



Association of American Railroads

**OPERATIONS AND
MAINTENANCE DEPARTMENT**

MECHANICAL DIVISION

SUPPLEMENT NO. 1

to

PAMPHLET MD-3

**Rules Governing the Loading
of Forest Products
On Open Top Cars**

Adopted by the

**Former Master Car Builders Association
as Recommended Practice, 1896**

Advanced to Standard 1908

EFFECTIVE JUNE 15, 1954

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strength; except where metal substitutes are definitely specified. For loads not covered in these detailed rules or figures, they must be of hardwood or fir.

Second paragraph revised to read:

Unless otherwise specified, when rods or bolts used to secure loads or blocking are passed through car floor or stake pocket, a 4 in. x 4 in. x 18. cleat or $\frac{1}{2}$ in. x 4 in. x 12 in. plate must be used under car floor, or a $\frac{1}{2}$ in. x 4 in. x 10 in. plate under stake pocket.

Fifth paragraph deleted reading:

Where lumber dimensions are specified under the figures, except for stakes referred to in Rule 10, commercial sizes of lumber will be acceptable.

Rule 11. Added to read:

Lumber—Where lumber dimensions are specified in the rules and detailed figures, except for stakes referred to in Rule 10, commercial sizes will be acceptable.

Rule 15. Second paragraph under B revised to read:

Unless otherwise specified, when either high tension bands or high tension wires are required in the detailed figures, they may be substituted for each other, if of equal load strength, provided all other items used to secure load are equal in number and strength. Where both high tension bands and high tension wires are specified in the detailed figures, the sizes, as shown, are minimum.

Eighth paragraph under B deleted reading:

Twist tie the ends of each high tension wire to provide 85 percent load strength. Seal each high tension band with sufficient seals to provide 85 percent of load strength of band.

Table 32. Heading revised to read:

**LENGTH OF CAR 68 FT.
BEARING PIECES SPACED
EIGHT-TENTHS (8/10) LENGTH OF LOAD**

Figure 6. Revised figure and specifications as shown herewith.

Figure 7. Revised figure and specifications as shown herewith.

Figure 8. Deleted.

Figure 9. Revised figure and specifications as shown herewith.

Figure 9-A. New figure and specifications as shown herewith.

Figure 10. Revised specifications as shown herewith.

Figure 11. Revised specifications as shown herewith.

Figure 12. Revised specifications as shown herewith.

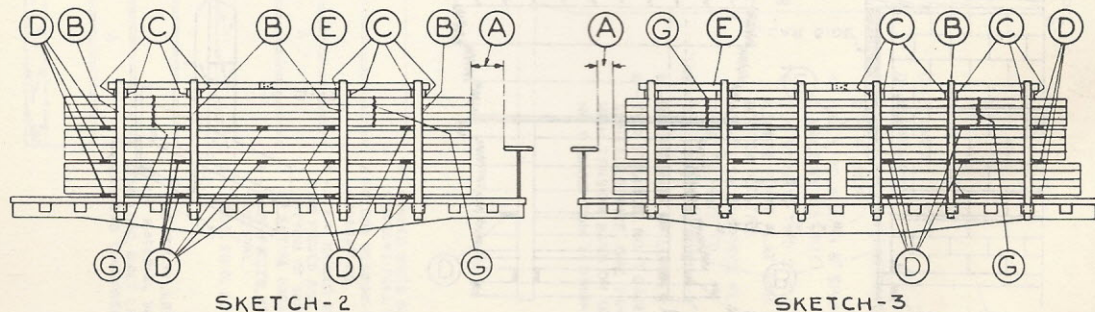
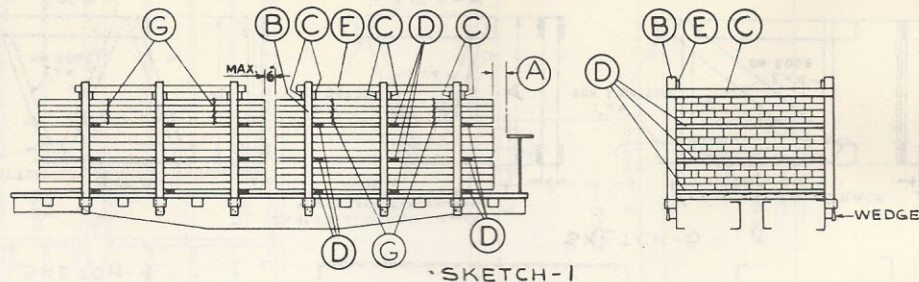
Figure 16. Item "D" revised to read:

Binders, 5 strands No. 11 gage, common annealed wire equally spaced. Secure to opposite stake pockets on flat cars, or thread through car side, between top and second side plank on gondola cars. Not required when Items "C", "F", "K" and "L" are used. Substitute, if desired, at each location, cables of equal strength, or one 1¼ in. x .035 in. high tension band or two No. 8 gage high tension wires.

Figure 24. Revised figure and specifications as shown herewith.

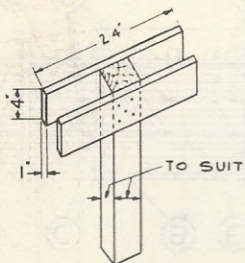
Figure 27. Revised specifications as shown herewith.

Fig. 6

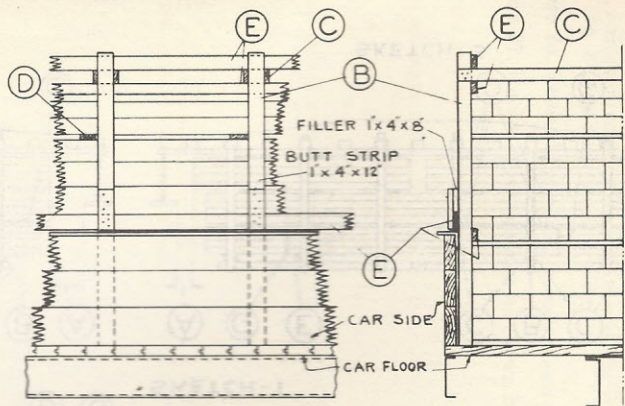


F-BRACES (NOT SHN.)
J-INTERMEDIATE STAKE TIE (NOT SHN.)

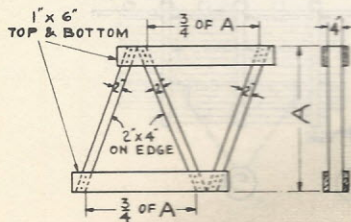
Fig. 6



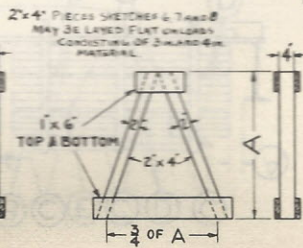
SKETCH-4



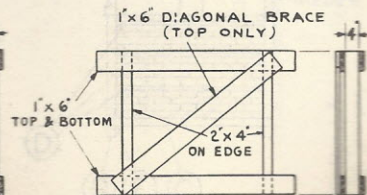
SKETCH-5



SKETCH-6
ITEM-F

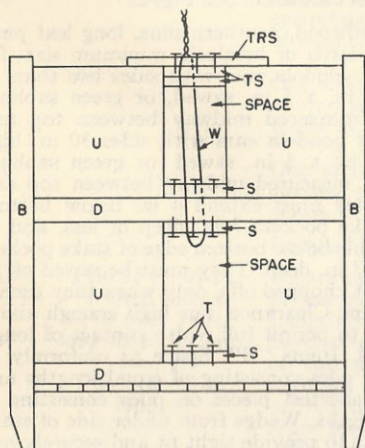


SKETCH-7
ITEM-F



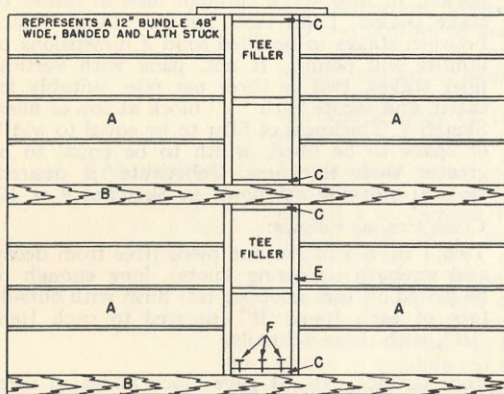
SKETCH-8
ITEM-F

Fig. 6



SKETCH-9

- B - STAKES.
- D - SEPARATORS.
- S - BOTTOM AND INTERMEDIATE STRUTS, - 2" X 4", FLAT.
- T - NAILS, 20-D WITH 6" SPACING, MINIMUM 2 NAILS PER STRUT.
- TS - TOP STRUTS - TWO 2" X 4" PIECES. LOCATE FIRST FLAT AND SECURE TO BOTTOM OF TRS. LOCATE SECOND PIECE FLAT AND SECURE TO FIRST TS.
- TRS - TOP STRUT RETAINER - 2" X 4", FLAT.
- U - BANDED UNIT OF LUMBER.
- W - TWO STRANDS, NO. 11 GAGE BLACK ANNEALED WIRE, ONE 1-1/4" X .035" HIGH TENSION BAND OR ONE STRAND NO. 8 GAGE HIGH TENSION WIRE.



SKETCH-10

- A - BANDED UNITS OF LUMBER WITH STICKERS, FULL WIDTH OF PILE.
- B - FLOOR BEARING PIECES AND SEPARATORS.
- C - 2" X 4" NAILED TO FLOOR BEARING PIECES AND TO TOP AND BOTTOM OF SEPARATORS TAKING UP ENTIRE VACANT SPACE.
- E - FOUR PIECES, 2" X 4" MATERIAL, VERTICAL.
- F - NAILS, 20-D, AS REQUIRED.

THE TEE FILLER IS MADE OF 2" X 4" MATERIAL 36" LONG OR TO SUIT LOAD, BUILT LIKE NAILING TWO LADDERS TOGETHER, TWO PER PILE.

