(No Model.)

H. L. TOTTEN.

DOUBLE SEAM FOLDER.

No. 478,723. Patented July 12, 1892.

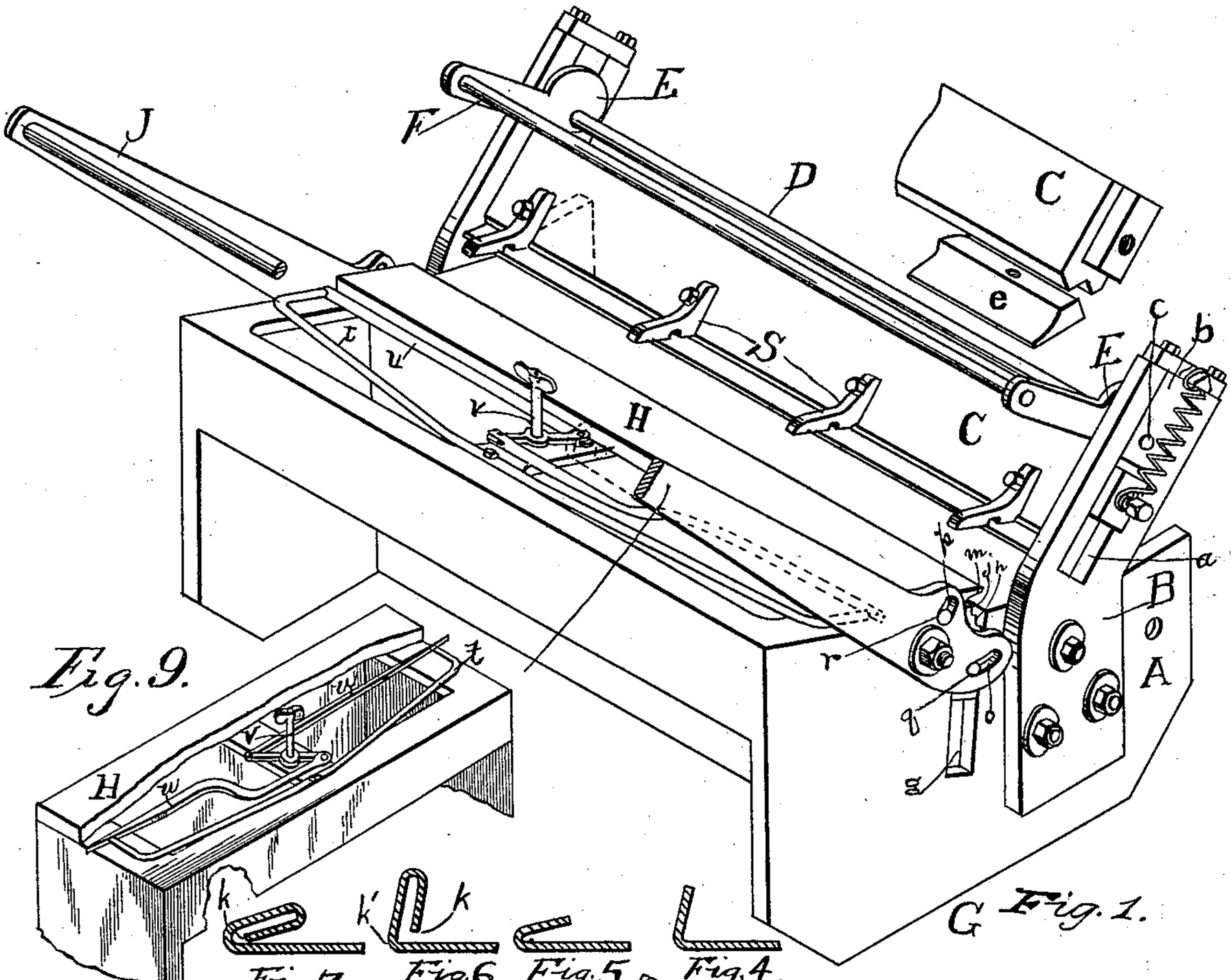

Fig. 9. Fig. 1.

