of car. These rods should be spaced reasonably far enough apart so as to avoid contact with one another as much as possible.
N	4 per pile.	½ in. dia. rod with eye at one end and bend as shown. Eye is slipped over Item "M" and rod is passed through hole in Item "J". The rod is held in place by a cotter pin which is passed through a hole in the end of the rod.
O	2 per pile.	Retainer wire to pass through turnbuckles to prevent turnbuckles from turning.
P	As required.	Each to consist of sufficient 2 in. x 8 in. to completely fill space between Items "B" (inside) and pile. Nailed to Items "B" with one 60-D nail at each end.
Q	2 per pile.	200 lb. test corrugated cardboard sheeting of ¼ in. masonite or other suitable facing, large enough to cover sides of pile. Locate on each side of pile under Items "G".
R	2 per pile.	6 in. x 6 in. hardwood placed flush with unit and extending cross-wise full width of car. Secure to top side rail with ⅝ in. dia. bolts. Substitute, if desired, either steel channel or "I" beam of equal strength.
S	2 per pile.	"A" frame to consist of 4 pieces of 2 in. x 6 in. with ends mitered to suit. Secure to Items "R" and package group with 16-D nails.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 67

PACKAGED ROUGH ROLLED GLASS—THREE UNITS—SIZE 131 IN. X 77 IN.—GONDOLA CARS

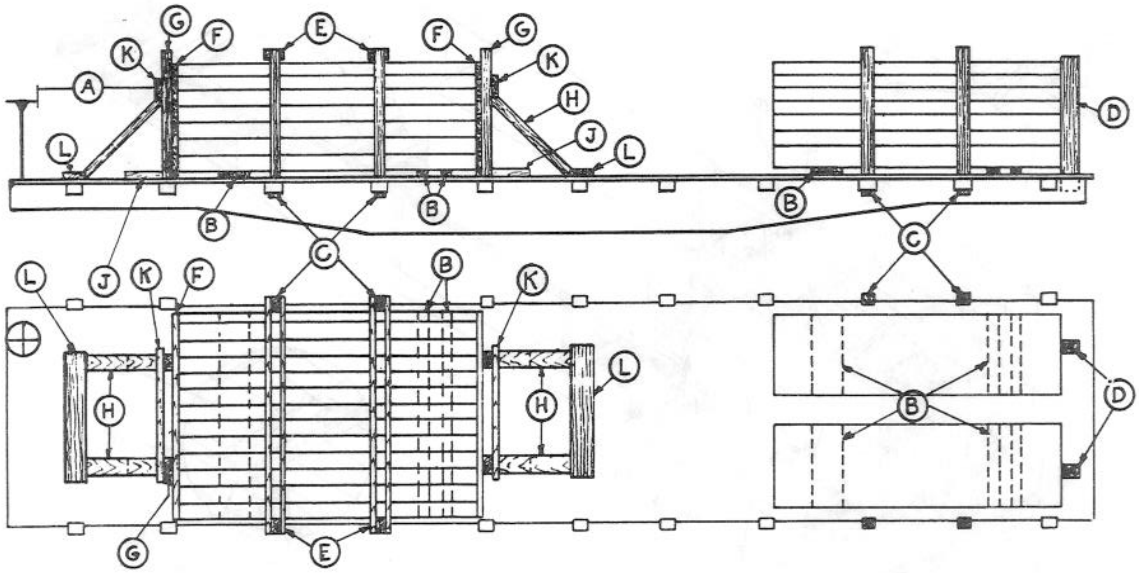


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	As required.	Each to consist of five pieces of 2 in. x 6 in., length equal to width of car. Locate against each end of pile and against ends of car as shown. Pieces are nailed to each other with six 60-D nails in each. The first three 2 in. x 6 in. are nailed to the floor of the car with six 40-D nails.
C	As required.	Each to consist of five pieces 2 in. x 6 in., long enough to extend between Items "B" at the ends of the piles, and between Items "B" at the end of the piles, to Items "B" at the ends of the car. Locate three, spaced as shown, at each end of pile. Pieces are nailed to each other with four 60-D nails in each. The first three pieces are nailed to the floor of the car with four 40-D nails.
D	2 Assemblies per pile.	Each to consist of two pieces 2 in. x 6 in., length equal to width of car with three pieces 2 in. x 6 in. on each end to extend between Items "F" and sides of car. Locate one at each end of pile as shown with bottom two 2 in. x 6 in. placed under Items "F". Pieces nailed to each other with 6-D nails. Two bottom 2 in. x 6 in. are nailed to the floor with six 40-D nails.
E	2 Assemblies per pile.	Each to consist of two pieces 2 in. x 6 in., long enough to extend from side of pile to sides of car, and three pieces 2 in. x 6 in. long enough to extend from Items "F" to sides of car. Locate at center of pile with bottom two 2 in. x 6 in. placed under Item "F". Pieces nailed together with two 60-D nails in each. Two bottom 2 in. x 6 in. nailed to floor with three 40-D nails.
F	2 Assemblies per pile.	Each to consist of three pieces 2 in. x 6 in., length equal to length of pile. Locate along each side of pile on top of first two pieces of Items "D" and Items "E". Pieces are nailed to each other with eight 60-D nails. Nailed to Items "E" and "D" with one 40-D nail at each location.
G	2 per pile.	2 in. x .050 in. high tension circumferential band. Locate one near top and one near center of pile.
H	1 Assembly per pile.	Each to consist of three pieces 6 in. steel channel, length slightly longer than width of pile. Upon each is centered and welded a two foot piece of 4 in. steel channel with 2 in. dia. rod welded to each end. The center piece to have a 2 in. dia. bale welded to the sides of the 4 in. steel channel. The pieces are evenly spaced and welded to two paralleled 6 in. steel channels, length equal to length of the pile, forming a cap which is placed over the top of the pile.
J	2 per pile.	4 in. x 4 in. hardwood, length to suit. Locate at top of pile in lateral 6 in. steel channels of Item "H".
K	6 per pile.	2 in. x .050 in. high tension band to extend from Item "H" to 1 in. dia. "U" bolts on top side rail of car. "U" bolts may be either bolted or welded.
L	4 per pile.	2 in. x 6 in., length to suit. Locate under Items "G" as shown.
M	4 per pile.	⅞ in. dia. tie rods with ⅞ in. x 6 in. turnbuckle. Loop on one end of rod fits over Item "J" and is held in place by Item "N". The other end of the rod is bolted to the opposite side top rail of car. These rods should be spaced reasonably far enough apart so as to avoid contact with one another as much as possible.
N	4 per pile.	½ in. dia. rod with eye at one end and bend as shown. Eye is slipped over Item "M" and rod is passed through hole in Item "J". The rod is held in place by a cotter pin which is passed through a hole in the end of the rod.
O	2 per pile.	Retainer wire to pass through turnbuckles to prevent turnbuckles from turning.
P	As required.	Each to consist of sufficient 2 in. x 8 in. to completely fill space between Items "B" and pile. Nailed to Items "B" with one 60-D nail at each end.
Q	2 per pile.	200 lb. test corrugated cardboard sheeting or ¼ in. masonite or other suitable facing, large enough to cover sides of pile. Locate on each side of pile under Items "G".

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 68

STONE SAWED ON TWO OR FOUR SIDES—FLAT OR GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 per pile. Not more.	For piles 5 ft. or over, use 1½ in. x 10 in., softwood. Each may be substituted with two pieces 1½ in. thick, of uniform height, not less than 4 in. wide, located far enough apart to provide a bearing spread of 10 in. For piles less than 5 ft. long, two 1½ in. x 4 in. may be used, length equal to width of pile. Locate about ⅕ the length of pile from each end and nail to floor with 30-D nails.
C	Pile 8 ft. long or less, 2 pr. Pile over 8 ft. long, 3 pr.	4 in. x 4 in., or 3 in. x 5 in., hardwood, or saplings, 4 in. dia. midway between top and bottom. Top end must be about flush with top of pile, or long enough to admit application of Items "E". If located 12 in. or less, from end of pile, apply additional stakes, or nail enough 1 in. boards to inside of stakes to prevent stone from shifting beyond car sides.
D	2 ea. end of car.	4 in. x 4 in., or 3 in. x 5 in., hardwood, or green saplings 4 in. dia. midway between top and bottom. Items "G", "H", "J", "K" and "L" are not required for stone sawed on two sides when Items "D" are used.
E	2 ea. pr. Items "C".	1 in. x 4 in., No. 11 ga. wire. Required only for piles of stone sawed on four sides, and when height of pile of stone sawed on two sides exceeds 3 ft.
F	To suit.	1 in. x 6 in., extending to or above top of pile, length equal to width of car. Nail each board to each Item "G" or "C" with three 10-D nails. Required only for stone sawed on four sides.
G	2 or 4 per pile.	4in. x 4 in., hardwood, length equal to height of pile, toe-nailed to floor with six 40-D nails. Not required when Items "D" are used.
H	2 or 4 per pile.	2 in. x 4 in., hardwood, free of knots. Apply as shown and toe-nail to Items "G", "K", "L" and floor with 30-D nails.
J	2 or 4 per pile.	2 in. x 6 in. x 14 in., nailed to floor with six 30-D nails and also to Item "G".
K	1 or 2 per pile.	2 in. x 6 in., long enough to extend beyond Items "G". Locate bottom edge ⅔ height of pile from floor and nail to each Item "G" with four 30-D nails.
L	1 or 2 per pile.	2 in. x 6 in., long enough to extend beyond Items "H". Nail to floor with eight 30-D nails. Distance between Items "G" and "L" to be the same as distance from floor to Items "K".

End piles should contact end stakes, when used, and when two piles are loaded side by side they should also contact side stakes. When space between pile and stakes, or between piles exceeds 8 in., suitable bracing or fillers must be used to prevent stone from shifting sidewise or endwise. Blocking between piles may be substituted for Items "G", "H", "J", "K" and "L". The same shall apply to gondola cars.

Items "C" not required for stone loaded flatwise in gondola cars, except when bottom of top slab is less than 3 in. below top of car sides.

When stone extends beyond outside of car, preventing use of stakes, use 4 strands No. 11 ga. wire, or one 1¼ in. x .035 in. high tension band, at two locations. Attach to stake pockets and locate about 12 in. from ends of pile.

Stone may be loaded lengthwise on edge in gondola cars, extending not more than one-third its width above the top of car sides. When so loaded, place two wooden strips, not less than 1 in. x 3 in., length to height of pile, between load and car sides. Nail to car sides and locate about ⅕ the length of pile from each end. Stone must be substantially braced to retain it in vertical position. Use suitable separators to prevent stone from contacting metal ends of car. Place piles so as to equalize weight of load.

The longer slabs must, when possible, be placed below shorter slabs to prevent breakage of the overhanging portions.

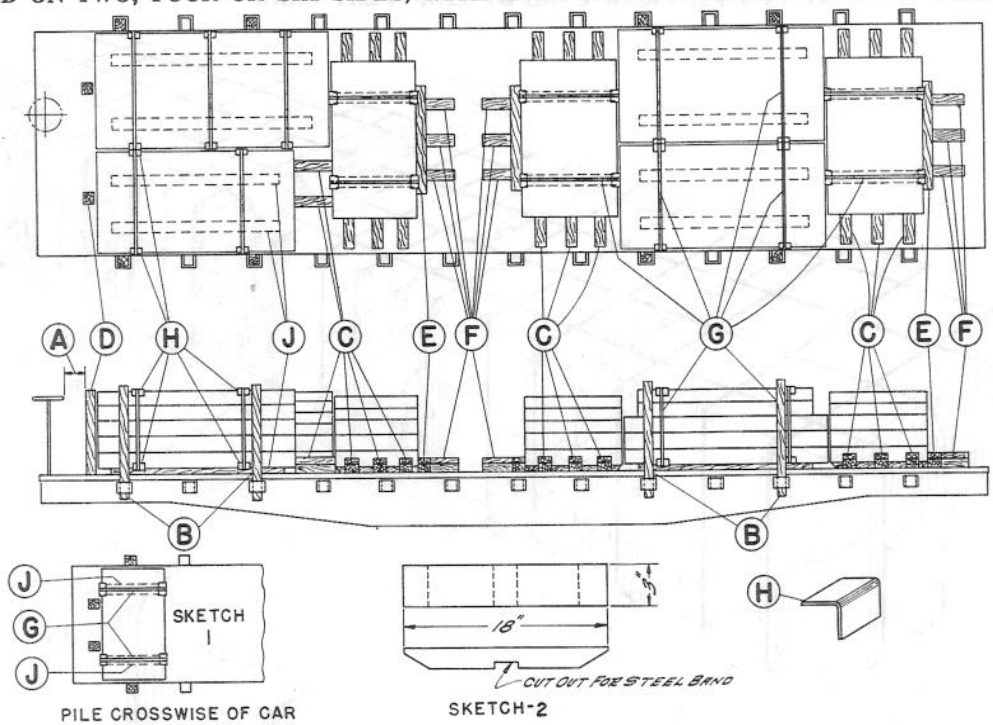
When slabs, sawed on two sides, are less than 4 in. thick, they must be placed on top of thicker slabs, flat cars, or on edge in gondola cars.

When practicable, place slabs 4 in. or 5 in. thick, over 10 ft. long, on slabs of greater thickness.

See General Rules 4, 5, 9, 10, 14 and 15 for further details.

Sec. 4—Fig. 69

STONE SAWED ON TWO, FOUR OR SIX SIDES, WITH HIGH TENSION BANDS—FLAT OR GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	Measure lengthwise of car. Pile 8 ft. long or less, 2 pr. per pile. Pile over 8 ft. long, 3 pr. per pile.	4 in. x 4 in., or 3 in. x 5 in., hardwood, or saplings 4 in. dia. midway between top and bottom, length equal to height of pile. Not required when bottom of stone is 3 in. or more below top of gondola car sides, nor when Items "C" are used.
C	When each end is butted against each of the piles it separates, use 2. When only one end is butted against pile, 3 per pile.	Each shall consist of 2 pieces of 2 in. x 4 in. x 12 in. Secure bottom piece to floor with five 20-D nails, and the top piece to the one below with four 20-D nails. Required on one side of pile only when opposite side is against Items "B", or when 2 piles are loaded side by side. To prevent piles from contacting each other by shifting lengthwise of car, they must be used when parts or all of the stone in such piles is finished on the ends or sides adjacent to each other. Other equally effective methods may be substituted when space between piles is less than 12 inches.
D	2 or 4 ea. end of car.	4 in. x 4 in., or 3 in. x 5 in., hardwood, or saplings 4 in. dia. midway between top and bottom, length equal to height of load. Not required on flat cars when Items "E" and "F" are used.
E	As required.	Each shall consist of 2 pieces of 2 in. x 4 in., length equal to ⅔ of the width of pile. Secure bottom piece to floor with six 30-D nails, and the top piece to the one below with four 20-D nails.
F	3 against ea. Item "E".	Each shall consist of 2 pieces of 2 in. x 4 in. x 12 in. Secure bottom piece to floor with five 30-D nails, and the top piece to the one below with four 20-D nails.
G	Pile 8 ft. long or less, 2 per pile. Pile over 8 ft. long, 3 per pile.	1¼ in. x .035 in. bands. When the width or length of a single pile exceeds the width of car to the extent of making the use of stakes, Items "B", impossible, three additional bands, Items "G", must be placed across top of such pile and attached to opposite stake pockets. Loading in two or more piles, side by side, is not permitted when one or both extends beyond the inside face of stake pockets.
H	4 ea. Item "G".	2 in. x 3 in. (26 ga. galvanized iron).
J	2 per pile.	1½ in. x 3 in., softwood, lengthwise of car as shown. While this is preferable, it may be substituted with two pieces, 18 in. in length, end for end, as per Sketch 2. In all cases the ends must extend to not more than 10 in. from ends of piles less than 8 ft. long, and to not more than 15 inches from ends of piles over 8 ft. long. When pile is loaded crosswise of car, the length of Items "J", must be equal to width of pile, per Sketch 1. Each piece must be beveled on bottom at both ends, and notched to prevent bands contacting floor.

