No. 614,618. Patented Nov. 22, 1898.

M. B. MILLS.

COIN OPERATED VENDING MACHINE.

(Application filed May 7, 1898.)

(No Model.) 5 Sheets—Sheet 1.

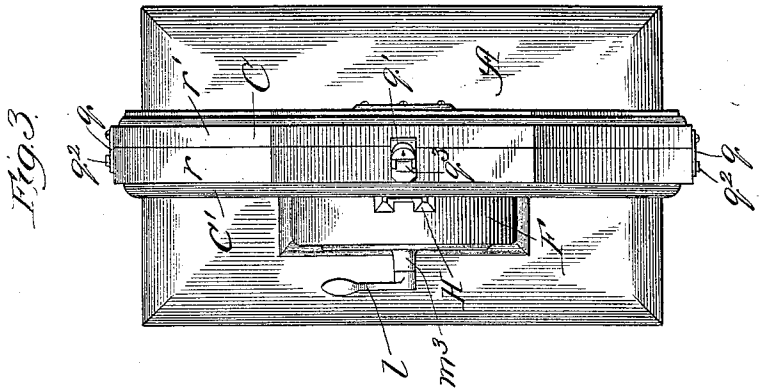


Fig. 3.

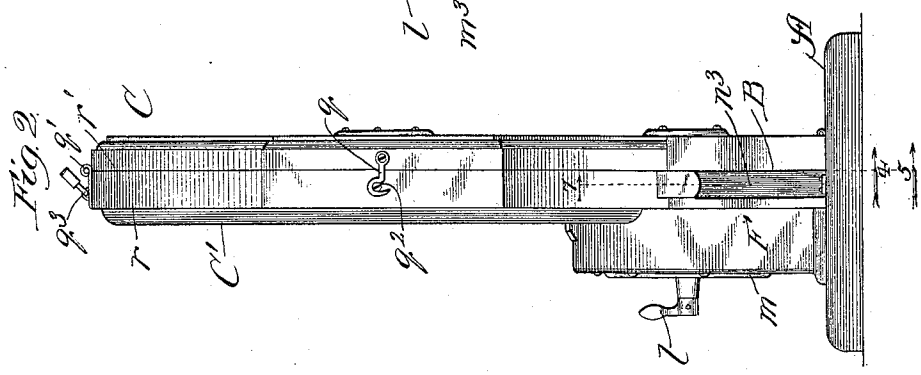


Fig. 2.

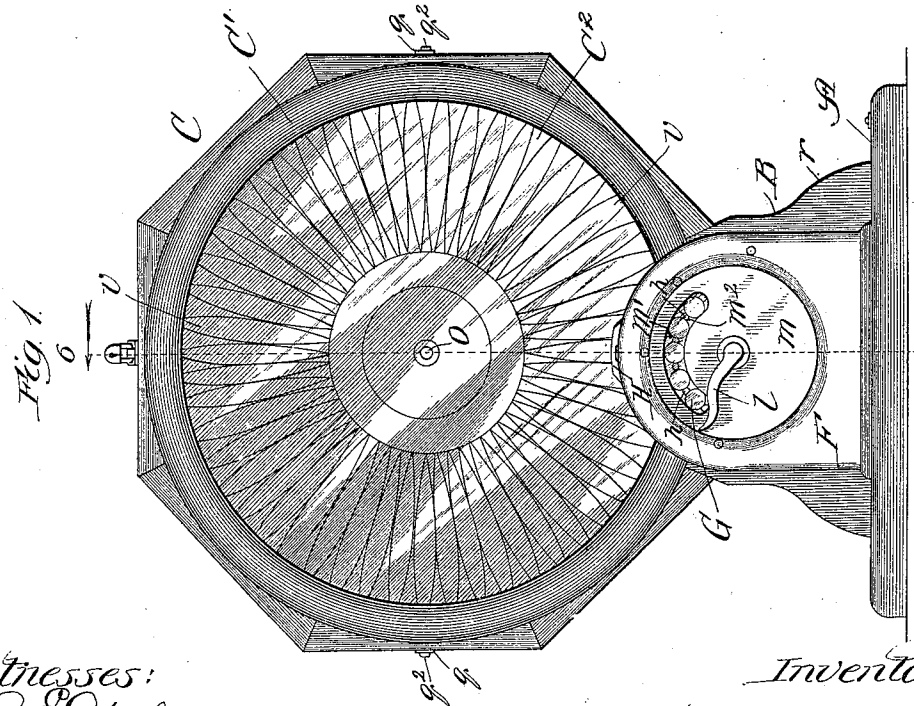


Fig. 1.

Witnesses:
Chas. E. Gaylord,
Fitz S. Otto

Inventor:
Mortimer B. Mills,
By Dyrenforth & Dyrenforth,
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 614,618. Patented Nov. 22, 1898.

M. B. MILLS.

COIN OPERATED VENDING MACHINE.

(Application filed May 7, 1898.)

(No Model.) 5 Sheets—Sheet 2.

Fig. 3.

