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TRACTOR-MOUNTED MANURE LOADER

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Extension Circular 449

By Clyde Walker

March 1945

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Extension Circular 449

TRACTOR-MOUNTED MANURE LOADER  
FOR ROW CROP TRACTORS\*

By Clyde Walker, Extension Agricultural Engineer

The manure loader described herein is designed to mount on a row crop or tricycle-type farm tractor. It can be adapted easily to any make of tractor of the tricycle or cultivating type which has the front wheels close together.

The loader consists of four principal parts: (1) the scoop, (2) the push arms which support the scoop, (3) the hoist or guide frame which guides the push arms as the scoop is lifted, and also provides support for the hoisting cable and sheaves, and (4) the hoist, consisting of the winch mechanism and suitable cable and sheaves. Figure 1 shows all of these parts except the winch mechanism.

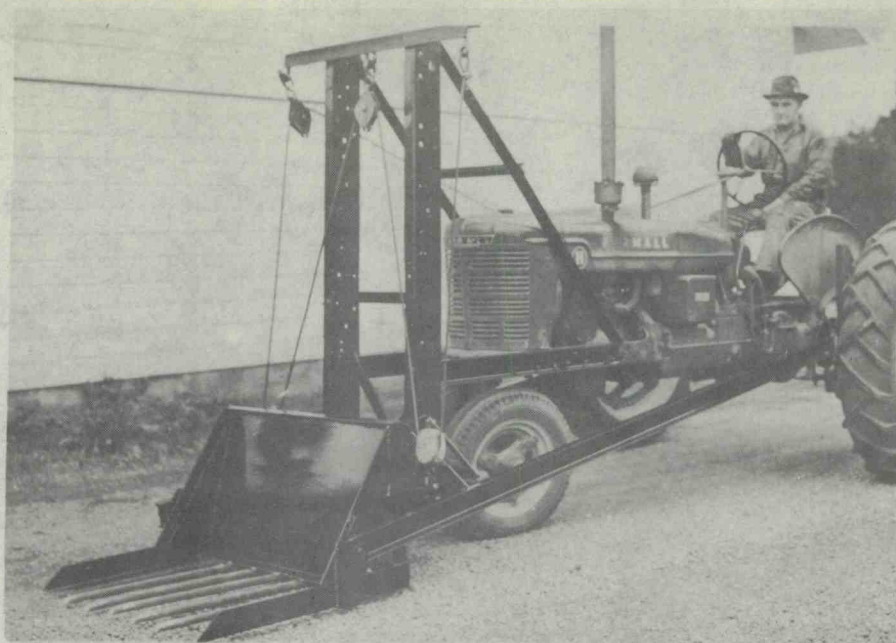


Figure 1. Manure loader mounted on tricycle-type tractor.

\* The loader described herein was built from plans developed by L. F. Larson and R. M. Loper, Extension Agricultural Engineers at the University of Nebraska.



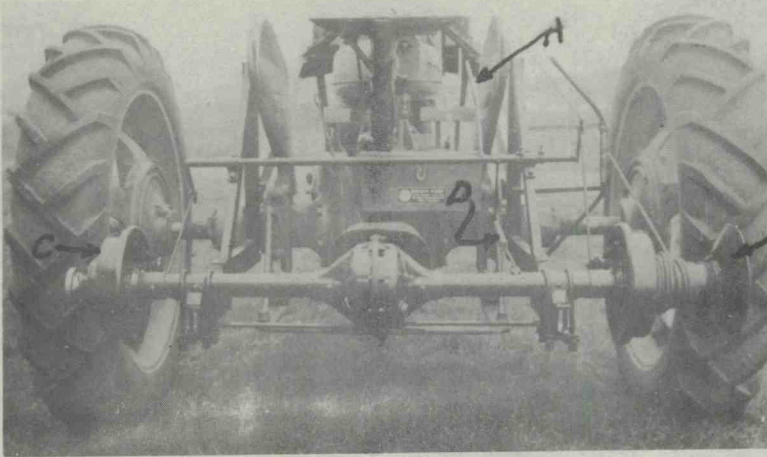


Figure 2. Hoist for manure loader.

