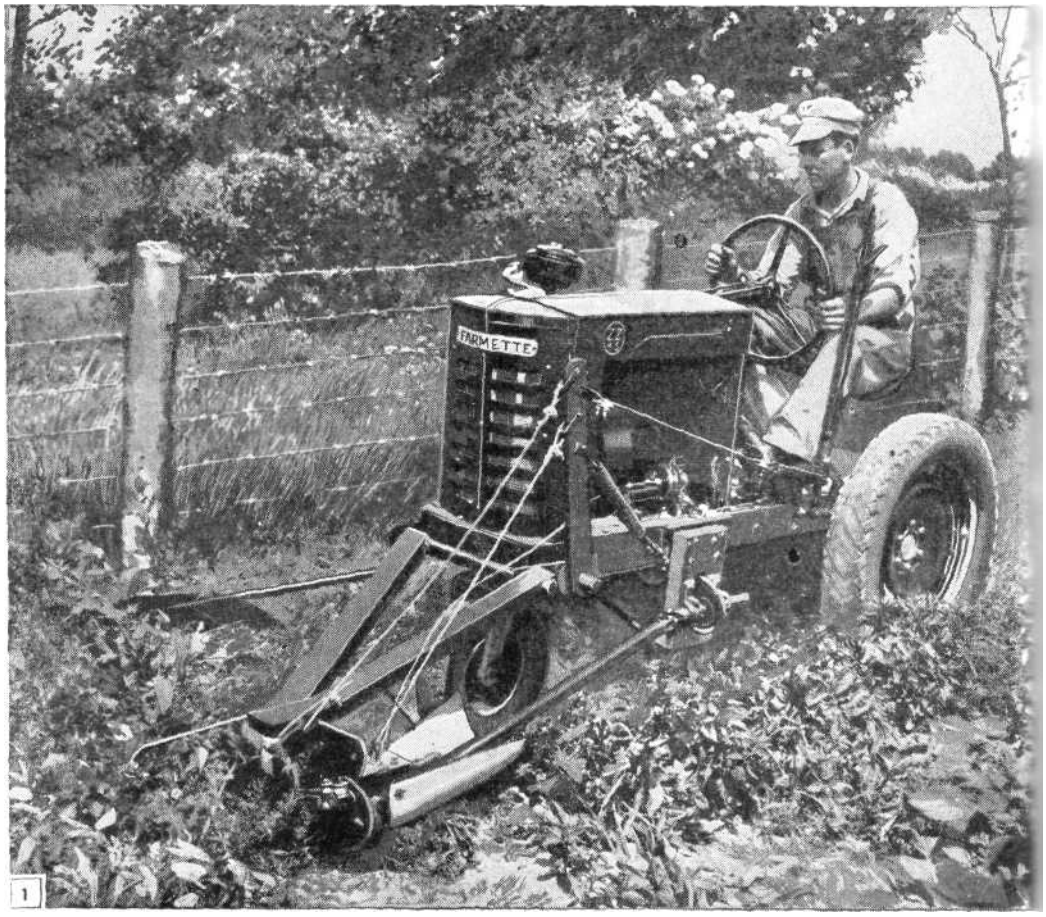
"Farmette" THE ODD-JOB

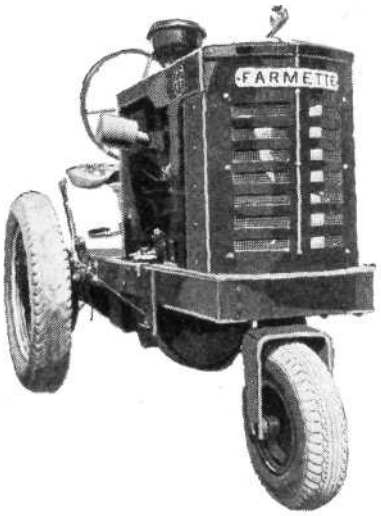
IT WON'T take long to figure the needs for this tractor on your farm. That problem will immediately take care of itself when you get the tractor built, for Farmette is just chore-boy size and it's faster than any team of horses. So far as its uses are concerned you can take it from there. Power from Farmette's 7-hp. air-cooled engine is taken off the engine crankshaft by flat belt to a 4-speed truck transmission and through this to a cut-down rear axle taken from a 1934 Chevrolet car. Of course, any suitable rear axle can be used, including a light truck axle. Positive clutching action is obtained by an idler pulley running on the slack side of the flat-belt drive from engine to transmission. The idler pulley is actuated by a pedal, the arrangement giving smooth foot-clutch control of the tractor. The pedal works against tension springs attached to the frame and to the idler-pulley yoke as in Pig. 3. Provision is made for adjusting the spring tension, which determines the tension on the belt when the clutch is engaged. In Fig. 3 notice also that essentially the same clutching arrangement is used in controlling the power take-off. This consists of a short shaft with V-pulley mounted between bearings. The whole assembly is bolted to a hinged bracket. Movement is controlled by a rod carrying a compression spring, one end of which bears against an adjustable collar. The free

Here's Farmette mowing a fence row and making a good job of it, too. One can easily put together a small mower with a 31/2 or 4-ft. cutter bar from stock parts. It's also possible to adapt some small tractor mowers to this type of mounting with very little alteration. A rigid, welded frame is essential for front mounting



TRACTOR

Small jobs that tie up big tractors at busy times cost money for extra fuel and extra man-hours. That's *where* a nimble, pint-sized riding tractor like Farmette :omes in. Farmette is narrow enough to slip between rows of standing corn or pass through a footpath gate, and it's ideal for mowing fence rows and plowing snow



