

(No Model.)

C. E. HARDENBROOK.
BUTTON FEEDING MECHANISM.

No. 602,804.

Patented Apr. 19, 1898.

Fig. 1.

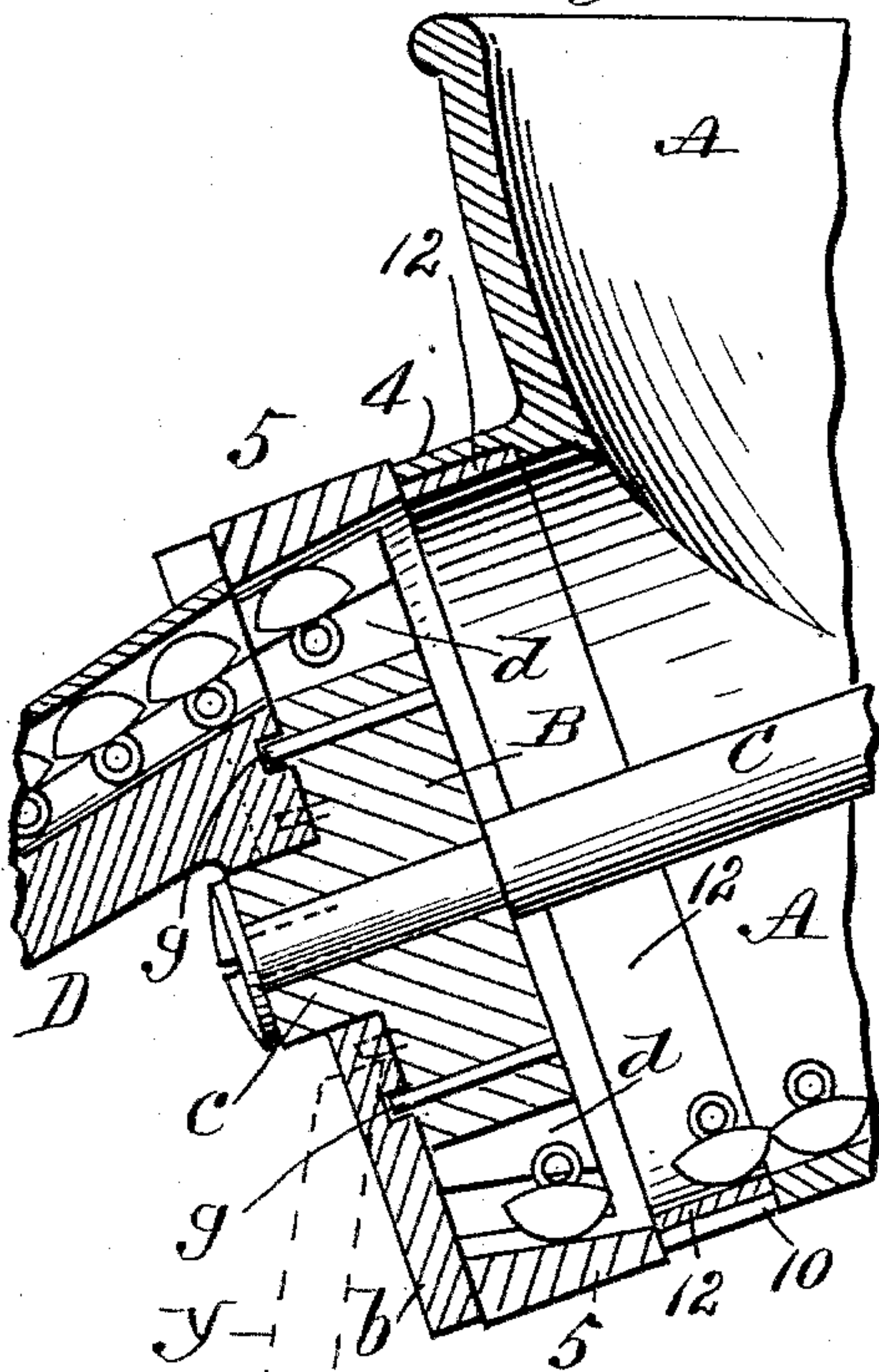


Fig. 2.

