A TRACTOR-MOUNTED POST-HOLE AUGER

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A TRACTOR-MOUNTED POST-HOLE AUGER*

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A tractor-mounted post-hole auger will save much time and labor for any farmer who has occasion to dig a large number of post holes. The auger illustrated herein was designed for use on a tractor equipped with a hydraulic lift, but can be modified for use with other tractors.

The device consists of an auger driven from the power take-off of the tractor through an automobile differential, with provision for lifting the auger by the hydraulic lift mechanism.

The auger and differential are carried on a crosspiece welded to two pieces of 2" pipe 8" long, which slide up and down on a guide frame consisting of two pieces of $1\frac{1}{2}$" pipe 53" long. The auger unit is raised and lowered by two $\frac{1}{4}$-inch steel cables which pass over a roller at the top of the guide frame to the lifting frame below. The lifting frame is pivoted on pins in each side of the

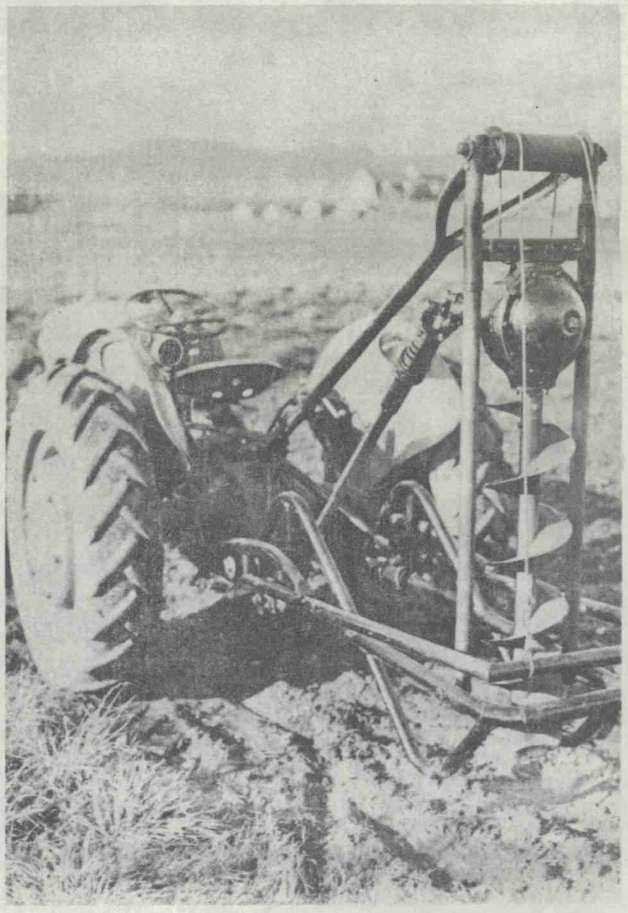


Figure 1. Auger in position to start hole.

* The auger illustrated was designed and built by Julius Purvine of Independence, Oregon, as a special problem while a student in Agricultural Engineering at Oregon State College.

rigid frame and actuated by the hydraulic lift arms on the tractor, which are connected to lugs at the ends of the lifting frame.

In figure 2 the auger has penetrated the ground to a depth of about 18". As the auger unit penetrates the ground the lifting frame rises accordingly. Note the relative position of the parts in figures one, two and three.

Power is transmitted from the power take-off shaft of the tractor through a universal joint to a length of square shaft which slides in a square sleeve. This arrangement is necessary to allow for variation in the length of the shaft as the auger is raised or lowered. The square sleeve is attached to a slip clutch, which in turn is connected to the pinion shaft in the automobile differential through another universal joint. The slip clutch and universal joints used

Figure 2. Hole about 18" deep.

