(No Model.)

J. H. VINTON.

APPARATUS FOR MAKING RACEWAYS FOR BUTTON SETTING MACHINES.

No. 381,296. Patented Apr. 17, 1888.

Fig. 1.

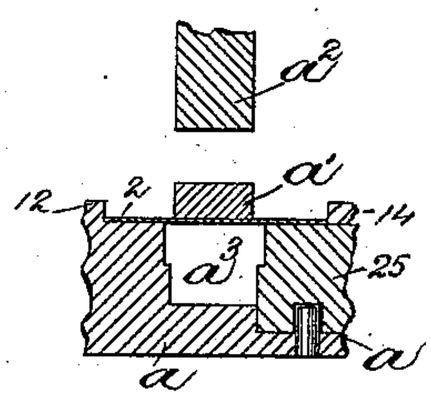


Fig. 2.

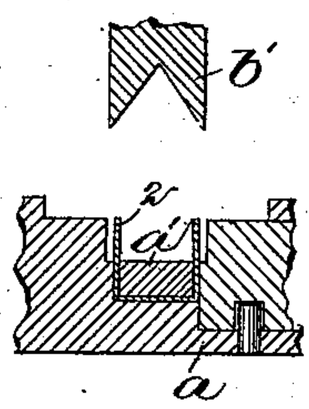


Fig. 3.

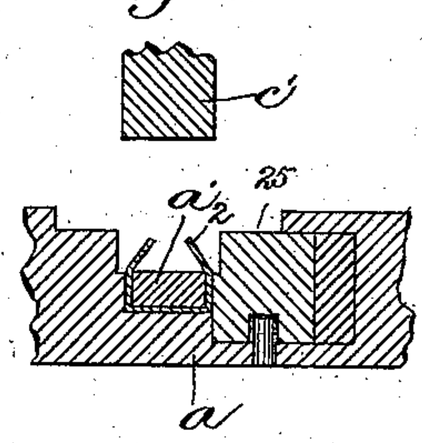


Fig. 5.

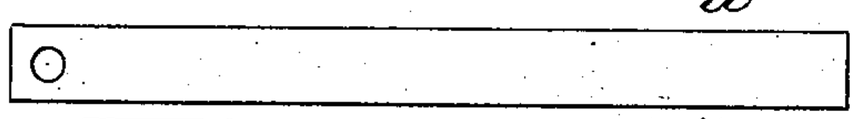


Fig. 6.

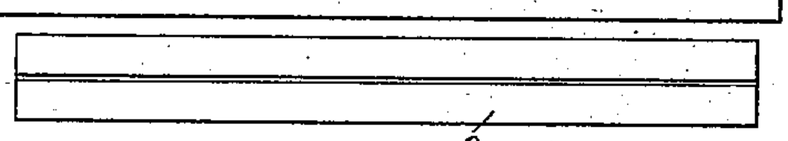


Fig. 4.

Fig. 7.

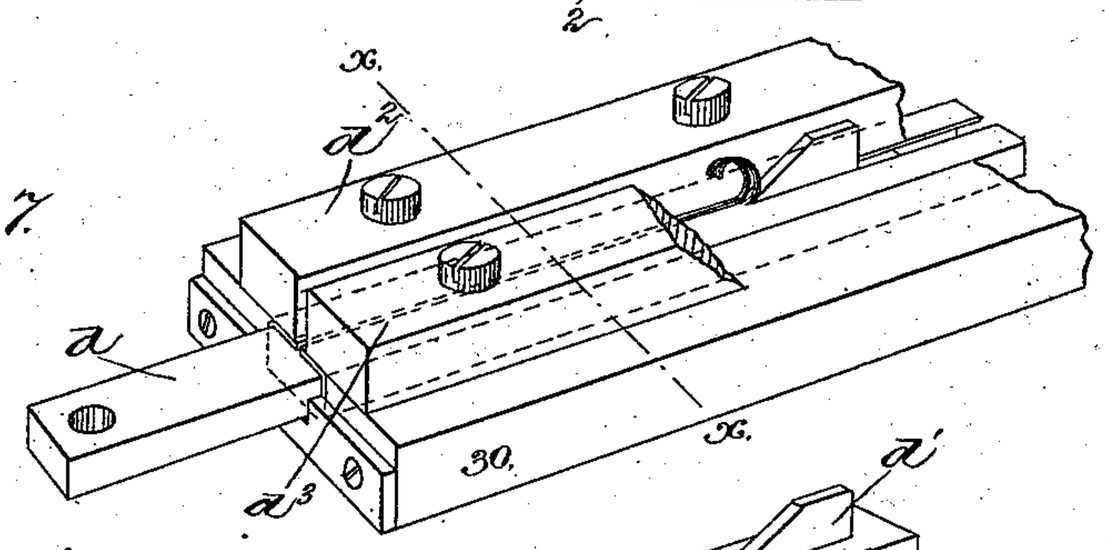


Fig. 8.