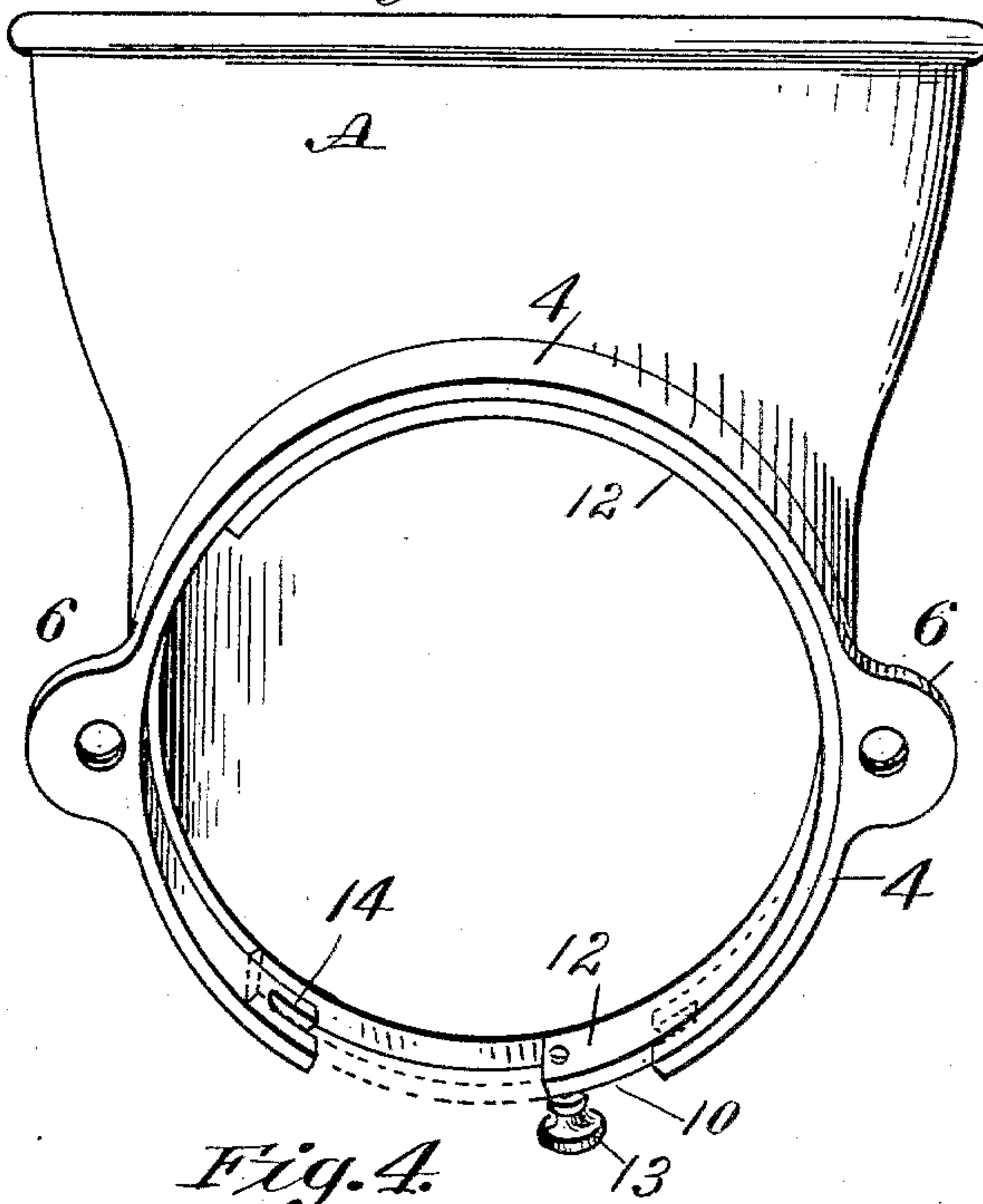


Fig. 3.