The tractor is stopped, the power take-off placed in gear, and the winch control lever ("A" in Figure 2) pulled upward, releasing the brake on the winding drum ("B" in Figure 2) and tightening the brake on the opposite hub ("C" in Figure 2). This causes the winding drum to revolve, lifting the scoop. When the load is elevated to the desired height the winch control lever is released quickly, which allows the spring ("D" in Figure 2) to apply the brake on the winding drum, holding the

scoop in the raised position. Releasing the winch control lever releases the brake on the opposite hub at the same time, permitting the hub to turn freely and making it unnecessary to throw the power take-off out of gear.

The tractor is then backed away from the pile, the front wheels turned to swing the scoop around until it is above the manure spreader, which should be in position at one side of the tractor. The trip rope is pulled, releasing the catch (see drawing for details), and the scoop dumps the load.

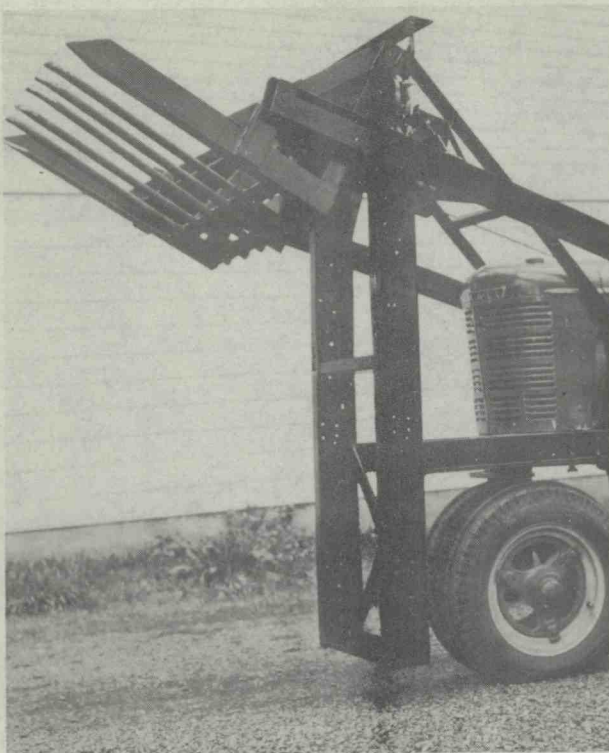


Figure 3. Scoop in raised position.



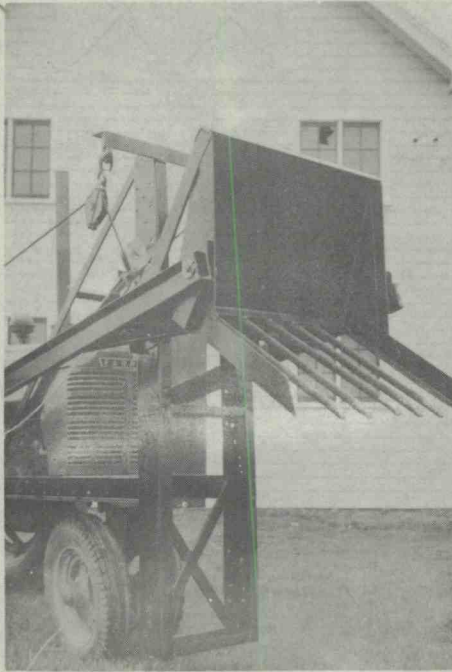


Figure 4. Scoop in dump position.

