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.4S241 Conveying to pile*

FOREST PRODUCTS LABORATORY † FOREST SERVICE
U. S. DEPARTMENT OF AGRICULTURE

SMALL SAWMILL IMPROVEMENT

PRACTICAL POINTERS TO FIELD AGENCIES

METHODS OF LOADING LUMBER AT THE REAR OF THE MILL

Several methods which permit more orderly handling of lumber at the rear of the small sawmill warrant more general adoption. Depending upon production volume, one or another of these methods appears well suited to various types of small mills. These methods are in addition to the one described in a previous report of this series (See .4S2221*) which has proved effective where neighboring and small yards do not require extensive track way.

Lumber Prop.—Mills built directly on the ground can use the lumber prop method, which permits grouping of items by species, thickness, width, length, or grade at the mill instead of at the pile. A series of rolls carries the lumber out the rear of the mill, and one man piles it, by required items, on special props (fig. 1). Spacing between props should be adequate to permit backing the wagon truck or bumper under the load; the prop is just high enough so that the vehicle's bunk contacts the load about an inch ahead of the prop, the prop itself being placed about one-third the length of the load from the front end. About 500 board feet make a load.

The bumper or other two-wheeled vehicle is backed under the load so as to engage it just ahead of prop. The load is chained to the bunk and, with the driver standing on the front end to minimize drag, the bumper is started, causing the prop to fall forward. The back of the load drags on the ground. One man driving a single horse can usually move production from mill to pile where the yard is within a quarter-mile of the mill.

Rolls.—For mills built off the ground, a simple yet effective method to handle loads up to 1M board feet utilizes an inclined platform and rollers (fig. 2). The platform's incline from mill to truck is 1-1/2 inches in 10 feet, with the rear about 2 inches above the truck bed. Three wood rollers, each 6 inches in diameter and 7 feet long, are blocked on the skids 5 feet apart. If separations are required, the platform is extended to carry several loads at a time. To transfer the load to the truck, the vehicle is placed opposite the load so that the longest boards will clear the platform when the lumber has been shifted to the truck. A 4" x 8" x 7' timber is placed on the truck bed about a foot from its rear, with the 8-inch face on the truckbed. A 6-inch roller is placed just ahead on the truck bed, the blocks are taken from under the rollers supporting the load, and usually gravity moves the load on the truck. As it engages the roller on the truck, and before the rear of the load drops off the platform, the 4" x 8" timber is turned with the 4-inch face against the truck bed to minimize the shock of the drop.

Loading Scaffolds.—Variations of devices to support loads clear of the ground, so that a vehicle can be backed under and the load picked up as a unit (figs. 3 and 4) are suited to mills built off the ground. (One very like that of figure 3 but for lighter loads has been previously described in .4S222*.)

The type shown in figure 3 is used for loads of about 1M board feet moved by a truck or wagon relatively short distances to the yard. No grouping is usually made at the mill, other than some sorting of like items within the load. Usually two

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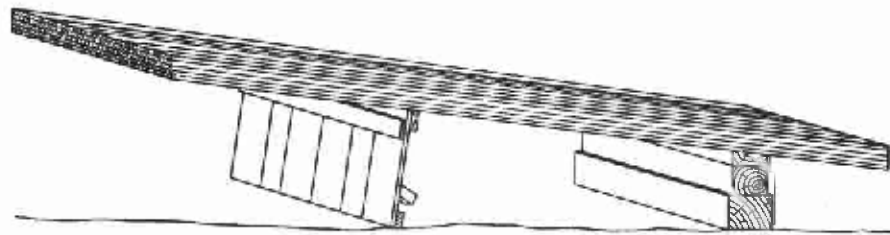
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men transport and pile the production directly from the vehicle. Supports (a) are hinged. The ground line of the road bed is so inclined that, in backing between supports (a), the rear end of the truck bed, or, if bunks are used, the rear bunk, engages the load of lumber just ahead of support (b). As the truck continues to back, the load is lifted clear of support (b), and supports (a) fall back, pivoting on the hinges. If a truck bed is used, cross members must be placed so as to support the load more than 6 inches off the bed, to allow (c) to be taken from under the load. The distance between supports (a) and (b) will depend upon the truck bed length or distance between bunks; the extension of lumber beyond the support (c) is regulated to clear the cab. The width of the pile is that readily taken on the truck.