Items "E" and "F" are intended for use at outer ends of end piles, instead of Items "D", but they must also be used on stone sawed on two or four sides when space between end pile, or piles, and intermediate piles exceeds 24 in. The use of Items "D" are preferable.

The longer slabs must, when possible, be placed below shorter slabs to prevent breakage of overhanging portions.

When the width of stone sawed on four sides will not permit placing Items "J" lengthwise of pile, they may be placed crosswise. When so loaded each Item "J" shall consist of 1½ in. x 6 in., softwood, length equal to width of pile, each of which may be substituted with two pieces 1½ in. x 3 in., of uniform height. When ends of piles are located less than 3 ft. from ends of car, nail sufficient lumber about 1 in. thick to inside of Items "D" to protect full height of pile.

When pile loaded on edge in a gondola car, extending below and not over half its height above top of car sides is secured with 2 bands, Items "G", or when pile extending over half its height above top of car sides is secured with 3 such bands, Items "B", "C", "D", "E" and "F" are not required.

When slabs, sawed on two sides, are less than four inches thick, they must be placed on top of thicker slabs, flat cars, or on edge in gondola cars.

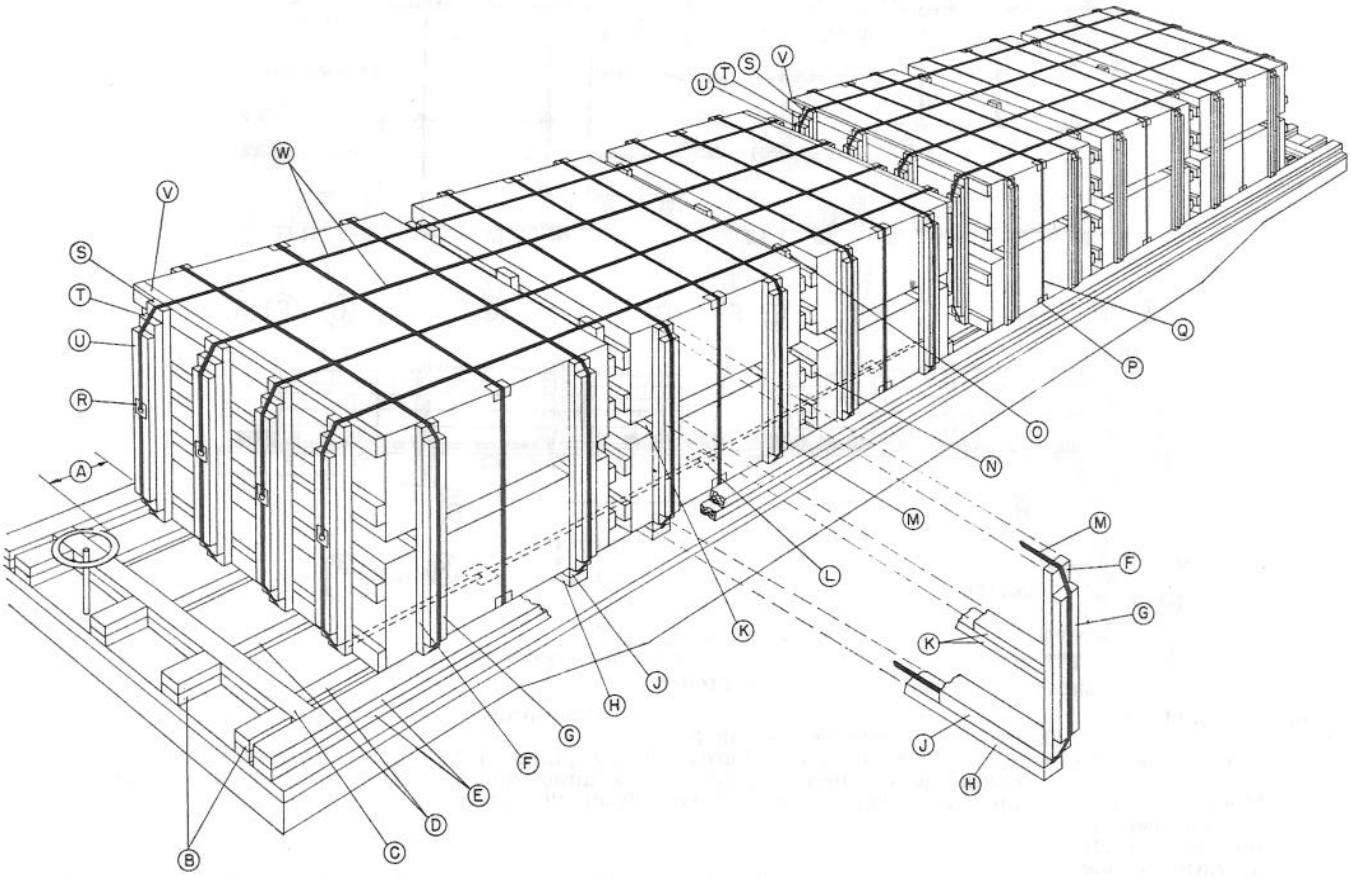
Use suitable strips on floor and against sides of gondola cars to facilitate loading and unloading.

Celotex or similar cushioning material on top of each bearing piece is desirable.

See General Rules 4, 5, 9, 10, 14 and 15 for further details.

Sec. 4—Fig. 70

CEMENT OR CONCRETE SLABS METAL REINFORCED, LOADED ON EDGE—ENDS OF LOAD MUST NOT BE LESS THAN 5 FT. FROM ENDS OF CAR—FLAT CARS

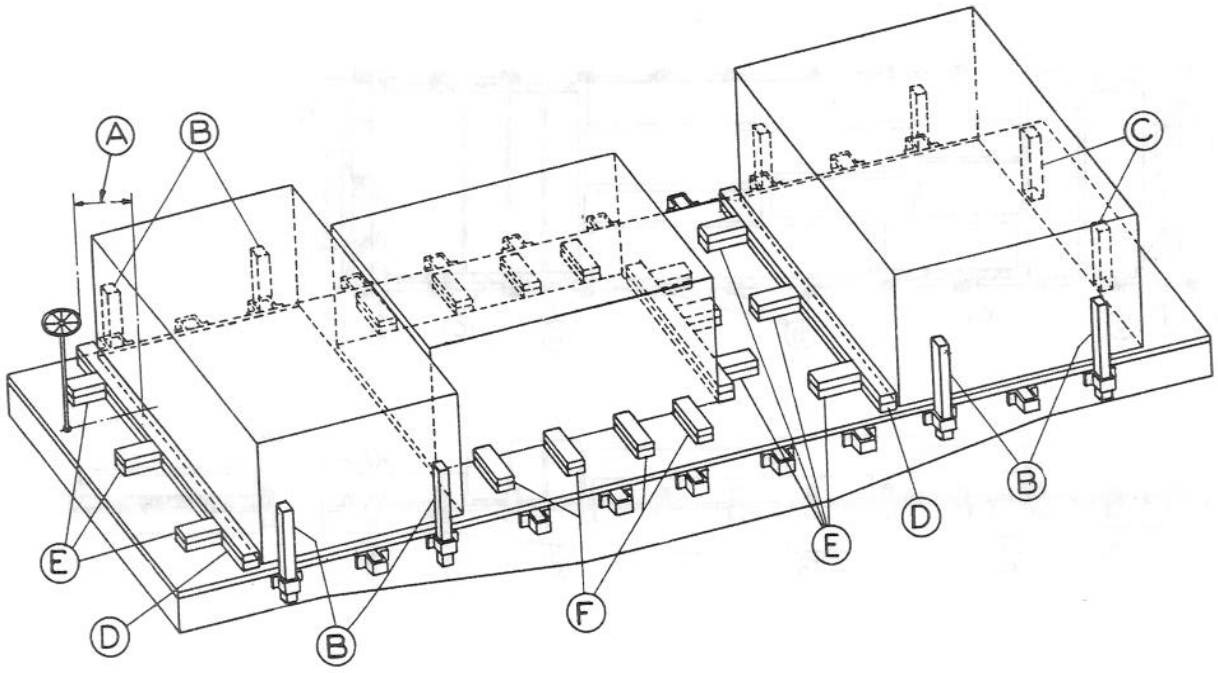


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	4 ea. Item "C".	Each to consist of two pieces of 2 in. x 4 in. x 12 in. Locate against Item "C" each end of car and secure lower piece to floor with three 20-D nails and top piece to one below in like manner.
C	1 ea. end of load.	Each to consist of two pieces of 2 in. x 4 in., length equal to width of load. Locate as shown and secure lower piece to floor with six 20-D nails and top piece to one below with four 20-D nails.
D	4 per load.	1 in. x 3 in., full length between Items "C", equally spaced between Items "E". Uniform thickness, beveled at joints and secure to floor with 10-D nails.
E	1 ea. side of load.	Each to consist of two pieces of 2 in. x 4 in., full length of car. Locate maximum of 1 in. from each side of load. Secure lower piece to floor with 20-D nails spaced 15 in. apart and top piece to one below in like manner.
F	4 per package.	2 in. x 6 in., length equal to height of package. Locate as shown.
G	4 per package.	2 in. x 6 in., length 12 in. less than Items "F". Locate as shown and secure to Items "F" with 10-D nails.
H	2 per package.	2 in. x 6 in., hardwood, length equal to width of package. Locate as shown. Bevel corners contacting floor.
J	2 per package.	2 in. x 6 in., hardwood, length equal to width of package. Locate as shown and secure to Items "H" with 16-D nails. Do not nail through high tension band Items "M".
K	2 per package.	Each to consist of two pieces of 2 in. x 6 in., length equal to width of load. Locate as shown and secure together with 10-D nails.
L	3 ea. Item "W".	Snubber plates. Locate as shown and secure to floor with six $\frac{7}{32}$ in. x $1\frac{3}{4}$ in. drive screws.
M	2 per package.	$1\frac{1}{4}$ in. x .050 in. high tension bands, encircling entire package and over Items "F" and "G". Locate between Items "H" and "J".
N	8 per ea. intermediate gate.	1 in. x 6 in., length equal to width of load. Locate as shown and nail securely to each side of Items "O".
O	3 per ea. intermediate gate.	1 in. x 6 in., length equal to height of package. Locate as shown between Items "N".
P	4 ea. Item "Q".	Metal corner protectors. Locate as shown and apply so as to prevent dislodgement.
Q	1 ea. package.	$1\frac{1}{4}$ in. x .050 in. high tension bands, encircling entire package. Locate as shown.
R	8 per unit.	Snubber plates. Locate as shown and secure to Items "U" with nails at each end of load unit after Items "W" are properly tensioned.
S	4 ea. end gate.	2 in. x 6 in., length equal to height of package. Locate as shown.
T	4 ea. end gate.	2 in. x 6 in., length 12 in. less than Items "S". Locate as shown and secure to Items "S" with 10-D nails.
U	4 ea. end gate.	2 in. x 6 in., length 12 in. less than Items "T". Locate as shown and secure to Items "T" with 10-D nails.
V	4 ea. end gate.	2 in. x 6 in., length equal to width of package. Locate as shown and secure to Items "S" with 10-D nails.
W	4 per half car unit.	$1\frac{1}{4}$ in. x .050 in. high tension bands, encircling entire half car unit longitudinally. Locate as shown.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 71

LARGE STONE, SINGLE LAYER—FLAT OR GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	As required.	4 in. x 5 in., hardwood, or saplings 5 in. dia., midway between top and bottom, length equal to ½ the height of stone. If location of stake pockets will not permit the spacing of stakes so as to prevent stone from falling off car, nail a suitable number of 1 in. x 6 in. boards to inside face of stakes, with lower pieces located not more than 6 in. from car floor. Not required when Items "F" are used, nor for gondola cars.
C	4	4 in. x 5 in., hardwood, or saplings 5 in. dia. midway between top and bottom, length equal to ½ the height of stone. Not required when Items "D" are used, nor for gondola cars.
D	As required.	Each shall consist of 2 pieces of 2 in. x 4 in., length equal to width of stone. Secure bottom piece to floor with six 30-D nails, and the top piece to the one below with four 20-D nails. Not required at ends of load when Items "C" are used.
E	3 against each Item "D".	Each shall consist of 2 pieces of 2 in. x 4 in. x 12 in. Secure bottom piece to floor with three 30-D nails, and the top piece to the one below with three 20-D nails.
F	Measure lengthwise of car. For stone 6 ft. long or less, 4 per stone. For stone over 6 ft. long, 6 per stone.	Each shall consist of 2 pieces of 2 in. x 4 in. x 12 in. Secure bottom piece to floor with three 30-D nails, and the top piece to the one below with three 20-D nails. Place lengthwise of car when space does not permit crosswise application. Not required for gondola cars when vacant space across car between piles and between the load and car sides does not exceed a total of 18 in.

When dimensions of stone prevent application of Items "B" or "F", use 4 strands of No. 11 ga. wire or one 1¼ in. x .035 in. band, at two locations, placed across top of such stone and attached to opposite stake pockets. Loading two or more stone, side by side, is not permitted when one or both extends beyond the inside face of stake pockets.

If necessary, height of Items "D", "E" and "F" must be increased to obtain 2 in. vertical bearing against sides or ends of stones.

When stones contact each other, or when separators are used between them, Items "D", "E" and "F" are required on outside faces of stones only.

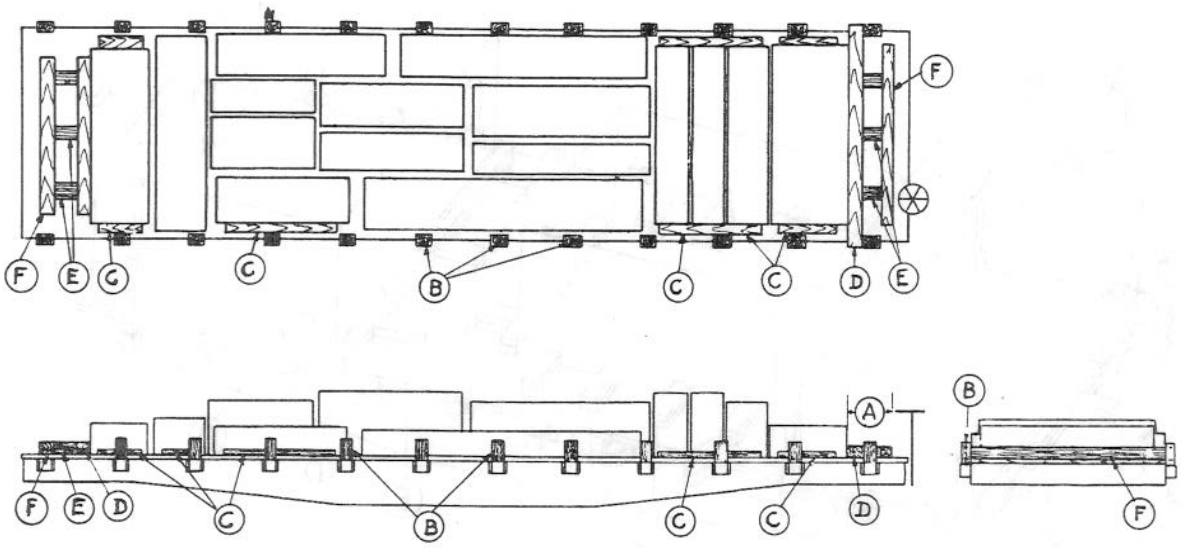
Dressed stone of various sizes and shapes must be separated by strips of wood, Celotex or other similar material. They must be packed in excelsior, stone dust or other suitable material, and kept clear of floor by the use of wooden strips, cushioned with excelsior or other similar material.

