

No. 630,387.

Patented Aug. 8, 1899.

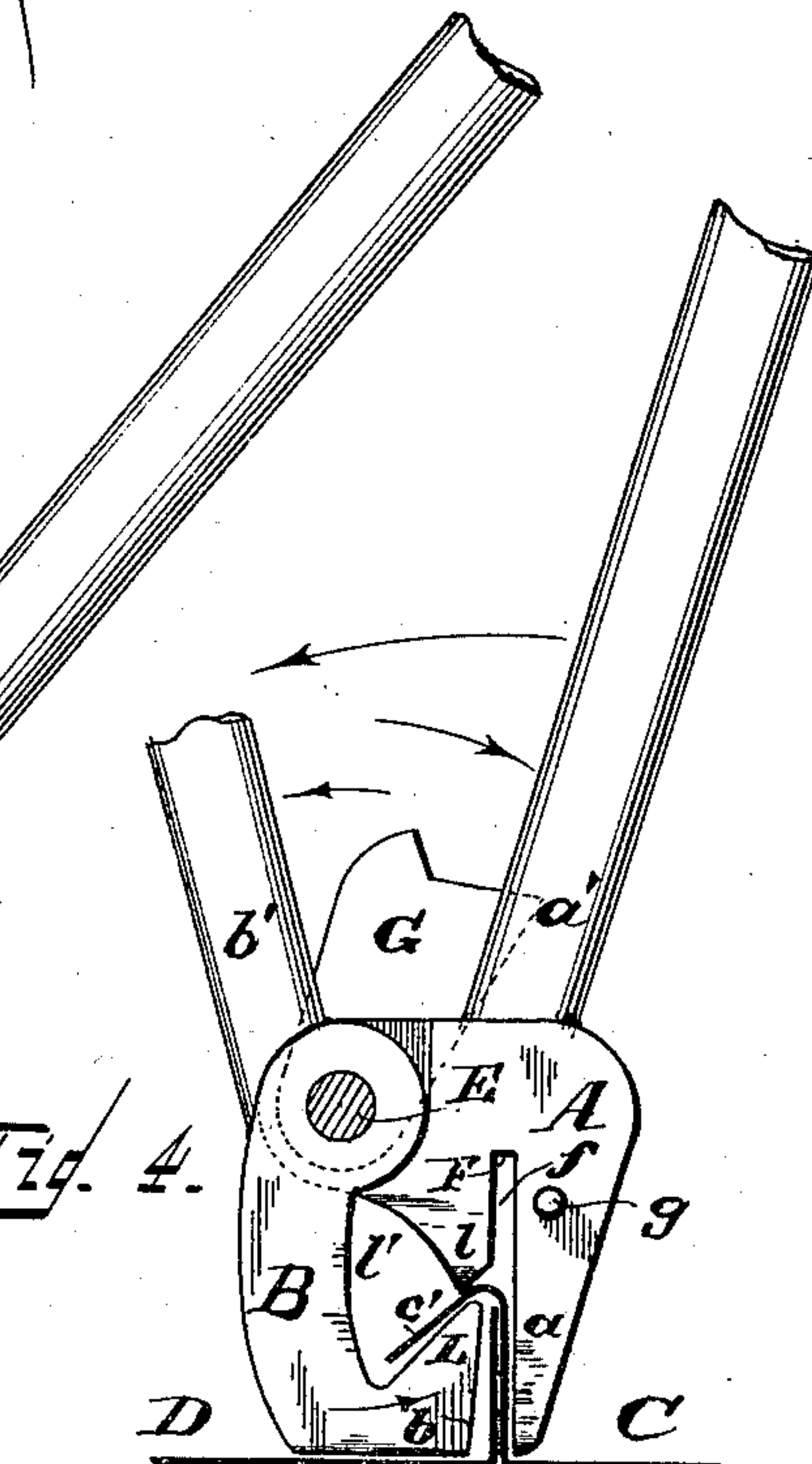