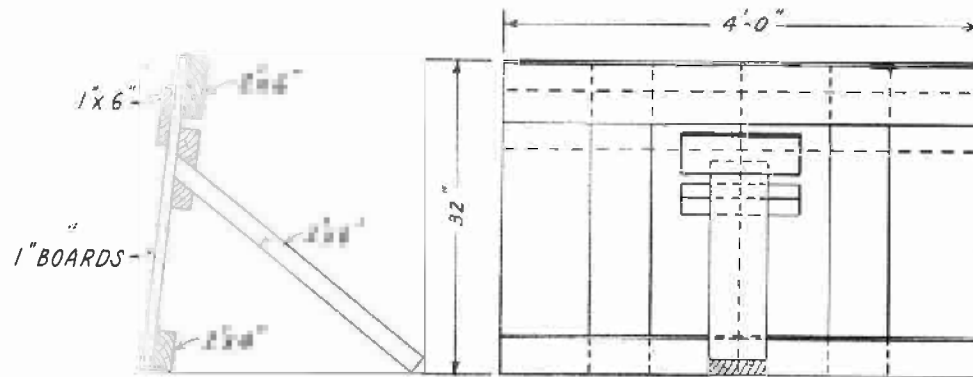
The type shown in figure 4 is used for truck-trailer loads of 4M board feet and relatively long hauls. The load is supported to just clear the bolsters as the trailer and truck are backed under. The driveway is planked under the load, and enough incline given to engage the trailer bunk with the load at the moment the bunk of the truck is behind the support (a). The jack is placed on support (b) and one end of support (a) is lifted, the blocks removed, and the end of the support lowered until it rests on the post. The jack is taken to the other end of support (a), and the process repeated until the support can be removed. The load is chained to the vehicle and is then ready to move. The specifications in figure 4 are for bunks 8 feet wide, dual drive, and dual wheel trailers.

Sliding Skids.--The specifications shown in figure 5A are for truck-trailer loads of 4M board feet and relatively long hauls. The lumber is piled across skids (a) to a load width suited to the bunks of the carrier as indicated by angle iron guides (b). To move the load, a cable from a hand winch anchored bunk high across the truck road is connected to the chains (c) and, when operated, pulls the loaded skids over the rolls. Loading and unloading are facilitated if truck and trailer bunks are provided with 4-inch channel iron bolsters with rollers inset to clear the bolster by about 1/2 inch (see fig. 5B). The truck is placed so that the skids will be ahead of the bolsters rather than opposite, the skids being removed when the load is placed on the bolsters. If a truck with a solid bed is used, the skids are pulled directly on the truck bed and remain under the load. By lengthening the skidway, several loads can be stored against irregularities of truck schedules. The truck driver or helper operates the hand winch. At the delivery point, unloading consists in placing a heavy chain around the load and pulling it laterally on the skids by a power device, or by lifting the load with an overhead crane.

Trucks and Rails.--Another method suited to heavy loads requires two firmly fixed sections of railroad rails, each of a length equal to the over-all load width (7 feet) across the truck frame (fig. 6A). One rail is about 30 inches back of the rear axle of the truck and the other about 7 feet ahead of this rail. Kiln trucks with a welded extension (fig. 6B) can be placed on rails at the back of the mill, spaced exactly as the rails on the truck. The motor truck is spotted so that its rails are an extension of those from the mill, with not over a 3-inch gap. A jack is used under each end of the rail nearest the cab to bring to and hold the truck rails at the same level as those of the mill. A winch and cable are used to pull the load on the truck. At the unloading point, rails are provided with the proper spacing to permit running the kiln trucks with the lumber off the hauling truck, using jacks and winch as outlined.



