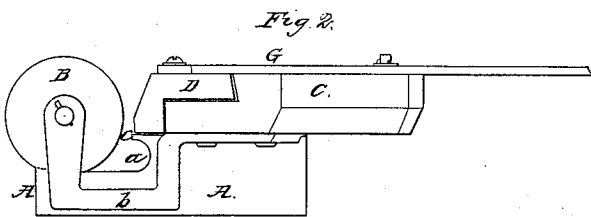
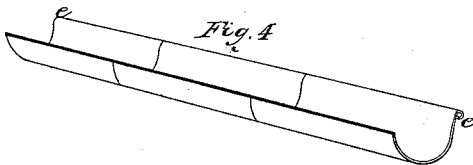
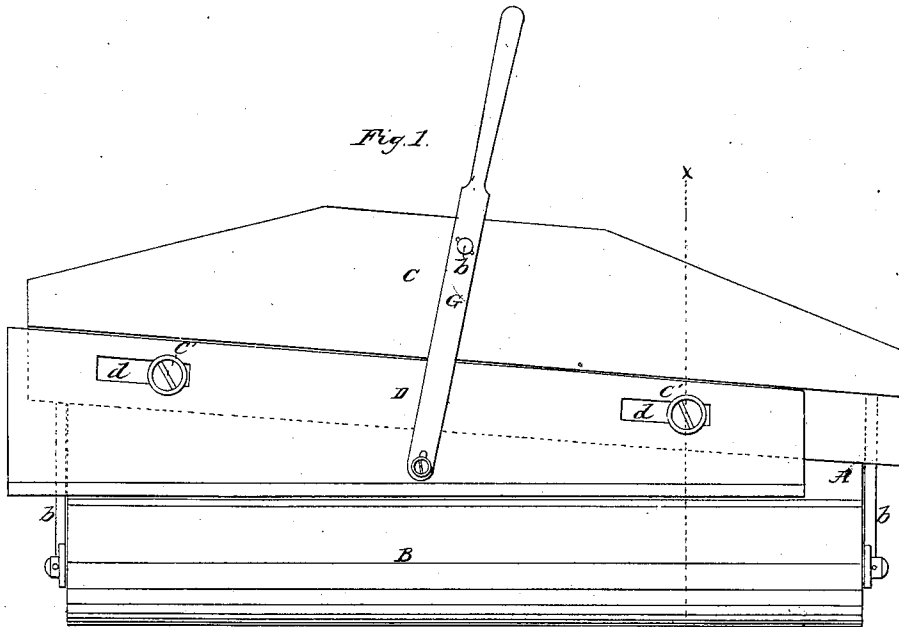


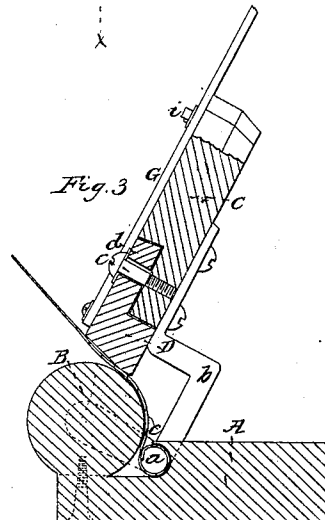
Scofield & Churchell,
Making Eaves-Troughs.

N^o 40,951.

Patented Dec. 15, 1863.



Witnesses: *R. T. Langfellow*
E. Schaefer



Inventor:

Wm. A. Scofield & E. Churchell
by their attys
Math. J. Lewis & Wm. A. Scofield

UNITED STATES PATENT OFFICE.

SILAS A. SCOFIELD AND ERASTUS CHURCHILL, OF MORENCI, MICHIGAN.

IMPROVEMENT IN MACHINES FOR MAKING SHEET-METAL EAVES-TROUGHS.

Specification forming part of Letters Patent No. 40,951, dated December 15, 1863.

To all whom it may concern:

Be it known that we, SILAS A. SCOFIELD and ERASTUS CHURCHILL, both of Morenci, county of Lenawee, and State of Michigan, have invented a new and Improved Machine for Making Eaves-Troughs; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a top view of the improved machine. Fig. 2 is an end view. Fig. 3 is a transverse section taken in the vertical plane indicated by red line *x x*, Fig. 1, showing the machine in operation. Fig. 4 shows an eaves-trough.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and improved machine for bending sheet metal and forming semi-cylindrical troughs for the eaves of houses and other purposes.