Fig. 6.

LUMBER, INCLUDING TIES, FENCE POSTS, ETC.—
FLAT OR GONDOLA CARS

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	Sketches 1 and 2. Pile 12 ft. to 24 ft. long, inc., 3 pr. Add 1 pr. for each additional 10 ft. or less in length. Sketch 3. 6 pr. per load.	Stakes, hardwood, southern pine, long leaf pine, fir, spruce, larch or hemlock, minimum size; for flat cars or gondola cars with sides less than 30 in. high, 4 in. x 5 in. sawed, or green saplings 5 in. dia. measured midway between top and bottom; for gondola cars with sides 30 in. high or over, 4 in. x 4 in. sawed, or green saplings 4½ in. dia. measured midway between top and bottom. They must extend 4 in. below bottom edge of stake pockets 7 in. deep or less, and as far as possible below bottom edge of stake pockets more than 7 in. deep. They must be sawed off at the top (not chopped off), only when they exceed Railway Line Clearance, but high enough above Items "C" to permit full width contact of longitudinal ties, Items "E". Space as uniformly as possible on piles consisting of equal lengths and to protect shortest pieces on piles consisting of unequal lengths. Wedge from under side of stake pocket so as to provide tight fit and securely nail to stake with at least two 8-d nails. Wedges not required for stake pockets 10 in. or more in depth. When wedges are not required or cannot be used, drive a 40-d nail into stake directly below and with head even with outside of stake pocket, or into stake through hole in center of stake pocket. Load tight against stakes. Space between stakes to be filled solid if dimensions of lumber will permit. If not, pack with vertical filler stakes, two or three per pile, suitably located, and secure with "T" block at top of filler, Sketch 4. Thickness of filler to be equal to width of space to be filled, width to be equal to or greater than thickness. Substitute, if desired, vertical blocking as shown in Sketches 9 or 10.
C	As required, ea. pr. of Items "B".	Cross ties, as follows: Two 1 in. x 4 in., in one piece (free from decay and strength impairing knots), long enough to be sawed off (not chopped off) flush with outside face of each Item "B", secured to each Item "B", with three 8-d nails. or Four strands, No. 11 gage black annealed wire, secured to opposite Items "B", twisted taut. or One strand, ¾ in. x .035 in. high tension band, looped around and sealed at least 12 in. from inside face of each stake. or

Fig. 6 (Continued)

LUMBER, INCLUDING TIES, FENCE POSTS, ETC.—
FLAT OR GONDOLA CARS

Item	No. of Pcs.	Description
C	(Concl.)	<p>One strand, $\frac{3}{4}$ in. x .035 in. high tension band, encircling opposite stakes and sealed near center of loop.</p> <p style="text-align: center;">or</p> <p>One strand, No. 8 gage high tension wire, looped around and machine tied at least 12 in. from inside face of each stake.</p> <p style="text-align: center;">or</p> <p>One strand, No. 8 gage high tension wire, encircling opposite stakes and machine tied near center of loop.</p> <p>Locate about 1 in. above top of load.</p>
D	<p>Pile 12 ft. to 24 ft. long, inc., 3. Pile over 24 ft. long to 40 ft. long, inc., 4. Pile over 40 ft. long, 5.</p>	<p>Separators of equal thickness, preferable rough, in one piece, width 2 in. greater than thickness. Length must be equal to but must not extend beyond inside face of stakes. They may consist of two pieces of equal length nailed together with not less than three nails, clinched on back, or, one length may consist of two pieces, minimum length 3 ft., butted together and nailed to other length with three nails each, clinched on back. Locate end pieces about 2 ft. 6 in. from ends of piles 15 ft. long or less; about 3 ft. from ends of piles over 15 ft. to 24 ft.; and about 4 ft. from ends of piles over 24 ft. long, intermediate pieces to be spaced as equally as possible. Make one separation, located about midway between top and bottom of loads over 4 ft. to 8 ft. high. Add one for each additional 4 ft. or less in height, spaced as equally as possible from floor. Floor bearing pieces, if used, must conform to size and spacing of Items "D". Separators not required for loads 4 ft. high or less.</p>
E	As required.	<p>Longitudinal ties, 1 in. x 4 in. (free from decay and strength impairing knots); long enough to extend 4 in. beyond Items "B" nearest to each end of pile. Secure to inside face of each Item "B" directly above or below Item "C" with three 8-d nails. When ties consist of more than one piece, ends must overlap each other not less than two feet, each joint to be secured with five 8-d nails, clinched on back. When stakes are not placed in gondola car stake pockets, use another longitudinal tie, lower edge extending not less than 1 in. below top of gondola car side and secure to outside face of each stake as outlined above. It may be nailed to inside face of stakes near top of car side. When bottom tie cannot be placed between load and stakes or between stakes and car sides, nail same to outside face of</p>

Fig. 6 (Continued)

LUMBER, INCLUDING TIES, FENCE POSTS, ETC.—
FLAT OR GONDOLA CARS

Item	No. of Pcs.	Description
E	(Concl.)	each stake, as near top of car side as possible with three 8-d nails. Use suitable filler above same, covering filler and tie with one 1 in. x 4 in. x 12 in. piece, Sketch 5, nailed to tie and filler with three 8-d nails in each, or secure tie at each stake location with three 8-d nails and one strand of common wire.
F	As required.	For piles 24 ft. long, or less, use one brace, (Sketches 6 or 8). Locate at about center of pile. For piles over 24 ft. in length, use two braces, (Sketches 7 or 8). Locate about one-fourth length of pile from each end. Reverse ends of braces if Sketch 7 is used. Top layers less than 3 in. thick must be filled out solid and leveled off. Incomplete top layers of pieces 3 in. and greater in thickness must be braced.
G	2 per pile.	<p>2 strands, No. 11 gage black annealed wire, cable twisted before application, encircling top half or third of pile depending on number of separators used. Substitute, if desired, at each location, one $1\frac{1}{4}$ in. x .035 in. high tension band, or one No. 8 gage high tension wire. Ties must be placed as far away from ends of piles, stakes and separators as practicable and twisted taut. Required for creosoted lumber regardless of thickness or length. Required for all rough and finished lumber, except the following:</p> <ul style="list-style-type: none"> (a) Loads 4 ft. high or less. (b) Rough lumber over 1 in. in thickness, but required for 2 in. material, 4 in. or less in width. (c) Finished lumber over 4 in. in thickness. Not required for 4 in. x 8 in. and wider. (d) Lumber over 24 ft. in length. <p>Where lumber comprising the top half or third of pile is tied into two or three side by side units, individually tied with ties as specified under Item "G" and completely fills all space between Items "B", additional Items "G" tying the two or three side by side units into one unit, are not required.</p>
*H	<p>Pile 12 ft. to 24 ft. long, inc., 3. Pile over 24 ft. long to 40 ft. long, inc., 4. Pile over 40 ft. long, 5.</p>	Unit separators, 2 in. x 4 in. or wider, preferably rough, in one piece. Length must be equal to but must not extend beyond side of unit, pile or package. Locate at approximate vertical center of unit, pile or package in line with Items "D". Use optional.

Fig. 6 (Continued)

**LUMBER, INCLUDING TIES, FENCE POSTS, ETC.—
FLAT OR GONDOLA CARS**

Item	No. of Pcs.	Description
*J	1 ea. pr. Items "B".	Intermediate cross ties. Three wrappings No. 11 gage black annealed wire, to be located at the first and second separation from car floor. Twist taut. Required only for timbers 6 in. x 8 in. and over, exceeding 24 ft. in length and higher than 9 ft. 6 in. above car floor. Not required for gondola cars.

When load consists of two piles, inside ends of piles must be squared and loaded within 6 in. of each other; additional piles must be loaded within 6 in. of adjoining piles with the squared end toward center of car.

When lumber of unequal lengths is loaded in the same unit, pile or package, longer lengths must not overhang the shortest lengths by more than the following:

Thickness	Length	Amount of Overhang
Any	Under 12 ft.	None
Under 3 in.	12 ft. to 24 ft., inc.	4 ft.
Under 3 in.	Over 24 ft.	6 ft.

When plank or timber of unequal lengths is loaded in the same unit, pile or package, longer lengths must not overhang the shortest lengths in any tier by more than the following.

Thickness	Length	Amount of Overhang
3 in. and over	Under 12 ft.	None
3 in. and over	12 ft. to under 20 ft.	4 ft.
3 in. and over	20 ft. to 30 ft., inc.	6 ft.
3 in. and over	Over 30 ft.	8 ft.

Load lumber less than 12 ft. long on flat cars, or above gondola car sides, as follows:

- (1) No lengths less than 12 ft. to be loaded on outside of end piles.
- (2) Lumber of 6, 8 and 10 ft. lengths may be loaded in the same pile in center of car between end piles if banded with two 1¼ in. high tension bands or two No. 8 gage high tension wires and protected with two stakes on each side and located within 6 in. of adjacent piles.
- (3) Lengths ranging downward to 8 ft. minimum except as provided in Section (2) may be loaded on inside of end piles on flat cars or gondola cars provided:
 - (a) Lumber in piles of uniform lengths less than 12 ft. must not be loaded within 24 in. of the top of pile.
 - (b) Random length lumber, under 4 in. in thickness, lapped and interwoven, including 6, 8 and 10 ft. lengths must have at least six layers on the top with no lengths less than 12 ft. in these layers.
 - (c) Random length lumber 4 in. and over in thickness, lapped and interwoven, including 6, 8 and 10 ft. lengths, must not be loaded within 24 in. of the top of pile.

Fig. 6 (Concluded)

**LUMBER, INCLUDING TIES, FENCE POSTS, ETC.—
FLAT OR GONDOLA CARS**

Stickers—They must be of uniform thickness throughout in one piece, (minimum $\frac{1}{4}$ in.), width greater than thickness. Length must be equal to but must not extend beyond side of unit, pile or package. On lumber 4 in. and under in thickness, one set of stickers must be used near bottom and one set near top of unit; on lumber over 4 in. in thickness, one set must be used, location optional.

