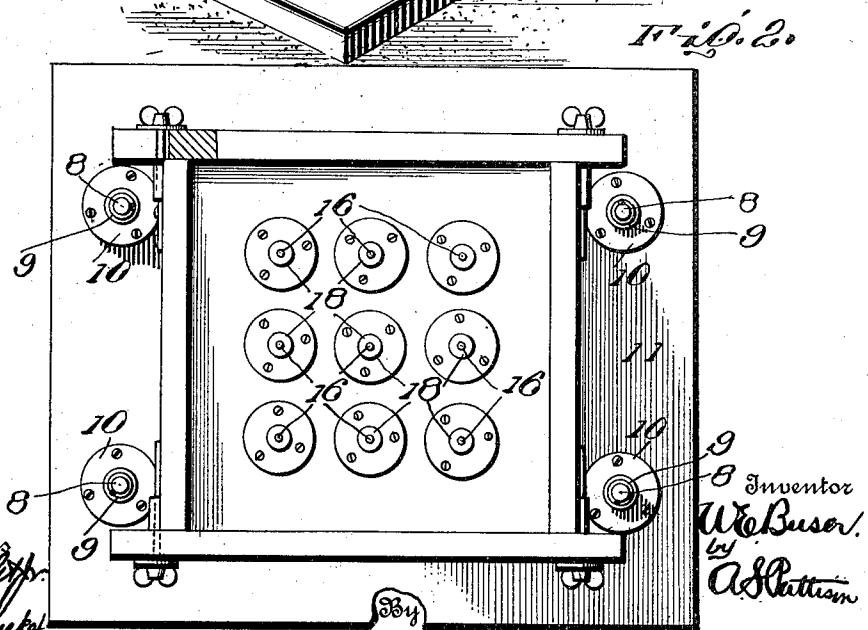
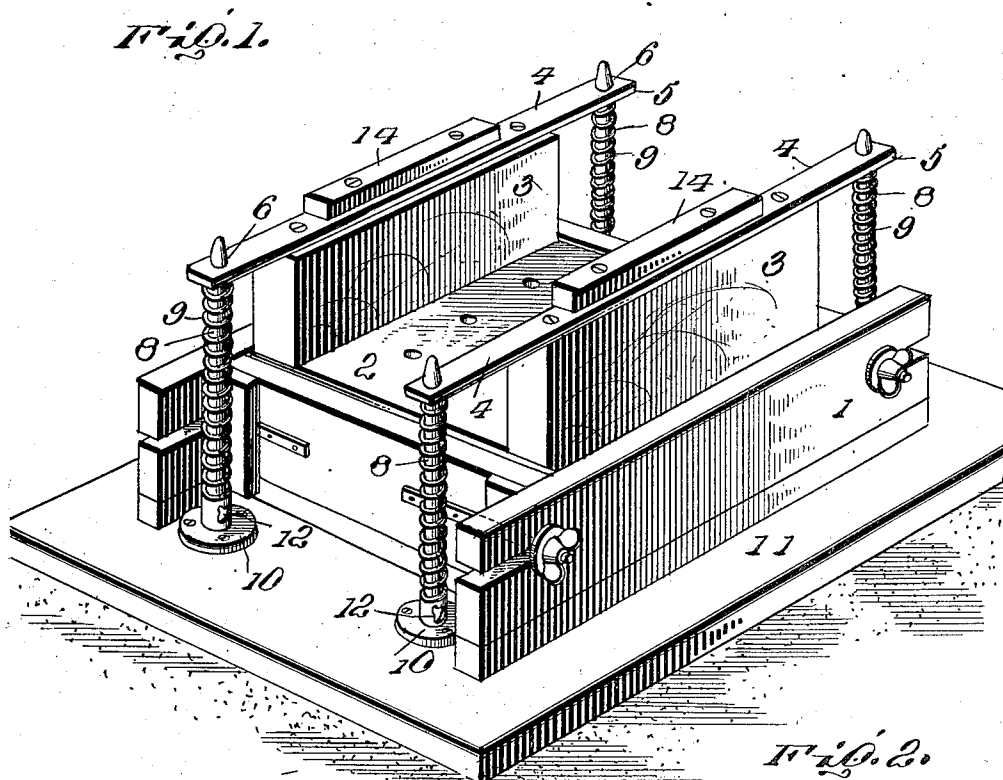


1,034,766.

