(No Model.)

J. H. VINTON.

METHOD OF MAKING RACEWAYS FOR BUTTON SETTING MACHINES.

No. 381,298. Patented Apr. 17, 1888.

Fig: 1.

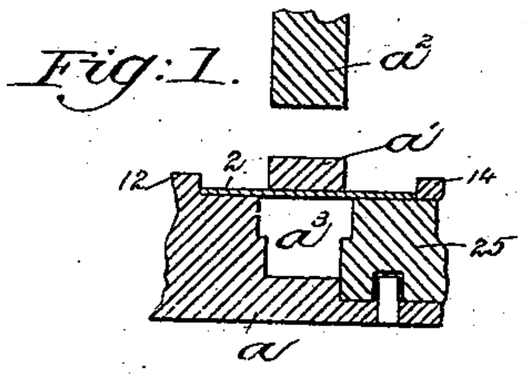


Fig: 2.

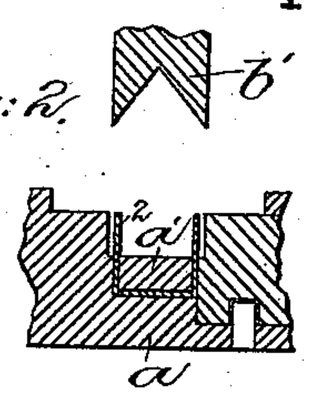


Fig: 3.

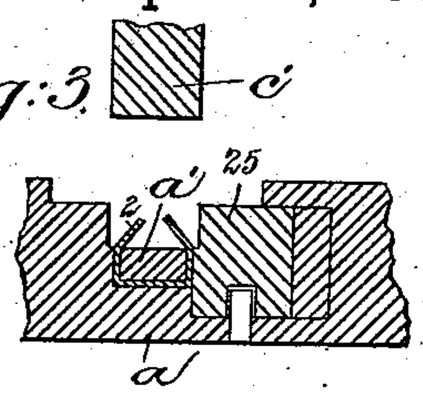


Fig: 5.

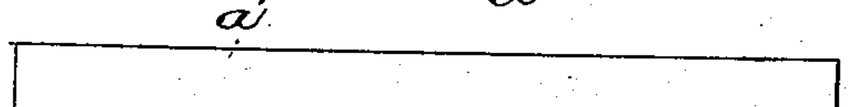


Fig: 6.

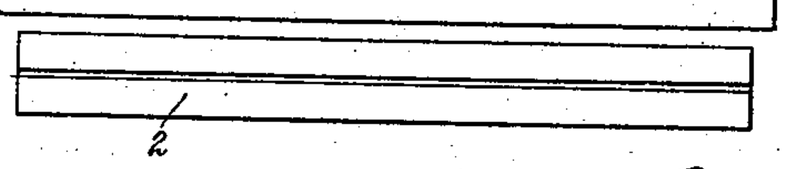


Fig: 4.

Fig: 7.

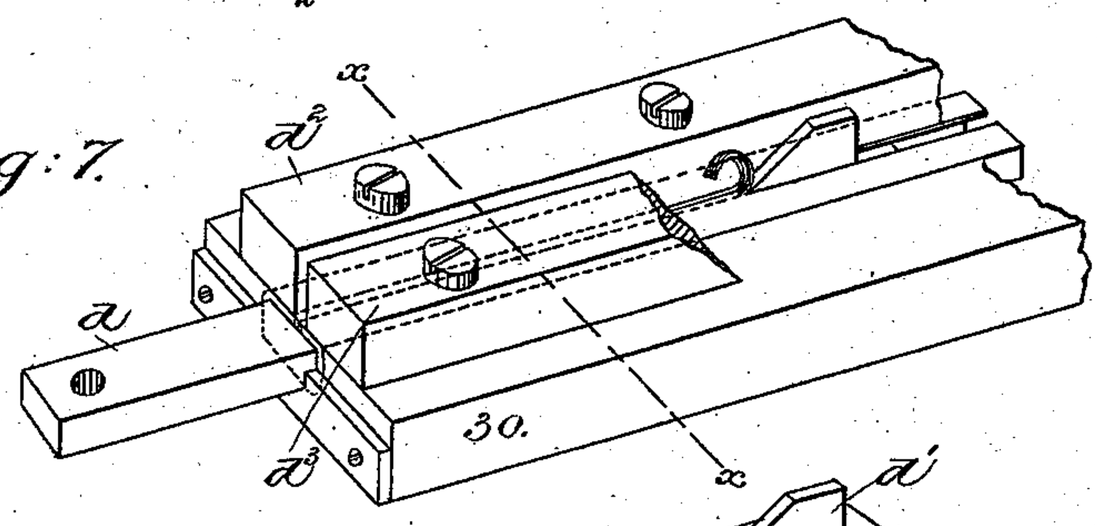


Fig: 8.

