(No Model.) 2 Sheets—Sheet 1.

J. H. VINTON.

BUTTON SETTING MACHINE.

No. 459,482. Patented Sept. 15, 1891.

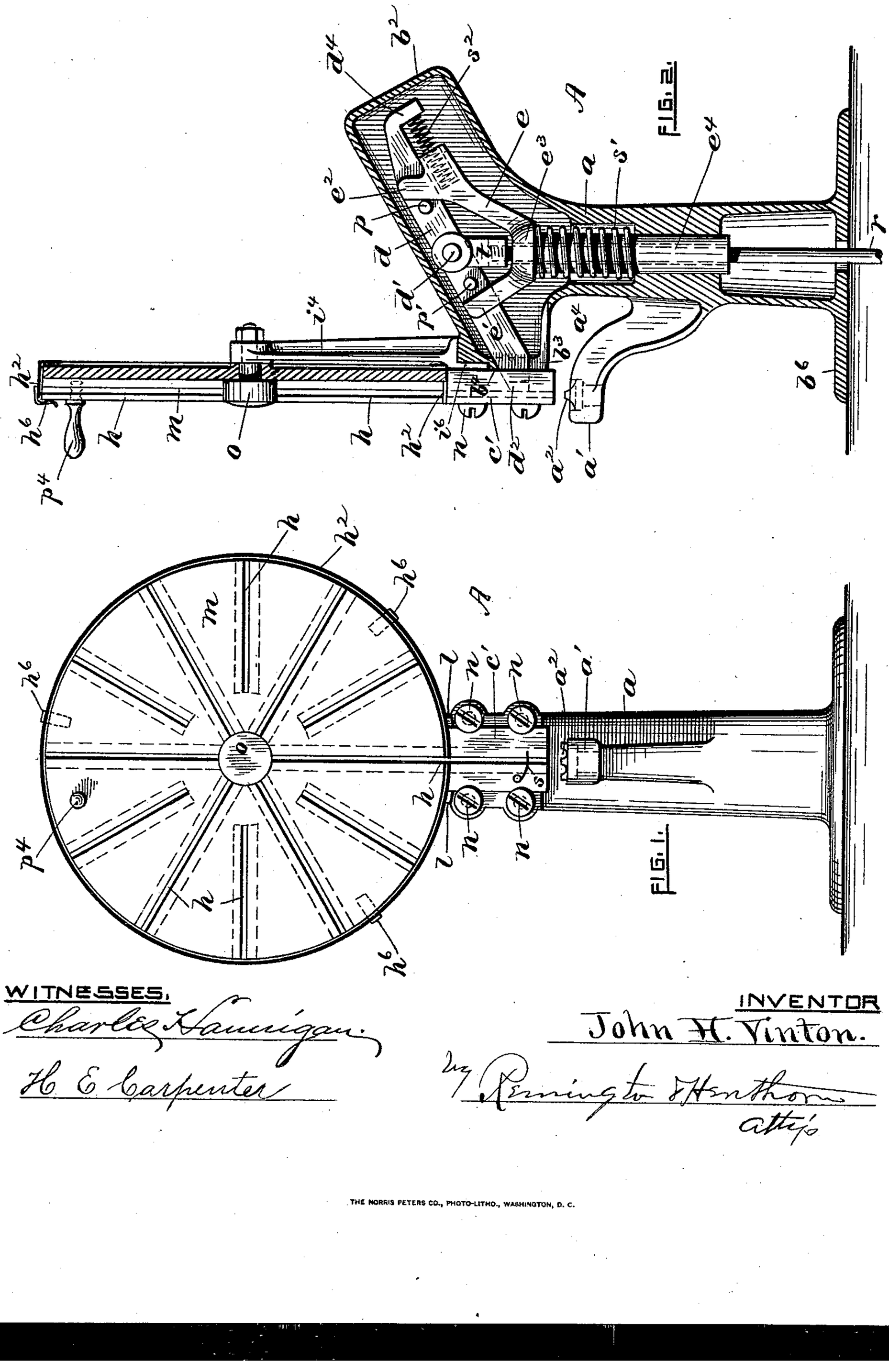

FIG. 2.