W. E. BUSER.
TUFTING MACHINE.
APPLICATION FILED JUNE 15, 1910.

Patented Aug. 6, 1912.
4 SHEETS—SHEET 1.



Witnesses
C. R. Wright
L. E. Butler

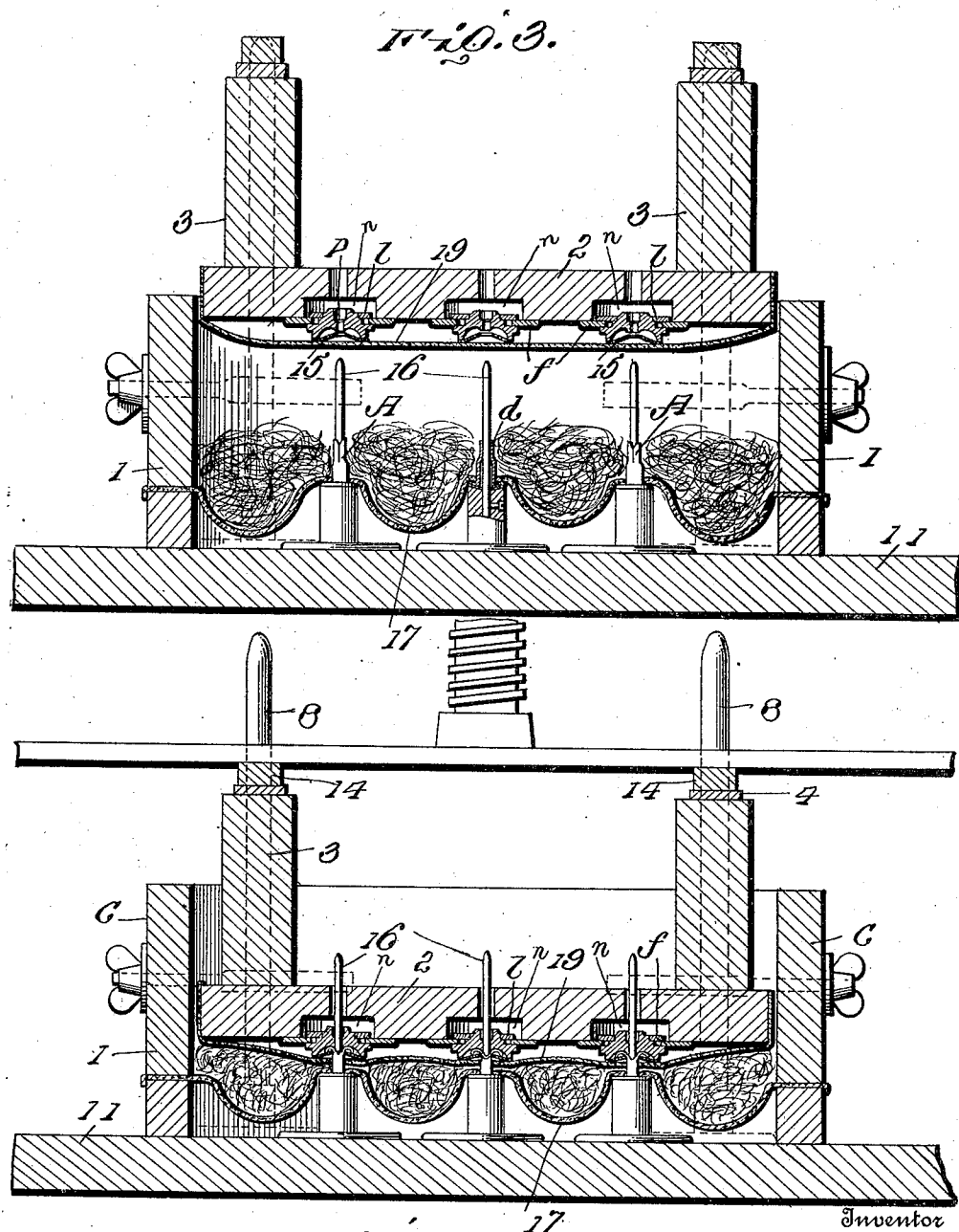
Inventor
W. E. Buser
by
A. S. Patterson

Attorney

W. E. BUSER.
