(No Model.)

R. H. WHEELER.

BUTTON SETTING MACHINE.

No. 455,553. Patented July 7, 1891.

Fig. 1

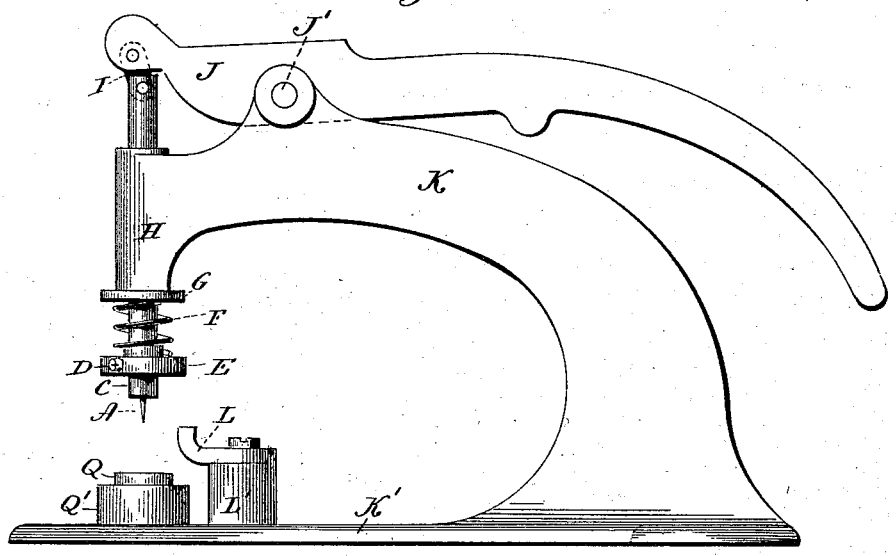


Fig. 2

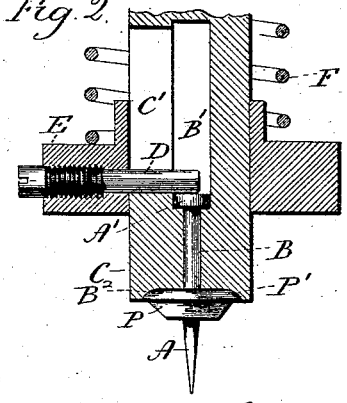


Fig. 3

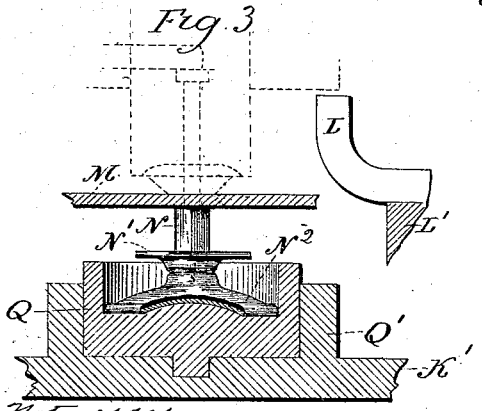


Fig. 4

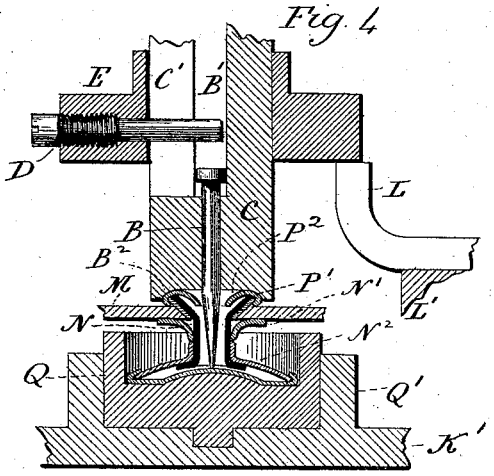


Fig. 5

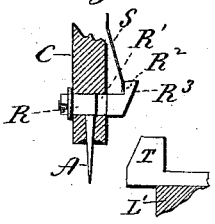
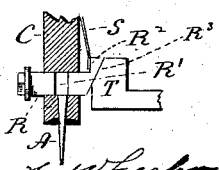


Fig. 6



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UNITED STATES PATENT OFFICE.

ROBINSON H. WHEELER, OF SAUGATUCK, CONNECTICUT.

BUTTON-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 455,553, dated July 7, 1891.

Application filed March 27, 1891. Serial No. 386,612. (No model.)

To all whom it may concern:

Be it known that I, ROBINSON H. WHEELER, of Saugatuck, in the county of Fairfield and State of Connecticut, have invented a new Improvement in Button-Setting Machines; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in side elevation of a machine constructed in accordance with my invention; Fig. 2, a view in vertical section on the line *a b* of Fig. 1 and drawn on an enlarged scale; Fig. 3, another view in vertical section drawn on the same scale and showing the two members of a button in position for being set; Fig. 4, a similar view showing parts of the machine after the button has been set and the position of the holding and releasing devices and punch at such time; Fig. 5, a broken view, partly in vertical section and partly in elevation, showing another form which the holding and releasing devices may assume; Fig. 6, a similar view showing the said parts in position for permitting the punch to retire.

My invention relates to an improvement in machines for setting buttons of that class in which one of the button members has a hollow shank adapted to be upset upon a bevel formed within the other member, the object being to produce a simple and convenient machine for this purpose and one having a large capacity for work.

