Hints For The Homebuilder

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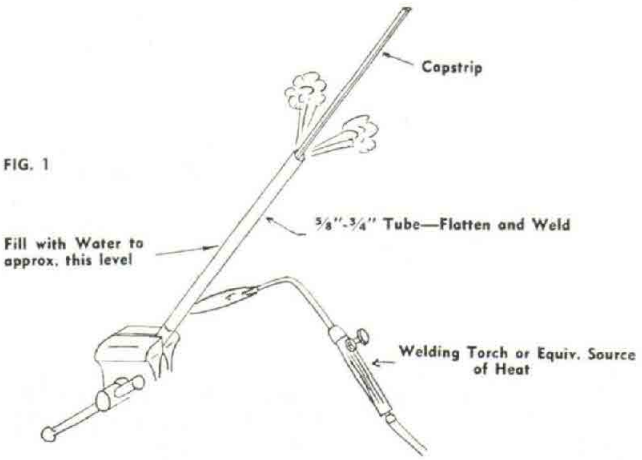
SIMPLE THOUGH any operation may seem, we usually find that there is a right and wrong way, and this is also true when bending a steel tube. Often in welding we find that we build in stresses that result in deformation of the structure so that it will no longer meet points of attachment, etc., or we may want to curve a tube for some reason or other. Common practice is to heat the tube red hot and push, but we find that in doing so we usually flatten the outer radius and wrinkle the inside surface. The following method enables us to "shrink" the inside radius and retain a true circular cross-section.

At the beginning of the desired bend heat a spot locally bright cherry red approximately the diameter of the tube on the **inside** of the bend. Apply a load by hand in the direction of the bend and watch the color of the spot. As the color darkens to a dull red "flash" the tip of your flame across the **outside** of the bend directly in line with the spot. Several light passes will be enough. Do not heat the outside surface to a red heat. This operation expands the outside of the bend as the inside cools under a load, and causes it to compress or "shrink". If a long curve is required progress along the tube spot by spot until the desired radius is obtained. To reposition a tube pulled out of alignment by welding, spot close to the weld. Remember, let the heat do the work and apply only enough load to shrink the inside surface as the heat is applied to the outside. Don't hurry.

Sounds complicated? Try it and see.

FIG. 1

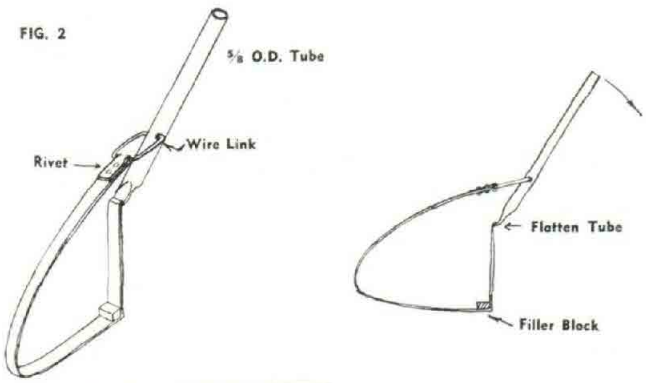


STEAMING RIB CAPSTRIPS

FIG. 1

In the "good old days" of wooden ribs the following method was used in lieu of a steam box. Flatten the end of a ⅝ in. or ¾ in. dia. tube about 3 ft. long and weld tight. Insert this end in the vise with the open end up. Fill with water for a depth of eight or so inches and insert one or two capstrips. Apply heat locally using a welding torch, blowtorch, or what have you to boil the water rapidly. This will allow you to bend the sharp area at the leading edge of the upper capstrips. With one "cooking" while you are nailing the other in your rib jig, you will always have one ready.

FIG. 2



LEADING EDGE INSTALLING STRAP

FIG. 2

New leading edge material is always a problem to apply. Many an otherwise fine job has been second rate in appearance because of an uneven or irregular leading edge. Remember, perhaps the most important section of your airfoil is its leading edge and the forward upper third of the upper camber. The simple clamp shown will enable you to pull the L.E. skin down tightly to the rib contour. Actual practice is to have one man work the clamp while the other fastens the skin. Start by fastening the skin to the lower capstrip at the back edge. Using the clamp wrap the skin around the L.E. and temporarily fasten in several places. Start at one end and pull each station tightly to the rib and fasten permanently. The handle may be approximately 2 ft. of ⅝ in. tube flattened on one end. The strap may be light sheet steel or a length of spring steel strapping used to tie large bundles. The filler block shown is the depth of the lower capstrip and prevents the strap from pulling around the spar at this point. Coat hanger wires make a good link.

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iron, which he had done many times previously, for some reason the entire wing flared, and was burned beyond repair. Mack suffered some burns also, but none too serious, we are happy to say. The only apparent reason for this was the fact that the heat of the iron was too much for the dope on the fabric around the taped area. Mack reports that it fairly exploded in his face!

He recommends to anyone working with Ceconite not to use an iron on taped surfaces after the first coat or two of dope has been applied to the main fabric surfaces. He also recommends using butyrate dope instead of nitrate dope.

Mack's morale is at rock-bottom for awhile, but he does not intend to give up. Right now he is interested in purchasing a right wing panel for a "Cougar", and would appreciate any information toward obtaining one.

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LUFKIN MAKES NEW STEEL TAPE

Lufkin Tool Co. has a very useful tool which many homebuilders would find great use for. It is a steel tape graduated in consecutive inches, with decimal graduations, 50 feet long. The list price is $14.80, Catalog No. C213CX.