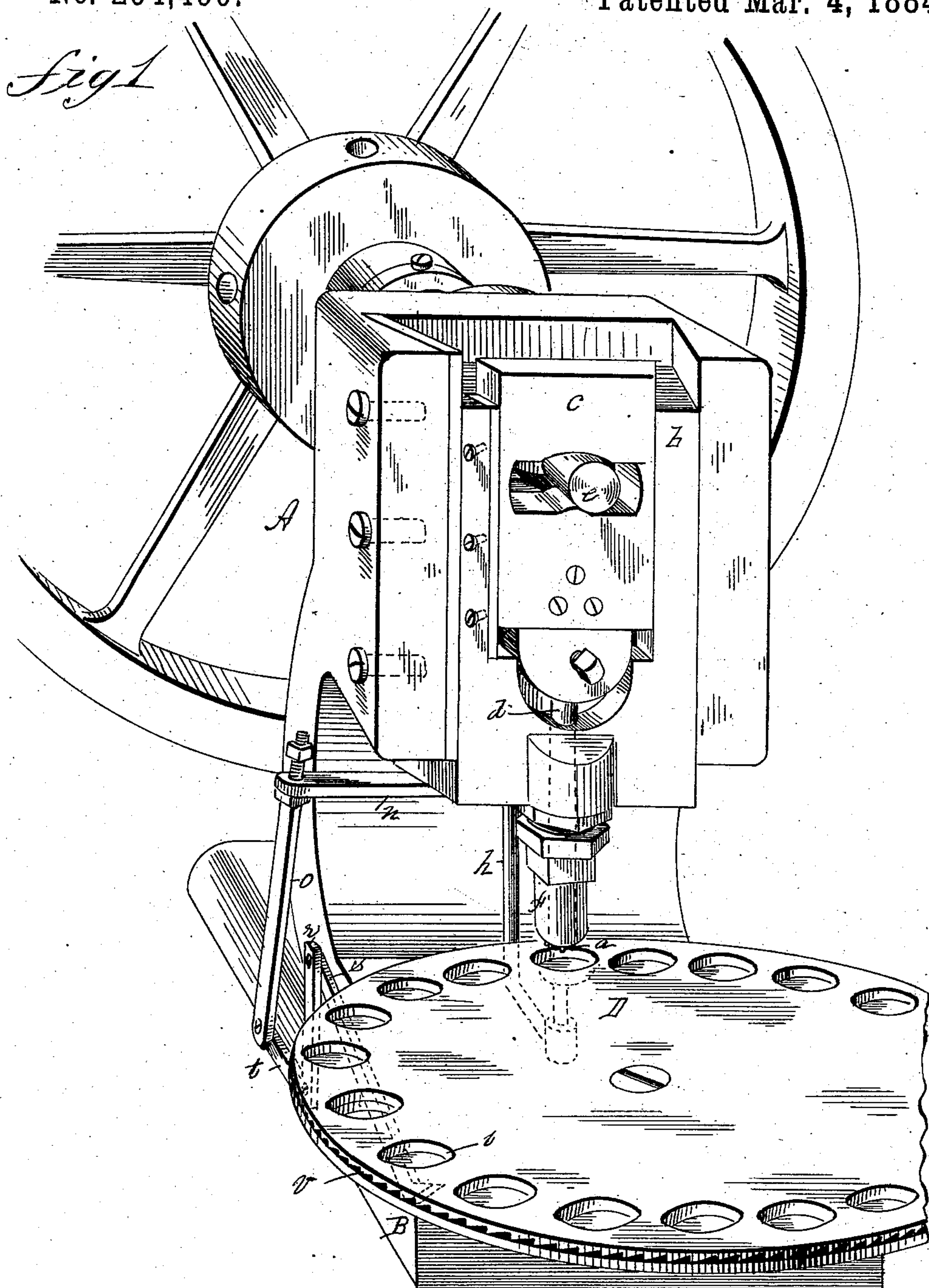


(No Model.)

