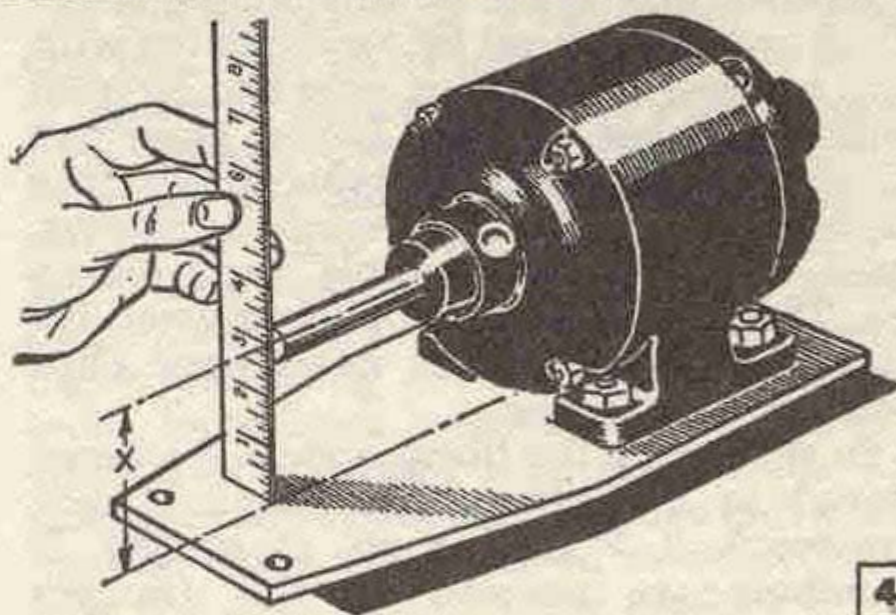
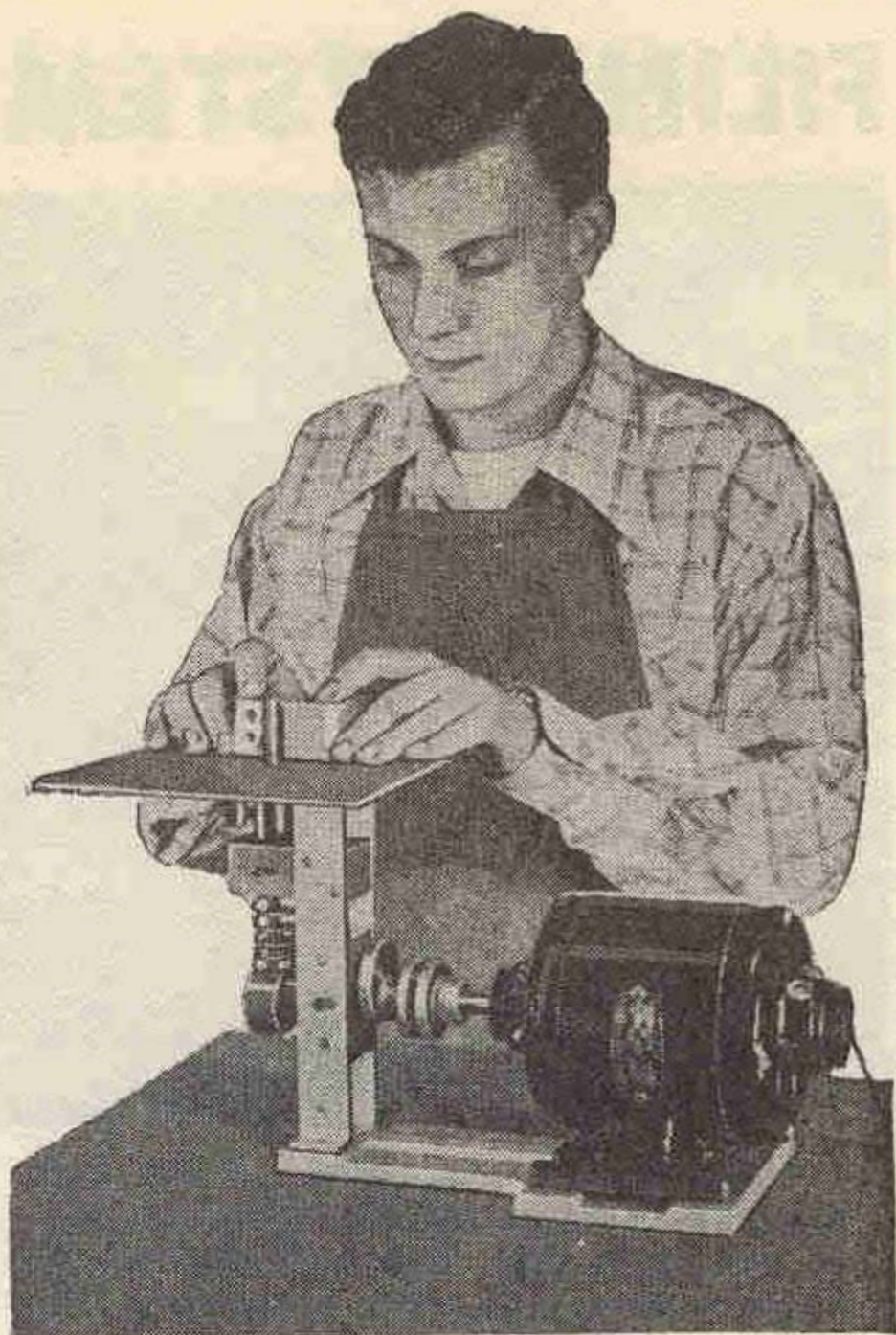


