(No Model.) 3 Sheets—Sheet 1.

S. H. SMITH.

VENDING MACHINE.

No. 494,653. Patented Apr. 4, 1893.

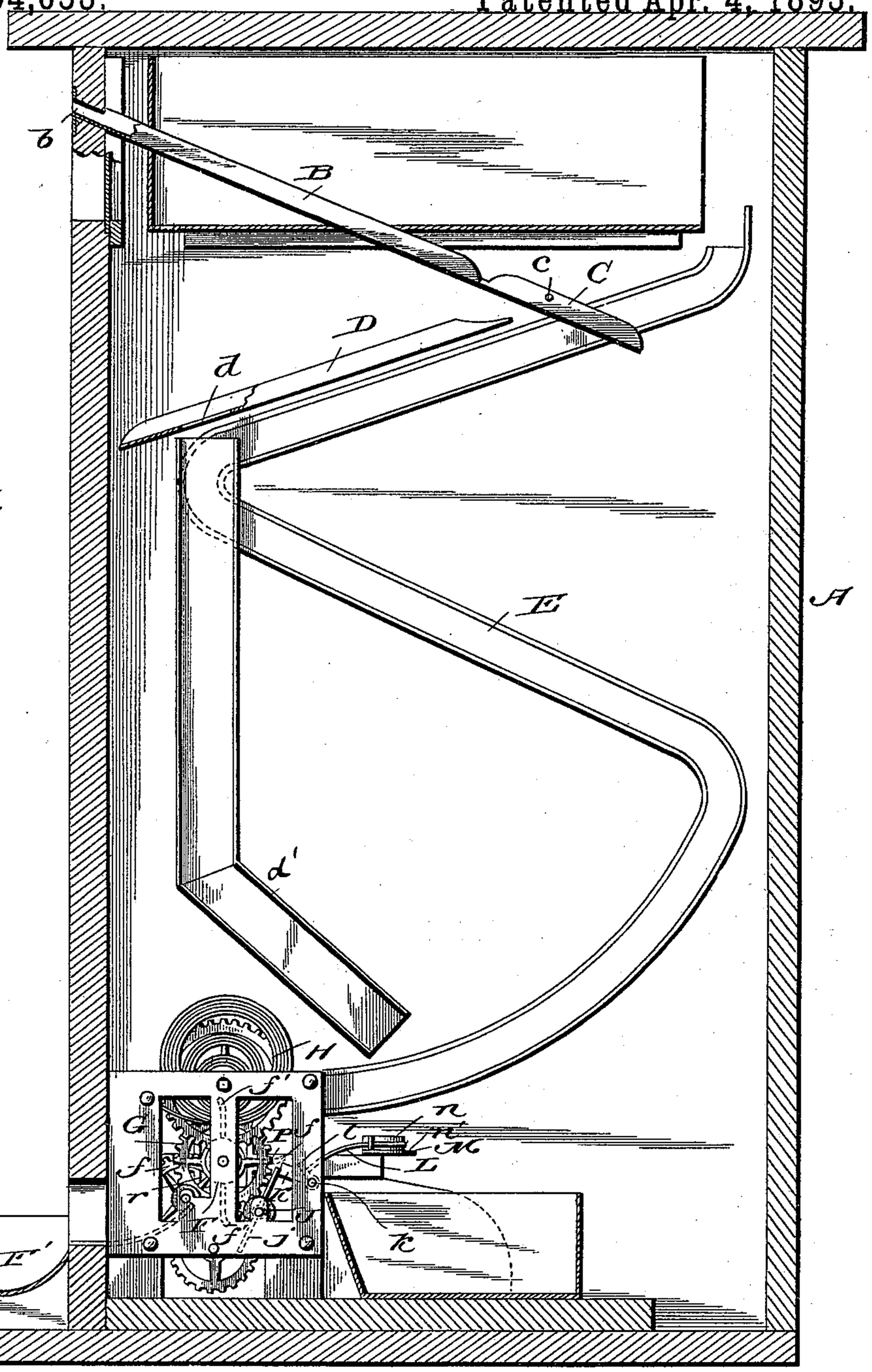

Fig. 1.

