

C. E. TEMPLE & F. T. BOLTON.

No. 345,740.

Fig. 1.

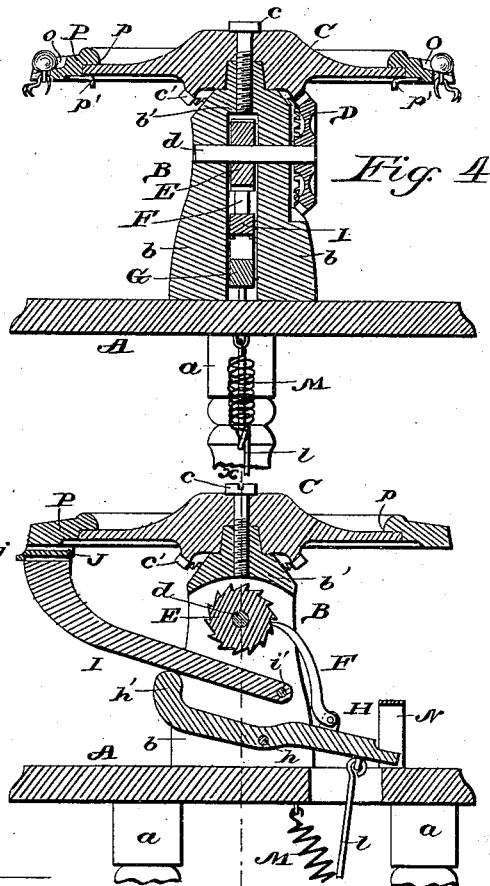


Fig. 4

Fig. 3.

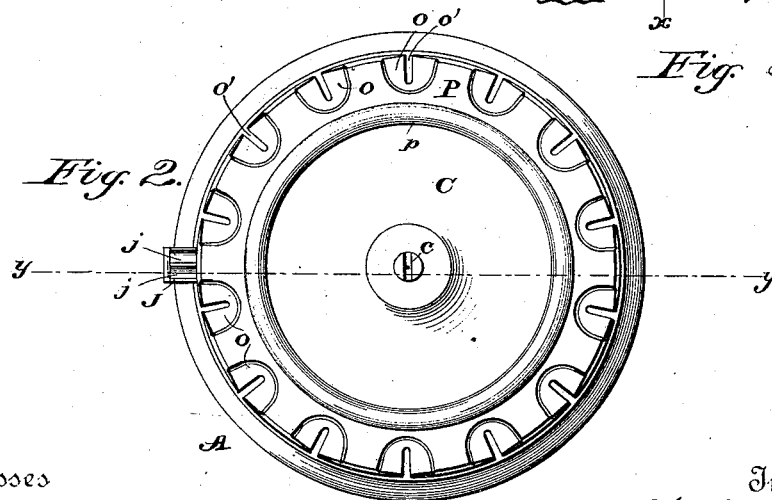


Fig. 2.

Percy C. Bowen.
H. Bernhard

By their Attorneys

C. A. Nowell

UNITED STATES PATENT OFFICE.

CHARLES E. TEMPLE AND FRANK T. BOLTON, OF TERRE HAUTE, INDIANA.

MACHINE FOR SETTING BUTTONS.

SPECIFICATION forming part of Letters Patent No. 345,740, dated July 20, 1886.

Application filed May 5, 1886. Serial No. 201,215. (No model.)

To all whom it may concern:

Be it known that we, CHARLES E. TEMPLE and FRANK T. BOLTON, citizens of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented new and useful Improvements in Machines for Setting Buttons, of which the following is a specification.

Our invention relates to improvements in machines for setting buttons; and it consists of the peculiar combination and novel construction and arrangement of the various parts for service, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

The object of our invention is to provide an improved machine for setting buttons on shoes or the like which shall be under the immediate and direct control of the operator, and which shall carry the buttons and the fasteners therefor and bring the same into position to be acted on by the die which clinches the fastener thereto without requiring the operator to adjust the carrier; to provide means for rotating the carrier a certain predetermined distance after each stroke of the die to bring the succeeding button and its fastener in position for service and to be acted on by the die, and to improve the machine in minor details of construction, to render it simple and strong in construction, efficient and reliable in operation, and comparatively cheap.

In the accompanying drawings, Figure 1 is a side-elevation of a button-setting machine embodying our invention, showing the die lowered and in position to act on the fastener for the button. Fig. 2 is a top plan view thereof. Fig. 3 is a vertical central sectional view through the machine on the line *y y* of Fig. 2, showing the die in the position which it assumes in acting on the fastener to clinch the latter, one of the fasteners and the button being shown in proper position on the carrier to be acted on by the die. Fig. 4 is a similar sectional view on the line *x x* of Fig. 3.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the table or bed of the machine, which is supported at a suitable height above the floor by legs or standards *a*, so as to bring the operative devices supported

thereon into a position convenient to the operator.