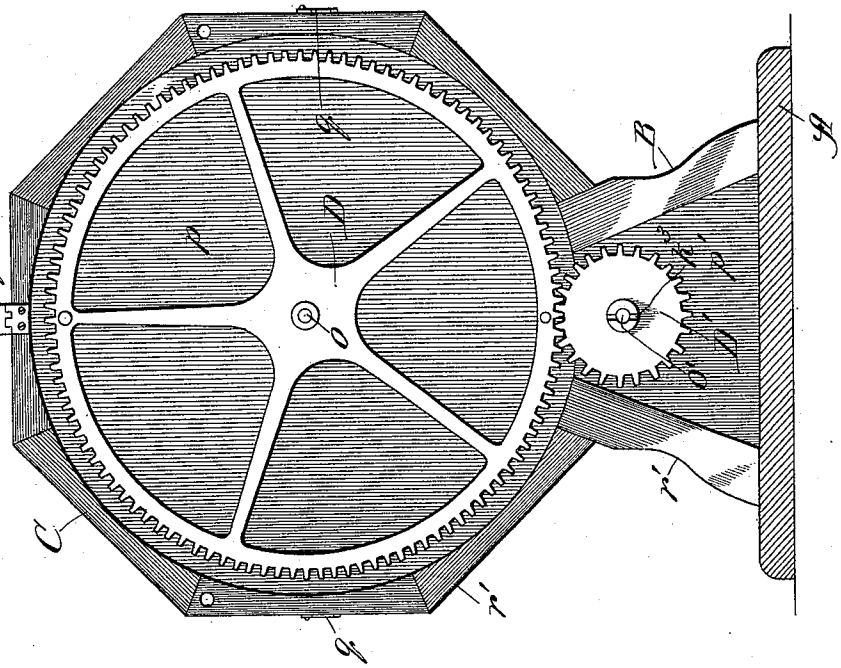
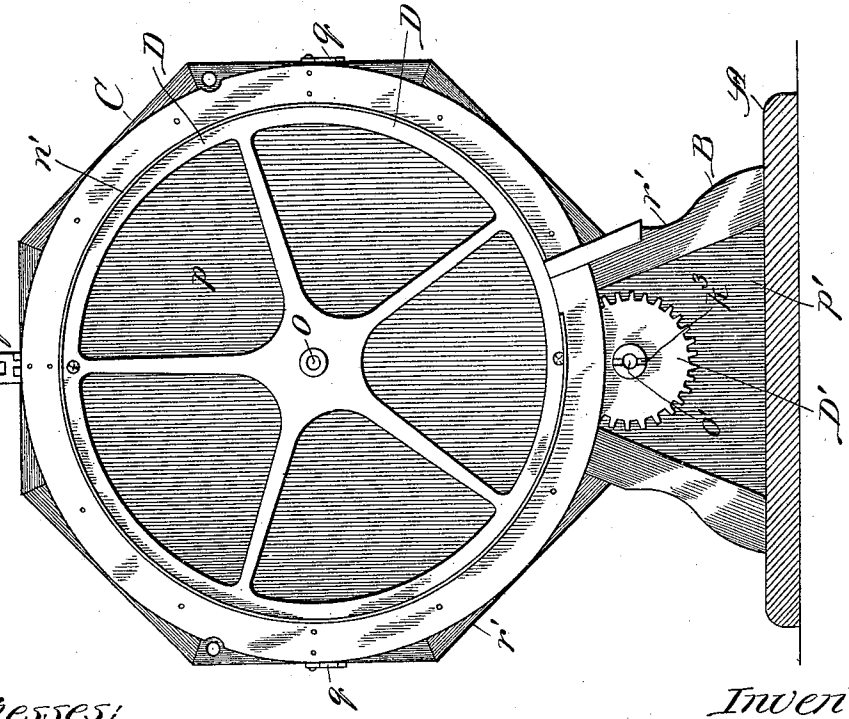


Fig. 4.



Witnesses:
Chas. E. Gaylord,
Lutz L. Mills

Inventor.
Mortimer B. Mills,
By Dyrenforth & Dyrenforth,
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 614,618. Patented Nov. 22, 1898.