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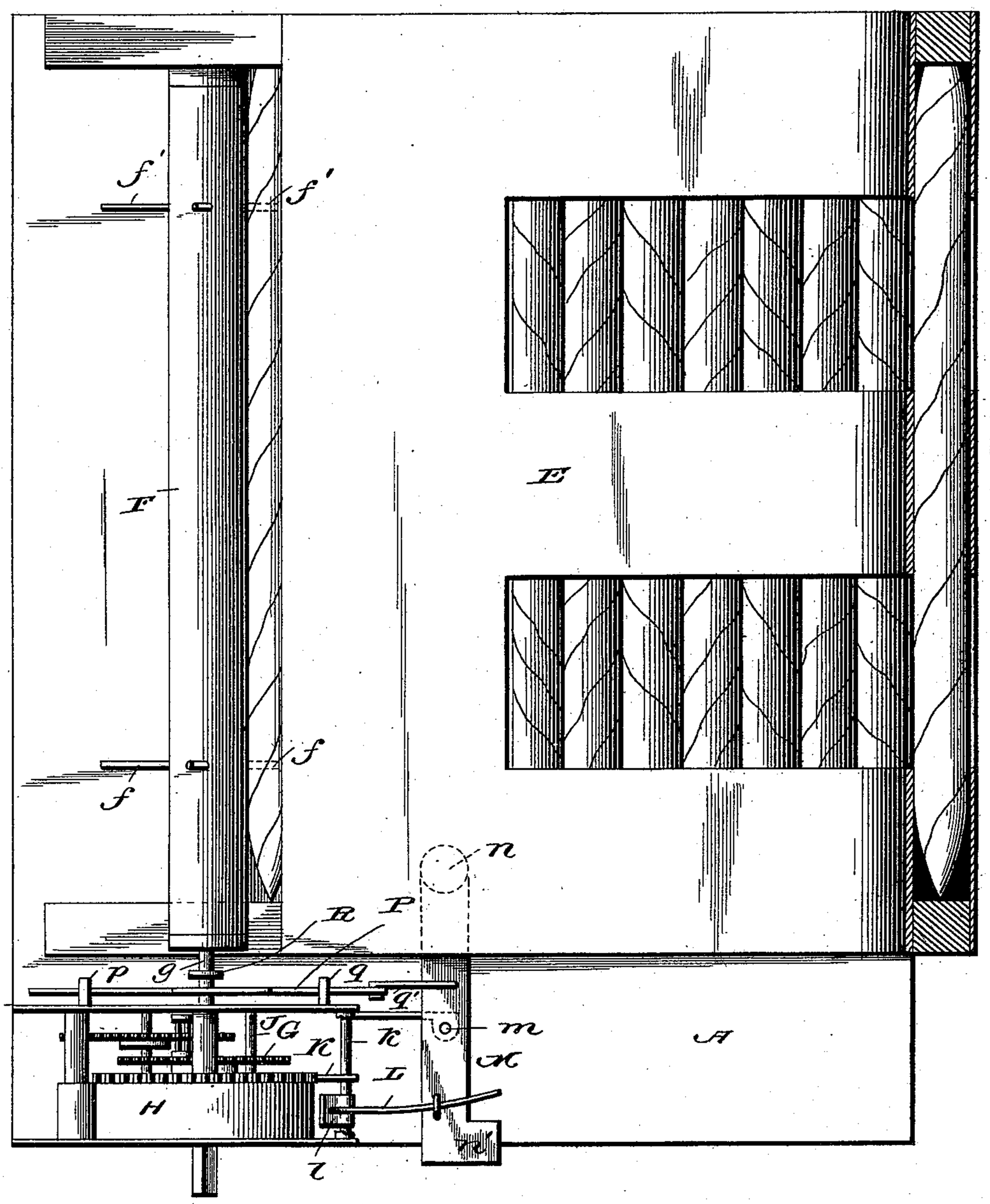
Fig. 2.



