

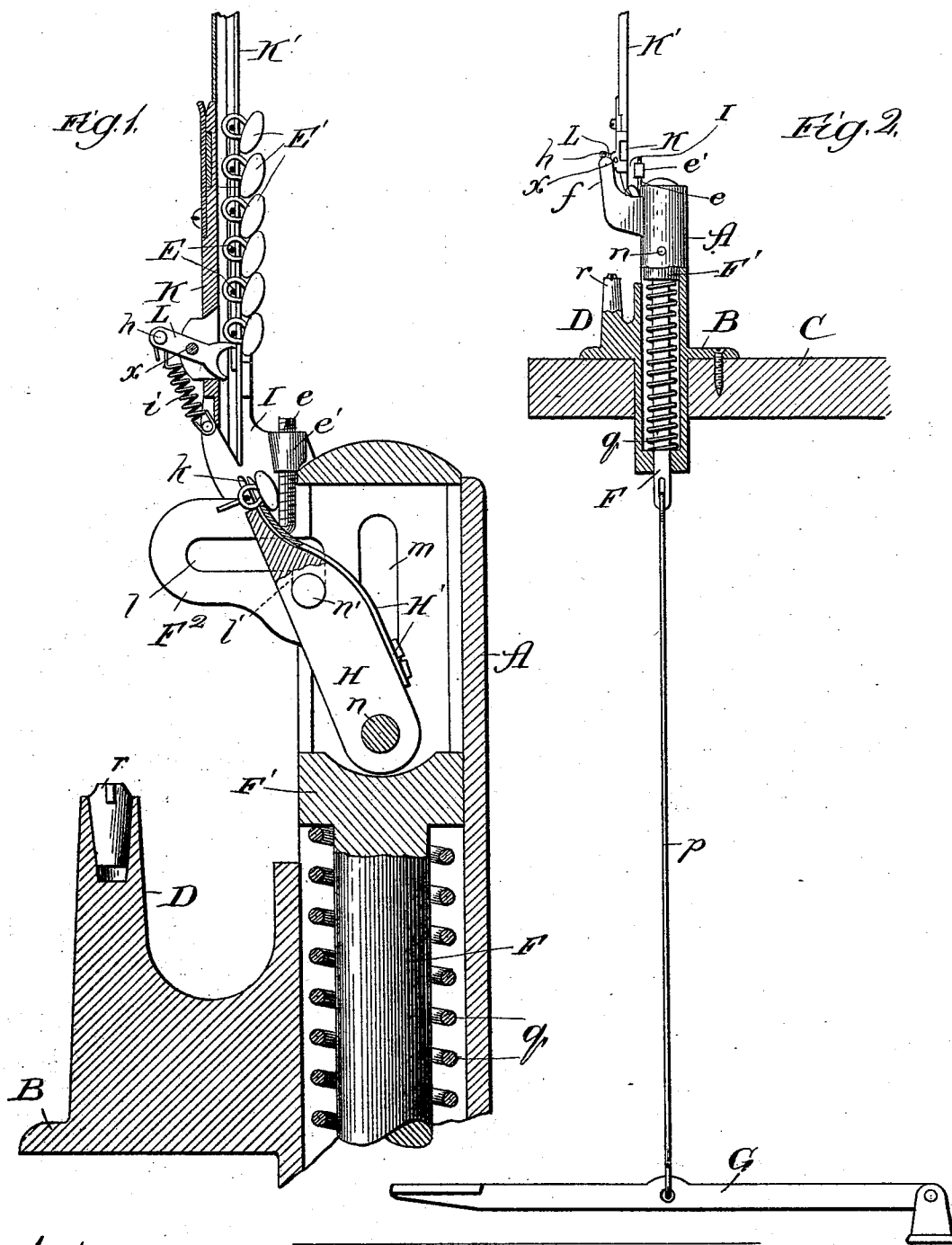
(No Model.)

2 Sheets—Sheet 1.

J. C. F. DICK.
BUTTON FASTENING MACHINE.

No. 517,604.

Patented Apr. 3, 1894.