M. B. MILLS.

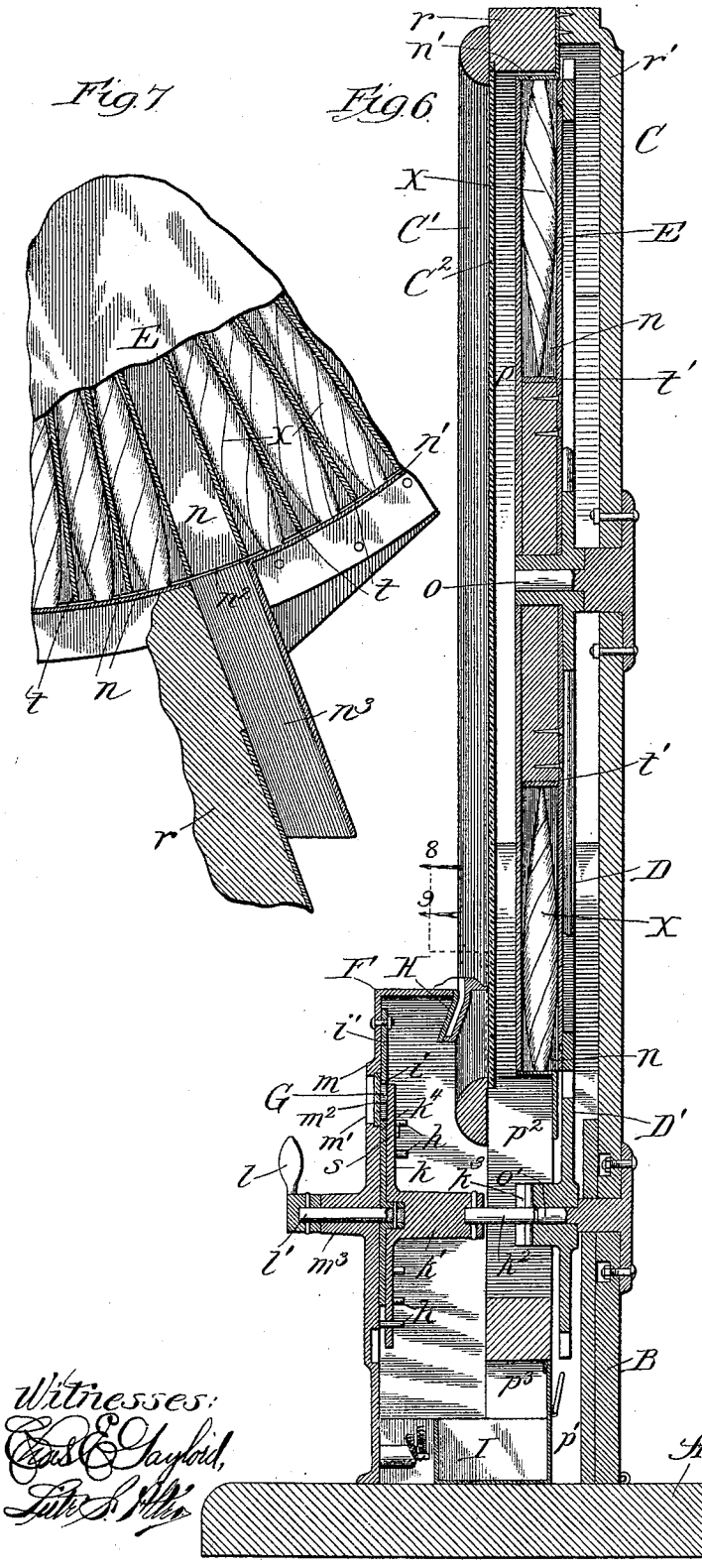
COIN OPERATED VENDING MACHINE.

(Application filed May 7, 1898.)

(No Model.) 5 Sheets—Sheet 3.

Fig. 7

Fig. 6



Witnesses:
Chas. E. Gaylord,
Luther S. Mills

Inventor:
M. Mortimer B. Mills,
By Dyrenforth & Dyrenforth,
