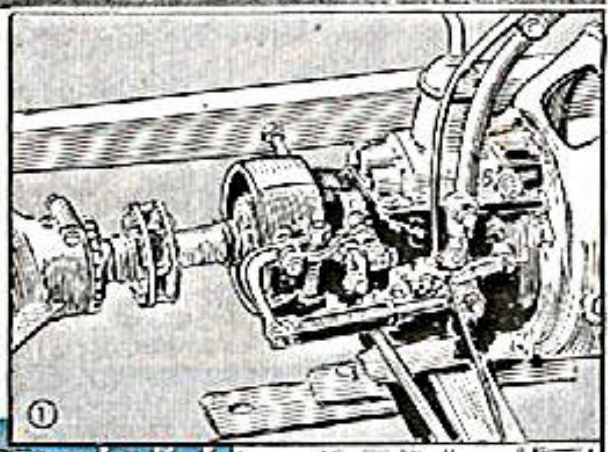
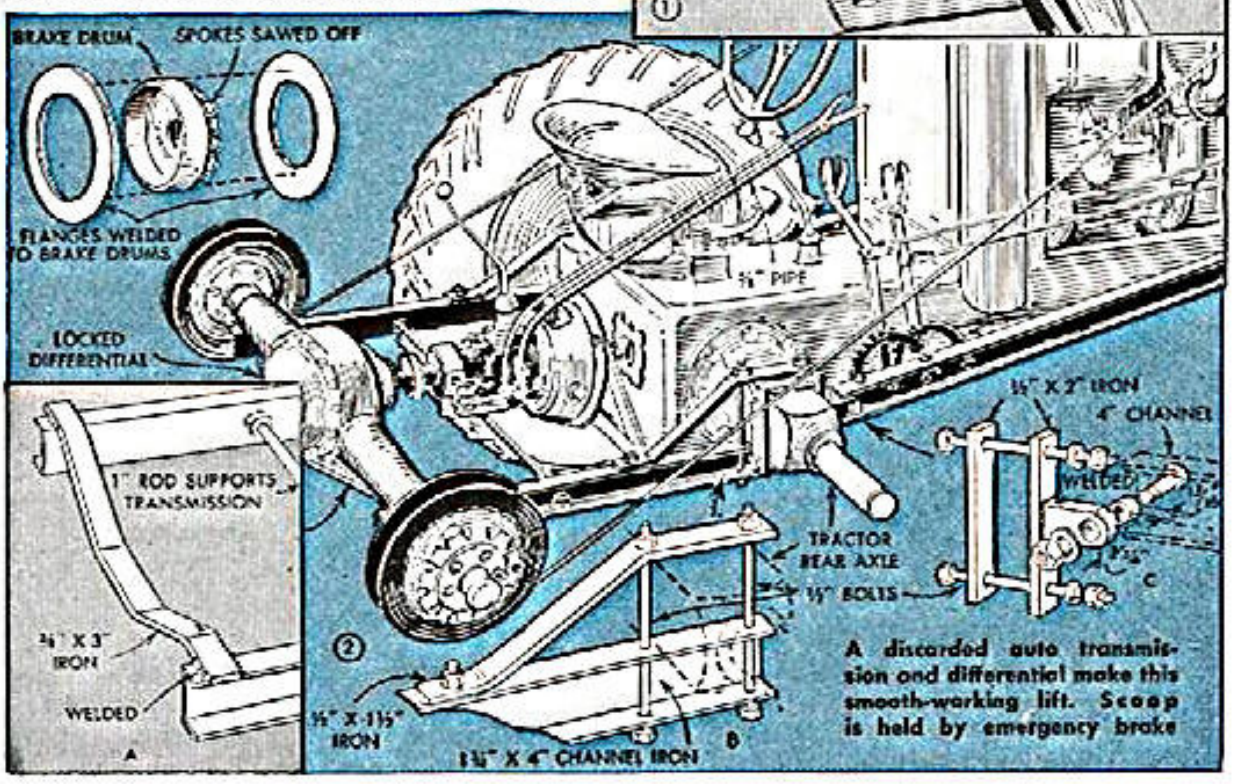
TRACTOR SCOOPS

