Two types of booms are widely used on self-loading trucks in the Lake States. One is the fixed boom, and the other is the gravity-swinging boom. Both types of loaders use a winch driven by the truck motor through a power take-off.

**Fixed Boom**

Booms and supporting frames are fabricated from either steel or wood. When wood is used, it is a high-density species, such as oak, ash, or elm. Figure 1 shows a fixed-boom loading device installed on a truck, but does not show the power take-off mechanism. Two 4-inch by 5-inch uprights are extend 10 feet above the truck frame immediately behind the cab. A 4-inch by 6-inch cross member is fixed between the uprights approximately 6 feet 8 inches above the frame. A 4-inch by 4-inch boom, long enough to extend approximately half the truck bed length, is clevis-clamped to the midpoint of the cross member. The union of the cross member and uprights is reinforced with angle iron. The bases of the uprights are clamped to the top of the truck frame and likewise are reinforced by angle iron and by a 2-inch by 4-inch brace, one end of which is fastened about 2 feet above the base of the upright and the other to the truck frame about 2 feet behind the uprights. Three-fourths-inch cable bracing is placed as follows: from the outer end of the boom, back to each upright at the juncture of the cross member, from each end of the cross member diagonally to the bottom of the opposite upright, and from the outer end of the boom over the top of each upright, over the cab and hood to the car frame under the radiator. The power cable is threaded through sheaves at the base and at the end of the boom.

**Swinging Boom**

In this installation, the boom may pivot from the boom frame at one definite point, usually half across the truck (details not shown), or may pivot from any of several points across the truck (fig. 2), permitting both a greater reach laterally and a more positive pull when the boom is in a lateral position. This arrangement permits easy swinging of the load to or away from the truck. In order to take advantage of gravity, the truck wheel next to the logs is run up onto a block or pole. The bed...
of the truck and boom support then slope away from the log deck. When the logs are raised above the truck bed, they swing across to the opposite side. The amount of swing is controlled by chains e and h, figure 2, C.

Unloading is accomplished by raising the wheel opposite the pond or log deck. The boom then swings from the truck to the log deck. Either loading tongs or crotch line are used according to the operator's preference and size of timber.

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by C. J. Telford, Small-Mill Specialist)
LEGEND FOR FIGURE 2

a - Tie rod 3/4 inch by 7-1/2 feet welded to the top of boom d and pipe b.
b - 3-1/2-inch standard pipe extending 1 foot above cross fitting.
c - Chain. U-bolt connection limits arc of travel of boom.
d - Boom, 3-1/2-inch standard pipe 8 feet long.
e - 3/8-inch preformed cable for hoist.
f - Iron bar 1/2 inch by 4 inches by 3 feet 3 inches welded to uprights i-i and plates g-g. Top of bar is 4 inches below top of upright. Seven holes are drilled as shown for sheave hook.
g - 3/8-inch metal plate welded to upright i and to top member n.
h - Chain, limits arc of travel of boom.
i - Derrick, frame upright made of 3-1/2-inch standard pipe in two sections to allow demounting. Top of truck frame to top of ferrule j is 6 feet. Top of ferrule j to top of upright is 2 feet. Total height must not exceed state highway regulations.
j - Ferrule made of 4-inch standard pipe 1 foot long, welded to upper end of lower section of upright. (The top of j cannot exceed the height of the garage door where the truck is housed.)
k - 3/8-inch plate welded to frame upright and bolted to truck frame with three 3/4-inch bolts.
l - U-bolt support of housing in front of gear-shift box. The support is bolted to an angle-iron strap attached to the cross member of the truck frame.
m - Gear-shift box.
n - Steel plate 1/2 inch by 6 inches by 2 feet 10 inches welded to plates g and to cross braces, so that the angle between the uprights i-i and plate n is approximately 100°. Nine holes are spaced at approximately 4-inch intervals drilled to take the 1-1/4-inch stem zz.
o - Steel plate 1/2 inch by 2 inches welded to n and to g to reinforce n and provide additional bearing for zz.
p - Iron braces 1/2 inch by 1-3/4 inches welded to uprights.
q - Brake cable, 3/16-inch preformed, extending from brake lever through sheave attached to truck frame, thence over sheave near top of derrick frame with the free end extending as required to be within reach of loader.
r - Idler roll for hoist cable.
s - 2-inch by 2-inch angle-iron supports for power take-off equipment.
t - Metal plate supporting rear-axle housing.
u - 3-4-inch U-bolt supporting rear-axle housing.
v - Hubs and brake equipment of rear axle.
w - Lever arm for brake operation.
x - Drum for hoist cable. Core 5 inches in diameter by 6 inches long.
y - Cross for 4-inch pipe.
z - Steel plate welded to cross.
zz - Steel stem 1-1/4 inches in diameter passing through and welded to z and welded to the top of the cross y so as to center d at right angles to the long axis of d.

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Figure 2. -- Details of swinging-boom loading device mounted on truck frame: A, side elevation; B, end elevation; C, top elevation with cab removed; D, top view of details of attachment of power take-off and drum equipment to truck frame; E, end view of details of installed passenger-car rear axle and drum; F, side view of the details of frame upright and boom base.