S. B. BUSHFIELD.

Dies for Forming Sheet-Metal Boxes.

No. 153,931. Patented Aug. 11, 1874.

Fig. 1.

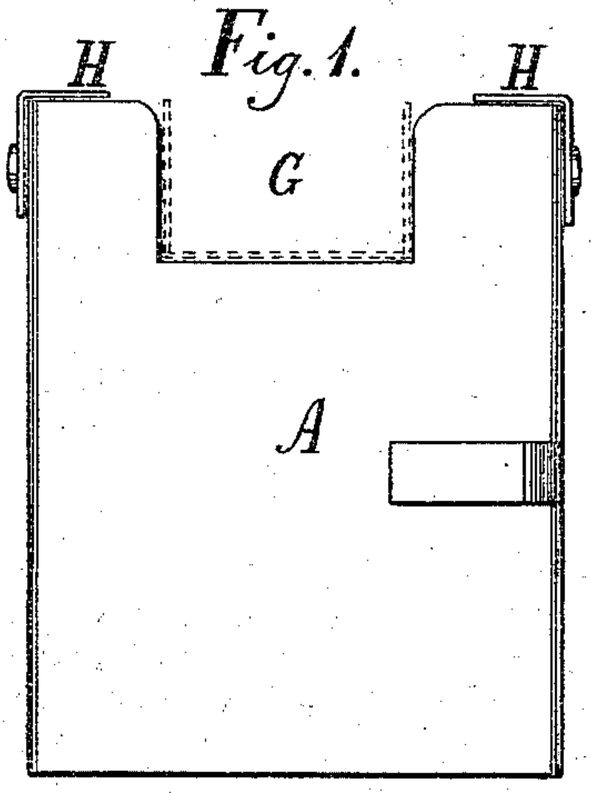


Fig. 2.

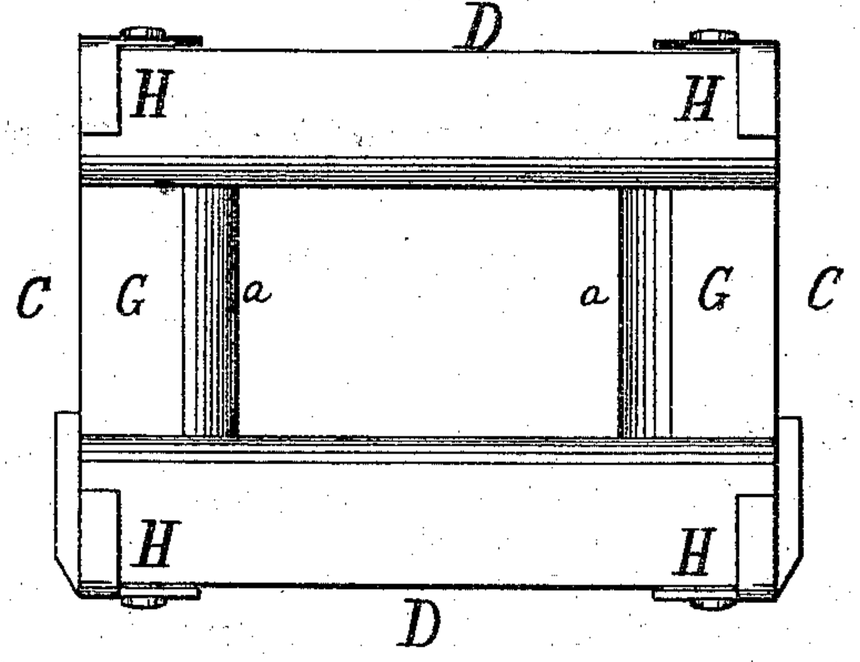


Fig. 3.

