

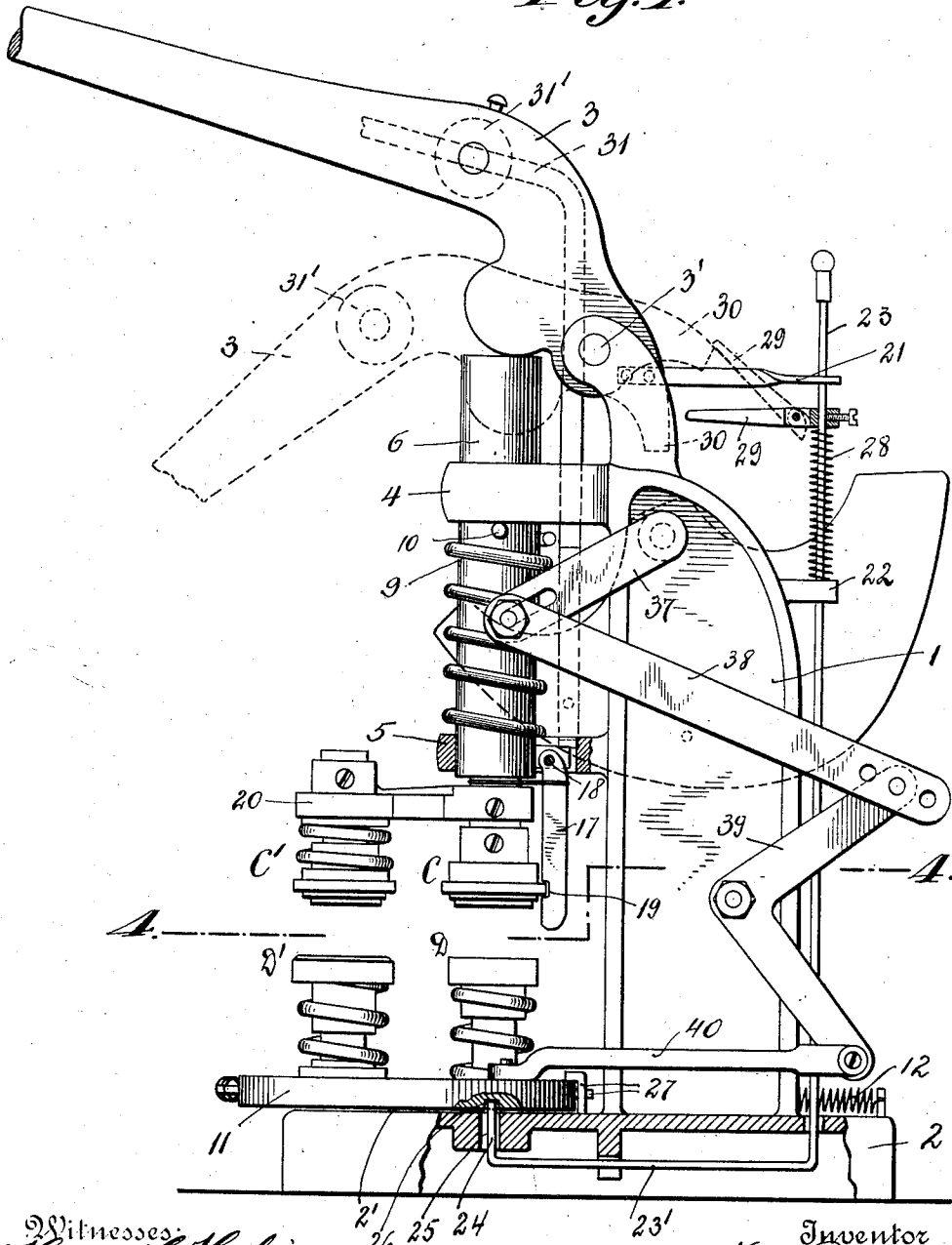
W. RENSCHAK.
 BUTTON MAKING MACHINE.
 APPLICATION FILED DEC. 9, 1910.

1,016,441.