B designates a supporting-frame for the operating devices, which is arranged centrally within the table A, and rigidly secured thereto by bolts or other suitable fastening devices. This frame comprises two vertical standards, *b*, which are arranged a short distance from and parallel with each other, and the upper ends of the standards are connected by a transverse plate or cap, *b'*, all of which are cast in a single piece of metal, for simplicity and strength.

C designates a horizontally-arranged rotatory disk or plate, which is arranged to bear on the cap of the frame B, and is carried and actuated by a shaft, *c*, that is rigidly secured to the frame B, the lower end of the shaft being retained in the cap of the frame, so as to steady the disk in its rotatory movement. The under or lower face of the rotatable disk is provided at its center with a series of cogs or teeth, *c'*, which are arranged in a circle, and are formed integral therewith, or cut thereon by a machine of suitable character, and with these teeth mesh the teeth of a vertically-disposed gear-wheel, D, that is arranged on one side of the frame B, and carried and actuated by a horizontal shaft, *d*, that extends through and is journaled in the standards *b* of the frame, the said shaft also carrying a ratchet disk or wheel, E, that is rigidly secured thereon and arranged in a vertical position between the standards *b*, as will be readily seen. This ratchet-wheel is actuated or rotated by a pivoted gravitating pawl, F, that is pivoted on and carried by a lever, H, and, if desired, the pawl may have a spring to normally press or force it in engagement with the ratchet; or it can be so arranged that its free end will gravitate toward the pawl, and thus be held in engagement thereto. This lever H is pivoted at or near its middle on a shaft, *h*, that is journaled in the standards and in a horizontal position, while the pawl F is carried thereby near one end. The opposite free end of the lever is enlarged to provide a cam or eccentric head, *h'*, that acts or bears against the lower face of a swinging die-carrying arm, I, that is also arranged in a horizontal

position, and above the lever H and beneath the ratchet. The inner end of this swinging arm is inclined or bent downwardly, as at *i*, and is pivoted in the standards by means of a shaft, *i'*, the inclined end *i* bearing or resting on the oscillating lever H, while the cam-shaped head of the said lever bears against the arm I, thus holding the arm in an inclined position. The free end of the swinging arm I is curved or inclined upwardly, and carries the die J, that is rigidly secured thereto by any suitable means, and the upper face of the die is provided with parallel tapering grooves *j*, into which the legs or arms of the fastener are fitted when the die is forced upwardly against the said fastener. The free end of the oscillating lever H, that carries the pawl F, has a vertically-disposed rod, *l*, pivotally connected thereto, and this rod passes through an opening in the table A, and is pivoted at or near the middle of a treadle-lever, L, that is arranged at the lower end of the legs *a*, in position to be actuated by the operator's feet, one end of the treadle being pivoted or journaled on one of the legs *a* in any preferable manner, as at *l'*.

M designates a retracting-spring for normally holding the free cam-shaped head of the oscillating lever depressed, to permit the swinging arm and the die carried thereby to be normally arranged out of the path of a rotatable carrier, P, and this spring is arranged beneath the table A, so as to be out of the way, the spring being connected to the rod *l* at one end and to the table at its opposite end. The upward movement of the end of the oscillating lever that carries the pawl is limited by a loop or staple-like bracket, N, that is secured at its ends to the table A. The revolving carrier P is made in the shape of an annulus or ring, whose interior diameter is equal to the diameter of the disk C, and the said ring-like carrier fits over the periphery of the disk. The carrier is provided on its inner edge with an inwardly-extending flange or rib, *p*, that bears on the upper edges of the disk C, to prevent downward movement of the carrier, and the latter is retained in place by means of pivoted hooks *p'*, which are carried on the under or lower face thereof and adapted to be swung outwardly to bear against the lower edges of the disk C. The ring-like carrier is thus detachably fitted on and carried by the disk, and it closely and snugly fits the latter. The carrier can be readily detached to interchange it with others of like construction, to adapt the carriers to work of different kinds or for breakage of the carrier, by simply swinging the pivoted catches away from the disk C and elevating the carrier bodily from the disk, and it can be as readily applied to and adjusted for use on the disk again. At its outer edges or periphery the carrier has a series of recesses, *o*, cut or formed on its upper face, to adapt the head of the shoe-button to be fitted therein, and the carrier is further provided with a series of V-shaped notches, *o'*, that re-

ceive and permit the shank of the button to pass therethrough, the notches corresponding in number to the recesses and arranged between the edges of the latter.