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(No Model.) 3 Sheets—Sheet 3.

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Fig. 3.

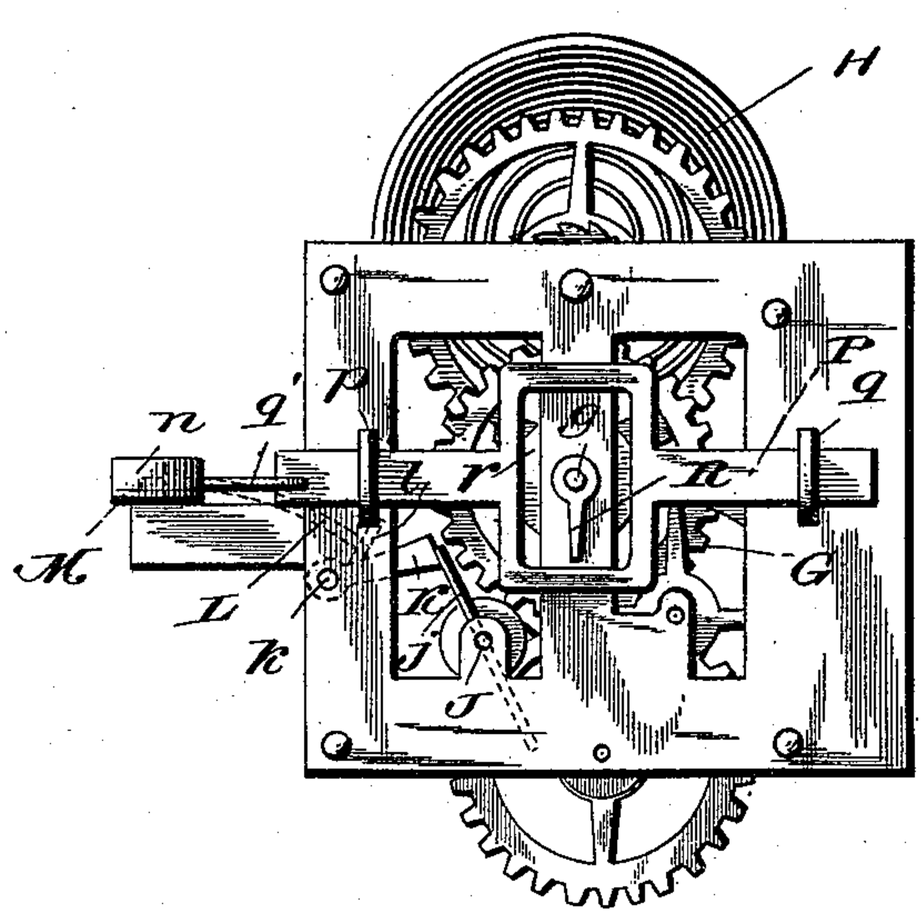
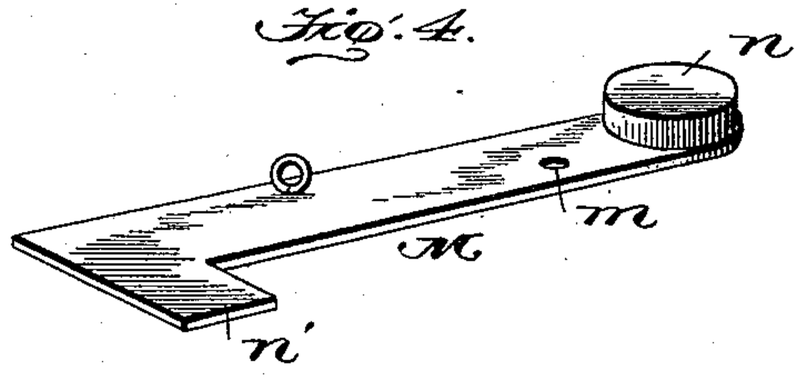


Fig. 4.



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UNITED STATES PATENT OFFICE.

