(No Model.) 2 Sheets—Sheet 1.

W. H. ATKINSON.

MACHINE FOR SEAMING IRREGULAR SHAPED CANS.

No. 279,853. Patented June 19, 1883.

Fig. 2.

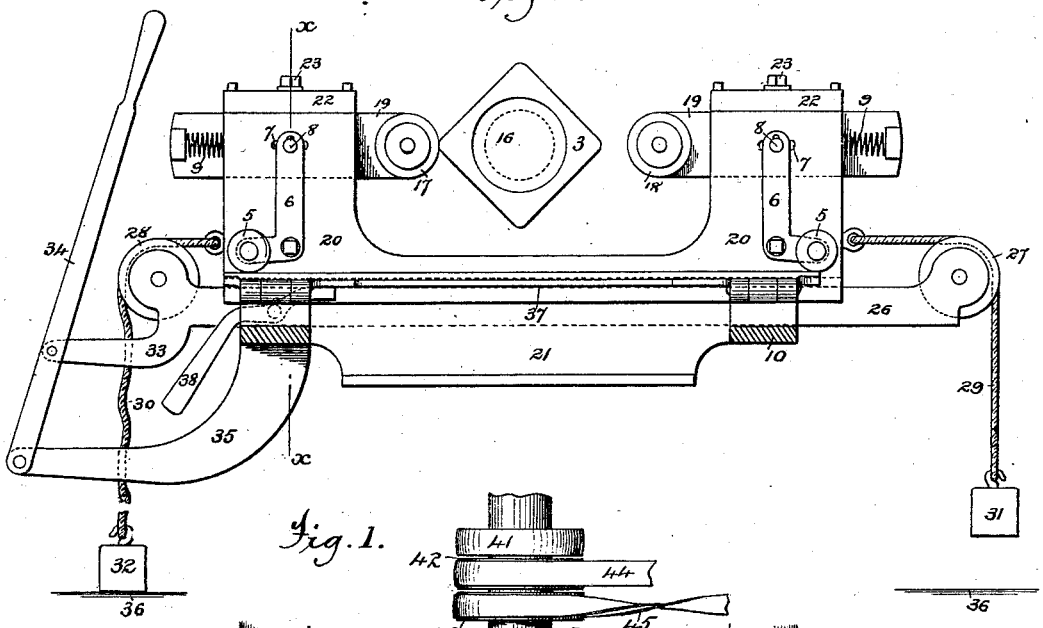

Fig. 1.

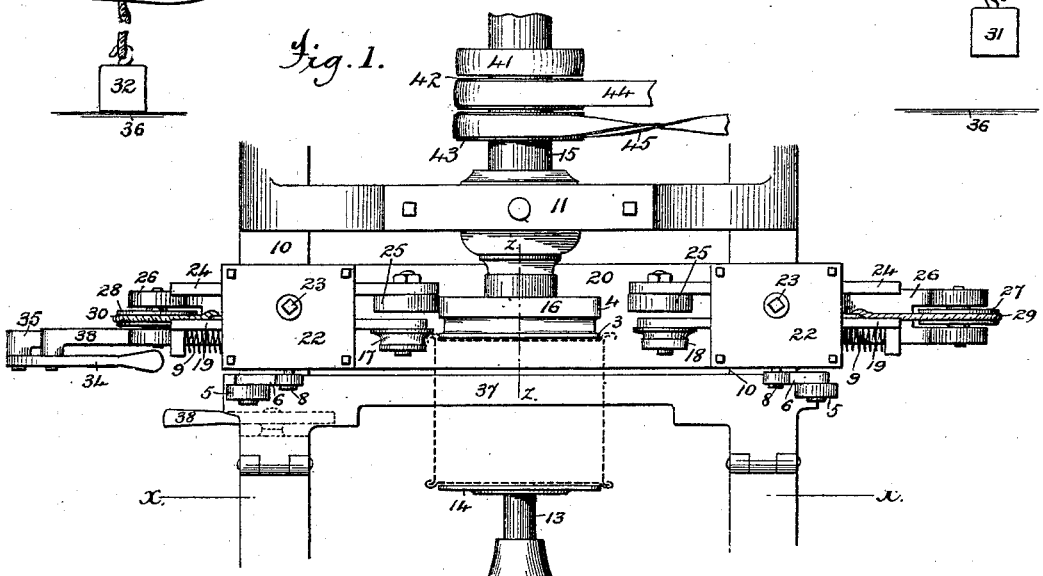

Fig. 3.