3 Sheets—Sheet 1.

H. W., M. G. & C. E. MERRITT.  
MACHINERY FOR AND PROCESS OF FINISHING BUTTONS.  
No. 294,490. Patented Mar. 4, 1884.



WITNESSES:

*J. D. Fairfield*  
*Wm. H. Chapin*

INVENTORS

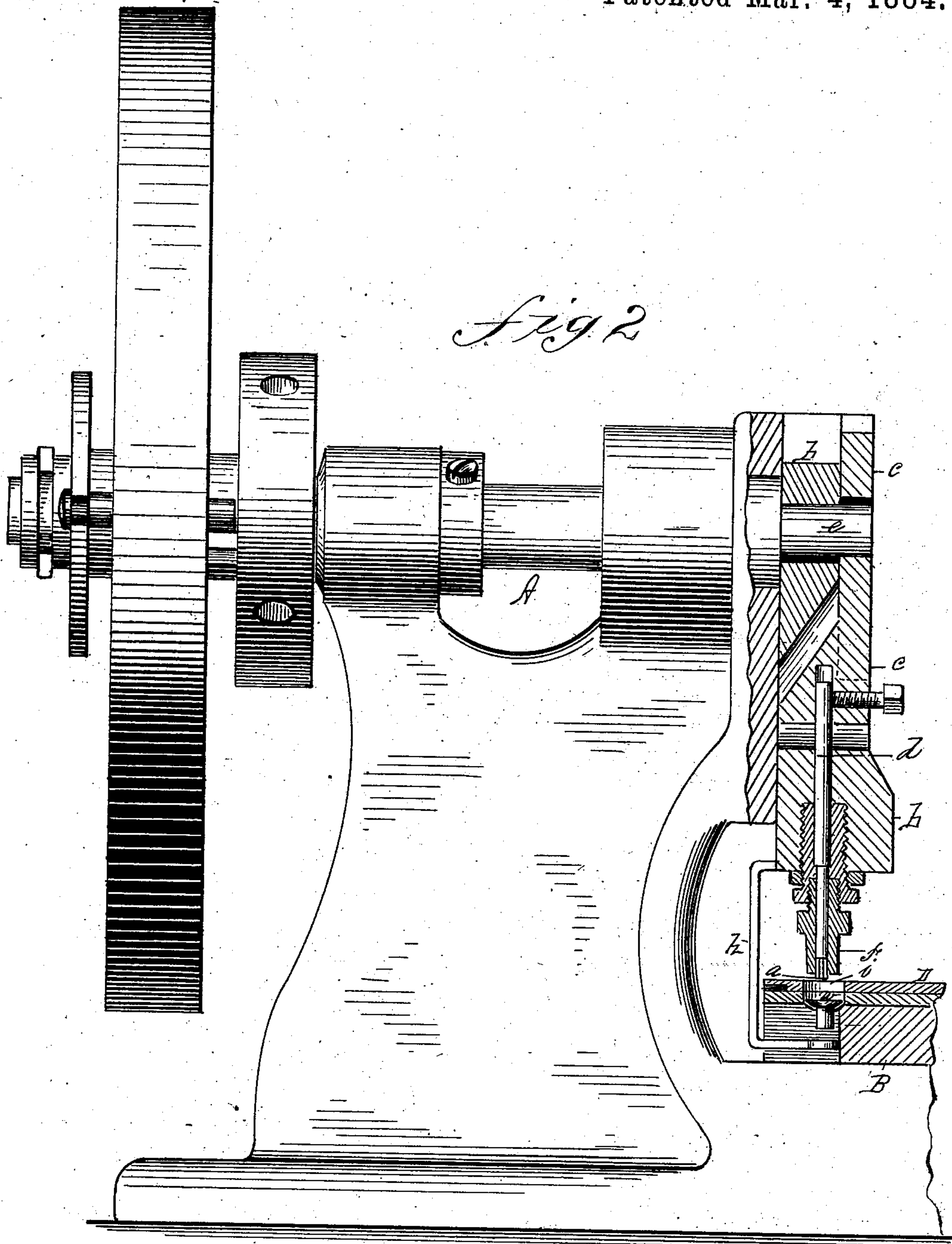
*Henry W. Merritt*  
*Mortimer G. Merritt*  
*Charles E. Merritt*  
BY *Henry A. Chapin*

ATTORNEY

(No Model.)

