

**BELL SYSTEM PRACTICES**  
**Outside Plant Construction**  
**and Maintenance**

**SECTION G21.105**  
**Issue 1, April, 1933**  
**Standard**

**PLACING POLES**  
**UNLOADING POLES AT SIDINGS**

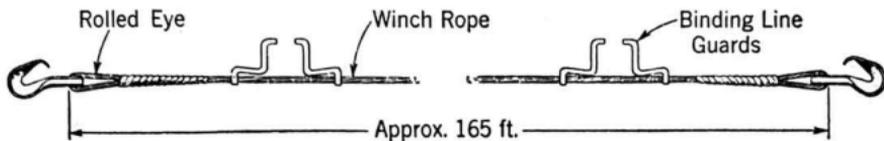
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**1. EQUIPMENT REQUIRED**

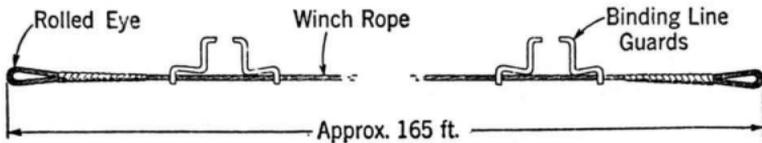
1.01 In order to carry out these instructions various items of equipment as listed and described below are required:

**Binding Line.** This is to be made up locally. It consists of a piece of 7/16-inch winch line 165 feet or more in length. Usually the 165-foot line is satisfactory. In certain pole yards, however, a longer line may be desirable. If choker hooks are to be used (see Paragraph 3.02 (2)), splice in a 1-inch x 3-inch Choker Hook by means of a rolled eye at each end. If wire rope snatch blocks are to be used, it is necessary to provide only a rolled eye at each end. Four binding line guards are required on each line to protect it from the cutting action of the edges of steel cars. The guards should be placed on the line before the eyes are formed. The following sketch shows a line equipped with choker hooks and also one that is intended to be used with wire rope snatch blocks.

**BINDING LINE EQUIPPED WITH CHOKER HOOKS**



**BINDING LINE (FOR USE WITH WIRE ROPE SNATCH BLOCKS)**



**Choker Hook or Wire Rope Snatch Block.** Two choker hooks or wire rope snatch blocks are required to facilitate binding the load with the binding line.

**Safety Stakes.** Two of these stakes are required under usual conditions. If the poles are short so that the ends are interlaced on the load, three stakes are required.

**Guy Rope Guards.** Two or three of these guards, depending on the number of Safety Stakes used, are required for attaching the guy ropes to stake pockets at the back of the car.

**Skids.** Two or more substantial skids are required. These skids, if made of timber, should preferably be roughly equivalent in dimensions to railroad ties and should be of sound timber. If the poles are short so that the ends are interlaced on the load, four skids should be used so as to cause the poles to roll away from the car rather than drop to the ground.

**Wire Rope Snatch Blocks.** One, two or three blocks are required, depending on the method used for pulling up binding line. (See Paragraphs 3.02 (2), 4.03 (5), and 4.03 (6)).

**C Winch Rope Hook.** Two required for making binding line fast to car axle as described in Paragraph 4.03 (2).

**Set of Blocks and Tackle.** A set of 3-sheave, 8-inch blocks and tackle is required to place tension in binding line. Six-inch blocks may be required on the luff of the 8-inch blocks. Blocks are not required if winch line of motor truck is used for pulling up binding line, as described in Paragraph 3.02 (2).

**Manila Rope, one inch or larger.** Two pieces, each of which should be about 50 feet long, are required for guying Safety Stakes as described in Paragraph 3.02 (3). A third piece,

about 50 feet long, is required for attaching to a key pole, to assist in starting the load if necessary.