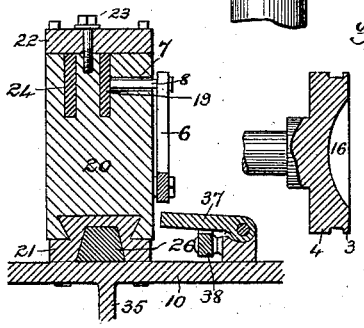

Fig. 4.

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Wm. H. Atkinson,
by Munson & Philipp
Attys.

(No Model.) 2 Sheets—Sheet 2.

W. H. ATKINSON.

MACHINE FOR SEAMING IRREGULAR SHAPED CANS.

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Fig. 6

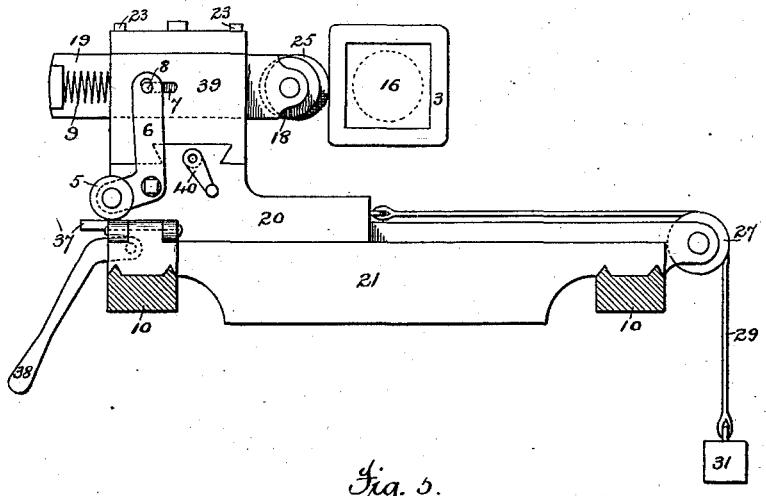


Fig. 5.

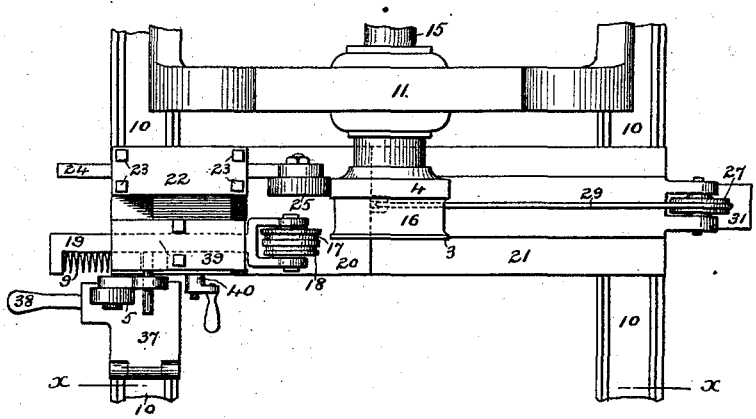
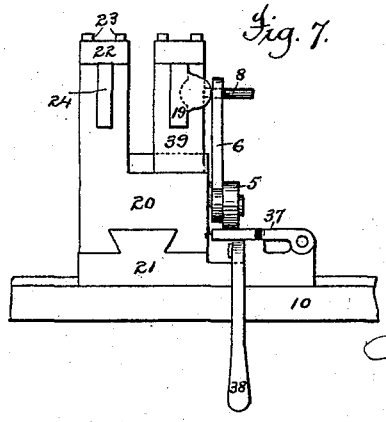


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM H. ATKINSON, OF BROOKLYN, NEW YORK, ASSIGNOR TO SOMERS BROTHERS, OF SAME PLACE.

MACHINE FOR SEAMING IRREGULAR-SHAPED CANS.

SPECIFICATION forming part of Letters Patent No. 279,853, dated June 19, 1883.

Application filed April 23, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. ATKINSON, a citizen of the United States, residing in the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Machines for Seaming Irregular-Shaped Cans, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to an apparatus for uniting the ends and bodies of tin cans and other similar vessels, it being the object of the invention to produce an apparatus of this class which shall be capable of performing this operation upon vessels of other than cylindrical form.

To this end the invention consists in various details of construction and combinations of parts in an apparatus of this character, all of which are hereinafter so fully explained and particularly pointed out as to render any preliminary description unnecessary.