built from scrap materials

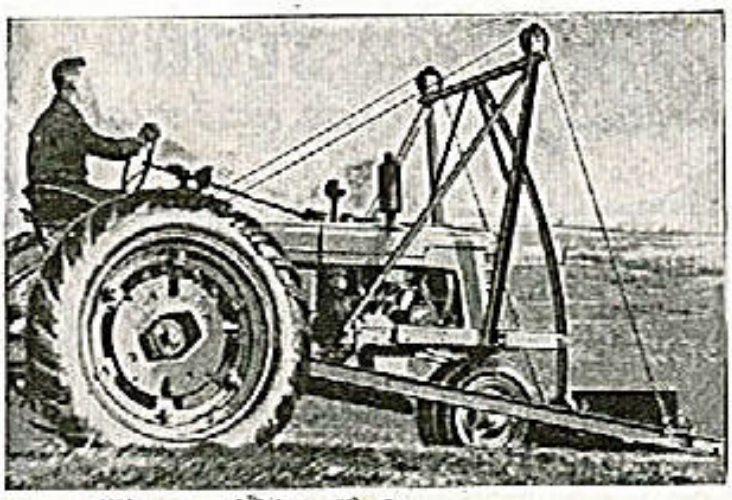
Photos and certain detail drawings courtesy State College of Washington

WITH a few salvaged auto parts, several lengths of 3 and 4-in. channel irons, angles and other odds and ends you can build an efficient tractor scoop that will increase the working capacity of one man a hundredfold. In Fig. 1 is pictured a lifting mechanism made from an auto transmission and rear axle, while Fig. 2 details the lifting assembly mounted on the rear axle of the tractor. The auto differential is locked with a weld, or by other means, and