**Hand Line.** A hand line is required for pulling hooks of binding line over load.

**Strand Cutter.** For cutting tie wires on load.

**Short Ladder.** For use in cutting tie wires not easily reached from ground.

**Axes.** Two are required for cutting the stakes.

**Pike Poles.** Two should be available for handling poles.

**Cant Hooks or Peavies.** Two of either are required for handling poles.

## 2. GENERAL PRECAUTIONS

2.01 In order to insure a maximum degree of safety in the performance of this work, it is important that certain precautions be taken in connection with every unloading job. These precautions are summarized below:

- (a) If the car is delivered at an electrified siding paralleled by a charged third rail, the method described in Parts 3, 4 and 5 must not be used. At such a siding, the poles should be unloaded by means of a pole derrick or gin pole, as described in Part 6. If it is definitely known that the third rail power has been cut off and will remain so, the methods described in Parts 3, 4 and 5 may be used. At electrified sidings having overhead power wires, have power cut off if practicable. If impracticable to have power cut off, use methods described in Parts 3, 4 or 5, but exercise special care to avoid interference with power wires.
- (b) The binding line, ropes and stakes to be used in this work should be in perfect condition. Under no circumstances should the work be undertaken with a binding line which has broken wires or with ropes which have broken strands.
- (c) Strong skids should always be placed against the car.
- (d) The unloading gang should preferably be a small one. Three or four men and a foreman can unload a car satisfactorily. The foreman in charge of the work must be thoroughly acquainted with all the details of the unloading operations.
- (e) All of the orders should be given by the foreman in charge of the work.
- (f) Only one operation should be in progress at a time and the various operations should follow each other in the order indicated in Parts 3 to 6.

- (g) Nobody should be permitted on the top of the load at any time, except as provided in Part 6.
- (h) If blocks and tackle are to be used for pulling up the binding line, the anchorage to which they are to be attached should be very substantial. A sound tree or stub whose circumference is 30 inches or more is considered satisfactory. Attachments should be made as close to the ground as practicable. If a motor truck and winch line are to be used for pulling up the binding line, the wheels of the truck should be chocked. The winch clutch should always be engaged. The winch used for this work should preferably be of a type that will not reverse except under engine power. If a winch having a reversible worm is the only type available, it may be used, provided that the winch brake can be depended upon to hold the load.
- (i) If stakes at back of load are broken or load leans toward main track, place extra stakes in unoccupied pockets at back of load to reinforce that side.
- (j) Be sure that the space on unloading side of car is clear of old wire, stakes, etc.
- (k) If the space in front of the car is likely to be crossed by passersby, rope off the space to keep it clear.

### **3. UNLOADING FLAT CARS—METHOD NO. 1**

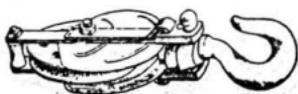
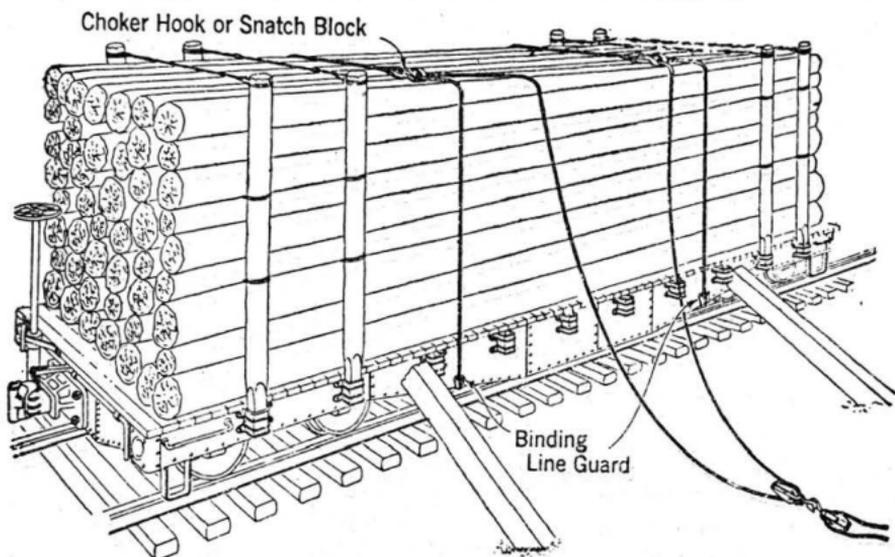
3.01 This method is to be used where conditions make it advantageous to pull up binding line from a point in a line approximately at right angles to the siding tracks.