Witnesses:
Wm. C. Gaylord
W. H. Williams

Inventor:
Joseph C. F. Dick
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Attys

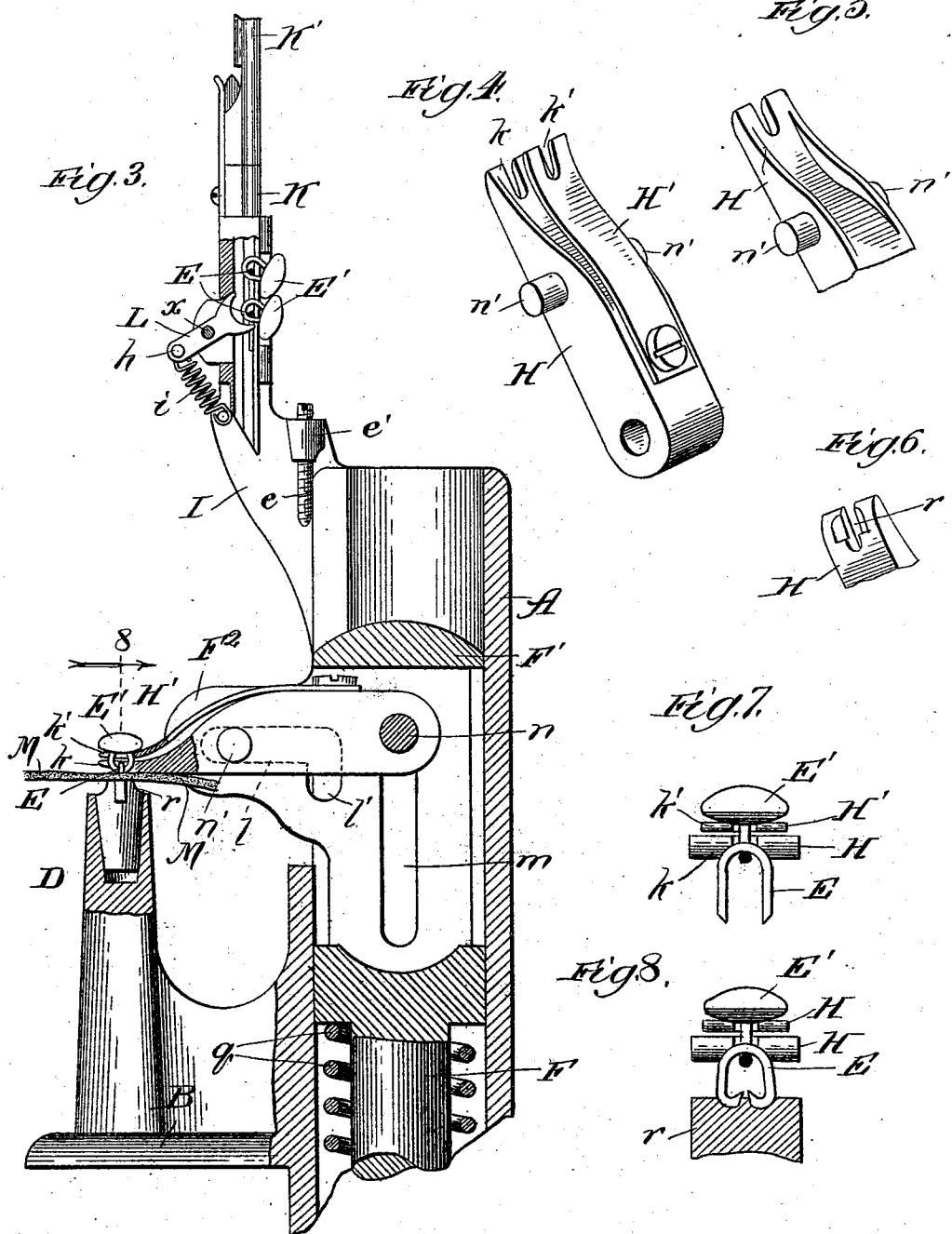
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2 Sheets—Sheet 2.

J. C. F. DICK.
BUTTON FASTENING MACHINE.

No. 517,604.

Patented Apr. 3, 1894.



Witnesses:
E. S. Chubb
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UNITED STATES PATENT OFFICE.

JOSEPH C. F. DICK, OF BELVIDERE, ILLINOIS.

BUTTON-FASTENING MACHINE.

SPECIFICATION forming part of Letters Patent No. 517,604, dated April 3, 1894.