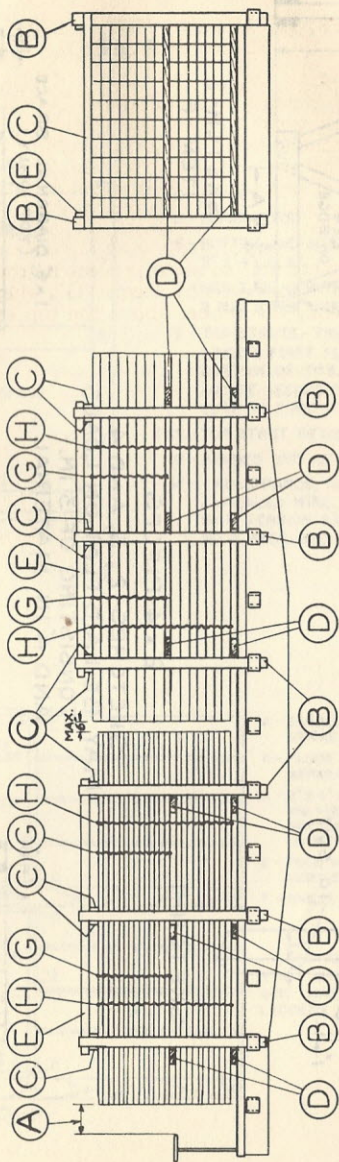
Lumber used on top of loads to protect it from the elements must be secured in a complete unit so as to prevent it from becoming disarranged or dislodged. It must be secured by Items "G" when they are used or by two similar ties encircling all lumber above the top separators when Items "G" are not used.

When load contains lumber 3 in. or over in thickness of various lengths, the longest lengths should preferably be placed in the lower portion of the load.

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

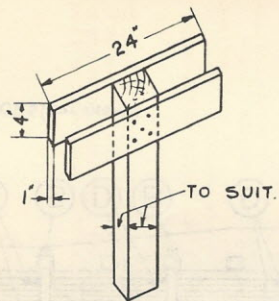
*Not shown on drawing.

Fig. 7

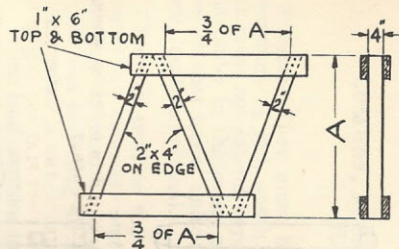


F-BRACES (NOT SHOWN)

Fig. 7

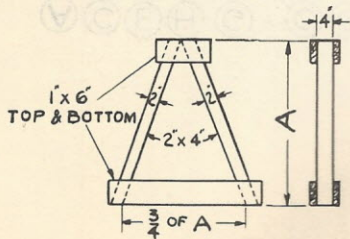


SKETCH-1

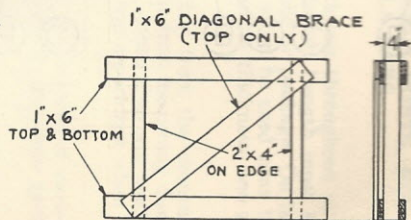


SKETCH-2
ITEM-F

2" x 4" PIECES
SKETCHES-2, 3, AND 4
MAY BE LAID FLAT ON LOADS
CONSISTING OF 3" IN.-
AND 4" IN. MATERIAL

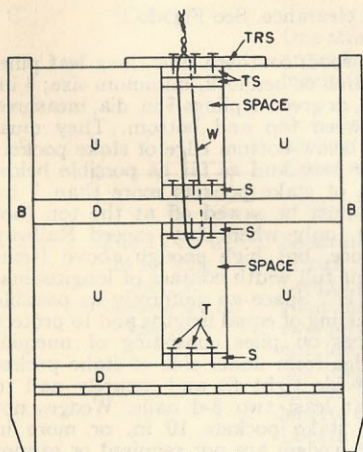


SKETCH-3
ITEM-F



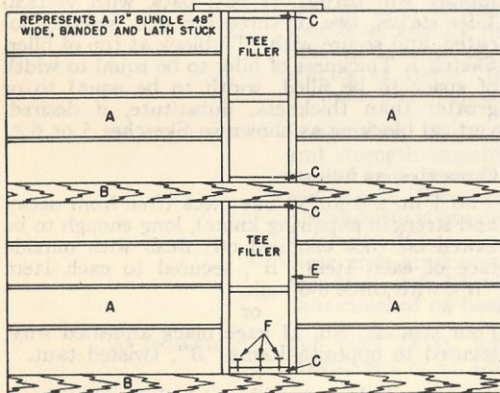
SKETCH-4
ITEM-F

Fig. 7



SKETCH-5

- B - STAKES.
- D - SEPARATORS.
- S - BOTTOM AND INTERMEDIATE STRUTS,-
2" X 4", FLAT.
- T - NAILS, 20-D WITH 6" SPACING, MINIMUM
2 NAILS PER STRUT.
- TS - TOP STRUTS - TWO 2" X 4" PIECES.
LOCATE FIRST FLAT AND SECURE TO
BOTTOM OF TRS.
LOCATE SECOND PIECE FLAT AND SE-
CURE TO FIRST TS.
- TRS - TOP STRUT RETAINER - 2" X 4", FLAT.
- U - BANDED UNIT OF LUMBER.
- W - TWO STRANDS, NO. 11 GAGE BLACK
ANNEALED WIRE, ONE 1-1/4" X .035"
HIGH TENSION BAND OR ONE STRAND
NO. 8 GAGE HIGH TENSION WIRE.



SKETCH-6

- A - BANDED UNITS OF LUMBER WITH
STICKERS, FULL WIDTH OF PILE.
- B - FLOOR BEARING PIECES AND
SEPARATORS.
- C - 2" X 4" NAILED TO FLOOR BEAR-
ING PIECES AND TO TOP AND
BOTTOM OF SEPARATORS TAKING
UP ENTIRE VACANT SPACE.
- E - FOUR PIECES, 2" X 4" MATERIAL,
VERTICAL.
- F - NAILS, 20-D, AS REQUIRED.

THE TEE FILLER IS MADE OF
2" X 4" MATERIAL 36" LONG OR TO
SUIT LOAD, BUILT LIKE NAILING TWO
LADDERS TOGETHER, TWO PER PILE.

Fig. 7

LUMBER, INCLUDING TIES, FENCE POSTS, ETC.—
FLAT CARS

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	3 pr. per pile.	Stakes, hardwood, southern pine, long leaf pine, fir, spruce, larch or hemlock, minimum size; 4 in. x 5 in. sawed, or green saplings 5 in. dia. measured midway between top and bottom. They must extend 4 in. below bottom edge of stake pockets 7 in. deep or less, and as far as possible below bottom edge of stake pockets more than 7 in. deep. They must be sawed off at the top (not chopped off), only when they exceed Railway Line Clearance, but high enough above Items "C" to permit full width contact of longitudinal ties, Items "E". Space as uniformly as possible on piles consisting of equal lengths and to protect shortest pieces on piles consisting of unequal lengths. Wedge from under side of stake pocket so as to provide tight fit and securely nail to stake with at least two 8-d nails. Wedges not required for stake pockets 10 in. or more in depth. When wedges are not required or cannot be used, drive a 40-d nail into stake directly below and with head even with outside of stake pocket, or into stake through hole in center of stake pocket. Load tight against stakes. Space between stakes to be filled solid if dimensions of lumber will permit. If not, pack with vertical filler stakes, two or three per pile, suitably located, and secure with "T" block at top of filler, Sketch 1. Thickness of filler to be equal to width of space to be filled, width to be equal to or greater than thickness. Substitute, if desired, vertical blocking as shown in Sketches 5 or 6.
C	As required, ea. pr. of Items "B".	<p>Cross ties, as follows:</p> <p>Two 1 in. x 4 in., in one piece (free from decay and strength impairing knots), long enough to be sawed off (not chopped off) flush with outside face of each Item "B", secured to each Item "B", with three 8-d nails.</p> <p style="text-align: center;">or</p> <p>Four strands, No. 11 gage black annealed wire, secured to opposite Items "B", twisted taut.</p> <p style="text-align: center;">or</p> <p>One strand, $\frac{3}{4}$ in. x .035 in. high tension band, looped around and sealed at least 12 in. from inside face of each stake.</p> <p style="text-align: center;">or</p> <p>One strand, $\frac{3}{4}$ in. x .035 in. high tension band, encircling opposite stakes and sealed near center of loop.</p>

Fig. 7 (Continued)

LUMBER, INCLUDING TIES, FENCE POSTS, ETC.—
FLAT CARS

Item	No. of Pcs.	Description
C	(Concl.)	<p>or One strand, No. 8 gage high tension wire, looped around and machine tied at least 12 in. from inside face of each stake.</p>
		<p>or One strand, No. 8 gage high tension wire, encircling opposite stakes and machine tied near center of loop.</p>
		<p>Locate about 1 in. above top of load.</p>
D	<p>Pile 12 ft. to 24 ft. long, inc., 3. Pile over 24 ft. long, 4.</p>	<p>Separators of equal thickness, preferably rough, in one piece, width 2 in. greater than thickness. Length must be equal to but must not extend beyond inside face of stakes. They may consist of two pieces of equal length nailed together with not less than three nails, clinched on back, or, one length may consist of two pieces, minimum length 3 ft., butted together and nailed to other length with three nails each, clinched on back. Locate end pieces about 2 ft. 6 in. from ends of piles 15 ft. long or less; about 3 ft. from ends of piles over 15 ft. to 24 ft.; and about 4 ft. from ends of piles over 24 ft. long, intermediate pieces to be spaced as equally as possible. Make one separation, located about midway between top and bottom of loads over 4 ft. to 8 ft. high. Add one for each additional 4 ft. or less in height, spaced as equally as possible from floor. Floor bearing pieces, if used, must conform to size and spacing of Items "D". Separators not required for loads 4 ft. high or less.</p>
E	As required.	<p>Longitudinal ties, 1 in. x 4 in. (free from decay and strength impairing knots), long enough to extend 4 in. beyond Items "B" nearest to each end of pile. Secure to inside face of each Item "B" directly above or below Items "C" with three 8-d nails. When ties consist of more than one piece, ends must overlap each other not less than two feet, each joint to be secured with five 8-d nails clinched on back.</p>
F	As required.	<p>For piles 24 ft. long, or less, use one brace (Sketches 2 or 4). Locate at about center of pile.</p>
		<p>For piles over 24 ft. in length, use two braces (Sketches 3 or 4). Locate about one-fourth length of pile from each end. Reverse ends of braces if Sketch 3 is used.</p>
		<p>All incomplete top layers must be braced regardless of dimensions of lading.</p>