PROP IN PLACE



SIDE VIEW OF PROP

END VIEW OF PROP

FIG. 1
LUMBER PROP METHOD

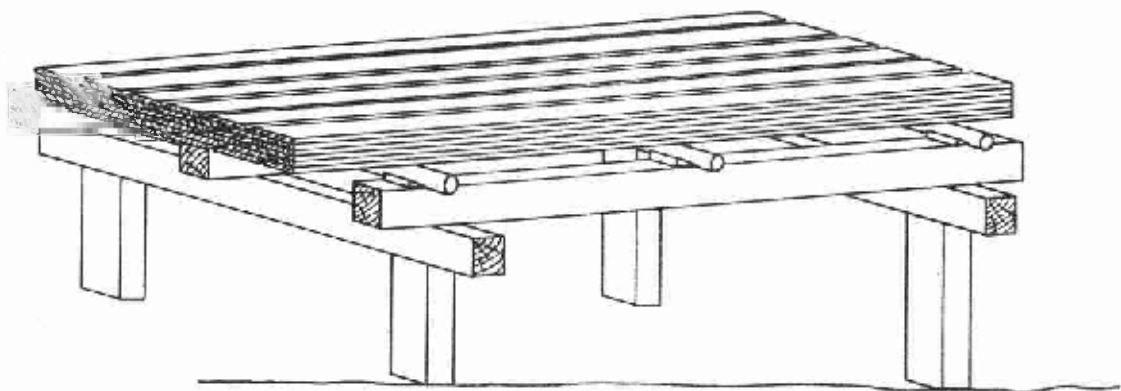
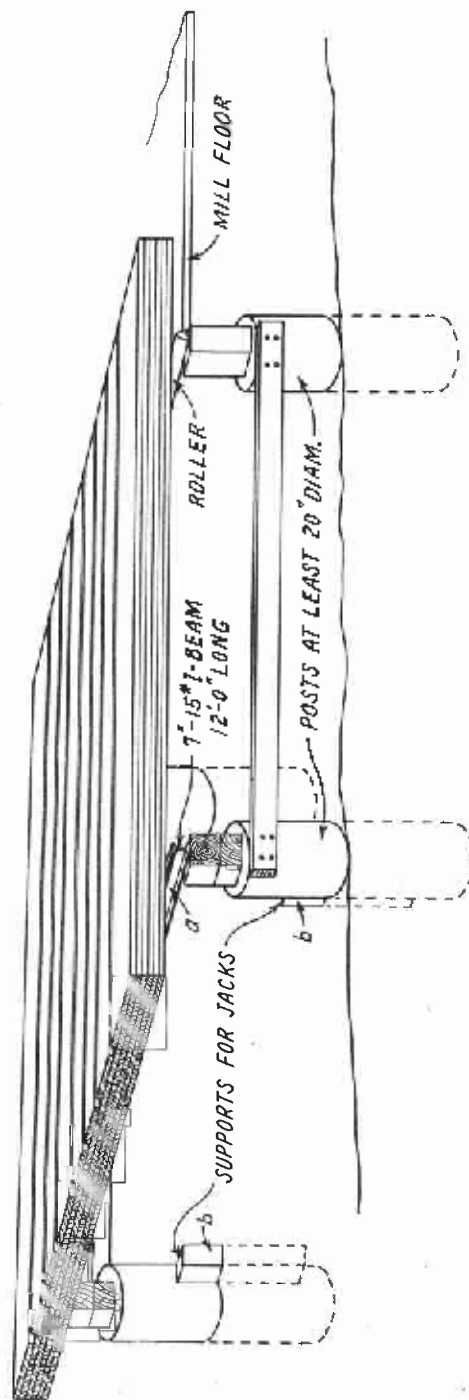
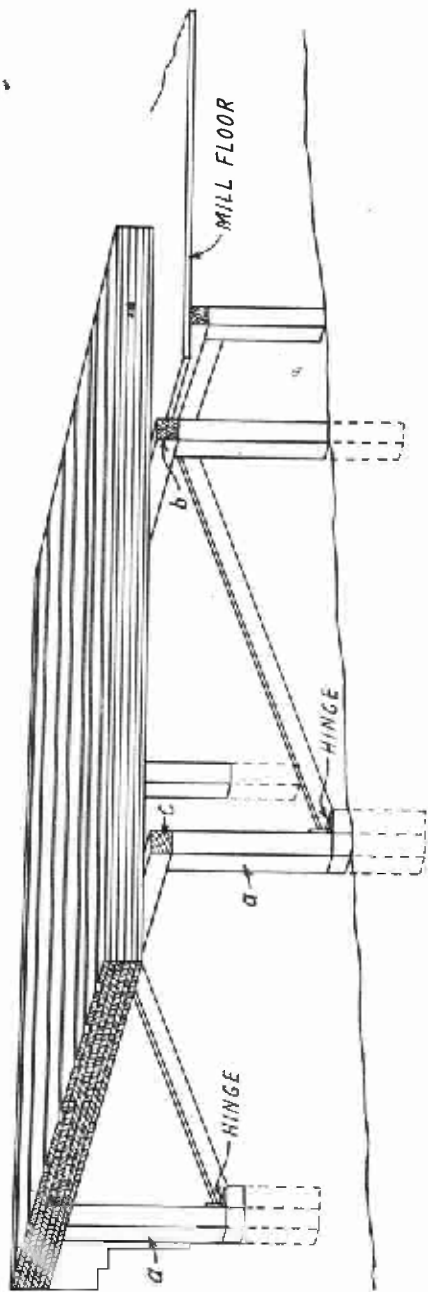