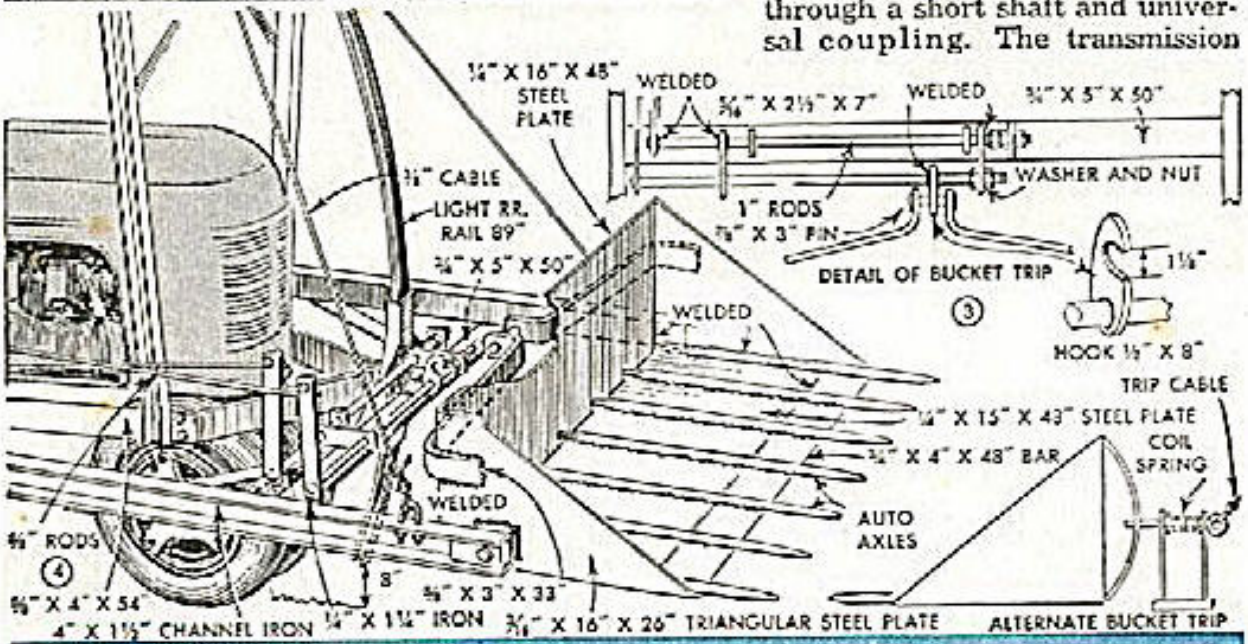


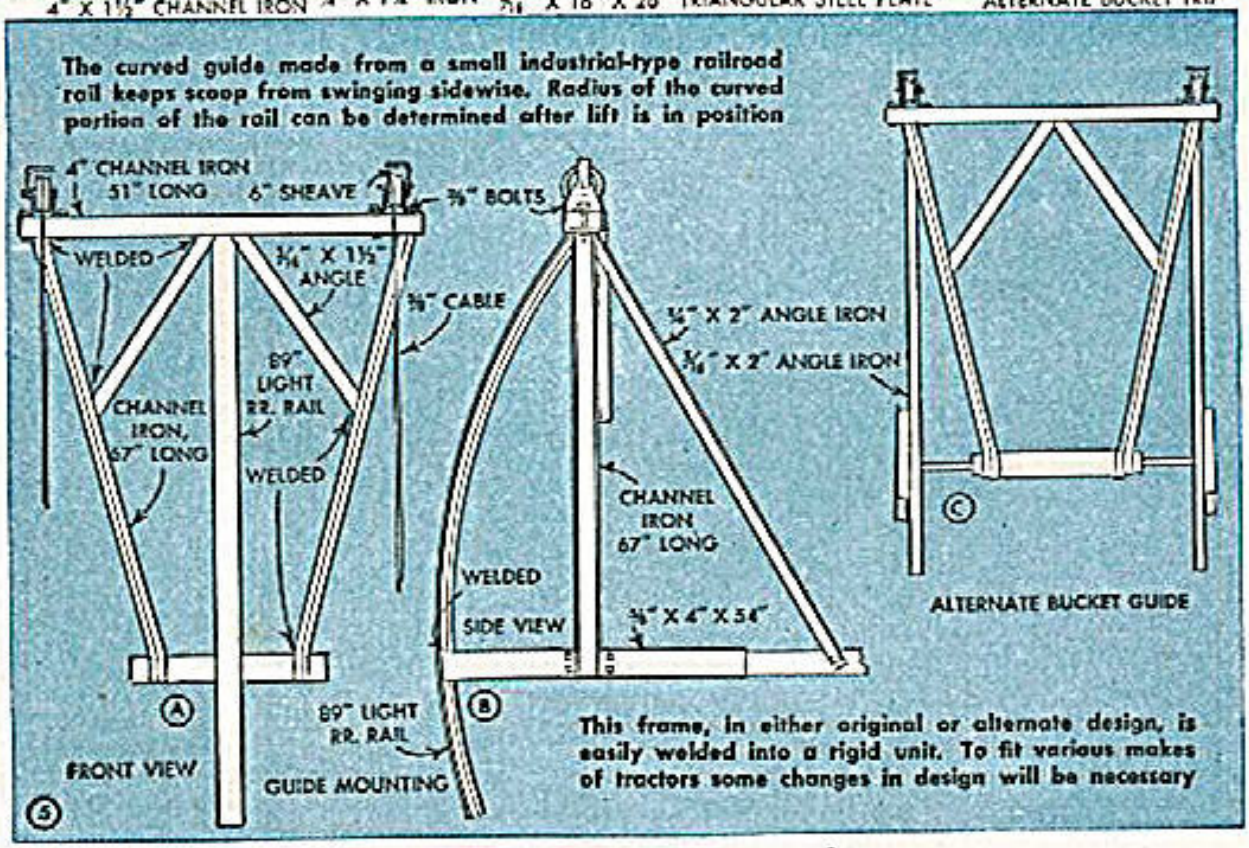
A discarded auto transmission and differential make this smooth-working lift. Scoop is held by emergency brake



mounted on a frame, details A and B of Fig. 2; then bolted to the tractor-axle housing as in details B and C of Fig. 2. After the wheels have been removed from the auto axle, weld flanges on the brake drums to serve as winding drums for the lifting cables. Then the axle is bolted to the extending channels through the spring pads, or welded if the pads won't serve this purpose.