The side of stone with the greatest surface must rest on floor.

See General Rules 4, 5, 9, 10, 14 and 15 for further details.

Sec. 4—Fig. 72

STONE—GRANITE, UNFINISHED—FLAT CARS

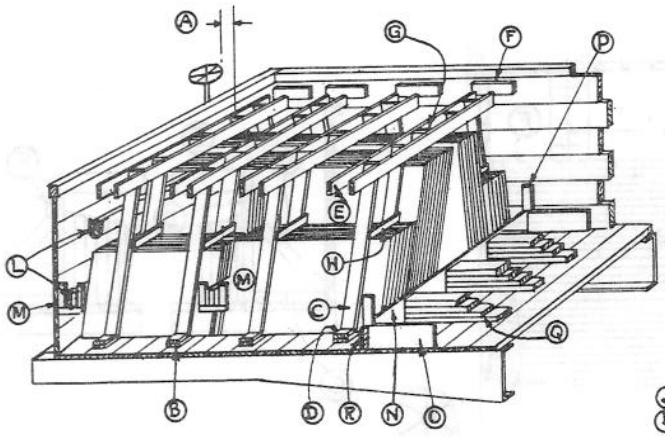


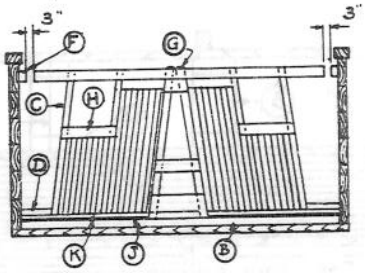
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	As required.	4 in. x 4 in., or 3 in. x 5 in., hardwood, or saplings 4 in. dia. midway between top and bottom, long enough to extend 6 in. below top of stake pocket and 6 in. above top of floor. When outer edge of pieces are more than 2 inches above floor, stakes must be long enough to provide a 4 inch vertical bearing against each piece. To prevent displacement they must be toe-nailed to end of floor with one 20-D nail, or securely wedged into stake pockets.
C	As required.	2 in. x 4 in., length equal to ¾ length of granite. Place against outside edges of granite and nail to floor with 20-D nails. Not required on pieces loaded against stakes and which are long enough to contact and over-lap two stakes at least 6 inches at each end of each piece.
D	As required.	4 in. x 4 in., long enough to contact Items "B" on each side of car. Toe-nail to floor and Items "B" with 20-D nails. Substitute, if desired, 2 in. x 4 in. pieces, lower piece to be nailed to floor, top piece to be nailed to the one below.
E	As required.	2 in. x 4 in., length to suit. Nail to floor against Items "D" with 20-D nails. Lower piece to be nailed to floor, top piece to be nailed to the one below.
F	As required.	4 in. x 4 in., long enough to extend beyond outside Items "E", toe-nailed to floor with 20-D nails. Substitute, if desired, 2 in. x 4 in. pieces, lower piece to be nailed to floor, top piece to be nailed to the one below.

See General Rules 4, 5, 9, 10 and 14 for further details.

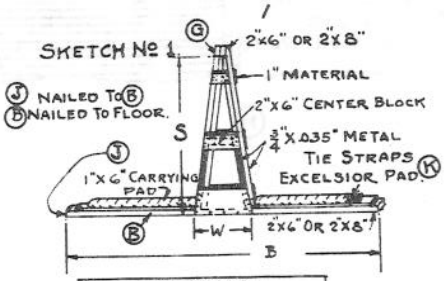
Sec. 4—Fig. 73

MARBLE IN SLABS, 18 IN. HIGH OR MORE—GONDOLA CARS WITH WOODEN FLOOR



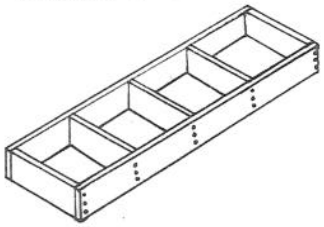


SKETCH Nº 1.



A - BRACE				
S	3'-0"	4'-0"	5'-0"	6'-0"
W	1'-0"	1'-2"	1'-3"	1'-4"
B	FULL WIDTH OF CAR.			

SKETCH Nº 2.



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	1 ea. Item "G".	2 in. x 6 in., full width of car, nailed to floor.
C	As required.	2 in. x 6 in., or 2 in. x 8 in. to extend from top of Item "B" to top of Item "E".
D	1 ea. Item "C".	2 in. x 6 in., length to suit, nailed to Items "B".
E	2 ea. Item "G".	2 in. x 6 in., to extend to within 3 in. of Item "F", nailed to Items "C" and "G". Substitute, if desired, at each location, 6 strands, No. 11 gage wire, or one 1¼ in. x .035 in. high tension band, or two No. 8 gage high tension wires, located 2 inches above slabs and secured to Items "C".
F	2 ea. pr. Item "E".	2 in. x 6 in. x 18 in., nail or bolt to car sides. Not required when wires or bands, Items "E", are used.
G	2 ea. pile.	Braces per Sketch 1. Space ⅗ length of slab. Secure to Items "B" with two ¾ in. x .035 in. metal straps. Pass straps under Items "B" and nail to edges of Items "G".
H	2 ea. low pile.	2 in. x 4 in., length to suit. Fit against top edges of piles and nail to Items "C".
J	2 ea. Item "B".	1 in. x 6 in., length to suit. See Sketch 1.
K	1 ea. Item "J".	Excelsior pad. See Sketch 1.
L	Piles 20 in. high or less, 1. Piles over 20 in. high, 2.	2 in. x 4 in., length equal to width of car, wrapped with excelsior padding. Place between ends of piles, and between ends of pile and ends of car.
M	3 ea. end of Item "L".	2 in. x 4 in., length to suit. Nail or bolt to sides of car to support Items "L".
N	As required.	2 in. x 8 in., length equal to width of car. If space between ends of piles or between ends of car and ends of pile does not exceed 4 in., Items "L" and "M" may be substituted. If space between ends of piles, or between ends of car and ends of pile exceeds 4 in. and is less than 24 in. and does not permit the use of Items "O", "P" and "Q", be governed by Sketch 2.
O	2 ea. Item "N".	2 in. x 8 in. x 18 in., nail or bolt to car sides against Item "N".
P	2 ea. Item "O".	2 in. x 4 in. x 8 in. nail or bolt to car sides on top of Item "N".
Q	12 ea. Item "N".	2 in. x 6 in., bottom pieces 24 in. long.
R	1 ea. Item "N".	Excelsior pad between Item "N" and edge of load.

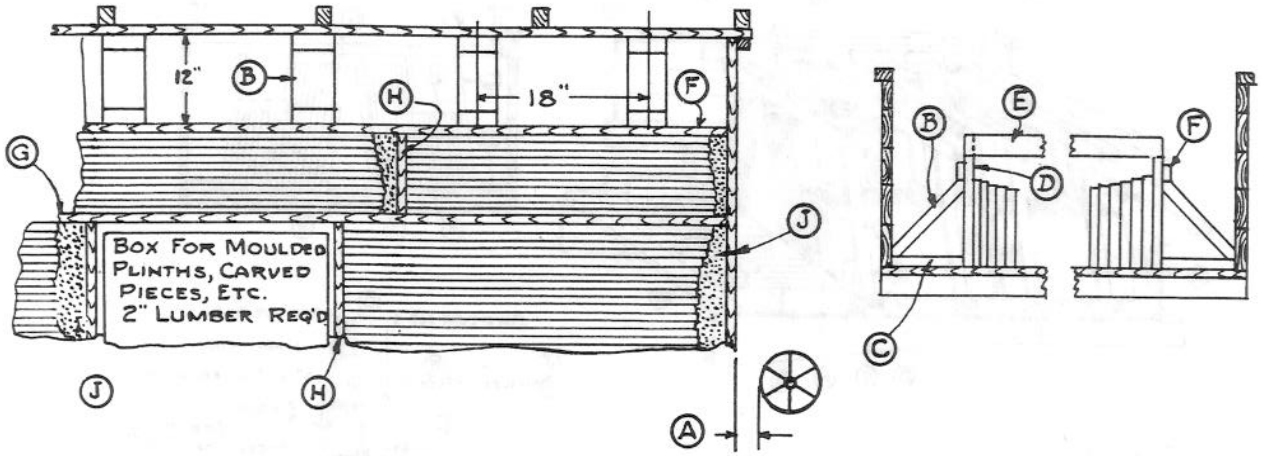
Slabs must be loaded on edge with a piece of felt paper between each slab, polished or rough.

Secure all bracing with not less than 20-D nails.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 74

MARBLE IN SLABS LESS THAN 18 IN. HIGH, ALSO SMALL PIECES, ON EDGE—GONDOLA CARS WITH WOODEN FLOOR



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	As required.	2 in. x 6 in., length to suit, spaced about 18 in. apart.
C	1 ea. Item "B".	2 in. x 6 in., to fill space between Item "D" and car side.
D	1 ea. Item "B".	2 in. x 6 in., height to suit.
E	1 ea. pr. Items "D".	2 in. x 6 in., nailed to Items "D".
F	As required.	2 in. x 4 in., length equal to length of load, nailed to each Item "D".
G	As required.	2 in. boards to separate piles, height and length to suit.
H	As required.	2 in. thick, width to suit, to separate piles.
J	As required.	Excelsior to fill voids.

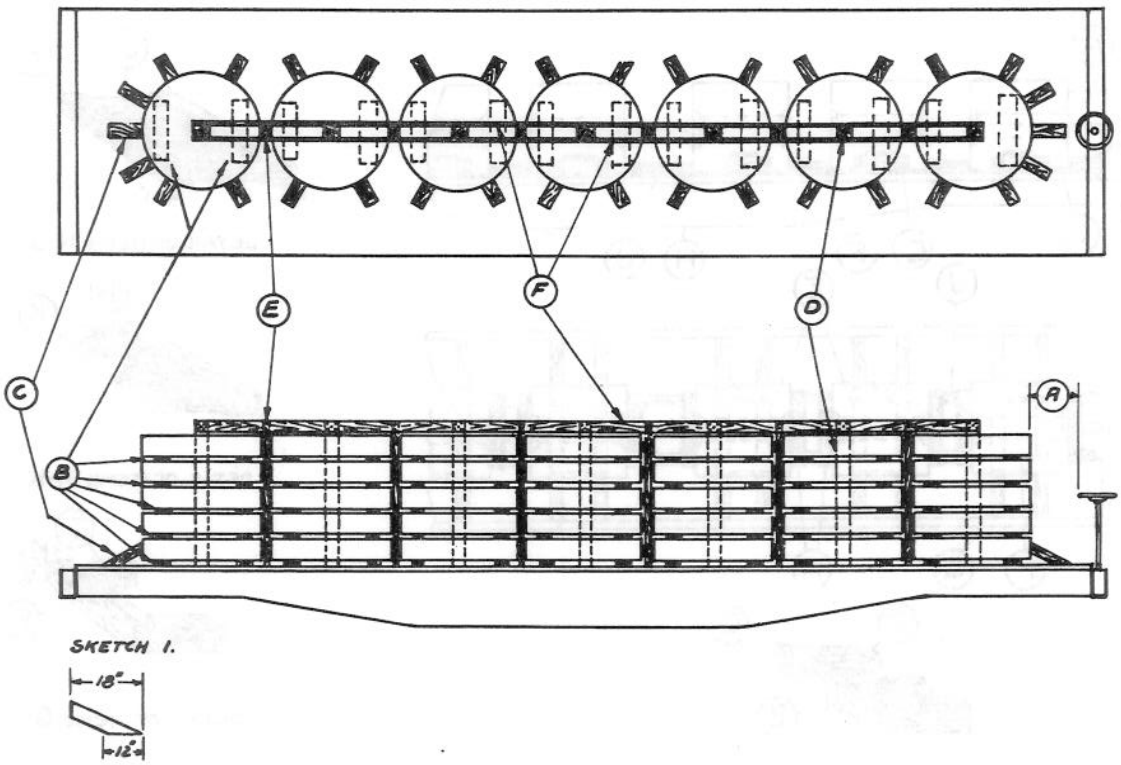
Place two or more strips of paper between each piece of marble.

Secure all bracing with not less than 20-D nails.

See General Rules 4, 5, 9 and 14 for further details.

Sec. 4—Fig. 75

GRINDSTONES—FLAT OR GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 per stone.	1 in. x 10 in., softwood, in one piece, long enough to extend to within 2 in. from outside edge of stone. Locate outside edge of bottom board about ¼ diameter of stone from edge of stone and nail to floor with 10-D nails spaced about 18 in. apart. Boards under stones in pile to be placed directly above the one below.
C	Ea. end pile, 7; Ea. intermediate pile, 4.	4 in. x 4 in. x 18 in., hardwood, per Sketch 1. Nail to floor with five 30-D nails.
D	1 per pile.	Hardwood post slightly smaller than, and through, holes in stones. They must contact floor and extend six inches above top of pile.
E	1 between ea. pile.	2 in. x 4 in., softwood, extending from floor to top edge of Items "F". Attach suitable cushioning material to each side contacting stone.
F	2	1 in. x 6 in., fully engaging and nailed to each Item "D" with five 10-D nails and to each Item "E" with three 10-D nails.

When loading, care must be taken to eliminate all slack.

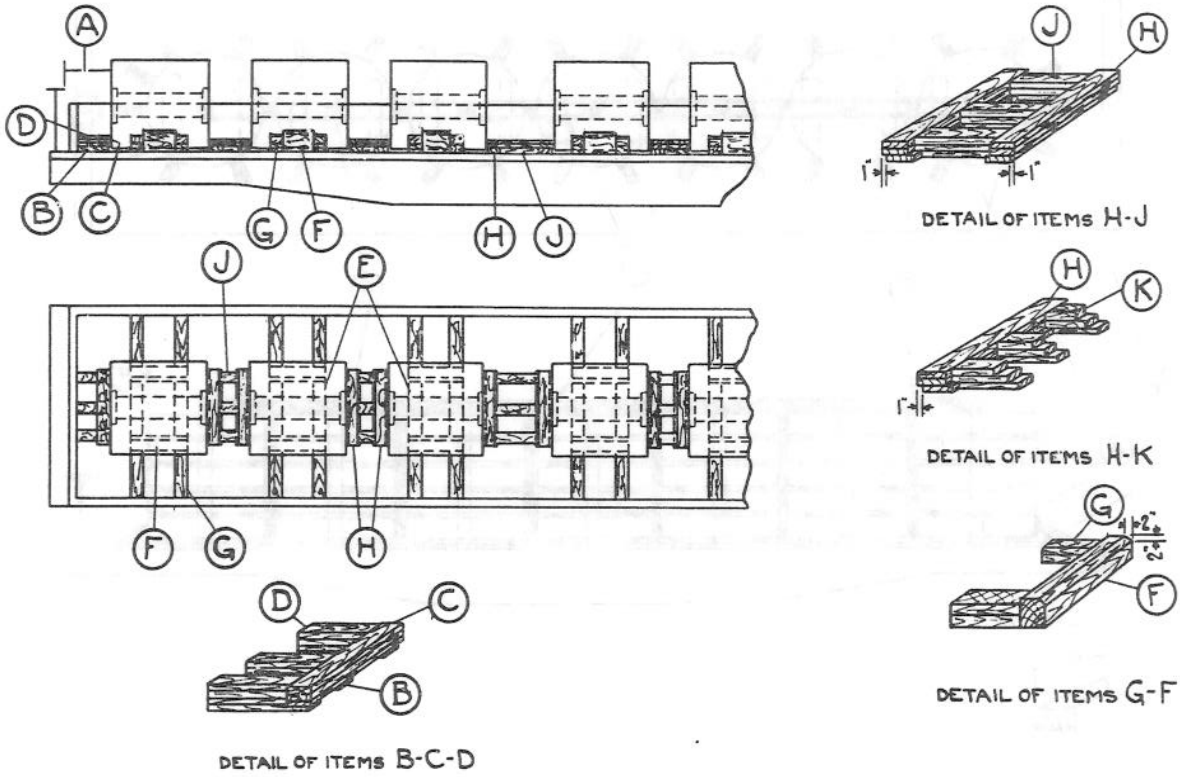
Single stones must rest on strips per Item "B", and be held in place by seven blocks per Item "C", Sketch 1.