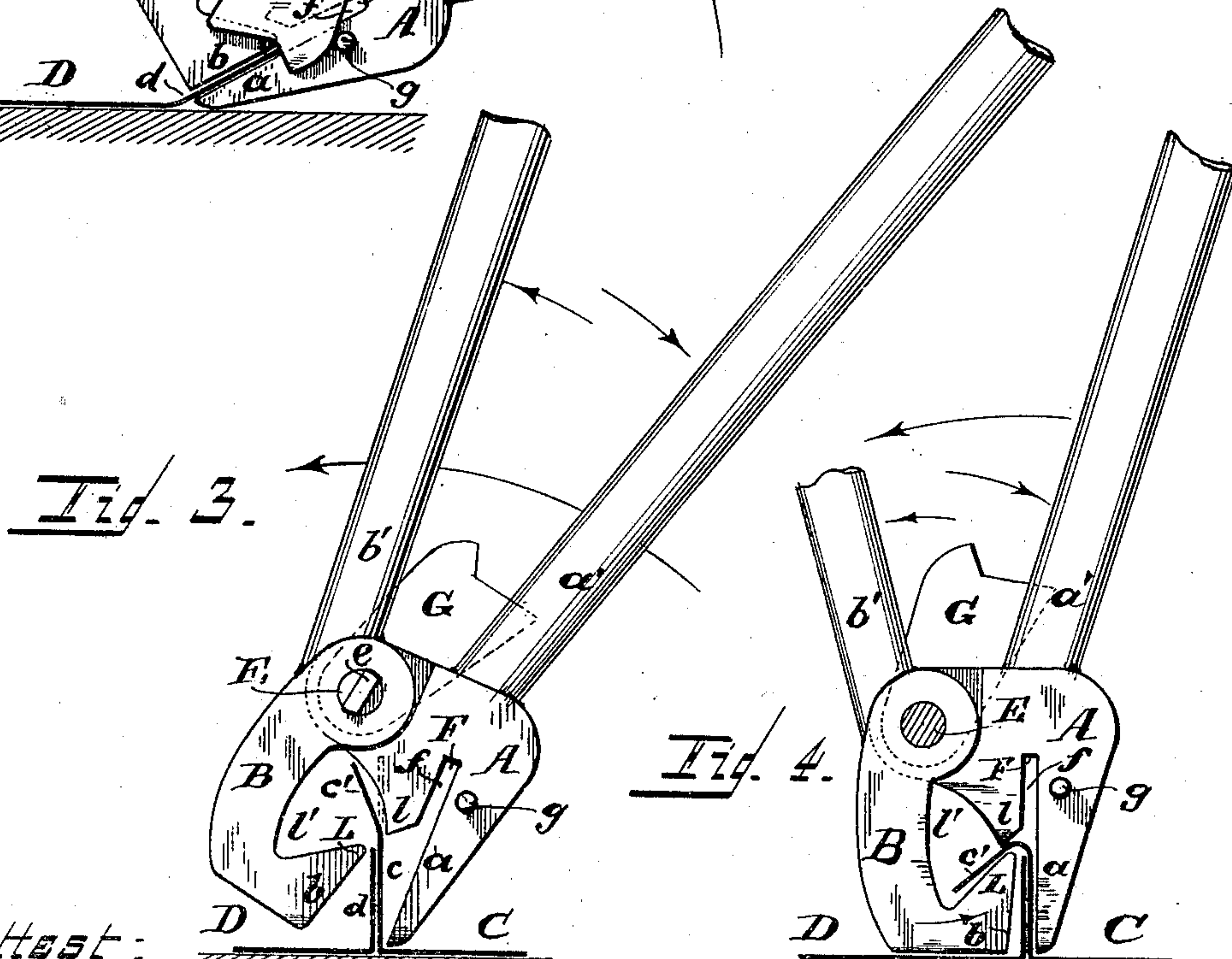
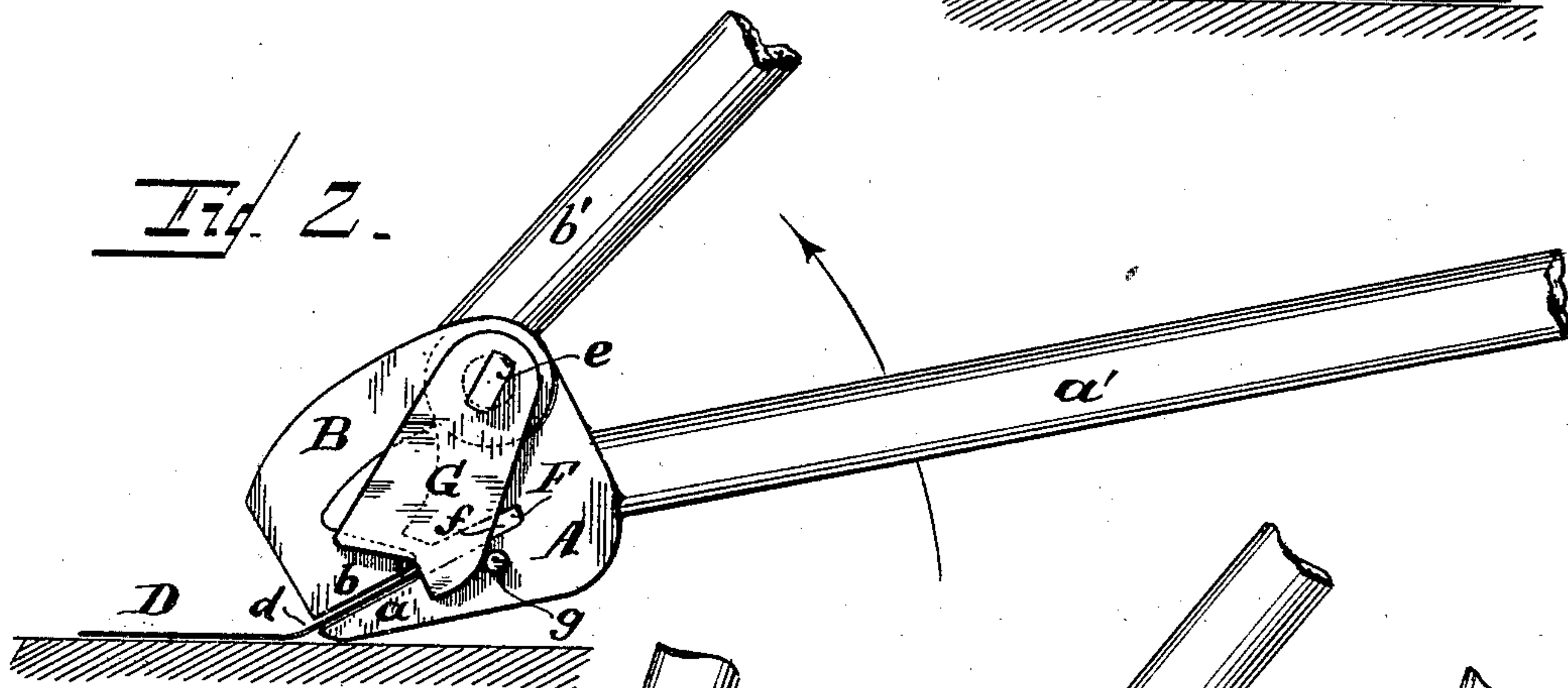