FIG. 1.

WITNESSES,
Charles Hannigan.
H. E. Carpenter

INVENTOR
John H. Vinton.
by Remington & Thorn
atty's

(No Model.) 2 Sheets—Sheet 2.

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FIG. 7.

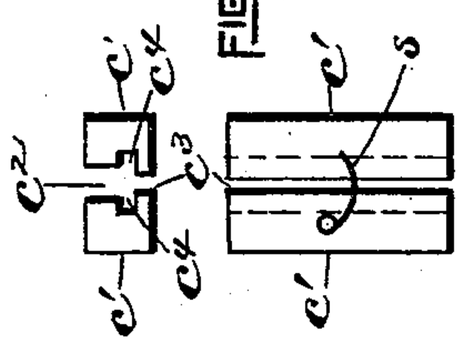
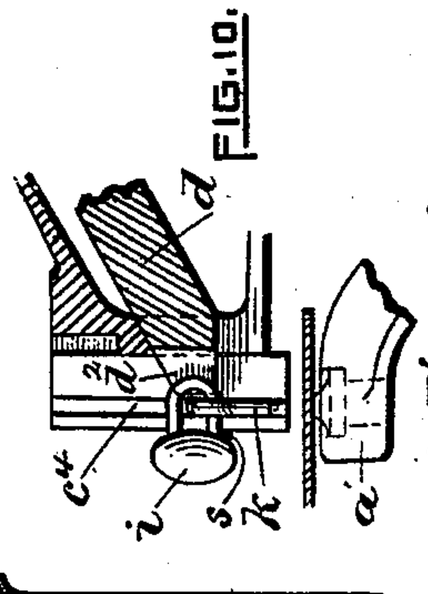


FIG. 10.



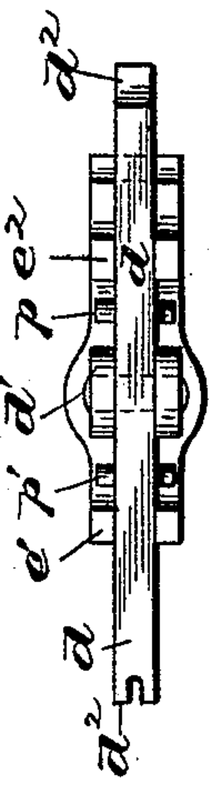


FIG. 8.

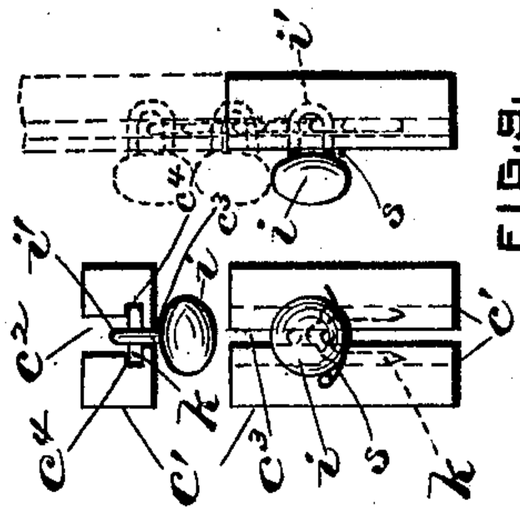


FIG. 9.

FIG. 4.

