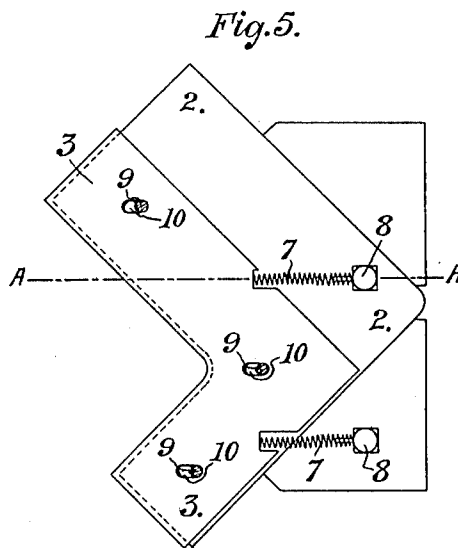
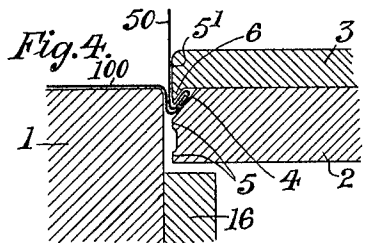
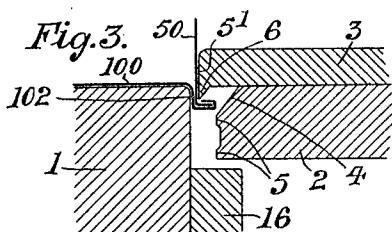
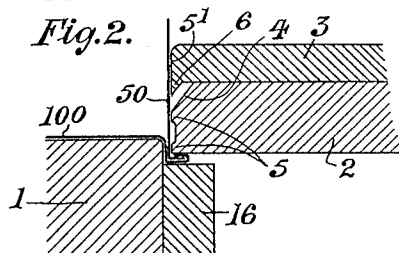
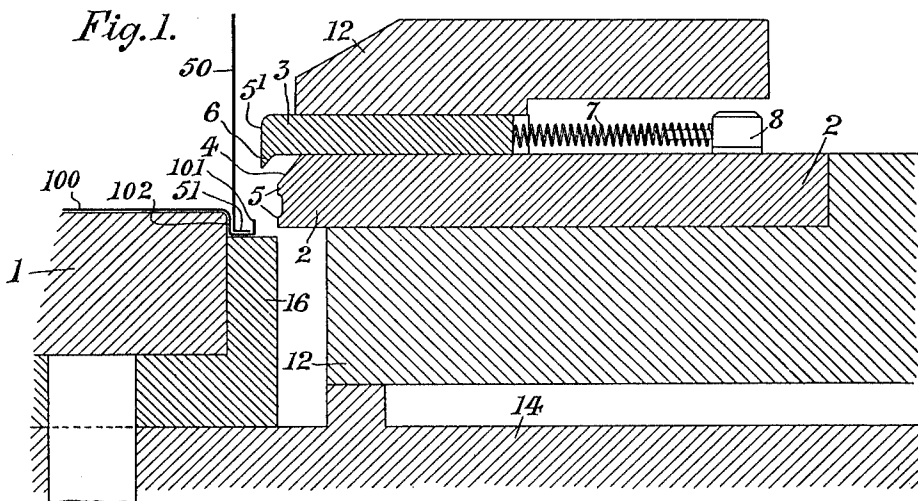


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MACHINE FOR SEAMING AND FOLDING THE EDGES OF SHEET METAL FOR AND IN THE
MANUFACTURE OF BOXES, CANISTERS, AND THE LIKE.

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1,040,836.

Patented Oct. 8, 1912.



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UNITED STATES PATENT OFFICE.

FRANK EDWARD ADAMS, OF BROMBOROUGH, ENGLAND.

MACHINE FOR SEAMING AND FOLDING THE EDGES OF SHEET METAL FOR AND IN THE MANUFACTURE OF BOXES, CANISTERS, AND THE LIKE.

1,040,836.

Specification of Letters Patent.

Patented Oct. 8, 1912.

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To all whom it may concern:

Be it known that I, FRANK EDWARD ADAMS, a subject of the King of England, residing at Dell Cottage, Bromborough, in the county of Chester, England, have invented new and useful improvements in and connected with machines for seaming and folding the edges of sheet metal for and in the manufacture of boxes, canisters, and the like, of which the following is a specification.

This invention relates to machines for seaming and folding the edges of sheet metal in the manufacture of boxes, canisters, and other articles; and it has for its primary object to provide improved means for efficiently and securely seaming and joining the edges of sheet metal, whereby the seamed joint has an improved and regular appearance, and the seaming actions are efficiently and quickly performed.

Referring to the drawings, Figures 1 to 4 are sectional views showing the tools and parts in different positions, and in different stages of the operation; while Fig. 5 is a plan view of one of the tools.

The vertical part 50 of the box has a horizontal flange 51; while the horizontal part 100 has vertical parts 101 and 102, which constitute an annular trough in which the flange 51 and the lower part of the body or part 50 fit.

1 designates the support for the parts of the box, and such support serves to hold the flanged edges in proximity to the operating tools, each of which comprises two parts, a lower part 2, and an upper part 3. The lower part 2 is constructed with an inclined face 4, and a vertical face 5, with a shallow groove in the latter; and the upper part 3 has a vertical face 5', and a downwardly projecting portion 6; and such upper part is movable relatively to the lower part 2, and is normally pressed toward the support 1 by springs 7, which bear against abutments 8, on the upper surface of the lower part 2, but the movement of the upper part 3 relatively to the lower part is limited by pins 9 attached to the part 2, and working in slots 10 in the upper part 3.

