

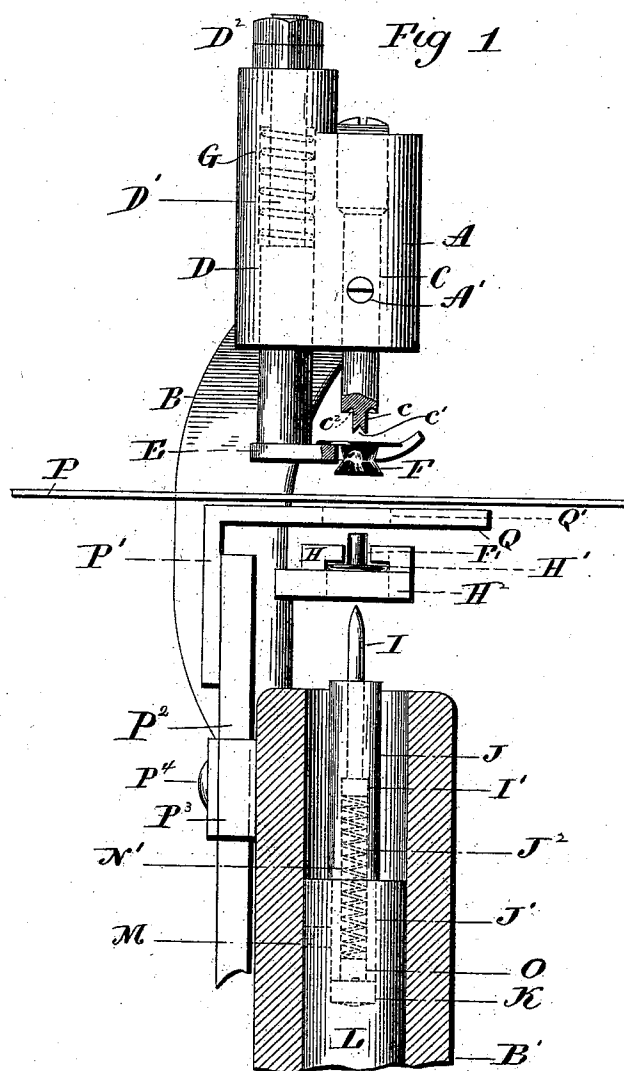
(No Model.)

2 Sheets—Sheet 1.

A. J. SHIPLEY.
BUTTON SETTING MACHINE.

No. 531,224.

Patented Dec. 18, 1894.



Witnesses
J. H. Shumway
Geo. E. Hall

Alfred J. Shipley
Inventor.
By atty.
Earle Heyman

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Fig. 2

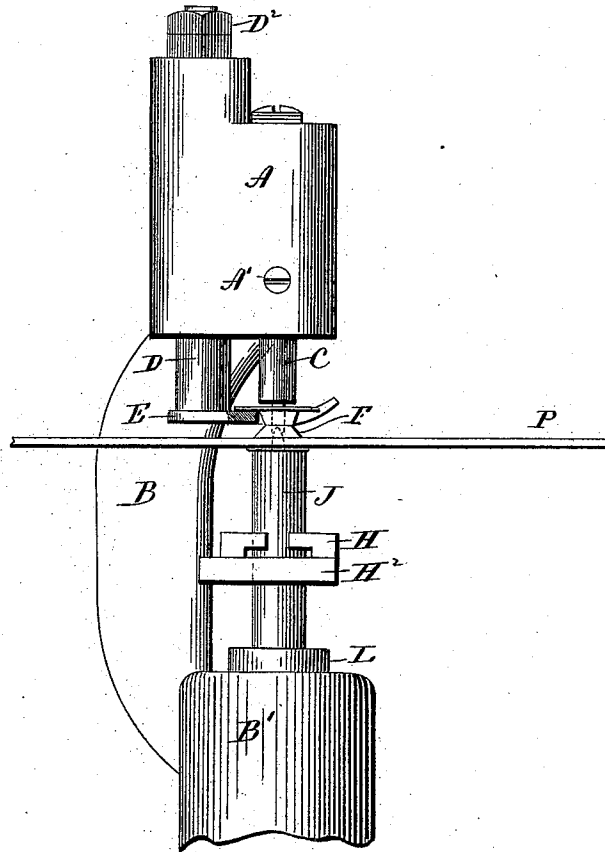
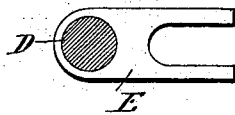


Fig. 3



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UNITED STATES PATENT OFFICE.