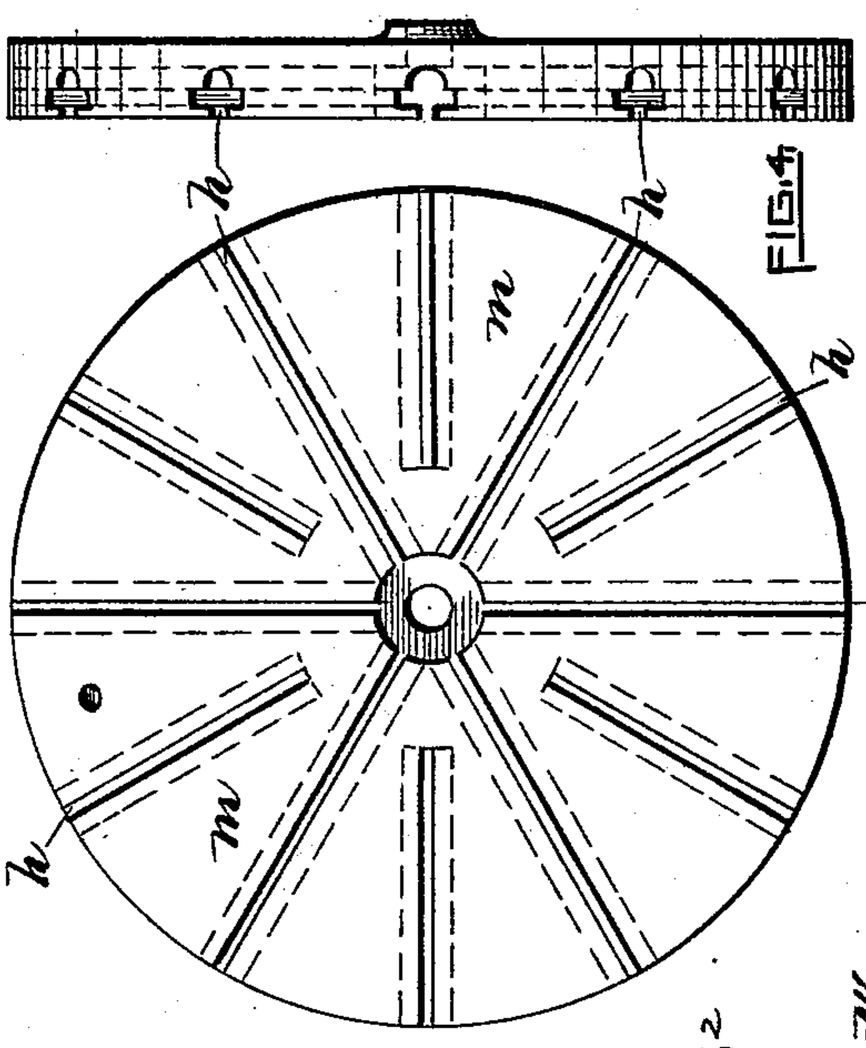


FIG. 5.

