

2 Sheets—Sheet 1.
A. O. KITTREDGE, W. H. & W. J. CLARK & A. M. KITTREDGE
SHEET-METAL MOLDING-MACHINE.

No. 172,326.

Patented Jan. 18, 1876.

FIG. 1.

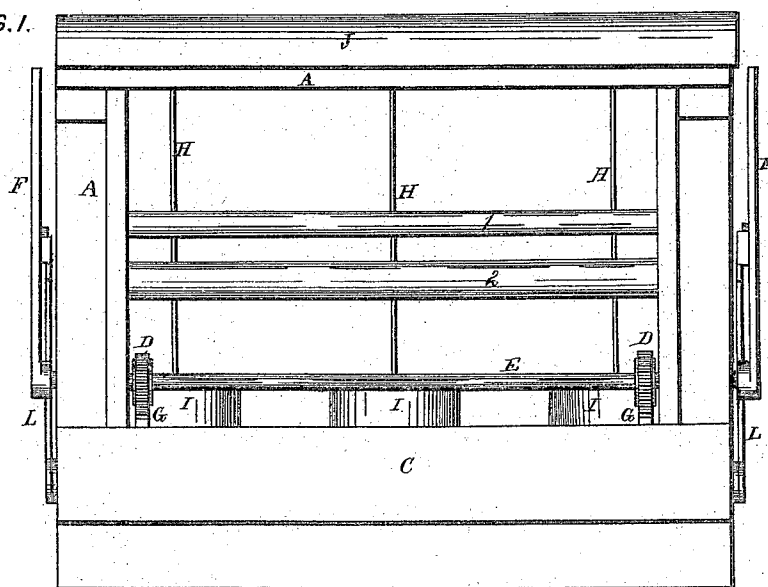
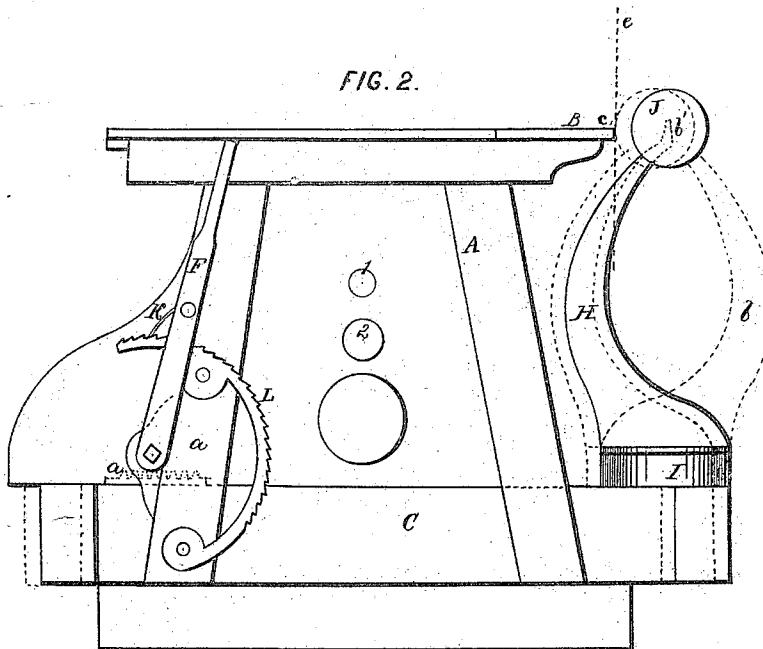


FIG. 2.



WITNESSES.

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FIG. 3.