3 Sheets—Sheet 2.

H. W., M. G. & C. E. MERRITT.  
MACHINERY FOR AND PROCESS OF FINISHING BUTTONS.  
No. 294,490. Patented Mar. 4, 1884.



WITNESSES:

*J. D. Garfield*  
*Wm. H. Chapin*

INVENTORS

*Henry W. Merritt*  
*Mortimer G. Merritt*  
*Charles E. Merritt*  
BY *Henry A. Chapin*

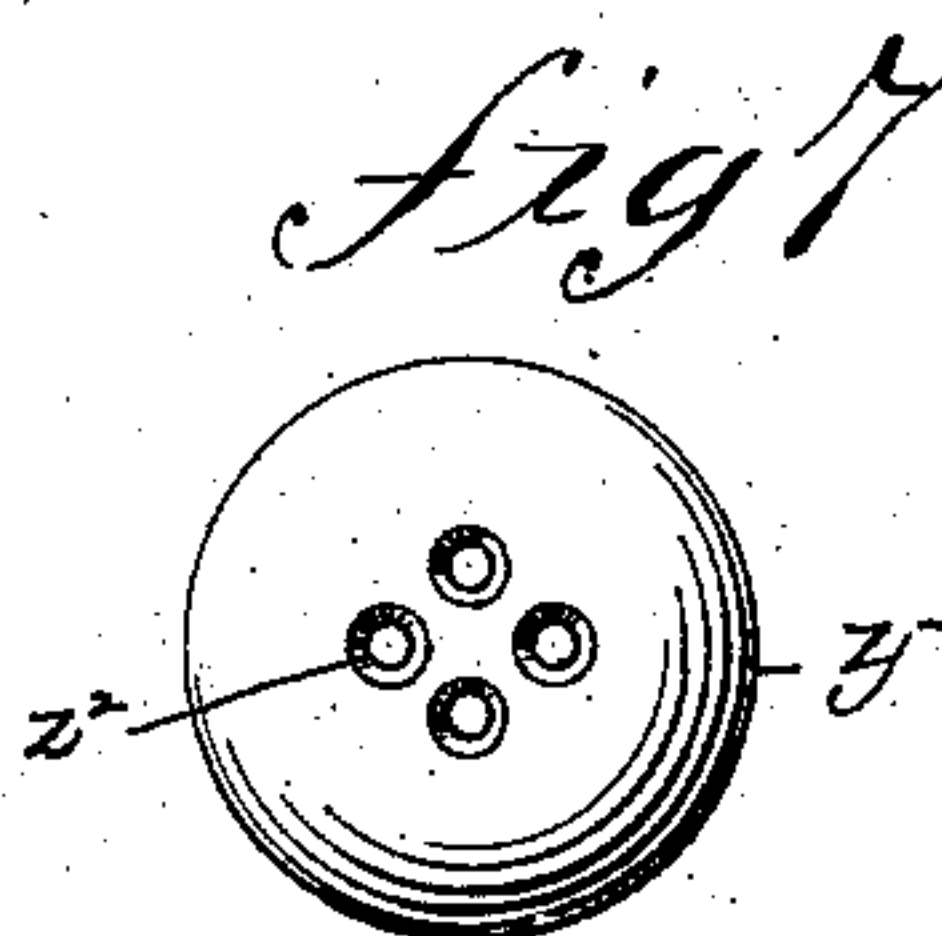
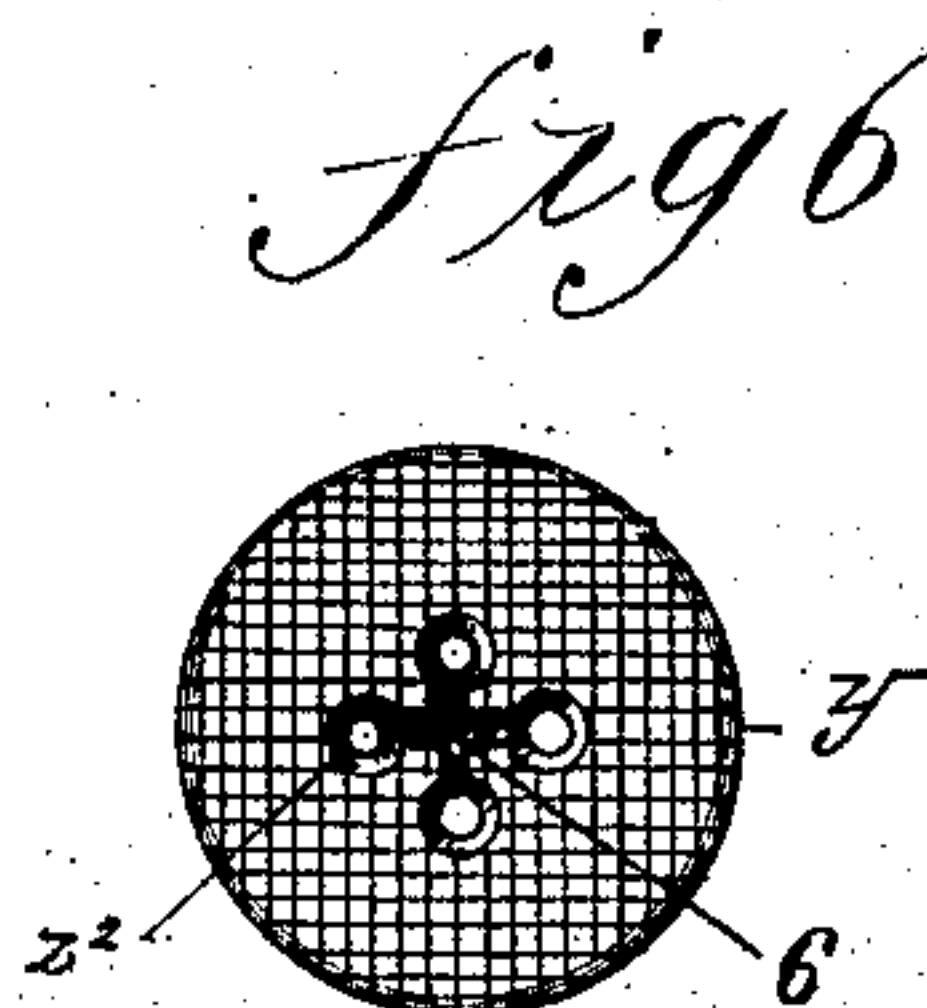
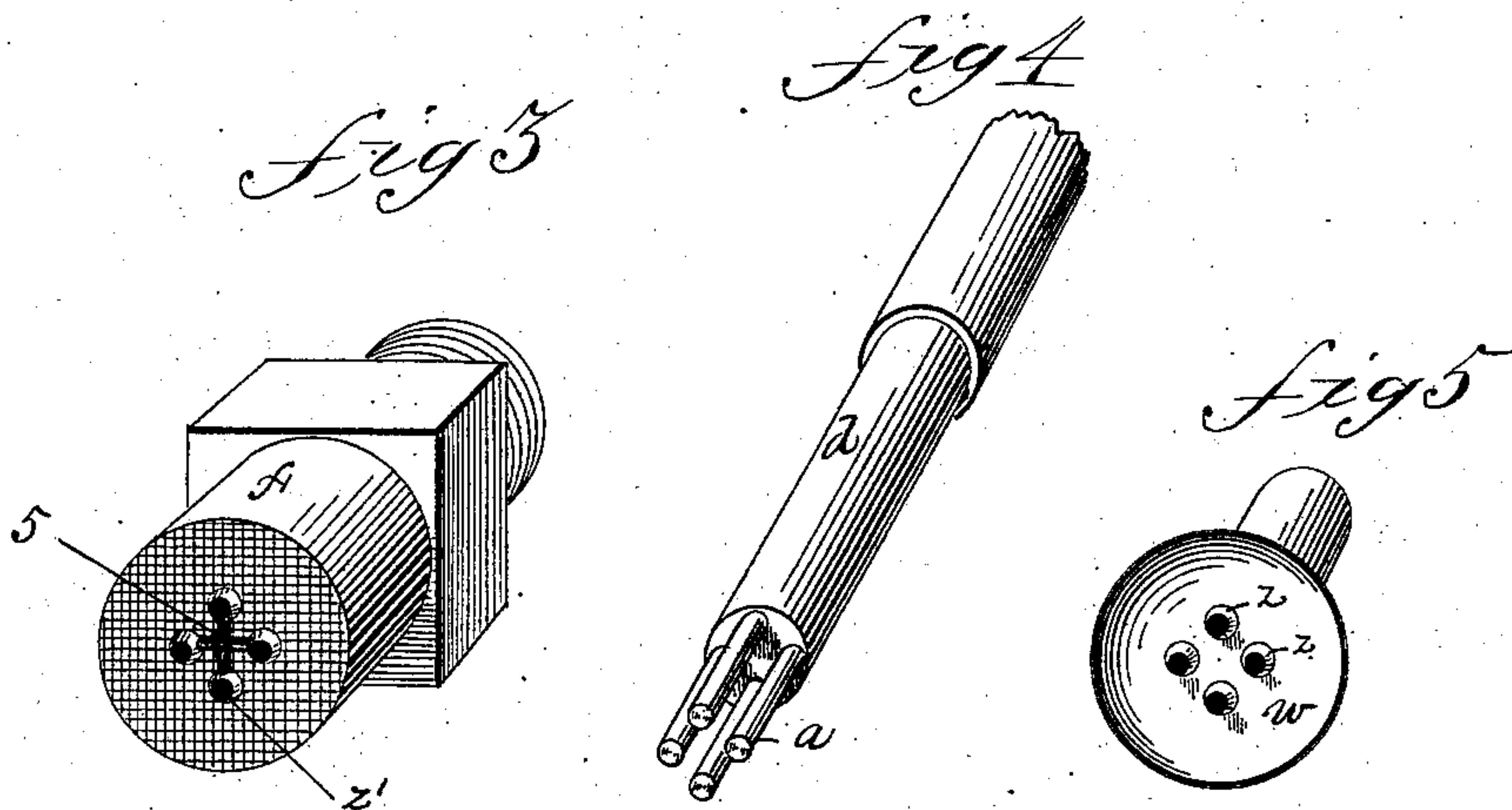
ATTORNEY