Piles should, where possible, consist of stones of same diameter, with thin stones at top of pile.

See General Rules 4, 5, 9 and 14 for further details.

Sec. 4—Fig. 76

PULP GRINDER STONES, CORES LENGTHWISE—GONDOLA OR FLAT CARS

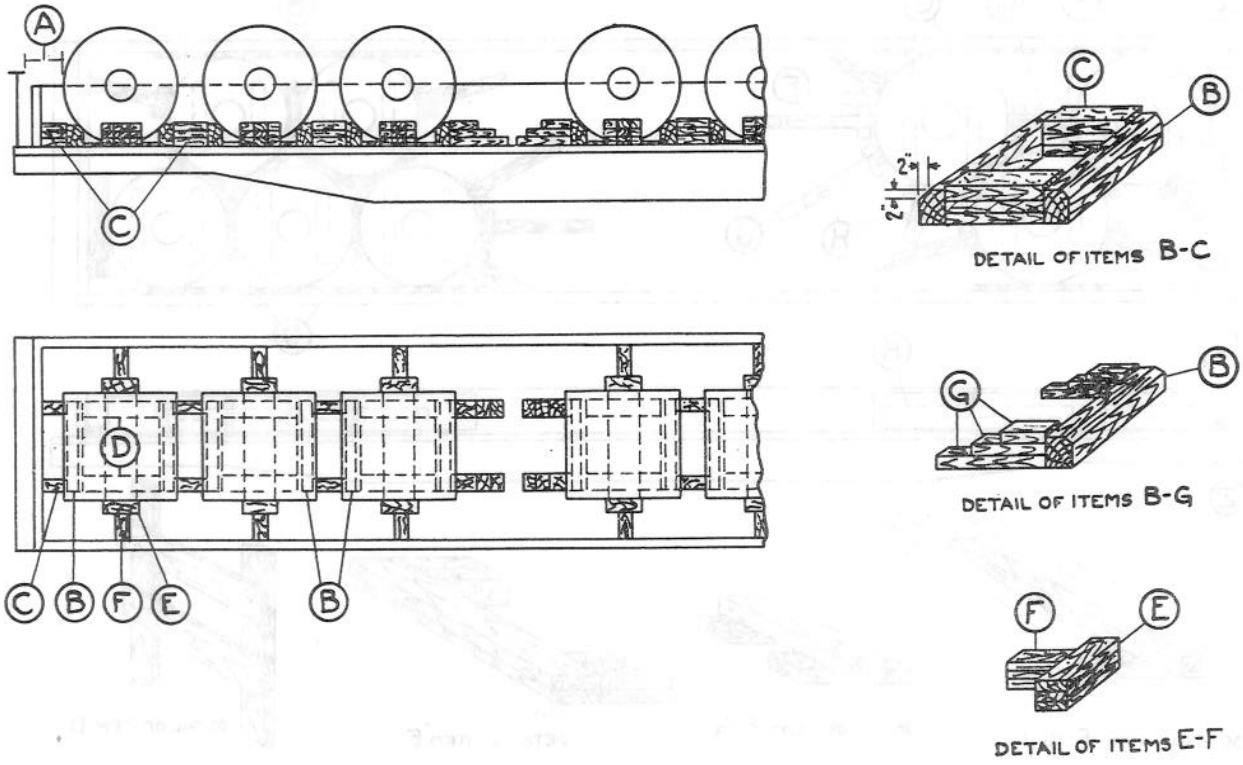


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	3 ea. end of load.	2 in. x 6 in. x 17 in., hardwood. Place 1 in. from stone and nail with 30-D nails.
C	3 ea. end of load.	2 in. x 6 in., hardwood, length equal to 3/5 dia. of stone. Place against stone and nail with 30-D nails.
D	9 ea. end of load.	2 in. x 6 in. x 12 in., hardwood. Place on Items "B" and nail with 30-D nails.
E	2 ea. stone.	1 in. x 6 in., hardwood, length equal to distance between Items "G". Nail with 10-D nails.
F	2 ea. stone.	6 in. x 8 in., hardwood, 8 in. shorter than width of stone. Cut 2 in. chamfer on edge contacting stone and toe-nail to floor with 40-D nails.
G	4 ea. Item "F".	3 in. x 5 in., hardwood, bottom pieces length to suit, and top pieces 12 in. long. Nail with 40-D nails.
H	3 or 6 ea. stone.	2 in. x 6 in., hardwood, length equal to 3/5 dia. of stone. Place bottom piece 1 in. from stone, and top pieces against stone. Nail with 30-D nails.
J	As required.	2 in. x 6 in., hardwood, length to suit. Nail with 30-D nails.
K	As required.	2 in. x 6 in., hardwood, two 12 in., two 18 in. and two 24 in. long. Use in lieu of Items "J" when distance between stones is greater than 5 ft.

See General Rules 4, 5, 9 and 14 for further details.

Sec. 4—Fig. 77

PULP GRINDER STONES, CORES, CROSSWISE—GONDOLA OR FLAT CARS

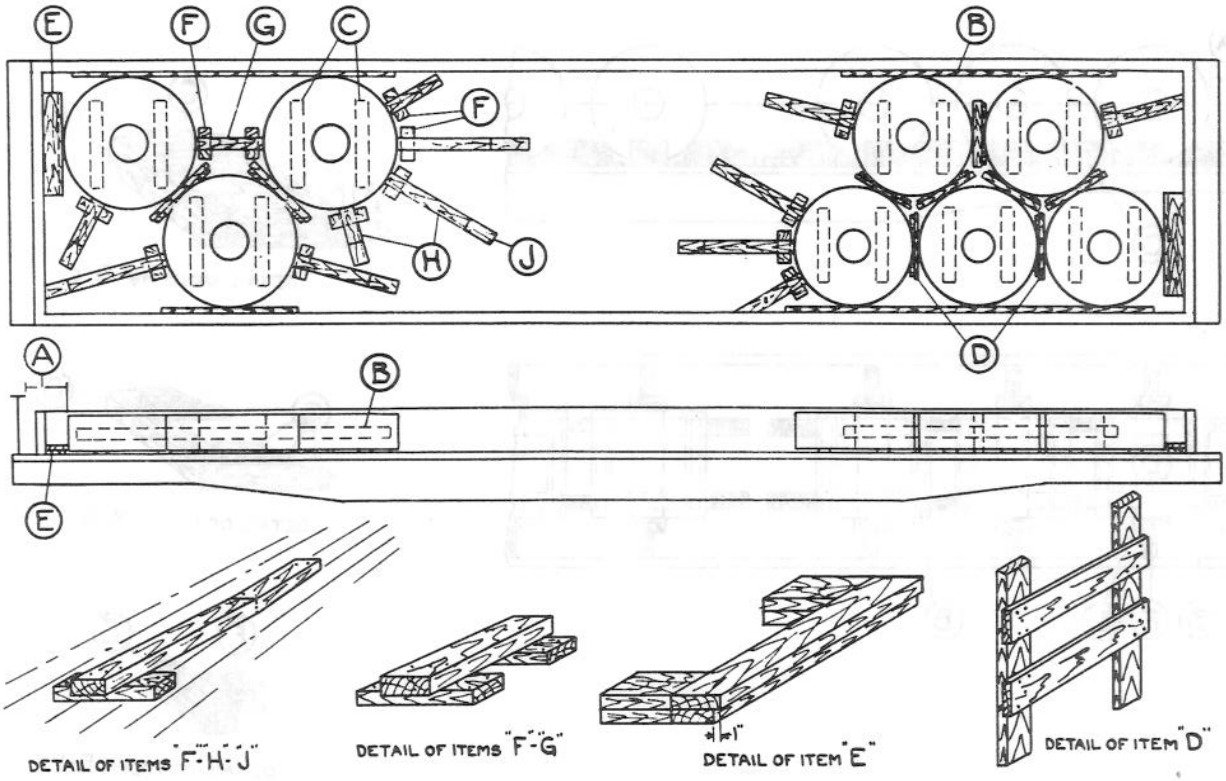


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. stone.	6 in. x 8 in., hardwood, 8 in. shorter than width of stone. Cut 2 in. chamfer on edge contacting stone and toe-nail to floor with 40-D nails.
C	6 ea. Item "B".	3 in. x 5 in., hardwood, length to suit. Nail with 40-D nails.
D	2 ea. stone.	1 in. x 6 in., hardwood, length equal to distance between Items "B". Nail with 10-D nails.
E	6 ea. stone.	3 in. x 5 in. x 24 in., hardwood. Nail with 40-D nails.
F	3 ea. Item "E".	3 in. x 5 in., hardwood, length to suit. Nail with 40-D nails.
G	6 ea. Item "B".	3 in. x 5 in., hardwood, two 12 in., two 18 in. and two 24 in. long. Use in lieu of Items "C" when distance between stones is greater than 5 ft.

See General Rules 4, 5, 9 and 14 for further details.

Sec. 4—Fig. 78

PULP GRINDER STONES, FLATWISE—GONDOLA OR FLAT CARS



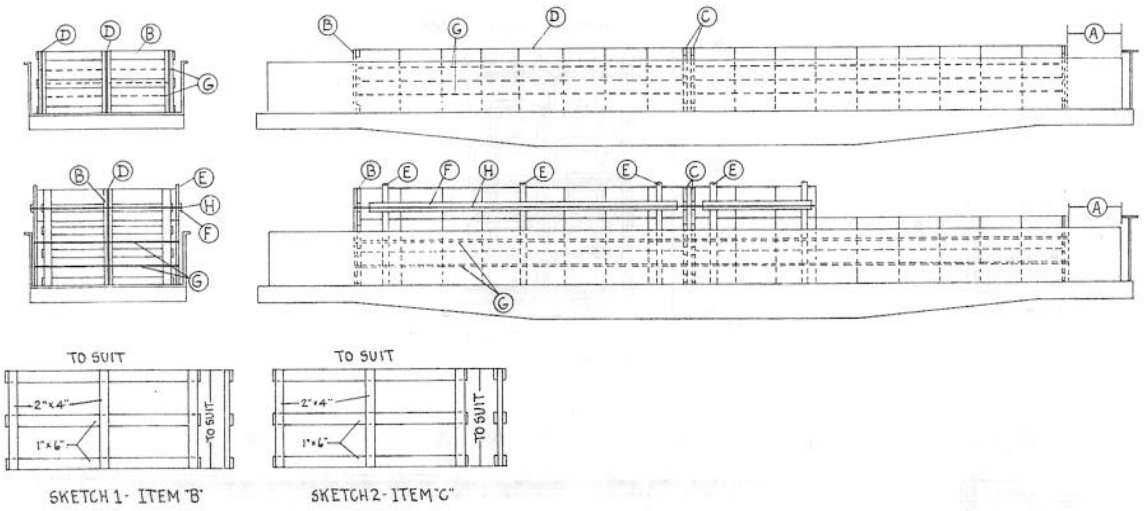
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	As required.	1 in. x 6 in., length to suit. Place center of strips at height equal to center of stones and nail to sides of car with 10-D nails.
C	2 ea. stone.	1 in. x 6 in., hardwood, length to suit. Place as shown and nail to floor with 10-D nails.
D	As required.	1 in. x 6 in., hardwood, lengths to suit. Nail with 10-D nails.
E	2 ea. end of load.	3 in. x 4 in. bottom piece, 3 in. x 5 in. top piece, hardwood. Place bottom piece 1 in. from stone and top piece against stone and end of car. Nail with 40-D nails.
		For flat cars, back up these pieces at two locations with 2 pieces of 2 in. x 6 in. x 18 in. placed lengthwise of car and nailed with 30-D nails.
F	As required.	3 in. x 5 in. x 14 in., hardwood. Place 1 in. from stone and nail to floor with 40-D nails.
G	As required.	3 in. x 5 in., hardwood, length to suit. Nail to Items "F" with 40-D nails.
H	As required.	3 in. x 5 in., hardwood, length to suit. Nailed to Items "F" and floor with 40-D nails.
J	1 ea. Item "H".	3 in. x 5 in., hardwood, length to suit. Nailed to floor with 40-D nails.

On flat cars, place 4 in. x 4 in. pieces lengthwise of car nailed to floor with 60-D nails, and backed up by 4 in. x 5 in. stakes in stake pockets.

See General Rules 4, 5, 9, 10 and 14 for further details.

Sec. 4—Fig. 79

POURING CHANNELS—GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	1 ea. end of pile.	End gates, per Sketch 1. Height equal to height of pile, width to suit.
C	1 between sections of pile.	Intermediate gate, per Sketch 2. Height equal to height of pile, width to suit.
D	1 ea. section of pile.	¾ in. x .050 in. high tension band. Locate as shown, around each section encircling Items "B" and "C".
E	3 pr. ea. section of pile.	2 in. x 4 in., suitably spaced, length equal to height of pile.
F	As required.	1 in. x 6 in. Locate, as shown, long enough to extend full length of pile. Secure to Items "E" at each location with two 10-D nails.
G	As required.	¾ in. x .050 in. high tension bands. Locate, as shown, around each layer below top of car sides encircling Items "B", "C" and "E" and secured to Items "B" and "C".
H	As required.	¾ in. x .050 in. high tension bands. Locate, as shown, around layers extending more than ¾ their height above top of car sides, encircling and secured to Items "B", "C" and "F".

Items "E", "F", "G" and "H" not required when top layer of pile does not extend more than ¾ its height above top of car sides, and two additional Items "D" are used.

End of pile should not be less than 12 in. from ends of car where practicable.

Use suitable cushioning material on floor of car.

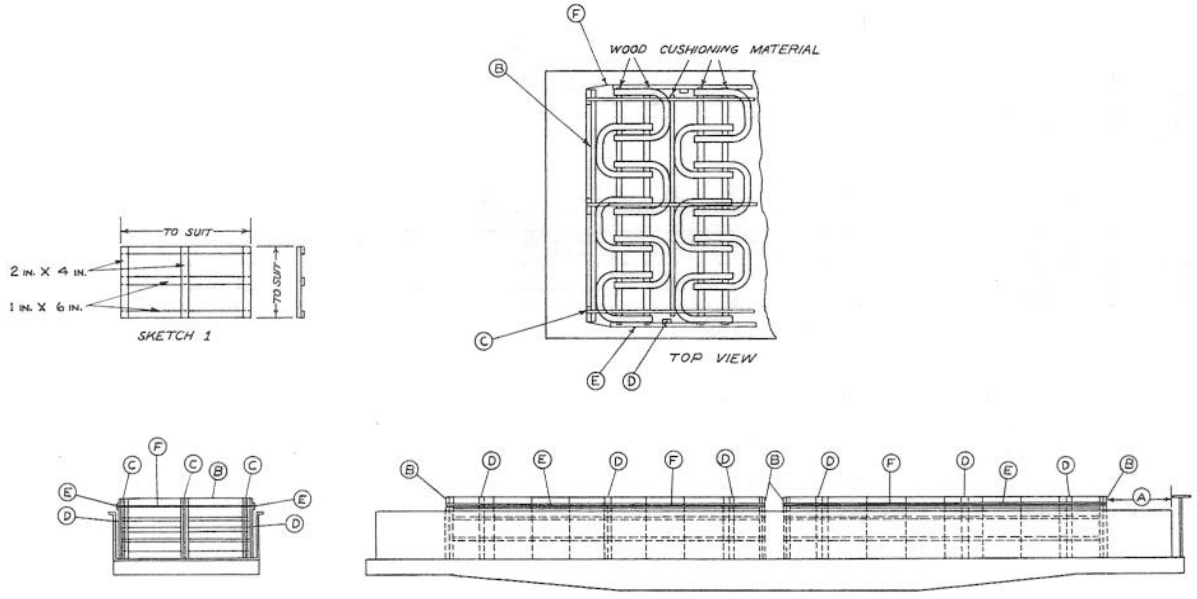
Suitable wooden separators may be used between layers, when necessary.

