

A. O. KITTREDGE, W. H. & W. J. CLARK.

SHEET-METAL MOLDING-CLAMPS.

No. 171,671.

Patented Jan. 4, 1876.

FIG. 4.

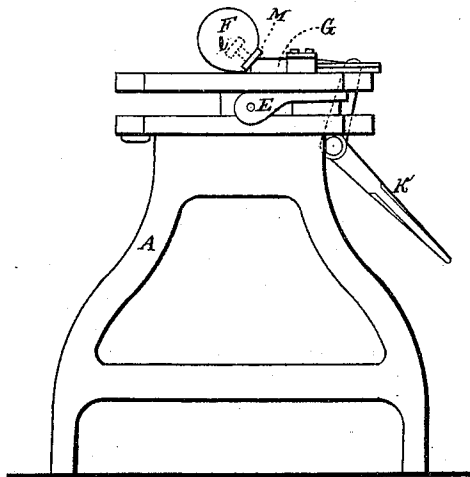


FIG. 5.

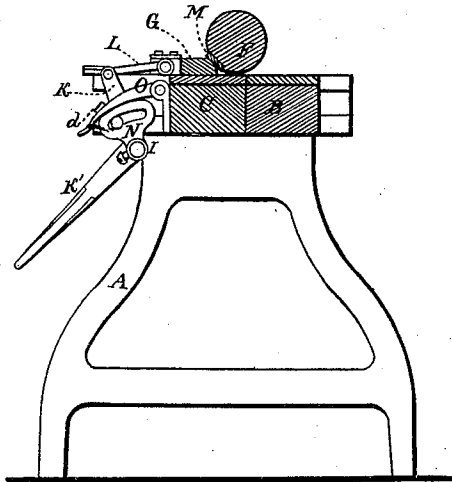
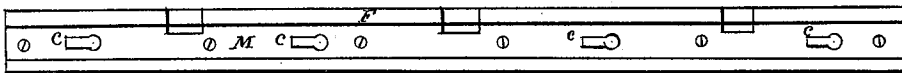


FIG. 6.



WITNESSES.

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IMPROVEMENT IN SHEET-METAL MOLDING-CLAMPS.

Specification forming part of Letters Patent No. **171,671**, dated January 4, 1876; application filed
July 6, 1875.

To all whom it may concern:

Be it known that we, A. O. KITTREDGE, WM. H. CLARK, and WM. J. CLARK, of Salem, in the county of Columbiana and State of Ohio, have invented a certain new and Improved Sheet-Metal Molding-Clamp; and we do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawings making part of the same.

Figure 1 is a front elevation of the clamp. Figs. 2 and 3 are plan views. Fig. 4 is an end elevation. Fig. 5 is a transverse section. Fig. 6 is a detached section.

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

This invention is for clamping sheets of metal for bending over a molding-former, and for a certain device, whereby said former is secured to the clamp so that it may be firmly held in place, and be at the same time easily and readily removed from the clamp to give place to other formers, as the nature of the work may require.

The construction and operation of the aforesaid invention is as follows:

In the frames A A is supported a bar, B, Fig. 2, forming the rigid or stationary jaw of the clamp. C is the movable jaw of the clamp, the ends whereof are fitted in grooves made in the sides of the frames, and wherein the jaw is made to slide toward and from the fixed jaw by the cam-levers D D, Fig. 2. The cam end of the levers are pivoted at *a* in the grooves wherein the jaw slides, and are attached to the jaw by a band, E, Fig. 1, passing around one side of the cam, and the ends secured to the jaw, as shown in the drawings, in which it will be seen that the cam is between the band and jaw. It will be obvious that on pulling upon the arms of the levers, bringing them to the position shown in Fig. 3, the jaw will be drawn forward, leaving a narrow opening, *b*, between the two jaws for the admission of the sheet of metal to be bent over the former F. The former F referred to is attached to the slide G lying lengthwise upon the movable jaw. Said slide is secured to the jaw by means of T-ways H, to which the slide is

fitted by corresponding grooves therein, and thereby held close down upon the jaw, as shown in the drawings. The slide G is actuated by the following device: To the shaft I, having its bearings in the boxes J, are secured arms K, Fig. 1, which are connected to the slide by links L, Fig. 3. To the shaft I is also secured a handle, K', whereby the shaft is rotated, which, as a consequence, operates the slide transversely on the face of the movable jaw. The former F referred to is secured to the slide G by pins, indicated by the dotted lines *e*, Fig. 4, projecting from the top of the slide into the former and a plate, M, fastened to the under side of the former, as will be seen in Fig. 6. In said plate are slots *c*, one end of which terminates in a hole for the admission of the head of the pins *e* alluded to, which, when inserted in said hole, the former is pushed lengthwise, thereby bringing the pins into the slots, and the heads thereof on the inner side of the plate, thus locking the former securely to the slide. Also, on the shaft I is secured by a set-screw a stay, N, provided with a slot, to which is fastened a check-pin, *d*, so arranged as to engage the slot in the catch or fall O hinged to the side of the movable jaw, as will be seen in Figs. 2 and 5.

Having described the construction and arrangement of the clamp, the practical operation of the same is as follows: In bending sheet metal over a former it is very necessary to hold the sheet with firmness and precision, so that it may bend straight and evenly in the lines of bend traced across the sheet. To this end the jaw C of the clamp is drawn back from the jaw B by the levers D; also, the slide G and former are drawn back from the edge of the jaw C by the handle K', as shown in Fig. 3. The sheet of metal is now inserted between the two jaws, and clamped therein by the jaw C operated as before by the levers D. The former is now moved forward close to the clamped sheet, and there secured from moving back by the fall O engaging the check-pin *d*, which is adjusted on the shaft, so that it may have such relation to the fall as to hold the pin in the lower end of the slot therein, and thereby prevent the shaft from turning,

and consequently preventing the slide and former from moving back while bending the sheet over it to form the molding.

It is sometimes necessary that the former should project beyond the edge of the movable jaw and unto, more or less, the fixed jaw. The nature of the work may also require that the former should not be quite to the edge of the movable jaw, but more or less back therefrom. Whatever may be the position that the former is required to hold in this respect of distance, it is readily maintained there by adjusting the check-pin in the slot of the stay N, so that it may catch in the fall at the lower end of its slot, preventing the shaft from turning, which, as will be obvious, must prevent the former from seceding from the position it should hold in respect to the edge of the jaws of the clamp. Also, it allows the use of different size formers, as the size of the molding may require, all of which can be readily adjusted to the edge of the clamps, and there maintained by the pin and fall.

By the simple means above described, whereby the former is secured to the slide, one former can be easily and readily exchanged for another, and by means of the mechanism

both ends of the former are moved at once by operating the handle K'.

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

1. The combination of the cam-levers D and bands E with the jaw C, for operating said jaw, substantially in the manner as described, and for the purpose set forth.

2. The shaft I, slotted stay N, and adjustable check-pin d, in combination with the fall O, substantially as described and for the purpose set forth.

3. The jaw C, ways H, and links L, in combination with the slide G and former F, substantially as and for the purpose set forth.

4. A wooden former, F, provided with a plate, M, having therein slotted holes e for the admission of the pins e, whereby said former or formers is secured to the slide G, substantially as described.

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