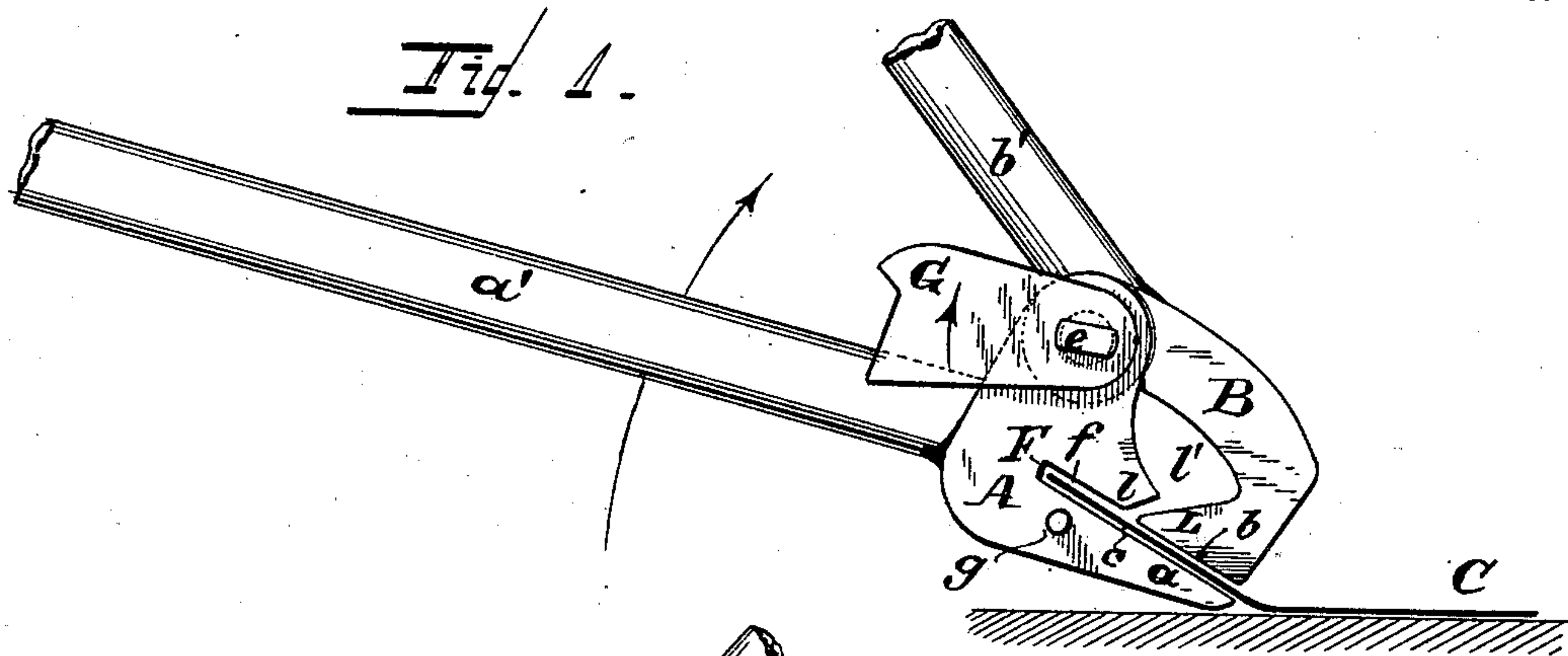
J. R. MAXWELL.