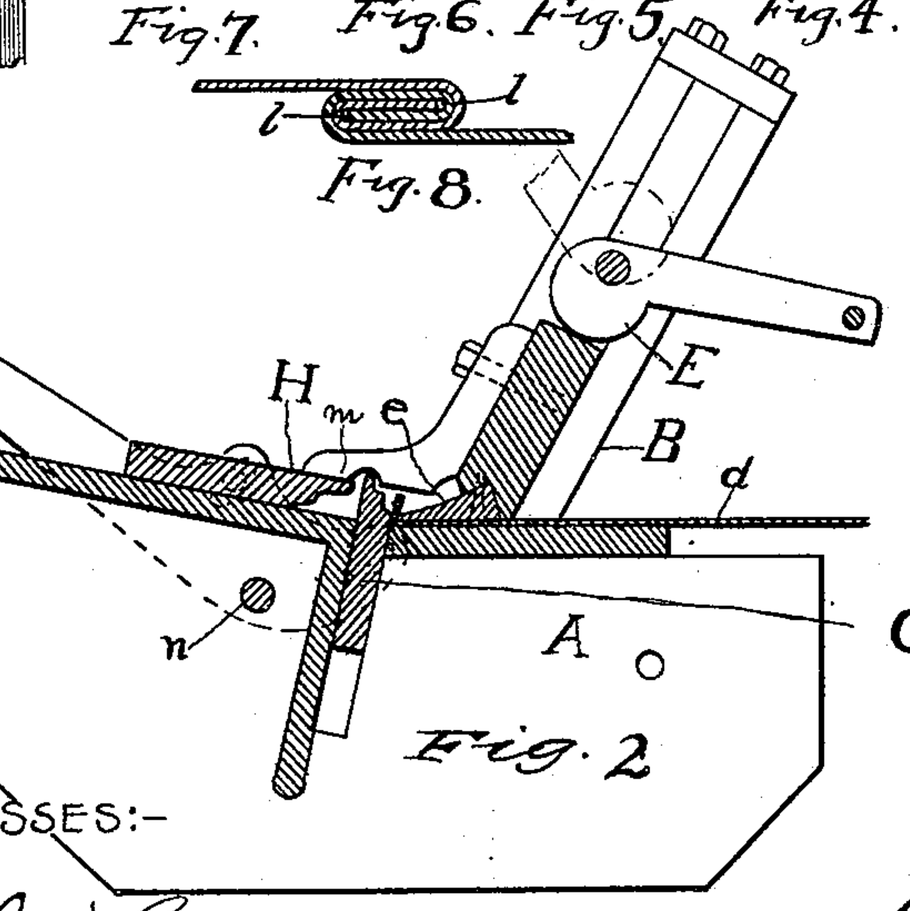

Fig. 7. Fig. 6. Fig. 5. Fig. 4. Fig. 8.

Fig. 2.

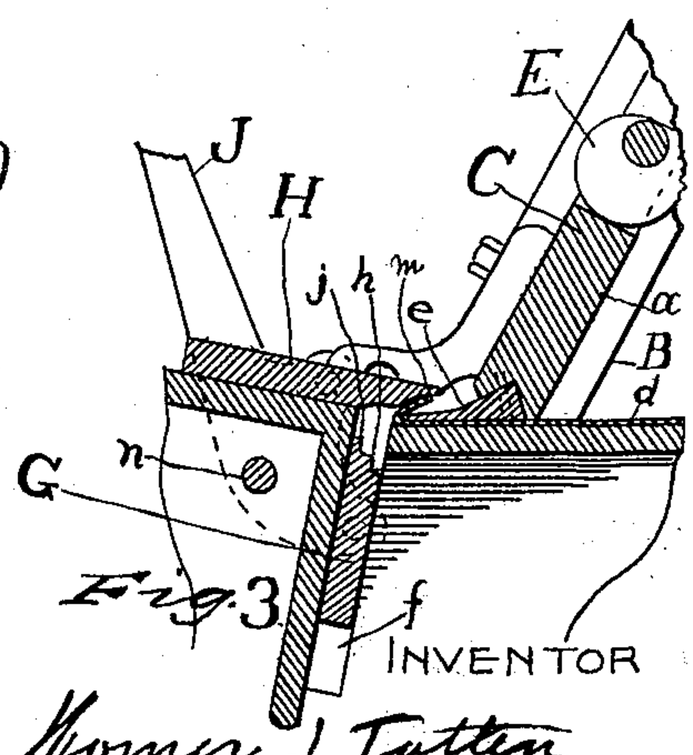

Fig. 3.

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DOUBLE-SEAM FOLDER.

SPECIFICATION forming part of Letters Patent No. 478,723, dated July 12, 1892.

Application filed February 27, 1892. Serial No. 422,984. (No model.)

To all whom it may concern:

Be it known that I, HOMER L. TOTTEN, a citizen of the United States, and a resident of Canton, county of Stark, State of Ohio, have invented a new and useful Improvement in Double-Seam Folders, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to an improvement in machines for double folding the edge of metal sheets for double seaming—that is, to fold the ends of sheets so that one folded portion will pass into and fold about the folded portion of another sheet, thus forming a lock-seam; and it consists in providing a machine having a table portion and means for holding the sheets of metal, gages to determine the width of the seam, and devices for binding, the successive operation of which will form the double fold.

With these ends in view my invention relates to certain features of construction and combination of parts, as will be hereinafter described, and pointed out in the claims.

Figure 1 of the accompanying drawings is a view in perspective of a sheet-metal-folding machine illustrating my invention. Fig 2 is a vertical section showing the metal sheet in the machine, the first turn made to form the double lock. Fig. 3 is a similar view showing the machine in position to form the second bend or movement of the edge of the sheet toward completing the fold. Fig. 4 is a view of the fold from the side of the sheet, showing the first bend of the metal; Fig. 5, a similar view showing a second movement of the edge of the sheet metal; Fig. 6, a similar view showing the third movement of the metal in the process of forming the loop; Fig. 7, a similar view showing fourth and last movement or bend in the metal to form the loop; Fig. 8, a similar view of the completed lock-seam, showing sheets locked together; and Fig. 9 is a detail view of the mechanism for arresting the movement of the crimper.