Incomplete top layers may be located against Items "B" or "C" and secured with side protection as provided in Items "E", "F" and "H".

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 80

POURING CHANNELS, WITH OPEN ENDS—GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	1 ea. end of pile.	End gates, Sketch 1. Height equal to height of pile, width to suit.
C	3 per pile.	¾ in. x .050 in. high tension bands. Locate, as shown, around pile encircling Items "B".
D	3 pr. per pile.	2 in. x 4 in., suitably spaced, length equal to height of pile.
E	As required.	1 in. x 6 in., long enough to extend full length of pile. Locate as shown and secure to Items "D", at each location, with two 10-D nails.
F	1 per pile.	¾ in. x .050 in. high tension band. Locate, as shown, around top layer of pile encircling Items "B", "D" and "E". Staple to Items "B" and "E" and tension sufficiently to remove slack.

Items "D" and "E" not required when top layer does not extend more than ¾ its height above top of car sides.

End of piles should not be less than 12 in. from ends of car where practicable.

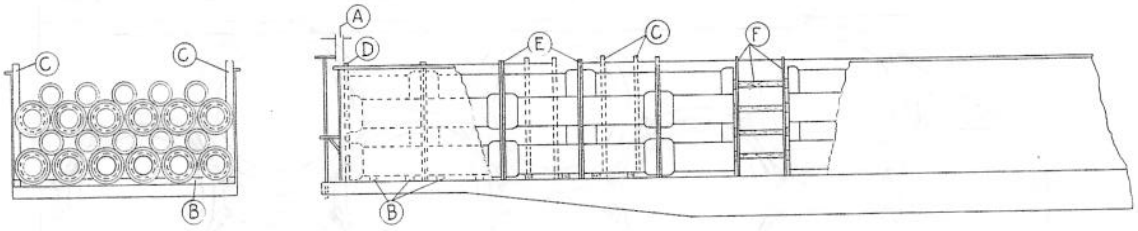
Use suitable cushioning material on floor of car.

Use suitable wooden separators between layers and between tiers.

See General Rules 4, 5, 9, 14 and 15 for further details.

Sec. 4—Fig. 81

CLAY SEWER PIPE, LENGTHWISE—GONDOLA CARS



Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 per pile.	Wood strips, thick enough to keep pipe off floor, rivet heads, etc.
C	4 per pile.	Wood strips, thick enough to prevent pipe contacting sides of car, width equal to thickness, length equal to height of car sides. Not required for large diameter pipe pyramided from floor, which is otherwise secured to prevent its moving against sides of car.
D	2	End gates, hardwood, southern pine, long leaf pine, fir, spruce, larch or hemlock. Locate at ends of pile against end of car. Each shall consist of sufficient 1 in. x 6 in. horizontals to protect ends of each pipe. They must be nailed to three, or more, 1 in. x 4 in. verticals.
E	As required.	Partitions or gates, suitably constructed. Each must extend from floor to, or above, center of top layer of pipe.
F	As required.	Bulkhead, hardwood, southern pine, long leaf pine, fir, spruce, larch or hemlock. Locate at end of pile against end of car, or between piles. Each shall consist of sufficient 1 in. x 6 in. verticals and horizontals to protect ends of each pipe, and nine, or more, 2 in. x 4 in. spreaders.

When loading fittings, they should be placed on top of unit in bins formed by extensions of the intermediate gates above the straight pipe. Fittings should be bedded in sufficient cushioning material to prevent damage to pipe or fittings.

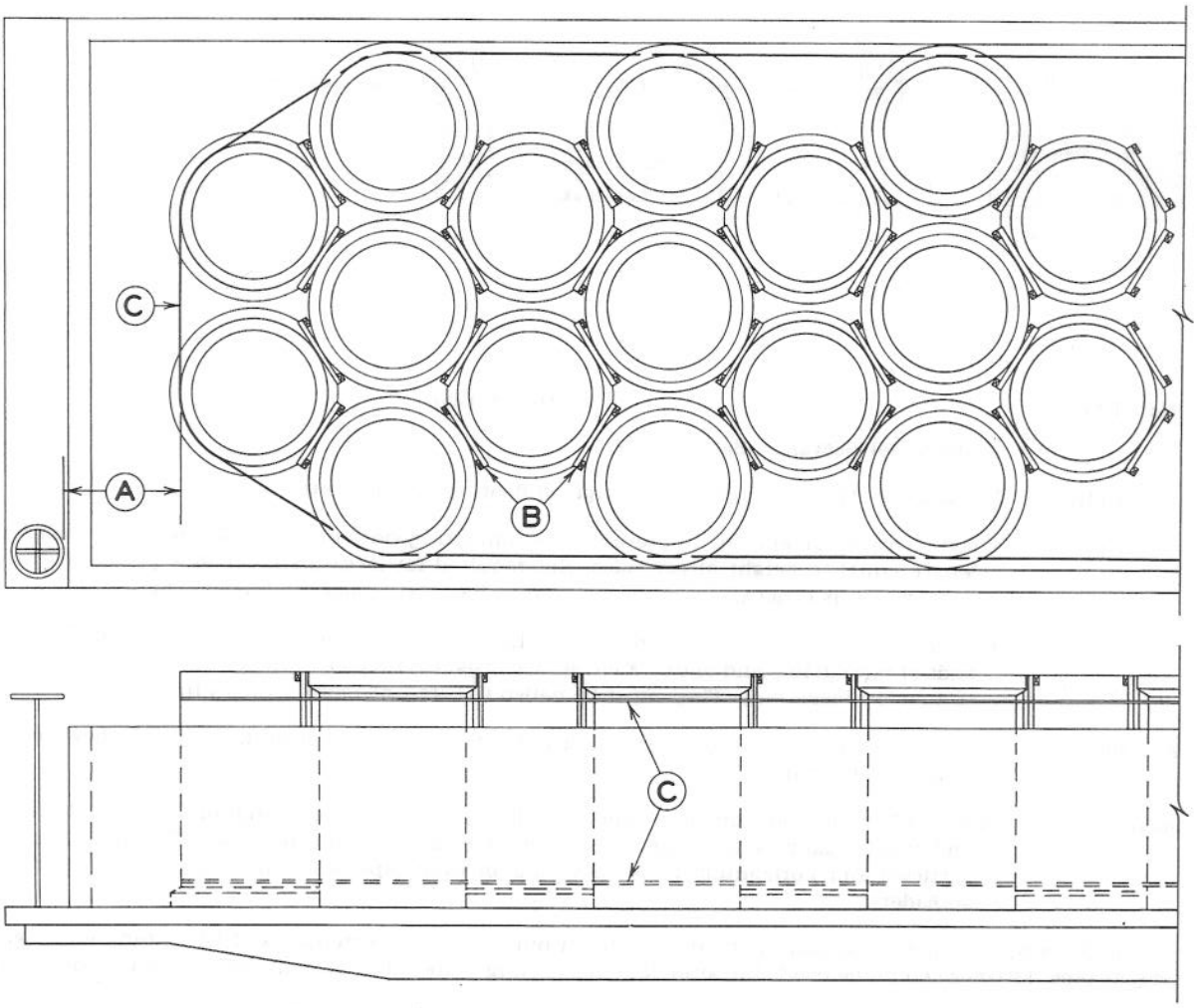
All nails used in Items "D" and "E" must be clinched.

Pipe must be loaded on side so that bell ends are opposite to bell ends and plain ends are opposite to plain ends.

See General Rules 4, 5, 9 and 14 for further details.

Sec. 4—Fig. 82

CLAY SEWER PIPE, 18 IN. INSIDE DIAMETER AND OVER, ON END—GONDOLA CARS



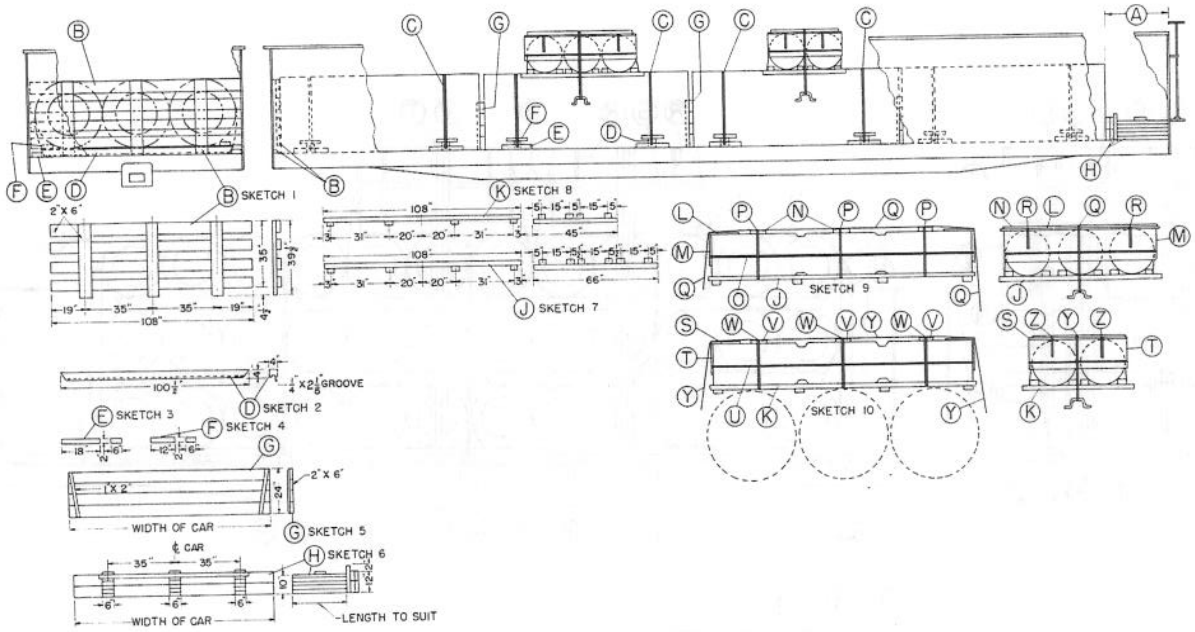
Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	As required.	Soft wood rectangular shaped separators, built up of 1 in. x 2 in. material, between all contacting points of pipe.
C	2	3/8 in. x .050 in. high tension bands, suitably spaced, encircling entire load, secured to prevent displacement.

Nest pipe in crosswise rows of two and three, or three and four, etc., depending on size of pipe with bell and spigot ends reversed on adjoining rows to take up full crosswise car space.

Load must have at least 24 inches vacant space at each end of car.

See General Rules 4, 5, 9, 14 and 15 for further details.

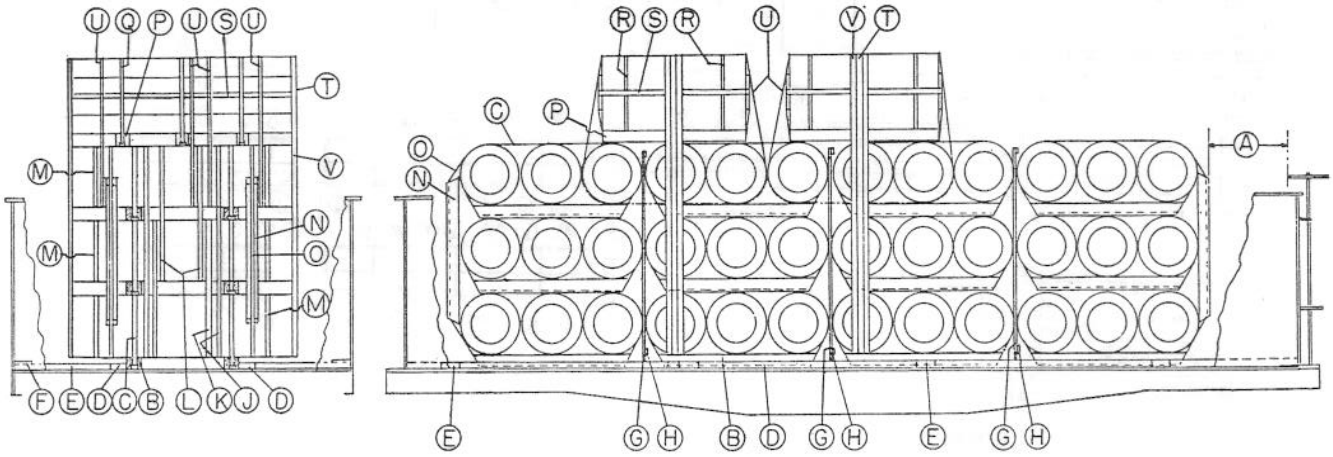
Sec. 4—Fig. 83
ELECTRODES AND PINS—GONDOLA CARS

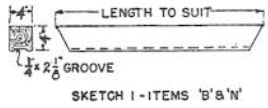


Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	1	End gate, per Sketch 1. Locate against end of car.
C	2 per pile	2 in. x .050 in. high tension bands, long enough to encircle pile. Tension and seal after load has been placed on Items "D".
D	2 per pile	4 in. x 4 in. hardwood, per Sketch 2. Locate one each about ¼ length of pile from each end, on top of Items "C".
E	2 ea. Item "D".	2 in. x 6 in. x 18 in., hardwood, per Sketch 3. Locate on floor between Items "D" and car sides. Secure each with three 10-D nails.
F	2 ea. Item "D".	2 in. x 6 in. x 12 in., hardwood, per Sketch 4. Locate one each on top of Item "D", against each outside electrode. Secure each with three 10-D nails.
G	1 between each pile	Separator, per Sketch 5. To consist of four pieces 2 in. x 6 in., length equal to inside width of car and two pieces 1 in. x 2 in., length to suit nailed to each 2 in. x 6 in., piece with two 8-D nails.
H	1	Bulkhead, consisting of 2 in. x 6 in. pieces nailed together, per Sketch 6. Locate between end pile and end of car.
J	1 ea. pile of nine pins	Pallet, consisting of 2 in. x 4 in. pieces, per Sketch 7. Locate on top of electrodes, at center of pile. Secure to car sides with one 2 in. x .050 in. high tension band, Item "Q".
K	1 ea. pile of six pins	Pallet consisting of 2 in. x 4 in. pieces, per Sketch 8. Locate on top of electrodes at center of pile. Secure to car sides with one 2 in. x .050 in. high tension band.
L	2 ea. pile of nine pins	1 in. x 12 in. x 65 in. Locate one each on top of pile at each end. Secure each to Items "M" with two 1¼ in. x .035 in. high tension bands about 18 in. long, Item "P", with three 6-D nails in both Items "L" and "M".
M	2 ea. pile of nine pins	1 in. x 12 in. x 65 in. Locate one each at each end of pile. Secure as shown in Item "L".
N	3 ea. pile of nine pins	2 in. x 6 in. x 63 in. Locate on top of pile, per Sketch 9 and secure to Items "P" with three 6-D nails.
O	1 ea. pile of nine pins	1¼ in. x .035 in. high tension bands. Pass around pile and Items "M". Secure to Items "M" with 6-D nails.
P	3 ea. pile of nine pins	1¼ in. x .035 in. high tension bands. Pass around pile, Items "J" and "N".
Q	1 ea. pile of nine pins	2 in. x .050 in. high tension band. Pass over top of pile, Items "L", "N" and "O", and secure to car stake pockets.
R	4 ea. pile of nine pins	1¼ in. x .035 in. high tension bands. Secure each to Items "L" and "M" with three 6-D nails in each Item.
S	2 ea. pile of six pins	1 in. x 12 in. x 44 in. Locate one each on top of pile at each end. Secure to Items "T" with 1¼ in. x .035 in. high tension bands, Items "Z".
T	2 ea. pile of six pins	1 in. x 12 in. x 65 in. Locate one each at each end of pile. Secure as shown in Items "S" and "Z".
U	1 ea. pile of six pins	1¼ in. x .035 in. high tension band. Pass around pile and Items "T". Secure to Items "T" with 6-D nails.
V	3 ea. pile of six pins	2 in. x 6 in. x 42 in. Locate on top of pile, per Sketch 10, and secure to Items "W" with three 6-D nails.
W	3 ea. pile of six pins	1¼ in. x .035 in. high tension band. Pass around pile and Items "K" and "V".
Y	1 ea. pile of six pins	2 in. x .050 in. high tension bands. Pass over top of pile, Items "S", "V", and "W", and secure to car sides or stake pockets.
Z	4 ea. pile of six pins	1¼ in. x .035 in. high tension bands. Secure each to Items "S" and "T" with three 6-D nails in each.