After the transmission has been mounted on the frame as shown, it is connected to the tractor power take-off and to the auto rear axle through a short shaft and universal coupling. The transmission

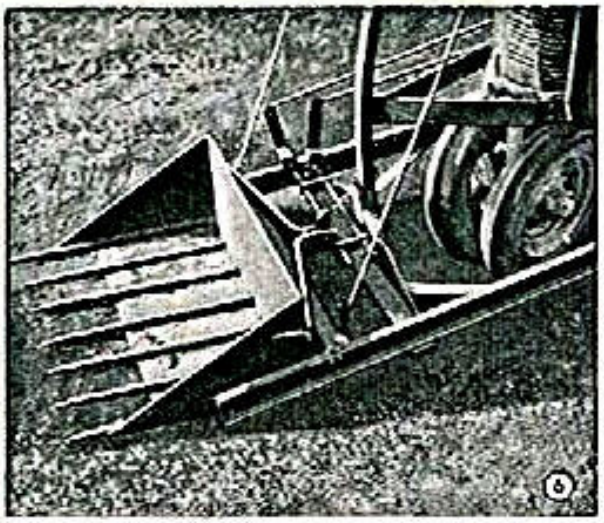


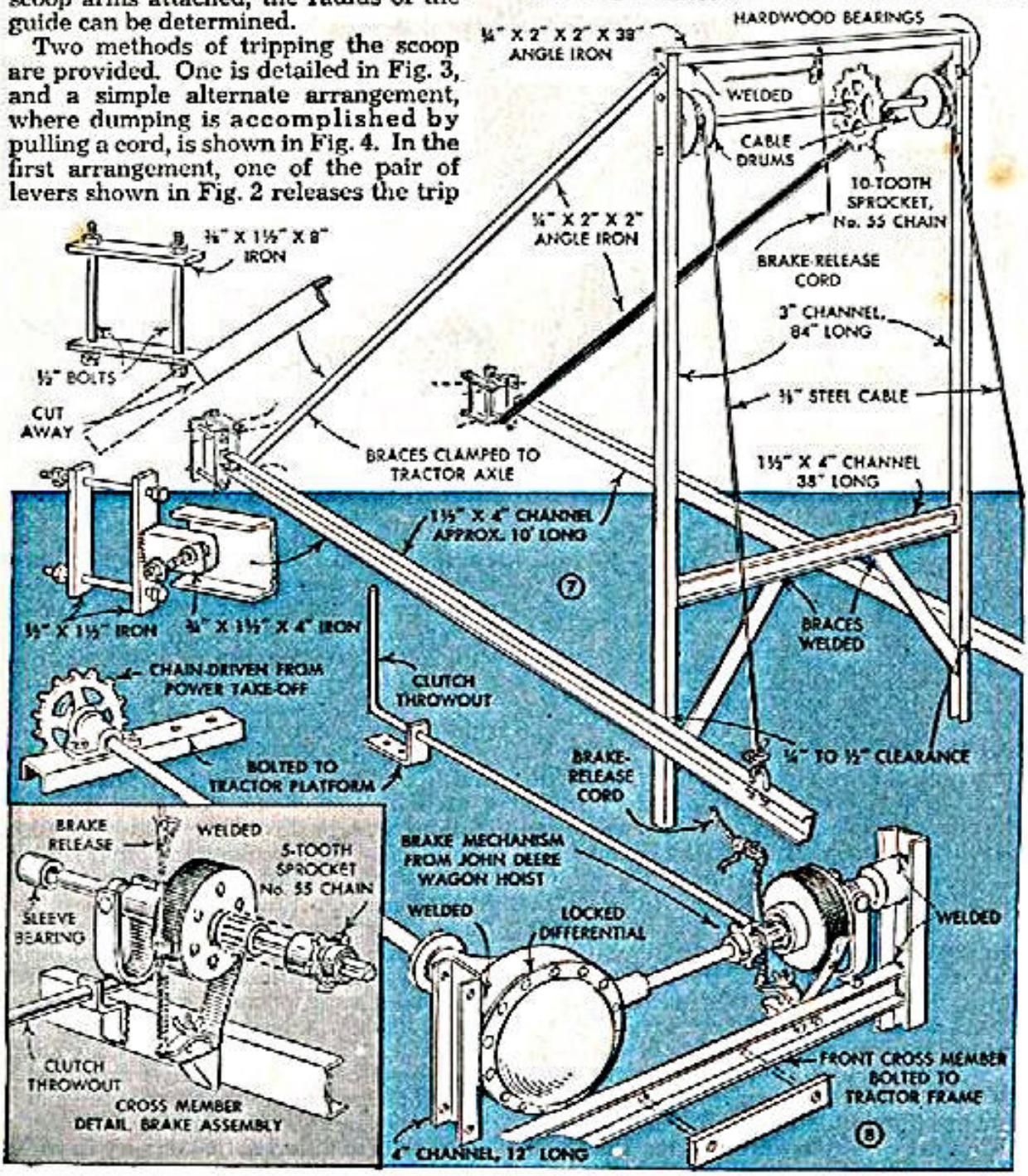