 TUFTING MACHINE.
 APPLICATION FILED JUNE 15, 1910.

1,034,766.

Patented Aug. 6, 1912.
 4 SHEETS—SHEET 2.



Witnesses
 C. P. Wright
 L. L. Hunt

W. E. Buser,
 By A. S. Patton
 Attorney

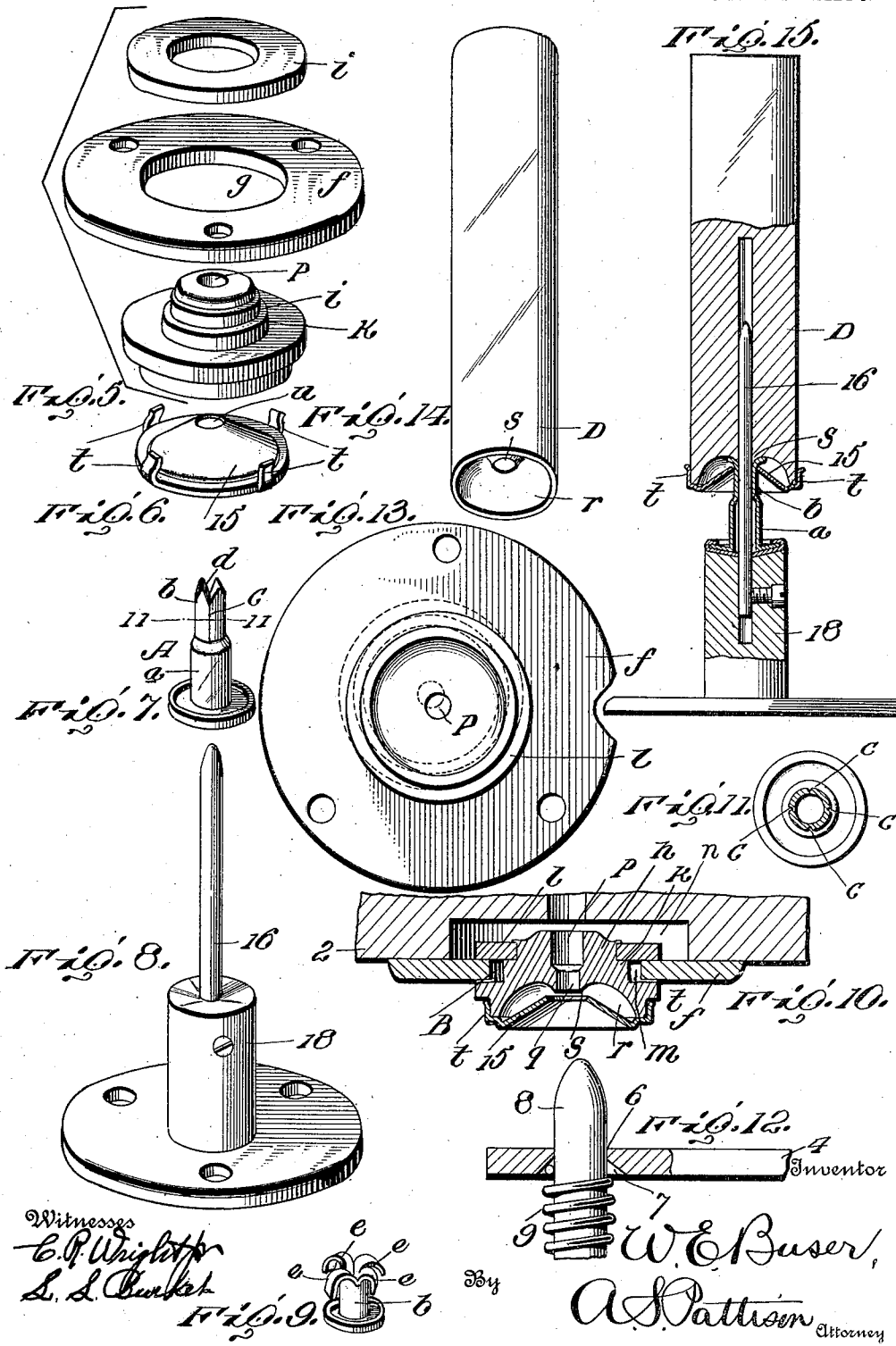
W. E. BUSER.
TUFTING MACHINE.