Patented Feb. 6, 1912.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
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R. Brockman

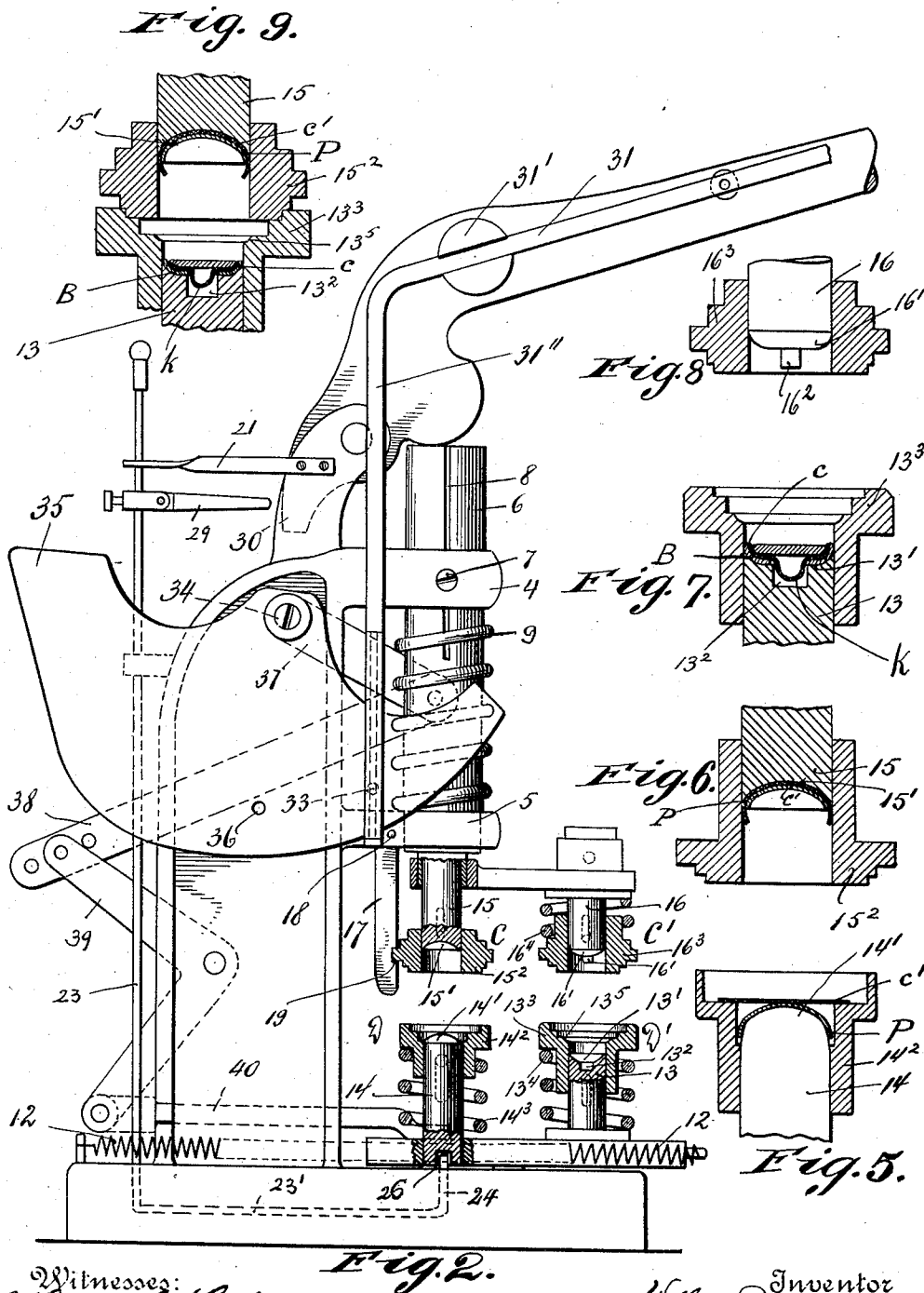
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 By his Attorney
Max Widmann

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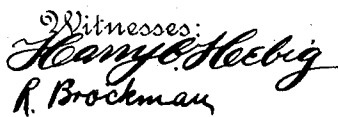


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1,016,441.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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BUTTON-MAKING MACHINE.

1,016,441.

Specification of Letters Patent.

Patented Feb. 6, 1912.

Application filed December 9, 1910. Serial No. 596,416.