SAMUEL HARPER SMITH, OF REYNOLDTON, PENNSYLVANIA.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 494,653, dated April 4, 1893.

Application filed June 15, 1892. Serial No. 436,807. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL HARPER SMITH, a citizen of the United States, residing at Reynoldton, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Vending-Machines; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My present invention relates to improvements in vending machines of that class designed to automatically deliver from a closed receptacle a cigar, "cheroot," or "stogie," stick confectionery, pencils or the like upon the deposit of a proper coin in a slot in said casing; and among other things my invention has for its objects to provide means which lock or arrest the motion of the delivery mechanism and which can only be released when a coin of the proper denomination, having the requisite thickness and weight, shape and size is deposited on the releasing devices of said delivery mechanism; to provide means which will automatically throw out of the path of said releasing devices any coin which may not be of the proper denomination so that such improper coins will not affect the position of the parts or set in motion the delivery mechanism, and finally to simplify and cheapen the general construction of the machine and render the same efficient and reliable in operation.

To attain the desired objects the invention consists in certain improvements in construction and combination of parts as will be understood from the drawings and description.

The invention further consists in the novel combination of devices and peculiar construction and arrangement of parts which will be hereinafter more fully described and pointed out in the claims.

The invention is fully illustrated in the accompanying drawings, forming a part of this specification, and in which:—

Figure 1 is a side elevation of my vending machine, with one side of the casing omitted, and the walls of the casing in section. Fig. 2 is a top plan view of the machine, with the cover removed. Fig. 3 is an enlarged detail view of the motor mechanism, showing the same in side view and looking at the reverse side from that seen in Fig. 1, and more clearly illustrating the endwise movable bar that returns the coin-controlled lever to normal position, and Fig. 4 is a detail perspective of the coin controlled lever.

Like letters denote like parts in all the figures of the drawings.

A is the casing or shell of my machine, which may be made of the general rectangular form shown in the drawings or of any other suitable form which may be found most convenient or desirable; and in the upper part of the front of the casing I provide the coin receiving slot *b* in which a coin of the proper denomination is to be inserted. The coin deposited in this slot *b* is received upon the upper side of an inclined chute B which extends downwardly and rearwardly from the coin slot; and at the rear end of this first chute B is arranged a tilting transfer pan or table C. This transfer pan is pivoted at an intermediate point of its length to any suitable part of the casing or a suitable support therein, as at *c;* and the heavy rear end thereof is so balanced that the front end of the transfer pan rests against the lower rear end of the chute, such tray or table being turned or tilted to the reverse position when the proper coin strikes its front end so as to transfer such coin to the second inclined chute D, but when a coin of smaller denomination, or which may be lighter in weight than the proper coin, strikes such tray, its weight is not sufficient to tilt the tray and hence the coin will pass over the tray and on into the casing. When, however, a proper coin has operated the tray, it is deposited upon the reversely inclined chute D which is placed beneath and in vertical alignment with the upper chute; and near the lower front end of this second chute is formed a vertical coin slot *d* which is of such diameter that the proper coin will pass through the slot. Below the lower front end of this second chute, and in vertical alignment with the coin slot *d* therein, is provided a vertical coin conduit D′ which is suitably secured in position within the casing, the lower end of said vertical con-

duit being formed or bent into a laterally deflected or inclined elbow d' so arranged that it will convey the proper coin to the releasing devices of the prime moving mechanism presently described.