Fig. 7 (Continued)

LUMBER, INCLUDING TIES, FENCE POSTS, ETC.—
FLAT CARS

Item	No. of Pcs.	Description
G	2 per pile.	3 strands, No. 11 gage black annealed wire, cable twisted before application, encircling top half or third of pile, depending on number of separators used, twisted taut. Locate one tie about one-third length of pile from each end. Substitute, if desired, at each location, one 1¼ in. x .035 in. high tension band, or one No. 8 gage high tension wire. Wires or bands must be placed as far away from stakes, bearing pieces or separators as practicable.
		Where lumber comprising the top half or third of pile is tied into two or three side by side units, individually tied with ties as specified under Item "G" and completely fills all space between Items "B", additional Items "G" tying the two or three side by side units into one unit, are not required.
H	2 per pile.	3 strands, No. 11 gage black annealed wire, cable twisted before application, encircling entire pile twisted taut, one tie located about one-fourth length of pile from each end. Substitute, if desired, at each location, one 1¼ in. x .035 in. high tension band, or one No. 8 gage high tension wire. Wires or bands must be placed as far away from stakes and separators as practicable.
*J	Pile 12 ft. to 24 ft. long, inc., 3. Pile over 24 ft. long to 40 ft. long, inc., 4. Pile over 40 ft. long, 5.	Unit separators, 2 in. x 4 in., or wider, preferably rough in one piece. Length must be equal to but must not extend beyond side of unit, pile or package. Locate at approximate vertical center of unit, pile or package in line with Items "D". Use optional.

When load consists of two piles, inside ends of piles must be squared and loaded within 6 in. of each other; additional piles must be loaded within 6 in. of adjoining piles with the squared end toward center of car.

When lumber of unequal lengths is loaded in the same unit, pile or package, longer lengths must not overhang the shortest lengths by more than the following:

Thickness	Length	Amount of Overhang
Any	Under 12 ft.	None
Under 3 in.	12 ft. to 24 ft., inc.	4 ft.
Under 3 in.	Over 24 ft.	6 ft.

When plank or timber of unequal lengths is loaded in the same unit, pile or package, longer lengths must not overhang the shortest lengths in any tier by more than the following:

Fig. 7 (Concluded)

**LUMBER, INCLUDING TIES, FENCE POSTS, ETC.—
FLAT CARS**

Thickness	Length	Amount of Overhang
3 in. and over	Under 12 ft.	None
3 in. and over	12 ft. to under 20 ft.	4 ft.
3 in. and over	20 ft. to 30 ft., inc.	6 ft.
3 in. and over	Over 30 ft.	8 ft.

Load lumber less than 12 ft. as follows:

- (1) No lengths less than 12 ft. to be loaded on outside of end piles.
- (2) Lumber of 6, 8 and 10 ft. lengths may be loaded in the same pile in center of car between end piles if banded with two $1\frac{1}{4}$ in. high tension bands or two No. 8 gage high tension wires and protected with two stakes on each side and located within 6 in. of adjacent piles.
- (3) Lengths ranging downward to 8 ft. minimum except as provided in Section (2) may be loaded on inside of end piles, provided:
 - (a) Lumber in piles of uniform lengths less than 12 ft. must not be loaded within 24 in. of the top of pile.
 - (b) Random length lumber under 4 in. in thickness, lapped and interwoven, including 6, 8 and 10 ft. lengths must have at least six layers on the top with no lengths less than 12 ft. in these layers.
 - (c) Random length lumber 4 in. and over in thickness, lapped and interwoven, including 6, 8 and 10 ft. lengths, must not be loaded within 24 in. of the top of pile.

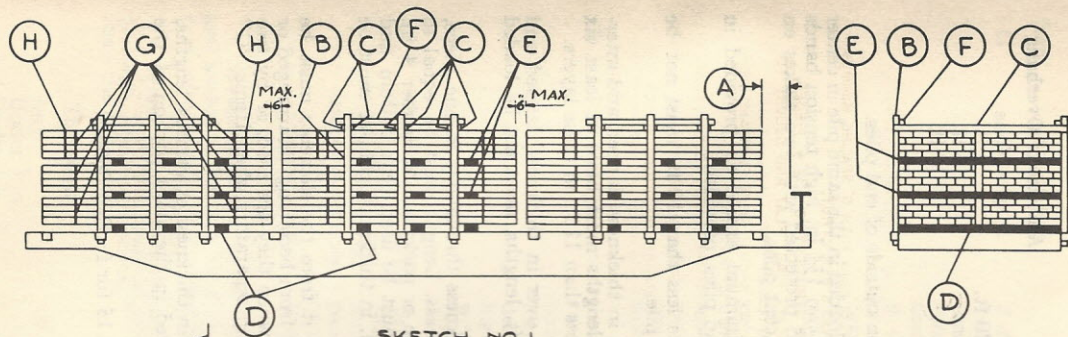
Stickers—They must be of uniform thickness throughout in one piece, (minimum $\frac{1}{4}$ in.), width greater than thickness. Length must be equal to but must not extend beyond side of unit, pile or package. On lumber 4 in. and under in thickness, one set of stickers must be used near bottom and one set near top of unit; on lumber over 4 in. in thickness, one set must be used, location optional.

Lumber used on top of loads to protect it from the elements must be secured in a complete unit so as to prevent it from becoming disarranged or dislodged. It must be secured by Items "G" when they are used, or by two similar ties encircling all lumber above the top separators when Items "G" are not used.

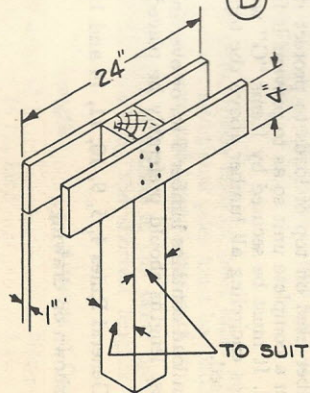
When load contains lumber 3 in. or over in thickness of various lengths, the longest lengths should preferably be placed in the lower portion of the load.

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

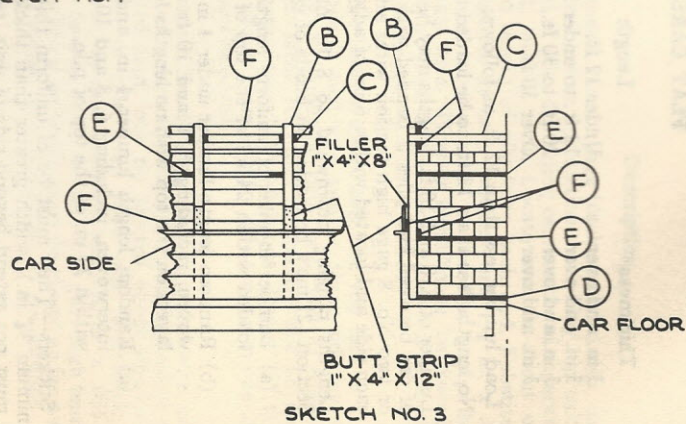
*Not shown on drawing.



SKETCH NO. 1



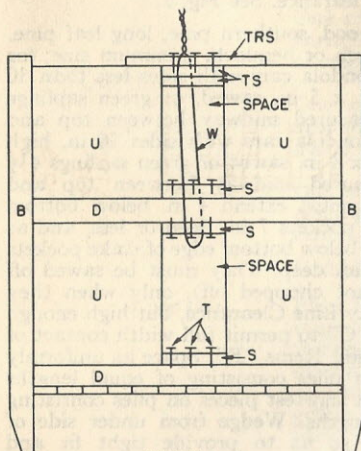
SKETCH NO. 2



SKETCH NO. 3

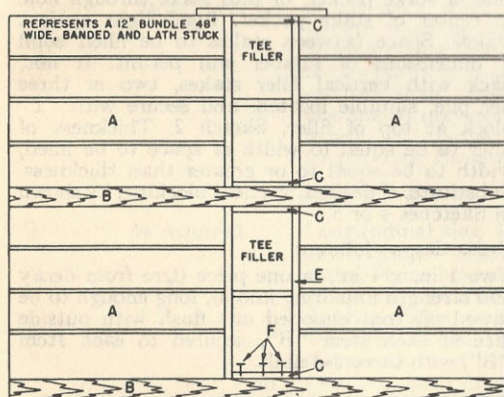
Fig. 9

Fig. 9



SKETCH-4

- B - STAKES.
- D - SEPARATORS.
- S - BOTTOM AND INTERMEDIATE STRUTS, - 2" X 4", FLAT.
- T - NAILS, 20-D WITH 6" SPACING, MINIMUM 2 NAILS PER STRUT.
- TS - TOP STRUTS - TWO 2" X 4" PIECES. LOCATE FIRST FLAT AND SECURE TO BOTTOM OF TRS. LOCATE SECOND PIECE FLAT AND SECURE TO FIRST TS.
- TRS - TOP STRUT RETAINER - 2" X 4", FLAT.
- U - BANDED UNIT OF LUMBER.
- W - TWO STRANDS, NO. 11 GAGE BLACK ANNEALED WIRE, ONE 1-1/4" X .035" HIGH TENSION BAND OR ONE STRAND NO. 8 GAGE HIGH TENSION WIRE.