To all whom it may concern:

Be it known that I, WILLIAM RENSCHAK, a subject of the German Emperor, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Button-Making Machines, of which the following is a specification.

The present invention relates to automatic button making machines and particularly to machines for making cloth buttons.

Cloth buttons usually are composed of a lower or rear part, consisting of a perforated metal base formed with a cloth knob projecting outward through the perforation of said base, and a top metal piece having a cloth covering and joined to the said base.

The object of my invention is to provide a machine, whereby the different steps required in the making of these buttons are carried out automatically by the manipulation of a single lever capable of swinging in vertical direction. By such machine the manufacture of cloth buttons is greatly simplified and cheapened and does not require special skill.

To make my invention more clear, the same is illustrated in the accompanying drawing, in which similar reference letters denote corresponding parts and in which—

Figure 1 is an elevation of the machine as seen from one side, the lower part thereof being partly in section; Fig. 2 is an elevation similar to that of Fig. 1 as seen from the opposite side of the machine, the dies being shown in vertical section; Fig. 3 is a rear elevation of the machine; Fig. 4 is a cross section on line 4—4 of Fig. 1, and Figs. 5, 6, 7, 8 and 9 are vertical sections of the dies illustrating the different steps of the operation of the machine.

In the drawing, which forms a part of this specification, 1 denotes the frame of the machine, which at its bottom is formed with a suitable base 2 and at its upper end has pivotally secured to it at 3' a cam lever 3. In forwardly projecting guide pieces 4, 5 a longitudinally grooved rod 6 is arranged to be capable of being moved in vertical direction and held against rotation by a guide pin 7 engaging the longitudinal groove 8 thereof. This rod is acted upon by a spring 9 which is arranged between the guide piece 5 and a cross pin 10 or the like secured to said rod, so that by the down-

ward movement of the latter, the said spring is compressed and tends to thrust the rod back into its raised position.

Centrally pivoted in the base 2 at 2' is a disk 11 which by a spring 12 engaging it near the periphery is connected to a stationary part of the frame 1 so that the disk constantly will tend to return into a certain position to be hereinafter specified. This plate or disk 11 has secured to it two vertical projecting dies D, D' of which the latter is for the lower or rear portion of the button and the former for the upper or forward portion thereof. The particular construction of these two dies will be hereinafter more fully described. The rod 6, on the other hand, carries two counter pieces C, C' for the said dies, which also will be more fully described hereinafter. The counter piece C' is suspended from an arm 20 secured to the rod 6 and is adapted to operate simultaneously with the piece C during the downward movement of the rod 6.

To hold the die carrying plate or disk 11 stationary during the downward stroke of the rod 6, I provide a locking mechanism of the following construction: In rearwardly projecting guide arms 21, 22 a vertically movable rod 23 is guided which at its lower end has a bend 23' extending toward the plate or disk 11 and which has an upwardly projecting nose 24 adapted to engage through an aperture 25 made in the base 2 a notch 26 arranged in the bottom of the disk 11, whereby the disk 11 is secured in a position in which the dies D, D' register with the respective counterpieces C, C'. The rod 23 is acted upon by a spring 28 that constantly tends to return it into raised position, that is to say, in the position in which the nose 24 engages the notch 26 of the disk 11. The rod 23 carries a finger or catch 29 which projects toward and is adapted to be operated from a nose 30 formed on the rear end of the swinging cam lever 3. This catch is capable of tilting from the horizontal line upward, as shown by dotted lines in Fig. 1, but is unable to yield downward from the said horizontal line. When the cam lever 3 is depressed, the nose 30 in rising will engage the finger 29 from below and tilt it upward without affecting the rod 23. But on the return of the cam lever 3 into its raised position, the

nose 30 will engage the finger from above and depress the same together with the rod 23 causing the nose 24 of the latter to disengage from the notch 26 in the plate 11, which when released under the action of its spring 12 will instantaneously swing around so far until the die D' will register with the counterpiece C as will be hereinafter explained. This swinging movement of the plate 11 is limited by a suitable stop 27 that secures the plate 11 in the newly adopted position.