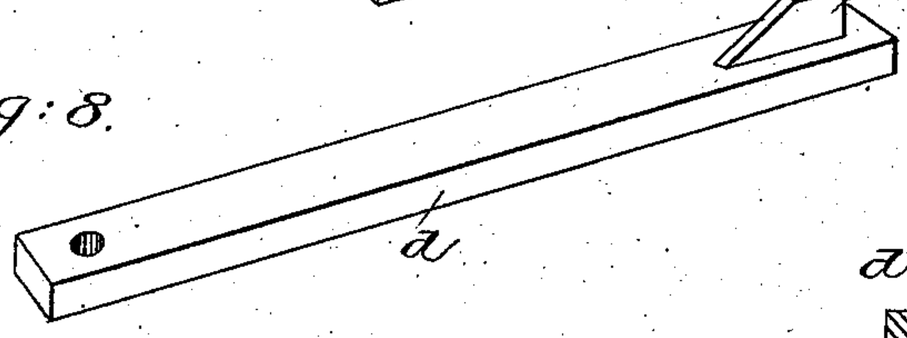


Fig: 10.

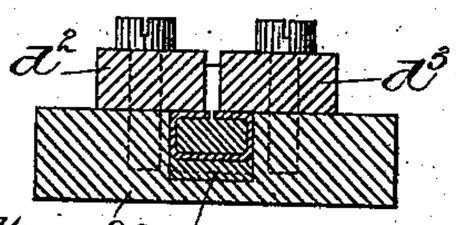
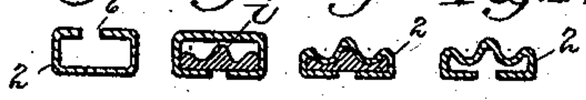


Fig: 9. Fig: 11. Fig: 13. Fig: 14.



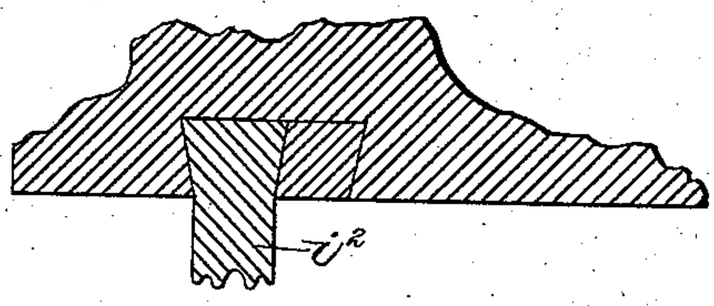
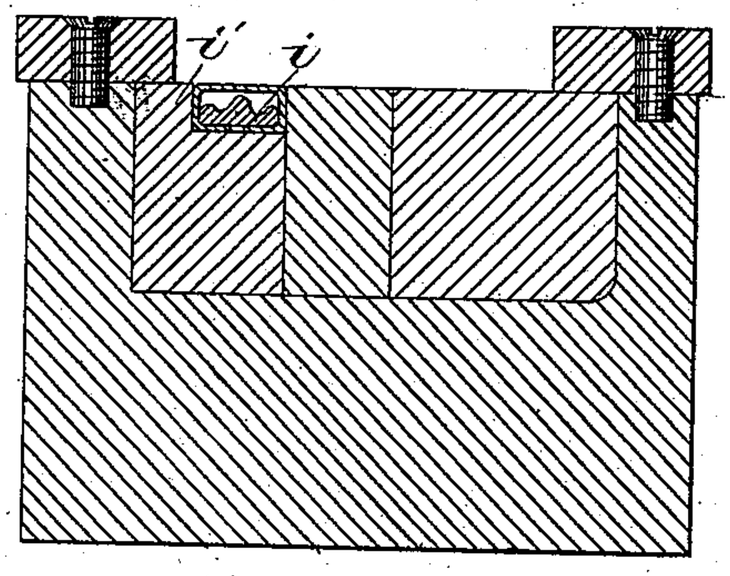


Fig: 12.