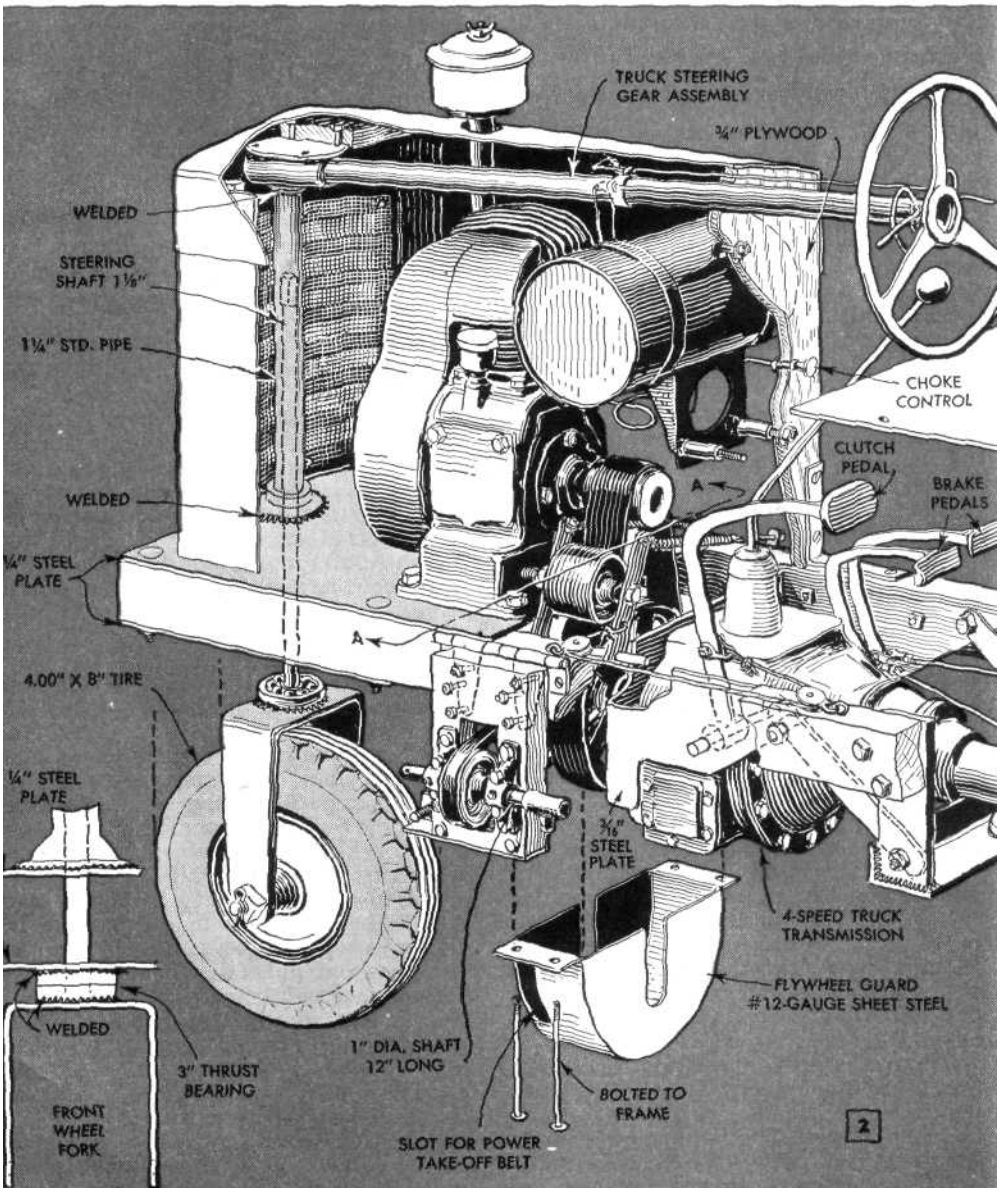
end of the rod passes through a hole drilled in a bracket piece as shown. A wire cable, passing through an awning pulley on the bracket, is attached to the adjustable collar. The free end of the cable is hooked to a con:rol lever near the driver's seat. Moving the lever swings the power take-off assembly inward toward the tractor frame, slackening the V-belt. This whole driving assembly and clutch mechanism is shown clearly in the perspective view, Fig. 4. Speed range is from 1 to about 20 miles per hour.

Before cutting the parts it's a good idea to have all the necessary materials at hand, including the engine, such pulleys as are specified, belts, frame members, steel plates and the rear axle, wheel disks and tires. Looking over the cutaway view, Fig. 2, you get a good idea of what is needed. One of the first questions that comes up is the rear-wheel tread. By using "dished" truck-type wheel disks the tread can be varied by simply reversing the wheels and, if you expect to use Farmette as a cultivating tractor in narrow-rowed truck crops, this also must be taken into account in figuring the wheel tread. The axle can be any length up to the full tread width but of course the narrower tread is handier in close quarters. Where the axle housing is cut down it will be necessary to turn new axles. This is better than cutting and welding the original axles. With the axle cut down to the tread width you require, weld lengths of angle iron to the axle housing. These form mounting brackets for the longitudinal frame members, Fig. 2. The latter should be cut from seasoned oak, 2 ¼" by 3 ¼" in. sectional size. These frame members in the original tractor are 78 in. long but some variation in length is possible. Don't attach frame members to the rear-axle brackets until you are sure of the exact location of the axle.