Application filed October 13, 1893. Serial No. 488,077. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. F. DICK, a citizen of the United States, residing at Belvidere, in the county of Boone and State of Illinois, have invented a new and useful Improvement in Button-Fastening Machines, of which the following is a specification.

My invention relates to an improvement in the class of machines for fastening buttons on shoes, and in which the buttons, provided with staple-fasteners, are fed through a tubular holder, by actuating the machine, to mechanism co-operating with an anvil to fasten the staple in a shoe.

The object of my invention is to improve button-fastening machines of the class referred to particularly in the matters of simplicity of mechanism, strength and durability; and my object is also to provide a generally improved construction of such a button-fastening machine.

Referring to the accompanying drawings—Figure 1 is a broken view of my improved device in sectional side elevation, presenting, by way of diagram, the position of parts wherein the pivotal transfer-hammer has been supplied with a stapled button preparatory to driving it against the anvil. Fig. 2 is a similar view showing the device mainly in elevation on a smaller scale, and operatively fastened to a table or bench with the foot-lever connection attached. Fig. 3 is a view like that presented in Fig. 1, but showing the transfer-hammer in its position of co-operating with the anvil. Fig. 4 is a perspective view of the pivotal transfer-hammer, showing the spring clamping-jaw in its freed condition. Fig. 5 is a broken perspective view of the transfer-hammer with the spring jaw removed. Fig. 6 is a similar view of the same presenting the front side. Fig. 7 is an enlarged front end view of the pivotal hammer showing clamped in its jaw one form of staple in the eye of a shoe-button. Fig. 8 is a section taken at the line 8 on Fig. 3, viewed in the direction of the arrow and enlarged.

A is a tubular support for the mechanism of the machine, usually provided as a metal casting formed with a circular flange B, affording a rest midway, or thereabout, between

its ends, at which to seat on a bench or table C (Fig. 2) through which the tubular support extends in vertical position and to which it is fastened through the seat. At one side of the tubular support A, above the seat B, is an anvil D, which may be cast as an integral part of the support, being connected therewith by a web, and in the upper end of which anvil is a suitable die r wherein to clinch the ends of a staple E. A plunger F is confined in the tubular support A to reciprocate longitudinally within it, being controlled by a spring g , the tendency of which is to maintain the plunger in its raised position, whence it is depressed against the resistance of the spring, to effect the staple-fastening operation, through the medium of a foot-lever G having a connection p with the lower protruding end of the plunger. At its upper end, the plunger F terminates in a hollow head F' having in its forward side a longitudinal slot, which is flanked by forward extending longitudinally slotted ears F² protruding through a vertical slot o extending downward in the tubular support A from its upper end. The reciprocating movement of the plunger F is limited by a pin n passing diametrically through the support A near its upper end and through opposite vertical slots m in the head F, the pin affording a pivot-center for the transferring clamp-hammer H which is provided toward its outer end with lateral studs n' entering the slots l in the ears F², which slots have vertical downward extensions l' at their rear ends. The pivotal hammer H is bifurcated at its outer or free end to form a claw k more or less like that in an ordinary hammer, in the under or forward side of which is a die r' to engage the staple, as hereinafter described; and a spring-jaw H', in the form of a flat spring, is fastened at its rear end to the back, or upper side, of the hammer, and extends along the same to its forward end where it terminates in a claw k' to coincide with the hammer-claw k when pressed against the latter.

I is a bearing extending upward from the upper end of the support A adjacent to one side of its slot o , and carrying the permanent lower section of the vertical slotted chute K,

on which is clamped or fastened, in the usual, or any suitable manner, the lower end of the upper removable section K' of the longitudinally slotted button-feed tube or chute. An escapement finger L, controlled by a spring *i* and pivoted at *x*, extends at its forked end through the back of the lower chute-section K into the path of the eyes of the buttons E; and at its opposite end it carries a cross-head *h*, to one end of which the spring *i* is attached, while the other end extends into the path of a striker-arm *f* projecting upward from one of the arms F² of the plunger-head F'. On the inner side of the bearing I is a lug *e'* affording a bearing for a set-screw stop *e*, extending downward into the path of the free resilient end of the clamping spring-jaw H' of the transfer-hammer H.