APPLICATION FILED JUNE 15, 1910.

1,034,766.

Patented Aug. 6, 1912.

4 SHEETS—SHEET 3.



Witnesses
C. P. Wright
L. L. Barker

Fig. 9.

By

W. E. Buser,
A. Patterson
Attorney

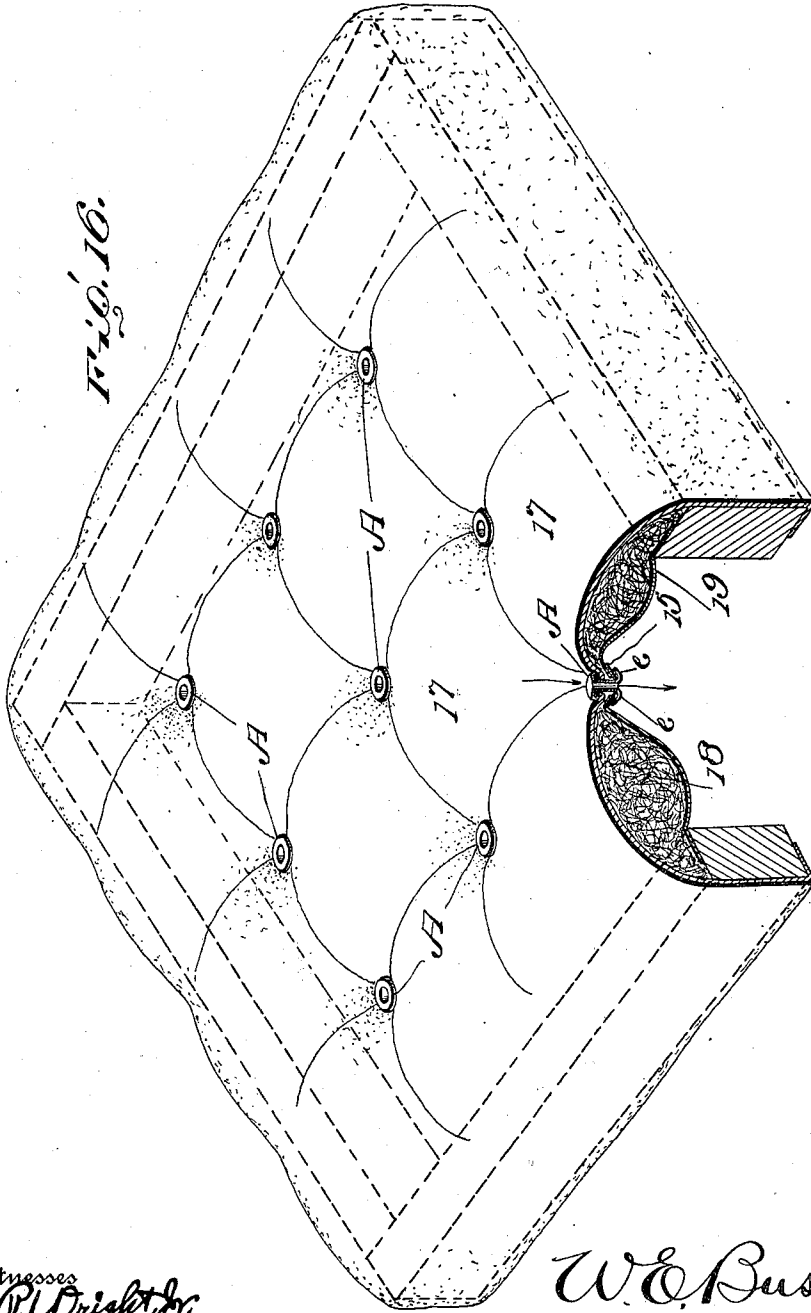
TUFTING MACHINE.