3.02 For convenience, one side of the car is designated as the "unloading" side, and the other side as the "far" side. The various steps to be taken and the order in which they should be taken are as follows:

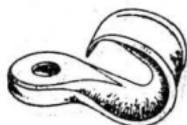
- (1) If necessary, move the car along the siding to the most suitable unloading position. This may be done by means of the winch line or by jacking it along the track. Set the brakes of the car and, if necessary, place chocks under the wheels to prevent the car from further moving along the tracks. Place substantial skids against the car on the unloading side. The tops of the skids should preferably be at the level of the floor of the car so that the poles will roll off without interference. The lower ends of the skids should be set in the ground so that there will be no possibility of their slipping. The skids should be set close to the stakes between the center of the car and the nearest stakes at either end so that there will be no interference with the workmen cutting the stakes. The skids should also be placed at right angles to the side of the car, so that

there will be no tendency to slip along the car. (See illustration below.)

(2) Pass the two ends of the binding line under the car from the unloading side. In some cases, it may be necessary to pass the ends of the line over the brake rod so as to avoid bending of the rods when the line is pulled up tight. Throw a hand line over the load from this side and by means of it draw the ends of the binding line over the top of the load. Connect the eyes of the binding line to the hooks of the snatch blocks and pass the bight of the line over the sheaves of these blocks. If the line is equipped with choker hooks, pass the bight over the hooks. Slide the blocks or hooks into a position on top of the load about one foot back from the nearest pole on the top layer. They should be approximately in the position shown in the following illustration. This work must be done from