The operation is as follows: The spring *g* maintains the plunger F normally raised, whereby the pivotal hammer, in being turned by the rise of the plunger to the position at which it is represented in Fig. 1, has entered its studs *n'* into the inner vertical ends *l'* of the cam or guide slots *l*; when, moreover, the spring H' will have contacted with the stop *e* and have been pressed by it against the back of the hammer, which then presents its claw *k* and that of its spring to the discharge-end of the chute K, so that when a stapled button E' is released by the pressure of the striker-arm *f* against the cross-head of the escapement L, the button-eye falls into the claws *k*, *k'*, in the position illustrated, and is prevented from withdrawal by the shoulder of the staple E bearing on the forward die-side *r'* of the hammer-claw. This also, obviously, causes the tension of the spring H' to hold the button tightly in place, however long the eye of the button may be. Thus, as will be seen, the hammer normally has a stapled button adjusted in it ready to be fastened to the leather M of a shoe-flap (see Fig. 3) by actuating the hammer.

The hammer is actuated by pressure on the foot-lever G, whereby the plunger F is pulled down against its controlling spring *g*, and the guide-slots *l'*, operating against the studs *n'*, effect the lowering of the claw ends of the hammer and its clamping spring with a pressure sufficient to force the protruding ends of the staple through the leather on the anvil-die *r* and clinch them. Thereafter the fastened button may be released from the claws *k*, *k'*, as by withdrawal of the material M in setting it for another button, or otherwise. On removing the pressure from the foot-lever, the plunger flies up again, carrying the hammer into position to release and receive another stapled button, which is fastened by the stroke of the hammer clinching the staple in the manner described.

The gist of my invention consists in providing a pivotal combined-button-and-staple carrying and clinching clamp-hammer to be swung between and co-operate successively with the feed and anvil; and it also consists

in the general construction of parts contributing to the functions of the hammer. Hence I do not wish to be understood as limiting my invention to the particular details of construction shown and herein described as these may be variously changed without departure from the principle of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a button-fastening machine, a pivotal transfer-hammer having a claw in its outer end, the hammer being connected with the reciprocable actuating mechanism to be swung between and co-operate successively with the feed and the anvil, a spring clamping jaw on the hammer, and normally in unset condition thereon and a stop in the path of the spring, for setting it in the approach of the hammer to the feed substantially as and for the purpose set forth.

2. In a button-fastening machine, the combination with the tubular support and feed thereon, and the anvil, of a spring-controlled plunger confined in the support and having a head provided with slotted ears, and a transfer-hammer provided with clamping means and pivoted on the support and having guide-studs to engage the slots in said ears, whereby reciprocation of the plunger swings the hammer between the feed and anvil, substantially as and for the purpose set forth.

3. In a button-fastening machine, the combination with the tubular support and feed thereon and the anvil, of a spring-controlled plunger confined in the support and having a head provided with slotted ears, a transfer-hammer provided with a claw on its outer end and pivoted on the support and having guide-studs to engage the slots in said ears, a spring clamping-jaw on the hammer and a stop in the path of the jaw, substantially as and for the purpose set forth.

4. In a button-fastening machine, the combination with the tubular support and feed thereon and the anvil, of a spring-controlled plunger confined in the support and having a head provided with slotted ears and carrying a striker-arm, a spring-controlled escapement-lever extending at its opposite ends respectively into the path of the feed and that of the striker-arm, a transfer-hammer provided with a claw in its outer end and pivoted on the support and having guide-studs to engage the slots in said ears, a spring clamping-jaw on the hammer and a stop in the path of the jaw, substantially as and for the purpose set forth.

5. A button-fastening machine comprising, in combination, a tubular support A, provided with a seat, a spring-controlled plunger F confined in the support and adapted to be operatively connected with a foot-lever G, a vertically slotted head F' on the plunger having the slotted ears F², a hammer H supported to swing on a pin *n* fastened in the said support to pass through the slots in the head, said hammer having a die-claw in its

outer end, guide-studs n' on the hammer to
engage the slots in the ears, a spring-clamp
H' on the hammer, an anvil D, a feed on the
support provided with a spring-controlled es-
5 capement-lever L, a stop e extending into the
path of the clamping spring, and a striker-
arm on the plunger-head to engage the es-

capement lever, the whole being constructed
and arranged to operate substantially as de-
scribed.

JOSEPH C. F. DICK.

In presence of—

M. J. FROST,

W. N. WILLIAMS.