The New Mark 2 SHOPSMITH

Success of many small foreign cars on the American market, as well as one or two small domestic models, has proved Americans are willing to forego some of the luxuries to save cost. It is important to note, however, that the small car was really not generally accepted until it could provide dependable transportation at practical speeds.

Now a manufacturer in an entirely different field—power tools—is following the same formula. Magna Power Tool Corporation has just announced a new economy-type Shopsmith. Like the smaller foreign cars, the new Shopsmith Mark 2 does not have all the luxuries of the Mark 5, but it does equally well the job for which it was designed.

The low price for the new Shopsmith naturally caused us to ask the question: How can so much be saved without forfeiting efficiency? So we invited the manufacturer to explain how this problem had been approached and what was accomplished.

The results are shown on this and the four pages following. Descendants of the first nonworking model mockup pictured in Fig. 3, and later the working model shown in Fig. 4, the current, higher-priced model, Mark 5, is pictured in Fig. 1, and the new economy model, Mark 2, is shown in Fig. 2. A quick glance shows little difference in the two models, design in general as well as accuracy and
Changing speeds on Mark 2 is merely a matter of loosening belt tension and shifting belt to the various pulley combinations of two step pulleys. Desired speed is dialed on Mark 5. An expandable pulley on motor shaft is widened or narrowed by dial mechanism to increase or decrease pulley dia.

Replacing the saw blade with a sanding disk provides a disk sander which, when used in conjunction with table, does accurate edge sanding.

Right, the bandsaw accessory, as do all accessories used on the Mark 5, also fits the new Mark 2. It is driven through the mandrel shaft by a coupling.

Rugged construction is maintained. Accessories for the higher-priced model also are used on the economy model. Close inspection shows how lower costs for the new Shoptsmith were made possible without sacrificing quality. Like the small-car manufacturer who holds down costs by using a "stick shift" instead of an automatic transmission, and eliminates power assists and gadgets considered a convenience, the manufacturer of the new Shopsmith reduced costs by using a simple drive and eliminating some of the unnecessary convenience features from the tool.

Figs. 5 and 6 show the drives of the two tools. To change speeds on the Mark 2, the belt is shifted on the pulleys by hand, Figs. 5 and 17, while on the Mark 5, speeds are changed by rotating a dial as in Figs. 6 and 16.

As with the car's automatic transmission,
9. Step pulleys in drive permit many shaft speeds, which are obtained by shifting belt to various pulleys.

10. Speeds on Mark 5 changed by calibrated dial, which actuates expandable pulley to change its dia.

11 and 12. Table on Mark 2 has two slots. One at left permits wider work on table than center slot.

13. By using the auxiliary table, unusually long work can be handled on either of the Shopsmith tools.
The two tables support long work for accurate horizontal drilling. Table-height adjustment makes it easy to spot the drill point exactly where desired.

Dialing the speed of the tool is a convenience, but is not necessary to doing quality work with the tool. Other cost-reducing features are shown in Figs. 9 and 10. Notice the difference in the control knobs of the two tools. Those on both tools accomplish the same purpose, but those on the Mark 5, Fig. 10, have a more deluxe appearance, and have position-locking features, while those on the Mark 2, Fig. 9, are merely screws with plastic handles.

Further cost-reducing features were effected in the table-raising mechanism on Right, an expandable pulley on the motor shaft operated by a dial changes speeds on the Mark 5. Below, the belt-and-pulley drive used on Mark 2
Belt-sander accessory, as are all accessories, is driven from end of mandrel shaft as shown above the Mark 2. The Mark 5 utilizes a rack and pinion, Fig. 21, while with the economy model, rapid raising is done by hand. Micro-adjustment of the table for critical setting is provided by a screw crank which can be seen just below the table in Fig. 22.

Both Shopsmiths convert to vertical drill presses, which provide conveniently wide tables, above.

Although not shown for the sake of clarity, an arm clamped to one of the table standards projects out over the end of the crank, to adjust the table for height.

As indicated in Figs. 11 and 12, the table on the Mark 2 has two slots, one centered below, motor on Mark 2 has plenty of power to operate all accessories used on the Mark 5.

Mark 2 table-adjustment controls are plastic-handled screws

Table on Mark 5 is adjusted in height by rack-and-pinion gear
and one near the left edge. Use of the left slot permits wider work between saw blade and the rip fence, Fig. 12, when the fence is on the table.

Where the Mark 5 has a cast, deluxe, auxiliary table, or long-work support, on which the rip fence also may be used, the economy model has a simpler stamped one, which is shaped so it also serves as a rip fence, as in Fig. 13. When the Mark 5 is used as a wood-turning lathe, the auxiliary table is replaced with a special tailstock, which carries a fitting to hold the center. This fitting can be rotated to set the center for taper turning. On the Mark 2, the tailstock center is held in a small casting that slides on the auxiliary table as indicated by the arrow in Fig. 15.

As with the Mark 5 Shopsmith, the Mark 2 model can be used as a wood-turning lathe, Fig. 15, a horizontal drill press, Fig. 14, or a vertical drill press as in Fig. 19. The economy model also operates various accessories used on the Mark 5, such as a disk sander, Fig. 7, a bandsaw, Fig. 8, a belt sander, Fig. 18, or a jointer as in Fig. 22.

Easy-to-Release Stud Driver

This stud driver is made by drilling and tapping a length of steel hexagon bar, then cross-drilling the bar near the upper end of the threaded hole. The latter hole is reamed with a No. 1 Morse-taper reamer. A Morse-taper shank from a discarded drill then is tapped into the hole. After a stud is driven, tapping out the shank releases the driver and stud.

C. W. Woodson, Chicago.

Stair Stringers Marked Accurately With Square and Strip

When marking stair stringers one carpenter clamps a straight strip of wood across a framing square so the distances from the corner of the square to the strip will equal the lengths of cuts to be made for treads and risers. The square is moved from one marking position to the next, with the wood strip held snugly against the edge of the stringer. For accurate results with this method, it is necessary, of course, that the edge of the stringer be perfectly straight. Both stringers are cut at the same time to assure identical units.

For Accurate Center-Drilling

Rough forgings have a draft angle on the ends, and center drilling them without preparation will produce elongated holes that will cause the forging to run out-of-round when set up in a lathe for turning. To avoid this problem, spotface the ends in one of several ways. The ends can be faced-off in a lathe, smoothed with a belt sander or milled, depending on the shape of the workpiece and availability of machinery.

Frank La Saracina, New York City.

"Portable Mounted" Motor

When a small electric motor is used to drive several machines in your shop by moving it from one location to another, it can be anchored securely at any point by first mounting it on a wooden block. The block is fitted with a U-shaped hinge rod at the machine side of the motor as indicated. Holes drilled in the bench at the desired location for each machine permit the insertion of the ends of the rod. Locate the holes so the motor hangs on the belt.

MARCH 1958