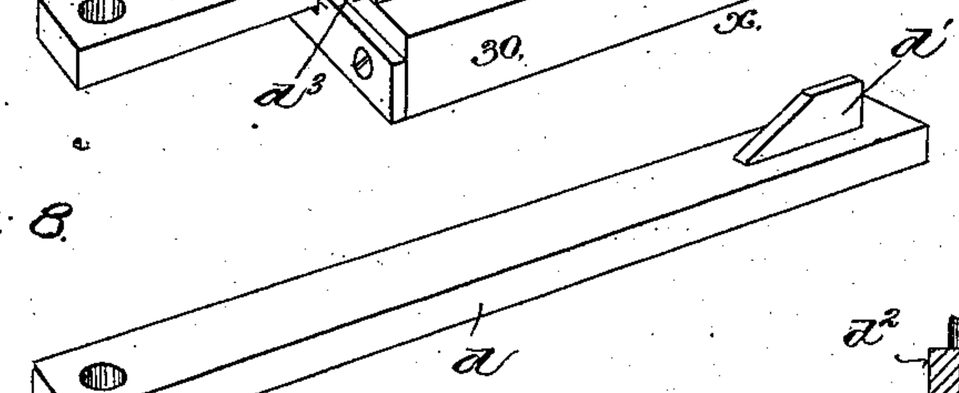


Fig. 10.

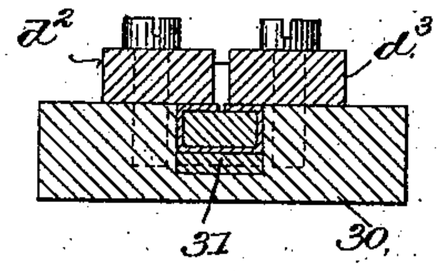
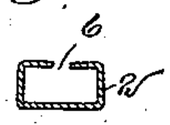


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN H. VINTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE PENINSULAR NOVELTY COMPANY, OF GRAND RAPIDS, MICHIGAN.

APPARATUS FOR MAKING RACEWAYS FOR BUTTON-SETTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 381,296, dated April 17, 1888.

Application filed February 1, 1887. Serial No. 226,129. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. VINTON, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Apparatus for Making Raceways for Button-Setting Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

Letters Patent of the United States heretofore granted for improvements in button-setting machines show hollow sheet-metal raceways rectangular in cross-section, the said raceways having each a T-shaped slot for the reception of staples with shank-eyed buttons hung upon them.

This invention has for its object to provide means for simplifying and cheapening the production of those slotted raceways which are adapted to receive a connected staple and button, and also to secure greater accuracy in the finished article.

In carrying out this invention I proceed as follows, viz: A blank or flat strip of metal is placed above a suitably-shaped die. A mandrel of rectangular shape in cross-section is placed upon the said blank. The mandrel with the blank beneath it is then forced into the die by a plunger, such operation bending the opposite longitudinal edges of the blank upward upon the sides of the mandrel at substantially right angles. The die containing the blank thus bent and yet containing the mandrel is then placed beneath a second plunger of different shape, which plunger, acting upon the upwardly-turned edges of the blank, bends the same partially over upon the upper side of the mandrel or toward each other. The die containing the blank, having its longitudinal edges partially overturned or bent toward each other, as stated, is then placed beneath a third plunger, which is caused to act upon and force down upon the upper side of the mandrel the two partially-overturned edges of the blank. The rectangular former is then withdrawn from the sheet-metal tube thus bent over upon it, leaving the tube with an opening rectangular in cross-section and of sufficient size to receive a staple. A second mandrel, having a suitable blade near one end, is then introduced into the tube so formed, and while the latter is rigidly held by clamps or jaws the said second mandrel is drawn through it, so that the blade, by its co-operation with the clamps or jaws holding the said tube, cuts away a narrow strip of metal upon one side of the said tube to form a slot or opening into the rectangular staple-receiving opening, which slot receives the shank or eye of the button attached to or pendent from the staple.

The invention consists of an apparatus substantially such as hereinafter particularly set forth and claimed, constructed to operate in the manner and for the purpose just set forth.

