

Fig. 29 - 15

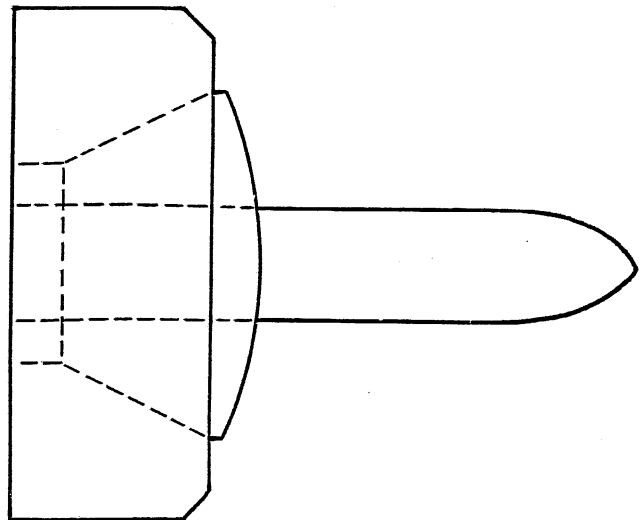


Fig. 29 - 16

SEC. 493 -- Using A Saw with the Lathe

To cut off work held in a lathe, cut a groove in your work as shown in figure 29-15. Use a jeweler's saw with the teeth of the saw pointing toward the handle and place saw blade in groove while the lathe revolves backward.

Be careful not to use too much pressure when nearing the center of your work as your work is liable to jump away.

SEC. 494 -- Making a Hardened Steel Burnisher

When setting a jewel, it is necessary to burnish the metal over the edge of the jewel. For this purpose a hardened steel burnisher is required. It can be made from 3 mm round drill rod about

3 inches in length as follows:

1. Turn down the end as in figure 29-16. Do not get it too pointed or too round.
2. Polish with emery buffs in the following rotation: #2, #1, #0, #2/0, #3/0, and #4/0.
3. Harden. (Lesson 27 - Sec. 463.)
4. Temper to a very light straw at the tip. (Lesson 27 - Sec. 464.)
5. File Tang, figure 29-17, and re-polish.
6. Mount in graver handle.

SEC. 495 -- Making Flat Drills

1. Determine the diameter of the drill and select a section of drill rod slightly larger than that diameter. It is best to have the shanks of all your drills of one size.

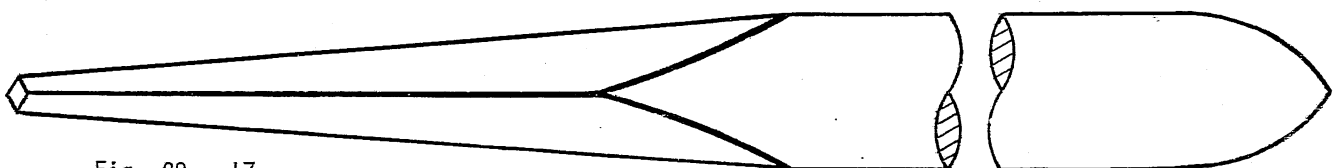


Fig. 29 - 17

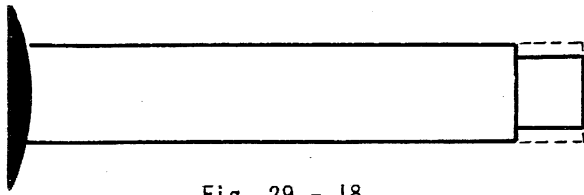


Fig. 29 - 18

2. Turn a square shoulder at the end of the rod to the diameter of your drill, figure 29-18. The length of the drill is then determined by this diameter, being usually about five times the diameter. (Example: The shank of a drill measuring .5 mm in diameter would be about 2.5 mm long.)

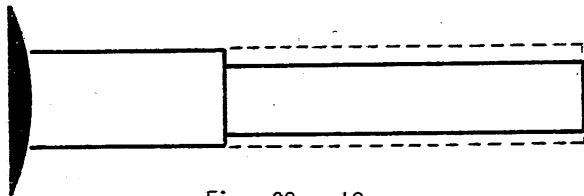


Fig. 29 - 19

3. Turn back shoulder as illustrated in figure 29-19 to the correct length.

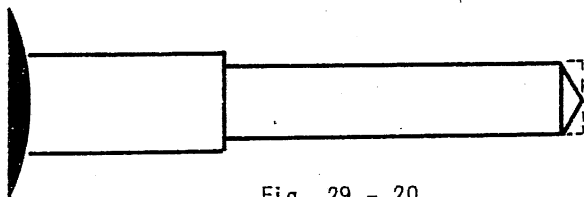


Fig. 29 - 20

4. Bevel end of rod at about 30 degrees, figure 29-20.

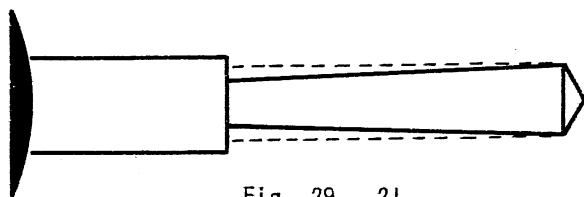


Fig. 29 - 21

5. Taper from the corner of bevel to back of drill as in figure 29-21.

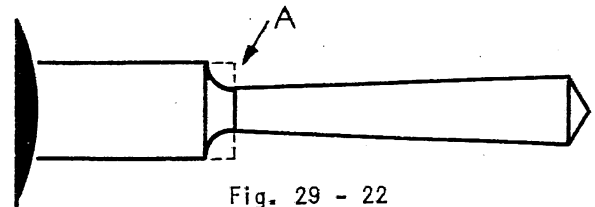


Fig. 29 - 22

6. From this point make a small curve at A, figure 29-22.

7. Reverse lathe motor and polish with emery buffs in the following rotation: #2, #1, #0, #2/0, #3/0, and #4/0. Hold your emery buffs on the underside and use the full length of the buff while moving it back and forth with the lathe running in reverse.