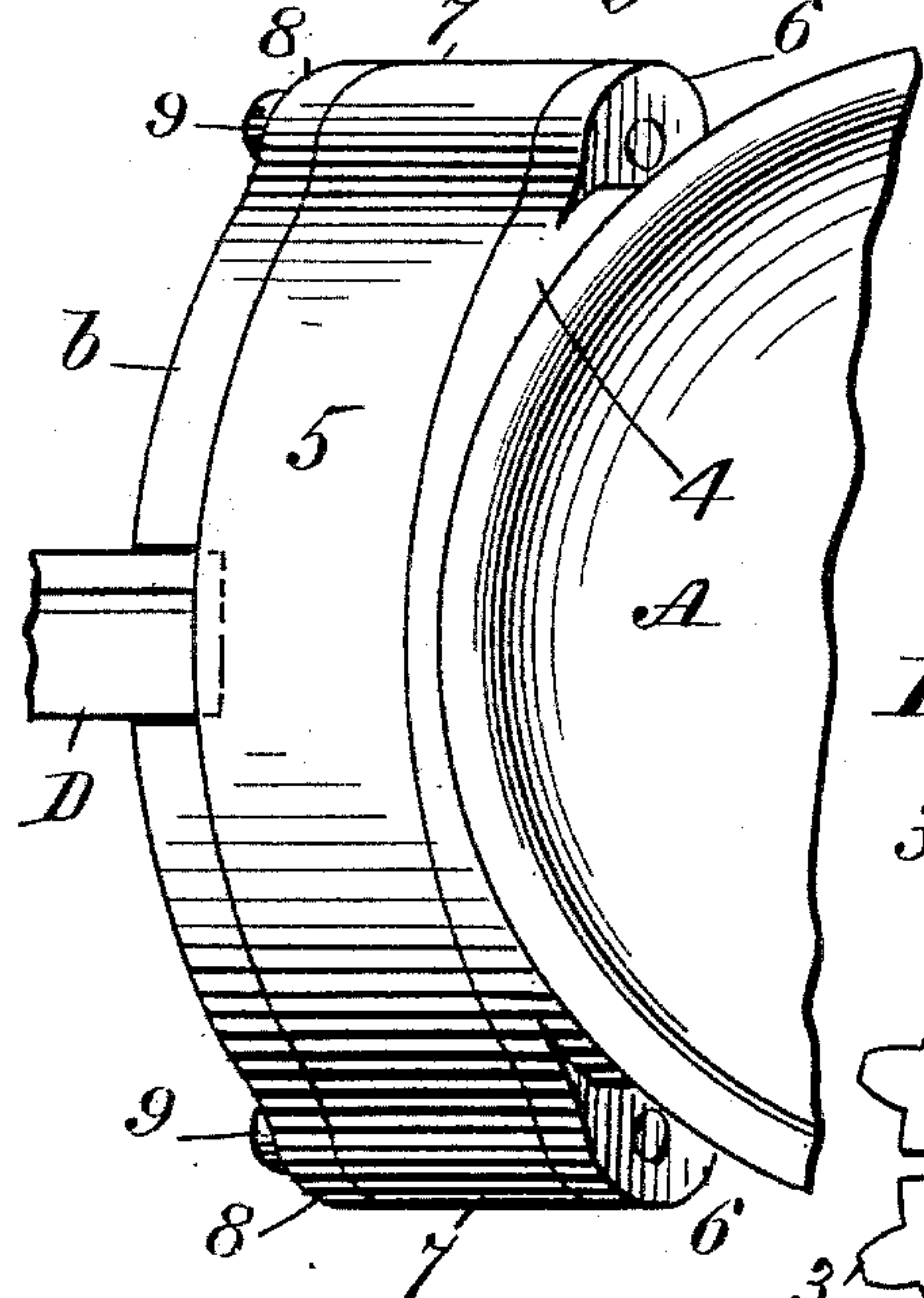


Fig. 4.

