2 Sheets—Sheet 1.

N. C. SMITH.

Machine for Making Metal Buttons.

No. 201,843. **Patented March 26, 1878.**

Fig. 1.

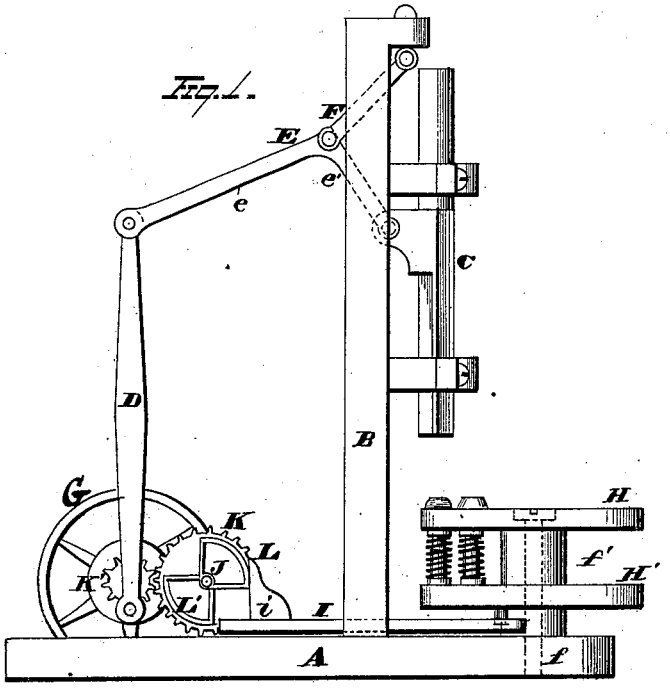
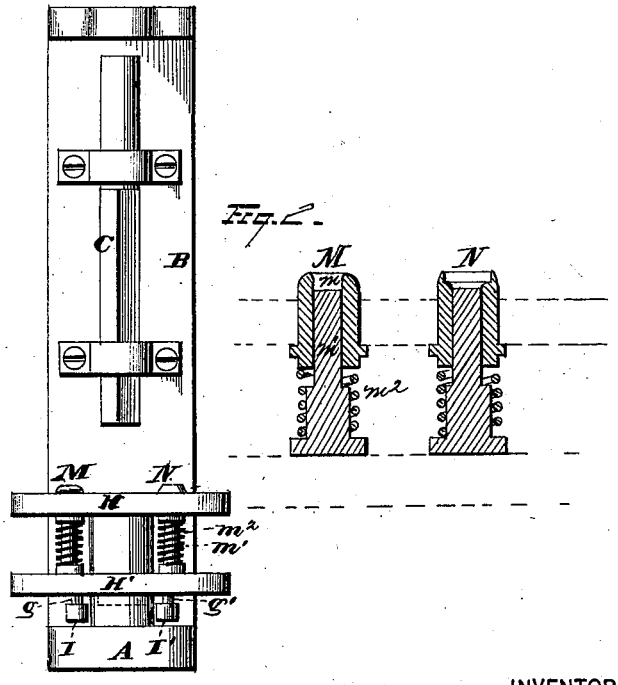


Fig. 2.