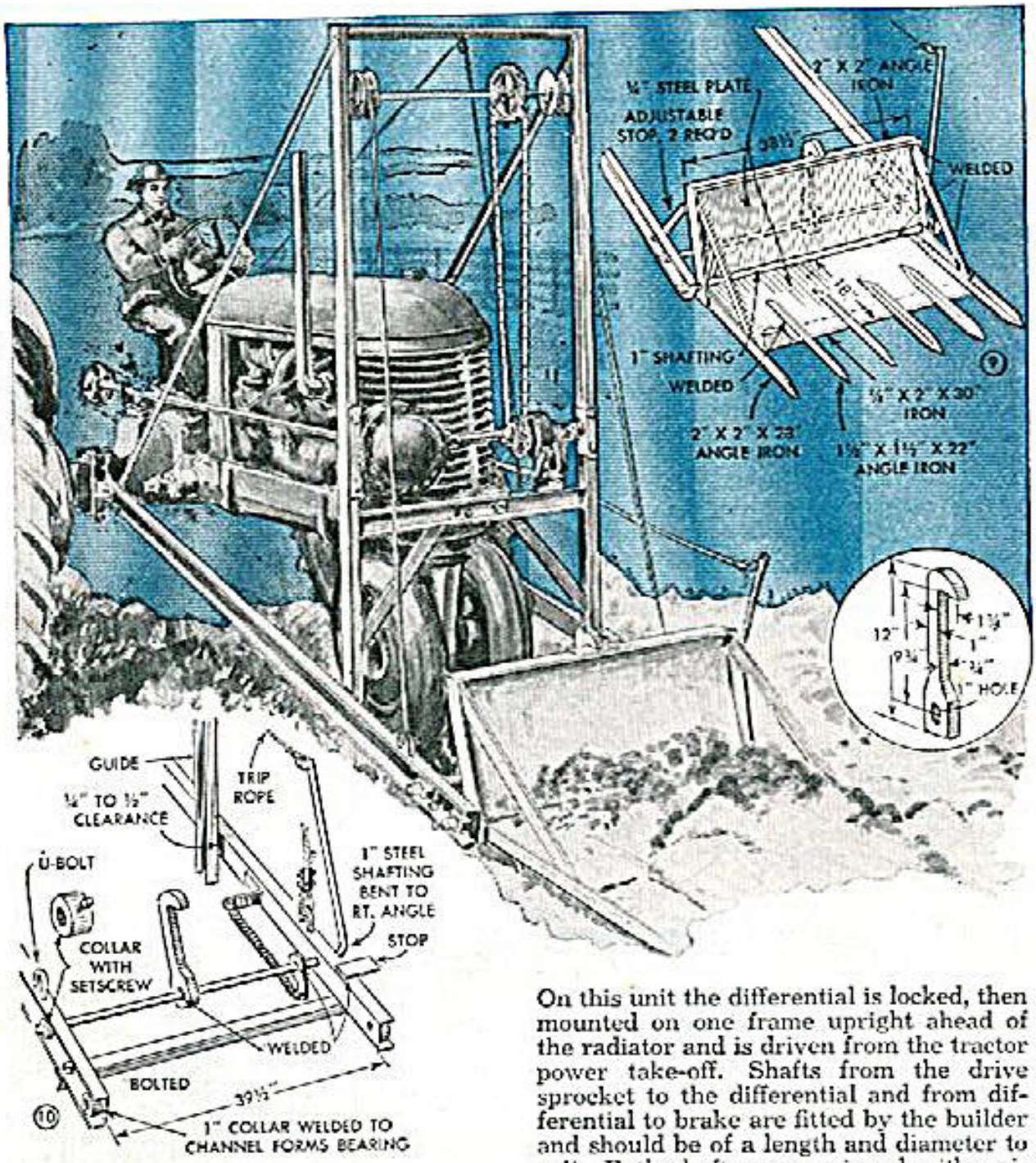
must be of the type having an emergency brake at the rear of the housing. To make the brake lever easily accessible, lengths of pipe are welded to the lever and control rod and then bent forward toward the driver's seat. Applying the brake holds the scoop in the raised position.