This being the construction of our invention, the operation thereof is as follows: The buttons, with the fasteners connected thereto, are fitted in the peripheral recesses of the carrier so that the heads fit in the recesses *o*, and the shank passes through the notch, while the fastener carried by the shank lies beneath the carrier. The operator now depresses the free end of the treadle by means of the foot, and at the same time adjusts the shoe beneath the legs of the fastener, and the downward movement of the treadle draws upon the rod *l* and the free end of the oscillating lever, to forcibly elevate the cam-shaped head thereof, which impinges against the swinging arm and elevates the die carried thereby with great force, so that it will strike the legs of the staple, which are thereby forced through the shoe or leather and enter the grooves of the die, by which they are forced laterally and clinched to firmly secure the button to the shoe. The downward movement of the one end of the oscillating lever depresses the pawl and draws it from engagement with one notch, and causes it to take into the succeeding notch of the ratchet-wheel, and when the foot-pressure of the treadle is released the retracting-spring elevates the free end of the oscillating lever H, which thereby elevates the pawl and rotates the ratchet, which in turn revolves the shaft *d* and the gear-wheel D, carried thereby, the said gear-wheel meshing with the teeth or cogs *e'* of the revolving disk that supports the carrier, whereby the latter is rotated a sufficient distance to bring its succeeding staple and button in position immediately above the die, so that it can be actuated or clinched thereby. Simultaneously with the elevation of one end of the lever H by the retracting-spring upon the release of the foot-pressure on the treadle the opposite end of the lever is depressed, to allow the swinging arm and its die to be lowered out of the path of the rotatable carrier, and when the die is lowered and the rotatable carrier is moved around the machine is again in a position for operation. The above-described operation of parts takes place each time a button is fastened, and the operations are repeated until all of the buttons on the carrier have been secured in place, when it is replenished. It will be seen that immediately after the die acts upon the fastener of the carrier the latter is rotated automatically to adjust the succeeding button in position above the die, to be acted on thereby, and this operation takes place without requiring any adjustment on the part of the operator, who is only required to depress the treadle and insert the shoe beneath the fastener.

Our improved button-setting machine can be quickly and easily operated to rapidly secure the buttons in place, and the impact of the die on the fastener serves to effectually

clinch the legs of the fastener to the leather, and the machine is simple and strong in construction, thoroughly effective and rapid in operation, and comparatively cheap.

5 We do not desire to confine ourselves to the exact details of construction and form and proportion of parts herein shown and described as an embodiment of our invention, as we are aware that numerous changes therein can be
10 made without departing from the principle or sacrificing the advantages of our invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

15 1. In a button-setting machine, the combination of an intermittently-rotated carrier, a gravitating swinging die-arm, a lever for actuating the free end of the die-arm, and mechanism, substantially as described, actuated by
20 the lever, for rotating the carrier simultaneously with the descent of the die-arm from the carrier, substantially as described.

2. In a button-setting machine, the combination of an intermittently-rotated carrier, a
25 swinging arm carrying a die at its free end, a pivoted lever for elevating the free end of the die-arm, and pawl-and-ratchet mechanism intermediate of the pivoted lever and the carrier, and actuated by the lever for rotating the
30 carrier with a step-by-step motion simultaneously with the descent of the die-arm from the carrier, substantially as described.

3. In a button-setting machine, the combination of a table, a rotatable carrier mounted
35 thereon, a swinging arm carrying the die, an oscillating lever for actuating the swinging arm, and mechanism, substantially as described, intermediate of the lever and carrier, for rotating the latter simultaneously with the
40 descent of the die out of the path of said carrier, substantially as described.

4. In a button-setting machine, the combination of a table, a rotating carrier, a swinging
45 arm carrying the die, a spring-actuated lever for elevating the die-arm, a shaft intermediate of the carrier and the lever, and a treadle for actuating the lever, substantially as described.

5. In a button-setting machine, the combination of a rotating disk, a detachable car-

rier secured on the disk, a swinging arm carrying the die, and mechanism, substantially as described, for rotating the disk simultaneously with the descent of the die-arm, substantially as described.

6. In a button-setting machine, the combination of a rotating disk having the cogs or
55 teeth and supporting the carrier, an oscillating lever having a pawl, a shaft carrying a ratchet, with which the pawl engages, and a gear-wheel meshing with the cogs, and a swinging arm carrying the die, substantially as described.

7. The combination, with a rotating disk, of
65 an annular carrier detachably fitted on the periphery of the disk, and having the notches for the buttons, and means for rotating the disk, substantially as described.

8. The combination, with a rotating disk, of an annular carrier detachably fitted on the
70 periphery of the disk and having a flange bearing on the disk, the peripheral recesses, and the tapering notches, and catches for retaining the carrier on the disk, substantially as described.

9. The combination of a table having a
75 frame, a rotating disk journaled on the frame, an annular carrier detachably fitted on the disk, and having the notches at its periphery, an oscillating lever pivoted in the frame, and
80 having a cam-shaped head at one end and a pawl at its opposite end, a shaft geared to the disk, and having a ratchet, with which the pawl engages, a swinging arm pivoted in
85 frame and arranged above the head of the oscillating lever, said arm carrying the grooved die at its free end, a treadle, a rod intermediate of the treadle and oscillating lever, and a retracting-spring for depressing the cam-shaped head of the oscillating lever, the whole
90 combined and arranged for service substantially as herein described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

CHARLES E. TEMPLE.
FRANK T. BOLTON.

Witnesses:

PHILIP B. O'REILLY,
THOS. WARNER.