ROOFER'S TOOL.

(Application filed Feb. 19, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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UNITED STATES PATENT OFFICE.

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ROOFER'S TOOL.

SPECIFICATION forming part of Letters Patent No. 630,387, dated August 8, 1899.

Application filed February 19, 1898. Serial No. 670,924. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. MAXWELL, a citizen of the United States, and a resident of Hyde Park, Hamilton county, State of Ohio, have invented a certain new and useful Roofer's Tool; and I do hereby declare the following to be a clear, full, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, attention being called to the accompanying drawings, with the reference-letters marked thereon, which form a part of this specification.

This invention relates to an implement to be used in connection with the putting down of metal roofing. It is particularly intended to be used in connection with so-called "self-capped" roofing and roofing similar to it coming in long sheets which are laid down onto the wooden sheeting of the roof and connected at their adjoining edges by a standing seam. This seam is made by forming up-turned flanges on the adjoining edges of the sheets, of which always one flange of one sheet is higher than the one opposite it on the adjoining sheet, which excess of height after the two flanges are brought against each other is turned over the lower one and down on the other side thereof, after which the adjoining metal surfaces and overlapping edges and flanges are tightly squeezed together, thus finishing the seam. At present the different manipulations for the purpose of constructing such a seam—to wit, bending up the edges of the sheets to form the flanges, turning the projecting part of the higher flange over the lower one and overlapping the same, and, finally, squeezing the engaging parts tightly together—are generally done by tools specially constructed for each manipulation. Thus seaming-tongs for turning up the flanges are required—one for turning up the lower one and another for the higher flange. Frequently in place of two such tongs a tool is used which may be adjusted to form these two flanges, but which on account of its complicated construction is expensive and unreliable. Next a special forming-tool is used for bending the higher flange around and turning it down over the lower one, so as to overlap the latter. This operation is also frequently performed by a mallet. Finally,

squeezing-tongs are applied to finish the seam. Thus, as will be seen, in such case four tools are used, which increases considerably the cost of a roofer's outfit outside of the expense and labor which their transportation entails. Their alternate use during working also causes considerable waste of time when dropping one tool and changing to another one.

In view of these facts it is the object of my invention to provide a tool of simple but durable and practical construction which is so arranged as to permit all the different manipulations necessary to form such a seam to be performed therewith from the primary turning up and formation of the flanges of different width down to the final squeezing together of the seam.

In the following specification, and particularly pointed out in the claims, is found a full description of the invention, its manner of use, parts, and construction, which latter is also illustrated in the accompanying drawings, in which—

Figures 1 to 6 show end views of the tool with parts in the different positions which they assume during the various manipulations which are executed for the purpose of forming the seam. Fig. 7 is a top view of it as it appears in Fig. 6. Fig. 8 shows it with the handles connected to be adjustable. This figure is very much reduced as against the preceding figures. Fig. 9 is a detail view of Fig. 8, with the parts enlarged to about twice the size of the latter.

In most of the views the handles, owing to their extended length, are not fully shown.