This machine is more especially adapted for vending one or more cigars, cheroots, or stogies or other article in stick form, and in this embodiment of my invention I provide the irregular or zig-zag trough or conduit E which is placed within the casing A in an upright or vertical position. This trough or conduit E is made hollow so as to contain the cigars or cheroots which are placed therein one after the other, and the upper as well as the lower end of this zig-zag conduit is left open to enable the cigars &c. to be placed in said conduit and to be removed therefrom. Immediately in front of the lower end of this zig-zag conduit, from which end the cigars &c. are discharged, I provide the horizontal delivery shaft F which is suitably journaled in bearings within the casing, such delivery shaft extending across a delivery slot provided in the lower front part of the casing, whereby as the shaft is turned or rotated the cigars will be carried with the same out through the delivery slot and thus discharged from the casing. To enable the shaft to grasp and carry the cigar or cheroot, I provide the same with the radial fingers, f, f', arranged in pairs along the length of the shaft and so formed that they will take beneath the cigar as the shaft turns, which cigar will rest on the fingers, and be carried around with the shaft and deposited in a trough F' outside of the casing A. This shaft is extended at one end, as at g, and such extension carries a small gear wheel or pinion G forming part of the train of gears, which, with the spring H, and the framing necessary for supporting the gear-shafts and spring, constitutes the motor or prime moving mechanism for imparting axial rotation to the delivery shaft. I do not, however, desire to strictly confine myself to this particular form of prime moving mechanism as I am aware that other forms of motors may be substituted for the same; but for ordinary purposes, and to secure cheapness and simplicity, I prefer to use one of the well known styles of motors known as spring motors or "clock movements."

The spring-shaft of the motor is geared to the delivery shaft through one or more intermediate shafts, and said spring shaft is controlled by suitable pawl and ratchet mechanism to prevent the spring from unwinding. To the spring shaft is geared a governor or stop shaft J which is at one end of the motor, and this shaft is provided with the vane or blade j which as shown in Figs. 1 and 3 extends from opposite sides of the governor shaft J. In the path of this vane of the governor shaft is normally arranged a detent K which consists of an arm secured at one end to a shaft k journaled or pivoted to the frame of the motor, and rigidly secured to said detent shaft is a lug l to which is rigidly fastened a link L which extends and is connected to the coin operated lever M. This lever M is arranged in rear of the motor, and it lies in a horizontal position, being pivoted or fulcrumed at an intermediate point of its length, as at m, to a part of the frame of the motor. The lever has a counterweight n at one end so as to insure the same retaining its horizontal position except when a coin is deposited thereon, and the other end of the lever is provided with an enlarged head, n', which, when the lever is in its normal position, is beneath the elbow at the lower extremity of the vertical coin-conduit so that said coin is deposited directly upon the enlarged end of the coin lever, said lever being thus tilted for the purpose of moving the detent out of the path of the vane on the governor shaft for a sufficient length of time to permit the delivery shaft to be rotated far enough to deliver one or more cigars or cheroots from the machine. The link L is made segmental or curved longitudinally, and it fits in an eye or guide on the coin controlled lever, such connection between the link and the lever having sufficient frictional contact when the lever is tilted which tilting is allowed by reason of the lever having the pivot opening loose around the pivot, and swung around on its fulcrum to move the link and thus turn or rock the detent shaft which results in moving the detent far enough to take the same out of the path of the vane on the governor shaft; and while the detent is out of the path of the governor the lever is swung or turned back and forth on its fulcrum by means of the endwise movable slide or bar P which is is operated by the motor. This slide is fitted in suitable guides p q which are rigid with the frame of the motor, and one end of the slide is connected to the coin lever by means of an intermediate link q' which is pivoted at its ends to the lever and slide to permit the parts to have the necessary movements. The slide is operated by means of a cam or arm R which is secured rigidly to the extension of the delivery shaft, and this cam or arm operates in the slot r formed in the slide or bar at an intermediate point of the length of the slide, the width of such slot being less than the length of the cam or arm so that the end of the arm or cam is adapted, as the shaft rotates, to impinge alternately against the sides of the slot in the bar or slide and thereby reciprocate the slide back and forth at each revolution of the delivery shaft.