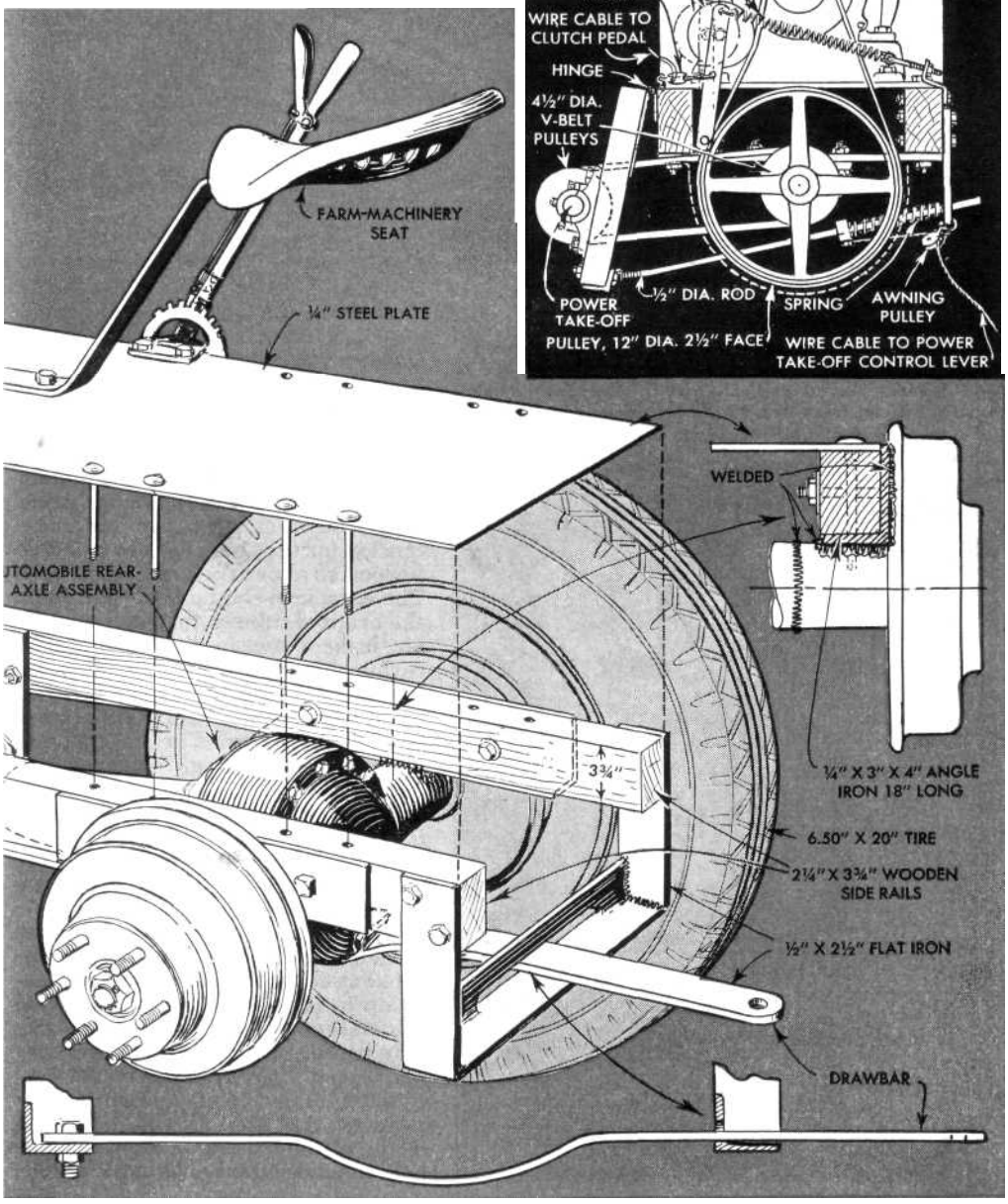
Next, assemble the frame as in Fig. 2 and the down view in Fig. 7. Then assemble the steering gear and front-wheel fork. The complete gear from a 1928 Chevrolet truck, including the wheel, spark and gas control levers, steering-wheel column and the stub shaft, are used. The steering-gear housing is supported on a length of 1 ¼"-in. pipe which screws into a pipe flange welded to the steel plate as indicated. The steering shaft, which is welded to the wheel fork, passes through this column. A ball thrust bearing carries the front end of the frame. One bearing race is welded to the wheel fork, the other to the bottom of the steel plate which forms the lower front cross member of the tractor frame.