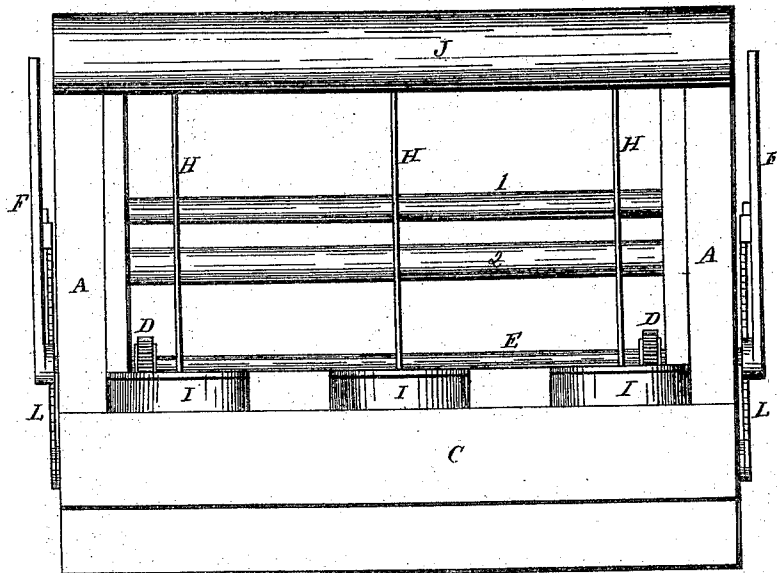
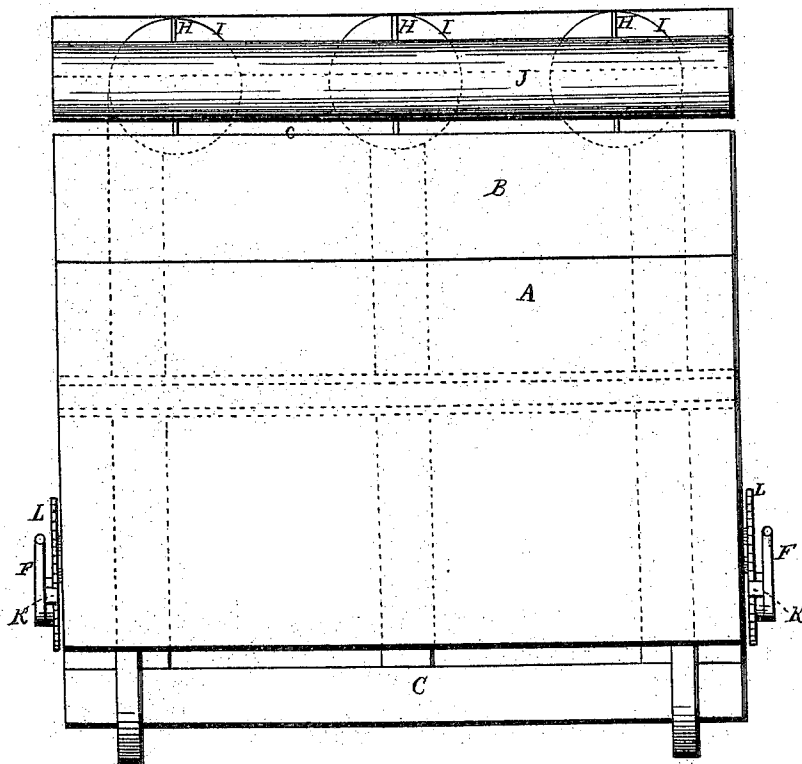


FIG. 4.



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UNITED STATES PATENT OFFICE.

ANSON O. KITTREDGE, WILLIAM H. CLARK, WILLIAM J. CLARK, AND ARTHUR M. KITTREDGE, OF SALEM, OHIO.

IMPROVEMENT IN SHEET-METAL-MOLDING MACHINES.

Specification forming part of Letters Patent No. **172,326**, dated January 18, 1876; application filed June 7, 1875.

To all whom it may concern:

Be it known that we, ANSON O. KITTREDGE, WM. H. CLARK, WM. J. CLARK, and ARTHUR M. KITTREDGE, of Salem, in the county of Columbiana and State of Ohio, have invented a certain new and Improved Metal-Molding Machine, of which the following is a full, clear, and complete description, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a rear elevation of the machine. Fig. 2 is an end elevation. Fig. 3 is a front elevation. Fig. 4 is a plan view.

Like letters of reference refer to like parts in the several views.

This invention is for bending the curved members in sheet-metal moldings, and which consists of a table. In connection therewith is arranged a former in a parallel relation to one of its sides. Said former is mounted upon reversible standards erected upon a carriage, whereby the former is advanced to the edge of the table for clamping the metal sheet, or receded therefrom, as the case may be.