The operation of my improved vending machine is as follows: A coin of the proper denomination having been placed in the coin-receiving slot of the casing, it passes along the upper chute, tilts the tray, thus falling upon the lower chute and passes through the coin slot d therein to the vertical coin-conduit which deposits the same upon the free enlarged end of the coin-controlled lever. This lever is thus tilted, and moves the curved

link sufficiently to turn the detent shaft and withdraw the detent from the path of the governor, thus releasing the motor from its stop mechanism. The spring or power of the motor is exerted to rotate the delivery shaft, the fingers of which grasp a cigar or cheroot (one or more) and carry the same through the delivery slot, thereby depositing the cigars or cheroots into a trough S at the front of the casing; and during the rotation of the delivery shaft the cam or arm R acts on the slide or bar to move the same back and forth. This slide, through its link, swings the coin controlled lever back and forth which results in keeping the detent out of the path of the governor until the delivery shaft has completed its revolution and the coin lever is thereby returned to its normal position beneath the elbow of the vertical coin conduit. The parts are now in position for further operation, the detent being engaged with the governor to keep the motor at rest until another coin has been deposited in the machine. If it is a coin of greater or less denomination, but of less weight than the proper coin, it will pass from the upper chute to the tilting tray and over the same into the machine without moving the tray and hence such coin cannot pass to the second tray; but should a piece have the requisite weight to tilt the tray and pass to the second chute, it may not be of the required size and hence it would not pass through the coin slot *d* in the second chute.

It is evident that changes in the form and proportion of parts and details of construction of the mechanism herein shown and described as an embodiment of my invention can be made without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve the right to make such alterations as fairly fall within the scope of my invention.

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

1. In a vending machine, the combination of a revoluble delivery shaft, a cam on the delivery shaft, a slide operated by said cam, a coin controlled lever connected to and operated by the slide, a stop mechanism which normally arrests the motor, and a coin controlled piece arranged to release the stop mechanism and permit the motor to rotate the delivery shaft, as and for the purpose described.

2. In a vending machine, the combination of an irregular conduit for the articles to be delivered, a delivery shaft arranged at the discharge end of said conduit to take the articles therefrom, a motor for rotating said delivery shaft, a cam on the delivery shaft, a slide operated by said cam, a coin controlled lever connected to and operated by the slide, and a stop mechanism which is operated upon the deposit of a proper coin to release the motor and permit the same to rotate the delivery shaft, as and for the purpose described.

3. In a vending machine, the combination of a conduit for the articles to be vended, a horizontal delivery shaft having suitable means for grasping the articles, a motor connected to said shaft to turn the same, a cam or arm on the delivery shaft, a slide operated by said cam, a coin controlled lever connected to and operated by the slide, a governor in connection with the motor, a detent for arresting the governor, and a coin controlled lever connected to the detent to release the same from the governor, as and for the purpose described.

4. In a vending machine, the combination of a conduit, a delivery shaft, a motor geared to said shaft and having the governor, a movable detent in the path of the governor, a coin controlled lever connected to the detent to have a tilting and swing movement, and a slide actuated by the motor to move or swing the lever on its fulcrum while the delivery shaft is turning, as and for the purpose described.

5. In a vending machine, the combination of a suitable conduit, a delivery shaft, a motor geared to said shaft and having a revoluble governor geared to the power-shaft of the same, a swinging detent normally in the path of the governor and having a link, a coin controlled lever to which the link is connected in a manner to permit said lever to have a limited movement on its fulcrum without disconnecting the lever and detent, and a slide connected to said coin lever and actuated back and forth by a cam on the delivery shaft, as and for the purpose described.

6. In a vending machine, the casing having the coin receiving slot, the upper inclined chute, the tilting balanced tray normally in line with said upper chute and arranged at the lower inner end thereof, a second chute below the upper chute and inclined reversely thereto, with the upper end of said second chute arranged to receive from the tray and its lower end provided with a coin slot, and a vertical coin conduit below the second chute to receive from the coin slot of the second chute, combined with a delivery shaft, a motor therefor, a coin controlled lever, a slide connected to said lever, a cam on the delivery shaft for operating the slide, and a coin controlled stop-mechanism which receives the coin from the vertical coin conduit, as and for the purpose described.

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

SAMUEL HARPER SMITH.

Witnesses:
JAMES F. REED,
FLORENCE W. DOUGHERTY.