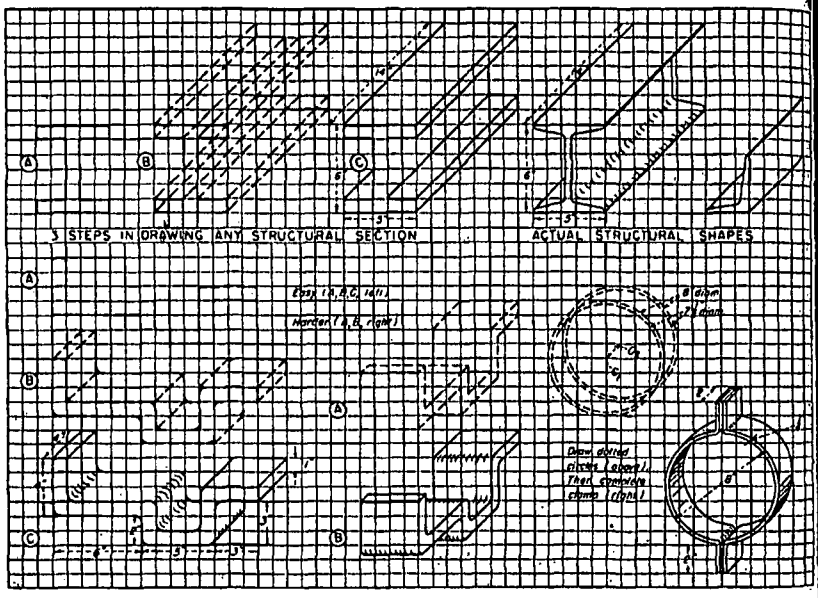


# HEADWORK

PHIL SWAIN BRINGS ENGINEERING THEORY DOWN TO EARTH




## *Easy Sketching System—5*

► IN PLANNING your sketch, always try to put the difficult face toward you because you draw this in its true shape. Working this way saves time and trouble.

For example, in a structural shape (I-beam, tee, ell, channel, etc), sketch the beam with the end toward you and draw this end true. Sketches *A B C*, top left, show the three steps for a simplified I-beam.

Actual structural shapes are shown at upper right. Just draw the true section of the facing end, then carry the edge lines back at 45 deg to a duplicate outline for the back end. Erase the lines that don't show. Heavy up those that show. If you want, add a little shading to dress up your sketch.

In practical engineering, it's often necessary to have a blacksmith or other mechanic bend up an iron strap. How to sketch such a job is shown by *A B C*, lower left.

Note that the pieces are turned so the irregular edge faces you—again for easy sketching. For better looks the fillets may be drawn in.

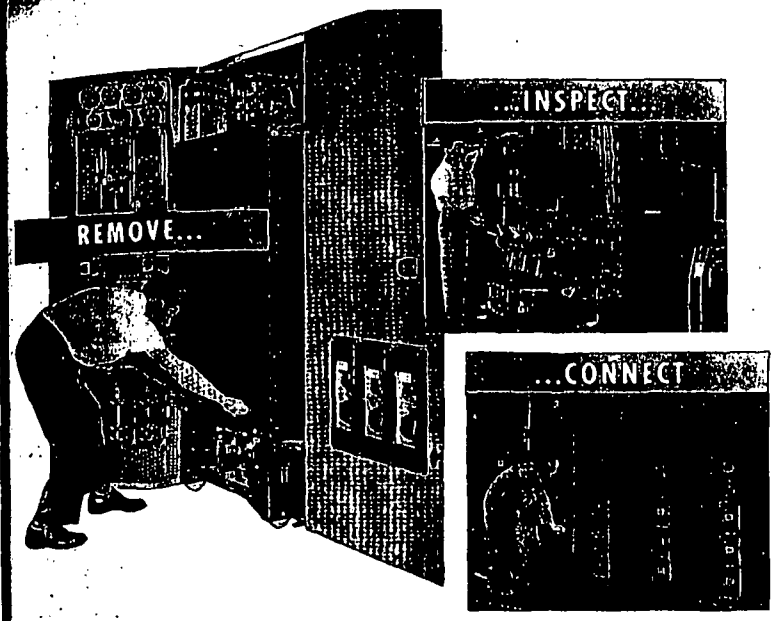
Best sequence is to draw the complete piece in very lightly with sharp corners. Then draw the fillets heavy. Finally, complete the heavy straight lines and add some shading if you wish.

Lower center sketches *A* and *B* show the same piece with one end facing you. See how much harder it is to draw it this way.

Where circles are involved, "cabinet" sketches are generally much easier to make than isometrics. If you can turn the object so the circles face you, you can draw them true with an ordinary compass.

For example, the clamp shown at lower right seems to be quite a complicated sketch, yet there's nothing to it. Draw front-edge circles around center *C-1*, and back edge circles around *C-2*. Draw them light first. Then sketch in lightly the top and bottom flat extensions. Finally, heavy up all lines that show, and erase all that are hidden.






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