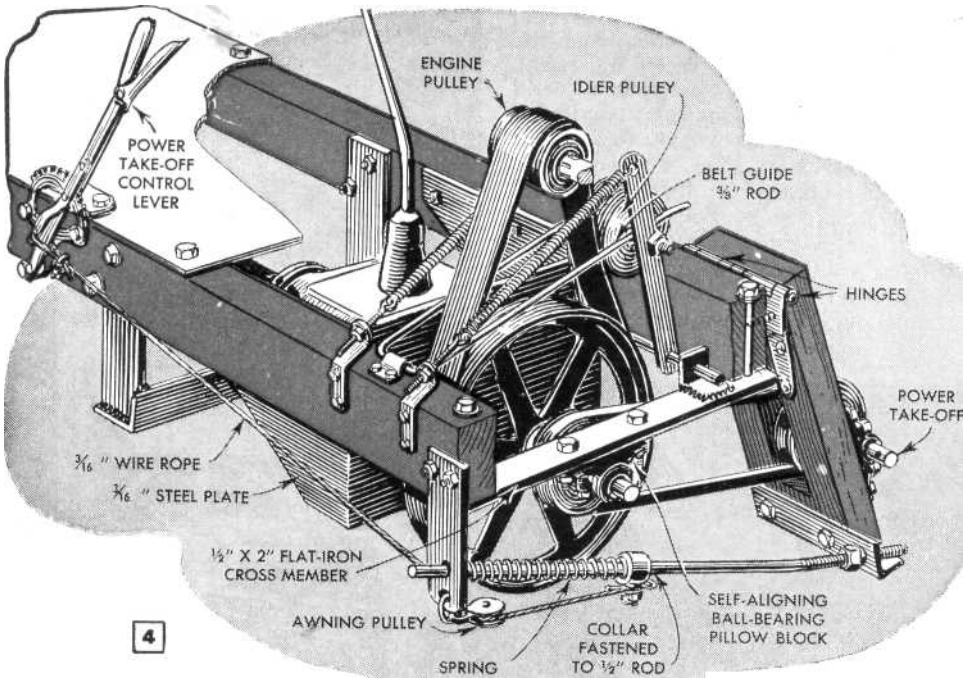
Now comes the transmission-to-rear-axle hookup. Block the frame level and clamp the frame side members to the rear-axle brackets. Then the splined shaft projecting from the front end of the transmission is turned down to 1 in. in diameter, and a *4-in. keyway is cut to a length that will take two separate keys, one for each pulley. The front end of the shaft is carried on a self-aligning ball-bearing pillow block as in Fig. 4. Put on the 12-in. cast-iron drive pulley first and key in place, then the 4%-in. V- pulley which drives the power take-off. This means a careful job of machining. Locate the transmission between the frame members, blocking it in position if necessary, and hook up to the rear axle. Make a careful adjustment for alignment. When

you're sure of this, mark the location, of bolt holes for brackets supporting the transmission, the pillow-block bearing at the front of the transmission, and also the bolt holes through the rear-axle brackets and side-frame members. One thing to look out for here is the alignment of the rear axle with the transmission. This is especially important because the axle is not sprung to the frame in the regular way, hence the transmission and drive-shaft housing are rigid when assembled. When you locate holes for bolts through the platform plate, side frames and axle brackets be sure that the parts fit snugly together so that when these parts are bolted in place there will be no strain or twist on the axle housing. It may be necessary to shim slightly under one or the other of the side frames. Care in welding to make sure that the brackets are exactly in line -will generally make shimming unnecessary. After bending the front wheel fork to shape as in Fig. 8, the next step is locating the holes for the wheel spindle. On the original tractor the rear tires are 6.50 by 20 in. and the front tire 4.00 by 8 in., as given in Fig. 2. These sizes stand the tractor level. When you know the tire size