(No Model.)

3 Sheets—Sheet 3.

H. W., M. G. & C. E. MERRITT.  
MACHINERY FOR AND PROCESS OF FINISHING BUTTONS.  
No. 294,490. Patented Mar. 4, 1884.



WITNESSES:

*J. L. Fairfield*  
*Wm. A. Chapin*

INVENTORS

*Henry W. Merritt*  
*Mortimer G. Merritt*  
*Charles E. Merritt*

BY

*Henry A. Chapin*

ATTORNEY



# UNITED STATES PATENT OFFICE.

HENRY W. MERRITT, MORTIMER G. MERRITT, AND CHARLES E. MERRITT,  
OF SPRINGFIELD, MASSACHUSETTS.

## MACHINERY FOR AND PROCESS OF FINISHING BUTTONS.

SPECIFICATION forming part of Letters Patent No. 294,490, dated March 4, 1884.

Application filed January 12, 1884. (No model.)

*To all whom it may concern:*

Be it known that we, HENRY W. MERRITT, MORTIMER G. MERRITT, and CHARLES E. MERRITT, citizens of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Machinery for and Process of Finishing Buttons, of which the following is a specification.

10 This invention relates to improvements in machinery for and process of finishing vegetable-ivory, horn, plastic-material, animal-ivory, and other buttons, the object being to provide improved means for perforating said buttons instead of drilling them, and for, simultaneously with perforating them, countersinking the borders of the holes through them and embossing their faces, whereby holes through the button are formed perfectly smooth and  
20 much more rapidly and economically than by methods heretofore practiced.

In the drawings forming part of this specification, Figure 1 is a view of a double-acting press provided with button perforating and  
25 embossing devices embodying our invention. Fig. 2 is a side elevation, partly in section, of the machine shown in Fig. 1. Fig. 3 is the hollow embossing and countersinking punch. Fig. 4 is the perforating-punch. Fig. 5 is the  
30 button-seat. Figs. 6 and 7 respectively show the front and rear sides of a button finished by our improved machinery and process.

In the drawings, A is an ordinary double-  
35 acting punching-press, on the outer end of whose shaft is a crank-stud, *e*, which acts in a well-known manner, when said shaft is rotated, to give the sliding tool or punch holders *b* and *c* successive reciprocating motions,  
40 whereby a tool carried by *c* is made to move within the tool carried by *b*, partly with and partly independent of the latter. In the sliding part *b* is secured the hollow punch *f*, the lower end of which is engraved or otherwise  
45 figured with such a design as it is desired to transfer by pressure to the face of the button *y*, Fig. 6. The lower end of the punch *f* is perforated, as shown in Fig. 3, and surrounding each of said perforations is a collar, *z*,  
50 projecting from the face of the punch out-

wardly, of conical form. Between the bases of the collars *z*, running in X form, are thread-slotting bars 5, standing up in half-round form on the face of the punch. A second punch, *d*, is secured in the sliding part *c* of the press, and operates within the punch *f*. The punch *d* is provided with a series of small punches, *a*, which are adapted to pass through the aforesaid perforations in the lower end of the punch *f*.

A button-seat, *w*, Fig. 2, having a concave face and a suitable shank, is located in the base B of the press, directly under the punches *f* and *d*. The seat *w* is adapted to be moved upward by an arm, *h*, which is connected to the sliding part *b*, one end of which extends under the shank of said seat, and when said arm descends the seat drops onto the base again. The seat *w* is, like the punch *f*, perforated to coincide with the latter, and, like said punch *f*, is provided with conical-shaped collars *z*, surrounding its perforations, the latter being adapted to receive the lower ends of the series of small punches *a* on the punch *d*. The faces of the punch *f* and the seat *w* may be made with or without the collars *z* and *z*, according to the work to be done, and also without the slotting-bars 5.

One means of feeding buttons one by one to the punches *f* and *d* is shown in Fig. 1; and it consists of the perforated circular plate D, provided with ratchet-teeth *v*, and adapted to be rotated on a plate lying under it, the latter having a hole in it over the seat *w*, to let a button carried around by one of the holes in plate D drop onto said seat. Intermittent rotary motion is given to plate D by the pivoted levers *t* and *r*, to which is connected the pawl *s*, lever *t* being connected by the adjustable rod *o* to the sliding part *b* of the press by the arm *n*. Any other suitable means of feeding buttons to the punches may be adopted in place of those shown, such feeding mechanism forming no part of this invention.