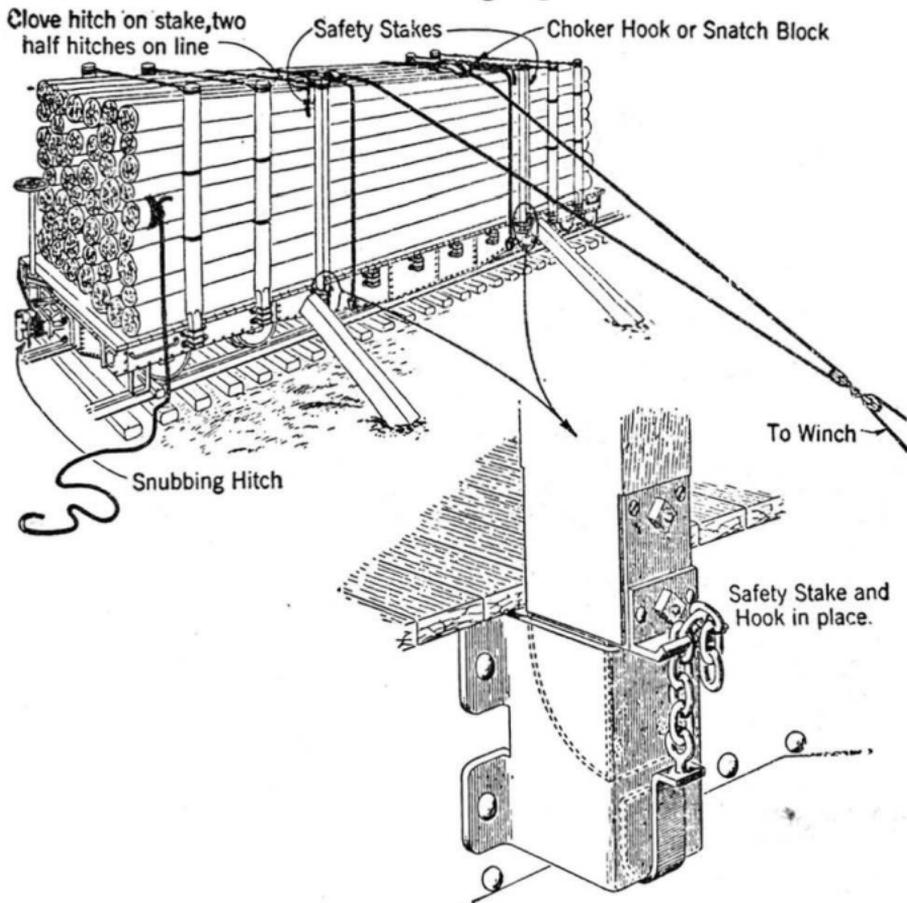
Snatch Block



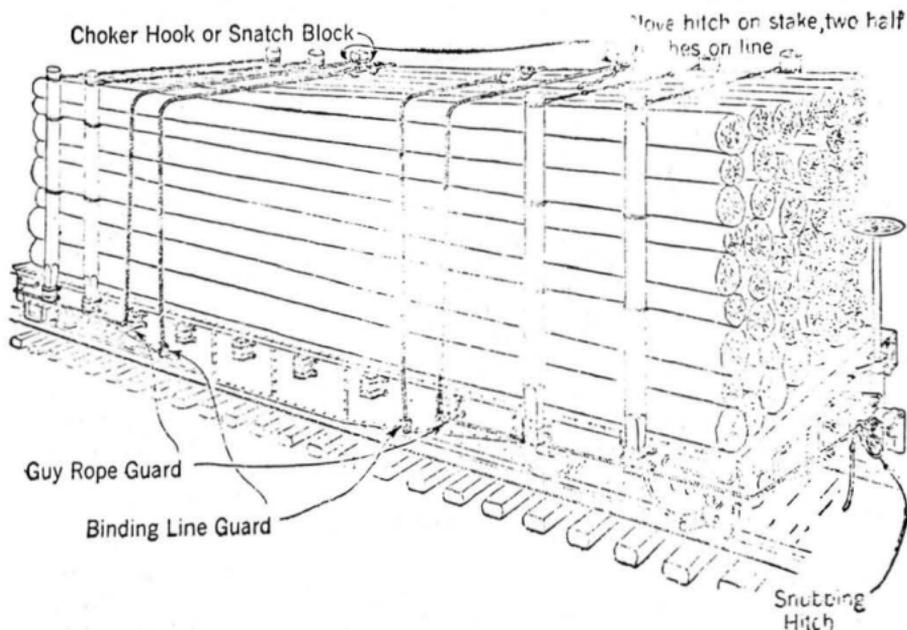
Choker Hook

the ground. Place a wire rope snatch block in the bight of the binding line and **PULL UP THE BINDING LINE** by means of a motor truck winch line, or a set of 3-sheave, 8-inch blocks, until the load is tightly bound. If a truck winch line is used, make fast the eye end of the line to the truck and run the line through a second wire rope snatch

block hooked to the first one, as shown below, in order to permit of easier control of the tension in the line. The truck should be placed about 100 feet away from the car and in such a position that the winch line will pull in line with the center of the car and approximately at right angles to the tracks. Place chocks under the rear wheels of the truck. If a set of blocks is used be sure that the anchorage against which the pull is to be made is sufficiently substantial to withstand the pull. A sound tree or stub whose circumference is 30 inches or more at the ground line is considered satisfactory. The blocks should be equipped with at least 200 feet of rope, and when the binding line is pulled tight the blocks should be close together, so as to reduce the amount of stretch and afford plenty of slack when the binding is released. If necessary, use another set of blocks on the luff of the main blocks, in order to make the binding tight.



(3) Tie a 50-foot length of 1-inch or larger rope securely at the upper end of each safety stake. Place the safety stakes in unoccupied pockets of the flat car on the unloading side adjacent to the existing stakes. Be sure that the stake pockets are securely attached to the car, so as to guard against their being pulled off. If all the pockets are occupied by stakes, remove the stakes from two of the pockets between the center of the car and either end and place safety stakes in them. Place the Safety Stake Hook which forms a part of the safety stake under the lower edge of the stake pocket and adjust the length of the chain so that the stake cannot be lifted out by an upward pull of the guy rope, but so that there will be no interference with the stake's dropping out when the guy rope is released. Pass the guy rope over the top of the load and pull it hand tight. Pass the guy rope around the hook of the Guy Rope Guard which has been attached to a stake pocket on the back of the car opposite the safety stake. Secure the end of the rope at a convenient point, such as a drawbar, at the end of the car in such a way that it can easily be released. The following illustration shows the set-up on the far side of the car.



