

(No Model.)

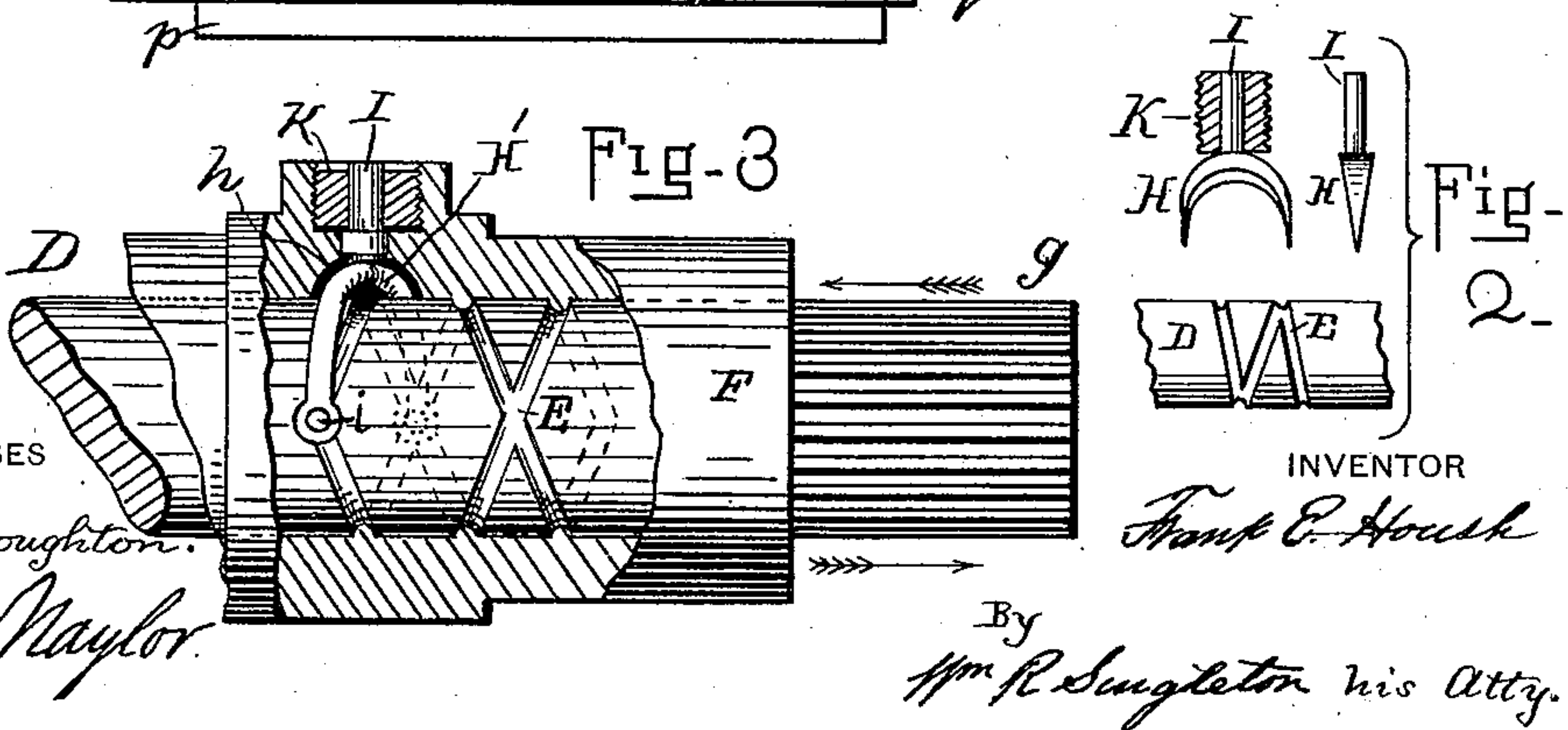