The tool is essentially a clamping-tool—that is, in all the different manipulations a clamping action obtains always, either for the purpose of producing a direct effect by such action or merely for the purpose of holding the tool in position on the metal while performing certain other manipulations therewith. For such purpose the tool is constructed to embrace first two clamping-jaws A and B, having opposing clamping-surfaces *a b* and pivotally connected by a pin E, which passes through lugs provided alternately on the jaws. Each of the latter has a handle, one, *a'*, on A and one, *b'*, on B, which handles as to the first seven figures are so shaped and connected as to require an outward—that is,

movement in opposite directions—for the purpose of closing the clamping-jaws. This arrangement and manipulation is, however, common with many roofing-tongs.

5 In Figs. 1 and 2 the tool is shown in position for bending up the opposite edges of the two adjoining sheets of roofing C and D to form the flanges *c* and *d*. For such purpose one of the jaws is pointed, as shown, to permit it to be passed below the edges of the
10 sheet for the purpose of gripping the same. In this manipulation the clamping action of the jaws is merely for the purpose of holding tool and metal in position with reference to each other, the bending of the metal being done
15 by a lever action of the whole tool—that is, by the two handles which together and as a whole are moved upwardly—that is, in the direction of the arrows—until the upturned
20 part has assumed a position about at right angles to the balance of the sheet. As has been stated, one of these flanges is to be higher than the other, for which purpose their height is regulated by limiting accordingly the
25 “bite” of the jaws—that is, the metal they may take in—in each case. This is done by stops, which limit as to the effect of their action the depth of the clamping-jaws. For the higher flange *c* a stop *F* is provided, which
30 consists simply of the metal forming the body of jaw A at the inner end of clamping-surface *a*. For the lower flange *d* an adjustable stop *G* is used which is moved so as to limit the purchase of the clamping-jaws, as shown
35 in Fig. 2. In detail this stop consists of a flat plate pivotally supported, pin *E* being used for such purpose, and the end of which is reduced, as shown at *e*, to form a rivet for receiving such plate. When in position, this
40 stop rests against a pin *g*, as shown. In Fig. 3 it has been left off from the end of pin *E* to show the rivet *e* thereat. In Figs. 4, 5, and 6 pin *E* is shown in section. During the subsequent manipulations stop *G* is not re-
45 quired, and consequently moved out of the way to a position as shown in Fig. 1. After the flanges have thus been formed the sheets are laid alongside each other, with the high flange *c* of one sheet and the low flange *d* of
50 another in juxtaposition and about as shown in Fig. 3. The next step necessary now is to bend the projecting part *c'* of the higher flange *c* around flange *d* and sufficiently down on the other side about as shown in Fig. 5 to
55 permit application of the tool for finishing the seam. This effect is obtained by the opposing action of two opposite edges *L* and *l* and formed one on each clamping-jaw. Edge *L* is formed by terminating the clamping-surface *b*, as shown—that is, so as to come about
60 even with the upper edge of the narrower flange *d*. The other edge *l* is formed by a downward projection of the metal of clamping-jaw A, the end of which projection is beveled, as shown. Clamping-jaw B back
65 and inwardly from edge *L* is hollowed out, as shown at *l'*, to produce the requisite clear-

ance to permit part *c'* of flange *c* to turn and also to obtain the inner bevel for edge *L*. The necessary manipulation of the tool while
70 forming this part of the joint is shown in Figs. 3 and 4. With jaws open, so as to take in the two upturned flanges, the tool is placed with the outer point of jaw A in the corner
75 formed by flange *c*, as shown in Fig. 3, and then the jaws are closed, while at the same time the whole tool is moved, as shown by the large arrow, until the parts arrive about
80 in a position as shown in Fig. 4, the movement being continued until clamping-surfaces *a* and *b* come as close to each other as possible. This leaves part *c'* of the flange in a shape as shown in Fig. 5—that is, started
85 sufficiently down and below the horizontal line to permit application of clamping-tongs to squeeze the parts finally together. This turning of *c'* below a horizontal line is due to the fact that edge *L* moves first under edge *l*
90 and after passing beyond the same rises again slightly and approaches the latter on the other side thereof. This movement of edges *L* and *l* with reference to each other is due to the location of the pivot from which they are
95 swung—that is, the location of pin *E*, which connects jaws A and B, and which location is to one side—that is, eccentrically to the clamping-line. When the manipulation illustrated
100 in Fig. 4 is complete, the tool is disengaged by being slid out endwise, turned around, and opened, so as to permit clamping-surface *b* to be placed against flange *c*, as shown in Fig. 5. The tool is operated now simply as squeezing-tongs by bringing clamping-surfaces *a* and
105 *b* toward each other, as shown in Fig. 6, which finishes the seam. During this manipulation the broad surface at the outer end of jaw B, which is disposed substantially at right angles to its clamping-face *b*, serves to support the tool in proper position.