The object of the invention is to facilitate the making of such troughs, and also to prevent the sheets of metal from separating at the soldered seams during the operation of bending, as will be hereinafter described.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

The bed-plate A of the machine is formed with a longitudinal depression or rabbet on one side, extending the full length of this bed-plate, and back from its edge a short distance, to receive the cylindrical former B, which is bolted rigidly in its place, as shown in Figs. 1 and 2. The space *a*, which is left between the cylindrical former B and the overhanging edge *c* of the bed-plate A, is made of such form as to receive the bead which is formed on one edge of the strip of metal previous to the operation of forming the trough, and to hold this strip while it is being bent over the former B, as will be hereinafter described.

Instead of making the two parts A and B separately and then bolting them together, they may be cast together, so as to form one solid piece, leaving the bead-holding space *a*, as above described.

C represents a portion of the bending device, which has its straight edge nearest the former B rabbeted to receive the correspond-

ing edge of a wedge-piece, D, as shown in Figs. 2 and 3. The ends of the portion C project out beyond the ends of the bed-plate A, upon which it rests when the machine is not in operation, and these ends are connected to the axis of the cylindrical former B by means of bent arms *b b*, which are bent downward in order to allow the metal of which the trough is formed to be introduced into the machine and the troughs to be removed when finished. One of the arms *b* is longer than the other, which necessarily makes the position of the portion C oblique to the surface of the former B, as shown clearly in Fig. 1. The wedge-piece D is attached to the portion C between this portion and the former B by means of pins or screws *c' c'*, which pass through oblong slots *d d* in the wedge D and enter the portion C, as shown clearly in Fig. 3. The edge of the wedge D nearest the former B is parallel to this former, and this parallelism is preserved whether the wedge be set up closely against the former B or separated from it a short distance. This wedge D receives an end-wise movement from a lever, G, which is suitably attached to the wedge at one end, and which has its fulcrum at *i*. The operator by vibrating this lever can bring the beveled edge of the wedge up close to the former B or set it back a short distance from this former.

The operation of the machine is as follows: Several pieces of sheet metal of a suitable width to form a trough are soldered together, making a long strip, which is then subjected to a machine that forms a bead, *e*, Fig. 4, on one edge of the flat strip. This strip is now introduced endwise in the machine above described, the bead *e* being inserted in the space *a*, and the strip projecting perpendicularly to the surface of the bed-plate A. The operator now forces the wedge D up tightly against the strip of metal, which operation presses the latter against the surface of the former B, and being thus held the portions C and D are drawn over the former B, as shown in Fig. 3, and the strip of metal being held by its bead *e* is bent in the form shown in Fig. 4. The parts being returned to their former position the wedge D is thrown out so as to release the trough and allow it to be drawn from the machine. From this description it will be seen that the only adjustment necessary in operating our

machine is to move the wedge D forward at the commencement of the operation and to move it back to release the finished trough. The straight edge of the wedge pressing the sheets of metal uniformly against the surface of the former prevents the soldered joints of the sheets from separating during the bending operation.

One of the advantages which we obtain by securing the former B to or casting it with the bed-plate A is that this former will not be liable to spring or to be bent out of shape when it has a solid base for supporting it its entire length.

We are aware that Loomis Mann obtained a patent April 17, 1860, for a machine for bending metal into eaves-troughs, and that in said patent a circular former and a vibrating head are shown; but the former is hung in a frame to vibrate. We therefore do not claim a circular vibrating former and a vibrating head, as shown in Mann's said patent; but

What we do claim as new, and desire to secure by Letters Patent, is—

1. A stationary supporting-bed, A, with a stationary circular former constructed on one of its edges, so as to stand entirely above the

base of the bed, in combination with a recess, *a*, of the former, and located substantially as described.

2. The combination of the stationary bed A, circular former B, and the recess *a* with the vibrating head C D, substantially as and for the purpose described.

3. The wedge-shaped clamping-piece D between the circular former B and the shoulder of the head C, when constructed and arranged substantially in the manner and for the purpose described.

4. So applying a wedge-shaped clamping-piece, D, to a head, C, that by manipulating a lever the pressure of the wedge may be maintained, and also the vibration of the head produced, substantially as described.

5. The bent arms *b b*, in combination with a swinging head, clamp D, and recessed bed and former A B *a*, substantially as and for the purpose described.

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Witnesses:

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