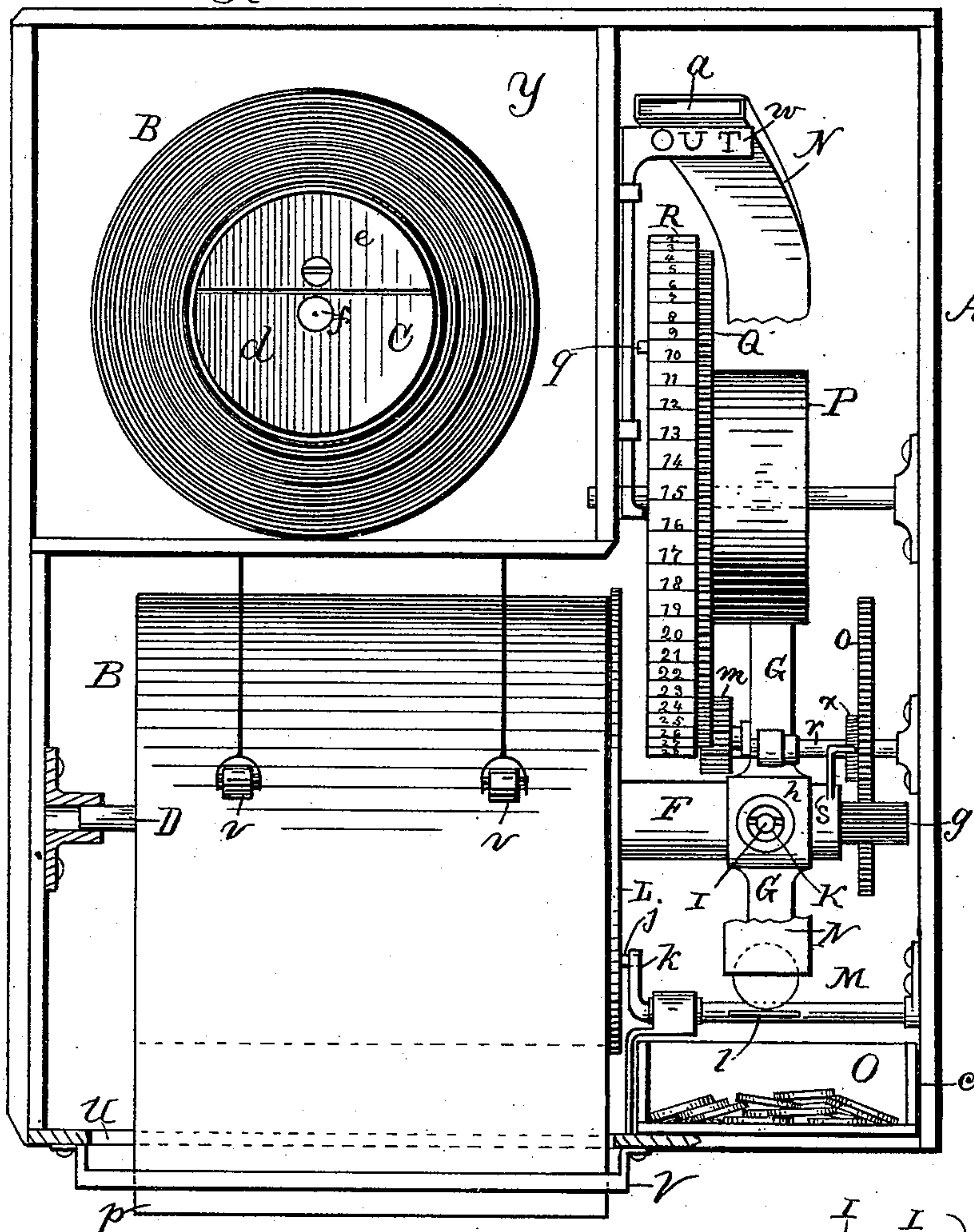
2 Sheets—Sheet 1.