WITNESSES

Ed. L. Nottingham

A. M. Bright

INVENTOR

N. C. Smith.

By H. A. Seymour

ATTORNEYS

2 Sheets—Sheet 2.

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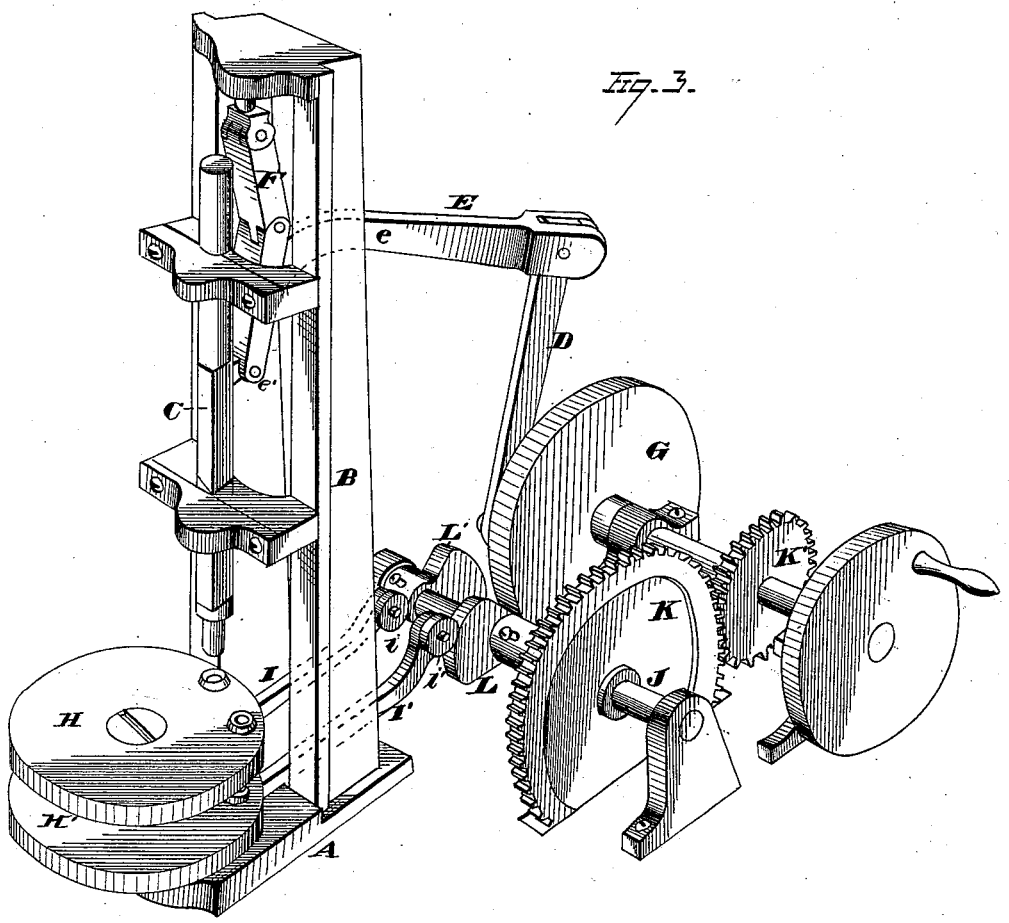
Fig. 3.



WITNESSES

E. D. L. Nottingham

A. W. Bright.

INVENTOR

N. C. Smith.

By H. A. Seymour.

ATTORNEY

UNITED STATES PATENT OFFICE.

NILES C. SMITH, OF NEW YORK, N. Y., ASSIGNOR TO ELIZA R. SMITH, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR MAKING METAL BUTTONS.

Specification forming part of Letters Patent No. **201,843,** dated March 26, 1878; application filed July 11, 1877.

To all whom it may concern:

Be it known that I, NILES C. SMITH, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machinery for Manufacturing Buttons; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in machinery for manufacturing buttons. Heretofore the manufacture of buttons has been carried on by the employment of both power and foot presses; but in all cases each operator has been furnished with a complete set of dies for each style and size of button produced. As the great variety of sizes and styles of buttons requires a large outlay for the necessary number of sets of dies, and also, owing to the constant changes demanded by the varying fashions in buttons of novel form and configuration, requiring a heavy expenditure of capital for the initial outfit for the manufacture of buttons, and also resulting in leaving on the hands of the manufacturer a large number of worthless dies, it is apparent that button-machinery requiring only half the number of dies necessitated by the machinery now in use would be a great desideratum, as much less capital would be required in carrying on the manufacture of buttons.

The object of my invention is to provide a machine of such construction that a single set of dies will afford constant and rapid employment for two operators, and allow of the production of a given quantity of buttons by the use of one-half the number of dies necessitated by the machines in ordinary use; and to that end my invention consists, in a button-machine, of the combination, with a single plunger or piston, of two dies fitted to an oscillating or reciprocating table, said table adapted to have a horizontal movement beneath the piston and carry one of the dies beneath and in line with the piston while the other die is being carried away from the piston to be supplied with button-stock.

In the accompanying drawings, Figure 1 is a side elevation of my improved button-machine. Fig. 2 is a front view of the same, and Fig. 3 is a perspective view of the machine.