(4) Tie a 50-foot length of 1-inch or larger rope securely to the end of a key pole on the unloading side and lay the rope out of the way at the end of the car. This rope is for use later (see (8) below), in case it becomes necessary to start the load.

(5) Cut the lower tie wires on the unloading side of the car by means of a strand cutter, working from the center toward the ends of the car. If each set of stakes is held by three cross ties, cut the middle and then the lower ties at each set of stakes. IN NO CASE SHOULD THE TOP TIE WIRES BE CUT.

(6) Chop each stake completely off on the unloading side as close to the stake pocket as practicable, excepting the safety stakes placed in accordance with (3), working from the center toward the ends of the car. BEFORE THE LAST FEW BLOWS OF THE AXE ARE STRUCK, STAND CLEAR OF THE STAKE, SO THAT IN CASE THE BOTTOM OF THE STAKE SHOULD SPRING OUT, IT WILL NOT STRIKE THE CHOPPER. DO NOT CROSS IN FRONT OR IN BACK OF LOAD AFTER THIS OPERATION.

(7) After all men are clear of the load, let off the guy ropes holding the safety stakes. After the safety stakes have dropped out of the pockets, pull the stakes clear by means of the guy ropes. All this work must be done from the ends of the load.

(8) Let off the tension in the binding line slowly. If the poles start to roll, the tension should be released gradually so as to let the load roll slowly off the car. If the load does not start to roll, hold the binding line with a small amount of slack in it, and start the load rolling by means of the pull rope tied to the key pole or by means of pike poles, working from the ends of the car.

(9) After the poles have completely settled, remove the snatch block from the binding line. Roll a number of the remaining poles off the car so as to relieve the pressure on the stakes at the far side. This should be done by means of the winch line, a separate piece of rope, or pikes working from the ground. The line may safely be attached to the end of a pole by a workman standing clear of the poles at the end of the load. This man must not climb on the remaining poles for any reason, nor walk along the car floor in front of the poles. After the remaining poles have completely settled, unhook the choker hooks or snatch block, one at a time.

#### 4. UNLOADING FLAT CARS—METHOD NO. 2

4.01 This method is to be used where conditions make it advantageous to pull up the binding line from a point along the siding tracks.

4.02 With the exception of the method of applying the binding line, pulling it tight and releasing it, which is described below, the same practices as are described in Part 3 shall be followed.

4.03 Apply the binding as described below:

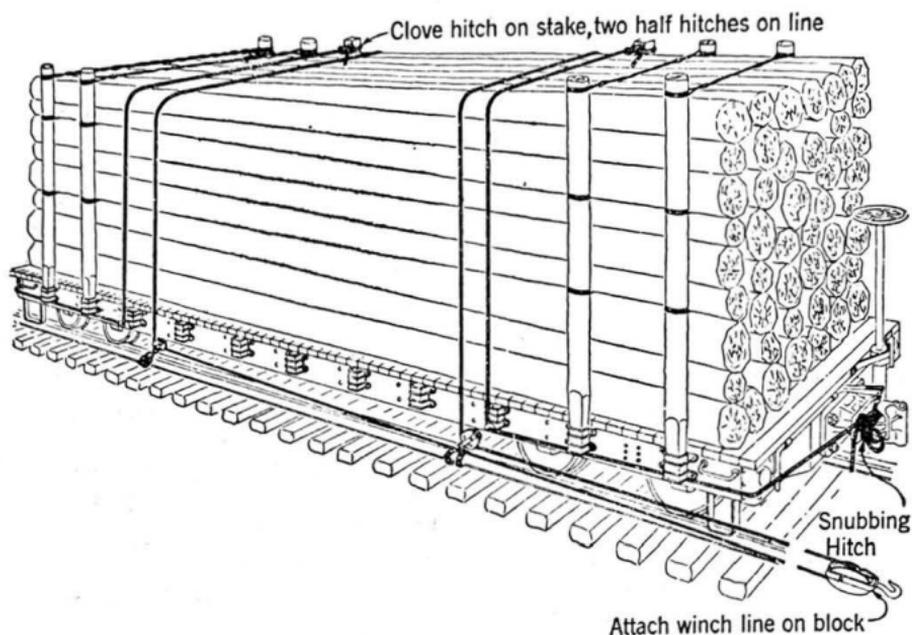
(1) Throw the hand line over the load from the unloading side at a point near one end of the car. This line is to be used for pulling the hooks of the binding line over the load.

