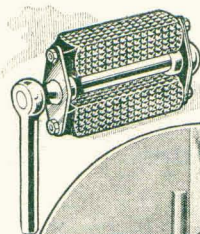
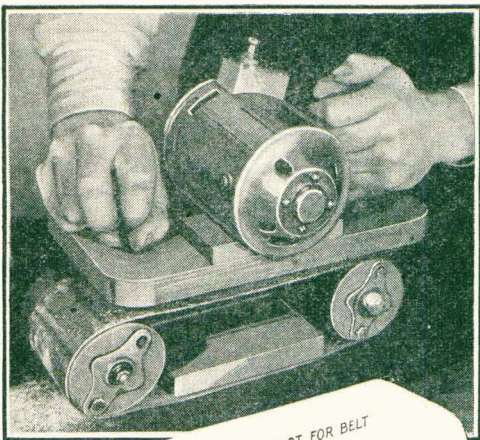
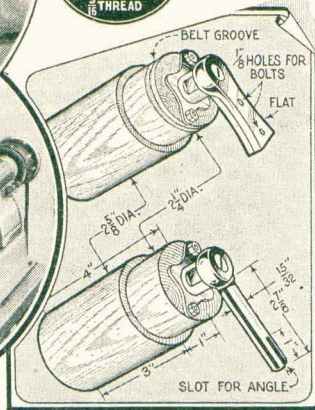
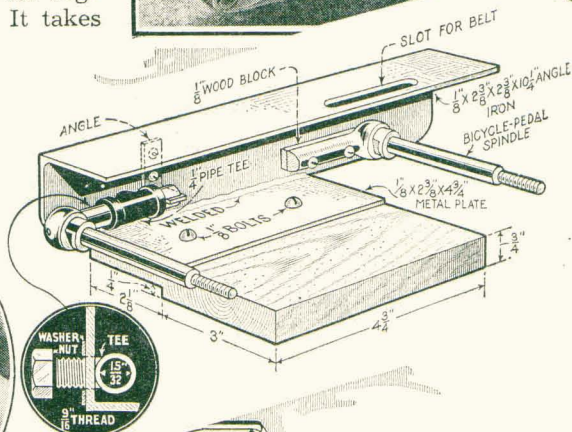


# A Portable BELT SANDER

**S**IMPLE and inexpensive to build the power sander described here finds hundreds of uses around the shop, especially in surfacing large areas such as boat planking, interior floors, and the larger furniture projects. The sander can be readily fitted with a bench stand for edging and jointing straight stock. It takes



BICYCLE PEDALS MAKE THE TWO PULLEYS



frame carries the two pulleys and their respective supporting arms. These are made from bicycle pedals and cranks in a manner which should be fairly apparent from the pictures. Each pulley is made from hardwood and to the same dimensions, with the exception that the rear pulley has a groove at one end to take the  $\frac{3}{16}$ -in. sewing-machine belt.

the standard 3 by 24-in. sanding belt, and a large variety of grits for wood or metal cutting can be obtained.

The framework is made from a length of  $2\frac{3}{8}$ -in. angle iron to which is welded a shorter metal plate of the same width to make a U-shaped frame. A length of channel iron or a casting to the same general dimensions could also be used. The

Considerable machining is necessary on the two pulley arms. These can be made from the original pedal cranks or made up from suitable stock. In any case it is important that the pulley spindle and the supporting arm be perfectly square, and a constant check should be kept to see that everything lines up right. The sander, when finished, has a spring tensioner to



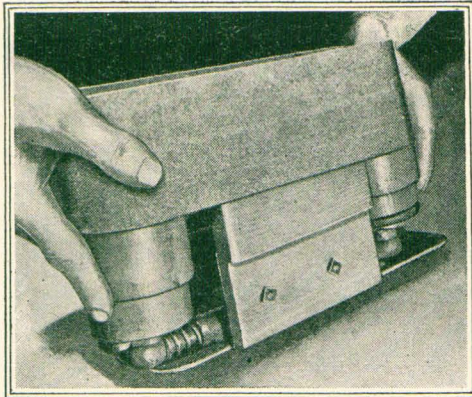
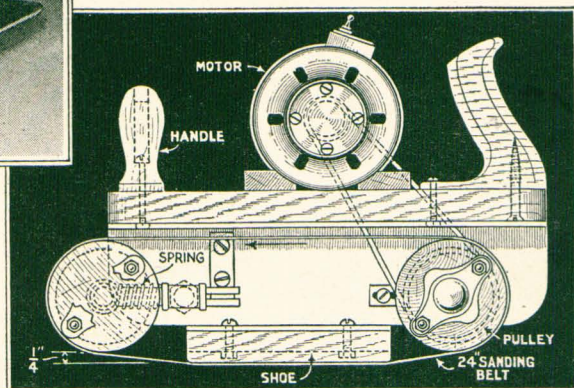


Photo above shows how the front pulley-tensioner spring is compressed by the hands to permit the belt to be slipped into position; the detail at the right shows the general construction



take up belt slackness, but it has no alignment device—hence the importance of getting the spindles squarely mounted to start with. The rear pulley spindle is fixed solid; the forward spindle arm is housed in a  $\frac{1}{4}$ -in. pipe tee which can be readily reamed out to the required size. A close fit is essential. The shoulder on the short arm of the pipe tee is machined off and then threaded so that it can be held in place with a suitable nut, as shown in the inset. A good fit is necessary between the slotted end of the crank and the supporting angle iron. A wooden shoe is fitted to the underside of the framework. This supplies the actual sanding surface, and, for average work, should be slightly curved. A straight shoe is useful for rough work with coarse belts. Curved shoes can be used for working on concave surfaces. All shoes should be hardwood and carefully polished to minimize friction.

Power is an important item. The object sought for is a light motor with sufficient strength to make the thing go. Some of the larger vacuum-sweeper motors work well, using a 1 to  $2\frac{1}{4}$  reduction with a belt drive. The motor should develop sufficient power so that the sander will “walk away” in the familiar tractor fashion. The motor

must have right hand or clockwise rotation as viewed from the pulley end. Sweeper motors of high speed should be avoided since they cannot be geared low enough to supply the power required.

In operation, the belt sander is held much like a plane, with the notable exception that the cutting stroke is always made

as the sander is pulled toward you. Some workers use a sweeping, circular motion, but the beginner will do best to stick to straight strokes. A certain amount of practice is necessary for the successful operation of any belt sander—don’t work on a finished product until you learn a thing or two from practice on scrap stock.

The bearings should be kept well lubricated, and, if you are using a high-speed motor, the sander should not be kept in continuous operation for longer than half-hour periods.

## Hypo Silver Plates Metal

Acid hypo photo-fixing solutions that have become too exhausted for further photographic work contain silver dissolved from negatives and prints that can be deposited on brass and iron by simply immersing the work in it for several minutes.