SKETCH-5

- A - BANDED UNITS OF LUMBER WITH STICKERS, FULL WIDTH OF PILE.
- B - FLOOR BEARING PIECES AND SEPARATORS.
- C - 2" X 4" NAILED TO FLOOR BEARING PIECES AND TO TOP AND BOTTOM OF SEPARATORS TAKING UP ENTIRE VACANT SPACE.
- E - FOUR PIECES, 2" X 4" MATERIAL, VERTICAL.
- F - NAILS, 20-D, AS REQUIRED.

THE TEE FILLER IS MADE OF 2" X 4" MATERIAL 36" LONG OR TO SUIT LOAD, BUILT LIKE NAILING TWO LADDERS TOGETHER, TWO PER PILE.

Fig. 9

**PACKAGED LUMBER, 10 FT. LONG OR OVER—
FLAT OR GONDOLA CARS**

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	3 pr. per pile.	<p>Stakes, hardwood, southern pine, long leaf pine, fir, spruce, larch or hemlock, minimum size; for flat cars or gondola cars with sides less than 30 in. high, 4 in. x 5 in. sawed, or green saplings 5 in. dia. measured midway between top and bottom; for gondola cars with sides 30 in. high or over, 4 in. x 4 in. sawed or green saplings 4½ in. dia. measured midway between top and bottom. They must extend 4 in. below bottom edge of stake pockets 7 in. deep or less, and as far as possible below bottom edge of stake pockets more than 7 in. deep. They must be sawed off at the top (not chopped off), only when they exceed Railway Line Clearance, but high enough above Items "C" to permit full width contact of longitudinal ties, Items "F". Space as uniformly as possible on piles consisting of equal lengths and to protect shortest pieces on piles consisting of unequal lengths. Wedge from under side of stake pocket so as to provide tight fit and securely nail to stake with at least two 8-d nails. Wedges not required for stake pockets 10 in. or more in depth. When wedges are not required or cannot be used, drive a 40-d nail into stake directly below and with head even with outside of stake pocket, or into stake through hole in center of stake pocket. Load tight against stakes. Space between stakes to be filled solid if dimensions of lumber will permit. If not, pack with vertical filler stakes, two or three per pile, suitable located, and secure with "T" block at top of filler, Sketch 2. Thickness of filler to be equal to width of space to be filled, width to be equal to or greater than thickness. Substitute, if desired, vertical blocking, as shown in Sketches 4 or 5.</p>
C	As required, ea. pr. of Items "B".	<p>Cross ties, as follows:</p> <p>Two 1 in. x 4 in., in one piece (free from decay and strength impairing knots), long enough to be sawed off (not chopped off) flush with outside face of each Item "B", secured to each Item "B", with three 8-d nails.</p> <p align="center">or</p> <p>Four strands, No. 11 gage black annealed wire, secured to opposite Items "B", twisted taut.</p> <p align="center">or</p> <p>One strand, ¾ in. x .035 in. high tension band, looped around and sealed at least 12 in. from inside face of each stake.</p>

Fig. 9 (Continued)

**PACKAGED LUMBER, 10 FT. LONG OR OVER—
FLAT OR GONDOLA CARS**

Item	No. of Pcs.	Description
C	(Concl.)	<p align="center">or</p> <p>One strand, $\frac{3}{4}$ in. x .035 in. high tension band, encircling opposite stakes and sealed near center of loop.</p> <p align="center">or</p> <p>One strand, No. 8 gage high tension wire, looped around and machine tied at least 12 in. from inside face of each stake.</p> <p align="center">or</p> <p>One strand, No. 8 gage high tension wire, encircling opposite stakes and machine tied near center of loop.</p>
		Locate about 1 in. above top of load.
D	3 per pile.	<p>Floor bearing pieces of equal thickness, preferably rough, in one piece, width 2 in. greater than thickness. Length must be equal to but must not extend beyond inside face of stakes. They may consist of two pieces of equal length nailed together with not less than three nails, clinched on back, or, one length may consist of two pieces, minimum length 3 ft., butted together and nailed to other length with three nails each, clinched on back. Locate end pieces about 2 ft. from ends of pile and intermediate piece suitably spaced.</p>
E	3 between ea. layer, per pile.	<p>Separators of equal thickness, preferably rough, in one piece, width 2 in. greater than thickness. Length must be equal to but must not extend beyond inside face of stakes. They may consist of two pieces of equal length nailed together with not less than three nails, clinched on back, or, one length may consist of two pieces, minimum length 3 ft., butted together and nailed to other length with three nails each, clinched on back.</p>
		Locate in line with Items "D".
F	As required.	<p>Longitudinal ties, 1 in. x 4 in. (free from decay and strength impairing knots), long enough to extend 4 in. beyond Items "B" nearest to each end of pile. Secure to inside face of each Item "B" directly above or below Items "C", with three 8-d nails. When ties consist of more than one piece, ends must overlap each other not less than two feet, each joint to be secured with five 8-d nails, clinched on back. When stakes are not placed in gondola car stake pockets, use another longitudinal tie, lower edge extending not less than 1 in. below top of gondola car side and secure to outside face of each stake as outlined above. It may be nailed to inside face of stakes</p>

Fig. 9 (Continued)

**PACKAGED LUMBER, 10 FT. LONG OR OVER—
FLAT OR GONDOLA CARS**

Item	No. of Pcs.	Description
F	(Concl.)	near top of car side. When bottom tie cannot be placed between load and stakes, or between stakes and car sides, nail same to outside face of each stake, as near top of car side as possible with three 8-d nails. Use suitable filler above same, covering filler and tie with one 1 in. x 4 in. x 12 in. piece, Sketch 3, nailed to tie and filler with three 8-d nails in each, or secure tie at each stake location with three 8-d nails and one strand of common wire.
G	2 per package or bundle.	3 strands, No. 11 gage black annealed wire, cable twisted before application, twisted taut. Locate one tie about one-third length of pile from each end. Substitute, if desired, at each location, one 1¼ in. x .035 in. high tension band, or one No. 8 gage high tension wire. Wires or bands must be placed as far away from stakes, bearing pieces or separators as practicable.
H	2 per pile.	3 strands, No. 11 gage black annealed wire, cable twisted before application, encircling all packages or bundles above top separators, twisted taut. Locate one tie about one-third length of pile from each end. Substitute, if desired, at each location, one 1¼ in. x .035 in. high tension band, or one No. 8 gage high tension wire. Wires or bands must be placed as far away from stakes and separators as practicable.
*J	Pile 12 ft. to 24 ft. long, inc., 3. Pile over 24 ft. long to 40 ft. long, inc., 4. Pile over 40 ft. long, 5.	Unit separators, 2 in. x 4 in. or wider, preferably rough in one piece. Length must be equal to but must not extend beyond side of unit, pile or package. Locate at approximate vertical center of unit, pile or package in line with Items "D" and "E". Use optional.

When load consists of two piles, inside ends of piles must be squared and loaded within 6 in. of each other; additional piles must be loaded within 6 in. of adjoining piles with the squared end toward center of car.

Stickers—They must be of uniform thickness throughout in one piece, (minimum ¼ in.), width greater than thickness. Length must be equal to

Fig. 9 (Concluded)

**PACKAGED LUMBER, 10 FT. LONG OR OVER—
FLAT OR GONDOLA CARS**

but must not extend beyond side of unit, pile or package. On lumber 4 in. and under in thickness, one set of stickers must be used near bottom and one set near top of unit; on lumber over 4 in. in thickness, one set must be used, location optional.

Packages or bundles must not overhang outside ends of other packages.

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

*Not shown on drawing.

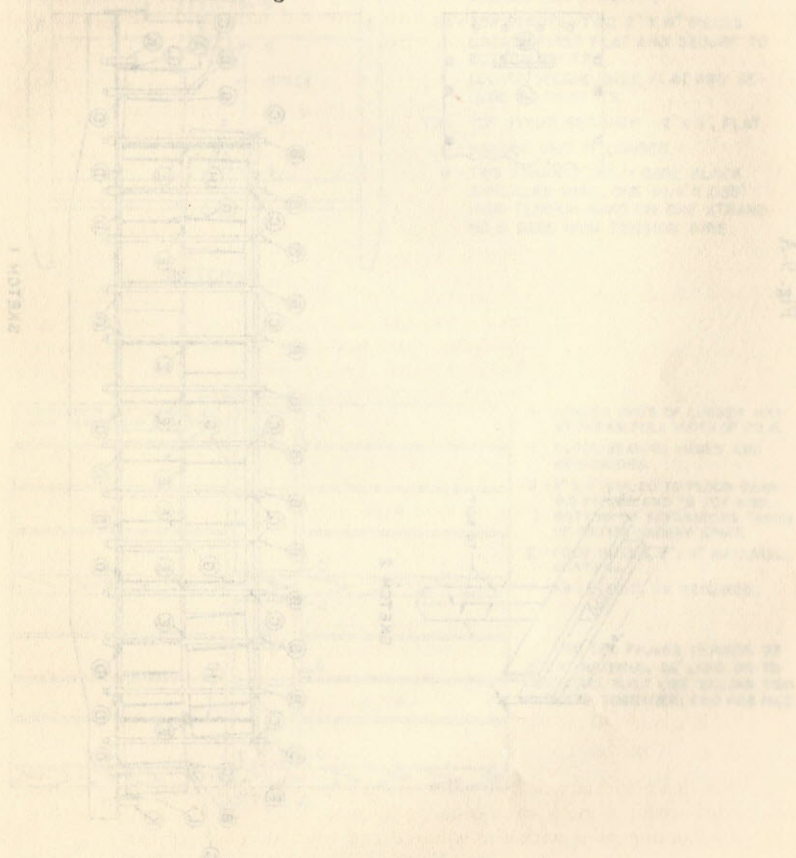
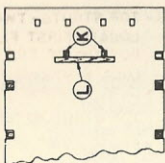
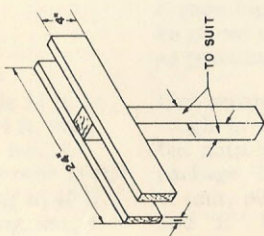
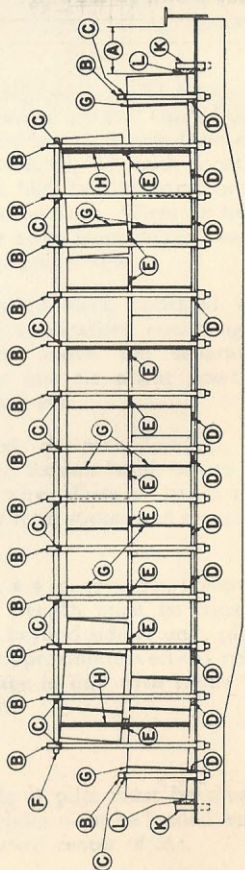