(2) Attach the hand line to the eye of the binding line or choker hook on the far side of the car and draw the binding line over the load. Pass the end of the line around one of the car axles, making at least one complete turn around the axle, and secure the line in place by means of the choker hook or a winch rope hook. Slip the line around the axle so that when the binding is pulled tight, the wrapped line will be close to the wheel on the unloading side of the car and so that there will be no sharp bend where the line leaves the hook.

(3) Repeat the operation at the other end of the car with the other end of the line.

(4) At the far side of the car place two chain wrappings around the track rail, one at each end of the car close to the wheels and between the center of the car and the wheels. Each of these chains is to serve as a convenient point to attach the hook of a wire rope snatch block.

- (5) Attach a wire rope snatch block to each chain close to the rail and pass the binding line through the blocks as shown in the following illustration.



- (6) Lay the loop of the binding line along the far rail and place the third wire rope snatch block in the loop to act as an evener when the binding is pulled up. This block should be at least 15 feet from the end of the car.
- (7) Place the third chain around the rail about three feet in advance of the hook of the evener snatch block to serve as an anchorage for attaching a set of blocks to be used in pulling up the binding line.
- (8) Place a set of 3-sheave, 8-inch blocks between the chain and the evener block and pull up the binding line until it is tight. If necessary, use another set of blocks on the luff of the main blocks. It is desirable that the main blocks be equipped with about 200 feet of rope and that after the line has been pulled tight the main blocks should be close together, so as to reduce the amount of stretch in the binding and afford plenty of slack when the binding line is released. If a truck with winch equipment is available and conditions permit, the winch line can be used for pulling up the binding line.

(9) As provided for in Method No. 1, proceed with the placing of the safety stakes, tying of the pull rope on the key pole, cutting of the tie wires, chopping off the stakes, and releasing the safety stakes; then let off the tension in the binding line.

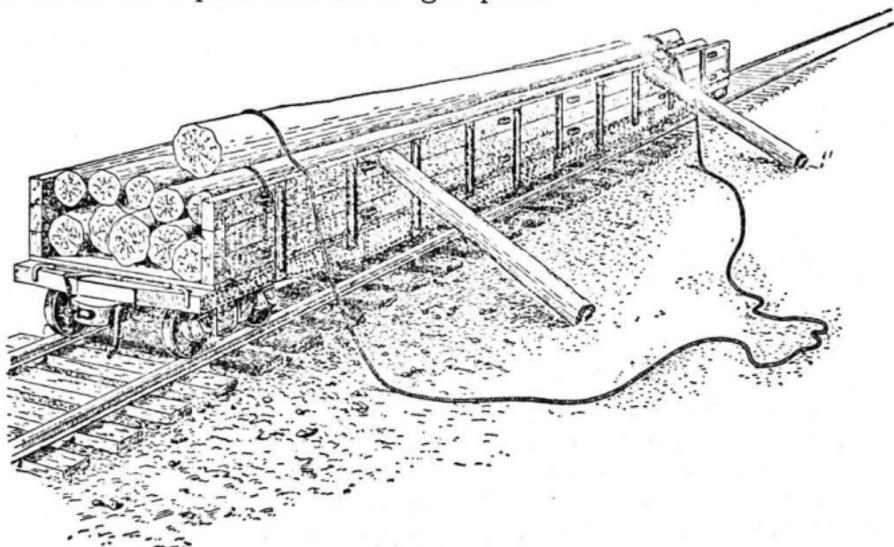
(10) After the poles have completely settled, as described in Paragraph 3.02 (9), the snatch blocks and the ends of the binding line may be released. Do not, in any case, approach the load until the poles have completely settled and there is no further possibility of the poles moving.