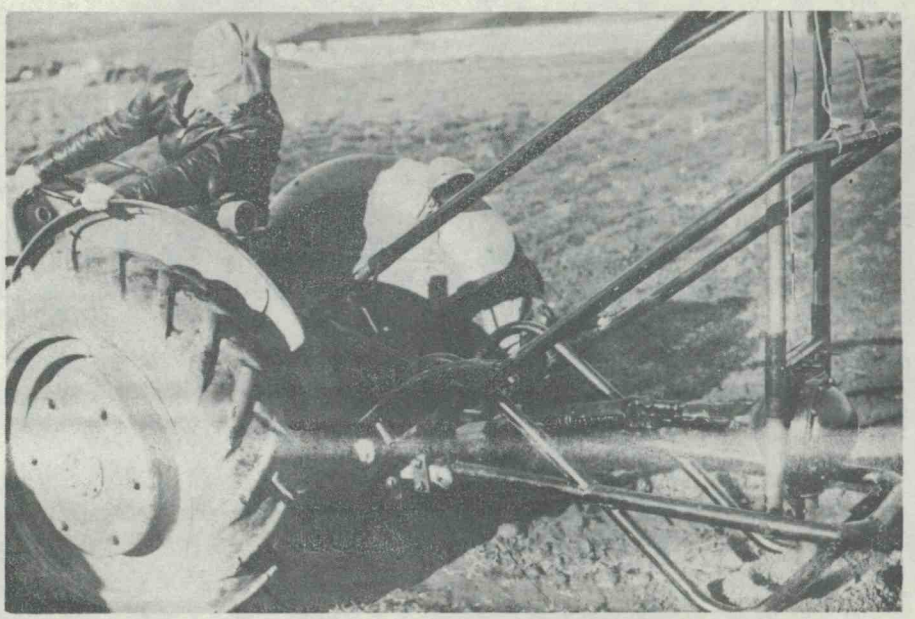


Figure 3. Hole almost completed.

are standard farm implement parts. The ring gear and pinion in the differential merely serve to change the direction of the power. No differential action occurs as the bevel pinions in the differential are welded solidly in place.

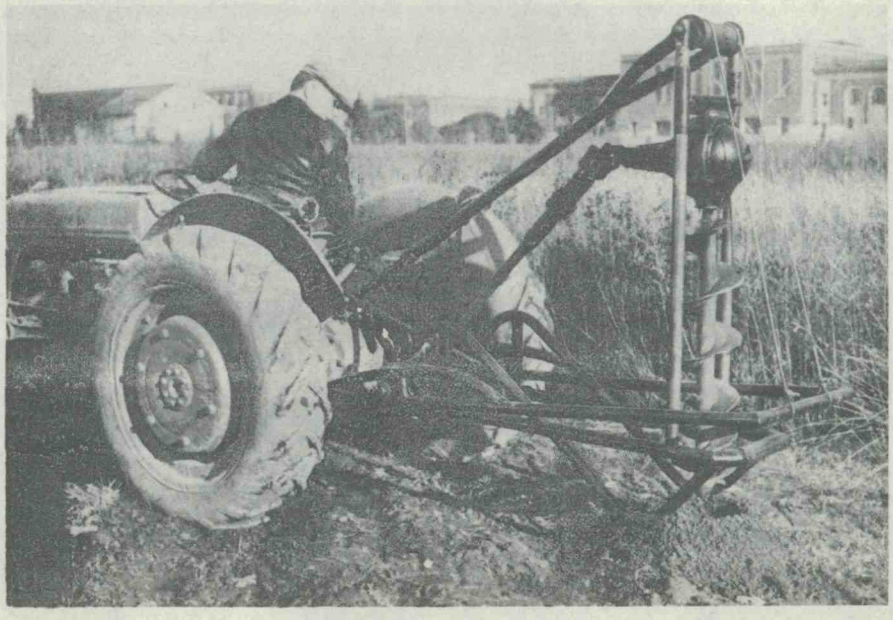
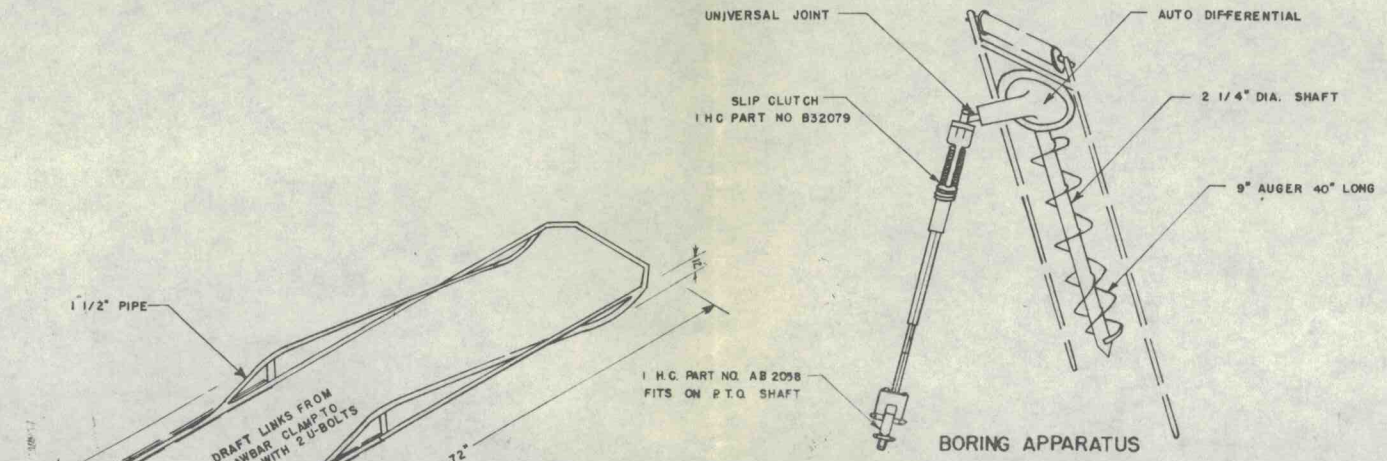