Fig. 9-A

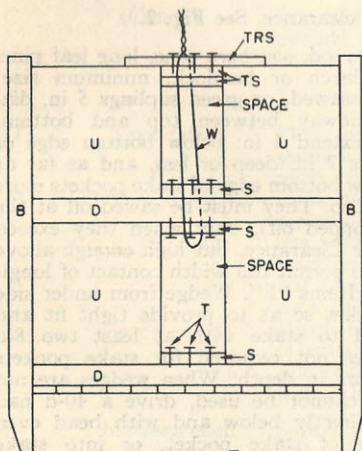


SKETCH 2



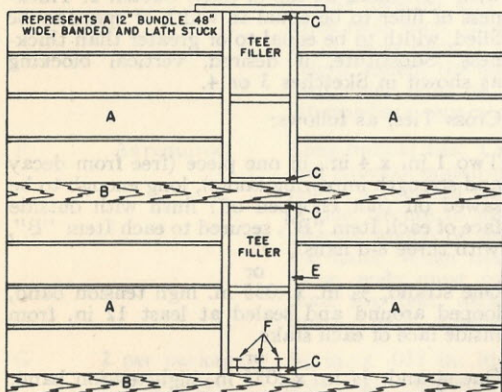
SKETCH 1

Fig. 9-A



SKETCH-3

- B - STAKES.
- D - SEPARATORS.
- S - BOTTOM AND INTERMEDIATE STRUTS, - 2" X 4", FLAT.
- T - NAILS, 20-D WITH 6" SPACING, MINIMUM 2 NAILS PER STRUT.
- TS - TOP STRUTS - TWO 2" X 4" PIECES. LOCATE FIRST FLAT AND SECURE TO BOTTOM OF TRS. LOCATE SECOND PIECE FLAT AND SECURE TO FIRST TS.
- TRS - TOP STRUT RETAINER - 2" X 4", FLAT.
- U - BANDED UNIT OF LUMBER.
- W - TWO STRANDS, NO. 11 GAGE BLACK ANNEALED WIRE, ONE 1-1/4" X .035" HIGH TENSION BAND OR ONE STRAND NO. 8 GAGE HIGH TENSION WIRE.



SKETCH-4

- A - BANDED UNITS OF LUMBER WITH STICKERS, FULL WIDTH OF PILE.
- B - FLOOR BEARING PIECES AND SEPARATORS.
- C - 2" X 4" NAILED TO FLOOR BEARING PIECES AND TO TOP AND BOTTOM OF SEPARATORS TAKING UP ENTIRE VACANT SPACE.
- E - FOUR PIECES, 2" X 4" MATERIAL, VERTICAL.
- F - NAILS, 20-D, AS REQUIRED.

THE TEE FILLER IS MADE OF 2" X 4" MATERIAL 36" LONG OR TO SUIT LOAD, BUILT LIKE NAILING TWO LADDERS TOGETHER, TWO PER PILE.

Fig. 9-A

PACKAGED LUMBER, 4 IN. OR LESS IN THICKNESS, 7 FT. LONG OR OVER, IN UNIFORM LENGTH BUNDLES—FLAT CARS

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	1 ea. side stake pocket full length of load.	Stakes, hardwood, southern pine, long leaf pine, fir, spruce, larch or hemlock, minimum size; 4 in. x 5 in. sawed, or green saplings 5 in. dia. measured midway between top and bottom. They must extend 4 in. below bottom edge of stake pockets 7 in. deep or less, and as far as possible below bottom edge of stake pockets more than 7 in. deep. They must be sawed off at the top (not chopped off), only when they exceed Railway Line Clearance, but high enough above Items "C" to permit full width contact of longitudinal ties, Items "F". Wedge from under side of stake pocket so as to provide tight fit and securely nail to stake with at least two 8-d nails. Wedges not required for stake pockets 10 in. or more in depth. When wedges are not required or cannot be used, drive a 40-d nail into stake directly below and with head even with outside of stake pocket, or into stake through hole in center of stake pocket. Load tight against stakes. Space between stakes to be filled solid if dimensions of lumber will permit. If not, pack with vertical filler stakes, two or three per pile, suitably located, and secure with "T" block at top of filler, Sketch 2. Thickness of filler to be equal to width of space to be filled, width to be equal to or greater than thickness. Substitute, if desired, vertical blocking as shown in Sketches 3 or 4.
C	As required, ea. pr. of Items "B".	<p>Cross Ties, as follows:</p> <p>Two 1 in. x 4 in., in one piece (free from decay and strength impairing knots), long enough to be sawed off (not chopped off) flush with outside face of each Item "B", secured to each Item "B", with three 8-d nails.</p> <p>or</p> <p>One strand, $\frac{3}{4}$ in. x .035 in. high tension band, looped around and sealed at least 12 in. from inside face of each stake.</p> <p>or</p> <p>One strand, $\frac{3}{4}$ in. x .035 in. high tension band, encircling opposite stakes and sealed near center of loop.</p> <p>or</p> <p>One strand, No. 8 gage high tension wire, looped around and machine tied at least 12 in. from inside face of each stake.</p> <p>or</p>

Fig. 9-A (Continued)

PACKAGED LUMBER, 4 IN. OR LESS IN THICKNESS, 7 FT. LONG OR OVER, IN UNIFORM LENGTH BUNDLES—FLAT CARS

Item	No. of Pcs.	Description
C	(Concl.)	One strand, No. 8 gage high tension wire, encircling opposite stakes and machine tied near center of loop. Locate about 1 in. above top of load.
D	2 per pile.	Floor bearing pieces, preferably rough, in one piece, width 2 in. greater than thickness. Length must be equal to but must not extend beyond inside face of stakes. They may consist of two pieces of equal length nailed together with not less than three nails, clinched on back, or, one length may consist of two pieces, minimum length 3 ft., butted together and nailed to other length with three nails each, clinched on back. Locate about 12 in. from ends of piles. They must be of equal height, except the one located at outside ends of load which must be 2 in. higher and wider than intermediate bearing pieces.
E	2 between each layer, per pile.	Separators, preferably rough, in one piece, width 2 in. greater than thickness. Length must be equal to but must not extend beyond inside face of stakes. They may consist of two pieces of equal length nailed together with not less than three nails, clinched on back, or, one length may consist of two pieces, minimum length 3 ft., butted together and nailed to other length with three nails each, clinched on back. Locate about 12 in. from ends of pile. They must be of equal height, except the one located at outside ends of load which must be 2 in. higher and wider than intermediate separators.
F	As required.	Longitudinal ties, 1 in. x 4 in. (free from decay and strength impairing knots), long enough to extend 4 in. beyond Items "B" nearest to each end of pile. Secure to inside face of each Item "B" directly above or below Items "C" with three 8-d nails. When ties consist of more than one piece, ends must overlap each other not less than two feet, each joint to be secured with five 8-d nails, clinched on back.
G	2 per package or bundle.	$\frac{3}{4}$ in. x .035 in. high tension bands or No. 8 gage high tension wires. Locate one tie about one-fourth length of pile from each end. Bands or wires must be placed as far away from stakes, bearing pieces or separators, as practicable.
H	1 ea. end pile of load.	$1\frac{1}{4}$ in. x .035 in. high tension band or No. 8 gage high tension wire encircling all packages or bundles of piles at each end of load. Locate

Fig. 9-A (Concluded)

PACKAGED LUMBER, 4 IN. OR LESS IN THICKNESS, 7 FT. LONG OR OVER, IN UNIFORM LENGTH BUNDLES—FLAT CARS

Item	No. of Pcs.	Description
H	(Concl.)	about one-third length of pile from end of load. Bands or wires must be placed as far away from stakes, floor bearing pieces or separators, as practicable.
*J	2 per package.	Unit separators, 2 in. x 4 in. or wider, preferably rough in one piece. Length must be equal to but must not extend beyond side of unit, pile or package. Locate at approximate vertical center of unit, pile or package in line with Items "D" or "E". Use optional.
K	2 ea. end of load.	Stakes, per General Rule 10, long enough to extend 15 in. above floor of car. Locate, as shown, in end stake pockets.
L	1 ea. end of load.	12 in. high, width sufficient to fill space between Items "K" and load, length to suit. Secure to Items "K" with 30-d nails.

All piles must be butted together.

Packages or bundles must not overhang outside ends of packages in bottom layer.

Stickers—They must be of uniform thickness throughout in one piece, (minimum $\frac{1}{4}$ in.), width greater than thickness. Length must be equal to but must not extend beyond side of unit, pile or package. One set of stickers must be used near bottom and one set near top of unit.

Where end stake pockets are not available for the application of Items "K", they may be located in side stake pockets beyond ends of load.

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

*Not shown on drawing.