To return the disk 11 into the initial position, *i. e.* in the position where the dies D, D' register with the counter pieces C, C' respectively, I provide the following mechanism: A bent lever 31 is pivoted in a bifurcated projection 31' so as to be capable of swinging toward and away from the cam lever 3, and of being grasped together with the cam lever by one hand of the operator. The forward end of this lever 31 is acted upon by a spring 32 which tends to hold the lever 31 away from the cam lever 3. The rear bent arm 31'' of the lever 31 carries a pin or catch 33. Upon one end of a cross spindle 34 borne in the frame and extending crosswise and under a right angle to the rod 6 a piece 35 is secured, which serves a double purpose, namely, first as a shield for the rear arm 31'', to prevent the latter under the action of the spring 32 from swinging too far inward toward the frame and becoming entangled with some parts thereof and secondly as a means whereby at a certain moment the movement of the cam lever 3 can be transmitted to the disk 11. To this latter end, the piece 35, which in the present example is shown in the form of a plate, at an intermediate point of the path of the pin 33 is provided with a notch 36 so that at a certain moment when the lever 31 is released from the grasp of the operator and the arm 31'' thereof is allowed to swing toward the plate 35, the pin 33 during the movement of the cam lever 3 will encounter the notch 36 and engage the latter. As the movement of the cam lever 3 continues the pin 33 will carry along the piece or shield 35 and transmit rotation to the spindle 34. By means of the levers 37, 38, and 39 connected with the spindle 34 and a crank arm 40 engaging the plate 11, this rotary motion will be transmitted to the latter, swinging it into the aforementioned initial position.

The die D' which, as already stated, serves for the rear or lower part of the button consists of a pin 13 the upper end of which is formed with a groove 13' (Figs. 2 and 7) of a size and shape conforming to those of the centrally perforated metal base B (Figs. 7 and 9) to be used for the bottom part of the button and in which groove a downwardly extending central notch 13² is provided, the diameter and depth of which are

to conform with those of the cloth knob K (Figs. 7 and 9). Slidably mounted on the pin 13 is a mouth piece 13³, which by a spring 13⁴ is adapted to be normally projected upward beyond the upper margin of the pin 13. This mouth piece has a beveled edge 13⁵ the object of which will be explained later. The corresponding counter piece C' (Figs. 2 and 8) for the lower or rear portion of the button consists of a punch or pin 16 the shape and size of its lower end 16' conforming with those of the groove 13' of the pin 13 and which pin 16 is formed with a reduced projection 16² conforming with the notch 13². Movably mounted around said pin 16 is the mouth piece 16³, which under the action of a spring 16⁴ has the tendency of constantly projecting downward.

The die D for the front or upper part of the button is constructed similar to the die D' only that here the pin 14 at its upper end 14' is spherically shaped to conform with the shape of the top hollowed metal plate P of the button (Figs. 5 and 9). The mouth piece 14² is loosely mounted on said pin 14 and is acted upon by a spring 14³ which constantly tends to project the mouth piece beyond the spherical end 14' of the pin 14. The counter piece C thereof consists of a pin 15 which has a hollowed end 15' to conform with the spherical end 14' of the pin 14 (Figs. 2, 5 and 6). The mouth piece 15² is slidably mounted on the pin 15. By means of a spring arm 17 pivotally secured to the said rod 6 at 18 and having a notch 19 to engage a projecting part of the mouth piece 15² the latter is caused to move along with the rod 6 in the vertical direction. At a certain moment the piece 15² becomes automatically released from the spring arm 17 when the latter strikes the upper margin of the mouth piece 13³ for the bottom of the button, as will be hereinafter more fully explained.

The mode of operation of the machine is as follows: In the raised position of the cam lever (Figs. 1 and 2) the dies D, D' will register with the counter pieces C, C' respectively and the plate 11 will be securedly held in this position by the nose 24 engaging the notch 26 of the plate 11. The perforated metal base B is placed into the groove 13' so that its perforation registers with the notch 13² thereof. Over this base is then spread a circularly cut piece of cloth *c*. Then the hollowed metal top P is mounted over the spherical end 14' of the pin 14 of the die D and a circularly cut piece of cloth *c'* spread over it (Fig. 5). Now the lever 3 is grasped together with the lever 31 holding the latter close to the lever 3 so that the rear arm 31'' and pin 33 are moved away from the piece 35, and is depressed, whereby the two counter pieces C, C' are simultaneously lowered. In this operation

