(No Model.)

J. H. VINTON.

BUTTON SETTING MACHINE.

No. 382,341. Patented May 8, 1888.

Fig: 1.

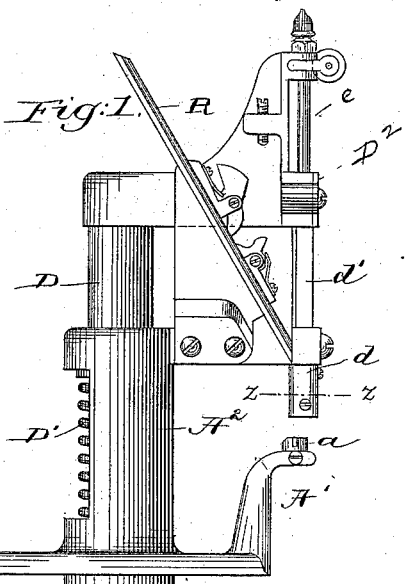

Fig: 9.

Fig: 10.

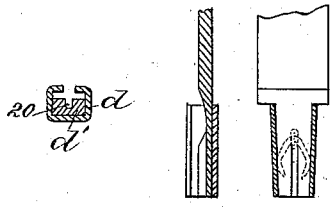

Fig: 2.

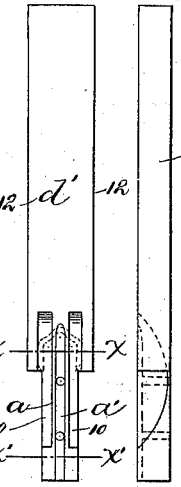

Fig: 3.

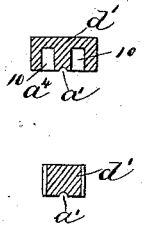

Fig: 4.

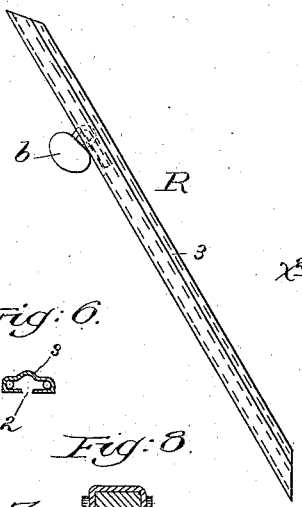

Fig: 5.

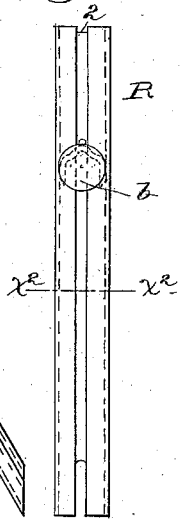

Fig: 6.

Fig: 8.

Fig: 7.

Witnesses.
Howard P. Eaton.
Fred L. Emery.

Inventor.
John H. Vinton.
by Crosby & Gregory
Attys.

UNITED STATES PATENT OFFICE.

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

BUTTON-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 382,341, dated May 8, 1888.

Application filed August 6, 1887. Serial No. 246,297. (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 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.

This invention has for one of its objects to improve the staple-conducting raceway or guide, whereby the points of the staples are prevented from rising therein sufficiently to enable their crowns to enter the slot of the raceway and also to prevent them from turning around in the raceway or guide. I have also combined with the raceway or guide a staple-carrier.