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 614,618. Patented Nov. 22, 1898.

M. B. MILLS.

COIN OPERATED VENDING MACHINE.

(Application filed May 7, 1898.)

(No Model.) 5 Sheets—Sheet 4.

Fig. 9.

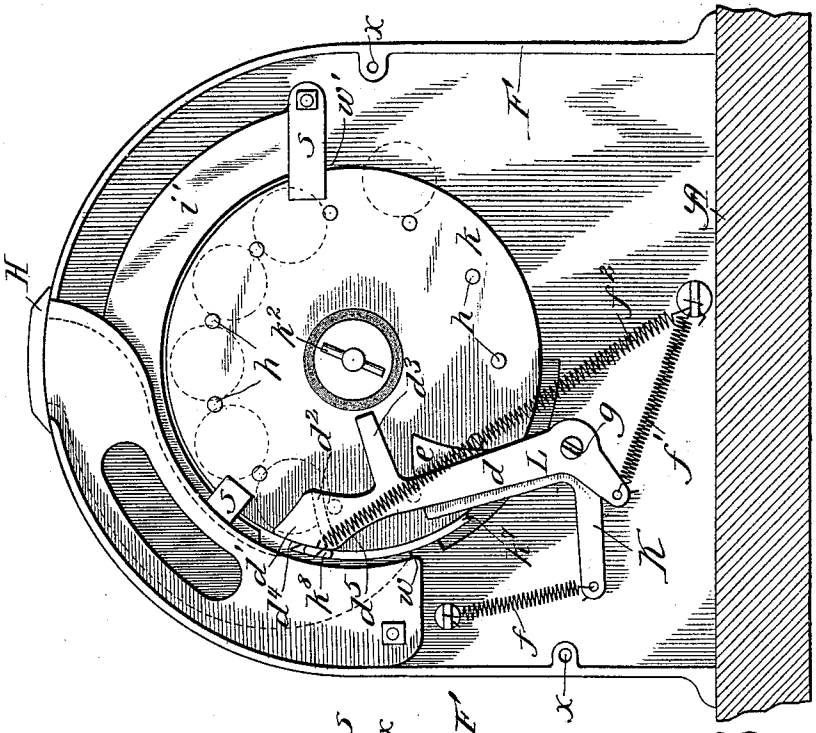
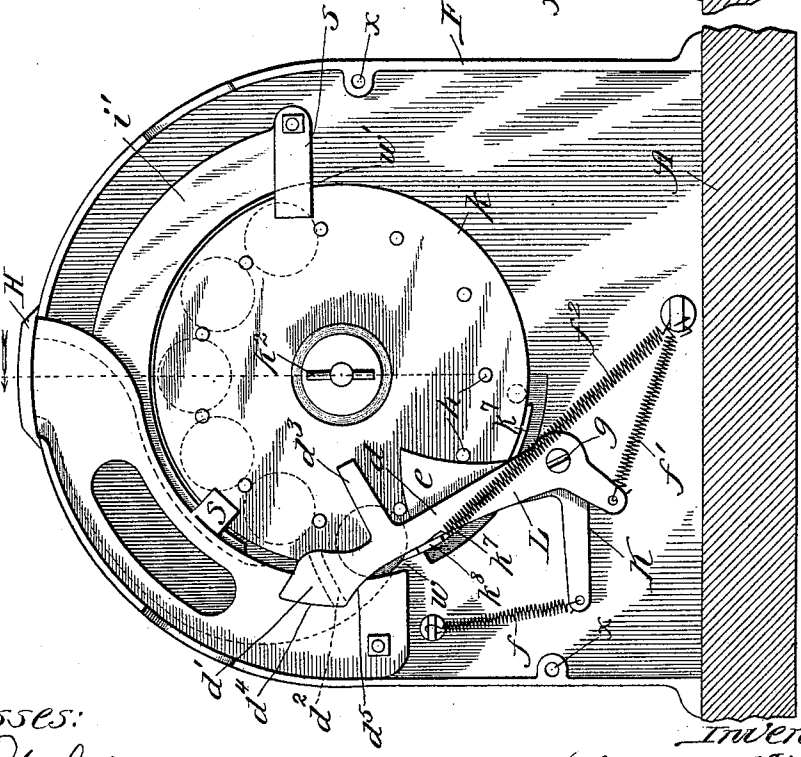