APPLICATION FILED JUNE 15, 1910.

1,034,766.

Patented Aug. 6, 1912.

4 SHEETS—SHEET 4.



Witnesses
C. P. Wright, Jr.
L. L. Barker

ಪ್ರ

W. E. Buser,
A. S. Pattison
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM E. BUSER, OF CHILLICOTHE, OHIO.

TUFTING-MACHINE.

1,034,766.

Specification of Letters Patent.

Patented Aug. 6, 1912.

Application filed June 15, 1910. Serial No. 567,062.

To all whom it may concern:

Be it known that I, WILLIAM E. BUSER, a citizen of the United States, residing at Chillicothe, in the county of Ross and State of Ohio, have invented certain new and useful Improvements in Tufting-Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in tufting machines, embodying certain new constructions and arrangements which will be particularly pointed out hereinafter.

One of the objects of my present invention is to provide guides for the follower-board to cause it to move in a fixed vertical line to prevent any binding of the cooperating clenching members; the follower-board being preferably moved up by springs exerting uniform pressure thereon when released by the press.

Another object of my present invention is to have the clenching members carried by the follower-board to temporarily interlock the button washer so that when the clenching has been effected and the follower-board permitted to rise, the vertical movement thereof will carry with it the tufted pad so that it can be readily stripped or removed from the follower-board.

Another object of my present invention is to provide a new clenching button; and to combine therewith an improved button support, guide and piercing device which supports, guides and protects the open end of the button and pierces the cloth and lining, providing an initial opening therein through which the stem of the button may pass.

Another object of my present invention is to provide a universal movable clenching member, which is automatically centered by the combined button guide, support and protector to the end of the button to be clenched.

A further object of my invention is to provide an improved form of button clenching device, particularly intended for use with my improved form of button.

A further object of my invention is to provide a button washer adapted to temporarily interlock with the clenching member, whether it be carried by the follower-board or is in the form of a hand-operated clenching device.

In the accompanying drawing, I illustrate one of the mechanical expressions which embodies the generic principles of my present invention, though the details of this may be varied without departing from the scope and spirit of the invention, in which—

Figure 1 is a perspective view of a small tufting machine which embodies my invention. Fig. 2 is a top plan view of the mold-board with the follower-board removed. Fig. 3 is a transverse section through the center of Fig. 1, the follower-board being shown in its upper position. Fig. 4 is a sectional view similar to Fig. 3, the follower-board shown in its lowermost position and clenching the buttons and washers together and uniting the cloth and lining, thus producing a tufted pad with my improved button and washer connecting the cloth and lining. Fig. 5 is a perspective view of the follower-board clenching member, the parts being shown in separated relation. Fig. 6 is a detached perspective view of my improved washer. Fig. 7 is detached perspective views of the improved button. Fig. 8 is a detached perspective view of the improved button support, guide, protector and piercing device. Fig. 9 is a detached perspective view of my improved button showing the parts in clenching position. Fig. 10 is a vertical transverse sectional view through one of the universally movable follower-board clenching devices, showing the button washer temporarily attached thereto. Fig. 11 is a transverse sectional view of the button on a line 11—11, of Fig. 7. Fig. 12 is a detached view partially in section of one of the follower-board guiding devices. Fig. 13 is a top plan view of one of the follower-board clenching members, indicated in dotted lines that it is capable of lateral movement. Fig. 14 is a perspective view of the hand-clenching device. Fig. 15 is a sectional view showing the hand-clenching device in position to clench the button and its washer together. Fig. 16 is a perspective view of a tufted pad or seat showing my improved button applied thereto.