In the accompanying drawings, Figure 1 is a plan view of those portions of the apparatus embodying the present invention. Fig. 2 is a vertical section of the same, taken upon the line *x x* of Fig. 1. Fig. 3 is a vertical section taken upon the line *x x* of Fig. 2, and Fig. 4 is a vertical section taken upon the line *z z* of Fig. 1. Fig. 5 is a view similar to Fig. 1, showing the invention embodied in a different and in some respects preferable form. Fig. 6 is a vertical section taken upon the line *x x* of Fig. 5, and Fig. 7 is an end elevation of the parts shown in Figs. 5 and 6.

Referring particularly to Figs. 1 to 4, it is to be understood that the frame-work 10, which is of any convenient or suitable form for supporting the working parts of the apparatus, is provided with a fixed head-stock, 11, and movable tail-piece 12, similar to those of an ordinary lathe. The tail-piece is provided with a pivoted spindle, 13, the end of which carries a disk or plate, 14, of substantially the size and shape of the end of the can or vessel to be operated upon. The head-stock carries the usual shaft, 15, the outer end of which is provided with one or more pulleys, as 41 42 43, and belts 44 45, through which it receives motion from any convenient source of power, while its inner end is provided with a head, 16, of substantially the size and shape of the end of the can or vessel to be operated upon. Said head consists of a die or mandrel portion, 3, and a cam or pattern portion, 4.

The seaming apparatus proper consists of a pair of flanging-rollers, 17 18, carried upon studs in the ends of a pair of bars, 19, mounted upon a yoke-shaped carriage, 20, which is arranged to slide in dovetail grooves (see Fig. 3) in a bed-piece, 21, secured to the frame 10 of the machine. The bars 19, carrying the flanging-rollers, slide freely in slots in the carriers 20, and are provided with springs 9, the tendency of which is to draw the rollers away from the heads 16. The bars 19 are also provided with studs 8, which project laterally through slots 7, and are attached to the bell-crank levers 6, which are pivoted to the side of the carriage. The opposite ends of the levers 6 are provided with bowls or anti-friction rollers 5, which lie upon or in close proximity to a bed-plate, 37, hinged to the frame 10, as shown in Figs. 1 and 4. A small hand-lever, 38, is pivoted to the frame 10 in such position that it can be operated to raise and lower the plate 37, and thereby, through the levers 6, move the flanging-rollers toward the head 16 when desired. The ends of the carriage 20 are also provided with a second pair of arms, 24, which also pass through slots in said carriage, and are secured in any desired position by means of the plates 22 and screw-bolts 23. These arms carry at their inner ends small rolls 25, the purpose of which will be hereinafter explained. The bed-piece 21 is provided with a longitudinal groove, (see Fig. 3,) in which rests a bar, 26, the ends of which extend beyond the ends of the carriage, and are provided with pulleys 27 28, over which pass cords 29 30, one of the ends of which is secured to the ends of the carriage, while to the opposite ends are attached weights 31 32. The bar 26 is provided at one of its ends with an arm, 33, to which is pivoted a hand-lever, 34, having its fulcrum in an arm, 35, projecting from the frame 10.

The operation of the apparatus is as follows: The body of the can or other vessel having been formed and made slightly flaring at the ends in the usual manner, and the blanks for the

ends having been made slightly disk-like in form, as is also usual, the end blanks will be placed in proper position upon the body, and the parts thus assembled will be inserted between the pattern-head 16 and the plate 14, where they will be held, as indicated by dotted lines in Fig. 1, by adjusting the tail-stock so as to give the required degree of pressure. When the assembled parts are in this position the mandrel part 3 of the head 16 will exactly fit into the dish-shaped depression in the end of the can against which it rests, and thus cause the outline of the can to conform to that of the head. The lever 34 will be moved to the position shown in Figs. 1 and 2, thereby moving the pulley 27 to such a position as to raise the weight 31 and the pulley 28 to such a position as to allow the weight 32 to come to rest upon the floor or a suitable support, 36. As soon as the weight 31 is raised off its support 36 it will draw the carriage 20 along the bed-piece 21, so as to bring the roll 25 against the cam or pattern part 4 of the head 16. The shaft 15 will then be set in motion, thereby turning the head 16 and with it the can, and the hand-lever 38 will be operated so as to compress the spring 9 and carry the flanging-roller 17 into contact with the edge of the end blank which is to be bent over to form the seam, all as shown in Figs. 1 and 2. As the head 16 revolves, the carriage 20, carrying the flanging-roller 17, will move freely back and forth along the bed 21, the weight 31 acting to hold the roll 25 constantly against the pattern part 4 of the head, so as to cause the flanging-roller to follow the edge of the end blank, no matter how irregular its shape, while at the same time the lever 38 will be operated to gradually advance the flanging-roller as the edge of the end blank is bent over.