F. E. HOUSH.  
TOILET PAPER SLOT MACHINE.

No. 471,705.

Patented Mar. 29, 1892.

A Fig-1.



(No Model.)

2 Sheets—Sheet 2.

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Fig- 4-

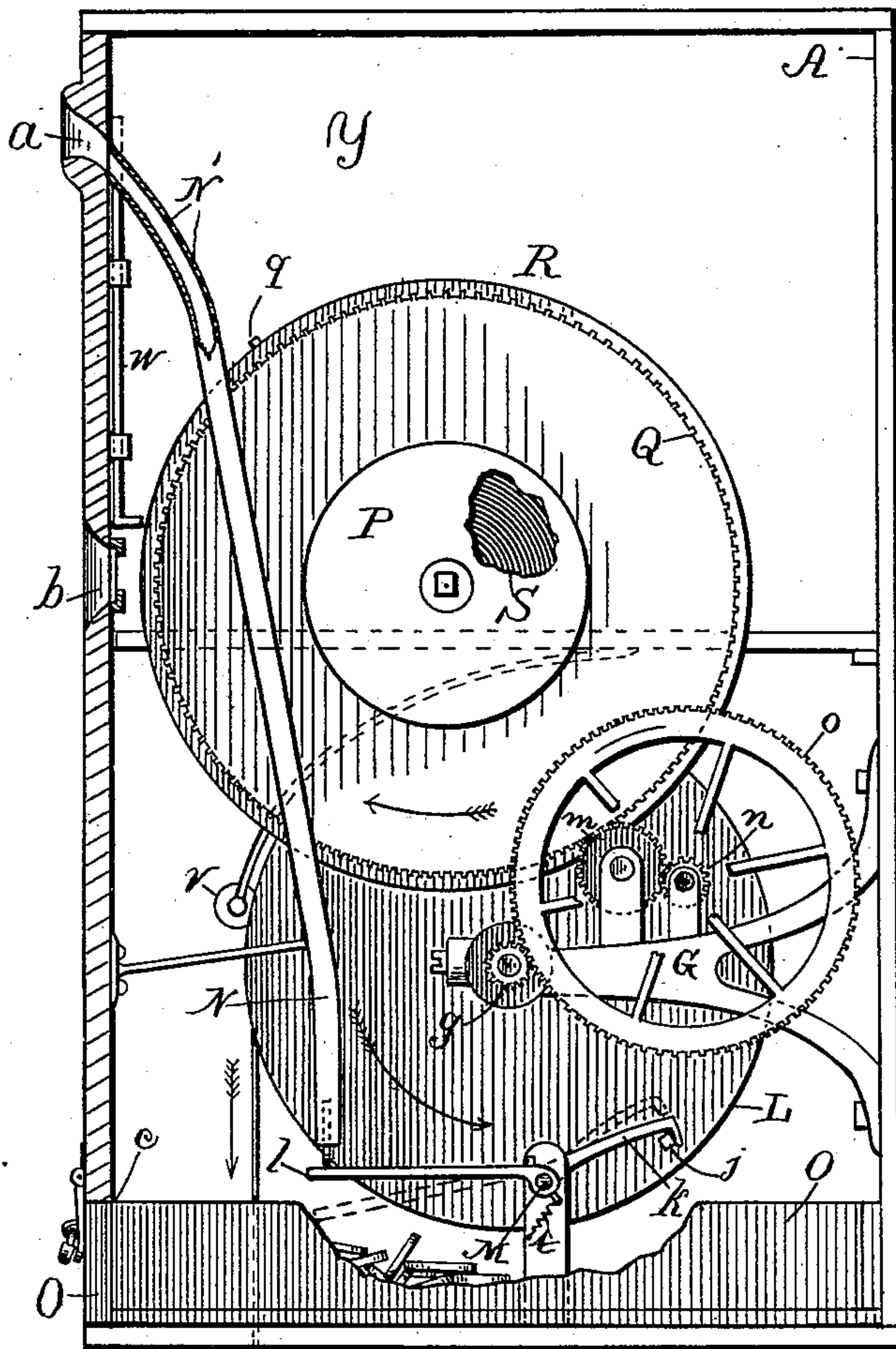


Fig- 5-

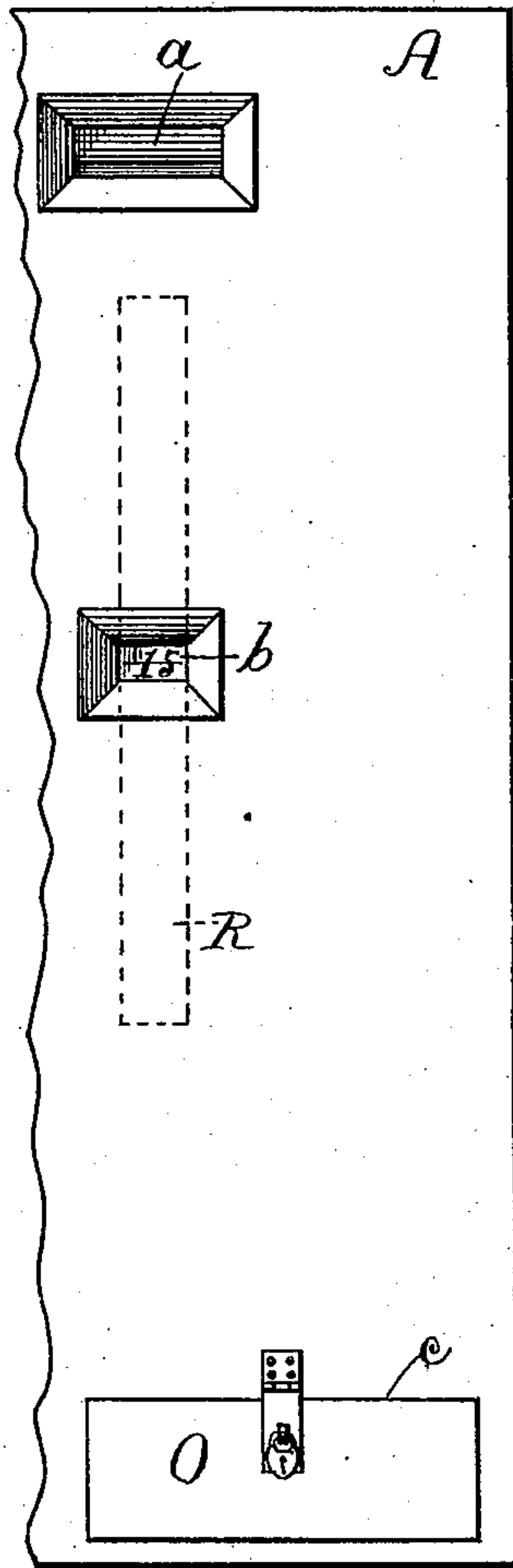


Fig- 6-

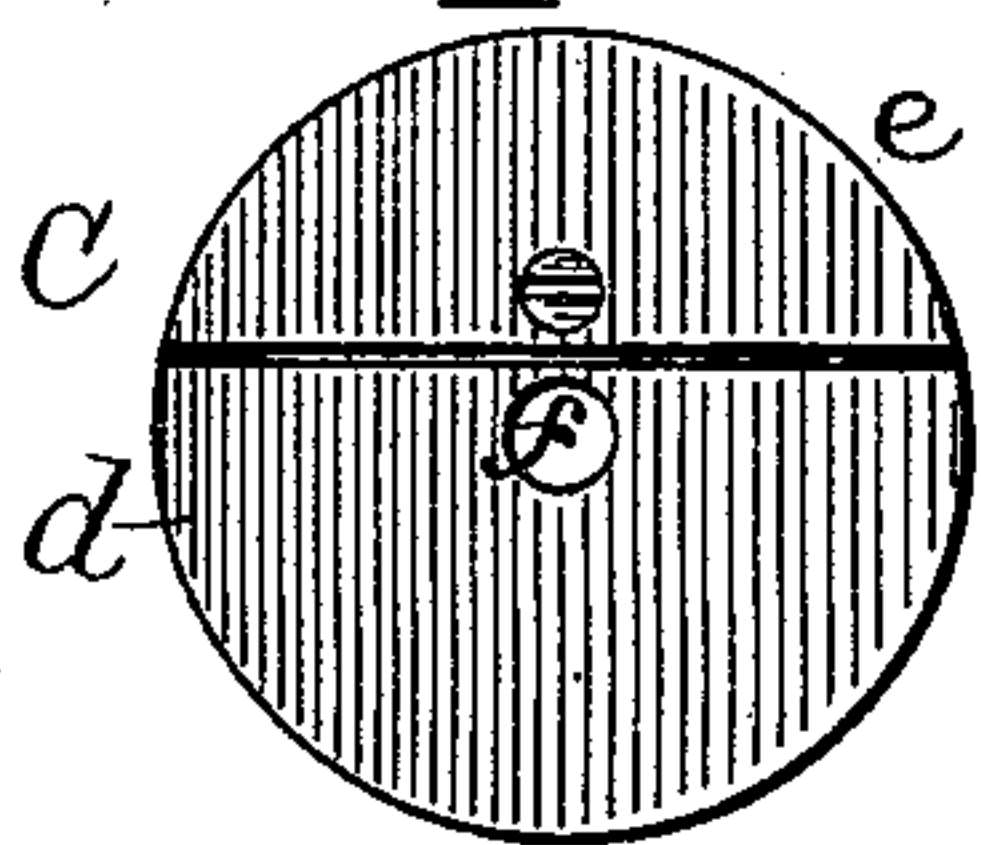