Similar letters of reference indicate corresponding parts in all of the figures of the drawings.

A represents the supporting-frame, which is adapted to be secured to a sheet-supporting frame or table, to which side arms B are secured, the top portion of said arms preferably turned rearwardly, and in the upper portion of the arm is provided an elongated aperture or slide *a*, in which is placed the end portions of the pressure or sheet-holding bar C. At the upper portion of the arms B in the elongated aperture *a* is placed a block *b*, in which there is an aperture *c*, that serves as a journal-box for the cross-shaft D, on which is mounted eccentric levers E, the eccentric portion of which will engage the upper portion of the bar C, the outer or lever portions connected by the cross-bar F, which serves as a handle by which the eccentric may be rotated about the shaft D to force the bar C down onto the metal sheet *d*.

At the lower edge of the bar C is secured a tempered-steel toe-piece *e*, which serves as a gage over which the edge of the metal sheet is bent to form the double-lock seam, and to raise the bar and toe-piece from the sheet the spring *f* is provided, as shown in Fig. 1 of the drawings.

In the end portions of the frame A there is provided an elongated aperture or slot *g*, in which is placed a slidable gage and folder G, having at its upper portion shoulders *h* and *j*, which serve to arrest the forward movement of the sheet and to determine or gage the width of the fold or seam to be made, the shoulder *h* to determine the width of the first fold or bend in the sheet, as shown in Figs. 2 and 4, and *j* to determine the width of the second fold or bend, as shown in Fig. 6, the latter fold being wider than the first, as shown in Fig. 4. The offset in the gage and folder G from *h* to *j* is greater than from the rear face of the gage to *h* to provide a space *k* between the end of the sheet and the bend *k'* to receive the end portion *l* of the fold, as shown in the completed seam, Fig. 8.

On the top of the frame A is provided a slidable crimper H, having its rear edge *m* adapted to engage the sheet metal and by a rearward movement bend it over the front edge of the toe *e*. To operate the gage G and slide H, an actuating-lever J is provided, which is pivotally secured by a fulcrum-pin *n* to the frame A, said lever having provided therein elongated apertures *o* and *p*, the former to embrace and engage at its end portions a stud-pin *q*, projected from the gage and folder G, the latter to embrace and engage at its end portions

a stud *r*, projected from the crimper H. On the front side of the holding-bar C is provided a series of foot-pieces S, that extend out therefrom and over and upon the crimper H, by which the said crimper is held down or against vertical movement.

The forward movement of the crimper is arrested by the spring *t* (shown in Fig. 1) and may be regulated by turning the tapering slides *u* into position between the end portion of the spring *t* and the front edge of the crimper by the turn-key *v*.

In operation the sheet *d* is placed on the table, front end resting against the shoulders *h*, the bar F thrown or turned back, by which movement the eccentrics E are turned against the holding-bar C to force the same down on the sheet, the lever J drawn forward and down to move the gage G up to position shown in Figs. 2 and 4, by which movement the front edge of the sheet *d* will be turned up. The lever is then moved over and back, by which movement the gage and folder G will be moved down from the sheet, the crimper H moved rearwardly to turn the edge of the sheet back and down, as shown in Figs. 3 and 5. The lever J is then turned forward, moving the crimper against the stop-spring *t*. The sheet is then moved forward, the bent end resting against the shoulder or stop *j*. The lever J is then thrown forward to raise the gage G, to bend or fold the bent end of the sheet, as shown in Fig. 5, up into the position or form shown in Fig. 6. The lever is then moved over and rearwardly to move the gage and folder G down and the crimper H rearwardly to turn the folded portion of the sheet down to the form shown in Fig. 7. Two sheets so folded may be joined, as shown in Fig. 8, to form a double seam by sliding them together. Thus it will be seen that by the four movements of lever J, (two forward and two back,) and one movement of the sheet *d* after its first position against the shoulder *h* the double fold is completed.

Having thus fully described the nature and the object of my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the frame A, of the arms B, sheet-holder C, eccentrics E to force said holder down on the sheet *d*, the gage and folder G, having offset shoulders *h* and *j*, crimper H, and an actuating-lever J, by which the gage and crimper are alternately moved to bend and fold the edge of the sheet *d*, substantially as shown and described, and for the purpose set forth.

2. The combination of the main frame and the supporting-arms B secured thereto, a clamping-bar C, having a sliding engagement with said arms and provided at its lower edge with a toe *e*, the eccentric E for depressing the clamping-bar C, a folding-gage G, having a movement at an angle to that of the clamping-bar C, a crimper, a lever for advancing the same, a spring, tapering slides located between the edge of the crimper and the spring, and a key for reciprocating said slides.

3. In a double-seam folder, the combination, with a main frame, of a holder, a folder, a crimper, and mechanism for arresting the movement of the crimper, comprising a loop-spring, tapering slides located between the ends thereof and the edge of the slide, and means for reciprocating said slides.

In testimony whereof I have hereunto set my hand this 19th day of February, A. D. 1892.

HOMER L. TOTTEN.

Witnesses:
W. K. MILLER,
CHAS. R. MILLER.