

No. 610,673.

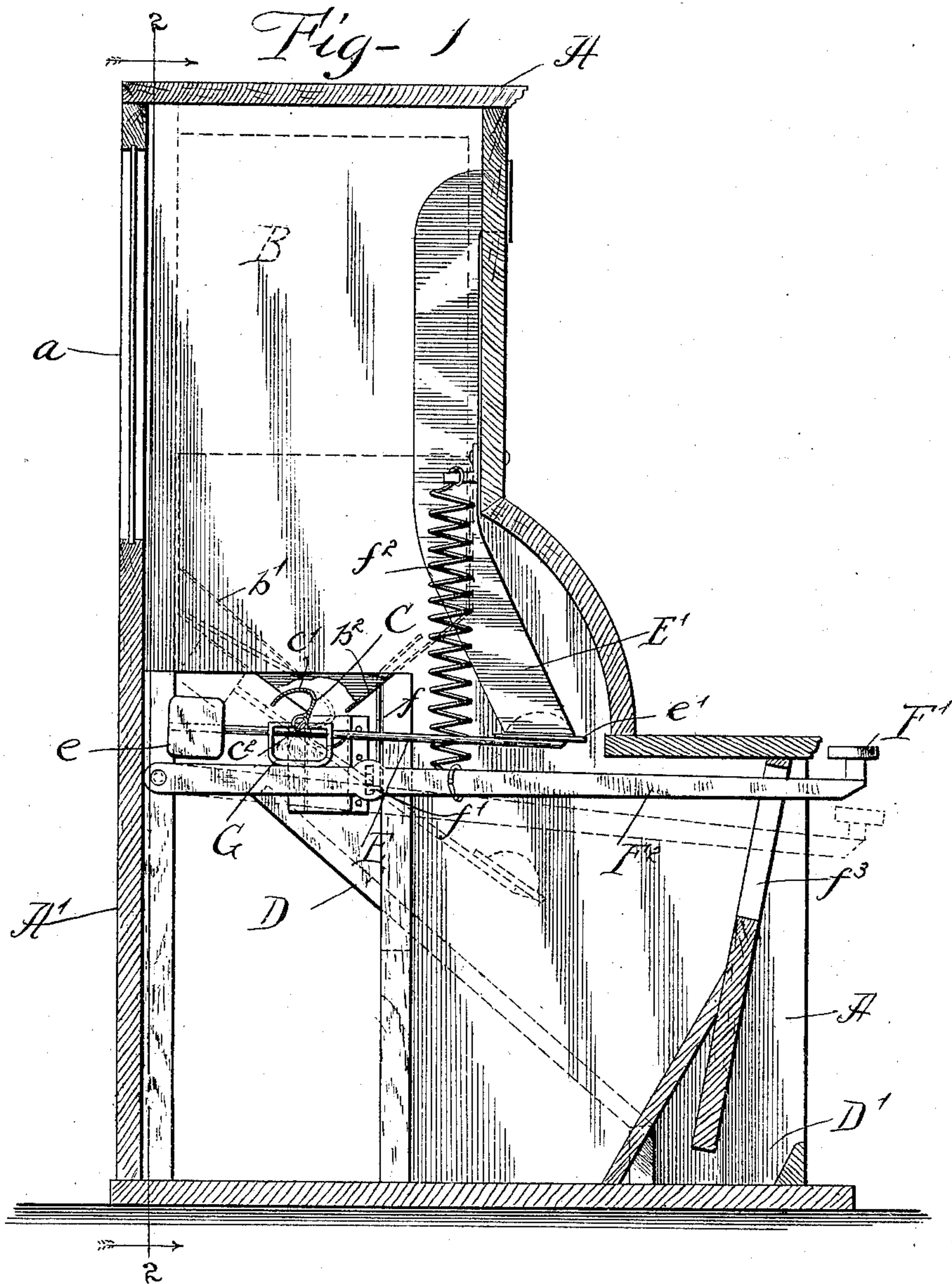
Patented Sept. 13, 1898.