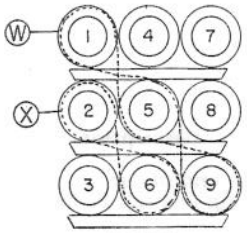
See General Rules 4, 5, 9, 10, 14, and 15 for further details.

Sec. 4—Fig. 84
ELECTRODES—CROSSWISE—GONDOLA CARS





SKETCH 1 - ITEMS 'B' & 'N'



SKETCH 2

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	2 ea. layer	4 in. x 4 in. hardwood, length to suit, per Sketch 1. Locate about ¼ length of electrodes from ends. Secure each with one 2 in. x .050 in. high tension band, Item "C".
C	2 ea. layer	2 in. x .050 in. high tension bands. Pass under Items "B" and over electrodes.
D	2	2 in. x 6 in. hardwood, full length of car. Locate one each on floor, outside of and next to Items "B".
E	As required.	2 in. x 6 in. hardwood, long enough to extend from Items "D" to car sides. Locate on floor, space about 6 feet apart and secure with Items "F".
F	2	1 in. x 6 in. hardwood, full length of car. Locate one each against each side of car, on top of Items "E" and secure with two 8-D nails at each location.
G	As required.	1 in. x 4 in. hardwood. Locate two vertically, spaced about 5 feet apart, between each unit of load, secure with Items "H".
H	As required.	1 in. x 2 in. hardwood, locate one near top and one near bottom of each pair of Items "G". Secure to Items "G" with two 10-D nails at each end.
J	2 per unit	2 in. x .050 in. high tension bands. Pass around entire unit of nine electrodes.
K	2 per unit	2 in. x .050 in. high tension bands. Pass around bottom and center layers of each unit.
L	2 per unit	2 in. x .050 in. high tension bands. Pass around center and top layers of end and adjacent unit.
M	2 ea. layer of end units	2 in. x .050 in. high tension bands. Pass around electrodes about 12 in. from ends.
N	2 ea. end unit	4 in. x 4 in. hardwood, length to suit, per Sketch 1. Locate between end units and ends of car. Secure each to end sections of load with one Item "O".
O	1 ea. Item "N"	1¼ in. x .035 in. high tension band. Pass around Item "N" and all electrodes in end unit.
P	3 ea. pallet	4 in. x 4 in. hardwood, length equal to width of pallet. Locate one at center and one each about 12 in. from ends of pallet. Secure each with one Item "Q".
Q	1 ea. Item "P"	1¼ in. x .035 in. high tension band. Pass around Items "P" and pallet.
R	2 ea. pallet	1¼ in. x .035 in. high tension bands. Locate on each about 8 in. from each side of pallet.
S	1 ea. pallet	2 in. x .050 in. high tension band. Pass around pallet, midway between top and bottom.
T	1 ea. pallet	2 in. x .050 in. high tension band. Pass around pallet, section of pile below, and Items "V".
U	4 ea. pallet	1¼ in. x .035 in. high tension bands. Pass over pallet and around top layer of electrodes under pallet.
V	2 ea. pallet	2 in. x 6 in. hardwood, long enough to extend from bottom of load to top of pallet. Locate one each on each side of pallet at center, secure with staples or 6-D nails to Items "T".
W	1 ea. end unit of load	2 in. x .050 in. high tension band. Apply to electrodes, numbered 1, 5, 9, in figure eight shape, as shown in Sketch 2.
X	1 ea. end unit of load	2 in. x .050 in. high tension band. Apply to electrodes, numbered 2 and 6 in figure eight shape as shown in Sketch 2.

See General Rules 4, 5, 9, 10, 14, and 15 for further details.

SECTION No. 4

PART 2

RULES GOVERNING

THE

Loading of Machinery On Open Top Cars

Note 1.—SECURING MACHINES

(a) Machines, except solid base types must be placed on and secured to skids. Solid base type machines may be placed directly on car floor and securely bolted or blocked in position. Skids supporting other than solid base type machines must not be bolted to the car floor.

(b) All machine heads must be locked in lowered position. Counterweights and other movable parts must either be removed or locked in lowered position and secured to prevent movement in transit.

(c) Machines equipped with lateral shafts, fitted with flywheels, gears, etc., secured with keys or pins which may become displaced, must be adequately secured to prevent movement or loss in transit.

(d) Removable parts such as brackets, arms, tables, motors, pumps, etc., which are difficult to support or protect, and can not be adequately secured if left on the machine, must be removed and separately secured or boxed.

(e) Suitable bracing or rods must be used to prevent breakage of legs, pedestals, or end frames.

Note 2.—SKIDS

(a) The size of skid members must be in accordance with Tables 1 and 2 or suitable metal sections of equal strength. When timber of specified dimensions is not available, the members may be fabricated by lamination as shown in Illustration No. 14. Skids must be located lengthwise of car. The length and width of skids must exceed overall dimensions of protruding parts not less than 2 in. on each side and 6 in. on each end, except on heavy type, flush base, machines where protruding parts are substantially protected. Skids must be long enough and wide enough to prevent machines overturning. Outside skid members must parallel each other and be of equal length. The ends of all skid members must be beveled, not to exceed one-third height of skid.

(b) The size of cross members must be in accordance with Table 3. Secure to skid members with ¾ in. dia. bolts with washers under head and nut. The underside of skid members must be counterbored to accommodate bolt heads. Bolts securing end cross members must be located not less than 3 in. from ends of skid members.

(c) Machines must be secured to skids with bolts not less than ⅝ in. dia., otherwise they must be secured with suitable cleats bolted to the skids at both ends and sides of the machine so that the base or feet of the machine will rest in a nest formation; or with tie rods, as follows:

Weight of Machine	Size of Rods
Under 4000 lbs.	½ in. dia.
Over 4000 to 7500 lbs.	⅝ in. dia.
Over 7500 to 15,000 lbs.	¾ in. dia.
Over 15,000 to 25,000 lbs.	⅞ in. dia.
Over 25,000 to 50,000 lbs.	1 in. dia.

Note 3.—FLOOR BLOCKING AND BRACING

(a) A timber or laminated equivalent end piece, width and height equal to skid member, must be placed against each end of skid unit and secured to floor with bolts as follows:

Weight of Machine	Size of Bolts
10,000 lbs. or less	2⅝ in.
Over 10,000 to 20,000 lbs.	4⅝ in.
Over 20,000 lbs.	4¾ in.

(b) Place a 2 in. x 4 in. cleat, length equal to half the length of skid member, against each side of skid unit and secure to floor with 30-D nails spaced not more than 12 in. apart.

(c) Back up blocks, each consisting of two pieces of 2 in. x 4 in. x 18 in., must be located lengthwise of car, in line with each skid member, against end piece. Nail lower piece to floor with 4 30-D nails and top piece to the one below in like manner.

(d) In addition to the foregoing provisions, top heavy machines must be secured to prevent tipping in any direction, with suitable braces, rods or cables. If cables are used, ends must be passed through stake pockets, overlapped at least 12 in. and secured with two 2-bolt cable clamps. Cable must have double turns at points of attachments and must have thimbles, secured with a 2-bolt cable clamp to prevent sharp turns. Twist cable taut with rod, bolt, or pipe, secured to prevent working loose.

Note.—Not required when snubbing method is used.

Note 4.—SNUBBING METHOD

(a) Anti-skid plates or lag screws may be used for machines, provided not less than 4 in. x 4 in. skid members are used and that units are located far enough apart to permit proper functioning of the snubbing method, without the units contacting each other.

(b) The number of anti-skid plates or lag screws must be as follows:

Weight of Machine	Number of 6-hole plates, per each outside skid member	Number of lag screws per each outside skid member ½ in. penetration
2,000 lbs. or less	2	2
Over 2,000 to 5,000 lbs.	2	3
Over 5,000 to 10,000 lbs.	3	4
Over 10,000 to 15,000 lbs.	5	5
Over 15,000 to 20,000 lbs.	5	6
Over 20,000 lbs.	6	7

Note 5.—ANTI-SKID PLATES—METHOD OF APPLICATION

(a) Drive points of anti-skid plate into a 4 in. x 4 in. x 18 in. block and secure with suitable nails driven through plate and with head bent over. Locate end plate not less than 30 in. from end of skid. Intermediate plate or plates must be spaced equally between the end plates. Drive block against skid member forcing points of plate into skid member as far as possible. Secure each block to floor with six 60-D nails. Holes, slightly smaller than the diameter of nails, must be drilled through the block.

(b) Place two 2 in. x 4 in. x 8 in. cleats directly in back of block as shown in Illustration No. 10. Nail lower piece to floor with three 20-D nails and top piece to the one below in like manner.

(c) Two or more plates may be applied to one block of sufficient length to provide space of not less than 12 in. between ends of each plate, with reinforcing cleats for each. Locate end plate not less than 30 in. from end of skid. Intermediate plate or plates must be spaced equally between the end plates. Secure block to floor with 60-D nails spaced about 4 in. apart.

(d) This method of snubbing is not permitted when the lack of sufficient clearance between the sides of car and skids prevents the driving of block and plate against skid.

Note 6.—LAG SCREWS—METHOD OF APPLICATION

(a) Drill a 7/16 in. hole through the center of a 4 in. x 4 in. x 18 in. block. Screw a ½ in. x 6 in. lag through the hole until the point is flush with the inside surface of the block. Locate block tight against skid member and secure block to floor with six 60-D nails. Holes, slightly smaller than the diameter of nails, must be drilled through the block.

(b) Locate two 2 in. x 4 in. x 8 in. cleats, spaced about 8 in. apart, with one end against block as shown in Illustration No. 12 and secure each to floor with three 20-D nails.

(c) Two or more lags may be screwed into one block of sufficient length to provide space of not less than 15 in. between each lag with two reinforcing cleats for each. Locate end lag not less than 30 in. from end of skid. Intermediate lag or lags must be spaced equally between the end lags. Secure block to floor with 60-D nails spaced about 4 in. apart.

(d) Measure the portion of lag protruding from the block and screw into the skid member unitl one-half inch penetration is secured.

Note 7.—METHOD OF LAMINATING SKID MEMBERS (SHOWN IN ILLUSTRATION NO. 14).

(a) Thickness of boards used must not be less than 2 inches.

(b) Number of members must be equal to width computed for solid skid, plus one more lamination.

(c) Use 30-D nails staggered, on 12 in. centers.

(d) Joints on adjacent member must not be closer than 4 feet.

(e) Laminations must be on the vertical planes only.

TABLE I

LEG TYPE AND END FRAME MACHINES
SKID REQUIREMENTS—WEIGHT OF MACHINES

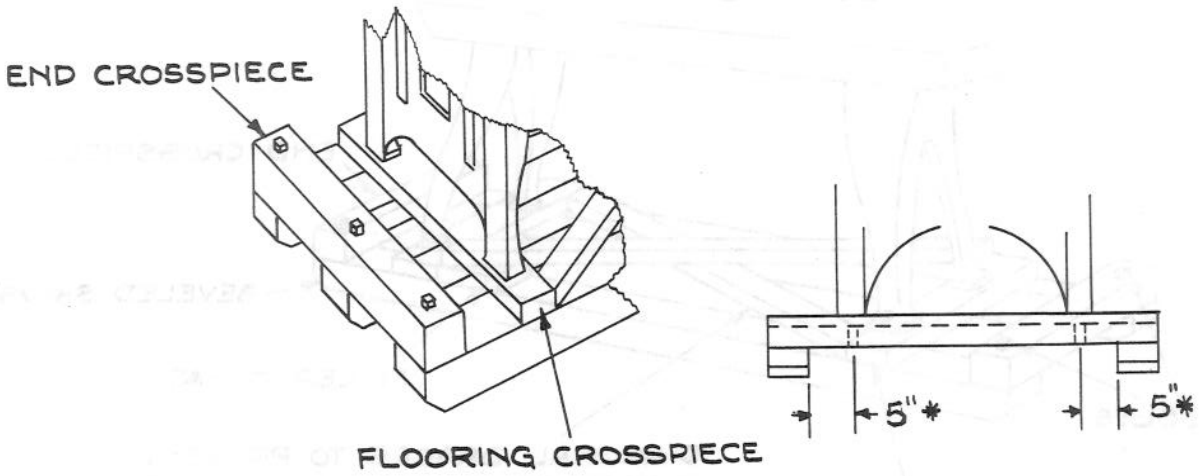
Nom. Dim. of Skids	No. Skids	Length between Legs or Frames				
		3′	4′	6′	8′	10′
Depth Width						
2″ x 4″	2	1000	750	500	. . .	
	3	1500	1000	750	500	
	4	2000	1500	1000	750	500
2″ x 6″	2	1500	1000	750	500	. . . . .
	3	2250	1750	1000	750	500
	4	3000	2250	1500	1000	750
3″ x 4″	2	2000	1500	1000	750	500
	3	3250	2500	1500	1250	1000
	4	4500	3250	2000	1500	1250
	5	5500	4000	2750	2000	1500
	6	6500	5000	3250	2500	2000
4″ x 4″	2	4250	3250	2000	1500	1250
	3	6250	4750	3000	2250	1750
	4	8500	6250	4250	3250	2500
	5	10500	8000	5250	4000	3250
	6	12500	9500	6250	4750	3750
4″ x 6″	2	6500	5000	3250	2500	2000
	3	10000	7500	5000	3750	3000
	4	13000	10000	6500	5000	4000
	5	16500	12500	8000	6000	5000
	6	20000	15000	10000	7500	6000
6″ x 4″	2	10000	7500	5000	3750	3000
	3	15000	11500	7500	5750	4500
	4	20000	15000	10000	7500	6000
	5	25000	19000	12500	9500	7500
	6	30000	23000	15000	11500	9250
6″ x 6″	2	. . . . .	11750	7750	5750	4750
	3	. . . . .	17500	11750	8750	7000
	4	. . . . .	23500	15750	11750	9500
	5	. . . . .	29500	20000	15000	11750
	6	. . . . .	35000	23500	17500	14000
6″ x 8″	2	. . . . .	. . . . .	10500	8000	6500
	3	. . . . .	. . . . .	16000	12000	9500
	4	. . . . .	. . . . .	21500	16000	12500
	5	. . . . .	. . . . .	26500	20000	16000
	6	. . . . .	. . . . .	32000	24000	19000
8″ x 6″	3	. . . . .	. . . . .	22000	16500	13000
	4	. . . . .	. . . . .	29000	22000	17500

