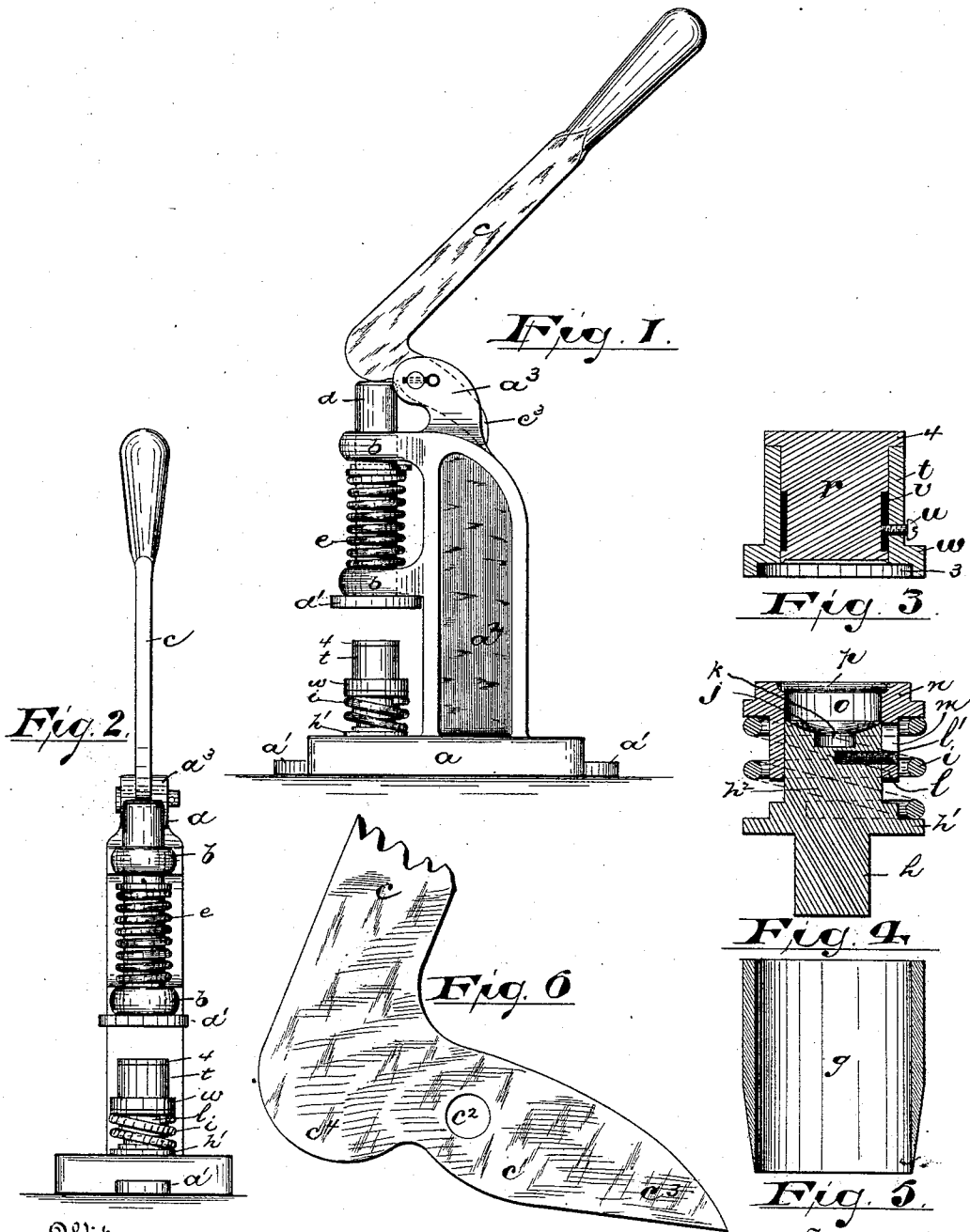


(No Model.)

