(No Model.)

C. A. PFENNING.

BUTTON MAKING MACHINE.

No. 386,493. Patented July 24, 1888.

Fig. 1.

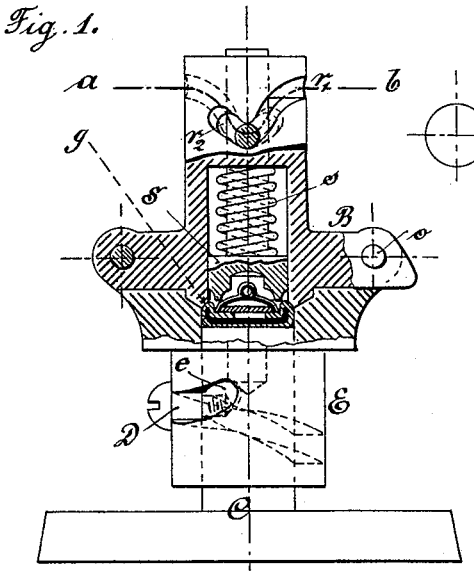
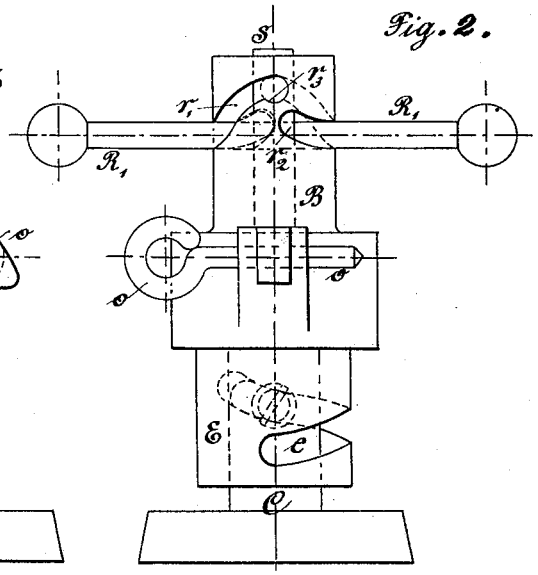


Fig. 2.



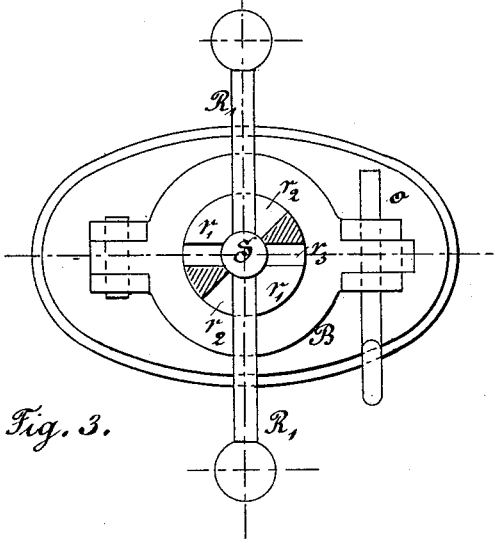


Fig. 3.

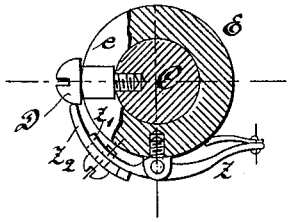


Fig. 4.

Witnesses:
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Inventor.
Carl August Pfenning,
By his Attorney.
Dickerson Foster & Freeman.

UNITED STATES PATENT OFFICE.

CARL AUGUST PFENNING, OF BARMEN RITTERSHAUSEN, PRUSSIA, GERMANY.

BUTTON-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 386,493, dated July 24, 1888.

Application filed April 5, 1888. Serial No. 269,671. (No model.)

To all whom it may concern:

Be it known that I, CARL AUGUST PFENNING, a subject of the German Emperor, residing at Barmen Rittershausen, in Rhenish Prussia, Germany, have invented a new and useful Apparatus for the Manufacture of Buttons, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

This invention relates to an improvement in button-forming machines, by which what is called the "button upper part" or "face" of the button is attached to the button lower part or shank of the button by in the first place bending the cloth around the button upper part or mold, then pressing the button lower part or shank within the mold, and then bending the mold with the cloth wrapped around it so as to embrace the circumference of the button lower part or shank.

In my drawings, Figure 1 represents a vertical elevation of my apparatus, partly in section; Fig. 2, an elevation at right angles to Fig. 1; Fig. 3, a plan view of Fig. 1, and Fig. 4 mechanism which may be applied for limiting the traverse of the screw in the slot.