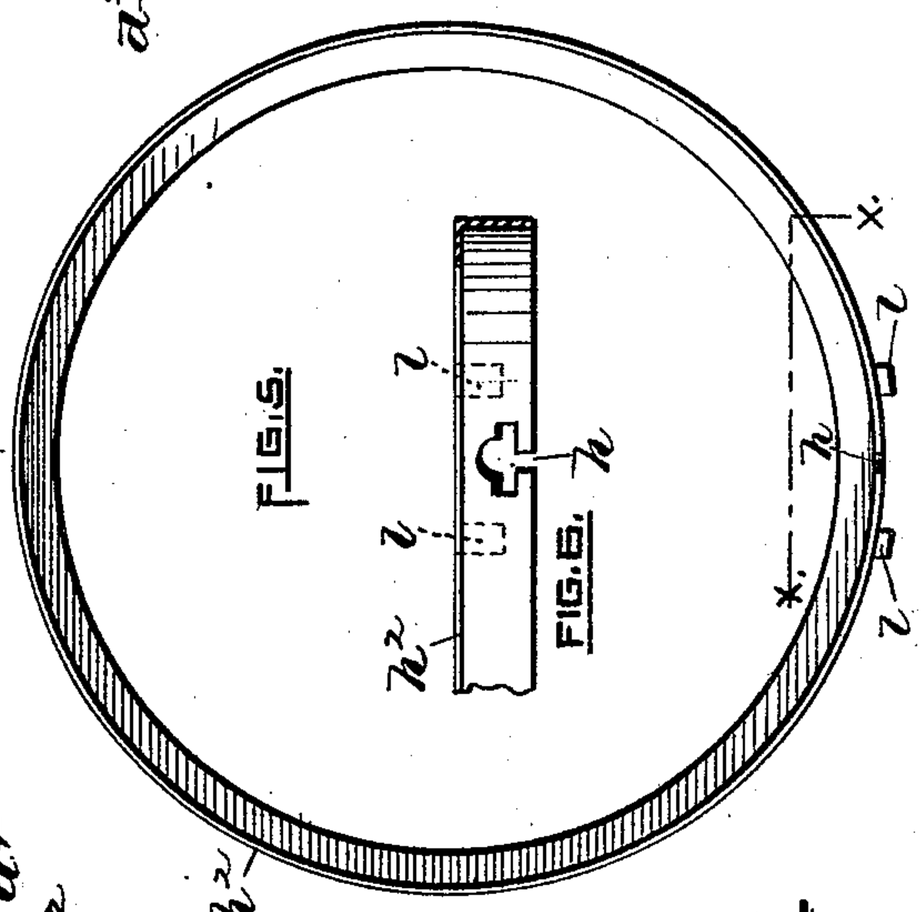


FIG. 6.

FIG. 11.

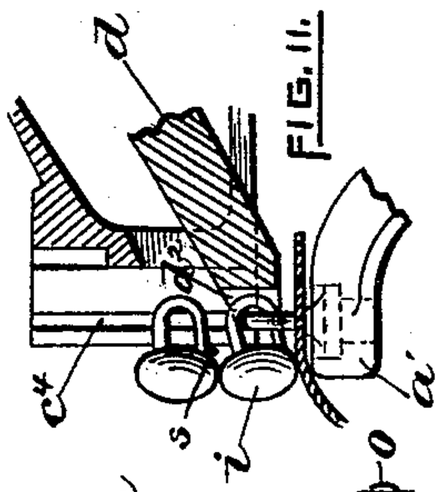


FIG. 3.

WITNESSES:

Charles Hannigan.

H. E. Carpenter.

INVENTOR

John H. Vinton.

by Remington & Stenthorp

Atty's

UNITED STATES PATENT OFFICE.

JOHN H. VINTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE HEATON PENINSULAR BUTTON FASTENER COMPANY, OF PROVIDENCE, RHODE ISLAND.

BUTTON-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 459,482, dated September 15, 1891.

Application filed December 6, 1890. Serial No. 373,803. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. VINTON, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Button-Setting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

In an application for Letters Patent filed by me upon even date herewith I have described a machine for attaching buttons to fabrics, &c., said machine being semi-portable or adapted to be operated by a foot-treadle or other power. The machine referred to is provided with a removable supply tube or reservoir from which the previously-threaded buttons and fasteners are intermittingly withdrawn.

My present invention also relates to button-attaching machines of the class just referred to, the difference residing mainly in the novel form of the reservoir or magazine and in the form and manner of operating the driver or working lever.

In the two appended sheets of drawings, illustrating a button-attaching machine provided with my improvements, Figure 1, Sheet 1, is a front elevation; and Fig. 2 is a vertical transverse sectional view taken through the center of Fig. 1, the driver being in its highest or normal position. Fig. 3, Sheet 2, is a similar sectional view, the driver, &c., being in the lowest position, corresponding to the relation of the parts while the driver is attaching the button to the fabric and clinching the prongs of the fastener. Fig. 4 shows front and side views of the rotary magazine, the buttons and fasteners being omitted. Fig. 5 is a front view of a shield or guard adapted to be secured to the loaded magazine to prevent the buttons and fasteners from being accidentally displaced. Fig. 6 is a partial horizontal sectional view taken on line $x\,x$ of Fig. 5. Fig. 7 shows front and end views of the holder, the groove or runway of which coincides with those of the rotary holder or magazine. Fig. 8 is a plan view of the driver and its guide. Fig. 9 represents front, side, and plan views of the holder containing buttons and fasteners, a spring keeping them in check. Fig. 10 is a partial side elevation of the holder, driver, &c., corresponding substantially with Fig. 2, but provided with buttons and fasteners; and Fig. 11 is a similar view of the parts corresponding to Fig. 3.