The tool parts 2 and 3 are mounted in carriers 12, which slide in the frame 14 of the machine, and are operated by a cam or cams in any known suitable way.

The parts of the article to be seamed and

joined are arranged on the support 1 with the bottom of the trough between the vertical portions 101 and 102 of the part 100 resting on the upper edge of the box guide 16 of the support, such parts being arranged in this position, while the parts 2 and 3 of the operating tools are in the position shown in Fig. 1. Hence the parts to be folded and seamed are supported from below by the part 16, and from behind by the support 1, and the lower edge or angle of the part 2 of the tools will in this position of parts stand slightly above the horizontal flange 51.

When the tools 2, 3, are moved toward the parts to be joined by the sliding carriers 12, the faces of the upper parts 3 of the tools first come in contact with the vertical part 50, and hold it firmly in position in the other part 100, and then the lower part 2 of the tools comes in contact with the flange 101, and bends it inward over the flange 51, the final position of the parts being that shown in Fig. 2. The carriers 12 and the tools are next moved away from the body of the article being seamed, shown in Fig. 3, so that the upper parts 3 do not press upon the surface of the body 50, but may remain in contact therewith, and the faces 5 of the lower part 2 of the tools are outside the vertical plane in which the outside edge of the seam lies. While in these positions, the support is raised to the position shown in Fig. 3, and the toe or edge of the projecting portion 6 of the upper parts 3 of the tools brought in contact or nearly so with the innermost part of the flanges being seamed and which are next to the vertical part 50, and the now horizontal flange 101. When in the position just described, and as shown in Fig. 3, the projecting portion 6 serves as an abutment for holding the seam or fold. When the tools are again pressed inward onto the body or part 50, it is again gripped and held firmly in position, and the inclined or beveled face 4 of the lower part 2 of the tools strike the folded parts of the article, and tilt and bend them upward to the angle of the beveled face, as shown in Fig. 4, the toe or edge of the portion 6 during this bending action, acting as an abutment to the fold at the innermost point as above described. After the bending operation, the tools are again moved to the position shown in Fig. 3, and the support 1 lowered so as to remove the bent up seam from the portions 6, and to

bring the bent up fold or seam to a plane parallel with the recessed grooves in the faces 5 of the lower parts 2 of the tools. When the tools are again moved inwardly, the seam or fold is pressed or squeezed flat up against the body or part 50, and the seaming or folding operations completed, and after the tools and parts have been brought to the position shown in Fig. 1, the article is removed from the machine. This last squeezing action is best, and therefore preferably effected by a plurality of successive actions of the tool 2; as an improved and a better looking seam or fold is obtained thereby; that is, the seam or fold is pressed and consolidated closely against the body or part 50 of the canister or article made.

It is to be stated that while in the case shown in and with reference to the drawings, the tools are of angular form, two of which—one on each side—are adapted to accomplish the folding and seaming actions required in a rectangular box or article, yet these tools may be of any appropriate shape, and in any suitable number, depending upon the shape or configuration of the article to be produced, and other circumstances of the manufacture or requirements; and, further, that while the manner of arranging and constructing the tool and parts particularly shown and described is convenient and advantageous to the manufacture of boxes or articles of a rectangular form, yet the invention is not restricted to it; and the features of this machine, and the manner of seaming or folding sheet metal, which constitutes the novel characteristics hereunder, are set out in the claims concluding the specification.

What is claimed is:—

1. A machine for seaming and folding the edges of sheet metal for and in the manufacture of boxes, canisters and other articles, comprising operative tools composed of upper and lower parts movable relatively to each other and together to and from the work, the lower part having an inclined face; a lower edge and a recessed part; and the upper part having a downwardly projecting portion which is always disposed between the inclined face and the work and

moves to and from such face and the work; the lower edge serving to fold the bottom flange over the flange on the body, the projecting portion serving to hold the work and as a fulcrum when the inclined face bears against the flanges for folding them about the fulcrum, and the recessed portion serving for receiving the folded flanges during the squeezing operation, the work being held by the projecting portion.

2. A machine for seaming and folding the edges of sheet metal for and in the manufacture of boxes, canisters and other articles, comprising operative tools composed of upper and lower parts movable relatively to each other and together to and from the work, the lower part having an inclined face; and the upper part a downwardly projecting portion which is disposed between the inclined face and work during the whole of the operations of seaming and folding; and means for effecting a plurality of squeezing operations against the lower part.

3. A machine for seaming and folding the edges of sheet metal for and in the manufacture of boxes, canisters and other articles, comprising operative tools composed of upper and lower parts and springs, the one part being slidable on and relatively to the other and both parts being movable together to and from the work, the lower part having an inclined face, a lower edge and a recessed portion; and the upper part having a downwardly projecting portion which is always disposed in front of the inclined face and is moved away from such face by the springs and moved toward the face when the tools are moved toward the work and the springs are compressed; the lower edge serving to fold one flange on the other, the inclined face serving to fold the flanges about the projecting portion which serves to hold the work, and the recessed portion for receiving the folded flanges for squeezing.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK EDWARD ADAMS.

Witnesses:

SOMERVILLE GOODALL,
FRANK E. FLEETWOOD.