The object of the modified construction
110 shown in Figs. 8 and 9 is simply to permit an adjustment of the handles to a position whereby their manner of use, as shown in Figs. 1 and 2, for the purpose of holding the
115 clamping-jaws closed is reversed, so that instead of moving and holding the handles apart they are held together for such purpose, like in ordinary tongs. For such purpose sockets *H* are provided on each jaw, which receive the lower ends of the handles. These
120 sockets are slotted, as shown at *h*, and pins *h'* are provided which pass through the lower ends of the handles and, extending also into slots *h*, hold the handles in position. If these pins are moved to a position as shown for
125 handle *a'* in Fig. 9—that is, so as to reach with each end into slot *h* at each side of the handle—then the latter is locked in its position, while when in a position as shown for
130 handle *b'* in the same figure the handle may be readily turned and adjusted, as shown in Fig. 8.

As will be observed, the provision of projection *l* on jaw A creates a slot *f* between

these two parts of the jaw. This slot is of considerable advantage, inasmuch as it aids retention of the edge of the sheet in proper position with reference to stop F when the tool is manipulated for the purpose as shown in Fig. 1.

Having described my invention, I claim as new—

1. In a roofer's tool for the purpose of forming flanges at the edges of sheets, the combination of two opposing clamping-jaws pivotally connected and one being pointed to permit engagement with a flat-lying sheet pivotally-supported stops one at each end for adjusting the accessible depth of the clamping-surfaces of these clamping-jaws, and pins *g*, whereby said stops are held in their adjusted positions.

2. In a roofer's tool for the purpose of forming flanges at the edges of sheets, the combination of two opposing clamping-jaws A and B, a pin E, whereby they are pivotally connected and stops G, one supported at each end of said pin for the purpose described.

3. In a roofer's tool for the purpose of forming flanges at the edges of sheets, the combination of two opposing clamping-jaws A and B pivotally supported and a slot *f* provided in jaw A adapted to receive the edge of a sheet and whereby the purchase of the jaws is limited to determine the width of the flange to be formed.

4. In a roofer's tool for the purpose of forming flanges at the edges of sheets, the combination of two opposing clamping-jaws A and B pivotally supported, a slot *f* provided in jaw A adapted to receive the edge of a sheet of metal and determining the width of a flange to be formed and an adjustable stop adapted to be moved to prevent full access to said slot thereby permitting formation of a narrower flange and determining also the width of the latter.

5. In a roofer's tool for the purpose of forming the connecting-seams between sheet-roofing, the combination of pivotally-connected

opposing jaws, each provided with a socket H, a curved handle fitted into each socket, each of which is provided with a slot *h*, and a pin *h'* projecting from each handle and by extending into slots *h*, holds the handles in place.

6. In a roofer's tool for the purpose of bending, shaping and flanging the edges of metal sheets used in sheet-roofing and for connecting the edges after so flanged, by an overlapping seam, the combination of two eccentrically-hinged jaws A and B, with clamping-faces *a* and *b*, the outer edges of which are coincident and one being pointed to permit the particular jaw to be passed under the edge of a sheet, for the purpose of turning the same up to form a flange, one of the clamping-jaws having a projecting lip, forming a projecting turning edge, the clamping-face of the other clamping-jaw being of less depth, forming an internal lip or internal turning edge adapted to pass under the projecting turning edge first mentioned all as shown and for the purpose described.

7. In a roofer's tool for the purpose of bending, shaping and flanging the edges of metal sheets used for sheet-roofing, for connecting the edges after so flanged by an overlapping seam and for squeezing the same together, the combination of two clamping-jaws being hinged together and each provided with a clamping-face, the outer edges of which are coincident, the extreme outer end of one jaw being pointed, to permit it to be passed under the edges of sheets for the purpose of flanging the same, the outer end of the other one being broadened to provide a supporting-base for the tool to rest on while used during certain manipulations of the general operation.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JAMES R. MAXWELL.

Witnesses:

E. D. BEVITT,
C. SPENGEL.