Fig. 8.



Witnesses:
Chas. E. Gaylord.
Peter S. Wilson

Inventor:
Mortimer B. Mills,
By Dyrenforth & Dyrenforth,
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 614,618. Patented Nov. 22, 1898.

M. B. MILLS.

COIN OPERATED VENDING MACHINE.

(Application filed May 7, 1898.)

(No Model.) 5 Sheets—Sheet 5.

Fig. 11.

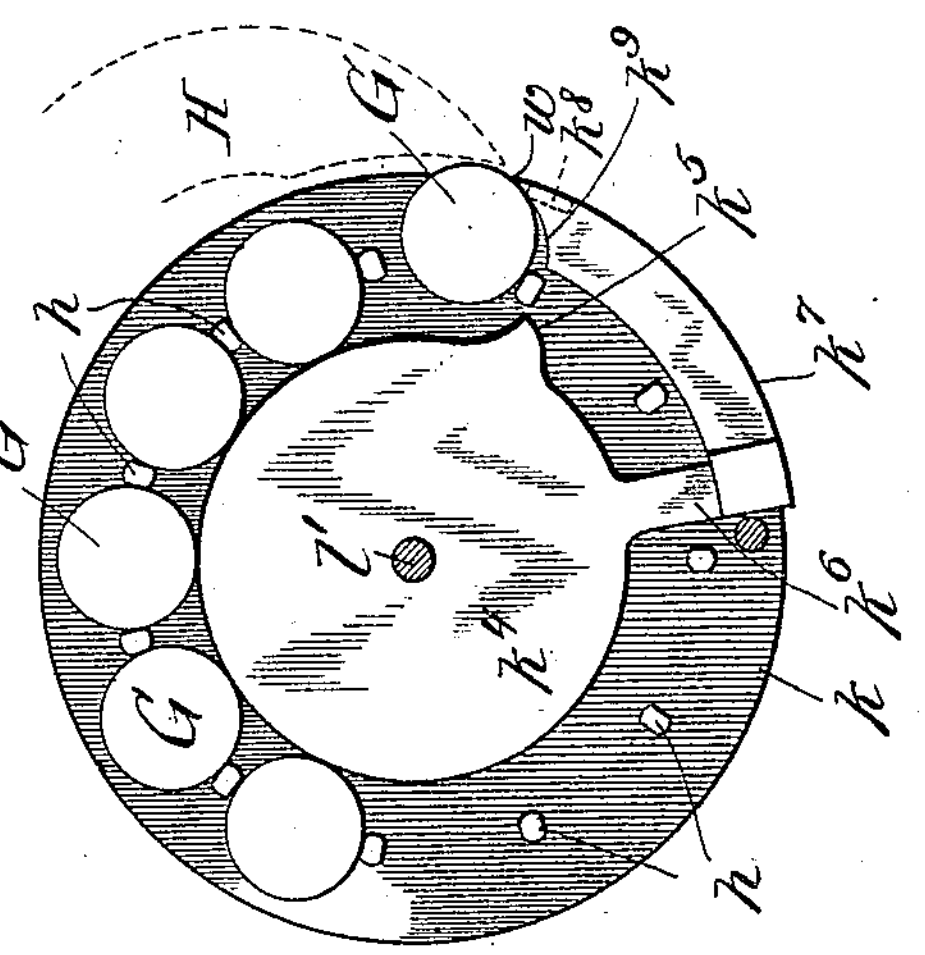
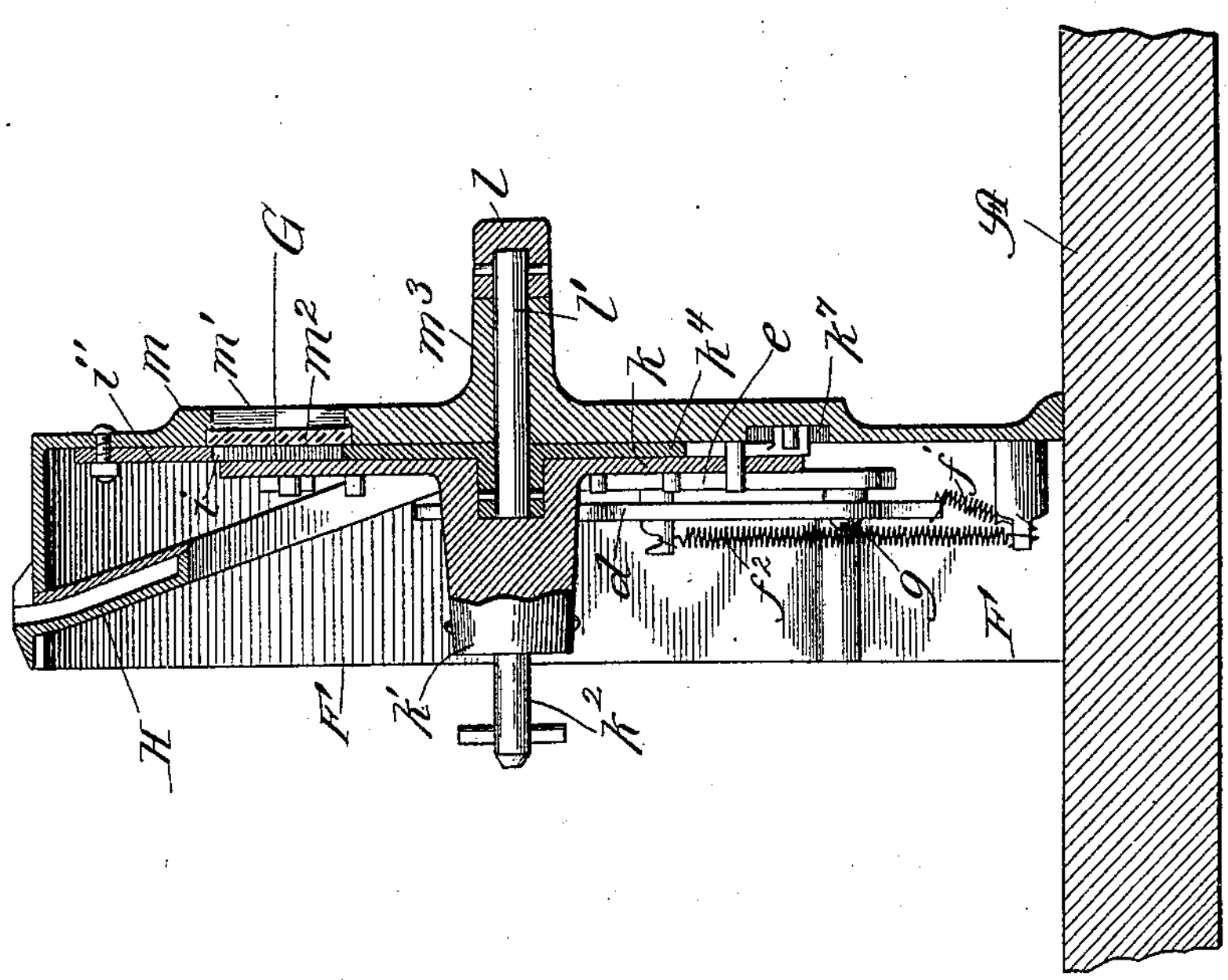


Fig. 10.



Witnesses:

Chas E. Gaylord,

Lute S. Alter.

Inventor:

Mortimer B. Mills,

By Dyrenforth and Dyrenforth,

Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MORTIMER B. MILLS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE MILLS NOVELTY COMPANY, OF SAME PLACE.

COIN-OPERATED VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 614,618, dated November 22, 1898.

Application filed May 7, 1898. Serial No. 680,046. (No model.)

To all whom it may concern:

Be it known that I, MORTIMER B. MILLS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Coin-Operated Vending-Machines, of which the following is a specification.

My invention relates to an improvement in the class of vending-machines in which the articles to be sold are contained in the machine subject to delivery by mechanism which is normally inoperative and which may only be rendered operative through the medium of an inserted coin of predetermined denomination representing the purchase price of the article sought to be delivered.