In carrying out my present invention, the usual or any desired type or form of mold-board 1, may be employed. The constructions of mold-boards are so well-known to those skilled in the art that a specific description thereof is unnecessary. Vertically

movable within this mold-board is a follower-board 2, which is provided at opposite sides with vertically projecting boards or members 3, to which are attached guiding bars 4. The ends 5 of these guiding bars project beyond the side walls of the mold-board 1, and are provided with vertical openings 6, which have their under or lower ends tapered at 7 (Fig. 12). These openings 6, receive vertically arranged guide rods 8 and expanding springs 9 are located around these guide rods 8 and between the ends 5 of the guide bars 4, and the rod supports 10. These supports 10 are in the form of sockets and are attached to the base 11 of the mold-board. These supports 10 removably receive the guide rods 8 which are held within the sockets by means of suitable thumb screws 12, which permit the rods to be attached and removed at will. The upper ends of the rods 8 are tapered as shown, which together with the taper 7 of the opening 6, permits the follower-board to be readily placed in position. The guide rods and bars insure the accurate vertical movement of the follower-board within a fixed vertical plane when it is being depressed and when it is permitted to be lifted by the springs 9, for a purpose which will be referred to farther on.

Located over the metal bars 4, are the wood bars or strips 14, which receive the pressure bar of any suitable form of bars for pressing the follower-board downward. These bars 14 are readily replaceable when they become badly worn.

Referring now to my improved button, and particularly to Figs. 7, 9 and 11, it comprises a vertical hollow stem having a relatively large lower portion *a* and small upper portion *b*. The upper portion *b* is made small or contracted in any suitable manner and is provided with several longitudinal scores or grooves *c* in its outer faces and notches *d* in its upper extremity, the grooves or scores coinciding with the apexes of the notches by means of the clenching device hereinafter described. This smaller or contracted end of the button is drawn through these scores or grooves into separate members or arms *e* (Fig. 9) which are turned downward into clenching position against the washers 15, as shown in Fig. 4, and serve to firmly unite the button and washer through the cloth and lining and to hold the parts of the pad in the tufted position. This button *A* is hollow and in operation is supported, guided and protected by a combined support, guide, protector and piercer 16, which passes through the hollow button.

The hollow button in addition to forming an excellent clamping device for holding the cloth in a tufted position, performs a very useful additional function in respect to the pad itself, in that it forms a hollow button

for the pad through which the dust and dirt when cleaning the pad will pass and thus entirely pass through the pad. It is well-known that it is very difficult to clean the depressed portions of tufted pads or seats with solid head buttons. With the hollow buttons this difficulty is overcome. Furthermore, when the tufted pads are used for out-door service, such as automobile and the like, the water from rains and dews which always accumulates in the depressed portions of the pads, will flow through the hollow buttons instead of being caught and held in the depressed portions as is now the case.

Attention is directed to the fact that the button support, guide and protector 16 is pointed at its upper end so that after the button is placed thereon, as shown in Fig. 3, the support projects beyond the button and the contracted portion of the button fits the support and the protector 16, whereas the enlarged portion *a* is larger than the guide and protecting rod 16, the function of which will be presently mentioned. The point ends of the guide and protector 16 are forced through the cloth 17 by hand, when it is being placed in position in the mold-board, and thereby forms an initial opening through which the contracted notched end of the button passes. The button support, protector and guide 16 is removable from its socket 18 whereby it is removable so that rods of various lengths may be supported therein depending upon the character of work to be done, thus constituting a removable support and guide for the button. The sockets 18 are attached to the bottom of the mold-board as shown.

The object of having the lower portion of the button enlarged is to prevent the button from being wedged or tightened upon its support and guide by the clenching operation. The clenching operation opens up practically all of the contracted portions of the button, leaving only the enlarged portion thereof in engagement with the support, guide and protector, and thus permits the tufted pad to be easily removed without any wedging or friction between the buttons and their supports.

