(No Model.) 2 Sheets—Sheet 1.

C. J. BROSNAN.

BUTTON FEEDING DEVICE.

No. 335,212. Patented Feb. 2 ,1886.

Fig 1

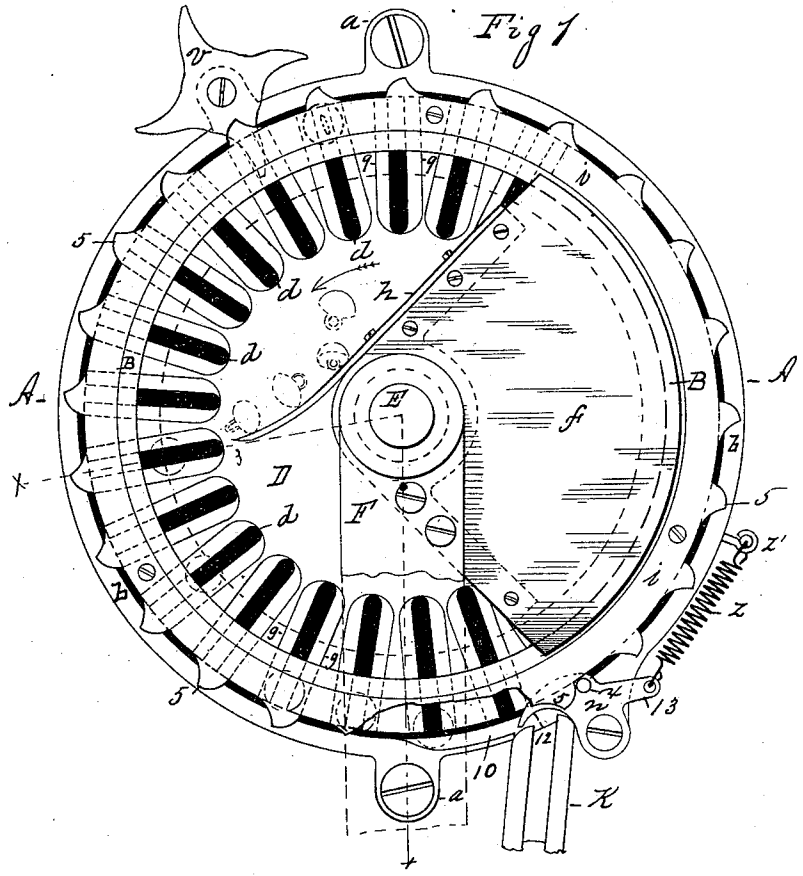
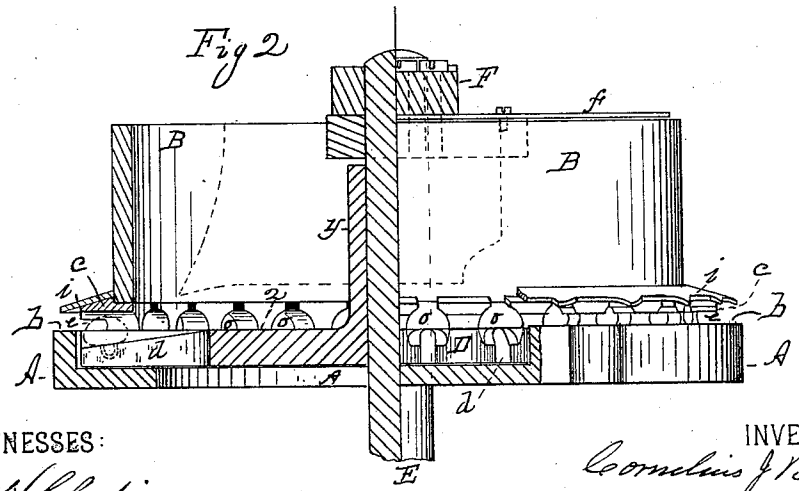


Fig 2



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(No Model.) 2 Sheets—Sheet 2

C. J. BROSNAN.

BUTTON FEEDING DEVICE.

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Fig 3

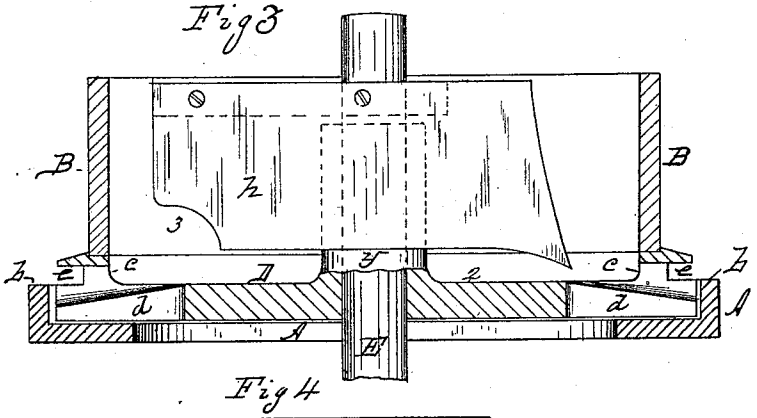
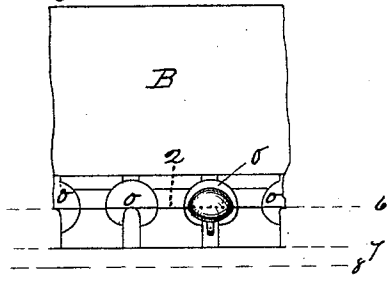


Fig 4



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UNITED STATES PATENT OFFICE.