# FILING MACHINE

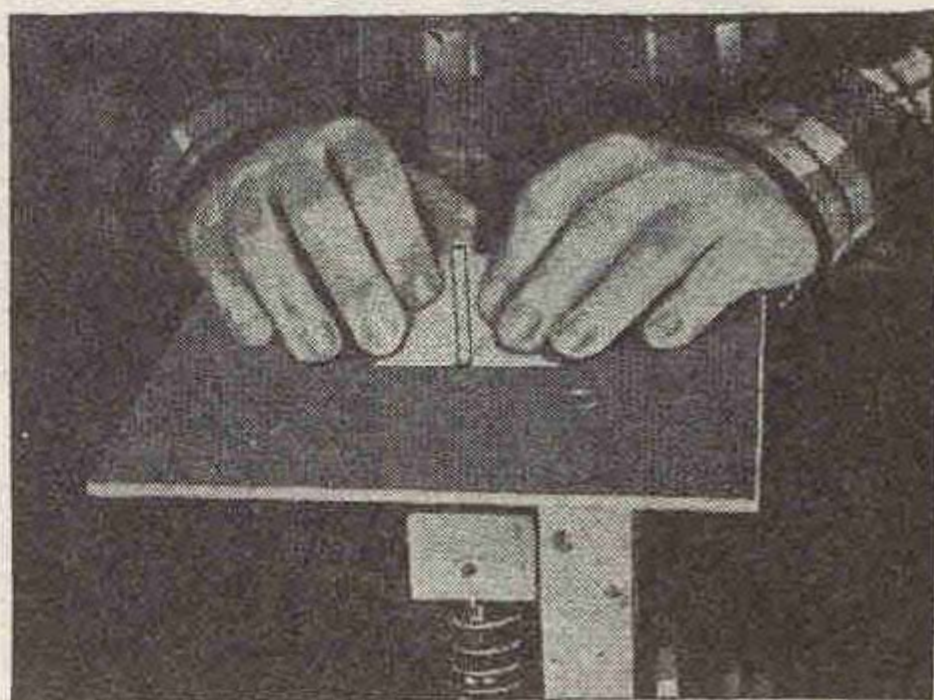
INSIDE OR OUTSIDE die filing, squaring small parts, and truing irregular inside or outside shapes in model work—these are jobs for this motor-driven filer. Fit it with a special chuck to take saber-type blades and you have a speedy jigsaw. No castings are used, only cold-rolled round, flat and bar stock in standard sizes. Fig. 1 shows the complete machine and names all principal parts. Dimensions of these are given in Fig. 3, while Fig. 2 details the base. Dimension "X," Fig. 4, determines the position of the bottom or bearing block, Fig. 3. Check this dimension first so that you'll know where to locate holes in the side supports. In order to get the motor shaft and drive shaft in alignment it may be necessary to shim under the motor as in Fig. 1.