Further details of the scoop, latch and lifting frame assembly that is mounted on the front of the tractor are found in Figs. 3, 4 and 5. The curved guide, Figs. 4 and 5, A and B, can be made from the industrial-type railroad rail specified or from a length of T-shaped steel wide enough across the flat side for a short "shoe" of 3 or 4-in. channel steel to ride on it smoothly. After the front frame is in place with the scoop arms attached, the radius of the guide can be determined.

Two methods of tripping the scoop are provided. One is detailed in Fig. 3, and a simple alternate arrangement, where dumping is accomplished by pulling a cord, is shown in Fig. 4. In the first arrangement, one of the pair of levers shown in Fig. 2 releases the trip







and the other levels the scoop. An alternate type of lifting frame is shown in detail C of Fig. 5 where side uprights, instead of the curved rail, serve as guides for the arms that lift the scoop. In Fig. 6 the finished assembly is pictured ready for work.

Differing from the scoop just described, Figs. 7 and 8 present a type that has a lift employing an auto differential with the axle shafts removed and the housings cut away. Here the bucket is held in the raised position and released for lowering by means of a wagon-hoist brake driven by a jaw clutch, as in Fig. 8 and the detail at the left. The clutch and brake are stock parts and are purchased as a unit. However, the U-shaped throwout and the long shaft and throwout lever are made to fit, see Fig. 8. On this unit the differential is locked, then mounted on one frame upright ahead of the radiator and is driven from the tractor power take-off. Shafts from the drive sprocket to the differential and from differential to brake are fitted by the builder and should be of a length and diameter to suit. Both shafts are equipped with universals at one end to compensate for any misalignment of the frame which would cause the shafts to bind. Shafting ⅞ or 1¼ in. in diameter is amply heavy for this drive, and stock sprockets and other slip-on parts usually fit one or the other of these dimensions. On this type scoop, there are two winding drums and a 10-tooth sprocket on the upper shaft, which rotates in bearings made from blocks of hardwood provided with some means of lubrication. Figs. 9 and 10 show the scoop construction and the bucket release assembly. Of course, scoops can be made in many forms to suit special purposes and by either of the methods shown in Figs. 4 and 9.

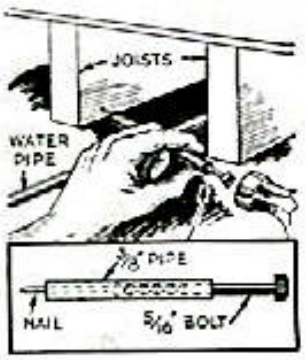
Tractors of different makes vary in width of frame, type of frame, wheelbase, height

and wheel diameters. Because of these variations, only a few general dimensions can be given on the frame parts of the scoops. Nearly all parts of either one must be made to suit the tractor on which the unit is mounted. As a general practice, it is usually better to mount the front frame first, before cutting any other materials. With this part of the lift in position, it's an easy matter to determine the dimensions of other parts by direct measurement. In some instances, due to the design of the tractor frame, it will be necessary to fit braces and supports in a manner different from that indicated in the details. Also, it is possible to substitute hardwood for many of the frame parts. As an example, the lifting arms and the frame uprights can be of 4 by 4-in. oak or maple. However, a frame built of welded steel channels and angles gives longer and more satisfactory service due to its greater strength, rigidity and ease of assembly.

Hook Locks Grain-Blower Piping

Grain-blower pipe can be assembled easily and locked securely with the hook arrangement shown here. Hooks for this purpose can be obtained from a car or tractor. Using the fittings which held the hook to the hood, fasten the base to the large end of the pipe. A short length of pipe, brazed to the other end of each section, receives the tip of the hook.

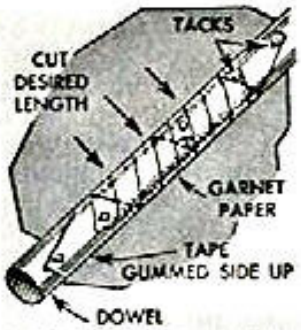
Driver to Set Nails in Places Difficult to Reach



If a 5/16-in. bolt is slipped inside a piece of ⅜-in. pipe or tubing, you will have a handy tool for driving nails in hard-to-reach places where a hammer cannot be used conveniently. To use the tool, pull back the bolt so that the head end of a nail can be inserted into the pipe for a distance equal to about two thirds of its length. Then hold the nail in place with the tool and drive the nail as indicated.