Fig. 10

**SINGLE OVERHANGING LOADS OF LUMBER—
FLAT OR GONDOLA CARS**

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	5 pair.	Stakes, hardwood, southern pine, long leaf pine, fir, spruce, larch or hemlock, minimum size; for flat cars or gondola cars with sides less than 30 in. high, 4 in. x 5 in. sawed, or green saplings 5 in. dia. measured midway between top and bottom; for gondola cars with sides 30 in. high or over, 4 in. x 4 in. sawed, or green saplings 4½ in. dia. measured midway between top and bottom. They must extend 4 in. below bottom edge of stake pockets 7 in. deep or less, and as far as possible below bottom edge of stake pockets more than 7 in. deep. They must be sawed off at the top (not chopped off), only when they exceed Railway Line Clearance. Space as uniformly as possible on piles consisting of equal lengths and to protect shortest pieces on piles consisting of unequal lengths. Wedge from under side of stake pocket so as to provide tight fit and securely nail to stake with at least two 8-d nails. Wedges not required for stake pockets 10 in. or more in depth. When wedges are not required or cannot be used, drive a 40-d nail into stake directly below and with head even with outside of stake pocket, or into stake through hole in center of stake pocket. Load tight against stakes. Space between stakes to be filled solid if dimensions of lumber will permit. If not, pack with vertical filler stakes, two or three per pile, suitably located, and secure with "T" block at top of filler. See Sketch 4, Fig. 6. Thickness of filler to be equal to width of space to be filled, width to be equal to or greater than thickness.
C	As required ea. pr. Items "B".	<p>Cross ties, as follows:</p> <p>Two 1 in. x 4 in., in one piece (free from decay and strength impairing knots), long enough to be sawed off (not chopped off) flush with outside face of each Item "B", secured to each Item "B", with three 8-d nails.</p> <p style="text-align: center;">or</p> <p>Four strands, No. 11 gage black annealed wire, secured to opposite Items "B", twisted taut.</p> <p style="text-align: center;">or</p> <p>One strand, ¾ in. x .035 in. high tension band, looped around and sealed at least 12 in. from inside face of each stake.</p> <p style="text-align: center;">or</p>

Fig. 10 (Concluded)

**SINGLE OVERHANGING LOADS OF LUMBER—
FLAT OR GONDOLA CARS**

Item	No. of Pcs.	Description
C	(Concl.)	One strand, $\frac{3}{4}$ in. x .035 in. high tension band, encircling opposite stakes and sealed near center of loop. or One strand, No. 8 gage high tension wire, looped around and machine tied at least 12 in. from inside face of each stake. or One strand, No. 8 gage high tension wire, encircling opposite stakes and machine tied near center of loop. Locate about 1 in. above top of load.
D	1 ea. pr. Items "B".	6 strands, No. 11 gage wire, secured to opposite Items "B".
E	2	Floor bearing pieces, 8 in. wide, high enough to keep load 4 in. above floors. Length must be equal to but must not extend beyond inside face of stakes. Secure in position with two $\frac{3}{4}$ in. dia. bolts or by placing two 2 in. x 6 in. x 12 in. blocks, or equivalent, against each side securely nailed or bolted to floor. Not required for loads per Sketch 2.
F	2	Separators, $\frac{7}{8}$ in. x 8 in., length equal to width of load, not to extend beyond inside face of stakes.

The idler must be a flat car and when used for carrying a load, such load must be secured as per a single load.

Stakes must not be used on idler car to confine the overhanging portion of load.

When necessary to reduce width of load to meet provisions of Rule 16, use method as outlined in Fig. 5-B.

See General Rules 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15 and 16 for further details.

Fig. 11

LUMBER—TWO OR MORE FLAT OR GONDOLA CARS

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	4 pair.	Stakes, hardwood, southern pine, long leaf pine, fir, spruce, larch or hemlock, minimum size; for flat cars or gondola cars with sides less than 30 in. high 4 in. x 5 in. sawed, or green saplings 5 in. dia. measured midway between top and bottom; for gondola cars with sides 30 in. high or over, 4 in. x 4 in. sawed, or green saplings, 4½ in. dia. measured midway between top and bottom. They must extend 4 in. below bottom edge of stake pockets 7 in. deep or less, and as far as possible below bottom edge of stake pockets more than 7 in. deep. They must be sawed off at the top (not chopped off), only when they exceed Railway Line Clearance. Two pair each end of load for loads per Sketch 1 and near each end of upper portion of load for loads per Sketch 2, spaced 2 ft. minimum, 4 ft. maximum. Wedge from under side of stake pocket so as to provide tight fit and securely nail to stake with at least two 8-d nails. Wedges not required for stake pockets 10 in. or more in depth. When wedges are not required or cannot be used, drive a 40-d nail into stake directly below and with head even with outside of stake pocket, or into stake through hole in center of stake pocket. Load tight against stakes. Space between stakes to be filled solid if dimensions of lumber will permit. If not, pack with vertical filler stakes, two or three per pile, suitably located, and secure with "T" block at top of filler. See Sketch 4, Figure 6. Thickness of filler to be equal to width of space to be filled, width to be equal to or greater than thickness.
C	4 pr. per car.	Stakes, hardwood, southern pine, long leaf pine, fir, spruce, larch or hemlock, minimum size; 4 in. x 5 in. sawed, or green saplings 5 in. dia. measured midway between top and bottom. Not required for loads per Sketch 1.
D	As required ea. pr. Items "B" and "C".	Cross ties, as follows: Two 1 in. x 4 in. in one piece (free from decay and strength impairing knots), long enough to be sawed off (not chopped off) flush with outside face of each Items "B" and "C", secured to each Items "B" and "C", with three 8-d nails. or Four strands, No. 11 gage black annealed wire, secured to opposite Items "B" and "C", twisted taut.

Fig. 11 (Continued)

LUMBER—TWO OR MORE FLAT OR GONDOLA CARS

Item	No. of Pcs.	Description
D	(Concl.)	One strand, $\frac{3}{4}$ in. x .035 in. high tension band, looped around and sealed at least 12 in. from inside face of each stake. or One strand, $\frac{3}{4}$ in. x .035 in. high tension band, encircling opposite stakes and sealed near center of loop. or One strand, No. 8 gage high tension wire, looped around and machine tied at least 12 in. from inside face of each stake. or One strand, No. 8 gage high tension wire, encircling opposite stakes and machine tied near center of loop. Locate about 1 in. above top of load.
E	2 ea. pr. Items "B".	Intermediate cross ties, 1 in. x 4 in., nailed to opposite Items "B" with three 10-d nails at each location.
F	2	Floor bearing piece, 10 in. wide, high enough to keep load 4 in. above floor and end gate. Length must be equal to but must not extend beyond inside face of stakes. Secure in position with two $\frac{3}{4}$ in. dia. bolts or by placing two 2 in. x 6 in. x 12 in. blocks, or equivalent, against each side, securely nailed or bolted to floor. Not required for loads per Sketch 2.
G	2	Separators, 10 in. x 10 in., larger if necessary, to maintain 4 in. clearance between top and bottom portion of load, or between bottom of top portion of load and top of car sides. Length equal to width of load for loads per Sketch 3; long enough to rest on car sides for loads per Sketch 4, notched or cleated to prevent lateral movement.
H	8	Diagonal braces, 4 in. x 6 in., gaged into Items "B" one inch. Nail to Item "B" with three 40-d nails. Not required for loads per Sketches 4 and 5.
J	2 ea. Item "H".	Cleats, 2 in. x 4 in., long enough to extend from Items "K" to car sides. Nail to floor, against each side of Items "H", with three 20-d nails. Not required for loads per Sketches 4 and 5.
K	8	Cleats, 2 in. x 4 in. x 18 in. Nail each to floor against outside face of Items "B", with four 20-d nails. Not required for loads per Sketches 4 and 5.

Fig. 11 (Concluded)

LUMBER—TWO OR MORE FLAT OR GONDOLA CARS

Item	No. of Pcs.	Description
L	As required.	Suitable filling pieces, secured to inside face of stakes, per Sketches 4 and 5.

Total weight of load must not exceed 90 percent of designated load weight of cars. The weight of top portion must not exceed the combined weight of both single loads.

Locate each lower pile centrally on each car.

Items "H", "J" and "K", or Item "L", required only when necessity demands narrowing load.

See General Rules 4, 5, 6, 7, 9, 10, 11, 12, 14, 15 and 18 for further details.

Fig. 12

**LONG LUMBER, WITH OR WITHOUT OVERHANG—
TWO OR MORE FLAT CARS**

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	4 pr.	Stakes, hardwood, southern pine, long leaf pine, fir, spruce, larch or hemlock, minimum size; 4 in. x 5 in. sawed, or green saplings 5 in. dia. measured midway between top and bottom. They must extend 4 in. below bottom edge of stake pockets 7 in. deep or less, and as far as possible below bottom edge of stake pockets more than 7 in. deep. They must be sawed off at the top (not chopped off), only when they exceed Railway Line Clearance. Place in adjoining stake pockets near each end of load. Wedge from under side of stake pocket so as to provide tight fit and securely nail to stake with at least two 8-d nails. Wedges not required for stake pockets 10 in. or more in depth. When wedges are not required or cannot be used, drive a 40-d nail into stake directly below and with head even with outside of stake pocket, or into stake through hole in center of stake pocket. Load tight against stakes. Space between stakes to be filled solid if dimensions of lumber will permit. If not, pack with vertical filler stakes, two or three per pile, suitably located, and secure with "T" block at top of filler. See Sketch 4, Figure 6. Thickness of filler to be equal to width of space to be filled, width to be equal to or greater than thickness.
C	As required ea. pr. Items "B".	<p>Cross ties, as follows:</p> <p>Two 1 in. x 4 in., in one piece (free from decay and strength impairing knots), long enough to be sawed off (not chopped off) flush with outside face of each Item "B", secured to each Item "B" with three 8-d nails.</p> <p style="text-align: center;">or</p> <p>Four strands, No. 11 gage black annealed wire, secured to opposite Items "B" twisted taut.</p> <p style="text-align: center;">or</p> <p>One strand, $\frac{3}{4}$ in. x .035 in. high tension band, looped around and sealed at least 12 in. from inside face of each stake.</p> <p style="text-align: center;">or</p> <p>One strand, $\frac{3}{4}$ in. x .035 in. high tension band, encircling opposite stakes and sealed near center of loop.</p> <p style="text-align: center;">or</p> <p>One strand, No. 8 gage high tension wire, looped around and machine tied at least 12 in. from inside face of each stake.</p>

Fig. 12 (Concluded)

LONG LUMBER, WITH OR WITHOUT OVERHANG—
TWO OR MORE FLAT CARS

Item	No. of Pcs.	Description
C	(concl.)	One strand, No. 8 gage high tension wire, encircling opposite stakes and machine tied near center of loop. or Locate about 1 in. above top of load.
D	1 ea. pr. Items "B".	6 strands, No. 11 gage wire secured to opposite Items "B".
E	2	Floor bearing pieces, 10 in. x 10 in., larger if necessary, to maintain 4 in. clearance throughout load above floors. Length must be equal to but must not extend beyond inside face of stakes. Secure in position with two $\frac{3}{4}$ in. dia. bolts or by placing two 2 in. x 6 in. x 12 in. blocks, or equivalent, against each side, securely nailed or bolted to floor.
F	2	Separators, $\frac{7}{8}$ in. x 8 in., length equal to width of load, not to extend beyond inside face of stakes.

