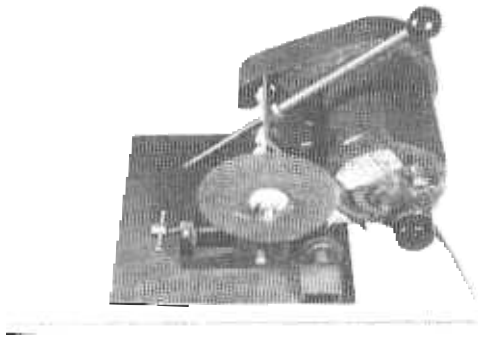


Make this abrasive cutoff machine in your shop and save wear-and-tear on your arm the next time you tackle a tough cutting job



By BOB ECKERT

Make your own abrasive cutoff machine

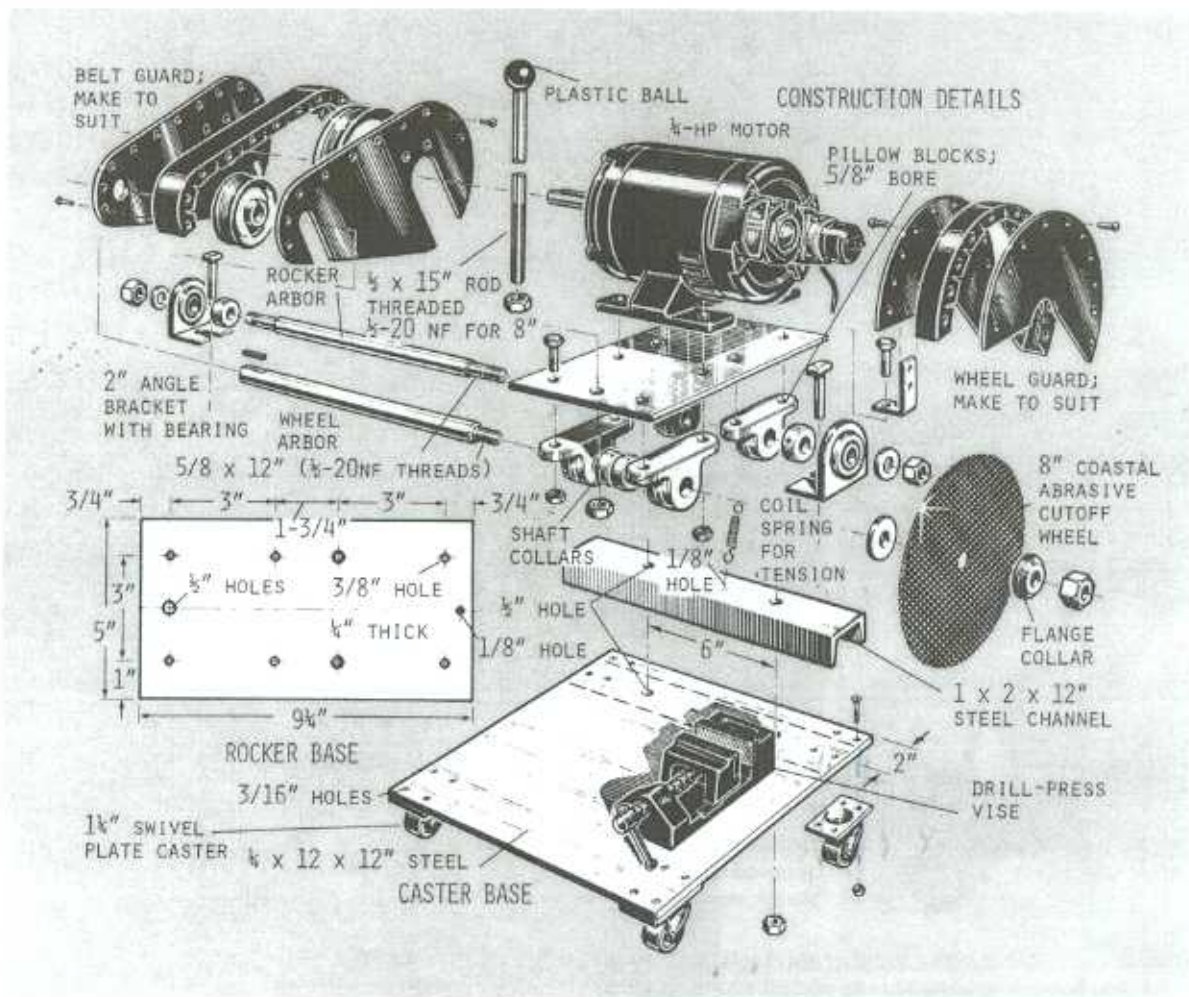


✿ CUTTING THROUGH 1-in. steel rod by hand is one of the most time-consuming, arm-wearing chores you can tackle in the shop. Since I frequently work with metals, I decided to build the handy little machine shown here to ease the task. I get a remarkably fast and accurate cut and a surface-grinder finish on the metal.

Spare parts lying around in my shop were used to build my machine. The only tools needed are a screwdriver, wrench, hacksaw, drill press (or portable electric drill) and a 1/2-20 NF (national fine) die.

Basically, the machine consists of a base, riser channel, angle brackets, rocker-base pivot assembly, combination depth-of-cut adjustment and handle and the belt guard cover.

Start construction with the machine base and the rocker base. Lay out all holes as shown in the drawing on the opposite page and doublecheck the pillow-block dimensions (distance between mounting holes for these may vary from those in



the drawing; just allow for any difference before you drill the holes). The $\frac{1}{8}$ -in. holes are for a tension spring needed to prevent the abrasive cutting wheel from being forced into the work-piece by gravity.

When drilling the rocker base, make certain the countersink is deep enough for the two $\frac{3}{8}$ -16 NC (national coarse) fh slotted machine bolts to lie flush within the plate surface. Make an error here and there's a good chance the motor's base might twist and break its weld from the motor when you're tightening it in place.

The combination depth-of-cut adjustment and handle regulates how far you can lower the cutting wheel, also keeps the wheel from cutting into the base. It also serves as the handle.

The belt guard cover, used for safety as well as looks, can be made of sheet metal; use Pop rivets to hold it together.

After making all parts except the belt guard cover, start assembly with the rocker base, re-

garding the end with the $\frac{1}{2}$ -in. drilled hole as the front. After the unit is assembled—mostly a matter of patience and trial-and-error fitting—install the power cord and mount the switch.

All shafts and pillow blocks can be obtained from local hardware stores. They come as a set for use as mandrels for buffing and the like. One shaft (for the rocker) from these sets should have a $\frac{5}{8}$ -in.-dia. bearing surface with both ends turned down to $\frac{1}{2}$ -in. diameter with $\frac{1}{2}$ -20 NF thread.

Attach any special wheel, such as the Coastal Abrasive Zippidi-Do shown, with large washers on both sides and secure it with a $\frac{1}{2}$ -20 NF hex head machine nut.

Adjust belt tension by sliding the motor back and forth. Don't make the belt too tight; pressed at the center, it should deflect about $\frac{1}{2}$ in.

The machine throws a lot of sparks, so always put on safety goggles before you use it. A common drill-press vise is used to hold the work.