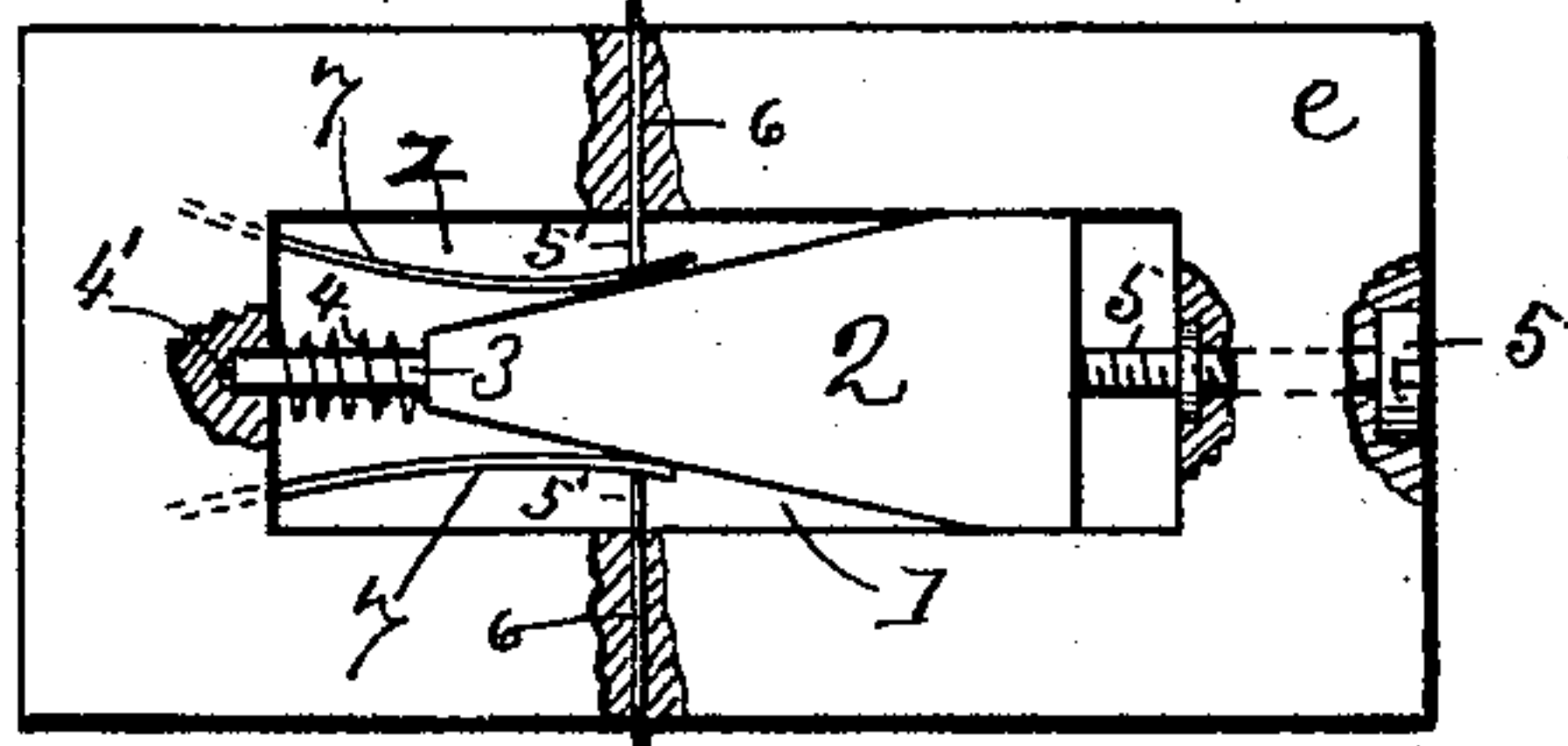


Fig- 7-



WITNESSES

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his Atty.



# UNITED STATES PATENT OFFICE.

FRANK E. HOUSH, OF BRATTLEBOROUGH, VERMONT.

## TOILET-PAPER SLOT-MACHINE.

SPECIFICATION forming part of Letters Patent No. 471,705, dated March 29, 1892.

Application filed December 8, 1891. Serial No. 414,366. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK E. HOUSH, a citizen of the United States, residing at Brattleborough, in the county of Windham and State of Vermont, have invented certain new and useful Improvements in Toilet-Paper Slot-Machines; 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 appertains to make and use the same.