TABLE II

FLUSH BASE, CIRCULAR PEDESTAL, DOUBLE COLUMN MACHINES SKID REQUIREMENTS—WEIGHT OF MACHINES

Nom. Dim of Skids	No. Skids	Length of Machine				
		3′	4′	6′	8′	10′
Depth Width						
2″ x 4″	2	1000	750	500	.....	.....
	3	1500	1000	750	500	.....
	4	2000	1500	1000	750	500
2″ x 6″	2	1500	1000	750	500	.....
	3	2250	1750	1000	750	500
	4	4500	2250	1500	1000	750
3″ x 4″	2	2000	1500	1000	750	500
	3	5000	4000	1500	1250	1000
	4	9000	6500	2000	1500	1250
	5	11000	8000	4500	2000	1500
	6	13000	10000	6500	4000	2000
4″ x 4″	2	9500	6500	2000	1500	1250
	3	12500	9500	5000	2250	1750
	4	17000	12500	9500	5000	4000
	5	25000	16000	10500	8000	6500
	6	37500	19000	12500	9500	7500
4″ x 6″	2	13000	10000	6500	5000	2000
	3	25000	15000	10000	7500	5000
	4	39000	25000	13000	10000	8000
	5	50000	37500	16000	12000	10000
	6		45000	25000	15000	12000
6″ x 4″	2	25000	15000	10000	5000	3000
	3	45000	25000	15000	10000	6000
	4		45000	25000	15000	12000
	5			37500	19000	15000
	6			45000	23000	18500
6″ x 6″	2		25000	15000	6500	6000
	3		50000	25000	17500	14000
	4			47000	25000	20000
	5				45000	35000
	6					42000
6″ x 8″	2			25000	16000	6500
	3			45000	25000	20000
	4				45000	35000
	5					45000
8″ x 6″	2			43000	33000	20000
	3				50000	39000
	4					50000
8″ x 8″	2			50000	45000	35000
	3					50000

TABLE III
FLOORING CROSSPIECE REQUIREMENTS



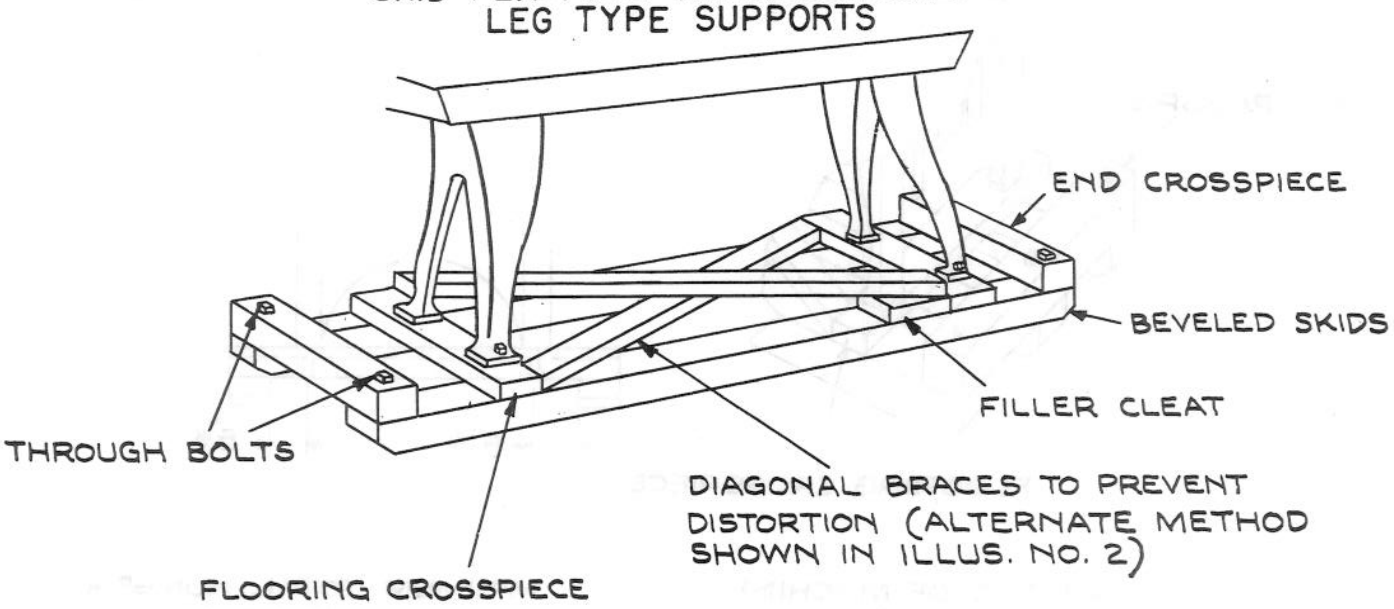
WEIGHT OF MACHINE (POUNDS)	MINIMUM TOTAL NUMBER OF CROSSPIECES *
5,000 OR LESS	TWO 2" X 4"
5,000 - 10,000	FOUR 2" X 4"
10,000 - 20,000	FOUR 2" X 6"
20,000 - 30,000	TWO 4" X 6"
30,000 - 50,000	FOUR 4" X 4"

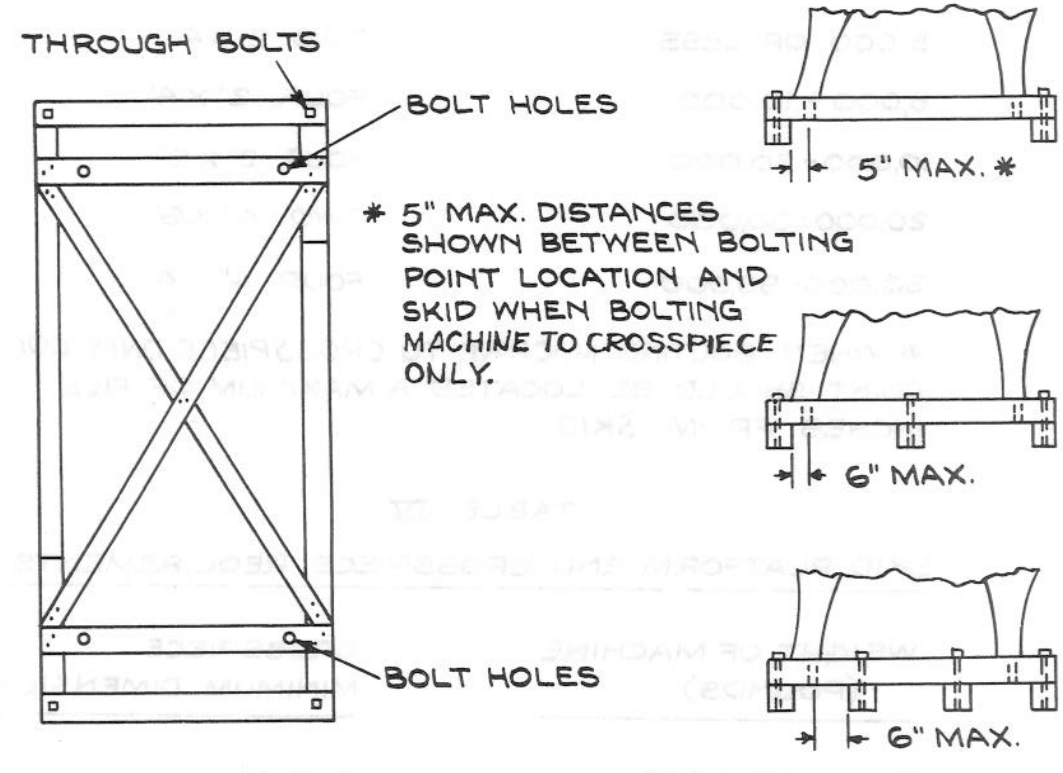
* WHEN BOLTING MACHINE TO CROSSPIECE ONLY, BOLTING POINT SHOULD BE LOCATED A MAXIMUM OF FIVE INCHES FROM SKID.

TABLE IV
SKID PLATFORM END CROSSPIECE REQUIREMENTS

WEIGHT OF MACHINE (POUNDS)	CROSSPIECE MINIMUM DIMENSIONS
5,000 OR LESS	2" X 4"
5,000 OR MORE	4" X 4"

ILLUSTRATION NO. 1
SKID PLATFORM ARRANGEMENTS
LEG TYPE SUPPORTS

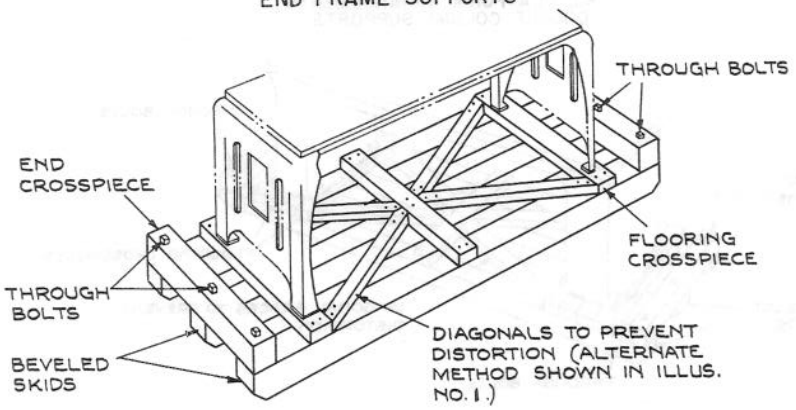




PLAN VIEW OF SKID PLATFORM

END VIEW OF SKID PLATFORM

ILLUSTRATION NO. 2
SKID PLATFORM ARRANGEMENTS
END FRAME SUPPORTS



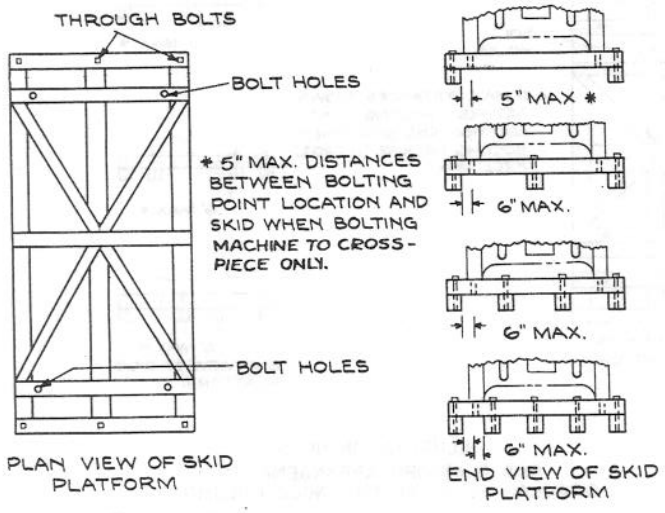
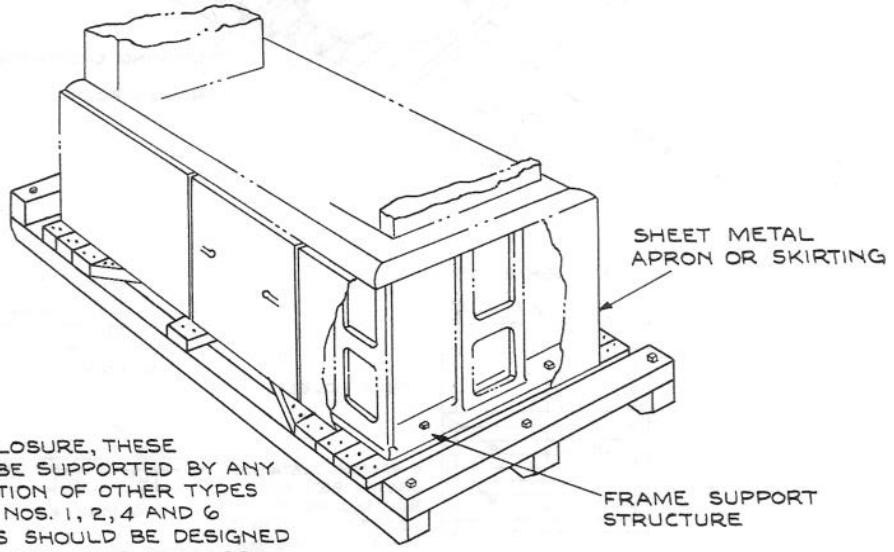


ILLUSTRATION NO. 3
SHEET METAL ENCLOSED STRUCTURE TYPE
VARIATION END FRAME SUPPORT



WITHIN THE ENCLOSURE, THESE MACHINES MAY BE SUPPORTED BY ANY ONE OR COMBINATION OF OTHER TYPES SHOWN IN ILLUS. NOS. 1, 2, 4 AND 6 SKID PLATFORMS SHOULD BE DESIGNED TO ACCOMODATE THE TYPE ENCLOSED.

ILLUSTRATION NO. 4
SKID PLATFORM ARRANGEMENTS
DOUBLE COLUMN SUPPORTS

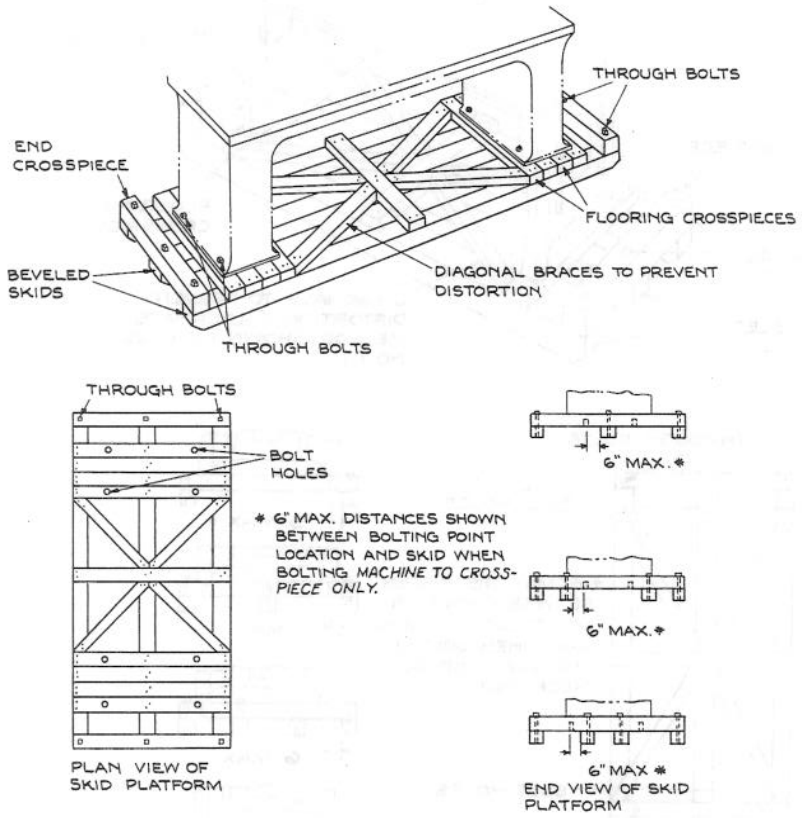


ILLUSTRATION NO. 5
SKID PLATFORM ARRANGEMENTS
CIRCULAR PEDESTAL OR SINGLE COLUMN

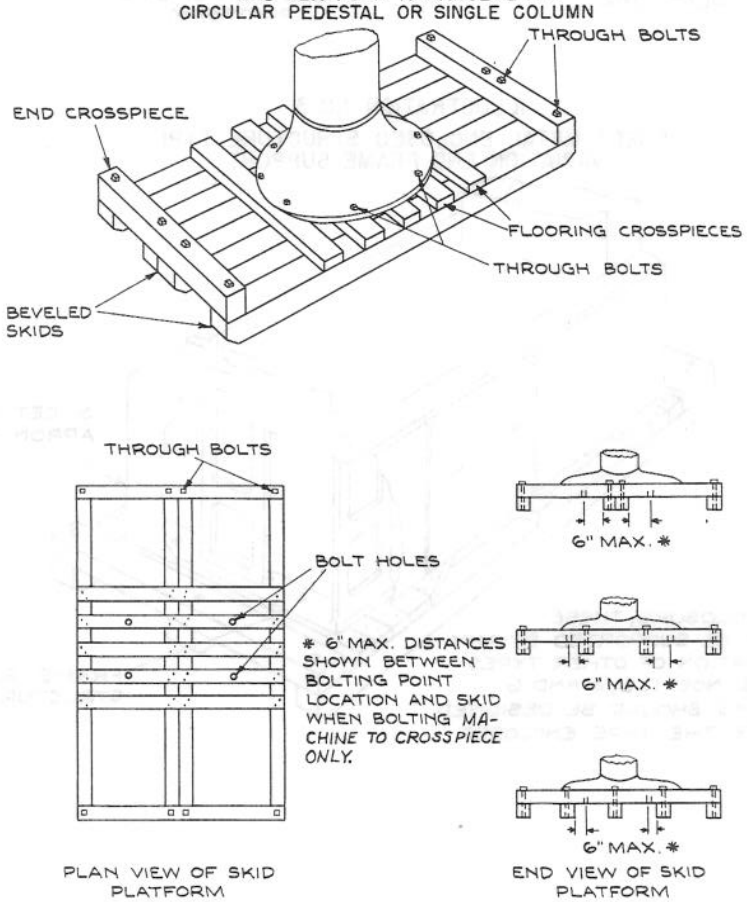


ILLUSTRATION NO. 6

SKID PLATFORM ARRANGEMENTS - RECTANGULAR FLUSH BASE
(SUPERSTRUCTURE WITH OR WITHOUT OVERHANG)