Witnesses.
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by Crosby & Gregory Attys.

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UNITED STATES PATENT OFFICE.

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

METHOD OF MAKING RACEWAYS FOR BUTTON-SETTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 381,298, dated April 17, 1888.

Application filed June 13, 1887. Renewed March 19, 1888. Serial No. 267,768. (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 Method of 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.

Application for Letters Patent of the United States filed by me October 19, 1886, Serial No. 216,613, shows a sheet-metal raceway for a button-setting machine, the said raceway being substantially rectangular in cross-section and having an opening through it for the passage of a staple, a slot at one side of the raceway communicating with said opening for the passage of the eye of a button connected with the staple, and several grooves at that side of the raceway opposite the slot to receive the points or ends of the legs of the staple, and also to receive the end of the eye of the button.

This invention has for its object to simplify and cheapen the method by which these slotted and grooved raceways adapted to receive a combined button and staple may be made.

Application for Letters Patent of the United States filed by me February 1, 1887, Serial No. 226,129, shows an apparatus for carrying out the manufacture of a raceway or tube for a button-setting machine, the said raceway having an opening through it for the passage of a staple, and a slot at one side of the raceway for the passage of the eye of the button connected with the staple, the method shown consisting in bending a blank over a quadrangular mandrel to form a tube, withdrawing the mandrel, and afterward cutting a slot in one side of the bent tube. In carrying out my present invention a tube or raceway made in accordance with the method shown and described in said application No. 226,129 is taken, and a mandrel having a grooved or longitudinally-corrugated upper surface is introduced therein, the corrugated surface of the mandrel being opposite the slot in the tube or raceway. The tube containing the mandrel is then placed beneath a plunger having a grooved or corrugated striking-face adapted to co-operate with the upper surface of the mandrel, which plunger, acting upon the tube, grooves or corrugates the same longitudinally at that side opposite the slot.

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; Fig. 10, a cross-section of the slotting device shown in Fig. 7, taken on the dotted line *x x*; Fig. 11, a sectional view of the tube containing the grooving or corrugating mandrel; Fig. 12, a sectional view of a portion of a press, showing the die and plunger for grooving or corrugating the tube; Fig. 13, a sectional view of the tube containing the grooving-mandrel after it has been acted upon by the plunger shown in Fig. 12; and Fig. 14, a sectional view of the completed tube, bent, slotted, and corrugated.

Referring to the apparatus employed to carry out the production of a tube in accordance with the application, Serial No. 226,129, a die-block, *a*, is employed, which 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. 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 clamp 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. The mandrel i, having a grooved or corrugated upper surface to present three longitudinal projections, is introduced into the tube 2 thus bent, and the tube containing the mandrel i is then placed in the die i', beneath the plunger i^2, the striking-face of which is grooved or corrugated to present projections, which enter the grooves of the mandrel i, and the plunger is caused to descend upon the tube to conform the same to the mandrel i, as shown in Fig. 13. The mandrel i is then withdrawn from the tube 2, as shown in Fig. 14, thereby forming a tube or raceway having an opening through it for a staple, and a slot communicating with said opening for the eye of the button, two longitudinal grooves, one at each side, for the ends of the legs of the staples, and a longitudinal groove for the eye of the button.

I may, if desired, use only the two grooves or corrugations for the points of the staples, or I may use only the groove for the eye of the button, and the mandrel i and plunger i^2 will be suitably shaped to present such grooves as I might desire to use.

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—

1. The method herein described of making raceways for button setting machines, which consists in bending a blank over a quadrangular mandrel, withdrawing the mandrel, cutting a slot in one side of the tube, and grooving or corrugating longitudinally the opposite side of the said tube, substantially as described.

2. The method herein described of making raceways for button-setting machines, which consists in bending a blank over a quadrangular mandrel to form a tube, and afterward grooving or corrugating longitudinally by pressure one side of the said 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:

BERNICE J. NOYES,

C. M. CONE.