Sanding Sleeves Are Easy to Make

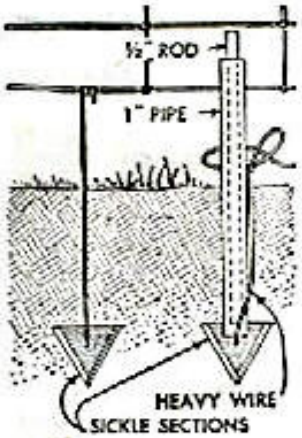
If you are unable to obtain abrasive sleeves for small sanding drums, you can make them easily as shown. First, obtain a roll of gummed canvas tape of the type sold by paint stores for covering plaster cracks before painting or papering. Wrap this spirally, gummed side out, on a dowel of the same diameter as the sanding drum and tack the ends. Then cut the abrasive paper or cloth into strips about ½ in. wide, moisten the gummed surface of the tape and wrap the abrasive spirally over the tacky surface, wrapping it in the direction opposite to that of the tape. Tack the ends until the adhesive hardens, after which remove all of the tacks, cut through both the paper and tape with an old knife and slip off the sleeves thus formed.



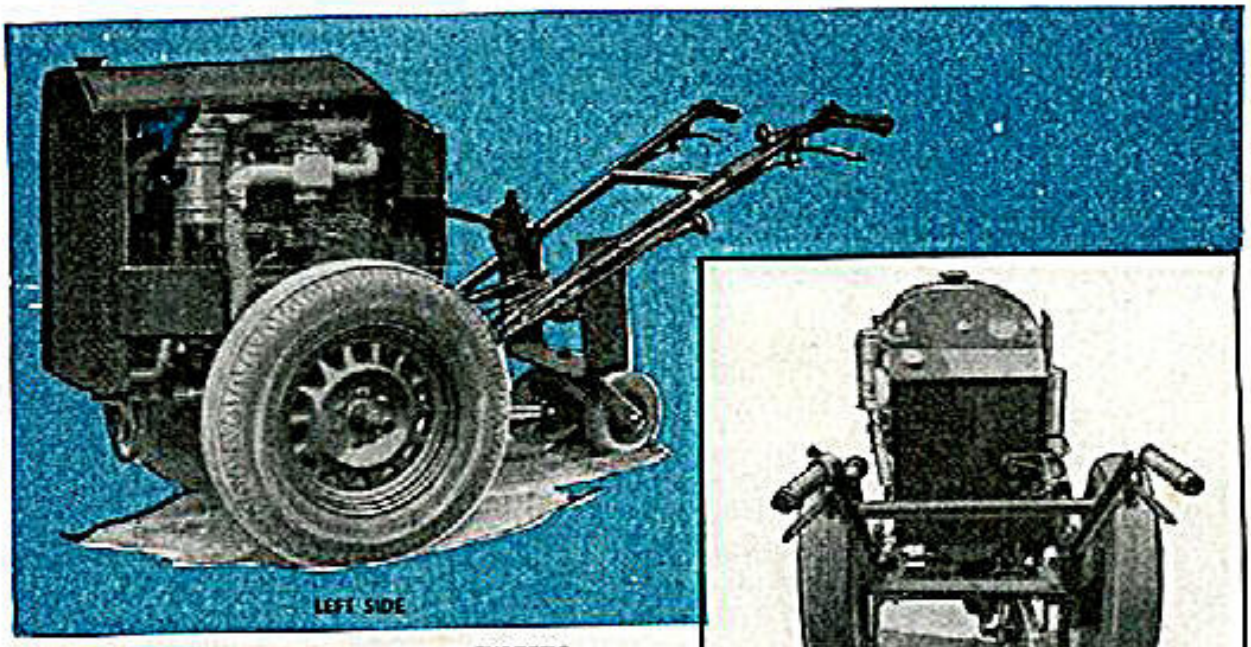
Protecting Idle Farm Implements

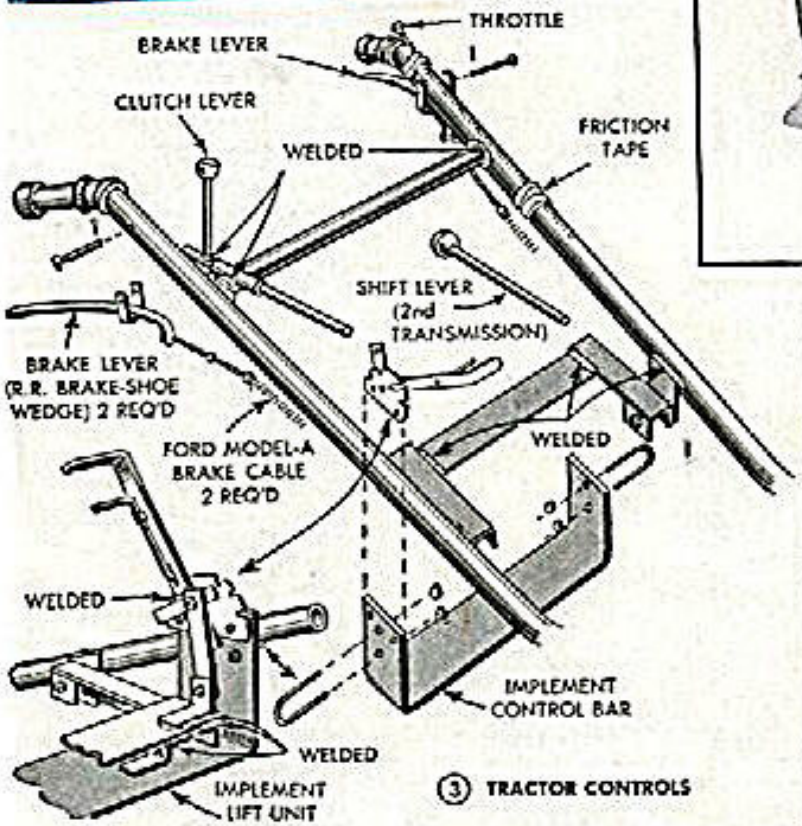
Farm implements that are not housed, especially during hot summer weather, should be given protective coatings. The wooden parts can be covered with creosote, and the metal parts should be coated with oil several times each year. A cloth fastened to the end of a stick is handy for applying the oil or creosote.

Fence Anchors on Rough Ground Made From Sickle Sections



When a fence is strung over uneven ground, often it is necessary to anchor the wires in certain places to keep them close enough to the ground. For this purpose, we find that old mower sickle sections are highly suitable when driven into the ground and tied to the fence wires with lengths of anchor wire. To drive the sections we use a length of 1-in. pipe, which is notched at the lower end to fit over the sections. If these tend to stick in the slot when pulling the pipe from the ground, a length of rod can be inserted inside the pipe to knock them loose.





③ TRACTOR CONTROLS