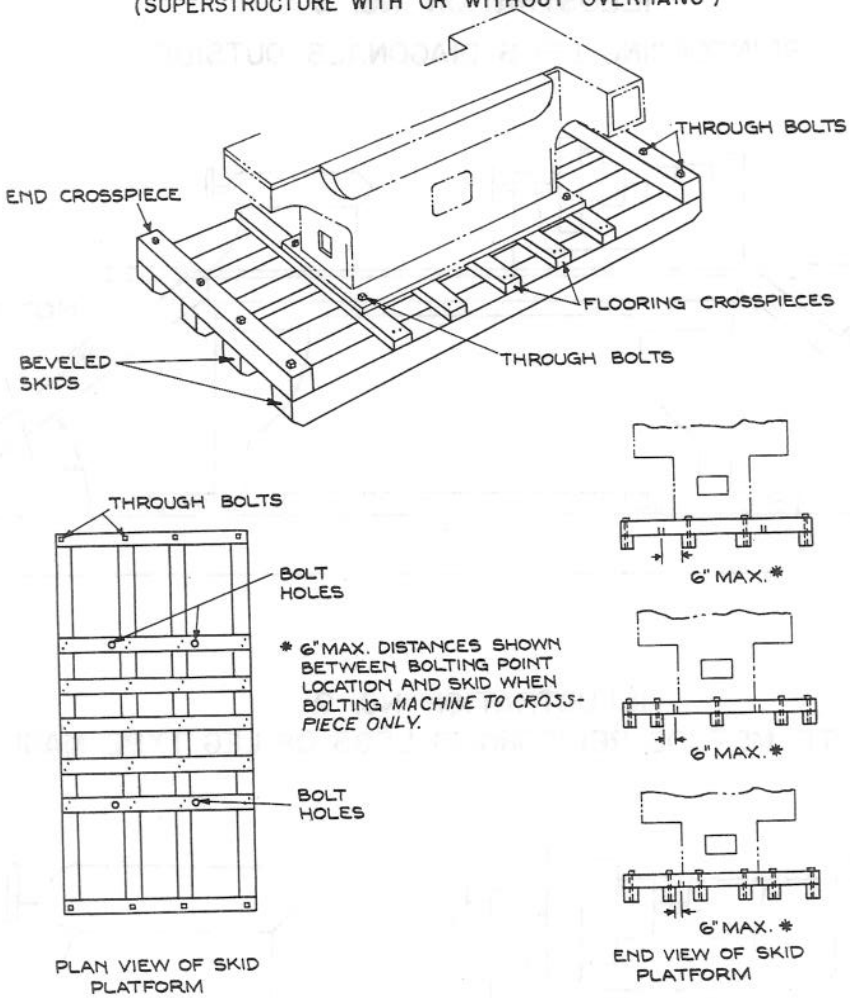


ILLUSTRATION NO. 7

APPLICATION OF DIAGONALS ON LEG TYPE MACHINES
(NECESSARY TO PREVENT END THRUST OF WEIGHT OF BED FROM STRAINING LEGS)

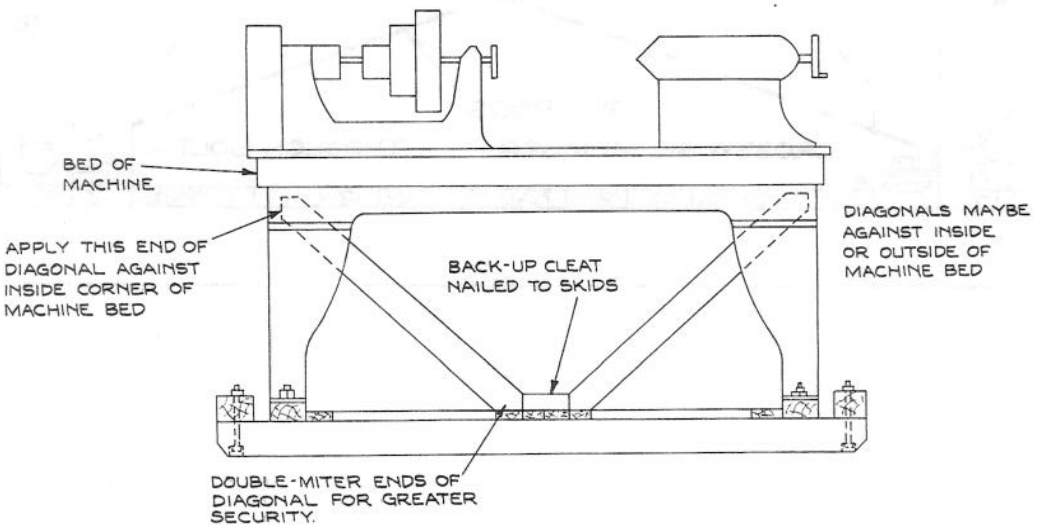


ILLUSTRATION NO. 8

REINFORCING LEGS DIAGONALS OUTSIDE

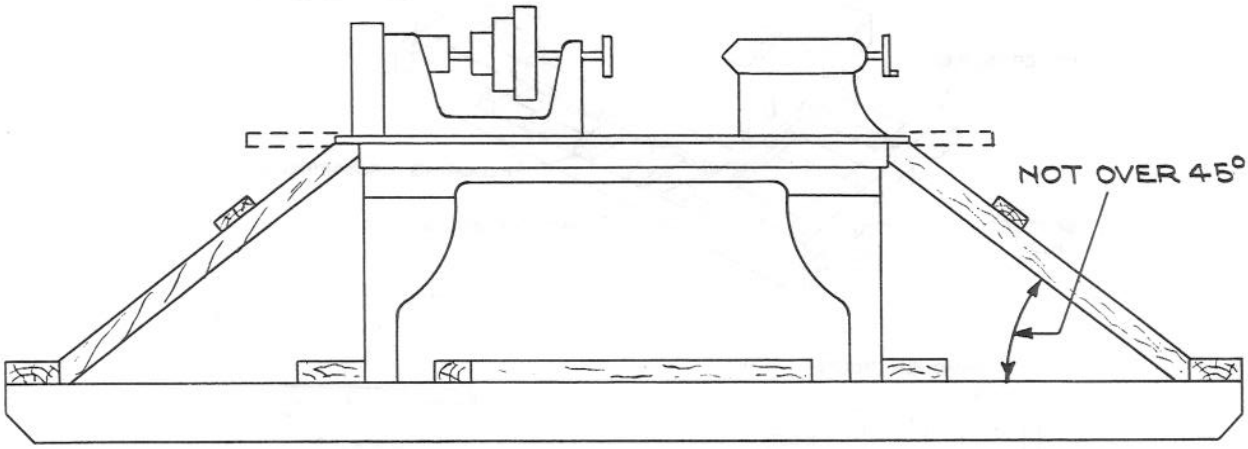


ILLUSTRATION NO. 9

ALTERNATE METHOD REINFORCING LEGS OF LEG TYPE MACHINE

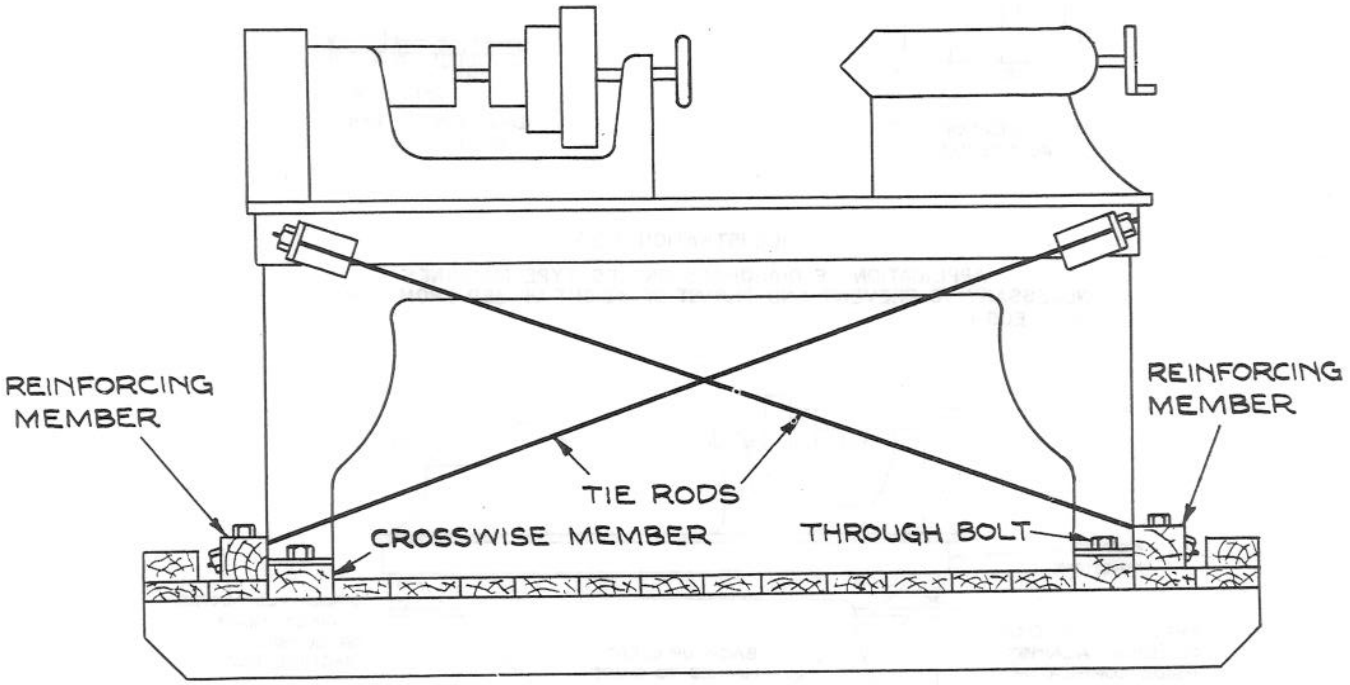


ILLUSTRATION NO. 10

ANTI-SKID PLATE METHOD OF SNUBBING MACHINERY

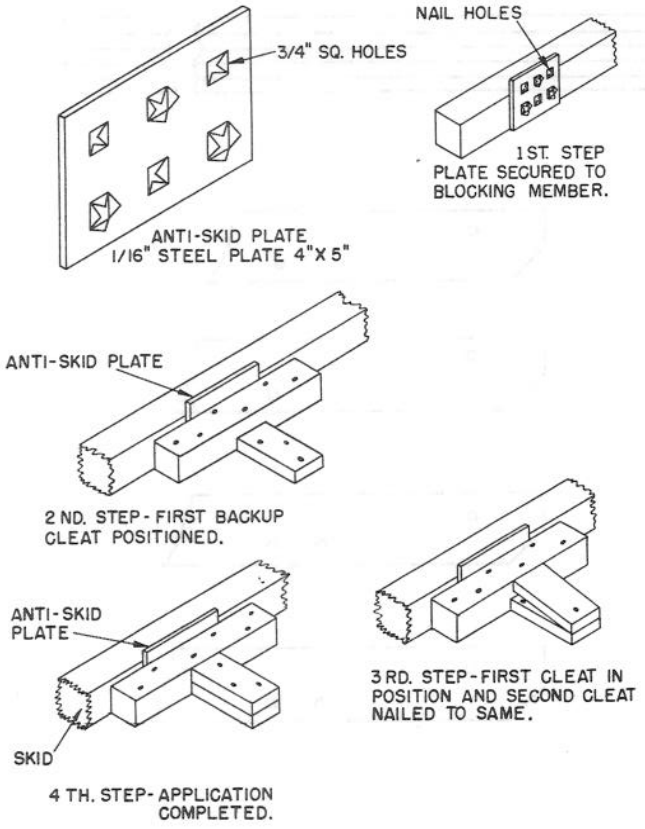


ILLUSTRATION NO. 11

ANTI-SKID PLATE METHOD UTILIZING WEDGE BLOCKS

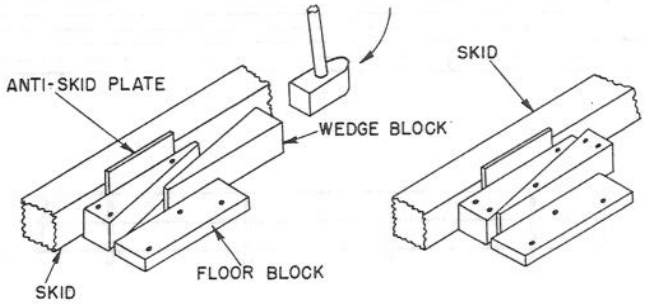


ILLUSTRATION NO. 12

LAG SCREW METHOD OF SNUBBING MACHINERY

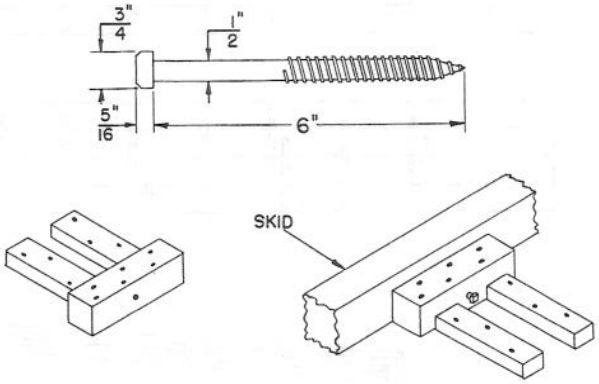
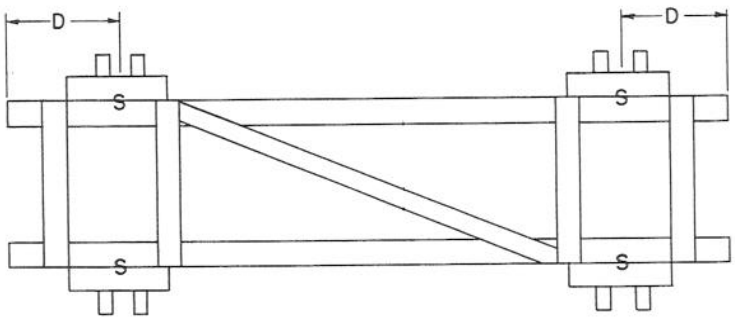


ILLUSTRATION NO. 13

LOCATION OF SNUBBING DEVICES



NOTE: DISTANCE "D" NOT LESS THAN 30".
"S" REPRESENTS SNUBBING DEVICES.

ILLUSTRATION NO. 14
METHOD OF LAMINATING SKID MEMBERS