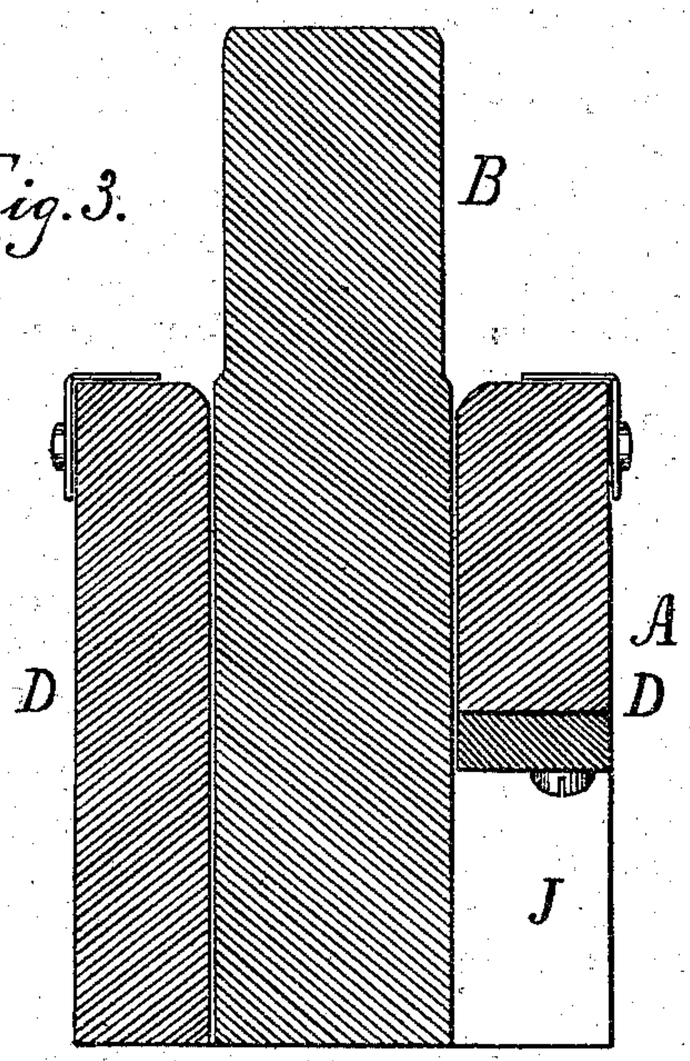


Fig. 4.