A represents the bed of the machine, and B an upright frame secured thereto. C is the reciprocating plunger or piston, adapted to be operated in any desired manner. In the form of machine illustrated in the present case the plunger is reciprocated by means of a pitman, D, the upper end of which is pivoted to the long arm *e* of a bell-crank lever, E, the other arm, *e'*, of lever being pivoted to the plunger.

F is a link, having one end pivoted to the upper portion of the vertical frame of the machine, while its lower end is pivoted to the bell-crank lever E, the lever and link thus constituting a toggle, by means of which the piston or plunger is raised and lowered as power is applied to the driving-wheel G.

It is evident that many different arrangements of devices may be employed for reciprocating the plunger, and hence I do not limit myself to the means shown, as any desired mechanism may be used for such purpose.

To the bed of the machine is secured a vertical bearing-shaft, *f*, upon which is journaled a hub, *f'*. Wheels or disks H H' are secured to the upper and lower ends of hub *f'*. Wrist-pins *g g'* are secured to the under side of the lower disk H'.

I I' represent two levers, the forward ends of which are journaled upon the wrist-pins *g g'*, while the rear ends are provided with toes or blocks *i i'*. J is a counter-shaft, provided with a gear-wheel, K, which meshes with a small gear-wheel, K', on the driving-shaft. To the counter-shaft J are also secured the cams or eccentrics L L', the same being arranged in such a manner that when the cam L strikes the block *i*, and suddenly moves the disks toward the left, the cam L' will have cleared the block *i'* on the opposite rod, and allow the disk to remain stationary during a short interval of time, for a purpose hereinafter described.

M and N represent dies of construction ordinary and well known to those engaged in the manufacture of buttons. As represented in the drawings, the die M is formed with a central perforation, *m*, and a rounded or convex

head. This die fits on an upright guide or standard, m^1, and is sustained above the upper surface of the disk in a yielding manner by a spiral spring, m^2. The die N is similarly constructed and arranged, the difference between it and die M consisting in the form of the face of the die, which is of concave form in die N.

It will be understood that an intermittent movement is imparted to the disks within which the dies are secured. The limit of movement of the disk is such that either the die M or N will be brought in line with the plunger, and made to co-operate therewith upon the article.

The operation of the machine is as follows: One operator sits on the right-hand side of the machine, and another on the left-hand side of the same, whereby the attention of one is directed toward the die M, and the other toward the die N. The button-shell, of any desired material, is placed upon the die M, the concave side of the shell fitting on the convex working-face of the die. Upon the upper surface of the button-shell thus placed on die M is laid a button-cover, ordinarily made of any desired fabric, and in size a little larger than the shell. This is done by the operator on the left of the machine. The disk or table carrying the dies is then moved from left to right, and the die M brought in line with the plunger, when the latter descends upon the die M, and forces the shell and cover into the plunger. While the plunger is operating on die M the operator on the opposite side of the machine places a button-back within the recess in the concave-faced die N. When the plunger is raised from die M, it carries with it the shell and cover, the edges of the latter depending slightly below the edge of the shell. At the same time the plunger rises the disk or table is moved from right to left, carrying the die N with its contained button-back, in line with the plunger, which latter then descends, and operates to force the back into the shell, taking with it the raw edges of the cover, and closes the edge of the shell over the back, completing the process, the finished button remaining in the die N, from which it is removed by the operator, or automatically removed by a clearer, if desired.

It is evident that any desired form or construction of dies may be used, and also that, instead of an oscillating disk or table, the dies may be placed in a reciprocating table, and like results secured.

From the foregoing description it will be readily understood that, by means of my improved machinery for manufacturing buttons, the same number of operatives will only necessitate the employment of one-half the number of dies now used; also, in view of the fact that each operative attending the machine above described has a simple and easy duty to perform in furnishing the dies with but a portion of the material going to make up a complete button, unskilled labor can be substituted for the skilled and costly labor now necessary for such purpose.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a vertically-reciprocating plunger, of an oscillating or reciprocating table or disk provided with two dies, which are moved in and out of line with the plunger alternately, substantially as set forth.

2. In a machine for the manufacture of buttons, the combination, with a single plunger, of a table or disk provided with two dies, and means for imparting a reciprocating movement to said table, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 30th day of June, 1877.

NILES C. SMITH.

Witnesses:
L. B. SMITH,
L. F. SMITH.