This invention relates to improvements in coin-operating machines, in which by dropping a coin into a prepared receiver the operating mechanism is unlocked, thereby causing the delivery of a specified article to the customer.

The objects of my invention are to provide an automatic delivery of a specified quantity of toilet-paper for each coin deposited in the machine, to record the number of coins deposited and the number of pieces of paper delivered, and to give notice when the paper is out and to prevent the introduction of any coin when there is no paper to deliver. These objects I attain by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the interior of a machine embodying my invention. Fig. 2 is a detail view of the reciprocating screw and guide separated. Fig. 3 is an enlarged detail of a modification of the same. Fig. 4 is an interior end view showing the operating mechanism. Fig. 5 is an elevation of a portion of the outside front of the machine. Fig. 6 is an end view of the bobbin upon which the paper roll is carried. Fig. 7 is an interior view of the bobbin, showing roll-holder.

A designates the box or casing, which may be constructed of iron or wood, as preferred, and of rectangular form, and provided with three openings *a b c* on its front side and suitable doors on any of its sides.

B is a roll of paper mounted on a tubular piece of pasteboard of such diameter as to be capable of sliding snugly over a central core or bobbin C. Bobbin C is made in length equal to the width of the paper roll and of about two inches diameter, and is divided longitudinally into two unequal parts

*d e*, the former of which is perforated from end to end, as seen at *f* in Figs. 1 and 6, to fit upon the shaft D. The part *e* of bobbin C is recessed in its central portion (shown at 1, Fig. 7) to receive a wedge-shaped sliding piece 2, which is provided at its smaller end with a projecting pin 3 and a spiral spring 4. Said pin is held in place centrally in a hole or socket 4', and spring 4 pushes against the small end of wedge 2. At the larger end of wedge 2 a set-screw 5 abuts. By means of screw 5 and opposing spring 4 wedge 2 may be moved longitudinally in its recess 1.

5' 5' are pointed pins passing through lateral holes 6 6 in portion *e* of bobbin C. Pins 5' are secured on their inner ends to flat springs 7, which are fastened in the recess, so as to let their free ends retract pins 5 when wedge 2 is moved away from said springs 7.

Shaft D is of peculiar construction. On its outer end it carries a small pinion *g*. At about three-quarters of an inch from the pinion is a right and left hand continuous helical groove E, which in the present illustration is adapted to move the shaft and paper roll to the left during one and a half revolutions of said shaft, and then by a continuous motion of the shaft in the same direction one and a half revolutions the shaft and paper roll are carried toward the right, thus allowing three revolutions of the shaft to take place at each operation of the mechanism. To produce said vibratory or to-and-fro or left-and-right hand motion of shaft D, a long bearing or box F is provided at the right-hand end of said shaft, (shown in Figs. 1, 2, and 3,) supported by a bracket G, or in any suitable way.

Box F is enlarged laterally in its interior part, as shown at *h*, to receive a crescent-shaped guide H, adapted to run in grooves E of shaft D, as shown in Fig. 2.

In Fig. 3 is shown a modification of parts shown in Fig. 2. A yoke H' is provided with two oppositely-placed guiding-pins *i* in the manner of shaft-couplings. Said guide-pins *i* engage with groove E. The upper part of yoke H is provided with a pivot or pin I, which is secured in working position by a perforated screw K, as shown in Fig. 2.



L is a circular plate secured to shaft D, so as to be close up to one end of box F when the device is locked, as shown in Fig. 1. On its outer face plate L is provided with a projecting pin *j*, which is a part of the locking mechanism.

Mounted on suitable standards near the lower part of the machine is a tipping shaft M. Secured to the inner end of said shaft is an arm *k*, its outward end bent downward, so as to engage with pin *j* of plate L, as shown in Fig. 3.

At any convenient part of shaft M is secured an arm *l*, its outer end large enough to cover the bottom of coin-conduit N. Said coin-conduit N is preferably a flattened tube, as herein shown, and is perforated at N', so that wires or other instruments will not follow its course to the coin in the drawer.

O is the coin-receiving drawer, partly broken away in Fig. 3 to show operation of the unlocking device above described.

P is a drum secured to a large gear-wheel on the inner side of gear-wheel Q, and secured thereto is a cylindrical dial-plate R, divided so as to indicate from one division to another that one coin has been dropped into the conduit and one measure of paper freed from the roll.