The devices for operating the carriage are racks and pinions, all of which are constructed and operated substantially in the manner as follows:

In the drawings, A represents the table referred to, the front edge of which is covered by a plate of metal, B, Fig. 2. Between the legs of the table is fitted, so as to slide freely therein, a carriage, C, actuated by the pinions D D, Fig. 1, secured to the shaft E. Said shaft has its bearings in the legs of the table, and through which the ends project, that there may be secured thereto the levers F, whereby the shaft and pinions are operated for moving the carriage, with which the pinions are made to engage by the racks G, Fig. 1, also indicated by the dotted lines *a*, Fig. 2. On the front end of the carriage are erected the standards H, Figs. 1 and 2. The base I of the standards is pivoted to the frame, in order that the position of the standards may be reversed from that shown in the drawings to that indicated by the dotted lines *b*. The purpose thereof will presently be shown. The

standards, however, may be secured rigidly to the carriage, and, therefore, not reversible, and the number of them may be more or less, according to the width of the table or the length of the former supported thereby. To the upper end of the standards is secured a former, J, and in such relation to the edge *c* of the table that the axial line of the former will be in the horizontal plane of the table, or nearly so, as will be seen in Fig. 2. The manner of securing the former to the standards is by cutting mortises in the side of the former for the admission of the ends of the standards. The shape of the mortises is cut with a view to the shape of the ends of the standards, which are pointed, and in direction toward the center of the former, as indicated by the dotted lines *b'* referred to. This way, however, of securing the former to the standards is not insisted upon, as it may be secured thereto in other ways, perhaps, with equal security and facility. Different-sized formers are used on the standards by making a difference in the depth of the mortise, so that the mortise will fit down over the point of the standard, more or less, according to the size of the former.

The practical operation of the machine is as follows: As aforesaid, this machine is for forming the curved members of sheet-metal moldings. To this end the sheet is placed between the former J and the edge *c* of the table, bringing the line of bend to said edge *c*, in which position the sheet is clamped against the edge by the former, which is forced against it by the levers F, whereby the carriage is operated, as above described. The former is held, clamping the sheet between itself and the edge of the table, by the pawls K, Fig. 2, lodging in the teeth of the segmental racks L. The sheet thus clamped to the edge of the table is indicated by the dotted lines *e*, Fig. 2. From this position the sheet is carefully bent down over the former, thereby producing a curved member of the number composing the molding, the angular members of which are formed in another machine. Curved members of moldings of different sizes

are made by using different-sized formers, such as are represented at 1 2, and others, Fig. 1, which are placed under the table, as represented, for safe-keeping and convenience. The purpose of having the standards H bent, as shown in Fig. 2, is to allow the sheet of metal to swing farther under the former without striking the standards, which it would do were the standards straight. In thus allowing the sheet to swing under the former, a more full and complete curve can be made, and more especially is this the case when some parts of moldings are already formed on the sheet, which, by their size and general curvature of the sheet, could not be brought far enough under the former to produce the desired molding in full, as the sheet would strike against the standards were they straight; but, being curved, they are out of the way, so that more full and complete forms of moldings can be made. In some instances it is desirable to have that part of the sheet on which forms have been made on the inside of the standards, and in other cases on the outside, in which event the standards are to be turned around, bringing the concave side toward the table, or from it, as the work to be done may require, as indicated by the dotted lines *b*, Fig. 2. This reversing of the relation of the

standards is to make room for the sheets, which may be very bulky, in consequence of the angular and curved moldings formed in it. The full or convex side of the standards would be in the way and impede the work of bending the upper part of the sheet over the former; hence the necessity of reversing them.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The carriage C, sustaining the standards H H, and former J, in combination with the edge *c* of table A, substantially as and for the purpose set forth.

2. The curved and reversible standards H H, in combination with the former J and table A, as and for the purpose set forth.

3. The former J, having its axis supported on the standards in a line at or near the plane of the upper surface of the table, whereby it is sustained at the relative distance from the edge of the table in either position of the standards.

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