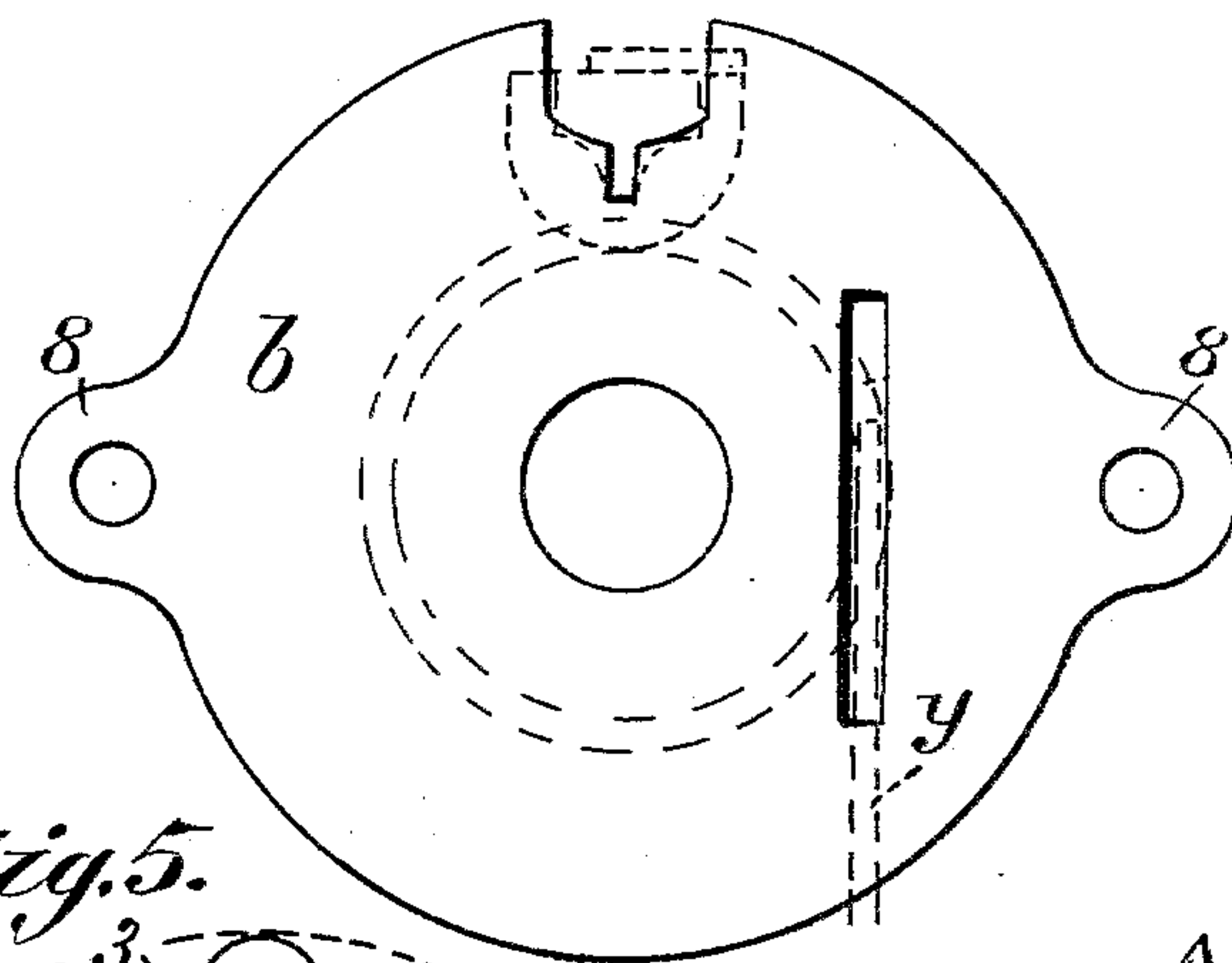


Fig. 5.