the punch or pin 16² entering the notch 13² of the pin 13 forms the cloth knob K (Figs. 7 and 9), while the mouth piece 15 which by the arm 17 now is held in rigid connection with the rod 6 depresses the mouth piece 14² of the die D and permits the pin 14 to enter the mouth piece 15² and deliver the top P into the hollowed end 15' of the pin 15 of the counter piece C. The cloth piece c' which is of sufficiently larger size than the plate P becomes bent at its edges in the form shown in Fig. 9 and by friction retains the top P in the end 15'. By the return movement of the cam lever, the nose 30 of the latter operates the catch 29 and thereby in the afore-described manner releases the plate 11, so that the latter owing to the spring 12 will be thrown into the position in which the die D' will register with the counter piece C and be secured in that position by the stop 27. Now the cam lever 3 is again depressed, whereby the mouth piece 15² will be brought into contact with the mouth piece 13³ of the die D'. The upper margin of the latter mouth piece projecting into the path of the arm 17 will swing the latter away from the mouth piece 15² and release the latter. As the downward movement of the rod 6 is continued the pin 15 will enter the mouth 13³ and cause a union of the top P and bottom B of the parts of the button, the edge of the cloth cover c' being caused by the beveled edge 13³ to enter between the margins of the two engaging parts P and B and form a tight frictional joint. Now the lever 31 is released from the grasp of the operator, whereupon the spring 32 causes the arm 31'' to come into contact with the piece 35. Upon the renewed depression of the cam lever 3, the arm 31'' will swing rearward and during that motion its pin 33 in encountering the notch 36 will engage the latter and carry the piece 35 along. The swinging movement transmitted by said piece 35 to the spindle 34 will by means of the levers 37, 38, 39 and crank arm 40 be transmitted to plate 11 returning it into its initial position ready for the manufacture of a new button.

What I claim and desire to secure by Letters Patent is:

1. In the herein described button machine, the combination with a vertically swinging cam lever and a vertically movable rod operated by the latter, of a spring actuated base plate, two dies thereon, two counter pieces for said dies carried by said rod, means for holding said base plate in such position that during the first depression of the said rod said dies will register with the corresponding counter pieces, and means for releasing the said base plate so that under the action of its spring it will adjust itself to bring only one of the dies into register with the counter

piece of the other die to cooperate with the same during the second depression of the said rod.

2. In the herein described button machine, the combination with a vertically swinging cam lever and a vertically movable rod operated by the latter, of a spring actuated base plate, two dies thereon, two counter pieces for said dies carried by said rod, means for holding said base plate in such position that during the first depression of said rod said dies will register with the corresponding counter pieces, means for releasing the said base plate so that under the action of its spring it will adjust itself to bring only one of the dies into register with the counter piece of the other die to cooperate with the same during the second depression of the said rod, and means for returning the said base plate into the position in which the two dies register with the corresponding counter pieces.

3. In the herein described button machine, the combination with a vertically swinging cam lever and a vertically movable rod operated by the latter, of a spring actuated centrally pivoted base plate, two dies thereon, two counter pieces for said dies carried by said rod, means for holding said base plate in such position that during the first depression of the said rod said dies will register with the corresponding counter pieces, and means for releasing the said base plate so that under the action of its spring it will adjust itself to bring only one of the dies into register with the counter pieces of the other die to cooperate with the same during the second depression of the said rod.

4. In the herein described button machine, the combination with a vertically swinging cam lever and a vertically movable rod operated by the latter, of a centrally pivoted base plate, a torsion medium acting on the periphery of said base plate, two dies thereon, two counter pieces for said dies carried by said rod, means for holding said base plate in such position that during the first depression of the said rod said dies will register with the corresponding counter pieces, and means for releasing the said base plate so that under the action of said torsion medium it will adjust itself to bring only one of the dies into register with the counter pieces of the other die to cooperate with the same during the second depression of the said rod.