## 5. UNLOADING GONDOLA CARS

5.01 Follow the same general methods as described in Parts 3 and 4 for the layers of poles above the top of the sides of the car, except that it is unnecessary to use Safety Stakes.

5.02 The skids should preferably be longer and be placed with the upper ends as close to the top of the side of the car as conditions permit.

5.03 For the layers below the level of the tops of the sides of the car the poles may be rolled out, by means of a rope cradle, as shown in the following illustration, or use may be made of a pole derrick or gin pole.



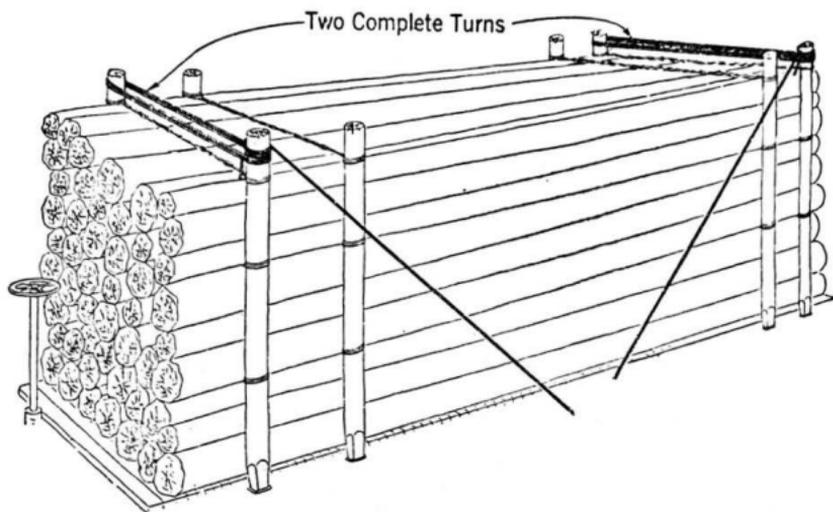
## 6. UNLOADING FLAT OR GONDOLA CARS BY MEANS OF A POLE DERRICK OR GIN POLE

6.01 This method may be used to advantage at an electrified siding paralleled by a charged third rail, and for unloading poles on gondola cars. At electrified sidings having

overhead power wires, have power cut off at siding before starting work.

6.02 Proceed as follows:

(1) If there are any stakes broken or if any appear to be of doubtful strength, place additional stakes on the side of the car on which the broken stakes are found. With only one man working on top of the load, place temporary 1-inch rope cross ties between each pair of end stakes as shown below, making two complete turns around the stakes, pulling the rope tight and holding tension in the ropes until after the top tie wires are cut and the man is off the load.



(2) Cut the top wires between each pair of stakes.

(3) After the man is off the load, release the rope ties cautiously so as to prevent a sudden load on the stakes. A sudden load is much more likely to break the stakes than a steadily applied load. Snap the lines over the stakes, working from the ground and away from the car.

(4) Lift off the poles one at a time by means of the derrick line, exercising care to avoid hitting the stakes as the pole is raised. The head of the derrick should be approximately in the plane of the stakes. Attach the derrick line as close to the balance point of the pole as practicable, so as to facilitate handling. Do not allow the end of the pole to swing out over the main track and interfere with a passing train. No more than two men are required on the load during this operation