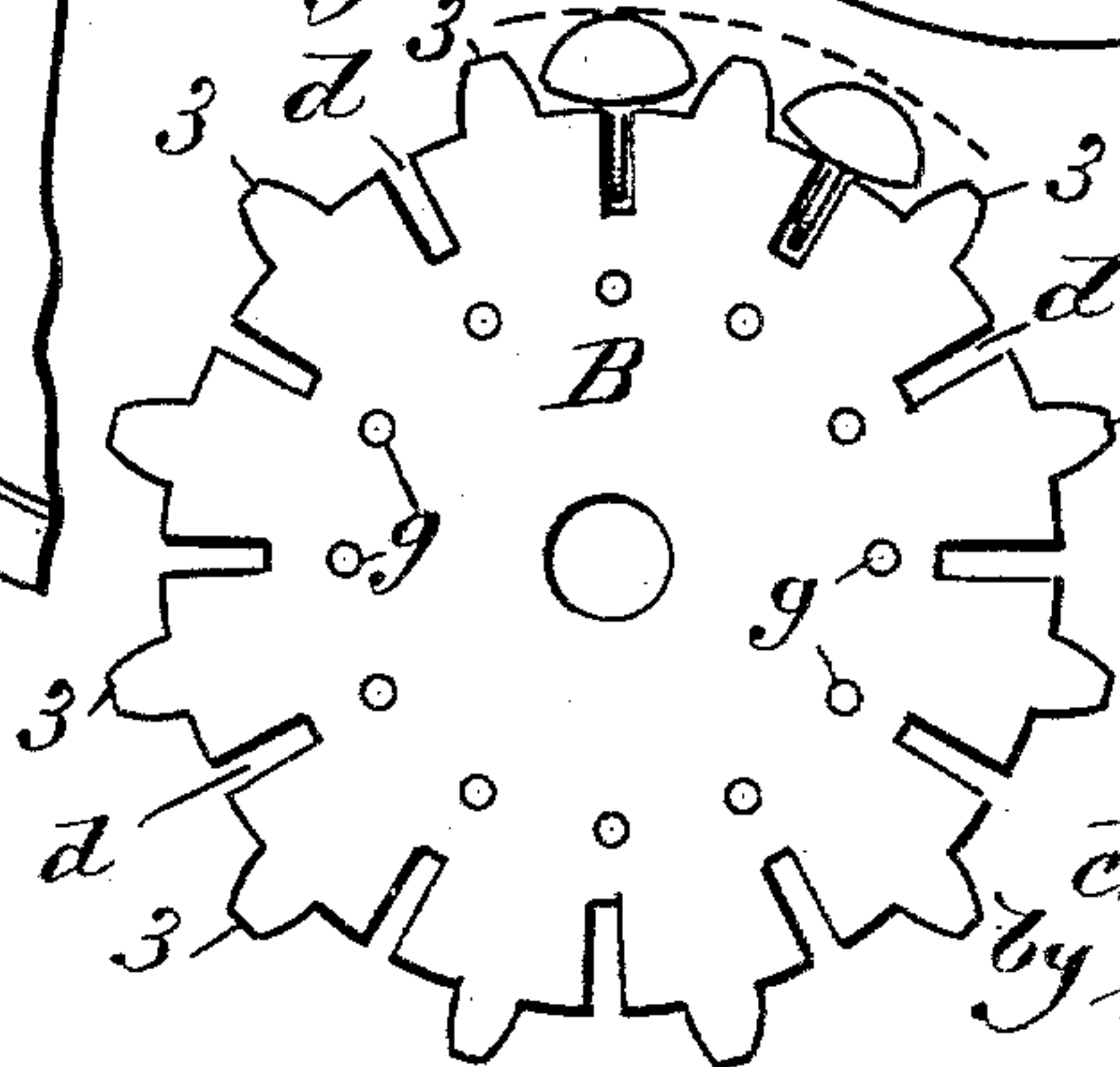
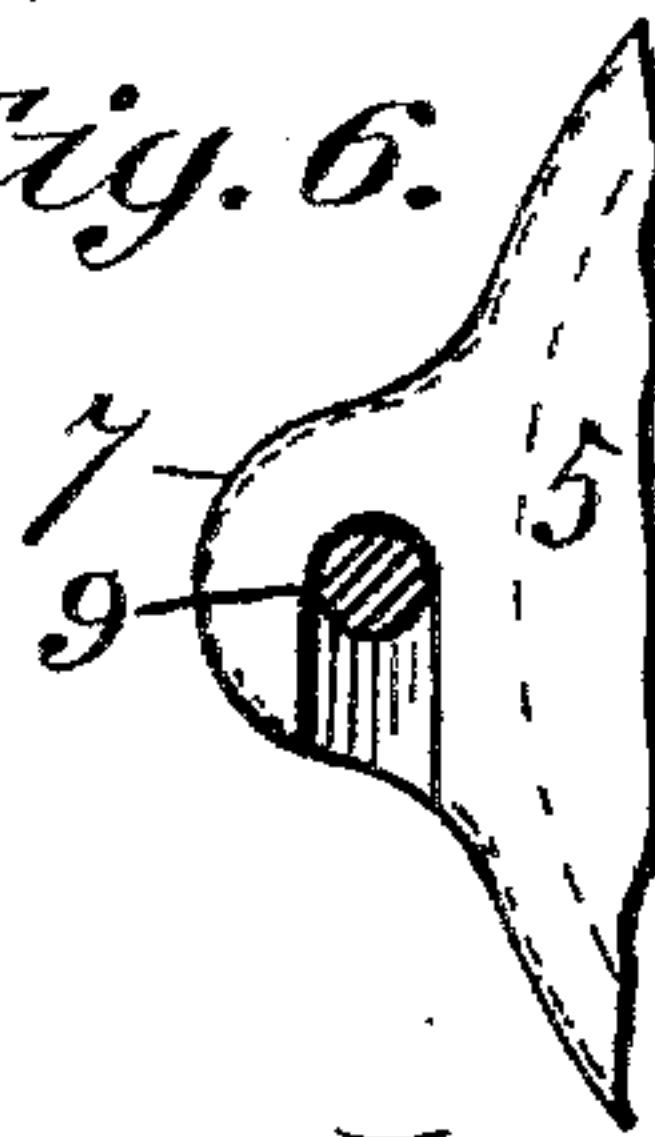