CORNELIUS J. BROSNAN, OF SPRINGFIELD, MASS., ASSIGNOR OF TWO-THIRDS TO H. A. GIBBS AND W. E. WRIGHT, BOTH OF SAME PLACE.

BUTTON-FEEDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 335,212, dated February 2, 1886.

Application filed November 13, 1885. Serial No. 182,700. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS J. BROSNAN, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Button-Feeding Devices, of which the following is a specification.

This invention relates to improvements in button-feeding devices for machines for attaching buttons to leather or fabric, the object being to provide improved mechanism for separating and delivering shank-buttons, one by one, into a chute, whereby they are conveyed to attaching devices, said buttons being first deposited in a mass in a hopper.

In the drawings forming part of this specification, Figure 1 is a plan view of a button-hopper embodying button separating and delivering mechanism constructed according to my invention, the side of the hopper near the chute being broken away, and one end of the latter being shown connected to the hopper. Fig. 2 is a side elevation, partly in section, on the lines *x x*, Fig. 1, and showing a part of the lower outer rim of the base broken away, the button-ejector and its connections not being shown. Fig. 3 is a cross-section of the hopper and its base, showing a side view of the button-guide therein and its relation to the bottom of the hopper, the details of construction shown in Fig. 1 not being shown in this figure. Fig. 4 is an elevation of a portion of the side of the hopper without its base, but showing the position of the latter in dotted lines.

In the drawings, A is a circular base, having a central opening therein, as shown, and consists of a flat ring, substantially, having around it a border, *b*, standing up at right angles to the face of the base, the latter having thereon the lateral projections *a a*, whereby it is screwed or otherwise suitably secured to the machine with which it is to operate, and other lateral projections to which the button-ejector *n* and the clearer-wheel *v* are pivoted, as hereinafter described. An opening is provided in said border, opposite which the chute K is secured.

D is the bottom of the hopper, and it consists of a disk fitted to rotate within the said upstanding border *b* on the base A, and having the upwardly-projecting ring *c* on its upper side, standing above the line 2, which represents the plane of said upper side. Said ring *c* has the groove *e* formed around its periphery, and transversely through it a series of openings, *o*, having somewhat the form, in cross-section, of a button, as shown in Fig. 4. A series of slots, *d*, in lines radiating from the center of the bottom D are formed in the border of the latter, and terminate under each of said openings *o*. In forming said slots the ring *c* is cut above each of said openings, as shown in Fig. 2. The face of the bottom D, within the lines *q*, Fig. 1, is depressed or made in trough form and inclines toward the border of the bottom, as clearly shown in Figs. 2 and 3. Bottom D has a centrally-located hollow hub, *y*, projecting upward from its face, through which the shaft E passes, a suitable fixed connection being made between said hub and shaft to the end that the bottom D shall be made to rotate with said shaft, an intermittent rotary motion being given to the latter by suitable connection with the operating mechanism of a machine to which the hopper may be attached, an arm, F, on said machine (partly shown in Figs. 1 and 2) serving as a bearing for the upper end of said shaft. The circular side B of the hopper is fixed by its lower edge to the upper side of said ring *c* on the bottom D. A partial cover, *f*, of thin metal, is secured on a plane with the upper edge of the slide B by a suitable support, (shown in dotted lines under said cover in Fig. 1,) which is fixed to the arm F, and at one edge of said cover is fixed the thin metallic button-guide *h*. (Shown in side view in Fig. 3 and in dotted lines in Fig. 2.) Said button-guide hangs on said edge of the cover and extends nearly to the face 2 of the bottom D and from a point a little removed from the side B of the hopper to the inner ends of the slots *d* as the bottom D is rotated, as shown in Fig. 1. The corner of the shield *h* at 3 is removed to allow buttons to pass more freely. A clearer-wheel, *v*, having arms thereon, as shown, is pivoted on a lateral projection on the base A, near the border of the bot-