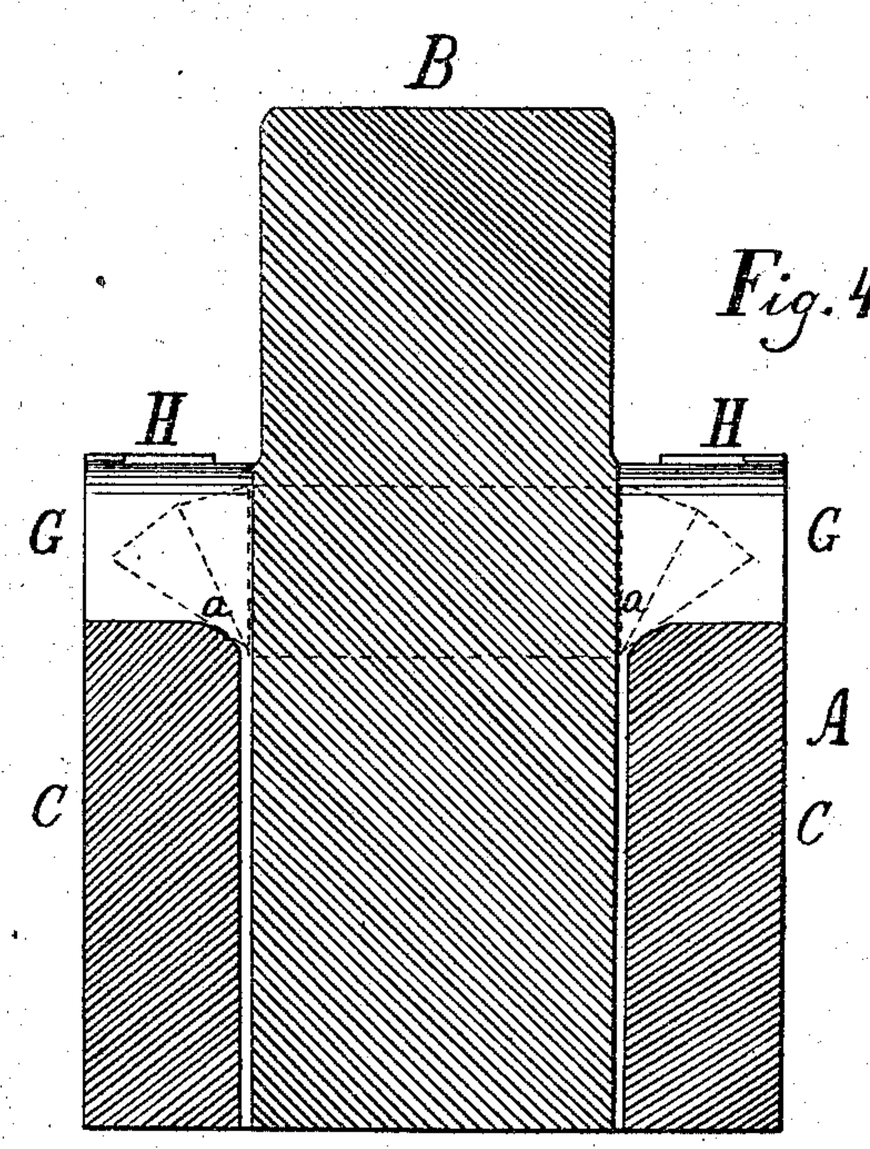


Fig. 5.

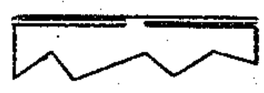
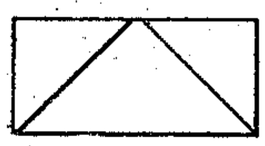


Fig. 6.



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UNITED STATES PATENT OFFICE.

SAMUEL B. BUSHFIELD, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE HALF HIS RIGHT TO ROBERT D. MORRISON AND JOHN H. WARNER, OF SAME PLACE.

IMPROVEMENT IN DIES FOR FORMING SHEET-METAL BOXES.

Specification forming part of Letters Patent No. **153,931**, dated August 11, 1874; application filed December 29, 1873.

To all whom it may concern:

Be it known that I, SAMUEL B. BUSHFIELD, of the city and county of Baltimore and State of Maryland, have invented a new and useful Improvement in Dies for the Manufacture of Sheet-Metal Boxes; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is an end view of the lower die embodying my invention. Fig. 2 is a top or plan view thereof. Fig. 3 is a transverse vertical section of the two parts of the die. Fig. 4 is a longitudinal vertical section thereof. Fig. 5 is a top view of a portion of the box. Fig. 6 is a view of the inner side of one end thereof.

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

This invention relates to dies for the manufacture of a seamless box, whose corners are united by folds which project into the body and are continuous of its sides and ends.

The invention consists in the construction of the dies to cause the turning-up of the sides and ends of the box and the turning-in of the corner folds.

Referring to the drawings, A represents the lower die, and B the upper die or plunger. The lower die is adapted to receive the upper die or plunger, the dimensions of the working faces of the two parts being such that a space is left between them equal to the thickness of the metal. The end pieces C of the lower die are lower than the side pieces D, so that a space, G, is left at each end of the die, and the inner edges of said end pieces are preferably rounded, as at *a*. Guides or gages H may be placed on the upper faces of the side pieces D, to insure proper location of the blank and working thereof.

The operation is as follows: The blank is laid on the side pieces D of the lower die, and, the plunger being depressed, the blank is forced into the said lower die, and thus bent to conform in cross-section to the shape of the space G, as seen by the dotted lines, Fig. 1, whereby two sides of the box are turned up and formed. The unbent sides of the blank now reach and rest on the end pieces C of the die, and the plunger, continuing its descent, throws up said sides, (constituting the ends or other sides of the box,) and simultaneously therewith turns in the corners of the blank, thus forming at the corners diagonal folds, which are forced between the plunger and the ends or sides of the box last thrown up, and then firmly presses them against said ends or sides, whereby the corners of the box are united and retained, and a strong and reliable seamless body is produced. The plunger having been fully or sufficiently depressed, and then elevated, the box will drop from the lower die, or it may be removed at the space J.

If the lid of the box is to be made in one piece of material with the body of the box, the blank must be cut or shaped to allow sufficient material therefor. When the plunger descends, and the side edges of the portion to constitute the lid reach the end pieces C of the lower die, the said edges of said portion are turned inwardly, to form a flanged lid, but the piece or portion cannot be bent to fit over and cover the body until the latter is removed from the die. This formation of the lid in no wise interferes with the construction of the body as stated.

The location of the corner folds of the box is readily seen in the top view, Fig. 5, and the view of the inner side of one end, Fig. 6.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The lower die A, consisting of the lowered end pieces C and the side pieces D, forming the spaces G G, in combination with the upper die or plunger B, operating together substantially as and for the purpose set forth.

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Witnesses:

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