The apparatus consists, essentially, as is usual in button-forming machines of this class, of two parts—a base and a cover adapted to be removed from the base. The base itself consists of a core, C, surrounded by a sleeve, E. This sleeve is provided with a spiral slot, *e*, through which passes a pin, D, projecting from the core, so that upon the rotation of the sleeve it is moved vertically upon the core. The cover is pivoted upon the sleeve E, as plainly shown, and when dropped is locked in position by the pin O passing through ears on the sleeve and the lug on the cover. In practice, when it is not desired to make the first movement of the pin D in the slot *e* complete, a stop device is employed. This stop device is pivoted upon the sleeve, as shown, and has two arms, *z z'*, and a spring pressing the arm *z* outward. Upon the arm *z'* is the adjustable part z^2, fastened thereto by the adjusting-screw shown, so that the limit of traverse of the pin D in the slot *e* can be varied by the adjustment of the part z^2. The plunger S, which forms the button, is depressed by a spring, *s*, within the cover, and raised by the rotation of the arm R' in the peculiar-shaped slots shown. This slot, beginning at the left, as shown in Fig. 1, in the first place drops somewhat, as at r^2, to its lowest position, and then rises upon the curve, as shown at *r'*, and ends in the depression or socket r^3. Of course it is understood that there are corresponding slots through which the two arms of the handle R' move. The button-forming mechanism consists, essentially, of the core C, the cover B, having an inclined folding lip, *g*, and a plunger, S, for driving the button lower part into the button upper part.

In manufacturing a button by this apparatus the handle R', which goes through the shaft of the plunger, is placed in such a way that it takes its highest position in the slots *r'*. Then the stuff and button upper part are pressed into the sleeve E up to core C, and the button lower part is placed in the corresponding cavity of the plunger S, or sometimes with suitable stuff directly in the sleeve upon the turned-over rim of the stuff. Now, after sleeve and cover are firmly connected by pin *o*, the sleeve is turned by the handle R' on the core C, whereby at first the stuff and the button upper part are pressed by the advancing of the core C against the beveled rim *g* of the cover part G. At this first turning the handle R' cannot yet be introduced into the downward directed slot *r'*, as the same rests in the cavity r^3, to be found at the head of the slot, into which it is drawn by the pressure of the spring *s*, and in which it finds so much support that at first a turning of the sleeve against the core takes place, and only after the stuff and button upper part are pressed thereby to the rim *g* the sleeve offers such a great resistance against the handle that by a further turning the latter must pass out of the cavity r^3 into slot *r'*, and must move downward in the latter. As is obvious, this is followed by a driving of the button lower part into the button upper part, whereby the rim of the stuff is laid between the two button parts, as represented in Fig. 1. The handle R' now occupies the lowest position in the slots *r'*. For the connection of the button parts—which is accomplished by the bending over the rim of the button upper part with the stuff around the rim of the button lower part—

a further movement of the core C into the sleeve E is required, whereby the rim of the button upper part pressed inward is bent around the button lower part by the beveled rim *g* of the cover B. However, before this further movement of the core in the sleeve takes place, which movement really effects the joining of the button, the handle R′ runs through the part r^2 of the slot, and effects thereby, as the slots mount upward in these parts, an upward directed movement of the stamp S. The latter is thus removed from the button lower part, and after this has been done the handle, resting in the ends of slot r^2, presses the core so far around that the movement of the core through the sleeve takes place, which is necessary for the joining of the button.

In order to fix the distance of the core from the rim *g* of the cover, according to the thickness of the material to be used and the corresponding height of the rim of the button upper part without employing special heads in the core, the adjustable piece z^2 is fastened to the arm *z′* of the stop device or lever attached to the sleeve, Fig. 4, which stop device or lever is, as above described, provided for the purpose of limiting the first movement of the sleeve and stamp, which latter effects the folding of the cloth on the beveled rim. The lever-arm can thus be made shorter or longer as needed. It is apparent without further explanation that by the lengthening of the lever-arm Z^2 the screw, which works in the slot of the sleeve, will sooner touch the end of the lever. Therefore the core C will be less advanced in the sleeve E. It is obvious that by this contrivance the variation in the final distance between the top of the core C and the bevel *g* can be exactly effected.

I do not in this application claim the subject-matter claimed in the claims of my application simultaneously filed, No. 269,675.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a button-forming mechanism, of a central suitably-mounted core surrounded by a sleeve capable of motion on said core, a cover mounted upon said sleeve and provided with central button-forming mechanism, the said mechanism being connected with an arm traversing a slot in the cover, which slot is provided at its upper end with a cavity, and then extends therefrom with a descending grade, and then with an ascending grade, substantially as described.

2. The combination, in a button-forming mechanism, of the core C, carrying pin D, the sleeve E, provided with slot *e*, and the adjustable limited stop $z\ z'\ z^2$, substantially as described.

3. The combination, in a button-forming mechanism, of the sleeve E, provided with a slot, *e*, a pin, D, traveling in said slot, and a stop device for limiting the movement of the pin in the slot, substantially as described.

4. The combination, in a button-forming machine, of the cylindrical core, a sleeve containing a helical slot, a pin projecting through that slot, and a lever or stop for preventing the movement of the pin to the end of the slot, and capable of removal from the path of the pin to allow the pin to complete its movement in the slot, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL AUGUST PFENNING.

Witnesses:
CARL KRÜGER,
F. J. FALKENBACH.