5. Bend in the vise at points B, B.

6. Mark point C on both upright parts and bend in the vise.

7. Mark point D on both pieces and bend in the vise. Fig. 35 is a picture of the completed stirrup.

Note.— For other than 2x6-inch joists, add enough stock to make the stirrup either longer or wider or both.

FIG. 36. JOIST STIRRUP.

FIG. 37. SHOWING SCARFS ON LAP WELD OF RING.

LAP WELD

There are a number of different types of welds used by blacksmiths, but the lap weld, Fig. 37 and Plate 18, is the most common. Try welding a ring, C, Plate 18, first, as that is the easiest object to weld. The scarfs can be bent to the position shown before actual welding is begun.

How to Shape the Scarfs

1. Upset both ends, see A, Plate 18.

2. Hold the iron with a bolt tongs, and on the rounding edge of the anvil, shape the slope of the scarf. Hammer with a *backward* stroke, not straight down, Fig. 42.

3. Point the scarf as shown in the top view of B, Plate 18.

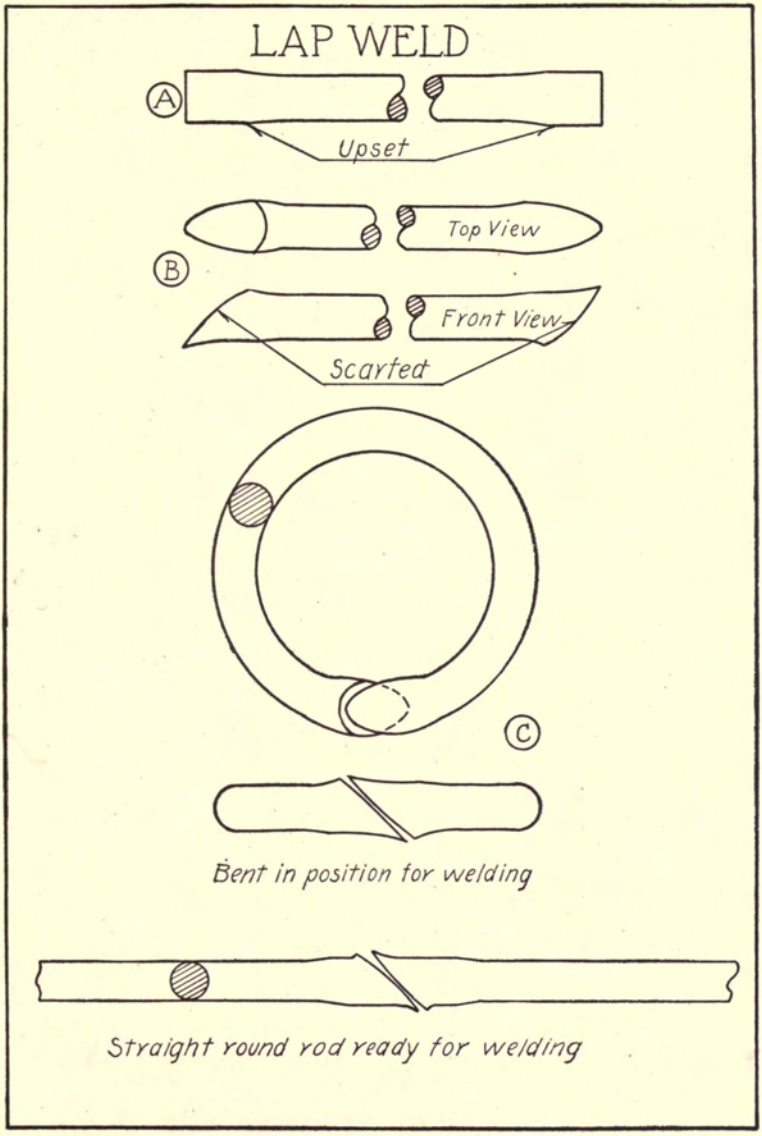
LAP WELD
A
Upset
B
Top View
Front View
Scarfed
C
Bent in position for welding
Straight round rod ready for welding

PLATE 18

4. Bend the scarf over the horn of the anvil to make the slope slightly rounding, as shown in Fig. 43. The scarfs must be shaped with a convex curve if the weld is to be successful.

5. The length of the scarf should seldom exceed one and one-half times the thickness or diameter of the iron.

Always observe the following directions when welding:

1. Use little draft in your fire. Heat the iron slowly and turn occasionally so that both sides will reach the welding temperature at the same time.

2. Have burning coke above, below and to the sides of the iron while heating.

3. The welding heat has been reached when the iron looks like melting ice, and appears to be melting on the surface. When tiny explosive sparks shoot off from it the iron is *burning*. It is not too late to weld the iron when the first sparks appear.

4. Quickly remove the iron from the fire to the face of the anvil, place the two scarfs together and strike a couple of light blows on the weld, followed by several heavy blows. Strike the weld on both sides of the iron.

5. Shape the welded part to conform with the shape of the iron, and then shape the object, if that is necessary.

FIG. 38.
WELDED RING.

WELDED RING

How to Make a Welded Ring

1. Read and study the Lap Weld and Plate 18 first.

2. Upset both ends of the stock, Plate 19, and scarf the ends like B, Plate 18.

3. Bend in a circle and into position for welding, and make the weld.

4. Shape the iron round and to size at the place of welding.

5. Shape the ring over the horn of the anvil, or a mandrel if you have one. The completed ring is shown in Fig. 38.

FARM BLACKSMITHING

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