My improved machine may be used for vending any of various articles, and may, without departure from my invention, be adapted for different articles by changing the forms of parts to those best suited for the particular purpose. I have more particularly devised the present machine, however, for cigars, and for that reason and to avoid prolixity the following description is confined to the machine as especially adapted for that purpose and it is so shown in the accompanying drawings, in which—

Figure 1 shows the machine by a view in front elevation. Fig. 2 is a side view of the same; Fig. 3, a plan view; Fig. 4, a section taken at the line 4 on Fig. 2 and viewed in the direction of the arrow; Fig. 5, a section taken at the line 5 on Fig. 2 and viewed in the direction of the arrow, but omitting the circular confining-flange hereinafter referred to; Fig. 6, a transverse vertical section taken at the line 6 on Fig. 1, viewed in the direction of the arrow and enlarged; Fig. 7, a broken section taken at the line 7 on Fig. 2, viewed in the direction of the arrow and enlarged, showing the discharge-chute through which the delivery is effected; Fig. 8, a section taken at the line 8 on Fig. 6 and viewed in the direction of the arrow; Fig. 9, a section taken at the line 9 on Fig. 6 and viewed in the direction of the arrow; Fig. 10, a section taken at the line 10 on Fig. 8 and viewed in the direction of the arrow; and Fig. 11, a sectional view showing the rotary coin-operated disk and the disk for actuating it in front elevation.

A is a base from which there rises the main case of the machine, comprising a neck B, surmounted by a hollow head C, shown as of general disk shape though of angular contour with a circular face C′, covered with glass C^2. The head and neck, both of which may be of wood or any other suitable material, are formed in two corresponding front and rear sections r and r', the front section being rigid on the base and the rear section being hinged to the base immediately behind the front section to close against it when raised, in which position it may be fastened by side hooks q and a top hasp q', respectively engaging pins q^2 on the sides of the front section and a staple q^3 on the top thereof. The head portion of each section r and r' contains a circular chamber, and the neck portion of the section r' is also chambered, whereby when the sections are closed together they form the two intercommunicating head and neck chambers p and p'. The section r of the neck B contains a U-shaped recess p^2 and below the same a rectangular opening p^3. From the center of the back of the head C there projects horizontally into the chamber p a stud o, on which is journaled at its hub a cog-wheel D. A stud o' projects into the chamber p' from the back of the neck B, and has journaled upon it in said chamber a pinion D′, meshing with the cog-wheel D, to which it bears a certain proportionate relation. As shown, the proportion is four to one.

E is a container or box for the articles to be vended—in the present case cigars X. I form the box of pasteboard, though it may be composed of any other suitable material. It is of disk shape, being constructed of two disks spaced apart at equal intervals by radial partitions t into chambers n, each of which should be provided with a base t' at the proper depth. The box E is centered on the hub of the wheel D, to which it is fastened to revolve therewith. The cigars in the chambers n are confined against egress from the open ends in the periphery of the box by a circular-flange n', extending about the circumferential plane of the box from the rear

section r' of the head C. At a suitable point in the circular confining-flange n' is an opening n^2, the width of which should correspond with the width of each chamber n, and from which there extends a discharge-chute n^3 out through and along the side of the neck B. Thus whichever chamber in the box is brought coincident with the opening n^2 will be emptied of the cigar it contains, which will discharge out of the machine through the chute n^3 for delivery.

In the use of the box E separately from the vending-machine for the supply of the articles to be vended the periphery should be surrounded with means, such as a readily-removable band or strip of paper or the like, (not shown,) to close the mouths of the chambers n for confining therein their contents.

For the purposes of ornamentation and to indicate the contents and suggest the use of the box E its face has marked upon it, in radial series corresponding with the chambers n, representations of the contents—thus, of cigars, as shown at v in Fig. 1.

The coin-controlled delivery mechanism is contained in a case F, fastened to the base A in front of the neck B and covering the pinion D'. As shown, the case F is of general arch shape, open or uncovered at its base and back, at which latter it is applied to the front side of the neck-section B to cover the recess p^2 and opening p^3, being fastened to the neck by screws entering internally-threaded lugs $x\,x$ on the opposite inner sides of the case. The front of the case is shown as having a disk-shaped section m stamped in it to bulge it out or chamber it, and this section contains an arc-shaped slot m', covered with glass m^2 and serving the purpose hereinafter described. From the center of the outer face of the section m there projects a hollow nipple m^3 affording a bearing for a rotary stem l', carrying at its outer end a handle l. At its inner end the stem l' carries loosely a disk k, provided with a central protuberance k', having a T-shaped rearward-projecting stem k^2, the cross-head of which coincides with and is adapted to enter, through the recess or opening p^2, a transverse slot k^3 in the face of the hub of the pinion D'. Between the disk k and the front of the case F the stem l' carries, to rotate with it, a narrower disk k^4, having a curved projection k^5 on its periphery and a radial arm k^6, terminating at its outer end, at the periphery of the disk k, in a laterally-extending curved finger k^7, provided at its extremity with a stud or short bar k^8, extending at a right angle to the finger across the periphery of the disk k. The end of the finger k^7 is concaved, as shown at k^9 in Fig. 11, to supplement the concave curve in the projection k^5, adjacent to which it reaches. The disk k fits about the circular depression afforded by the section m and is confined in place at points near its periphery by clips s. Above the disk k is fastened to the inner surface of the front of the case F an arc-shaped bar i', conforming to the arc described by the disk and affording between the bar, the periphery of the disk k^4, the disk k, and the disk-shaped section m (including the portion thereof covered by the glass m^2) an arc-shaped coin-chamber i, having its inlet at w adjacent to one end of the bar i' and its outlet at w' adjacent to the opposite end of the bar. At equal intervals about the disk k it carries, beyond the disk k^4, pins h, passing through it to project from its opposite sides, and the interval between the pins (which should, as shown in Fig. 11, each be flattened on the opposite sides of the part which projects beyond the front side of the disk k into the chamber i) to correspond with the diameter of the coin G for operating the machine.