My invention is especially designed as an improvement upon the machine represented in United States Patent No. 312,987, wherein a button hanging upon the crown of a staple is suspended below and travels along the under side of the raceway or guide, the staple itself traveling within or between the inner walls of the raceway or guide, and passing therefrom into a staple-carrier to be struck by the driver and driven from the carrier into the shoe. If the height of the space within the raceway or guide at its side walls immediately above and below the legs of the staple is more than sufficient for the free passage of the staple, then the weight of the button hanging on the staple has a tendency to cause the points of the legs of the staple to turn upwardly and permit the crown of the staple on which the button hangs to enter the slot at the under side of the raceway or guide, producing sufficient friction as to frequently hinder and prevent the necessary free descent of the staple along the raceway or guide; and so, also, when the space between the inner side walls of the raceway or guide is materially wider than the width of the staple then the staple is apt to turn sidewise in the raceway. By experiment I have discovered that the free descent of the staples and their attached buttons may be rendered certain by making the height of the space at the sides of the raceway or guide sufficient to permit the entrance therein freely of the legs of the staple, so that the under side of the staple is kept against the inner surface of the metal constituting the bottom of the raceway or guide, and to prevent the staple from turning crosswise in the said raceway or guide I have made the raceway or guide so that the width of the inner space is but slightly more than the width of the staple. To enable such a raceway or guide to be practicable, the central portion thereof opposite the slot in which the shank or eye of the button travels must be struck or bulged outwardly to form a groove or depression at the inside to receive the wire of that portion of the shank which is passed about the crown of the staple and is interposed between said staple-crown and that wall of the raceway or guide opposite the slot.

Figure 1 is a side elevation of a sufficient portion of a button-setting machine to enable my invention to be understood; Fig. 2, details of the carrier shank or bar; Fig. 3, sections thereof in the lines $x\ x'$; Fig. 4, a side elevation of the raceway or guide containing one fastener; Fig. 5, an under side elevation thereof; Fig. 6, a section in the line x^2; Fig. 7, one of the staples, by itself; Fig. 8, a section of the guide-carrier on the line $z\ z$, Fig. 1. Fig. 9 is a sectional view of a modified form of raceway or guide, and Fig. 10 shows different sections of the lower end of a modified form of shank or bar and staple-carrier.

The standard A^2, horn A', anvil a, slide-rod D, arm D^2, shank d', staple-carrier d, spring D', and driver e are all substantially as shown in United States Patent No. 312,987 referred to. The lower end of the carrier shank or bar d', at its rear side, (see Figs. 2 and 3,) is cut away at 10 to form two channels or grooves to receive the legs of the staples as the latter leave the raceway or guide and prevent said staples from turning in said carrier, the lug or ledge a^4 left between the said grooves constituting a saddle, which is straddled by the legs of the staples, the lug or ledge a^4 being grooved, as at a', for the reception of the end of the eye or shank of the button, and also being long enough to guide a staple for some distance thereon before it is brought into position to be struck by the usual driver.

The reason for curving the bottom of each

groove 10 in the carrier bar or shank *d'* is to enable the staples moving straight through the raceway or guide to have a chance to turn from their inclined path into vertical position in the carrier.

The raceway or guide R is composed of sheet metal bent to present substantially the shape shown in cross-section, Fig. 6 or 10, in which it will be noticed that the height of the space next the inner side walls of the raceway or guide in the dotted lines x^2, is substantially of the diameter of the wire used in the construction of the staple, so that the said staple inserted in the raceway or guide, as shown by dotted lines, Figs. 4 and 5, is compelled to lie substantially flat therein and to travel in a substantially straight line therethrough, the crowns of the staples being restrained by the limited height of the space in the raceway or guide from entering the slot 2 therein, which is of material importance in the reduction of friction.

Contracting the space at the interior of the raceway or guide in the line x^2, as stated, makes it necessary to strike or bulge outwardly the top of the raceway or guide, as at 3, opposite the groove 2, thus forming a space or groove in the sheet-metal raceway or guide for the shank or eye of the button *b*.

In Fig. 5, showing a staple in the raceway, it will be seen that the outer sides of the legs of the staple act against the inner side walls of the raceway or guide, and that the width of the raceway or guide is but a trifle more than the width of the staple measured from the outer sides of its legs in the line x^5.

I have discovered by experiment that when the outer sides of the legs of the staple just touch, or nearly so, the inner sides of the walls of the raceway or guide, the staple will not turn or twist about sidewise in the raceway or guide but will travel straight or squarely therethrough.