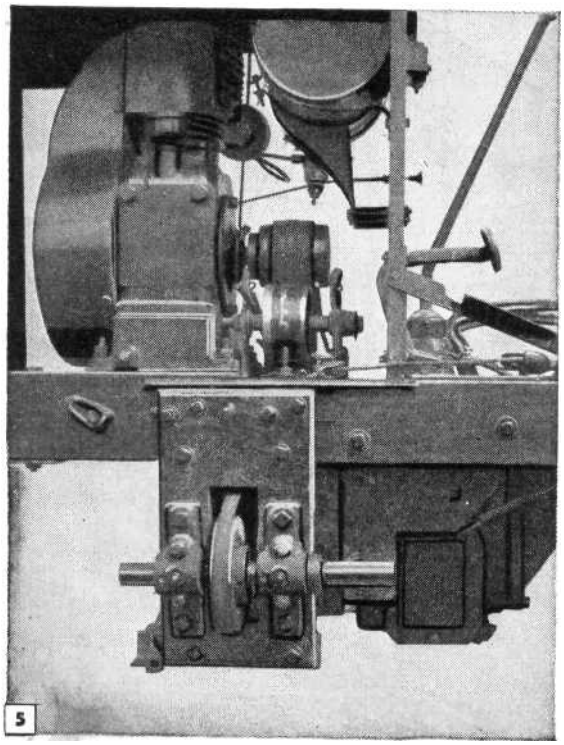


measure and drill holes in the front-wheel fork for the 'wheel spindle. The nut on the spindle should be cotter-pinned as shown. This last step puts the frame on wheels and leaves the engine mounting, hood and grille and other small parts yet to be made and assembled. High-speed air-cooled engines of the type used on the original tractor generally are self-contained units with fuel tank, air cleaner and other parts either built in or attached directly to the engine itself. In order to get the engine properly positioned over the transmission drive pulley it will be necessary, on most engines of

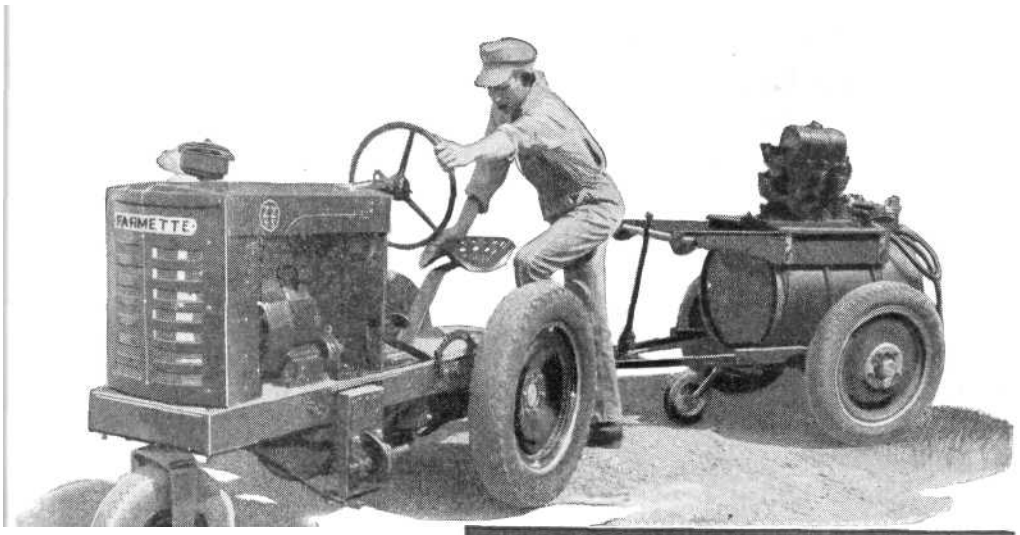




Above and below are views of the simple clutch assembly and power take-off drive. Clutch is pedal operated and is nothing more than an idler pulley which serves the dual purpose of belt tightener and clutch. Releasing pressure of the idler allows the flat belt to slip, thus stopping the tractor

