

11. In making the gauge shown in Figure 2, follow the directions given for Figure 1.

12. The sliding pointer is cut and bent to the shape shown in the drawing, and is filed accurately to dimensions with the edges square and exact.

QUESTIONS

1. Is it desirable to graduate this gauge on both sides? Why?
2. Might a trammel be improvised from two darning needles and a wooden beam? How?
3. Why should the lips of a drill be of equal length?
4. What is the dead center of a drill?
5. What is the shank? The flutes?

Problem 38

POCKET SQUARE

Subject and Uses: In construction work, the 90-deg. angle is met with so often that a tool is made with blade and tongue fixed at that angle, for checking the exactness of rectangular work. This tool is called a "square." The size of the model described here makes it desirable to make it out of a single piece of stock. The thickness of the material is not very important. However, to make it light in weight, the thickness is held to $\frac{1}{8}$ in.

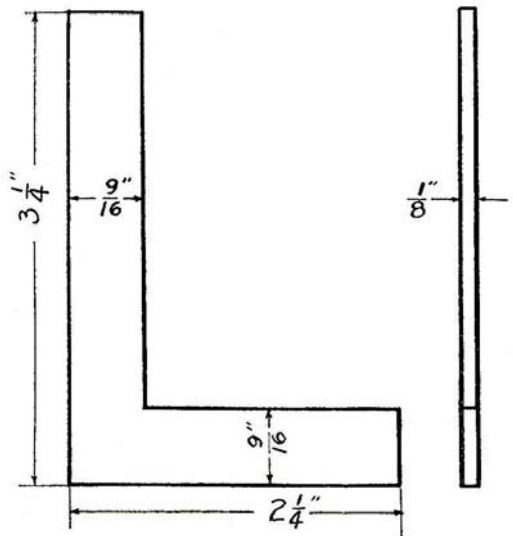
Object of Lesson: Filing exact external and internal right angles.

Tools and Equipment:
Standard square; hack saw; file; vise.

Materials Required:
Machine steel, $\frac{1}{8}$ by $2\frac{3}{8}$ by $3\frac{3}{8}$ in.

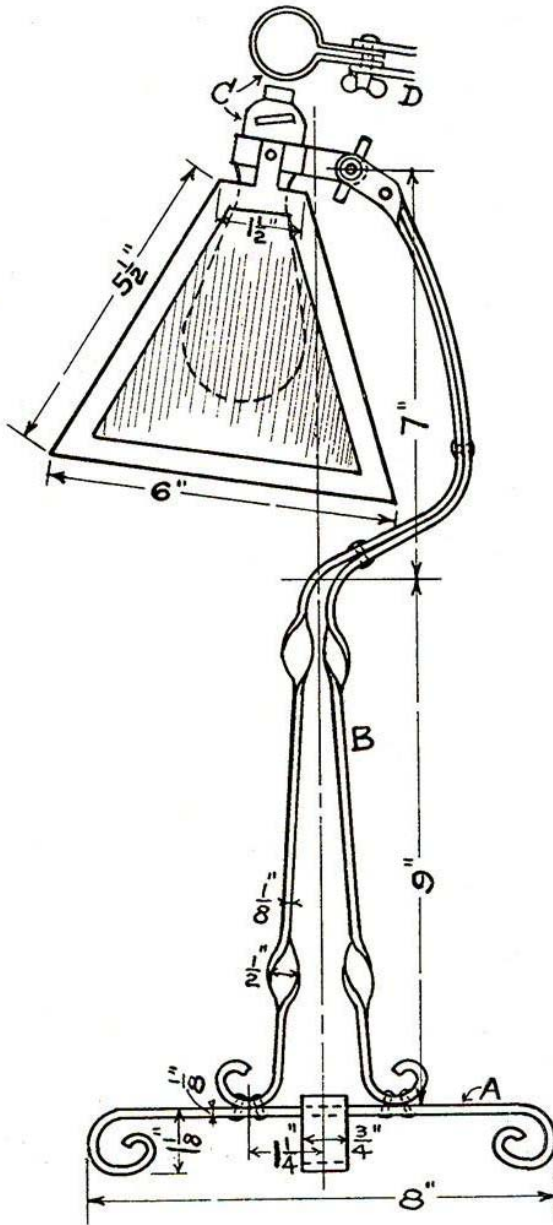
Procedure :

1. Select the two best edges on the stock, and rough-file them square.
2. Chalk one side of the sheet, and with a scribe lay out the square on the metal.



DETAIL OF POCKET SQUARE

3. With a hack saw, cut to the line, leaving $\frac{1}{32}$ in. for filing.
4. Rough-file the inner angle and the ends square.



DETAIL OF READING LAMP

QUESTIONS

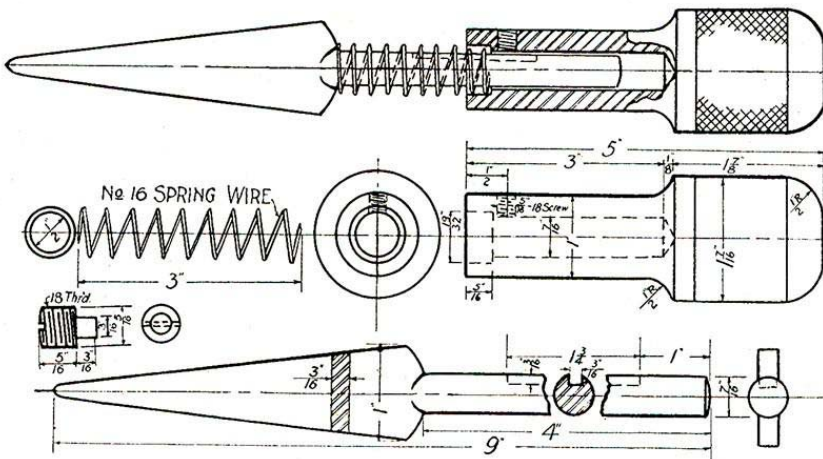
1. In drilling deep holes of small diameter, what precaution must be taken to prevent the drill from breaking?
2. When drilling holes 3/8 in. or more in diameter, should a small drill be run in ahead of the larger line? Why?
3. In sawing rectangular stock, how can you prevent breaking saw teeth when cutting into an edge?
4. How would you saw thin stock? How would you hold it in the vise?
5. What effect has a broken saw tooth on the work it is doing?
6. Will the blade break if pushed too hard? If the frame is tipped sideways?

Problem 57

AUTOMATIC DRIFT

Subject and Uses: Anyone who has had experience in operating a boring machine, a drill press, or any other machine where the drift is in frequent use, will appreciate one that can be worked with one hand. This advantage is embodied in the automatic drift, and is a great convenience. It is compact, and self-contained, and does not require a hammer. It is equipped with a heavy handle that slides on the shank and a coiled spring that causes the handle to rebound after each blow, making it possible to extract a drill, shank, or boring bar with one hand, leaving the other hand free to grasp the tool. A set screw in the handle, with the point projecting into a slot in the shank, keeps the assembled parts from coming apart. The drift is suitably tapered to a point, and is thus readily inserted into the slot in the spindle,

Object of Lesson: Turning curve; knurling; forging and shaping drift; cutting slot; winding spring; casehardening.



DETAIL OF AUTOMATIC DRIFT