CHAPTER III

FOLDING EDGES AND SEAMING

One of the most important processes in sheet metal working is that of seaming. Seams of various kinds are used, depending on the strain to be resisted and the equip-

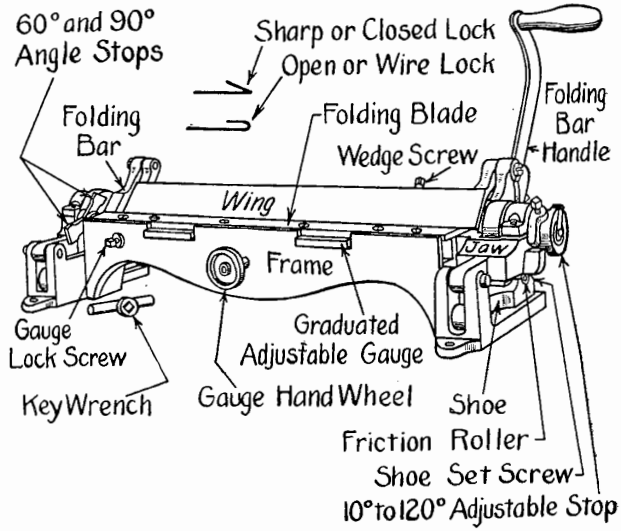

Figure 16.—Bar Folding Machine.

ment on hand for constructing them. The machine in general use for bending the edges of sheet metal for seaming is known as the adjustable bar folder, as shown in Figure 16. The following edges and seams are extensively used in light sheet metal work:

Single Edge.—This edge, as shown in Figure 17, is used in constructing seams and hemming the edges of sheet metal. In forming this edge in the folder, set the gauge to the required width, then insert the metal in the machine, holding it firmly against the gauge with the left hand. Grasp the handle with the right hand and bring

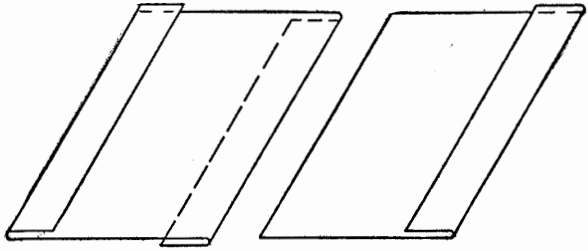

Figure 17.—Single Edges Formed on Sheet Metal.

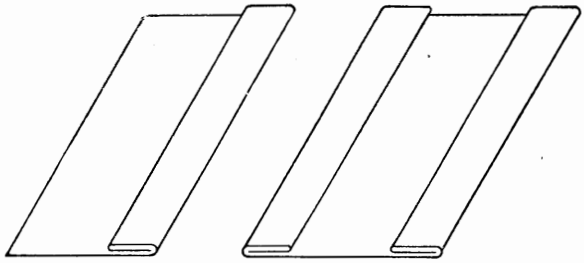

Figure 18.—Double Hemmed Edges.

the folding bar over until it rests on top of the machine. The handle of the machine is now brought to its former position and the metal removed from the machine, completing the operation.

Double Edge.—The double lock, shown in Figure 18, while used in certain work, is most commonly utilized to strengthen sheet metal forms. When used for this purpose it is known as a double hemmed edge. This edge is

formed in the folder in the same manner as the single edge. After the latter is formed, the sheet is turned over, then the single edge is placed in the machine against the gauge and the operation is repeated.

Wire Edge.—It is often necessary to increase the strength of articles made from sheet metal by inclosing a wire in certain of their edges. The edges for this purpose must be rounded as shown in Figure 19. To form

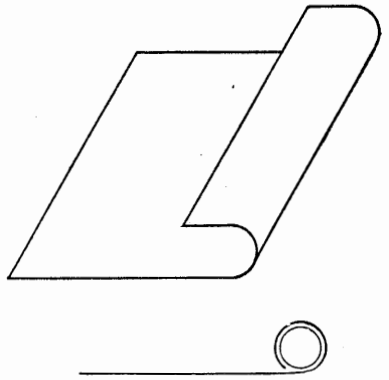

Figure 19.—Wire Edge, Open and Closed.

an open or round lock for wiring, set the gauge on the folder equal in width to two and one-half times the diameter of the wire to be used. Using the wrench, loosen the lock screw to the right on the back of the machine, and by moving this screw to the right or left in the slot the wing is raised or lowered. In adjusting the machine, lower the wing equal in width to the diameter of wire to be used, fasten the lock screws firmly, then turn the edge in the usual manner.

Lap Seam.—In Figure 20 is shown the ordinary lap seam, as used in the construction of small cylinders, square pipes, cornice miters, etc. This seam is usually

soldered or riveted. When thin metal is used and the seam is to be soldered, allow from 1/8″ to 1/4″ for lapping.