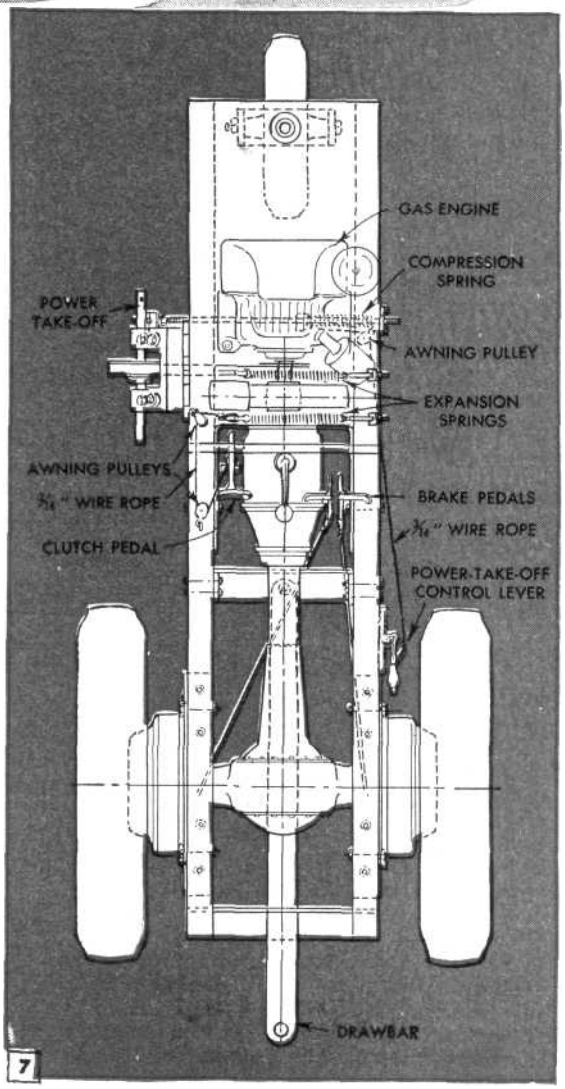


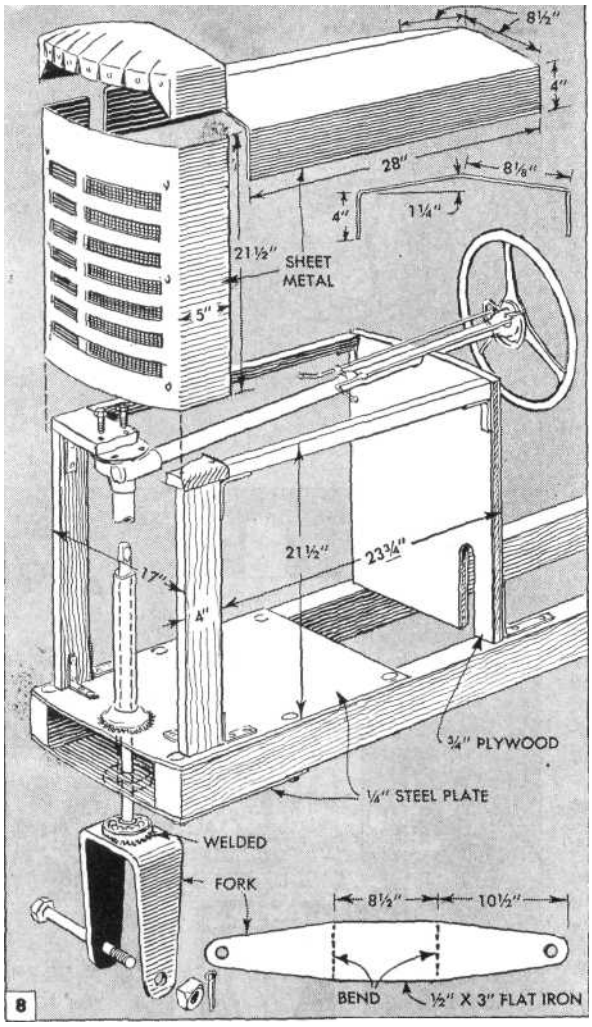
this type, to remove the fuel tank and mount it on the dash as in Figs. 2 and 5. But before the fuel tank is placed get the engine in position. Be sure that the pulleys line up properly, then locate and drill holes for the mounting bolts. Bolt the engine in place. It may be necessary to provide an extension for the air cleaner as it should be located above the hood as in Fig. 2. The extension should be a tight fit on the original tube so that there are no air leaks between the cleaner and carburetor. The dash, Fig. 2, is cut from ¾"-in. waterproof plywood and is attached to the frame with angle brackets as shown. The steering column is supported in a U-shaped notch cut in the dash. The fuel tank is mounted on the dash as in Fig. 2. Probably you can make use of the original brackets in mounting the tank but it may be necessary to use spacers. These can be cut from % or %-in. pipe to whatever length is required. The fuel tank should be located at about the same height in relation to the engine as it was on the original engine mountings. It also may be necessary to install new copper tubing from the tank to the carburetor. Fig. 8 gives general dimensions of the hood frame, which is made of hardwood. The parts are held in place with metal angle brack-