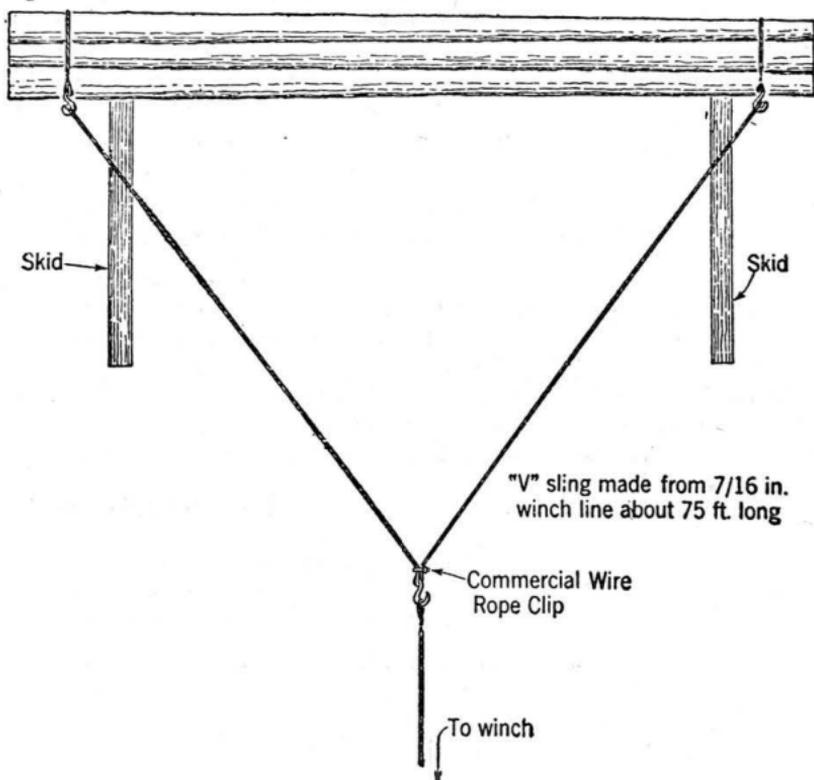
## 7. CLEARING POLES FROM CARS AND PILING POLES

7.01 The clearing of poles from the car and placing them in the storage pile will be greatly facilitated if two lines of skids are placed on the ground between the car and the storage pile. The poles can be rolled or dragged along the skids by means of a winch line much more easily and with less injury to the poles than they can be moved over bare ground or by hand tools.

7.02 Care should continue to be exercised in clearing the car and piling the poles, in order to avoid personal injury.

7.03 The following precautions will do much to prevent accidents:

- (a) Do not climb on top of the poles. Work from the ends of the poles, in so far as practicable.
- (b) Use the winch line for doing the heavy work, particularly pulling the poles off car.
- (c) In connection with the sliding of a considerable number of poles along the skids, it will frequently be advantageous to make use of a "V" sling, such as is shown in the following sketch. The "V" sling should be attached to the poles by men working at the ends of the poles. The winch line should be attached to the sling at its center point.



If a "V" sling is not readily available, attach the winch line at approximately the center of a pole. A loop of rope around the light end of the pole will be useful in keeping the pole guided properly on the skids.

(d) When engaged in rolling poles by means of cant hooks or peavies, look out for the man at the other end of the pole, so as to avoid personal injury.

## 8. STORING POLES

8.01 Poles that are to be stored for more than two weeks shall be stacked on creosoted timber, iron rails, or equivalent material, so that they will be at least one foot above the surface of the ground. The storage skids should ordinarily be spaced about 15 feet apart. Remove decayed and decaying wood from beneath and around poles that are to be stored for more than two weeks.

8.02 The location of the storage yard should be selected with due consideration of the following points:

- (a) Accessibility to trucks.
- (b) Convenience of handling poles.
- (c) Freedom from fire hazard.
- (d) Drainage conditions.

8.03 Where considerable quantities of poles are to be stored, it is usually advantageous to have the poles separated into piles according to lengths, and in some cases according to classes, also.

8.04 In stacking poles, care should be exercised to have the poles stacked regularly, that is, without any poles crossing over others and locking them in.

8.05 The end poles of the pile shall be prevented from rolling by means of blocks spiked to the skids or stakes driven into the ground.

8.06 Where piles are more than one pole high, each layer shall be carefully nested on the layers beneath. Butts of poles should be reversed on alternate layers when the pile will be four or more layers high.