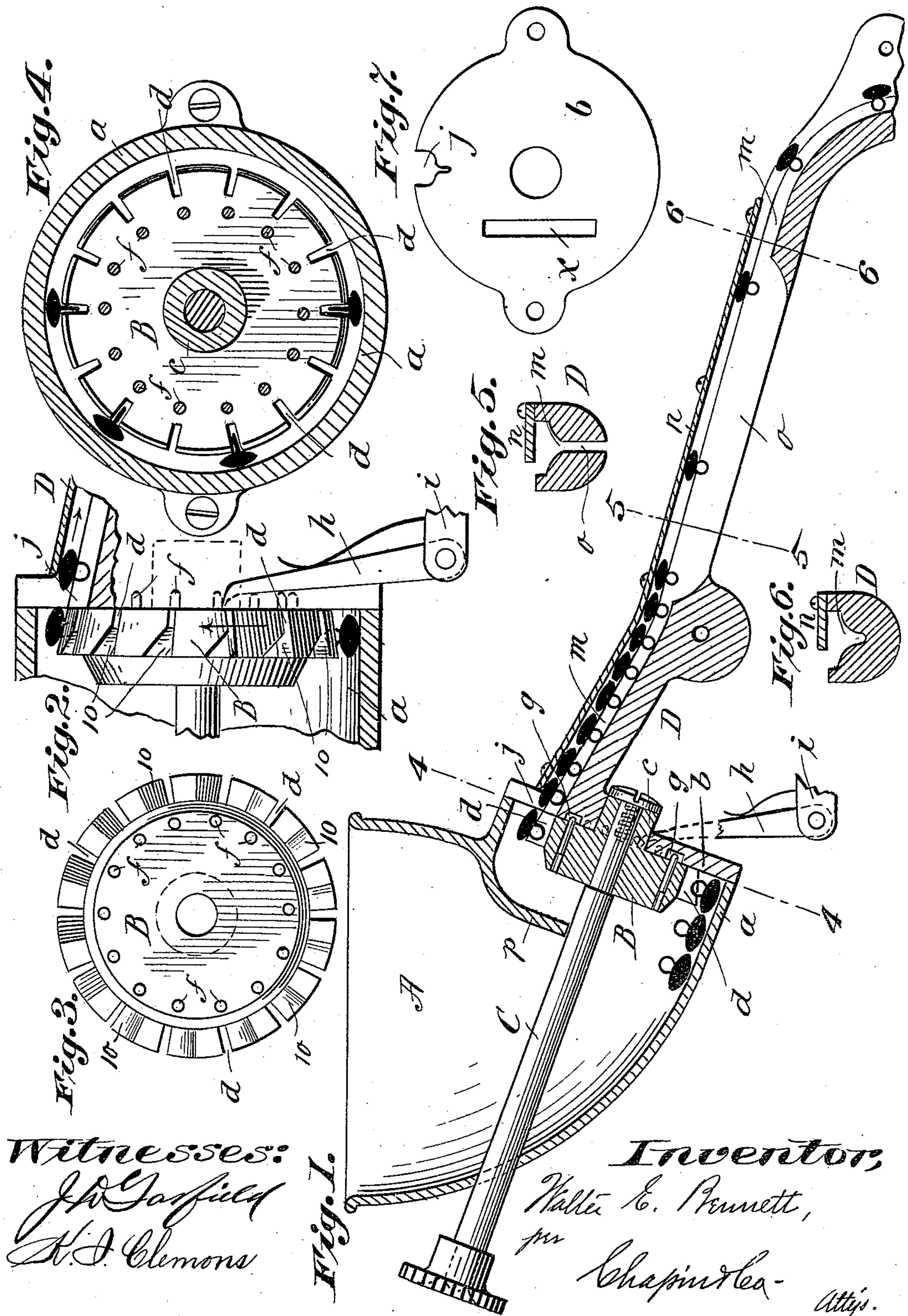


(No Model.)

W. E. BENNETT.  
FEED MECHANISM FOR BUTTONS.

No. 553,803

Patented Jan. 28, 1896.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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MORLEY BUTTON SEWING MACHINE COMPANY, OF SAME PLACE.

## FEED MECHANISM FOR BUTTONS.

SPECIFICATION forming part of Letters Patent No. 553,803, dated January 28, 1896.

Application filed November 14, 1892. Serial No. 451,912. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER E. BENNETT, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Feed Mechanism for Buttons, of which the following is a specification.

This invention relates to improvements in mechanism for feeding buttons for machines which automatically sew the buttons onto the fabric.

The object of the invention is to devise a feeding mechanism which shall be well adapted for the feeding of shank-buttons having the ellipsoidal heads thereof much flattened and as commonly employed on overgaiters, and which mechanism furthermore shall be extremely simple; and the invention consists in the constructions and combinations of parts, all substantially as will hereinafter fully appear, and be set forth in the claims.

The feed mechanism, in an approved form, and one which has been satisfactorily and practically operated, is illustrated in the accompanying drawings.

Figure 1 is a central longitudinal vertical section of the feed mechanism. Fig. 2 is a vertical sectional view of the forward circular end portion of the hopper and part of the runway, on a larger scale, and a side view of the circular head therein. Fig. 3 is a rear view of the head. Fig. 4 is a view on a larger scale taken on the line 4 4 of Fig. 1, and Figs. 5 and 6 are cross-sections on a larger scale taken respectively on the lines 5 5 and 6 6, Fig. 1. Fig. 7 is a face view of the end plate to be hereinafter particularly referred to.

