

A. H. CUSHMAN.
 BUTTON HOLDER.
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987,051.

Patented Mar. 14, 1911.

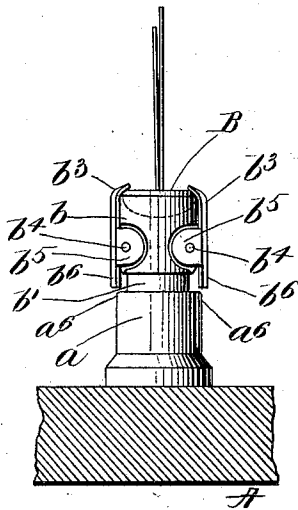


FIG-1.

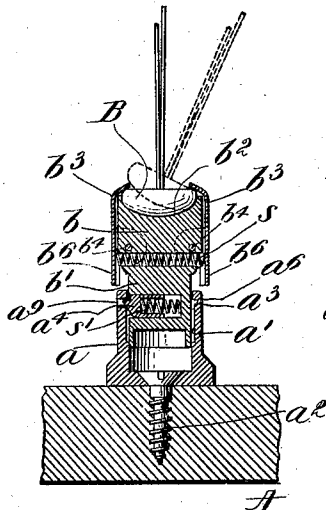


FIG-2.

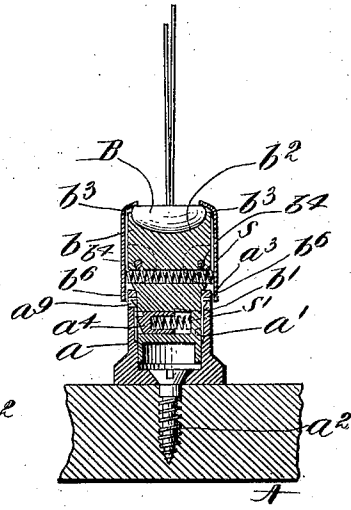


FIG-3.

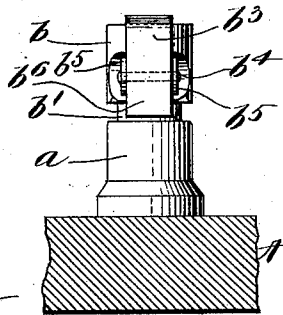


FIG-4.

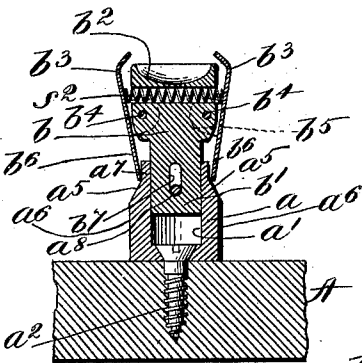


FIG-5.

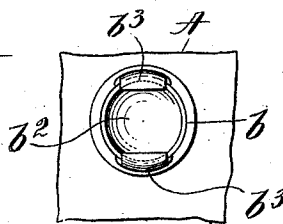


FIG-6.

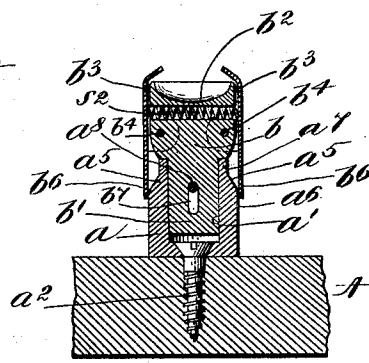


FIG-7.

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UNITED STATES PATENT OFFICE.

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BUTTON-HOLDER.

987,051.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT H. CUSHMAN, a citizen of the United States, and resident of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Button-Holders, of which the following is a specification.

This invention relates to button holders for tufting machines of the kind in which a large number of holders are mounted on a single board or base of the mold or former, to support the tufting buttons or nails by their heads with their shanks extending vertically upward.

In the accompanying drawings which illustrate certain embodiments of the invention,—Figure 1 is a side view of a button holder embodying one form of my invention; Fig. 2 is a vertical, central section through the button holder shown in Fig. 1, with the upper section extended; Fig. 3 is a similar vertical, central section showing the upper section of the button holder depressed; Fig. 4 is a side elevation of said button holder viewed at right angles with Fig. 1; Fig. 5 is a plan view of said button holder; Fig. 6 is a vertical, central section of a modification of said button holder, showing the upper section extended; and Fig. 7 is a similar section of the button holder shown in Fig. 6 with the upper section depressed.

Referring first to the form of button holder shown in Figs. 1 to 5 inclusive, *a* represents the lower section of the button holder, and *b* the upper section. The lower section *a* is preferably in the form of a cylindrical post, provided with a central, longitudinal bore *a'*, and is secured to the tufting board or base *A* by means of a screw *a²* passing through the bottom of the lower section with its head lodged in the bottom of the bore. The upper section *b* is mounted to slide vertically with relation to the lower section by means of the plunger or stem *b'* which has a sliding fit in bore *a'*. The upper face of the section *b* is hollowed or recessed as shown at *b²* to fit the head *B* of a tufting button. Pivoted to opposite sides of the upper section *b* are a pair of button clamps *b³*, mounted to swing on pivot pins *b⁴* passing through ears *b⁵* of the clamps and

through a flattened portion of the section *b*. Each clamp *b³* is made with a downwardly extending arm *b⁶*, which terminates short of the lower section when the upper section is extended. A spring *s* lodged in a hole in section *b* is held in compression between the two arms *b⁶* and tends yieldingly to hold the clamps *b³* normally in closed position, and the arms *b⁶* in the position of extreme separation from each other. The bore *a'* of the lower section is provided with a notch *a³*, preferably in the form of an annular groove, to engage the latch *a⁴*, mounted in a hole in stem *b'* from which spring *s'* tends normally to project it. The latch *a⁴* operates as a stop to prevent the withdrawal of the upper section from the lower section and also serves yieldingly to hold the upper section extended and prevent it from falling by its own weight or from being accidentally pressed down while the button head is being placed between the clamping jaws as hereafter described.