Fig. 6.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES E. HARDENBROOK, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
TO THE MORLEY BUTTON SEWING MACHINE COMPANY, OF BOSTON,
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BUTTON-FEEDING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 602,804, dated April 19, 1898.

Application filed August 24, 1896. Serial No. 603,822. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. HARDENBROOK, a citizen of the United States of America, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Button-Feeding Mechanism, of which the following is a specification.

This invention relates to improved button-feeding mechanism for button-sewing machines, and is in the nature of an improvement upon similar devices for which a patent was issued to Walter E. Bennett on January 28, 1896, No. 553,803, the object being to adapt said device to feed buttons having varying thicknesses of heads or of different sizes and to otherwise improve the construction thereof, whereby the operation and the manipulation of the machine is facilitated; and the invention consists in the novel construction and arrangement of the several parts of the machine, all as hereinafter fully described, and more particularly pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a vertical section through the hopper of a button-sewing machine, showing a part of the trough attached thereto. Fig. 2 is an elevation of a button-containing hopper, showing a gate in the neck thereof. Fig. 3 is a plan view of the parts shown in Fig. 1. Fig. 4 is a plan view of a retaining-plate on the end of the neck of the hopper. Fig. 5 is a rear elevation of the circular button-head, and Fig. 6 shows the method of engagement of the exchangeable ring with its binding-screws.