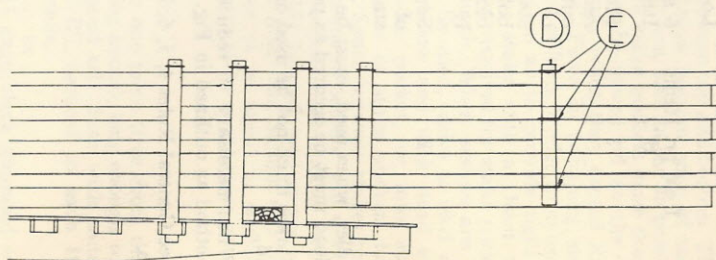
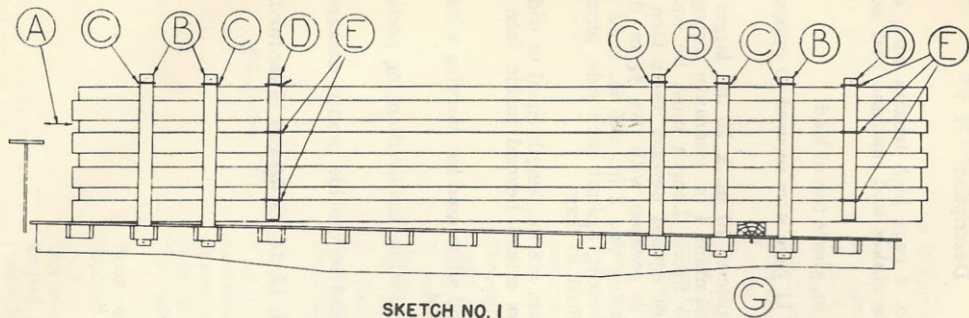
Idler, when used, must be a flat car, and when used for carrying a load, such load must be secured as per a single load.

Stakes must not be used on idler car to confine the overhanging portion of load.

When necessary to reduce width of load to provide proper clearance, use method as outlined in Fig. 5-A.

See General Rules 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16 and 18 for further details.

Fig. 24



SKETCH NO. 2
(FOR OVERHANG 15 FT. LONG OR OVER)

Fig. 24

ENTIRELY CREOSOTED AND OTHER POLES, PILING, ETC.—SINGLE
OVERHANG—DROP END GONDOLA OR FLAT CARS

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	5 pr. per pile.	Stakes, or green saplings, per General Rule 10. Locate in adjacent stake pockets near ends of car on flat cars or not less than 2 ft. nor more than 4 ft. apart on gondola cars near ends, with 3 pairs at overhanging end.
C	1 ea. pr. Items "B".	Stake ties, 6 strands, No. 11 ga. common annealed wire, twisted taut.
D	As required.	Binders, hardwood, southern pine, long leaf pine, fir, spruce, larch or hemlock, minimum size 4 in. x 5 in. sawed, or green saplings 5 in. dia., measured midway between top and bottom. Locate two pairs, one above first stake pocket back of inside Items "B" at rear end of load and one above first stake pocket at overhanging end in front of Items "B". Lower ends must clear floor about 2 in. When overhang is 15 ft. long or over place additional binder, or two 2 in. x .050 in. high tension bands, on overhanging portion located not less than 6 ft. from end of load. Lower end of binder on overhanging portion must not extend below bottom layer of poles.
E	As required.	Binder ties, 6 strands No. 11 ga. common annealed wire secured to each Item "D" as follows: Place one over bottom layer and one over top layer, twisted taut, top tie to contact poles. For poles in pile 6 ft. high or less place one tie midway between top and bottom ties; on pile over 6 ft. high place two intermediate ties spaced equally between top and bottom ties. Tighten intermediate ties only enough to remove slack. Use staples or nails bent over to prevent top Items "E" from working off Items "D". Substitute, if desired, at each location, 2 strands No. 8 ga. high tension wire.
F		VACANT.
G	1 or 2.	Bearing pieces, 8 in. wide, top and bottom. Locate over center of truck and secure in position with two $\frac{3}{4}$ in. dia. bolts or by placing two 2 in. x 6 in. x 12 in. blocks, or equivalent, against each side, securely nailed or bolted to floor. Not required when poles in overhanging portion of load will clear floor of idler car 4 inches.

Nest poles fully and alternate butts to equalize load. When load contains poles of various lengths, the longest poles should be placed in the lower portion of the load.

Fig. 24 (Concluded)

ENTIRELY CREOSOTED AND OTHER POLES, PILING, ETC.—SINGLE OVERHANG—DROP END GONDOLA OR FLAT CARS

Items "D" and "E" not required on poles loaded in gondola cars. When not used, apply one Item "C" underneath first layer of poles above top of car sides and add another Item "C" to each pair of Items "B", midway between top of load and top of car sides, when height of pile exceeds 4 ft. above top of car sides.

For narrowing loads, use method shown in Figure 5-B.

See General Rules 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16 and 21 for further details.

Fig. 27

ENTIRELY CREOSOTED, AND OTHER POLES, WITH HIGH TENSION BANDS—FOR SINGLE LOADS OR LOADS ON ONE FLAT OR GONDOLA CAR OVERHANGING ONE OR BOTH ENDS OF CAR OR LOADS ON TWO OR THREE FLAT CARS

Item	No. of Pcs.	Description
A		Brake wheel clearance. See Fig. 2.
B	Sketches 1 and 2, 3 or 4 pair. Sketches 3 and 4, 4 pair.	Stakes, or green saplings, per General Rule 10. On loads per Sketches 1 and 2, 7 feet high or less, locate stakes as shown on sketches; when height of load exceeds 7 feet, locate 2 pair stakes not less than 2 feet nor more than 4 feet apart near each end of load. On loads per Sketches 3 and 4, place in adjacent stake pockets and locate per Tables 3 to 35, inclusive.
C	1 each pr. Items "B".	Stake ties, 1 strand $\frac{3}{4}$ in. x .035 in. band.
D	Sketches 1 and 2, 3 per pile. When more than 100 lin. ft. of poles extend beyond one end of car, add 1 band. Sketch 3, Pile 4 ft. high or less, 3; Pile over 4 ft. to 7 ft. high, inc., 4; Pile over 7 ft. high, 5. Sketch 4, Pile 4 ft. high or less, 4; Pile over 4 ft. to 7 ft. high, inc., 5; Pile over 7 ft. high, 6.	Binders, 2 in. x .050 in. bands, suitably spaced as shown, on loads per Sketches 1, 2 and 3. On loads per Sketch 4, piles 4 ft. high or less, locate 2 bands, one about 3 ft. from each Item "B" at each end of load. On piles over 4 ft. high, locate bands in a similar manner and one band at center of load for piles over 4 ft. to 7 ft. high, and two bands at, or near, center for piles over 7 ft. high.
E		VACANT.
F		VACANT.
G	Sketches 1, 3 and 4, 2 per pile. Sketch 2, 1 or 2 per pile.	Bearing pieces, softwood, length equal to width of car, high enough to maintain 4 in. clearance between load and idler car on loads per Sketches 2, 3 and 4, height must not exceed width. Minimum width 2 in. on loads per Sketch 1; 8 in. on loads per Sketch 2; 10 in. on loads per Sketches 3 and 4. Secure to prevent shifting.
H	Sketches 1 and 2, 2 per pile.	Supplemental binders, 2 in. x .050 in. bands. Locate not less than 8 ft. apart, near center of load. Apply to upper one-half of load before Items "D" are applied. Not required on loads 6 ft. high or less.

Fig. 27 (Concluded)

ENTIRELY CREOSOTED, AND OTHER POLES, WITH HIGH TENSION BANDS—FOR SINGLE LOADS OR LOADS ON ONE FLAT OR GONDOLA CAR OVERHANGING ONE OR BOTH ENDS OF CAR OR LOADS ON TWO OR THREE FLAT CARS

Separators, hardwood, 2 per layer, suitably spaced, 2 in. x 4 in., or 1½ in. x 6 in., length equal to width of car but not extending beyond inside face of Items "B", may be applied to facilitate unloading stop-off shipments. When separators are used, Items "G" must be applied about 3 ft. from end Items "B" to each two layers of poles except the top two, and wires used to tie opposite stakes, Items "B", together when loading, must not be cut at loading point. When separators are not used, wires used to tie opposite stakes, Items "B", together when loading must be cut on both sides of load before loads are allowed to go forward.

Height of load to be measured from top of floor to top of load.

Nest poles fully and alternate butts to equalize load.

When loads contain poles of various lengths the longest poles should be placed in lower portion of the load.

For narrowing loads, per Sketches 3 and 4, use methods shown in Fig. 5-A.

See General Rules 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 18 and 21 for further details.