Again referring to the drawings, A indicates my improved button-attaching machine complete.

a designates the standard or frame which carries the mechanism, its upper portion or head b^2 being hollow and at an angle or inclination to the column supporting it. The front end of the head has a central vertical opening b^3 therein, through which an end of the driver d, soon to be described, passes. To the front of the head two grooved pieces c' are secured by means of screws n. These pieces when mounted serve as guides or holders for the column of buttons and fasteners, a spring s keeping them in check. The holder c' is so constructed that the front groove or space c^3 receives the eye or shank i' of a button i edgewise, its width being such that it practically prevents the button from moving laterally. (See Figs. 7, 9, &c.) The two vertical side grooves c^4 are arranged to receive the two-prong fasteners k, while at the rear it will be seen that a wider space c^2 is formed. This space is to accommodate the driver in its vertical movement.

The frame a is provided with an anvil or lateral extension a', its upper end or face having a clinching-die a^2 fitted therein, adapted to engage the points of the fastener's prongs. The anvil projects a sufficient distance from the frame a to form a suitable throat a^4, in order to accommodate the work during the button-attaching operation.

The standard or frame a is fitted with a driver-holder e, having front and rear arms e' e^2, respectively, which extend upwardly in divergent directions from a common base or

enlarged flange e^3. The driver-holder is also provided with a downwardly-extending shank e^4, fitted to move vertically in and guided by the main frame a.

The driver-carrier e is provided with an enlarged central hole, through which the operating-rod r freely passes. To the upper end of said rod is secured a forked head t, through which a pin d' is transversely fitted. The opposite end of the rod may be connected with a foot-treadle or other suitable means for reciprocating it up and down.

The driver d consists of a movable bar mounted edgewise in the two arms of the carrier e, its front end d^2 being adapted in operation to engage and separate the lowest button and fastener from the column. The opposite end d^4 is connected with a spring s^2, mounted in the arm e^2 of the carrier. This spring is employed solely to force the driver rearwardly to its limit, as in Fig. 2, upon removing downward pressure from the rod r. The driver is also provided with front and rear pins p' p, respectively, which serve as stops for limiting its endwise movement. A spring s' is used to automatically return the carrier, driver, &c., to the normal position represented in Fig. 2 after the removal of pressure from the operating-rod r.

From the foregoing it is apparent that upon forcing the rod r downwardly the first action will be to force the driver endwise, thus overcoming the tension of the spring s^2 until arrested by the engagement of the stop p' with the arm e', the head portion t and rod at the same time moving laterally in the enlarged hole formed in the shank e^4. Simultaneously with said movement the free end of the driver is forced into engagement with the shank of the bottom button and upon the top of the fastener k. (See Fig. 10.) Now a continued pull or pressure will force the carrier e downwardly against the resistance of the spring s' to the lowest position, (see Figs. 3 and 11,) thereby withdrawing the button and fastener from the yielding support or spring s and forcing the prongs through the fabric f and clinching them thereunder against the die a^2. As fast as each button and fastener is withdrawn the next succeeding one takes its place, the spring s in front serving to hold the column in check. After securing the button to the fabric and removing pressure from the rod r the spring s^2 forces the driver rearwardly and upwardly until arrested by the stop p, the main spring s' at the same time carrying the whole vertically to the normal position shown by Fig. 2, the limit being gaged by the engagement of the driver with the shoulder b^4 of the frame.

The reservoir or magazine m is in the form of a disk, its face having a series of grooves h formed therein adapted to coincide with the space or openings c^3 c^4 of the said guide c'. As drawn, the grooves extend in a radial direction from the periphery of the disk toward the center. The magazine is mounted to turn on a headed pin or bolt o, secured to a standard i^4, having a tongue i^6 fitted into the frame a.

In order to prevent the buttons and fasteners from dropping out of the grooves, I provide a metallic peripheral ring h^2 or shield, L shape in cross-section, in which the reservoir is snugly fitted to be turned. The shield has an opening h formed therein, which in use is placed intermediate of and coincides with the groove of the magazine and the guide c', as in Figs. 1 and 2. Two lugs l or other equivalent means arranged on either side of the shield prevent it from being accidentally displaced when placed upon the machine. (See Figs. 1, 3, and 5.) By this arrangement it is apparent that a filled disk or magazine can be easily and safely carried about. If desired, one or more spring-catches h^6 (shown by dotted lines, Figs. 1 and 2) may be used, although I prefer to make the disk fit snugly into the shield, as before stated. When thus charged and not in use upon the machine, the shield is so placed that its opening h will lie adjacent to the ungrooved portion of the rim, thereby closing the outer ends of all the grooves.