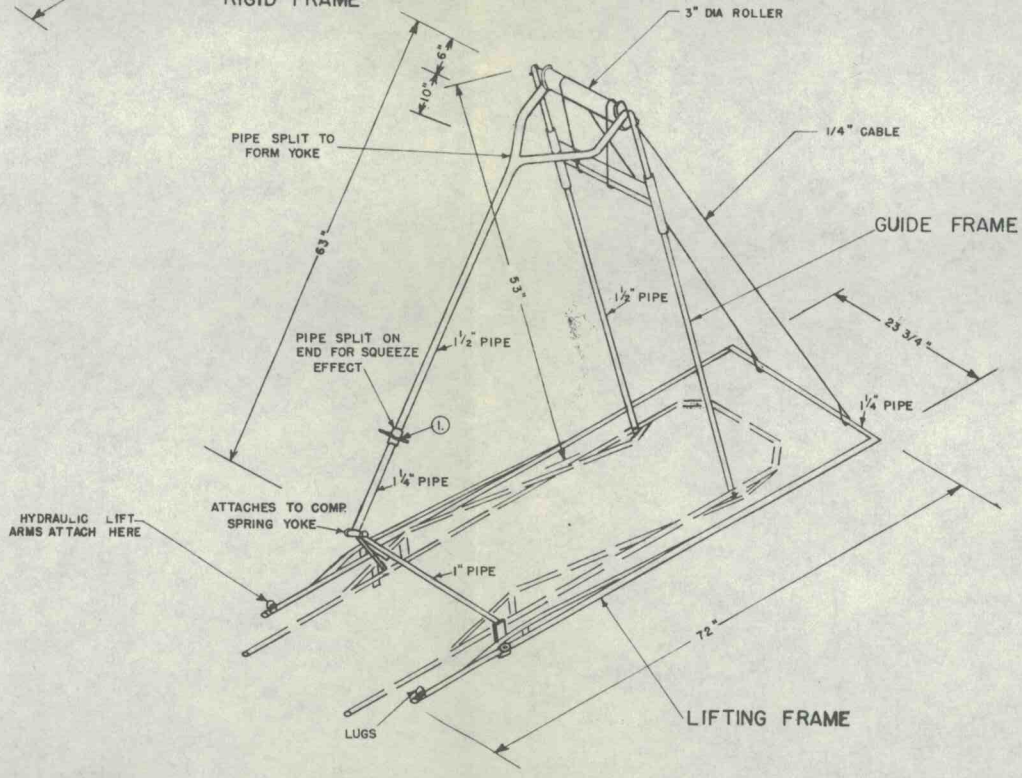
Figure 4. Auger lifted from a completed hole.

It is important to provide an adequate grease seal on the lower side of the differential housing, about the projecting axle shaft to which the auger is attached.

The auger, which is 9 inches in diameter, was obtained from an old threshing machine. Approximately two turns of a second flight was welded to the central shaft, in order to provide two cutting edges at the bottom of the auger, one on each side of the point. The cutting edges were reinforced with flat bar steel welded in place, and a solid steel point was also welded to the central shaft, below the cutting edges. The exact pitch or slope required for the cutting edges will vary with different types of soil, and will have to be determined by trial.

The auger can be adjusted to vertical in the fore-and-aft plane by sliding the rear part of the diagonal brace ($1\frac{1}{2}$" pipe) backward or forward on the front part of the brace ($1\frac{1}{4}$" pipe) which connects to the compression yoke on the tractor. The adjustment is locked by tightening the pipe coupling with welded-on handles (1, Fig. 5), screwed onto tapered pipe threads of the $1\frac{1}{2}$" pipe, which is split to permit a compression effect on the inserted $1\frac{1}{4}$" pipe. For additional details see the drawing in figure 5.





NOTE:

THIS UNIT DESIGNED TO MOUNT ON FORD FERGUSON TRACTOR.

COOPERATIVE EXTENSION WORK IN AGRICULTURE & HOME ECONOMICS

OREGON STATE COLLEGE

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POST HOLE AUGER

PLAN NO. 8.51	1/45	SHEET 1 OF 1
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