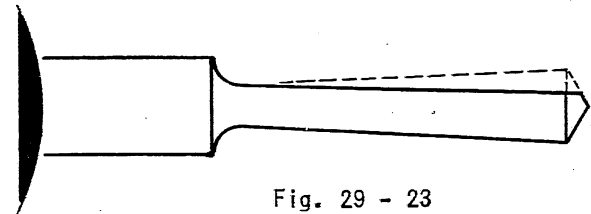


Fig. 29 - 23

8. Set index pin in hole zero and with a flat file, file top of drill as illustrated by dotted line, figure 29-23. The T rest can be used as a steady rest for your file.

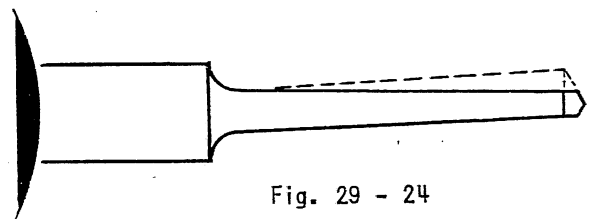


Fig. 29 - 24

9. Remove index pin and turn head of lathe 1/2 turn. Replace index pin in hole marked 30 and file this side exactly the same as in figure 29-24. The drill will now appear as in figure 29-25.

10. Polish the flat sides of the drill with emery buffs in the following rotation: #2, #1, #0, #2/0, #3/0, and #4/0.

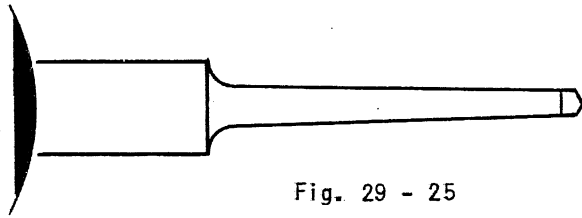
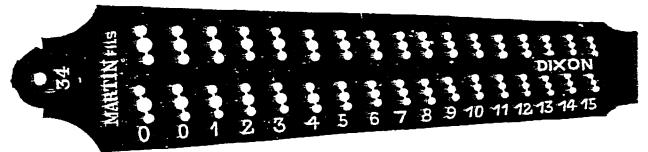


Fig. 29 - 25



Double Notched Screw Plate

Fig. 29 - 28

11. Cover drill with soap or boric acid, heat to a cherry red and plunge into cold water. (Lesson 27 - Sec. 463.)

12. Repolish and temper to a light straw (Lesson 27 - Sec. 464) then polish off the color and polish shank.

Most drills purchased are marked in 10/1000ths of an inch. However, we will mark ours to correspond to the metric system.

1. Reverse drill in lathe, finish the end of stock with a graver, and polish with emery buffs. File a small notch as in figure 29-26.

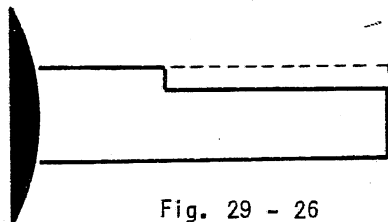
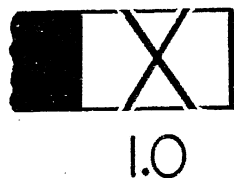


Fig. 29 - 26

2. With the edge of a file, mark the drill with Roman numerals to correspond with the metric measurement, figure 29-27.



Fig. 29 - 27



SEC. 496 -- Making Taps

In making taps use a Swiss Screw Plate as shown in figure 29-28 to cut the threads. There are different types of Screw Plates containing from 5 to 60 holes and having double or single notches. The screw plate illustrated in figure 29-28 is double notched and these notches allow the shavings to break clear. In this particular screw plate the die holes directly across from each other are of the same size.

To make a tap, use any size drill rod of suitable diameter and proceed as follows:

1. Determine the diameter of tap. If the finished tap is to be a #6, allow a difference of 2 numbers when ascertaining the diameter of the tap; in this case, it would be #4 hole.

2. Turn a square shoulder on the end of rod, figure 29-29, that will just enter hole #4 on the screw plate.

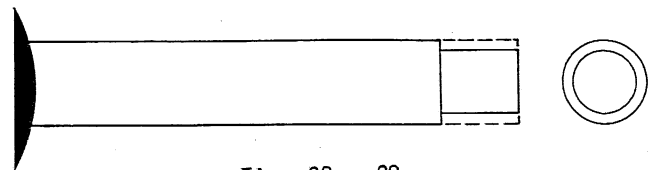


Fig. 29 - 29

3. Measure this diameter with millimeter gauge and multiply by 5. This will give the length of the tap.

4. Turn back shoulder to this length as shown in figure 29-30.