FIG. 2
INCLINED PLATFORM AND ROLLERS



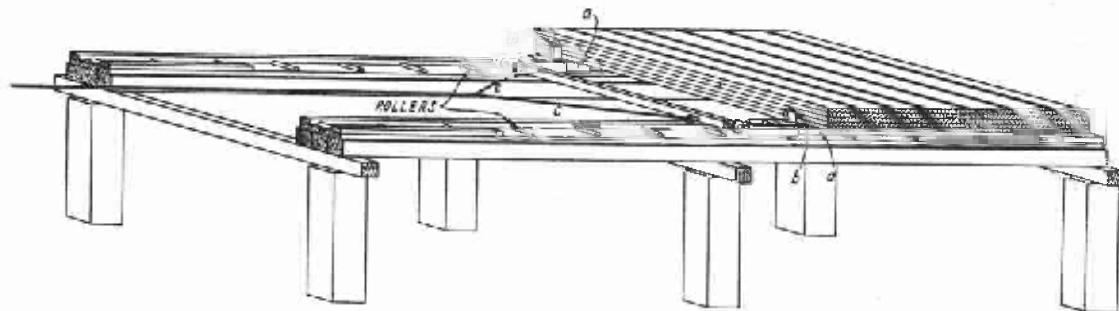


FIG. 5A
SLIDING SKIDS

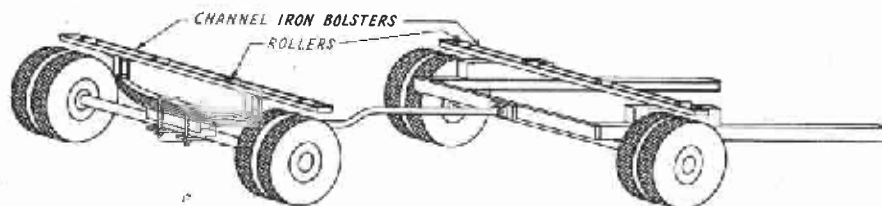


FIG. 5B
TRUCK TRAILER

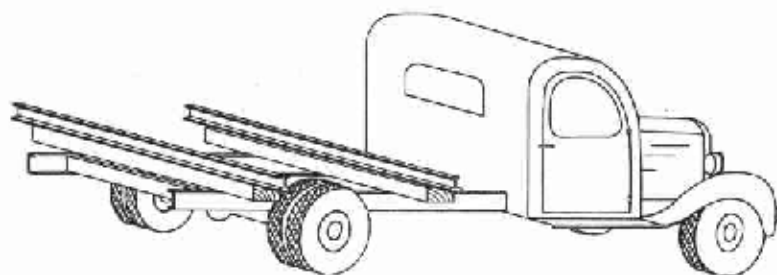
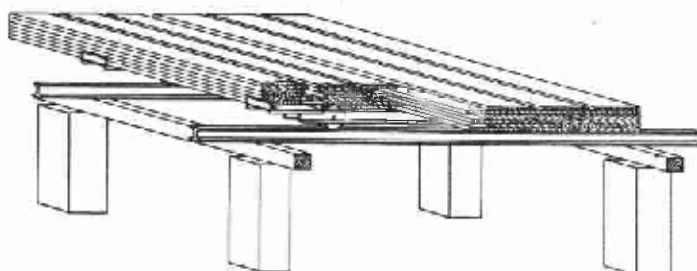


FIG. 6A
RAIL TRUCK



SKIDS IN PLACE

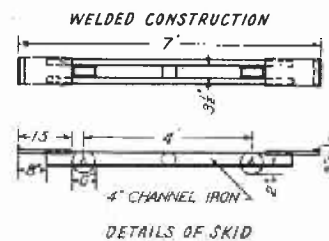


FIG. 6B
RAIL SKIDS