H is a coin-chute extending from the top of the case F inside the latter down to the inlet w to the coin-chamber i, into which the chute discharges from the side, and I is a removable coin receptacle or drawer which fits in the opening p^3 and may be withdrawn on lowering the section r' of the main case on its hinges.

K is a bell-crank lever fulcrumed at its angle on a bearing g, projecting from the front of the case and controlled by a spring f, connected with one arm of the lever. The other arm e of the bell-crank lever is expanded toward its end and curved convexly at its extremity and on one edge and concavely on the opposite inner edge. The arm e projects normally between its extremity and concave edge between the pair of pins h in its path on the disk k. Another bell-crank lever L, also fulcrumed at its angle on the bearing g, is controlled by a spring f', connected with one arm. The other arm d of this bell-crank terminates in a head d', having a cam edge d^4, below which the neck portion should be somewhat curved, as shown at d^5. Across the head d' there extends a stop-flange d^2, normally adjacent to a pin h, and from one edge of the arm d there projects a stop-finger d^3 to engage with the protuberance k' for limiting the throw of the lever.

The disk k^4 is controlled to return it to normal position when the handle l is released by a spring f^2, connected with the stud or bar k^8 on the finger k^7.

The operation is as follows: By turning the cigar-containing rotary box E each time the mouth of one of its chambers n passes the opening n^2 in the circumferential flange n' a cigar X discharges from that chamber and is delivered through the chute n^3. To turn the box, however, the wheel D must be turned by rotating the pinion D', and to rotate the pinion the disk k must be turned. The disk k, however, being loose on its bearing, will not rotate by operating the handle l to turn the disk k^4 unless there be provided a connection between these two disks. This connection is afforded by a coin G in the following-described manner: A coin of proper denomination representing the purchase-price

is inserted into the slot leading to the chute H, down which it rolls, passing into the glass-covered opening m', in which any bogus or improper coin may be easily detected by being presented to view. At the inner side of the chute, near its lower end, the coin rolls out into the chamber i at the entrance w, where it is in the path of the concaved end of the finger k^7 (see Fig. 11) and concaved edge of the projection k^5 on the disk k^4. By then turning the operating-handle l the disk k^4 and with it the finger k^7 are turned, causing the projection k^5 and finger k^7 to bear against the coin in their path and force it against the pin h ahead of it on the disk k. Thus the disk k is turned the extent provided for by the throw of the handle and correspondingly turns the pinion D', and thus the wheel D, to turn the circular box E till one of its chambers n coincides with the chute n^3 and is evacuated through it.

The stud or bar k^8 on the end of the finger k^7 always extends across and bears against the outer edge of the arm d of the bell-crank L, and in the normal position of the parts this stud or bar is in the path of the arm e of the bell-crank K and obstructs it against movement from the pair of pins h, between which it protrudes, whereby that arm serves normally as a lock to prevent accidental turning of the disk k. When, however, after inserting the coin, the finger k^7 is turned by turning the disk k^4, the stud k^8 is removed from the path of the bell-crank arm e to enable the turning of the disk to turn it on its fulcrum out of the path of the pin h, which rides against its concave edge and pushes the arm e away, and as soon as that pin has cleared the arm e the controlling-spring f returns said arm between that pin h and the one immediately behind it. Meantime, however, the stud k^8 will have ridden along the outer edge of the arm d of the bell-crank L, and by the time it has cleared the arm e it will have encountered the curved neck portion d^5 of the arm d, thereby turning the latter inward (toward the center of the disk k) and bringing the stop-flange d^2 on the head of that arm over and in the path of the adjacent pin h. Thus after the arm e has been cleared by the pin h bearing against it and while that arm is springing back into place it cannot by the jar or by bearing against the under side of that pin turn the disk k more than the distance of the interval between a pair of the pins, since the stop-flange d^2, being then over a pin and normally adjacent to one, will stop further turning of the disk. From the neck d^5 the stud k^8 rides up the cam edge of the head d^4. The finger d^3, by engaging the protuberance k', arrests the throw of the arm d to prevent such an extent thereof as would cause the stop-flange d^2 to clear the pin h it is designed to stop.

As will be seen, each coin advances in the chamber i only one step, as it were, by each operation of the machine, and it takes several operations to advance a coin from the inlet w to the outlet w', from which latter it drops into the receptacle I. As one coin follows the other through the coin-chamber, however, an array of them may, and more particularly the last one inserted may always, be seen through the detective-slot m'.

On releasing the handle l the spring f^2 returns it with the disk k^4, arm k^6, finger k^7, and stud k^8 to their normal positions and permits the spring f' to return the bell-crank lever L to its normal position. Then by inserting another coin G and turning the handle l the operation is repeated to bring another cigar-containing chamber in the box E coincident with the discharge-chute n^3, and so on till all the chambers in the box have been emptied, when a fresh box may be substituted on the wheel D for the empty one. This change may be conveniently effected on unhooking and lowering the rear hinged section of the main case.