5. In the herein described button machine, the combination with a stationary base, a vertically swinging cam lever and a vertically movable rod operated by the latter, of a base plate centrally pivoted in said stationary base, a spring secured to said stationary base and engaging the said pivoted base plate near the periphery thereof, two dies on said base plate, two counter pieces

- for said dies carried by said rod, means for holding said base plate in such position that during the first depression of the said rod said dies will register with the corresponding counter pieces, and means for releasing the said base plate so that under the action of said spring it will adjust itself to bring only one of the dies into register with the counter pieces of the other die to cooperate with the same during the second depression of the said rod.
6. In the herein described button machine, the combination with a vertically swinging cam lever and a vertically movable rod operated by the latter, of a spring actuated pivoted and notched base plate, two dies thereon, two counter pieces for said dies carried by said rod, a vertically movable spring actuated member adapted to automatically engage said notched base plate and hold the same stationary during the downward stroke of said vertically movable rod, and means for operating said member.
7. In the herein described button machine, the combination with a vertically swinging cam lever and a vertically movable rod operated by the latter, of a spring actuated pivoted and notched base plate, two dies thereon, two counter pieces for said dies carried by said rod, a spring actuated rod having a member adapted to engage said notched base plate and hold the same stationary during the downward stroke of said vertically movable rod, and a catch on said spring actuated rod adapted to be operated from said cam lever to effect said engagement.
8. In the herein described button machine, the combination with a vertically swinging cam lever and a vertically movable rod operated by the latter, of a spring actuated pivoted and notched base plate, two dies thereon, two counter pieces for said dies carried by said rod, a spring actuated rod having a member adapted to engage said notched base plate and hold the same stationary during the downward stroke of the said vertically movable rod, and a catch pivoted to said rod and capable of swinging in one direction, said catch being adapted to be operated by said cam lever to effect the engagement of said vertically movable rod and the said base plate.
9. In the herein described button machine, the combination with a vertically swinging cam lever and a vertically movable rod operated by the latter, of a spring actuated pivoted base plate, two dies thereon, two counter pieces for said dies carried by said rod, means for holding said base plate in such position that during the first depression of the said rod said dies will register with the corresponding counter pieces, means for releasing the said base plate so that under the action of its spring it will adjust itself to bring only one of the dies into register with the counter piece of the other die to cooperate with the same during the second depression of the said rod, and means for effecting the automatic return of the said base plate into its initial position.
10. In the herein described button machine, the combination with a vertically swinging cam lever and a vertically movable rod operated by the latter, of a spring actuated pivoted base plate, two dies thereon, two counter pieces for said dies carried by said rod, means for holding said base plate in such position that during the first depression of the said rod said dies will register with the corresponding counter pieces, means for releasing the said base plate so that under the action of its spring it will adjust itself to bring only one of the dies into register with the counter piece of the other die to cooperate with the same during the second depression of the said rod, a swinging member, means connecting said swinging member with the said base plate and means for operating said swinging member so as to return the said base plate into its initial position.
11. In the herein described button machine, the combination with a vertically swinging cam lever and a vertically movable rod operated by the latter, of a spring actuated pivoted base plate, two dies thereon, two counter pieces for said dies carried by said rod, means for holding said base plate in such position that during the first depression of the said rod said dies will register with the corresponding counter pieces, means for releasing the said base plate so that under the action of its spring it will adjust itself to bring only one of the dies into register with the counter piece of the other die to cooperate with the same during the second depression of the said rod, a swinging member, means connecting said swinging member with the said base plate and a member pivoted in said cam lever and serving for the operation of the said swinging member to effect the return of the said base plate into its initial position.
12. In the herein described button machine, the combination with a vertically swinging cam lever and a vertically movable rod operated by the latter, of a spring actuated pivoted base plate, two dies thereon, two counter pieces for said dies carried by said rod, means for holding said base plate in such position that during the first depression of the said rod said dies will register with the corresponding counter pieces, means for releasing the said base plate so that under the action of its spring it will adjust itself to bring only one of the dies into register with the counter piece of the other die to cooperate with the same during the second depression of the said rod, and means for effecting the automatic return of the said base plate into its initial position.

notched swinging member, means connect-
ing said swinging member to the said base
plate, a spring actuated bent lever pivoted
to said cam lever and having a catch to en-
5 gage the said notched swinging member and
to effect the return movement of the said
base plate into its initial position.

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

WILLIAM RENSCHAK.

Witnesses:

JOHN T. CARMODY,
MAX D. ORDMANN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