Figure 1 shows in vertical section a die having a blank placed upon it, a mandrel, and a plunger in position above the mandrel; Fig. 2, a cross-section of the die containing the blank and mandrel after it has been acted upon by the plunger, (shown in Fig. 1,) the said die having been moved into position beneath a second plunger; Fig. 3, a cross-section of the die containing the blank and mandrel after it has been acted upon by the second plunger, (shown in Fig. 2,) the said die having been moved into position beneath a third plunger; Fig. 4, a cross-section of the mandrel with the blank encircling it after the third plunger (shown in Fig. 3) has acted upon it and the said mandrel has been removed from the die. Fig. 5 shows the mandrel by itself; Fig. 6, a top view of the tube after the mandrel has been removed; Fig. 7, a perspective view of the devices employed for cutting the slot in the upper side of the tube; Fig. 8, a perspective view of the slotting-mandrel, it having a cutting-blade near one end, which is employed, in co-operation with other devices, to cut the slot in the upper side of the tube; Fig. 9, a cross-section of the tube bent and slotted in accordance with this invention; and Fig. 10, a cross-section of the slotting device shown in Fig. 7, taken on the dotted line *x x*.

The die-block *a* is cut or hollowed out to present a recess, which is partly filled by a wedge-block, 25, to form a space, a^3, of substantially rectangular shape in cross-section, said die-block being placed upon or formed as a part of a bed of a press of any ordinary construction. The said die-block and wedge are cut

away to present two shoulders, 12 14, one at each side of the space a^3. A plunger, a^2, carried by any suitable moving cross head or arm, descends upon the mandrel a', forcing it, together with the metal blank 2 beneath it, into the space a^3 of the die, thus bending the opposite longitudinal edges of the blank 2 upward about the mandrel a', as shown in Fig. 2. The die containing the blank 2 thus bent, and yet containing the mandrel a', is then placed or moved beneath a second plunger, b', also carried by any suitable moving cross-head, and having a V-shaped striking-face, so that as said plunger b' descends it acts upon the upturned edges of the blank 2, and the latter, following upon the inclined edges or sides of the V-shaped plunger, are thereby partially turned toward each other, as shown in Fig. 3. The die containing the blank 2 thus bent, and yet containing the mandrel a', is then placed or moved beneath a third plunger, c', of similar shape to the plunger a^2—*i. e.*, quadrangular in cross-section—and as said plunger a^2 descends it strikes the overturned edges of the blank 2 and acts to compress the same firmly down upon the former c, as shown in Fig. 4. The blank and its mandrel are then removed from the die by first removing or sliding the wedge-block 25. The blank, thus bent around the rectangular-shaped mandrel a', as just described, and yet containing the said mandrel, is held by any suitable clamps or by other suitable means, and the said mandrel is withdrawn, leaving a tube having a rectangular-shaped opening in cross-section, which receives the staple. A slotting-mandrel, d, (see Fig. 8,) of such size as to fill the rectangular-shaped tube, is then inserted into the said tube.

The mandrel d has a cutting-blade, d', fastened to it near one end, and the tube 2, containing the slotting-mandrel d, is held rigidly by a suitable clamp—such, for instance, as shown in Fig. 7—the said clamps consisting, essentially, of two blocks, d^2 d^3, provided with sharp shoulders to engage the tube, the said blocks being placed side by side above the tube and made fast to a recessed bed-plate, 30, and suitable wedge, 31, being placed beneath the tube to maintain the said tube in position. The tube being thus rigidly held in position, the mandrel d is drawn through the bent tube 2, and the cutting-blade d', co-operating with the blocks d^2 d^3, removes that portion of the material of the tube which is exposed between the two blocks d^2 d^3, and forms a slot, 6, along the upper side of the raceway, as distinctly shown in Fig. 9, such slot entering into the rectangular opening and serving as a passage for the shank or eye of the button attached to or pendent from the staple.

By these provisions for manufacturing the raceway it may be very cheaply, rapidly, and accurately made, such accuracy being a necessity to secure a free passage for the staples and buttons and to obviate all tendency of either the button or staple to move sidewise.

The machine herein shown for slotting the tubes has been made the subject-matter of an application for Letters Patent, Serial No. 260,698, filed January 14, 1888.

I claim—

In combination, a die, a mandrel to enter said die, with a sheet-metal blank interposed between the two, and a series of plungers constructed successively to bend up the ends of the blank, then turn them in toward each other, and then flatten them down upon the mandrel, and a cutter to finish the adjacent edges of the downturned ends, and thus complete a slotted rectangular tube, substantially as described.

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

JOHN H. VINTON.

Witnesses:
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F. L. EMERY.