The operation of our improvements is as follows: The blanks for the buttons are turned or otherwise formed ready for perforating, and are properly softened by steaming, wetting, or warming to prepare them for being easily and safely perforated, and for the



proper action of the embossing-punch. The blanks are then fed one by one and dropped onto the seat *w*, or deposited in the opening of the plate above it. The punch *f* then descends upon the blank, forcing it against the seat *w*, and so compressing it as to emboss its face and force the conical collars *z'* and bars 5 into the front face, and the collars *z* into the rear side of the button. As soon as the punch 10 *f* has come down upon the button, as above stated, the punch *d* descends, forcing the small punches *a* through the button and forming perfectly smooth holes in it, through which to pass the thread in sewing the buttons onto 15 garments, and the conical collars *z'* and bars 5 on the punch *f*, and the collars *z* on the seat *w*, form at the same time the countersunk borders around the holes, (shown in Figs. 6 and 7,) and the thread-slots 6 between said holes 20 on the front of the button, whereby the borders of the holes are made smooth and the cutting of the thread is obviated, and the usual channels for the thread between the holes are formed. After the aforesaid action of the 25 punches, they rise up, and arm *h* strikes the shank of seat *w*, throwing up the latter with the button and carrying the latter above plate D, from which it is pushed off into any suitable receptacle, completely finished.

30 Ordinarily the aforesaid classes of buttons, if embossed, are so finished by a separate operation, and when drilled each hole is the subject, generally, of a separate operation, and drilling a hole does not leave its sides as 35 smooth as does punching, and, furthermore, the countersinking of the thread-holes is ordinarily a separate operation from the drilling, as also is the forming of the thread-slots.

It is obvious that the lower end of the punch 40 *f* may be figured or left plain, according to the finish it is desired to produce on the buttons, and that one, two, or more of the small punches *a* may be employed.

What we claim as our invention is—

45 1. A machine for finishing buttons, consisting of a double-acting press, substantially as described, a hollow punch having a perforated face, a punch operating within the latter, and having thereon a series of small 50 punches passing through said perforated face, and a button-seat having perforations coinciding with those in said hollow punch, combined and operating substantially as set forth.

55 2. A machine for finishing buttons, consisting of a double-acting press, substantially as described, a hollow punch having a perforated face, and having on the latter projecting cone-shaped collars surrounding its perforations, and thread-slot bars between the

latter, a punch operating within said hollow punch, having thereon a series of small punches passing through the said perforated face, and a button-seat having perforations coinciding with those in said hollow punch, and having projecting cone-shaped collars surrounding its perforations, combined and operating substantially as set forth. 60 65

3. A machine for finishing buttons, consisting of a double-acting press, substantially as described, a hollow punch having a perforated face, a punch operating within the latter, and having thereon a series of small punches passing through said perforated face, a perforated button-seat having an intermittent reciprocating movement before the ends 75 of said punches, by means substantially as described, and suitable feeding devices for depositing button-blanks one by one between said punches and button-seat, combined and operating substantially as set forth. 80

4. A machine for finishing buttons, consisting of a double-acting press, substantially as described, a hollow punch having a perforated face upon which is engraved or otherwise formed an ornamental design, a punch 85 operating within said hollow punch, having thereon a series of small punches passing through the perforated face of the hollow punch, and a button-seat having perforations coinciding with those in the latter, combined 90 and operating substantially as set forth.

5. The combination, with a double-acting press, substantially as described, of the hollow punch *f*, having a perforated face, the interior punch, *d*, having thereon the series of 95 small punches *a*, and the movable button-seat *w*, having therein perforations coinciding with those in the hollow punch, substantially as set forth.

6. The process of perforating and embossing buttons, which consists in pressing a button-blank between a design-bearing punch and a seat, and while so pressed forcing one or several thread-hole-forming punches through the blank, all substantially as described. 100 105

7. The process of perforating, thread-slotting, and embossing buttons, which consists in pressing a button-blank between a design-bearing punch having slotting-bars thereon and a seat, and while so pressed forcing one or several thread-hole-forming punches through the blank, all substantially as described. 110

HENRY W. MERRITT.

MORTIMER G. MERRITT.

CHARLES E. MERRITT.

Witnesses:

WM. H. CHAPIN,

H. A. CHAPIN.