In the drawings, A represents the chute or hopper which, as shown, is of a bowl shape with its one side and bottom downwardly inclined and extended to the other side to conduce to the formation of the hollow cylindrical end portion *a*, which is covered by a closing end plate *b*, standing in an oblique plane. Within this hollow cylindrical end portion *a* of the chute a circular head *B* is concentrically mounted for rotation, the diameter of which head is somewhat less than the circular chamber. This head rotates in an oblique plane against or parallel with the closing plate *b* and on the inclined axis coincident

with the shaft *C*, the said head having the hub *c* forwardly extended through a bearing-hole therefor in said plate *b*. This head is in the form of a frustum of a cone the apex of which, if produced, would be forward of said plate *b*, so that the surface of the head when brought to its uppermost position will have the downward and forward inclination, as seen in Fig. 1. This head has a series of narrow apertures *d* within its edge at regular intervals which extend from its rear to its front side and which are widened at the rear, as indicated at 10; and means are provided for insuring an intermittent rotatory movement of the head which may be of any of several descriptions, the one here indicated consisting of a series of circularly-arranged forwardly-extended regularly-spaced pins *f*, constituting, substantially, projections having the nature of ratchet-teeth, they moving around with the head within the circular groove *g*, provided for the accommodation thereof within the inner side of the end plate *b*. The end plate has an aperture *x* through it at a suitable place in line with the circular arrangement of these projections, through which the end of an actuating-pawl *h* has engagement with a projection for forcing them forward as the pawl has its working thrust imparted thereto in the manner usual in this class of actuating devices, the pawl being understood as carried upon the end of a pawl-carrying arm or lever *i*, to which reciprocatory movement is suitably imparted.

The closing end plate of the aforesaid cylindrical part of the hopper has at an upper portion thereof an aperture, as indicated at *j*, and the trough or runway *D* for the buttons leads forwardly away from said aperture with a suitable downward inclination for carrying the buttons to the button-sewing mechanism.

The buttons, entered into the hopper in a promiscuous mass, will, many of them, move downwardly upon the inclined and extended bottom upon their backs with their shanks uppermost, the shanks of some being brought into engagement within the apertures *d* of the head, the widened rear portion of each aperture facilitating this engagement and also bringing the eye-shank into the plane cor-



responding to the length of the runway. The buttons having come by their shanks into this engagement are prevented from being disengaged owing to the proximity of the wall of the said circular portion *a* to the periphery of the carrying-head, and as the head is rotated, step by step, the buttons are brought into the upper position opposite the delivery-aperture *j*, where they are permitted to slide by their gravitation into the runway, the downward and forward inclination of the head at its upper side, owing to the shape and the manner of mounting the head, insuring this result.

The runway is provided, as usual in this class of conveyers consisting of a bar or body, with the longitudinal groove *m* in its upper side overlaid by the plate *n*. A slot is formed, as seen at *o*, which leads from the said groove *m* downwardly through the body of the runway. This permits dirt, small chips, or other foreign matter which may be brought into the runway to be discharged for obviating clogging effect.

It will be noticed that the hopper is provided interiorly with a wall or diaphragm *p*, which is extended across a suitable upper portion of the chamber at a short distance to the rear of the rotatable head *B*, the same serving as a guard and insuring the settling of the buttons into positions adjacent and under the head for the most advantageous and successful automatic operation of the mechanism.

The shaft *C*, obliquely mounted, connected to the head *B*, and also extended to the exterior of the hopper-receptacle and provided with the milled knob, enables the head to be turned by hand before the button-sewing machine to which these devices are attached is run by power for the purpose of filling the runway with buttons. This action may be independent of the pawl *h*, the projections *f f* easily clicking past the pawl.

I claim—

1. In a button-feeding mechanism the combination with a hopper or chute having its bottom downwardly inclined toward one end

which is circular and provided with a closing wall arranged on an inclined plane, and having a delivery-aperture therethrough at an upper portion thereof, of a head having the form of a frustum of a cone mounted for rotation on an inclined axis, and of less diameter than the closed circular end portion of the hopper whereby there is between it and the adjacent wall of the hopper an entirely surrounding annular space for the accommodation of the button-bodies, said head having a series of apertures, leading inwardly from its periphery, which extend from its rear to its front side, and which are widened at the rear, and means for imparting an intermittent rotary movement to said apertured head and a runway for buttons leading from the said aperture through the closing wall of the hopper in a direction corresponding to the length from front to rear of the apertures of the head which register with said aperture through the closing wall, substantially as described.

2. In a button-feeding mechanism, the combination with a hopper having its bottom downwardly inclined toward one end, which is circular, and provided with a closing wall which is in a plane which is downwardly and rearwardly inclined and having a delivery-aperture therethrough at an upper portion, and a runway for buttons leading with a downward inclination from said aperture in a line at right angles to the said closing wall, of a head having the form of a frustum of a cone and of less diameter than the closed end portion of the hopper, and having its converging end toward the said closing wall, and having a series of apertures leading inwardly from its edge which extend from its rear to its front side and which are widened at the rear, and means for imparting an intermittent rotary motion to said head, substantially as described.

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Witnesses:

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