

TIPS FOR TAPPING

Sheer desperation made DENNIS HORLER devise this handy automatic feed tapping unit

PERHAPS the greatest cause of tap breakage is excessive pressure applied at an angle to the axis of the hole. It is also the cause of the hole being out of alignment.

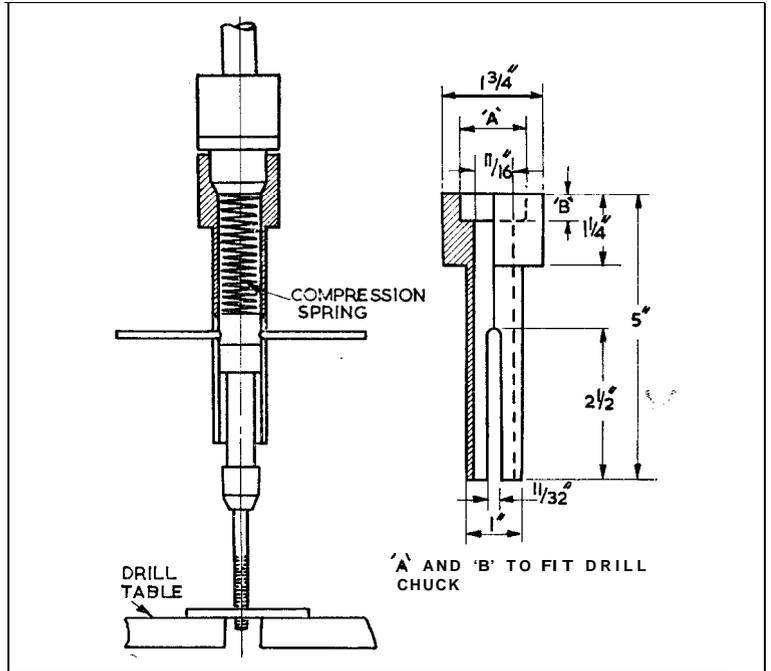
Some time ago I had to tap a number of 2 BA holes about 1/2 in. apart and fix lengths of screwed rod. The plate was about 3/16 in. thick and when finished the spaces between the rods were anything but parallel. This incident, together with two broken taps, was the origin of the following device, designed to eliminate tap breakage when turning back to clear the tap. It also acts as a guide to ensure the tapping pressure is evenly applied, and controls the feed.

Construction is simplicity itself. Only ordinary straight turning is needed if a solid bar is available. Alternatively two pieces of pipe welded together and turned to fit can be used but this seems somewhat clumsy.

A 5 in. length of 1 3/4 in. dia. shafting or b.m.s. round is -chucked in the three-jaw and turned down to 1 in. dia for 3 3/4 in. in length. With fixed steady supporting the 1 in. dia. end, the bar is bored through with a 1/4 in. or 3/16 in. dia. long reach drill using high speed and plenty of lubricant. Don't forget, especially when drilling holes of abnormal depth, to ease back the drill many times to clear the flutes-unless, of course, the swarf is ejecting continuously.

The hole is opened up in stages to 11/16 in. dia. Check the diameter of the tapholder and if necessary open out to a slide fit. The tapholder shown is the Eclipse No 143.

Reverse the bar in the chuck and turn a recess to suitable depth and diameter to fit the drill chuck, i.e.



dimensions *A* and *B*. This should be a firm non-sloppy fit over the nose of the chuck.

Next, either mill a 1 1/32 in. wide slot in each side of the barrel or make one by drilling through, cutting up with the hacksaw and finishing with a file, to allow the cross-bar to pass through. This slot will enable the tapholder to slide downwards as the threading proceeds.

For the smaller size Eclipse No 43 holder for 11/16 in. barrel dia., bore or drill out to 1/2 in., and for the length

of slot 2 1/2 in. (see diagram), substitute 1 1/2 in. The rest of the dimensions can be scaled down to suit.

The compression spring should be fairly stiff for this size holder but weaker for the No 43 size, i.e. BA and 3/16 in. Whit. and below. The length of the spring should be such that in its normal length it should allow the cross-bar to be about 2 in. from the open end of the slot. The diameter of the spring should be a free fit inside the bore of the barrel.

Although primarily designed for use with a drill press, if the work is too large to be accommodated it is easy to rig up a suitable jig. A plain turned spigot could replace the chuck. This could be clamped to the work or bench. However, with the drill press, the work already drilled to correct tapping size is located and bolted or clamped to the table and either packed up, or the drill head lowered until the tap engages the hole and the spring in the barrel becomes slightly compressed. The cross-bar is then turned and the gadget takes care of the rest. The drill remains stationary, except, of course, that the chuck revolves with the rotation of the cross-bar and tapholder. □

READER'S HINT

PROTECTING CHUCK JAWS

EVERY once in a while your three-jaw chuck will tighten up suddenly at one or more spots, and you are faced with the job of taking it apart to clean out the swarf.

I have found that plugging the hole in the centre of the chuck with a small sponge ball, is a great help in keeping out the swarf. It must, of course, be taken out when you have a rod through the hollow spindle,

but usually it can be left in for 75 per cent of the time, which is a tremendous help.

I use only half a ball. I take a sharp knife and smear a drop of oil on it and cut the ball down the middle. If you cannot buy a ball which will push in tight after being cut in half, trim away the thin edges with a sharp knife, again using a smear of oil to help.-H. J. REES.