Referring now to the button clenching devices, and particularly to the clenching device that is carried by the follower-board, reference is more particularly had to Figs. 5 and 10. This follower-board clenching device *B*, comprises a base *f* having a central opening *g*. The clenching member *h* has a cut-away portion *i* and shoulder *k* thereabove. Riveted against this shoulder *k* is a flange or washer *l*, so that a space *m* is formed between the shoulder *k* and washer *l*, and into this opening the inner periphery of the base *f* extends. The space *m* is of sufficient size to permit the clenching device to

freely move in all directions upon the base *f*, and the base *f* is secured to the follower-board 2, the face of the follower-board having a recess *n* to receive the inner end of the clenching device *h*. This clenching device is provided with a central opening, the upper portion *p* being larger than the lower portion *q*. The under face of the clenching device *h* has a concaved portion *r*, which has at its center a projecting conical flange or central projection *s* surrounding the smaller portion *q* of the said opening.

The washer 15, is of truncated cone-shape, as shown in Fig. 6, and is provided with one or more arms *t*, which are adapted to temporarily interlock with the clenching member *h*, as shown in Figs. 3 and 10, the washer having a central opening *u* larger than but registering with the opening *q* of the clenching member.

In operation, the buttons *A* are placed on their support, guide and protector, as shown in Fig. 3. The cloth 17 is forced into the position shown by hand from the pockets. The filling 18 is placed thereon and the rods or supports 16 protect the buttons against the entrance therein of any of the filling. The washers 15 are placed upon the clenchers *h* and the lining 19 placed in position. The follower-board is then forced down into the position shown in Fig. 4, by any suitable press. The annular flange *s* of the clencher fits snugly the button support or rod 16, so that as it is forced downward, the rod passes through the opening *p*, *q* and the flange *s* engages the notched ends of the contracted portion of the button, forces them outward and the combined movement presses the contracted end of the button through the scores or grooves thereof forming supporting clenching arms which are carried down in contact with the washers 15, thus clenching the washers and buttons to the pad and holding it in its tufted position. As stated, the washers are interlocked with the clenching devices and are held thereto with sufficient friction to lift the tufted pad from the mold-board as the follower-board moves upward, it being understood that the side portions *C* of the mold-board are first removed. When the follower-board 2 is released by the press after the sides *C* of the mold-board are removed, the follower-board is carried upwardly by the springs 9, and it carries with it a tufted pad. The follower board is then removed from the machine and the tufted pad readily stripped from the follower-board. As the follower-board is moved downward, the conical washers 15 will be engaged by the pointed ends of the button supports, guides and protectors 16, thus moving the clenching devices in line with the supporting guide if they should be out of line therewith. This arrangement avoids any necessity of absolutely and accurately

positioning the clenching devices on the follower-board, because their free universal lateral movement, together with the conical washers, insures their proper positioning in respect to the buttons and thus insures the proper clenching of the buttons. While this universal supporting arrangement for the clenchers is desirable in practice for the purpose stated, yet I do not limit myself to that universal movement, because the follower-board can be made to accurately move by suitable guides, and in this event the clenching devices could be made rigid with the follower-board, because by the accurate vertical movement of the follower-board and the accurate positioning of the clenchers on the follower-board so that they will always register with the button support, guide and protector, it will not be necessary to provide lateral movement of the clenching devices. As stated, however, this lateral movement in actual practice is considered the best form and desirable.

I wish it to be further understood that my improved button washer and clencher is not dependent upon the attachment of the clenchers to the follower-board. The follower-board could be used without the attached clenchers and the filling forced down into position as in the usual form of follower-board, after which the hand clencher *D*, shown in Figs. 14 and 15, can be used. In this event the washer 15 is either placed over the button and then the hand device used to clench the button, or the washer may be temporarily attached thereto by the arms *t*, as shown in Fig. 15. The under side of the hand clenching device is shaped to correspond with the shape thereof in Figs. 5 and 10, when it is attached to the follower-board.