The button holder normally stands with the upper section extended. To insert a button, the operator holds the button head downward and spreads the clamps *b³* apart with the button head either by pressing the head of the button directly downward or preferably by inserting one edge of the head under one of the jaws *b³* with the button shank in inclined position as shown in dotted lines in Fig. 2, and then swinging it to upright position forcing the clamps apart to permit the head to pass between. It will be understood that the clamps *b³* are free to swing by overcoming the tension of spring *s* since the arms *b⁶* are clear of the end of the lower section *a*. The button is then held upright as shown in Fig. 1, and in solid lines in Fig. 2. The upper section is then pressed downward, the stem *b'* sliding lengthwise in the bore *a'*, whereupon the extensions *b³* of the clamps slip over and engage the end of the lower section *a*, which affords a clamp engaging surface securely holding said clamps in closed position as shown in Fig. 3. So long as the upper section is depressed no amount of lateral pressure on the shank of the button will tilt the same or dislodge the button head from the holder. After

the cushion is tufted all that is necessary to do to remove the button from the holder is to pull it upward. The first part of the upward pull lifts the upper section, thus removing the arms b^6 from their locking surfaces and unlocking the clamps. Continued pull on the buttons causes the button-head B to spring the clamps b^3 apart and permit the button-head to slip between them.

10 In the form of button holders shown in Figs. 6 and 7, the lower section is made with the inclined or tapering surfaces a^5 acting as cams, coöperating with the arms b^6 to swing the clamps into closed position. In this form of button holder the clamps are normally urged toward open position, as shown in Fig. 6, by spring s^2 located above the pivots of the clamps. Thus it will be seen that when the upper section is extended the ends of arms b^6 will rest against small part a^7 of the lower section, permitting the clamping jaws to be held open by spring s^2 . To insert a button the operator places the button-head in the recess at the top of the upper section and at the same time presses down causing the upper section to move downward and the arms b^6 to ride up the cam surfaces a^5 , thereby closing the jaws upon the buttonhead. When moved fully down the arms b^6 leave the cam surfaces and engage the dwell surfaces a which are parallel with the axis of the lower section, thereby locking the clamps in closed position. The dwell surface a^6 corresponds to the locking surface a^6 of the other form shown in Figs. 1 to 5. A pin a^8 extending across the bore a' and through a slot b^7 in stem b' serves to limit the outward movement of the upper section. The button is removed, as before described, by an upward pull, which simultaneously extends the upper section, unlocking the clamps, and releases the buttonhead by the opening of the clamping jaws as the arms b^6 ride up the cam surfaces a^5 . The latter part of the upward movement is assisted by spring s^2 which tends to press the arms b^6 inward against the inclined surface a^5 , thus thrusting the upper section upward.

50 In the form shown in Figs. 1 to 5 a hole a^9 is provided through the wall of the lower section communicating with the annular notch a^3 . By turning the upper section so that the latch a^4 comes opposite this hole, the latch may be pushed back out of engagement with the notch by means of any suitable pointed implement, and the upper section withdrawn. Easy access is then had to screw a^2 for the purpose of applying the

button holder to, or removing it from the board A.

I claim:—

1. A button holder comprising two sections relatively movable lengthwise, the lower section adapted to be secured to a base, and the upper section provided with button-holding clamps, said clamps being normally closed in all positions of the upper section and adapted yieldingly to hold a button-head in operative position when the upper section is extended, and the lower section being provided with a clamp engaging surface adapted positively to lock said clamps in closed position when the upper section is moved downward, and a spring actuated latch adapted yieldingly to hold said upper section in extended position.

2. A button holder comprising a lower section provided with a longitudinal bore, an upper section having a stem mounted to slide in said bore, button clamps pivoted to said upper section provided with downwardly extending arms, said lower section having a locking surface, and said arms adapted to engage said locking surface positively to lock said clamps in closed position when the upper section is moved downward and to disengage from said locking surface when the upper section is extended, and a spring pressed latch carried by said stem pressing against the surface of said bore adapted yieldingly to hold said upper section in extended position.

3. A button holder comprising a lower section provided with a longitudinal bore, an upper section having a stem mounted to slide in said bore, and button clamps pivoted to said upper section provided with downwardly extending arms, said lower section having a locking surface, and said arms adapted to engage said locking surface positively to lock said clamps in closed position when the upper section is moved downward and to disengage from said locking surface when the upper section is extended, said bore having a notch therein, and a spring pressed latch carried by said stem adapted to engage said notch both to prevent the withdrawal of said stem from said bore and yieldingly to hold said upper section in extended position.

Signed by me at Boston, Massachusetts, this 12th day of July 1910.

ALBERT H. CUSHMAN.

Witnesses:

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CHARLES D. WOODBERRY.