tom D, and said arms of the wheel *v* enter and are engaged by the openings *o* in the edge of the bottom as the latter rotates, wheel *v* being thereby turned and the ends of its arms entering, as shown in Fig. 1, successively each of said openings as they pass by said wheel, the purpose of the latter being to cause a button, which may, because of its being too large, become wedged or caught in one of said openings *o*, instead of passing through the latter as it ought to do, to be pushed back into the hopper, thus keeping said openings clear as they pass around in the direction of the arrow toward the chute K, to allow buttons of proper size to pass through them and enter the latter. A flat ring, *i*, having the teeth 5 on its outer edge, over the outer ends of the slots *d* in the bottom of the hopper, is fixed on the upperside of ring *c*. If desired, said teeth may be formed on ring *c*. The inner side of the border *b* for a little distance to one side of the chute K is cut away at 10, Fig 1, to permit each button, as it arrives at that point, to partially emerge from the groove *d*, as shown by a dotted-in button in said figure. A button-ejector, *n*, is pivoted on a projection on base A at one side of the end of the chute K. Said ejector has a hook-shaped finger, 12, and an arm, 13, to which a spring, *z*, one end of which is connected to a pin, *z'*, on the base, is attached. When the hopper rotates, one of the teeth 5 strikes pin *x* on the ejector, swinging it on its pivot and carrying the finger 12 in the direction that the border of the hopper moves, and bringing the end of its finger to one side of the opening *o* and in such a position that when the tooth 5 is disengaged from pin *x*, letting the ejector swing by the action of spring *z*, the end of said finger enters one of openings *o* behind a button that may be there, and, striking the latter a sudden blow, removes it from groove *d* and drives it into the chute.

To allow of the proper action of the ejector *n*, by letting its finger swing inward back of the outer end of the slots *d*, so as to carry the end of the finger back of the button, the slot *e* in the periphery of the bottom D is provided, the finger 12, as shown in Fig. 1, entering more or less into said slot.

The operation of the above-described improvements, whereby buttons having a shank thereon, after being deposited in the hopper between the shield *h* and the adjoining side of the hopper in a mass, are one by one delivered into the chute K with their shanks downward, as shown in Fig. 4, is as follows: The position of the hopper on a machine with which it is connected to deliver buttons to be fastened onto material is an inclined one—that is to say, the side thereof to which the chute is attached is the lower one. The buttons being placed in the hopper as aforesaid, thereby are caused to gravitate toward the lower side of the hopper and are guided and directed by the guide *h*, against which they roll, toward the slots *d*, (see buttons shown in dotted lines in Fig. 1,) over which they lie in various positions, but many of them being brought by the intermittent rotary motion of the hopper to lie over the slots with their shanks hanging down in the latter, as in Fig. 4. Such of the buttons as assume said position are caused by the inclined face of the borders of the slots, above described, and the motion of the hopper to slide downward through openings *o* toward and against the inner edge of the border *b* of the base A, several buttons often finding a place in each of the lower slots. The said border *b* retains the button or buttons in said slots until the rotation of the hopper brings said slots opposite the cut-away point 10 on the border, when the outer button partly emerges from the slot, and immediately that the end of a slot is opposite the end of the chute K the ejector-finger strikes the outer button therein and drives it into the chute, as above described. If any buttons remain in a slot *d* after it has swung past the ejector, the latter taking only one button from each slot and preventing more from entering the chute, they are carried around under the cut-away corner of the guide *h* and again brought before the end of the chute.

In practice the buttons in the hopper are massed at the lower side of the latter and on the upper side of the guide *h*, and are continually being agitated and brought to position in said slots by said motion of the hopper.

The hopper, as described, may be operated, as above set forth, to deliver buttons from the slots *d* by gravitation into the chute *k*, and dispensing with the use of the ejector *n*, and the clearer-wheel *v* may also be dispensed with, if desired; but greater efficiency of operation is secured by the use of the above-named parts.

What I claim as my invention is—

1. A button-feeding device consisting of a hopper having a bottom of disk form and cylindrical sides, said bottom having the ring *c* on its upper side near its border, having therethrough in the direction of the plane of the bottom a series of openings, *o*, and having in its periphery, partly under said openings, a series of radial slots whose borders are depressed and inclined from their inner ends to the edge of the bottom, a button-guide, *h*, fixed in a pending position in the hopper at right angles to the bottom thereof and terminating above the latter, and the shaft E, on which the hopper is supported and rotates, combined with the circular base A, provided with the upstanding border *b*, within which the hopper rotates, having an opening therein for the exit of the buttons, substantially as set forth.

2. In combination with the circular rotating button-hopper, substantially as described, having the groove *e* in the periphery of the bottom thereof, and the series of teeth 5, projecting from its outer side, the base A, with-

in which the hopper rotates, the button-ejector *n*, pivoted to said base, and having a vibratory motion in said slot by its engagement with said teeth and by the action of a retracting-spring, substantially as described, all as set forth.

3. In combination with the circular rotating button-hopper having the radial slots *d* in the bottom thereof around its border, and the series of openings *o* over said slots, the base A, within which the hopper rotates, and the clearer-wheel *v*, pivoted on said base and having arms thereon engaging with said openings *o*, substantially as set forth.

CORNELIUS J. BROSNAN.

Witnesses:
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WM. H. CHAPIN.