By having the clencher *h* (Fig. 10) with the central opening enlarged at the top, as shown at *p*, further provision is made to decrease the friction between the clencher and the supports and guides 16, when the follower-board is lifted. This enlarged portion of the opening, together with the enlarged lower end of the button relieves practically all of the friction between the button, the clencher and the support, guide and protector, after the parts are clenched in position, so that the friction between the arms *t* and the clenchers will be sufficient to lift the tufted pad with the clenched buttons from the button supports, guides and protectors by the lifting of the follower-board 2, as previously explained.

I do not make any claim herein for the follower-board guides and springs, as this will be made the subject matter of a divisional application.

I make no claim herein for the improved hollow tufting button and washer, nor to either separately, as these form the subject-

matter of a divisional application filed May 12th 1911.

Having thus described this invention, what is claimed and desired to be secured by Letters Patent is—

1. In a tufting machine, the combination with a mold-board having means adapted to carry clenched buttons, a movable follower-board, and laterally movable button

clenchers carried by the follower-board.
2. In a tufting machine, the combination of a mold-board having means adapted to carry clenched buttons, a movable follower-board carrying clenchers adapted to

clench the buttons, the clenchers having a universal lateral movement, and means for positioning the clenchers in respect to the buttons as the follower-board is moved to clenching position.
3. In a tufting machine, the combination with a mold-board having button supports and guides, said supports being adapted to carry hollow buttons having expansible ends surrounding the guides, the guides project-

ing beyond the buttons, of a follower-board carrying laterally movable clenchers with openings, and a clenching flange surrounding the openings, said clencher being adapted to carry washers, the parts operating substantially as disclosed.
4. In a tufting machine, the combination with a mold-board carrying button supports and guides, said supports being adapted to carry hollow buttons with expansible ends surrounding the guides, of a movable follower-board carrying an annular clencher supporting base, the clencher supported by the base and universally movable thereon, said clenchers adapted to carry concaved washers at the under side thereof, said washers having a central opening, the clenchers having a clenching flange in a line with the opening, the button supports adapted to engage the washers and positioning the clenchers in respect to the buttons for clenching the latter.

5. In a tufting machine, the combination of a mold-board, a button supporting and guiding rod, said rod being adapted to support and project through a button having a lower hollow portion larger than said rod, and a contracted upper hollow expansible portion fitting said rod, and a clenching device having an opening to receive the button support and guide, and a clenching member surrounding the opening for expanding the contracted portion of the button, whereby wedging of the button on the

rod is prevented when the contracted portion is expanded.

6. In a tufting machine, the combination of a mold-board having button supporting and guiding rod, adapted to carry a hollow button having a lower hollow portion larger than said rod and a contracted upper hollow expansible portion fitting said rod, and a clenching device having an opening to receive the button support and guide and having a clenching member surrounding the opening for expanding the contracted portion of the button, whereby wedging of the button on the rod is prevented when the contracted portion is expanded.

7. In a tufting machine, the combination of a mold-board, a stationary combined button supporting, guiding and piercing rod adapted to pass through and project beyond a hollow button, and a vertically movable follower-board carrying a clenching device having an opening to receive said rod.

8. In a tufting machine, the combination of a mold-board, having a button support, the button support having a stationary combined cloth piercing and hollow button supporting rod projecting beyond the button to pierce the cloth of a tufting fabric for the passage of the hollow button there-through.

9. In a tufting machine, a button supporting and cloth piercing rod adapted to pass through and project beyond a hollow tufting button, and a clenching device adapted to expand the end of a hollow button, the clenching device having an opening for the projecting end of said rod.

10. In a tufting machine, a button supporting and cloth piercing rod adapted to pass through and project beyond a hollow tufting button, and a clenching device having a concaved face with a centrally disposed cone-shaped projection, the apex of the cone-shaped projection having an opening to receive said rod.

11. In a tufting machine, a firmly supported combined button and cloth supporting and piercing rod adapted to pass through a hollow button, and a clenching device adapted to receive said rod and to expand the end of said hollow button.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

WILLIAM E. BUSER.

Witnesses:

BESSIE M. GABLER,
ELIJAH CUTRIGHT, Jr.