The standard i^4 is arranged to rest upon and be supported by the frame a, the former being further provided with a downwardly-extending tongue or projection i^6, rectangular in cross-section, removably fitted to a socket formed between the rear face of the stationary guide c' and the adjacent face of the frame. (See Figs. 1 and 3.)

A machine embodying the improvements hereinbefore described may be operated very rapidly and efficiently, owing to its simplicity and a reduced number of the working parts. These latter are incased in the hollow frame a, thereby not only protecting them from dust, &c., but also rendering the machine neat and attractive. After emptying one of the grooves h of its buttons and fasteners the attendant then simply rotates the magazine axially until the next filled groove coincides with the opening or groove of the stationary combined holder and guide c', the friction of the disk and rim h^2 being sufficient to retain them in position. To facilitate such angular movement of the disk, it may be provided with a removable handle or pin P^4, as shown in Figs. 1 and 2.

I claim as new and desire to secure by United States Letters Patent—

1. In a button-attaching machine, the combination, with a setting-die and a stationary guide or holder adapted to receive buttons and fasteners, of a driver having its front end arranged to engage a button-eye and attached fastener, a spring-resisted vertically-guided carrier having said driver mounted at an angle or inclination to move endwise therein, and an operating-rod attached to the driver, substantially as hereinbefore described, and for the purpose set forth.

2. In a button-attaching machine, the combination, with a setting-die, a stationary guide

or holder adapted to receive buttons provided with fasteners, and a button and fastener holding magazine or reservoir communicating with said stationary holder, of a yielding driver having its front end arranged to engage a button-eye and fastener, a vertically-guided yielding carrier having said driver mounted at an angle therein, stops for limiting the endwise movement of the driver, and an operating-rod passing freely through the carrier and attached to the driver, substantially as hereinbefore described.

3. The button-attaching machine hereinbefore described, the same consisting of the standard or frame portion provided with an anvil or setting-die and a hollow head portion arranged at an angle to the vertical axis of the standard, a stationary lower guide or holder adapted to receive threaded buttons and fasteners secured to the front or lower end of said hollow frame and having a spring-stop arranged to hold the column of buttons and fasteners in check, a removable grooved or slotted button and fastener holding magazine attached to the frame and communicating with said stationary holder, an inclined yielding driver having its front portion introduced into the lower holder and adapted to engage a button-eye and fastener, a vertically-guided yielding carrier having the driver mounted to move endwise therein, stops for limiting the driver's endwise movement, and an operating-rod passing vertically and loosely through the carrier and connected with the driver, the whole combined, arranged, and adapted for operation substantially as set forth.

4. In a button-attaching machine, the combination of an anvil, a stationary button and fastener holder provided with a yielding check or stop, a laterally-guided spring-resisted driver arranged to move endwise in an inclined plane to engage the fastener, stops for limiting such movement, an operating-rod attached to the driver for effecting the travel of the latter both forward and downwardly, and a magazine provided with a series of openings arranged to communicate with the said holder, substantially as set forth.

5. In a button-attaching machine, the combination, with operating mechanism constructed and arranged to intermittingly withdraw a threaded or combined button and fastener from the bottom of a stationary holder supporting a column of such combined buttons and fasteners, of a removable revoluble magazine or disk having a series of grooves formed in its face adapted to receive threaded buttons and fasteners and communicating with the stationary holder and having the axis of rotation of the magazine at substantially right angles with the vertical axis or center of said stationary holder, substantially as hereinbefore set forth.

6. In a button-attaching machine, the combination of a removable revoluble magazine provided with a series of peripheral grooves extending therefrom toward its axis arranged to receive threaded buttons and fasteners and having its axis of rotation at substantially right angles with the vertical axis or center of the machine, and an apertured shield or guard arranged to close the outer ends of the said series of grooves upon axially turning the magazine a short angular distance, substantially as hereinbefore described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN H. VINTON.

Witnesses:

F. A. SMITH, Jr.,

E. MARTIN.