A. PHELPS.
BUTTON MACHINE.

No. 484,976.

Patented Oct. 25, 1892.



Witnesses

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UNITED STATES PATENT OFFICE.

AUGUSTUS PHELPS, OF NEWARK, NEW JERSEY.

BUTTON-MACHINE.

SPECIFICATION forming part of Letters Patent No. 484,976, dated October 25, 1892.

Application filed April 9, 1892. Serial No. 428,447. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS PHELPS, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Button-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 and numerals of reference marked thereon, which form a part of this specification.

The objects of this invention are to facilitate the operation of manufacturing cloth-covered buttons, to simplify the construction and reduce the cost of the same, to make a more substantial and durable button with the exertion of a given amount of power of the hand and to prevent falling of the collet out of place in the dies during the operation of making the button, to enable buttons of larger size—sixty-line, for example—to be made with perfection, and to secure other advantages and results, some of which will be described in connection with the description of the working parts.

The invention consists in the improved hand button-machine and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, in which like letters and numerals indicate corresponding parts in each of the figures, Figure 1 is a side elevation of the improved button-machine. Fig. 2 is a front view of the same. Figs. 3 and 4 are sectional views of the button-forming dies. Fig. 5 is a sectional view of the cloth-cutter, and Fig. 6 is a detail showing the foot of the hand-lever.

In the drawings, *a* indicates a suitable bed-casting having means—such as lugs *a'*—by which said bed may be screwed down to a bed or table, and having a standard *a²*, providing bearings *a³* at the top, at which a hand-lever *c* is fulcrumed. The said lever is of peculiar construction at its lower end or foot *c'* and is shown clearly in Fig. 6, where the foot is shown to be provided with a fulcrumal center or perforation *c²*, formed in said

foot back from the line of the handle, but so as to bring the said center about in line with the top of the shaft *d* when the latter is in its upper position, and a stop *c³*, adapted to engage the top of the standard for limiting the return movement of the lever after making a button. Closely adjacent to said fulcrumal center about in line with the handle is a curved bearing *e⁴*, at which the lever presses upon the extremity of the vertically-sliding compression-shaft *d*. The said compression-shaft *d* is carried in bearings *b b* of the standard *a²* and is normally held in an elevated position therein by a spring *e*, which bears at its lower end on the lower of the bearings *b* and at the upper end bears on the shaft *d* to raise the same or hold it in its elevated position. At its lower end the said shaft is provided with an enlargement or flange *d'* of sufficient size diametrically to provide a bearing for the cylindrical cutters *g*, Fig. 5, for cutting out the blank coverings for the button from the cloth, the said cylindrical cutter being separate or separable from said flanged shaft to admit of the flat under surface or bearing, said flanged shaft being used with the die-piece, herein-after described, in making buttons.

Upon the bed-plate *a*, centrally in line with the shaft *d*, is arranged one of a pair of dies with which the parts of the button are brought into permanent union. This die is shown more clearly in Fig. 4, where *h* indicates a shank adapted to enter the perforation in the bed-plate and hold the die centrally in line with shaft *d*. *h'* is a flange or shoulder adapted to rest on said bed-plate and afford a lower bearing for a spring *i*, and *h²* is the collet-head, having the recess or concavity *j* for the collet and a central recess *k* for the projecting fabric, by means of which the button is sewed to the garment. On the collet-head is a sliding collar *l*, held on said head by a pin or screw *l'*, which pin or screw lies in a slot *m* of said collar. Said collar is provided with a co-operating bearing *n* for the spring *i* and at the upper part, at the upper limit of the central chamber *o* thereof, it is provided with an annular recess *p*, which serves to give an inward turn to the disk of covering-fabric before the shell and covering are brought into engagement with the collet. To co-operate with the lower die is an upper die, consisting

of a cylindrical piece *r*, having a shallow recess in its lower end, forming a low annular ridge *s*, which serves to throw the edge of the collet into holding relation to the shell. Upon said cylindrical piece *r* is another collar *t*, held thereon by a pin or screw *u*, having a limited movement in the vertical slot *v* of the piece *r*. Said collar *t* has at its lower end a flange *w*, adapted to fit closely upon the end of the collar *n* and hold the parts in proper operative position.