While I have deemed it necessary to describe minutely the details of my improved machine, owing to the somewhat complicated nature of the operations of the mechanism, I do not limit myself to such details, as they may be variously changed without departure from my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a vending-machine, the combination of the main case having a delivery-chute and containing a rotary support for the box of articles to be vended by discharging them at said chute in the rotation of said support, a rotary gear engaging said support to drive it, a case containing a coin-chute, a rotatably-supported disk engaging said gear and carrying pins h, an oscillatory disk having an operating-handle, a coin-chamber formed with said disks, into which said pins project and having an inlet communicating with the discharge end of said coin-chute and an outlet, and means connected with said handle-operated disk for engaging a coin at said inlet with a pin h in its path to turn said pin-carrying disk by turning said handle, substantially as described.

2. In a vending-machine, the combination of the main case having a delivery-chute and containing a rotary support for the box of articles to be vended by discharging them at said chute in the rotation of said support, a rotary driving-gear for said support, a case containing a coin-chute through which the inserted coins are exposed to view, a rotatably-supported disk engaging said gear and carrying pins h, an oscillatory disk having an operating-handle, a coin-chamber formed with said disks, into which said pins project and having an inlet communicating with the discharge end of said coin-chute and an outlet and means connected with said handle-operated disk for engaging a coin at said inlet

with a pin h in its path to turn said pin-carrying disk by turning said handle, substantially as described.

3. In a vending-machine, the combination of the main case having a delivery-chute and containing a rotary support for the box of articles to be vended by discharging them at said chute in the rotation of said support, a rotary driving-gear for said support, a case containing a coin-chute, a rotatably-supported disk engaging said gear and carrying pins h, an oscillatory disk having an operating-handle, and a projection k^5 and carrying an arm k^6 provided with a finger k^7 connected with a controlling-spring f^2 and a coin-chamber formed with said disks, into which said pins project and having an inlet communicating with the discharge end of said coin-chute and an outlet, substantially as described.

4. In a vending-machine, the combination of the main case having a delivery-chute and containing a rotary support for the box of articles to be vended by discharging them at said chute in the rotation of said support, a rotary driving-gear for said support, a case containing a coin-chute, a rotatably-supported disk engaging said gear and carrying pins h, an oscillatory disk having an operating-handle and a projection k^5 and carrying an arm k^6 provided with a finger k^7 terminating in a stud k^8 connected with a controlling-spring f^2, a coin-chamber formed with said disks, into which said pins project and having an inlet communicating with the discharge end of said coin-chute and an outlet, a spring-controlled arm e and a spring-controlled arm d having a stop-flange d^2, both said arms being engaged by said stud k^8, substantially as described.

5. In a vending-machine, the combination of the main case having a delivery-chute and containing a rotary support for the box of articles to be vended by discharging them at said chute in the rotation of said support, a rotary driving-gear for said support, a case containing a coin-chute, a rotatably-supported disk engaging said gear and carrying pins h, an oscillatory disk having an operating-handle and a projection k^5 and carrying an arm k^6 provided with a finger k^7 terminating in a stud k^8 connected with a controlling-spring f^2, a coin-chamber formed with said disks, into which said pins project and having an inlet communicating with the discharge end of said coin-chute and an outlet, a spring-controlled bell-crank lever K having the arm e and a spring-controlled bell-crank lever L having the arm d provided with a neck portion d^5 and cam-head d' carrying a stop-flange d^2, both said arms being engaged by said stud k^8, substantially as described.

6. In a vending-machine, the combination of the main case having a delivery-chute and containing a rotary support for the box of articles to be vended by discharging them at said chute in the rotation of said support, and a rotary driving-gear for said support, a case containing a coin-chute, a rotatably-supported disk engaging said gear and carrying pins h, an oscillatory disk having an operating-handle and a projection k^5 and carrying an arm k^6 provided with a finger k^7 terminating in stud k^8 connected with a controlling-spring f^2, a coin-chamber formed with said disks, into which said pins project and having an inlet communicating with the discharge end of said coin-chute and an outlet, a spring-controlled bell-crank lever K having the arm e and a spring-controlled bell-crank lever L having the arm d provided with the neck portion d^5, cam-head d' carrying a stop-flange d^2 and stop-finger d^3, both said arms being engaged by said stud k^8, substantially as described.

7. A vending-machine comprising, in combination, a main case formed of the section r and hinged section r' on a base A, a cog-wheel D journaled in said hinged section and carrying a disk-shaped box E containing chambers n for the articles to be vended, a discharge-chute leading from said case, a pinion D' meshing with said cog-wheel, comprising a case containing a coin-chute H, a rotary disk k engaging said pinion and carrying pins h, an oscillatory disk k^4 having an operating-handle l and a projection k^5 and carrying an arm k^6 provided with a finger k^7 terminating in a stud k^8 connected with a controlling-spring f^2, a coin-chamber i into which said pins project and having an inlet w and an outlet w', a spring-controlled arm e and a spring-controlled arm d having a stop-flange d^2, both said arms being engaged by said stud k^8, the whole being constructed and arranged to operate substantially as described.

MORTIMER B. MILLS.

In presence of—
R. T. SPENCER,
DAN W. LEE.