In order to lay the seam smoothly and evenly around the corners, it will usually be found desirable, after the seam has been partly formed in the manner just described, to reverse the motion of the shaft 15, for which purpose the shaft will be provided with any ordinary form of reversing apparatus, so as to cause the roller 17 to pass over the seam in the opposite direction. As shown in the present case, this reversing is accomplished by shifting the belt 44 from the fast to the loose pulley and the belt 45 from the loose to the fast pulley.

In order to properly complete the seam, it will usually be best to employ two flanging-rollers having grooves of different sizes. When, therefore, the seam has partially been formed by the roller 17, the lever 34 will be reversed, so as to lower the weight 31, raise the weight 32, and bring the opposite roll, 25, into contact with the portion 4 of the head. The lever 38 will then be operated to bring the flanging-roller 18 into contact with the edge of the end blank to finish the seam. In the course of finishing the seam by the roller 18 the shaft 15 will be reversed, the same as before. After one end of the can has been finished, as just described, the can will be reversed, as indicated in Fig. 1, and the operation will be repeated upon the opposite end.

The head 16 will of course be made removable, so that a larger or smaller head, or one of different shape, can be substituted, so as to capacitate the apparatus to operate upon cans of different sizes and shapes, and the bars 24 can by means of the plates 22 and bolts 23 be adjusted to different positions, so as to cooperate with the different heads.

The lever 34 may be provided with any suitable device for locking it in either of its positions; or it may be held in proper position by the operator.

It is also apparent that springs may be substituted for the weights 31 32, and many other changes made in the details of construction without departing from the invention.

The head 16 will preferably be hollowed out upon its face, as shown in Fig. 4, so as to afford room for any projection which may be formed upon either end of the can.

In Figs. 5, 6, and 7 an organization is shown in which both of the flanging-rollers are placed upon the same side of the head 16, the bar 26 and its connections and the weight 32 being dispensed with. For this purpose one of the upwardly-extending ends of the carriage 20 is omitted, the remaining end being provided with an adjustable head, 39, in which the bar 19, carrying both of the flanging-rollers, is mounted. The head 39 slides upon a dovetail projection on the carriage, as shown in Figs. 5 and 6, said carriage being provided with an adjusting-screw, as 40, similar to those employed for moving the tool-stocks in ordinary lathes, by which the head 39 can be shifted so as to bring either of the wheels 17 18 into operative position. The pulley 27 in this case is mounted upon the bed-piece 21, and the bed-plate 37 is of course very much reduced in length. The operation of this organization is substantially the same as that already described, except that the second flanging-wheel is brought into operative position by moving the head 39 instead of by moving the carriage 20.

The two flanging-rollers may be made integral, as shown in Fig. 5; or they may be made independent of each other; or, if preferred, the arm 19 may be provided with means for carrying only one wheel, said wheel being made removable, so that after it has performed its work it can be removed and another substituted to finish the seaming operation.

For the sake of clearness of illustration and description the levers 34 and 38 and the adjusting-screw 40 are shown as arranged to be operated by hand; but when the manufacture is to be conducted in the most rapid and economical manner these parts, and also the reversing apparatus, will be arranged to operate automatically.

While it is preferable that the cam 4 and the mandrel 3 should be made in one piece, as shown, yet this construction is not necessary. These parts may be made separate and located

in close proximity, or the cam may be located upon the shaft 15, without departing from the principle of the invention.

What I claim is—

1. The combination, with the carriage 20, provided with a flanging-roll, as 17, and means for advancing and retracting said roll independently of the carriage, of the guide-roll 25 and the pattern-head 16 for controlling said carriage, substantially as described.

2. The combination, with the carriage 20, provided with a plurality of flanging-rolls, and means for advancing and retracting said rolls independently of the carriage, and for bringing either of said rolls into and out of operative position, of the pattern-head 16, and connections through which said head controls said carriage, substantially as described.

3. The combination, with the carriage 20, provided with one or more flanging-rolls, of the pattern-head 16 and connections for controlling said carriage, and the plate 37 and connections for controlling said flanging roll or rolls, substantially as described.

4. The combination, with the pattern-head 16, of the yielding carriage 20, provided with the adjustable head 39, carrying a yielding flanging-roll, as 17, substantially as described.

5. The combination, with the pattern-head 16 and means for reversing the motion of the same, of the yielding carriage 20, operated by the roll 25, and carrying a yielding flanging-roll, as 17, all substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM H. ATKINSON.

Witnesses:

JOHN T. ARMS,

ABRAHAM FISHER.