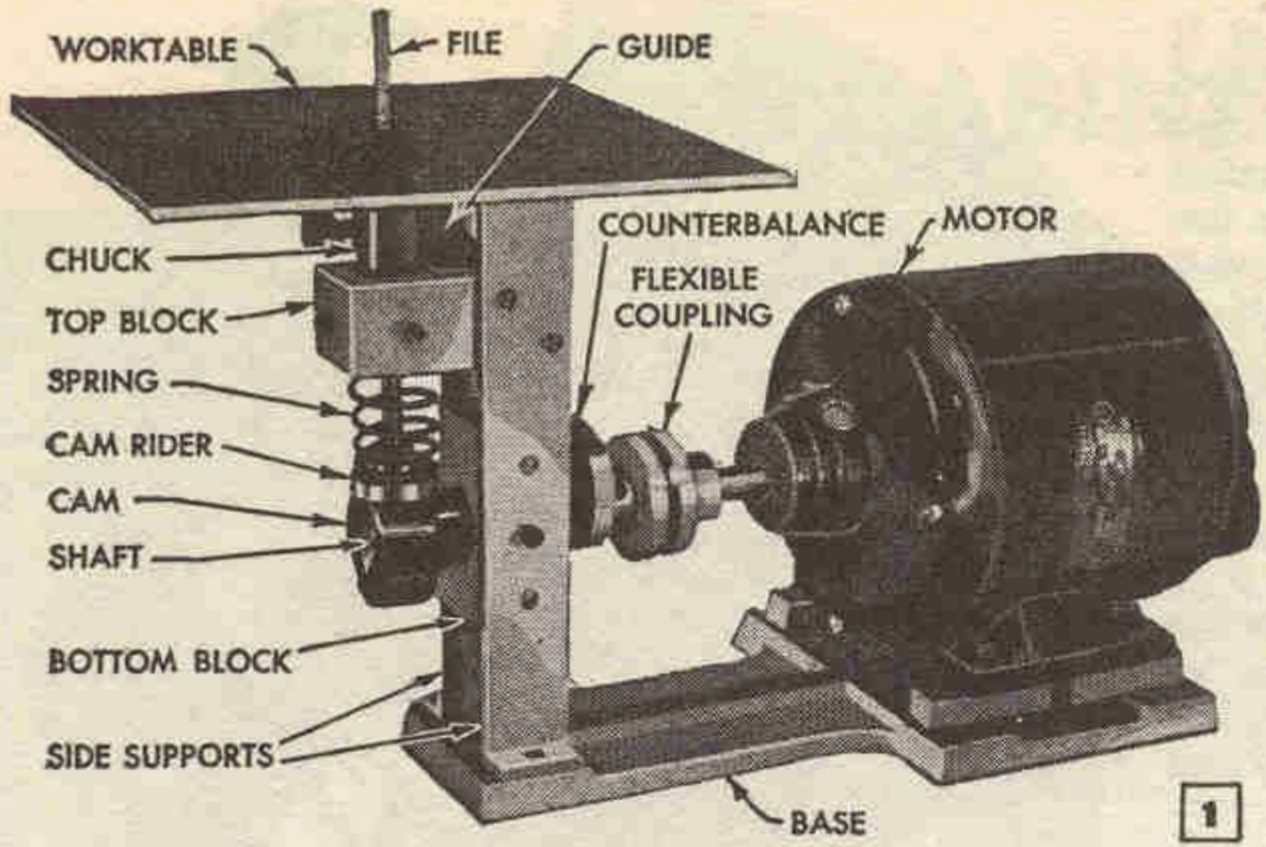
Note that there is a flanged brass bushing in the bottom block, which forms the bearing for the main shaft. This bushing should be reamed to a precision fit on the drive shaft. The cam is cold-rolled steel and the cam rider is brass or bronze. Cam and rider are ground and polished on the meeting faces. The top block also is fitted with a flanged bushing of either brass or bronze, and forms a bearing for the file spindle. As these parts travel at fairly high speeds, ream the bushing to a precision fit on the shaft. The spring can be made by winding No. 8 phosphor-bronze wire on a  $\frac{1}{2}$ -in. mandrel in a lathe. Free length of the spring should be 2 in. When removed from the mandrel, the coils will expand to about  $\frac{7}{8}$ -in. inside diameter. A stock spring also can be used. The chuck and spindle are turned from one piece and the body of the chuck is slotted for a guide which prevents it from turning. This slot can be cut with a shaper, milled, or filed by hand. It is essential that the guide be a close fit in the slot.

The counterbalance is of steel, and does not fully balance the cam, for there also is the tension of the spring to overcome. The size of the counterbalance detailed was determined experimentally and was found to be correct for this machine. Use a  $\frac{1}{4}$ -hp. 1750-r.p.m. motor and connect it to the main shaft of the machine with a flexible coupling. When the machine is to be used continuously it's best to fit pressure-grease fittings or snap-cover oil cups provided with felt wicks. A felt washer cut to fit snugly over the spindle just underneath the chuck will prevent metal filings from reaching the bearing.



Above, be sure of this dimension as it will vary with different motors. Below, standard machine files with  $\frac{1}{4}$ -in. round shanks are used. By fitting an interchangeable chuck, machine makes a speedy jigsaw.





Both modelmakers and die makers will like the precise internal and external filing this machine can do on a wide variety of small intricate work. It uses the standard machine file