ALFRED J. SHIPLEY, OF WATERBURY, CONNECTICUT, ASSIGNOR TO THE
SCOVILL MANUFACTURING COMPANY, OF SAME PLACE.

BUTTON-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 531,224, dated December 18, 1894

Application filed September 7, 1894. Serial No. 522,333. (No model.)

To all whom it may concern:

Be it known that I, ALFRED J. SHIPLEY, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new
5 Improvement in Button-Setting Machines; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact descrip-
10 tion of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view, partly in front elevation and partly in vertical section, of one form
15 which a button-setting machine constructed in accordance with my invention may assume; Fig. 2, a similar, but less comprehensive view of the machine, showing the parts in the ad-
20 justments due to them at the conclusion of the setting of a button; Fig. 3, a plan view of the forked button-head holder, with its shank in section.

My invention relates to an improvement in button-setting machines, of that class in
25 which a button-head is secured to a piece of fabric by means of an eyelet applied to the fabric on the opposite side thereof from the head, the object being to produce a simple, compact and durable machine, composed of
30 few parts and not liable to derangement, and adapted to pierce the fabric, to push the eyelet through the puncture thus formed, and upset the eyelet, all at one operation.

With these ends in view, my invention consists in a machine having certain details of
35 construction and combinations of parts, as will be hereinafter described and pointed out in the claim.

As herein shown, the head A, located at
40 the upper end of the machine-frame B, is adapted to receive the anvil or die C and the shank D of the fork E, the function of which is to hold the button-heads F, which are fed one by one to the said fork by hand. At its
45 lower end the die C is constructed with a centrally arranged pin *c*, having in its end a central cavity *c'* and encircled at its base by an annular recess *c''*, having beveled walls, and adapted to upset and turn over the inner
50 ends of the eyelets F', one of which is shown in Fig. 1. At its upper end the anvil or die

C is enlarged and screw-threaded, and takes into corresponding threads formed in the head A, its extreme upper end being slotted to receive a screw-driver, by means of which
55 it is turned in or out to adjust its position in the head. A set screw A', mounted in the head, provides for holding the die in any adjustment. The shank D is reduced at its upper end to form a stem D', the extreme
60 upper end of which is threaded to receive an adjusting nut D², which bears upon the upper face of the head A. A spiral spring G, encircling the said stem and located within the head, presses downward and exerts a con-
65 stant effort to maintain the fork E in its depressed position. By turning the nut D² one way or the other, it is apparent that the tension of the spring G may be increased or diminished. The fork E extends horizontally
70 under the lower end of the die C, and is adapted in its construction to receive the button-heads F, seen in Figs. 1 and 2. A plan view of the fork is shown in Fig. 3. The outer ends of its two prongs are preferably
75 correspondingly turned up, as shown in Figs. 1 and 2, for holding the button-head in place during the operation of the machines.

The eyelets are supplied to the machine in bulk, and fed in single file by gravity through
80 a suitable chute H, which is constructed with a longitudinal groove H' to receive them, and at its inner end with a circular vertical clearance opening H², which is smaller in diameter than the diameter of the flanged outer ends of
85 the eyelets. The eyelets crowd each other along so that when the terminal eyelet, or the eyelet at the lower end of the column or file, is removed, the column slips along and the next
90 eyelet takes its place. A detailed description of the chute is not necessary, inasmuch as such chutes have before been employed in machines of the same general character. I may refer in this connection to the eyelet
95 chute of United States Patent No. 424,745 of April 1, 1890, to Edwin D. Welton. The inner end of the chute is supported, as shown in Figs. 1 and 2, in the frame A of the machine. Centrally below the opening H², in the inner end of the chute, I locate a long bodkin
100 I, which is mounted in a cylindrical, chambered carrier J, the lower end of which is re-

duced to form a stem J', which is inserted into a socket K formed in the upper end of a plunger L, the said stem being secured in the said socket by means of a set screw M mounted in the plunger. This carrier, as will be explained later on, has the twofold office of carrying the eyelets and of acting as a hammer to force the same against the die. The inner end of the bodkin I has a head I', which abuts against the inner end of a long spring-chamber J² formed in the carrier, the said chamber receiving a spiral spring N', introduced into the chamber from its outer end, and held therein and varied in tension by a set screw O. It is designed that this spring shall have sufficient tensional force to hold the bodkin up to its work in passing through the cloth, but yet permit the bodkin to retire after its point has entered the recess in the end of the pin c of the die. The plunger L is located in a housing B' of the frame B, and is reciprocated in any approved manner, but by preference by means of a treadle connection, which does not need description. The fabric P is supported upon a table Q, having a circular vertical clearance opening Q' arranged in line with the die and the bodkin, and provided with a downwardly depending arm P', which is firmly secured to the upper end of a slide P² passing downward through the box P³ located upon the housing B' and containing the set screw P⁴, which holds the slide, and hence the table, in any desired position of vertical adjustment.