ets as shown. Hood and grille are of sheet metal and a clean, neat job of rorming these parts adds much to the appearance of the tractor. Unless, of course, you have facilities for working sheet metal you'll want to take this job to your local tinsmith.

The idler pulley which runs on the drive belt serves the two-fold purpose of maintaining the proper tension on the belt and providing the clutching action when starting the tractor under load. Use a pulley fitted with oilless bushings. The pulley should run on a hollow shaft provided with a pressure grease fitting. The drive belt should be of full-grain leather running with the hair side next to the drive pulleys. To avoid pounding of the idler pulley the lacing should be made carefully so that it will be flat. After the new belt lias been in use a few hours it will be necessary to adjust the idler-pulley tension springs to compensate for stretch of the belt. The idler support arms are mounted on a short cross shaft, one end of which is inserted in a hole drilled in the transmission support as in Fig. 2. The other end of the shaft is carried in an angle bracket welded to the pillow-block bearing support as in Fig. 4. Collars hold both shaft and arms in position. Note the belt guide in Fig. 4. Next comes the pulley, or flywheel guard, Fig. 2. This is made from 12-gauge sheet steel, welded, and it is bolted directly to the tractor frame. Be sure the





slot for the power take-off drive belt is large enough to clear the belt. The power take-off assembly as you see it in Figs. 2, 4 and 5 is optional equipment, but of course is essential for driving any mounted machine such as the front-mounted mower in Fig. 1. The swinging drawbar enables you to make short turns with pulled equipment, Fig. 6.

To finish up, there remain the installation of the clutch pedal, brake pedals, linkage and driver's seat, connecting a control lever on the steering column to the throttle and installing a choke control on the dash. Installation of the clutch pedal is very simple, as you can see from Fig. 2. Adjust the brakes so that they apply equally on both rear -wheels. Install an implement seat as in Fig. 2. Then fit the drawbar as detailed in Fig. 2 and there you are, ready for work. Two coats of outdoor enamel applied with a spray gun make a fine-appearing job and help to prevent rusting of bare metal. And if you want the maximum in tractive effort the rear tires should be of the cleated-tread type supplied for farm tractors. On some jobs dual tires on the rear wheels and an oversize balloon tire on the front wheel make the best combination, especially where light-footedness and easy maneuverability are the first requirement. Also, -weight can be added by filling the tires with a nonfreezing solution.