With these ends in view my invention consists in a machine having two dies for the respective button-heads, one of the said dies being movable toward and away from the other, a punch projecting from the center of one die, and independent holding and releasing devices for respectively holding the punch in its operative position and for releasing it, and thus permitting it to retire after it has done its work.

My invention further consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

As herein shown, the punch A is arranged to move longitudinally in a bore B, formed in the die C, the said bore being enlarged, as at B′, to receive the head A′ of the punch. Normally the punch is held rigidly in place, with its pointed end projecting below the face of the die, by means of the engagement with the head A′, located at its upper end, by the inner end of a screw or pin D projecting inwardly into the bore B′ through a vertically-elongated slot C′ formed in the die. The said screw is mounted in a horizontal position in a collar E, encircling the lower end of the die, and prevented from slipping off the lower end thereof by the said screw D. A stiff spiral spring F, encircling the die and interposed between the upper face of the collar E, and a collar G, rigidly secured to the die, operate through the said collar E and the screw D to hold the punch A in its normal or projected position, the said screw, collar, and spring forming a holding device. The die is mounted in a sleeve H, and connected at its upper end by a link I with an operating-lever J, fulcrumed on a pin J′, mounted in a curved arm K, forming the frame of the machine and springing from the base-plate K′ thereof, the sleeve H being located at the forward end of the curved arm K. A releasing device made independent of the moving die and consisting of a finger L, mounted upon a block L′, secured to the base-plate K′, is arranged in position to be engaged with the collar E when the die is moved downward by the elevation of the operating-lever J, whereby the said collar E is arrested, without, however, stopping the downward movement of the die, which continues against the tension of the spring F. The collar E, and therefore the screw D, being thus prevented from further downward movement, the punch A will at once be relieved as against inward longitudinal movement and permitted to gradually retire, as shown by Fig. 4 of the drawings.

It is not material just when the retirement of the punch begins, for at the time that it is released, as described, it has done its work of puncturing the cloth M and guiding the expansible shank N of the button-head comprising said shank, the foot N′, and the head N^2, it being simply necessary that the punch shall be released, so as to be free to retire the moment that its point engages with the button-head N^2 to avoid puncturing or marring

the same. The lower face of the die C is recessed, as at B^2, to receive the button member comprising the plates P and P′, which form the back of the button. The die Q, which receives the other button member, consists of a small cup having its bottom shaped to conform to the concave face of the button-head N^2, the said die being mounted in a block Q′. The particular form of dies may be changed to conform to the particular shape of the button parts, and the particular means herein shown for mounting and moving the dies may also be varied. For instance, a die corresponding to the die Q may be arranged to be moved instead of the die C, as herein shown.

In using my improved device when constructed as shown in Figs. 1 to 4, inclusive, of the drawings, one button part is deposited in the die Q and another part placed above the fabric with its center in line with the punch A, or the part last mentioned may be slipped over the punch A. When the parts are thus assembled on the opposite sides of a piece of cloth, the operating-lever is lifted, whereby the die C is depressed and the punch A caused to puncture the die and enter the shank N of the main button part. The said shank N then passes through the perforation in the cloth and into the button-back and is expanded upon the bevel or small cone P^2, formed therein, as shown by Fig. 4 of the drawings. After the punch has done its work it is released and allowed to retire, as has been already described. Then as soon as the die C is lifted again and the collar E disengaged from the tripping-finger L the spring F will at once operate to depress the collar and restore the punch to its normal or projected position. The tension of the spring F, however arranged, will be high enough to sustain the punch in its projected position while it is doing its work.

I do not limit myself to any one way of holding and releasing the punch, as the devices for that purpose may be constructed in a variety of different forms. For instance, I may employ as a holding device a stud R, mounted for horizontal movement in the lower end of the die C and provided with a vertical perforation R′, adapted in size to receive the upper end of the punch A. Normally the said perforation R is kept out of alignment with the punch by means of a spring S, secured to the die and engaging with a shoulder R^2, formed upon one end of the stud, which is also provided with a bevel R^3. A beveled finger T, forming the releasing device, is arranged below the die in position to engage with the beveled face R^3, before mentioned, and move the stud longitudinally against the tension of its spring S until its perforation R′ is brought into alignment with the upper end of the punch A, which is then released and permitted to retire. I would therefore have it understood that I do not limit myself to the exact construction and arrangement of parts herein shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for setting buttons, the combination, with two dies for the respective members of a button, one of the said dies being movable toward and from the other, of a punch arranged for longitudinal movement in the moving die and normally projecting beyond the face thereof, a holding device extending into the bore of the moving die in position to engage with the upper end of the punch when the same is in its operative position, a portion of the said device being located outside of the die, and a stationary releasing device made independent of the moving die and arranged to be engaged by the exposed portion of the holding device to operate the same in releasing the punch, substantially as described.

2. In a machine for setting buttons, the combination, with two dies conforming to the two members of a button, one of the dies being movable toward and away from the other, of a punch arranged for longitudinal movement in the moving die and normally projecting beyond the face of the same, a screw or pin entering the said die in position to engage with the upper end of the punch, a collar encircling the die and carrying the said screw or pin, a spring for normally holding the collar with the end of the screw or pin engaged with the punch, and means for engaging with the collar and arresting the same when the punch has done its work, substantially as set forth, and whereby the punch is at that time released and permitted to retire into the moving die.

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

ROBINSON H. WHEELER.

Witnesses:
HENRY PETERSON,
E. STERNE WHEELER.