Folded Seam.—In making this seam, a single edge is turned on the metal, and the edges are hooked together

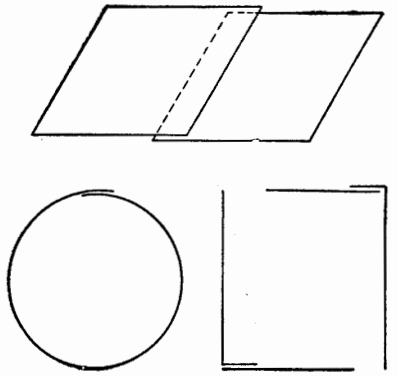

Figure 20.—Ordinary Lap Seams.

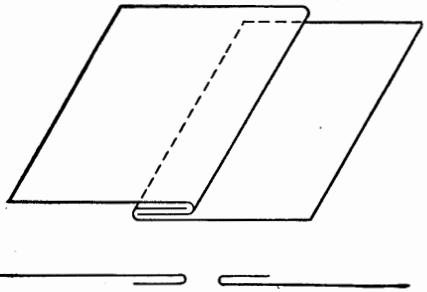

Figure 21.—Folded Seam, Consisting of Two Single Edges Hooked Together.

as shown in Figure 21, after which they are hammered down with a wooden mallet. Seams that are malleted down smooth are stronger and easier to solder than when uneven. Seams of this kind are used in laying flat seam tin and copper roofing.

Grooved Seam.—With light material, the grooved seam is the universally used method of joining the edges of sheet metal. This seam is frequently used in joining two flat sheets of metal, making longitudinal seams in round and square pipes, and vertical side seams in sheet metal articles having a flaring or cylindrical surface. An illustration of this seam, showing the construction, is seen in Figure 22. When joining two flat pieces of metal by

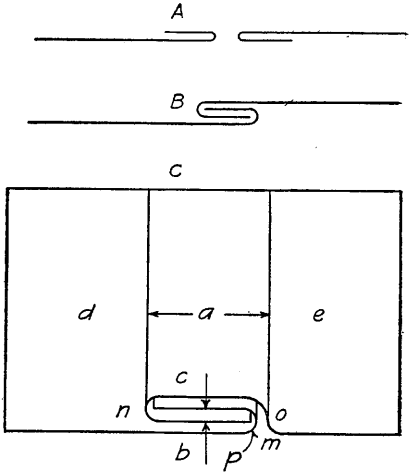

Figure 22.—Grooved Seam, Showing Construction.

this method, set the gauge on the folding machine to the width of the edge required, and turn a single edge on the sheets as shown at *A*. Hooking the edges together as shown at *B*, the seam is laid on the horn of the grooving machine (Figure 23). The rolls run over the seam lengthwise, completing the seam as shown at *C*. When the grooving wheel is run over the seam, an offset is made in the upper sheet *e* at *m*, which prevents the seam from coming apart. The seam is finished by placing it on a

mandrel stake, pounding it with a wooden mallet, closing it down, and leaving the seam tight and smooth.

Allowance for Grooved Seam.—The amount of material to be added to the pattern for making a grooved seam from light sheet metal depends upon the width of the

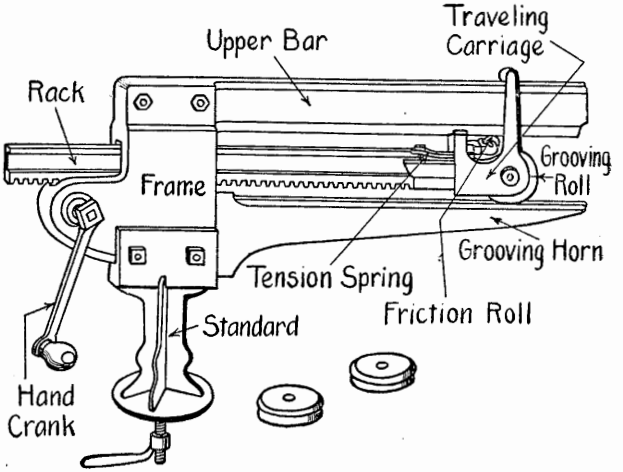

Figure 23.—Grooving Machine, Short Horn.

single edge turned on the folder, as shown in Figure 17. Three times the width of the single edge must be added to the pattern. The finished seam as shown at *C*, Figure 22, has four thicknesses of metal at *a*, the sheets *d* and *e* joining at *m*. The sheet *d* has a single edge *c*, while sheet *e* has a double edge, as shown at *a* and *b*. This shows the necessity of making an allowance equal to three times the dimension *a*, or width of the edge, for a grooved seam. When seaming tin plate and metal lighter than No. 24 gauge, no allowance is made for the stock taken up by the bends *n*, *o*, and *p*, in *C*, Figure 22.

Where heavier material is used and accuracy is

required, the actual amount of material taken up by these bends must be added. The student can determine the amount by making a test seam in the following manner: Take a strip of metal six inches long. After cutting it into two parts, turn an edge on each piece. Groove the seam and close it down with a wooden mallet. Then measure the length of the strip accurately, and the difference between this dimension and the length of the piece before seaming will be the amount of material to be added for the seam.