In the said patent to Walter E. Bennett, dated January 28, 1896, and numbered 553,803, the neck, of the hopper A, in which the head B is carried, and which is herein indicated by 4, and which, extended to the rear side of the plate *b*, constitutes the cylindrical wall around the periphery of said head B, and consequently its internal diameter, was constantly the same, irrespective of the thickness of the heads of the buttons to be fed by the hopper into the runway or chute. This construction has been found inconvenient and necessitates an entire new feeding device for each size of buttons. To obviate this incon-

venience and the expense incident thereto, a portion or section of said neck 4 of the hopper A is, in the construction herein shown, made exchangeable. Said exchangeable section of the neck consists of a ring 5, having internally a conical form, whereby the plane of the inner side of the ring corresponds with that of the periphery of said rotating head B to the end that the heads of the buttons, as indicated in Fig. 1, may pass freely between the periphery of said head and the inner surface of said ring 5 into the trough or chute D and the reception of the button by the said trough D from between said head B and the inner surface of said ring 5 may be facilitated. Said rings 5 are identical in all respects with each other except as to their internal diameters, which are made with such variations as are necessitated by the varying thickness of the heads of the buttons in changing from one size to another. As above stated, such a change in the size of the buttons has heretofore necessitated a change in the entire button-feeding devices.

The hopper A is supported on the end of the trough D by screws 9 9, passing through the ears 6 6 of the hopper and 8 8 of the plate *b* on the end of the said trough and integral therewith.

The head B is supported in the neck 4 of the hopper on the shaft C, as shown. Said head B is given intermittent rotary motions by any suitable pawl-and-ratchet movement, a pawl *y*, being shown in dotted lines in the drawings, Fig. 1, engaging with the ratchet-teeth *g*, consisting of pins driven through said head, as shown. By the rotation of said head buttons are picked up and carried up to a position in line with the trough D in the usual manner. The exchangeable ring 5 is secured in a position concentric as to its internal diameter with said head B between the plate *b* and the edges of the neck 4 by screwing up the screws 9 9. For the purpose of removing said ring and substituting another therefor said hopper and trough are separated by removing the said screws 9 9, and after effecting the exchange of the said rings 5 the parts are replaced as before. The said hopper-neck 4 is still further improved in this construc-

tion, as follows, whereby provision is made for discharging any buttons remaining in the hopper for the purpose of changing the size of buttons which it is desired to feed. To this
 5 end an opening 10 (see Figs. 1 and 2) is provided in the bottom of the neck 4, and within said neck is placed a circular gate 12, which has a circular sliding movement therein, whereby the end of said gate closes or opens
 10 the bottom of the hopper. A thumb-screw 13 is attached to the lower end of said gate, as shown, which when the gate is closed has its shank entering a slot 14 in the bottom of the said neck, and by turning said thumb-
 15 screw the gate is locked in a closed position. Said gate is shown partly opened in Fig. 2.

The provision of said gate in the bottom of the hopper enables one to remove the buttons without detaching the entire device from the
 20 machine with which it is connected for feeding buttons. The said head B to facilitate the better separation of the buttons in the slots *d* and better effect the conducting of said buttons one by one therein is provided
 25 with the projections 3 between said slots or apertures *d*, as clearly illustrated in Fig. 5, said projections being of such size as to freely admit between them the heads of the buttons

as their shanks are engaged in the radial slots *d* provided therefor in the edge of said head. 30

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

1. A feeding mechanism, a hopper, a trough, and a rotating head provided with a series of 35 notches in its outer edge to receive the shanks of the buttons, combined with a removable ring which surrounds the head, is interposed between the hopper and the trough, and is detachably connected to the hopper, substantially as and for the purposes hereinbefore 40 set forth.

2. In a button-feeding mechanism, a button-hopper, a trough, a shaft and a button-receiving head placed upon the shaft and pro- 45 vided with a series of notches in its outer edge, which is beveled outwardly, combined with a surrounding ring correspondingly beveled upon its inner side, and a suitable mechanism for causing the head and the shaft to re- 50 volve, substantially as and for the purposes hereinbefore set forth.

CHARLES E. HARDENBROOK.

Witnesses:

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