In operating the device the cloth is cut by the cutter *g* into the form of a disk. This disk is with the ordinary shell pressed into the chamber of the collar *t*, the piece *r* being forced outward against the friction of the pin or screw *u*, and the said disk having first been centered in the chamber 3 of the flange *w* and the shell imposed centrally thereon, so that when the pressure of the finger is brought on said shell and disk and the two enter the said chamber of the collar *t*, the edges of the disk will be turned over said shell. The flange *w* is then placed on the bearing *n*, the ordinary collet having first been inserted in the collet-recess. Pressure is then brought to bear on the shaft *d* and the latter is forced downward. The flanged end of said shaft then presses on the piece *r* and the latter is forced downward until the turned edges of the disk engage the recess *p* and are thereby given a further inward turn, so that they will be covered and concealed in the finished button. Continued pressure and downward movement brings the shell and collet together. This is secured by the shoulder 4 of the piece *r* engaging the upper edge of the collar *t*, so that pressure is brought thereon, which pressure is then transmitted to the collar *l*, and this is forced downward against the power of the spring *i*. The edges of the shell are finally pressed against those of the collet in the usual manner to complete the button.

Having thus described the invention, what I claim as new is—

1. In a button-machine, the combination, with the bed *a* and lever *c*, of a shaft *d*, the piece *r*, and its collar adapted to receive the covering disk and shell, and a die adapted to receive the collet, and having thereon a collar *l*, having a sliding relation thereto, and a slot *m* therein, and a pin or screw *u*, arranged in said die and extending into said slot to limit the movement of the collar, all substantially as set forth.

2. In a button-machine, the combination, with the recessed or perforated bed adapted

to receive the shank *h* and having a standard *a*² and bearings *b* *b*, of a shaft arranged in said bearings, a lever fulcrumed on said standard and having a bearing on said shaft, a spring *e* for holding the shaft in its elevated position, a die removably arranged in the recess or perforation of the bed-plate and having a shank *h*, flange *h'*, collet-head *h*², having the recess *j* and central recess *k*, a sliding collar *l*, held on said head by a pin or screw *u'*, arranged in a slot *m* of said collar and having a bearing *n*, a spring *i*, arranged between the flange *h'* and bearing *n*, the said collar *l* being held by said spring above the recessed extremity of the collet-head, as shown, a piece *r*, having the shoulder 4 and vertical slot *v*, and a collar held on said piece by a set-screw *u* and having a flange to engage the bearing *n* to prevent lateral displacement, all substantially as and for the purposes set forth.

3. The combination, in a button-machine, with the standard having bearings *a*³ and the shaft *d* and dies for assembling and uniting the parts of the button, of a lever *c*, having a foot *c'*, providing a stop *c*³, and a fulcrumal center or perforation *c*², disposed in said foot out of the line of the handle, and also a curved bearing *c*⁴ in line with the handle, substantially as set forth.

4. In combination, in a button-making machine, a bed and compression means, a collet-head and its collar separable from the bed and the shell-piece *r*, and its collar separable from the said compression means, both the collet-head and its collar and the shell-piece *r* and its collar being held together by pins *u'* *u*, respectively, when removed from the machine to admit of ready readjustment, substantially as and for the purposes set forth.

5. In a button-machine, substantially as described, the combination of a head having a shank *h*, adapted to be inserted in the bed-plate of the machine, a shoulder *h'*, a collet-recess *j*, a collar *l*, sliding on said head and having a shoulder or bearing *n*, a spring interposed between said shoulders, and means for holding the head and collar together, and a shell-piece *r* and its collar, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of April, 1892.

A. PHELPS.

Witnesses:

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