The points of the staple, guided as described, as they leave the short metal raceway or guide R enter the grooves 10 of the staple-carrier, such grooves being made of sufficient depth to prevent the fastener from turning in said staple-carrier and being curved at their bottom so as to permit and insure the turning of the staple with its legs in vertical position in passing from the raceway into said staple-carrier. The saddle portion a^4 of the staple-carrier between the grooves 10 is grooved, as at *a'*, for the passage of the shank or eye of the button, as in my Patent No. 332,977.

In Fig. 8, showing the carrier-shank and staple-carrier in cross-section, it will be noticed that the saddle is grooved for passage of the shank of the button, and that the said staple-carrier, partially surrounding the lower end of the shank or bar *d'*, aids in forming a guide to retain the staple in upright position to be acted upon by the usual driver.

Fig. 9 shows in cross-section a modified form of sheet-metal raceway or guide, in which the staples with buttons suspended from them may travel.

Referring to Fig. 10, it shows several views of the lower end of a modified form of shank or bar *d'* and its attached carrier *d*. In this modification the lower end of the shank or bar instead of being provided with a saddle, as in Figs. 2 and 3, is provided with a groove, 20, in which travels the end of the button-eye, the guide for the staple and eye of the button being in this modification substantially the same in cross-section as in United States Patent No. 312,987.

It will be seen that the sheet-metal raceway is in one piece, viewing it in cross-section, and that the sheet metal is bulged or bent outwardly to receive the extremity of the button-eye instead of being slotted through, as in United States Patents Nos. 312,987 and 312,748; and herein it will be seen that the space in the raceway or guide between its inner side walls and its top and bottom is so made as to just receive and constitute a guide for the outer sides and the upper and lower sides of the legs of the staple, so that the staple cannot twist laterally or its points ride up above and upon the crown of a staple ahead of it, which is not the case in the said patents; and so, also, it will be noticed that the raceway or guide herein claimed supports both legs of the staple from the points of the legs to the crowns of the staples, which is not the case in United States Patent No. 344,600.

I claim—

1. In a button-setting machine, the herein-described one-piece sheet-metal raceway or guide slotted at one side at 2, and bulged outwardly at its other side opposite the said slot, substantially as described.

2. The herein-described one-piece sheet-metal raceway or guide slotted at its under side, as at 2, and outwardly bulged at its other side for the reception and passage of the eye of the button, and provided at each side the said slot and bulge with a narrow space to receive, embrace, and guide the legs of the staple, compelling it to travel in a substantially-direct course through the raceway and preventing it from tipping up in said raceway or guide, thereby obviating the entrance of the crown of the staple on which the button hangs into the slot 2, substantially as described.

3. The herein-described sheet-metal raceway or guide slotted at its under side and bulged outwardly at its upper side, opposite and to cover the said slot 2, the inner side walls of the said raceway or guide being separated for a distance sufficient to just receive them and act as guides for the outer sides of the legs of the staples, substantially as described.

4. In a button-setting machine, the herein-described sheet-metal raceway or guide slotted at one side at 2, and bulged outwardly at

its other side opposite the said slot, combined with a staple-carrier to receive the staples from said raceway, substantially as described.

5. In a button-setting machine, the herein-described sheet-metal raceway or guide, slotted at its under side at 2 to permit the button to be suspended by the staple-fastening therein below the said raceway, and bulged outwardly at its other side opposite the said slot, combined with a carrier-guide grooved to form a saddle, the said saddle being also grooved longitudinally, substantially as described.

6. In a button-setting machine, the herein-described sheet-metal raceway or guide, slotted longitudinally at one side, as at 2, and bulged outwardly at its other side opposite the said slot, combined with a shank or bar and staple-carrier having grooves 10 for the reception of the points of the staple after leaving the raceway or guide, substantially as described.

7. In a button-setting machine, the herein-described sheet-metal raceway or guide, slotted longitudinally at its under side, as at 2, and bulged outwardly at its other side opposite the said slot, and the shank or bar *d'* and staple-carrier, combined with an anvil and driver, to operate all substantially as described.

JOHN H. VINTON.

Witnesses:
G. W. GREGORY,
B. DEWAR.