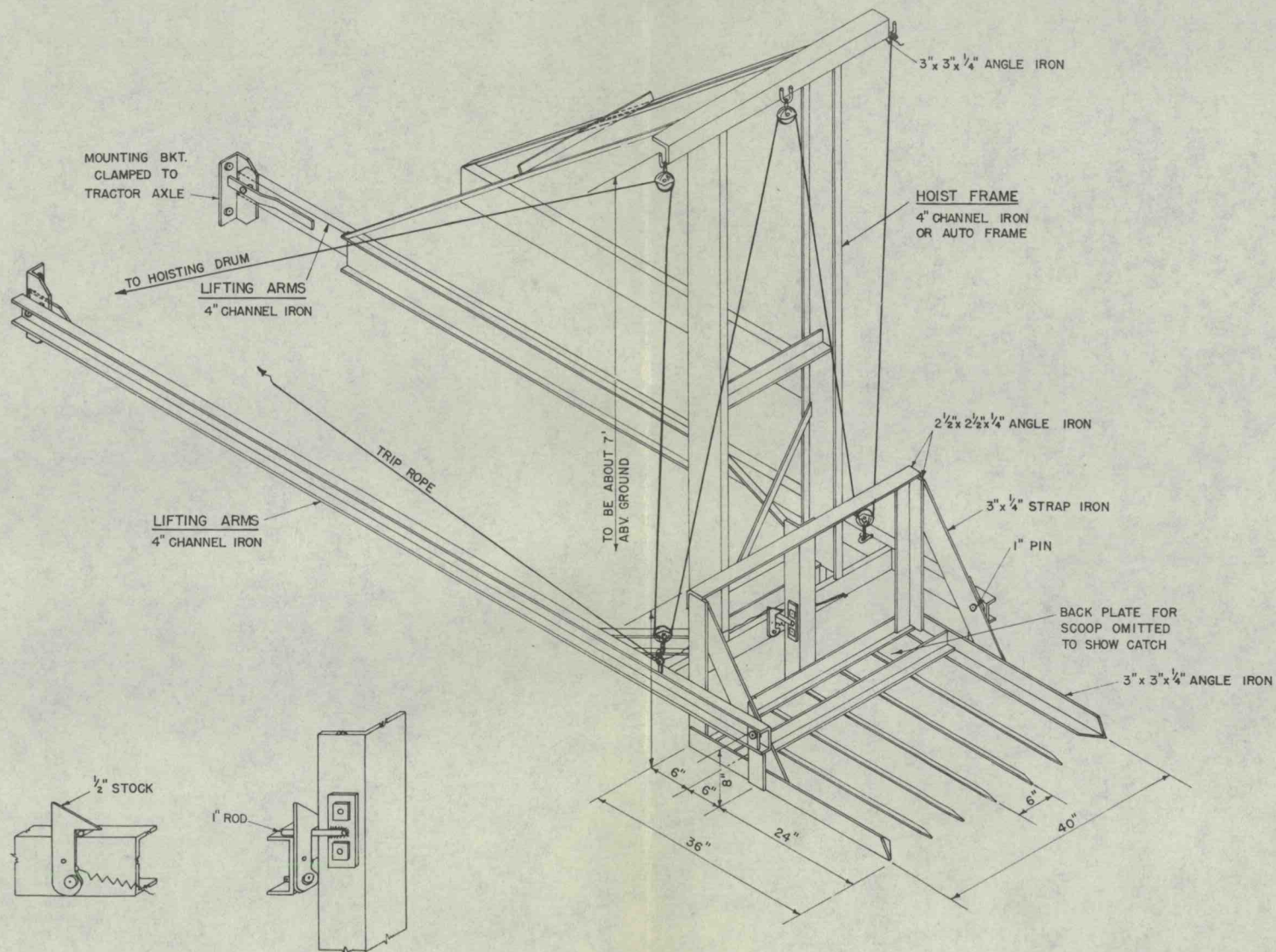
Note that the scoop is pivoted in such a way that most of the capacity of the scoop is ahead of the pivot points, causing the scoop to dump the load automatically when the catch is released. Also note that most of the weight of the scoop itself is behind the pivot points, causing it to return to the working position automatically after the load is dumped. The dimensions of the scoop and the location of the pivot points are important for satisfactory operation of the scoop. Varying the dimensions, other than the width of the scoop, may result in unsatisfactory operation.

After the scoop-load has been dumped, the tractor is turned away from the spreader toward the manure pile, and driven forward for another load. The scoop is lowered by holding the lever in a neutral position against the pull of the spring ("D" in Figure 2) releasing the brake on the winding drum ("B" in Figure 2), but not pulling the lever far enough to tighten the brake on the opposite or free-turning hub ("C" in Figure 2).

A manure loader of this type lends itself to homemade construction, as old auto frames, drive shafts, rear axles, and other scrap iron can be used in building it. Dimensions of the push arms, guide frame, etc., will have to be varied according to the make and model of tractor used with the loader, but such changes can be made without affecting the general design.

A copy of Agricultural Engineering Department Plan 8.52 is shown on the next sheet. A 17" x 22" blueprint of this plan may be obtained from the department at Oregon State College, Corvallis, Oregon, for a nominal fee.





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## MANURE LOADER

PLAN NO. 8.52

1/45

SHEET NO. 1
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REVISÉ:

	G. WALKER P. LAYNE
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