in operation. In constructing this machine, the original combine is stripped of its frame, wheels, bagging attachment, clean grain elevator, and tailings elevator. A pair of truck wheels is added to the front end of the combine and driven by a roller chain drive from an Allis-Chalmers "G" tractor on top of the combine which is also used to drive an air compressor. The tractor, with the front end and rear wheels removed, is mounted on a frame built on the combine.

Fig. 2 shows a model 23 Briggs and Stratton engine used to drive the threshing and separating parts. Workmen are shown in Fig. 3 cleaning the combine with the aid of an air hose from an air compressor. By using sheet metal, solder, plastic wood and vulcanized rubber slat drapers, the inside of the combine is streamlined so that a minimum of grain lodges.

The roller chain drive and part of the tractor supporting framework can also be seen in Fig. 3.

The conventional auger and clean grain elevator are replaced with a drawer (Fig. 4) to speed up cleaning the machine. Also, the tailings auger is eliminated and the air blast reduced to prevent loss.

Results

This machine was used in 1950 to harvest successfully all the small-grain breeding plots at Knoxville. Compared to hand harvesting and to threshing with a small stationary thresher, the amount of labor was reduced by 80%. This plot combine enabled the plant breeder to compare the actual field characteristics of each new variety with old standards.

Under static conditions this machine is unstable on a 35% slope, but under field conditions it would be much less. Since all of the experimental plots at this station are on slopes of 10% or less the stability of the machine is not a serious problem.

Drawings and additional photographs are available at the University of Tennessee.

-John B. Liljedahl, N. I. Hancock, and James L. Butler, Associate Agricultural Engineer, Tennessee Agricultural Experiment Station, Plant Breeder, Tennessee Agricultural Experiment Station, and graduate student, Agricultural Engineering Department, University of Tennessee.