tank, which is welded to the panel as indicated. The starter-gear housing is a domed cover from a discarded gasoline pump, and is welded over the hole cut in the panel. In most cases the fan blades must be cut down to clear the hood. Radiator used on the original tractor was taken from a 1931 Willys automobile and cut down in width. Have this done by a service shop. It's also necessary in most cases to straighten the top hose connection. Do this by cutting diagonally and then soldering together to make a straight connection.

Finish the assembly by fitting sprockets as indicated and hooking up the drive chains. Bolt the grille and hood in place and attach the controls, ignition switch, oil-pressure gauge and ammeter, and wire to the battery. Increase the engine oil pressure to the maximum. Fit the carburetor with an air cleaner. Fuel feed to the carburetor is by vacuum tank, although of course a fuel pump can be fitted. Note in detail B, Fig. 2, the sleeve welded to the engine support. This serves as a bearing for the lower end of the clutch lever, which is a ½-in. rod with a short length of gearshift lever welded on at an angle as you see in Fig. 3. A short arm welded to the clutch lever at the lower end connects to the clutch throw-out arm on the motorcycle transmission-clutch assembly by means of a short link bent from a piece of ¼-in. steel rod. Weld in a cross member about 8 in. below the handle grips to serve as a stiffener, Fig. 3. Balance of the detail in Fig. 3 is more or less optional and must be arranged to suit the implements you will use. A rubber-tired caster wheel is fitted at the center of the implement-control bar to carry the weight of certain other implements and serve as a rest when the tractor is standing idle. Use Ford wheels on the Model-A hubs. Other wheels can be used but likely it will be necessary to lengthen the studs.