S is a flat spiral spring of sufficient length and power to run the machine for a given length of time. Said spring S is confined in drum P in the usual well-known manner.

Q, *m*, *n*, *o*, and *g* designate a train of gearing arranged as shown in the drawings and so proportioned as to give shaft D three revolutions (or more or less, as desired) and at the same time to move the indicator-dial R one division for each coin dropped into the coin-conduit.

U is a slot in the bottom of the machine for the delivery of the strip of paper *p*. V is a knife secured near to and in front of the delivery-slot, so that the slip of paper may be cut off by pulling it against said knife.

*v* are roller-weights suspended above the paper roll to keep the paper close to the roll.

W is a sliding shutter operated by a push-pin *q*, secured to the outer edge of recording-dial R in such relation to said shutter that when the paper roll is exhausted shutter W will be pushed upward, closing the coin-inlet and exposing to view the word "Out."

*x* is a ratchet-wheel secured to shaft *r* of gear *o*, and *s* is a pawl secured to box F. Said pawl and ratchet prevent any backward motion of the machine.

Y is a chamber in which to store an extra paper roll or any desired disinfectant.

The operation of my machine is as follows: The bobbin C is prepared to receive the paper roll by turning set-screw 5 so as to permit spiral spring 4 to push wedge 2 upward and cause the retraction of pointed pins 5' 5' within the holes 6 6. Now the bobbin is smooth on its outer surface and the roll of

paper can be slid on. When the paper is on the bobbin, screw 5 is turned so as to force wedge 2 against the inner ends of pins 5' 5', which pushes said pins outwardly into the pasteboard core of the paper roll, securely holding bobbin and paper roll together. The machine having been provided with a roll of paper on shaft D, dial R turned to zero, and the mainspring wound, it is ready for use. We then drop a suitable coin in the conduit, which falls upon arm *l*, causing shaft M to tip downward, and locking-arm *k* is thrown upward out of engagement with detent *j* on plate L, thus releasing the mechanism. By means of the train of gears above described the paper roll is made to describe three revolutions. While doing this the helical groove E, in combination with yoke H, causes plate L, with its detent *j*, to get out of contact with the locking-lever during the three revolutions of the bobbin-shaft, and at the end of three revolutions the mechanism is again locked by arm *k* and pin *j* coming into locking position. Arms *k* and *l* are returned to their normal position by a spring *t*.

I claim—

1. In a machine for automatically furnishing toilet-paper, the combination of a paper roll working upon a vibrator, a dial with a projecting pin on the outside thereof, a lever firmly fastened to a crank, a spring attached to push the crank back to its normal position, a tube for directing the coin, said tube having in its first bend perforations to prevent a wire or other instrument being forced down to the lever, a dog to check the backward movement of machine, drop-rolls to support paper as it leaves the machine, and a knife-edge upon which to tear off the paper, substantially as described.

2. In a machine for automatically furnishing toilet-paper, the combination of a coin-operating device whereby the machine is unlocked by the dropping of a coin, a stop on the dial, connected with the paper roll to start the machinery, a spring attached to a train of gears, a vibrator which gives the paper roll the desired number of revolutions and brings it back to its starting-point and against the back, a registering-dial with marks on the edge or side thereof indicating the number of coins deposited and the number of pieces torn from the roll, and a sliding door to close the coin-tube at its mouth when the paper is exhausted or when the dial has made a single turn.

3. In a machine for furnishing, automatically, toilet-paper from a roll, the combination of a roller, weight, spring, and gear device to turn the same after being unlocked by the dropping of a coin, a registering dial or wheel to tell how much of the paper is used, a coin-tube for directing the coin to the lever, so perforated that wires or other instruments cannot be made to follow it, a lever firmly fastened to a crank with a projecting



pin or end, a spring near the end opposite  
where the coin drops, a returning screw or  
vibrator, a half-circular yoke to give the de-  
sired number of revolutions to the paper roll,  
5 a dog to check the backward movement of the  
machine, and an adjustable core-holder to se-  
cure the paper firmly on the spindle of the  
machine, substantially as described.

In testimony whereof I affix my signature in  
presence of two witnesses.

FRANK E. HOUSH.

Witnesses:

WILLIAM S. NEWTON,  
C. FLANAGEN.