Having now described in detail the construction which one form of my improved machine may assume, I will proceed to set forth the mode of its operation.

Let it first be assumed that a button-head has been fed by hand into the fork, and that an eyelet has been fed by gravity into position centrally over the circular clearance opening in the inner end of the eyelet chute. Now when the treadle is depressed the bodkin and carrier are raised together, the bodkin passing through the eyelet and through the fabric resting upon the work table. At about the time the bodkin is passing through the fabric, the carrier is rising through the clearance opening in the chute, and very soon after the bodkin has passed through the fabric the carrier engages with the eyelet, and lifts the same through the clearance opening in the table, and pushes the inner end of it through the opening formed in the fabric. The carrier, continuing to rise, passes upward through the clearance opening formed in the table, and presses the flanged outer end of the eyelet against the under face of the fabric. By this time the point of the bodkin has been seated in the concavity formed in the pin projecting centrally downward from the die, which, being stationary, forces the bodkin to retire against the tension of its spring while the carrier completes the remainder of its upward movement. As the carrier continues to move upward, the inner end of the eyelet passes

through the button-head so as to project slightly beyond the outer face thereof, and the fabric is raised against the shank of the button-head and tightly pressed between the same and the flange of the eyelet. Then the forked button-head holder begins to retire against the tension of its spring and the upward movement of the carrier, until at last the projecting inner end of the eyelet is brought into engagement with and upset upon the annular upsetting bevel surrounding the base of the pin of the die. When this occurs, the parts are in the position in which they are shown in Fig. 2 of the drawings. The button having now been applied to the cloth, the foot is removed from the treadle, and the plunger, carrier and bodkin allowed to resume their primary positions, in which they are shown in Fig. 1. It will be understood from the foregoing that the puncturing of the cloth, the forcing of the eyelet through the puncture thus formed, and the upsetting of the eyelet, are all effected during the same up-stroke of the plunger.

It will be here seen that, under my improved construction, I am enabled to employ a long bodkin which has not only the function of piercing the cloth, but also of guiding the eyelet while the same is being passed through the puncture thus formed. It will be noted also that my improved device is very compact and composed of few parts, and not liable to derangement. I have not thought it necessary to show the particular means for operating the plunger, as any approved form of treadle mechanism may be employed, or it may be operated by power.

In use the machine will be inclined in such a manner as to cause the eyelets to gravitate down the chute.

The details of the machine may be somewhat varied from the construction herein shown and described, and I would therefore have it understood that I do not limit myself to the exact construction 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.

I am aware that it is old in machines of the class to which my invention relates, to employ a chute for feeding the eyelets to a reciprocating eyelet-carrier which lifts them against a reciprocating die adapted to carry a button and pierce the fabric for the reception of the eyelet, which is upset by the coming together of the eyelet-carrier and die.

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

In a button-setting machine, the combination, with a stationary die, provided with a central downwardly projecting pin, and having an annular upsetting bevel located at the base of the said pin; of a yielding forked button-head holder, arranged horizontally under the said die, a table located below the said yielding button-head holder, and containing

a clearance opening in line with the die, an eyelet chute, terminating below the said table, and having a clearance opening located in line with the die and in line with the opening in the table, a plunger located below the eyelet-chute, a carrier mounted in the said plunger, in line with the clearance openings in the chute and table and also in line with the die, a yielding bodkin mounted in the said carrier and adapted to pierce the fabric and forming a guide for the eyelet while the same is being forced through the puncture by the carrier, and a spring located within the

carrier and adapted to maintain the bodkin in a projected position until the point of the bodkin reaches the pin of the die, after which the bodkin is retired into the carrier during the final upward movement thereof, substantially as set forth. 15

In testimony whereof I have signed this specification in the presence of two subscribing witnesses. 20

ALFRED J. SHIPLEY.

Witnesses:

T. R. HYDE, Jr.,
M. L. SPERRY.