W. DYER.
VENDING MACHINE.

(Application filed Sept. 2, 1897.)

(No Model.)

3 Sheets—Sheet 1.



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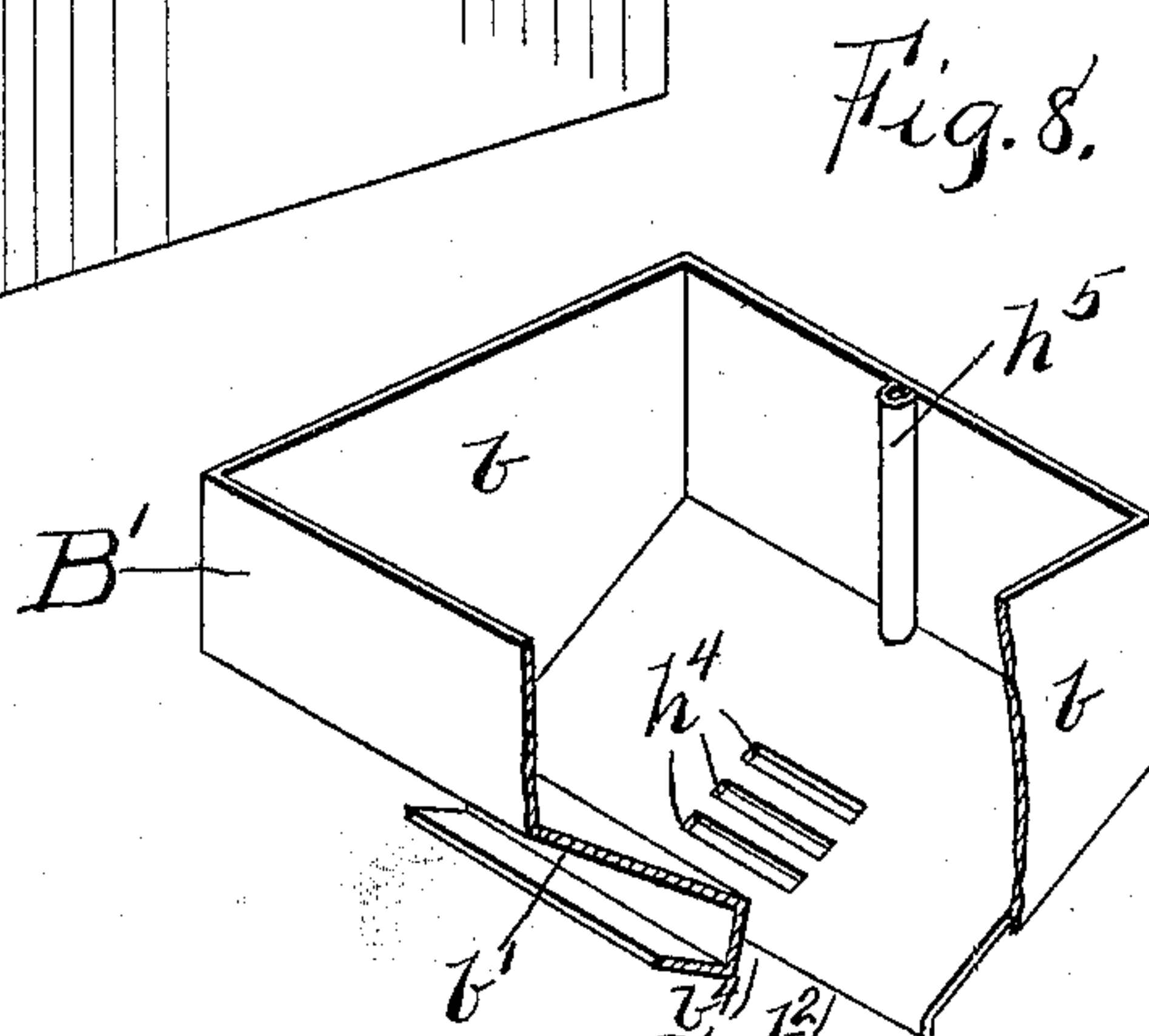
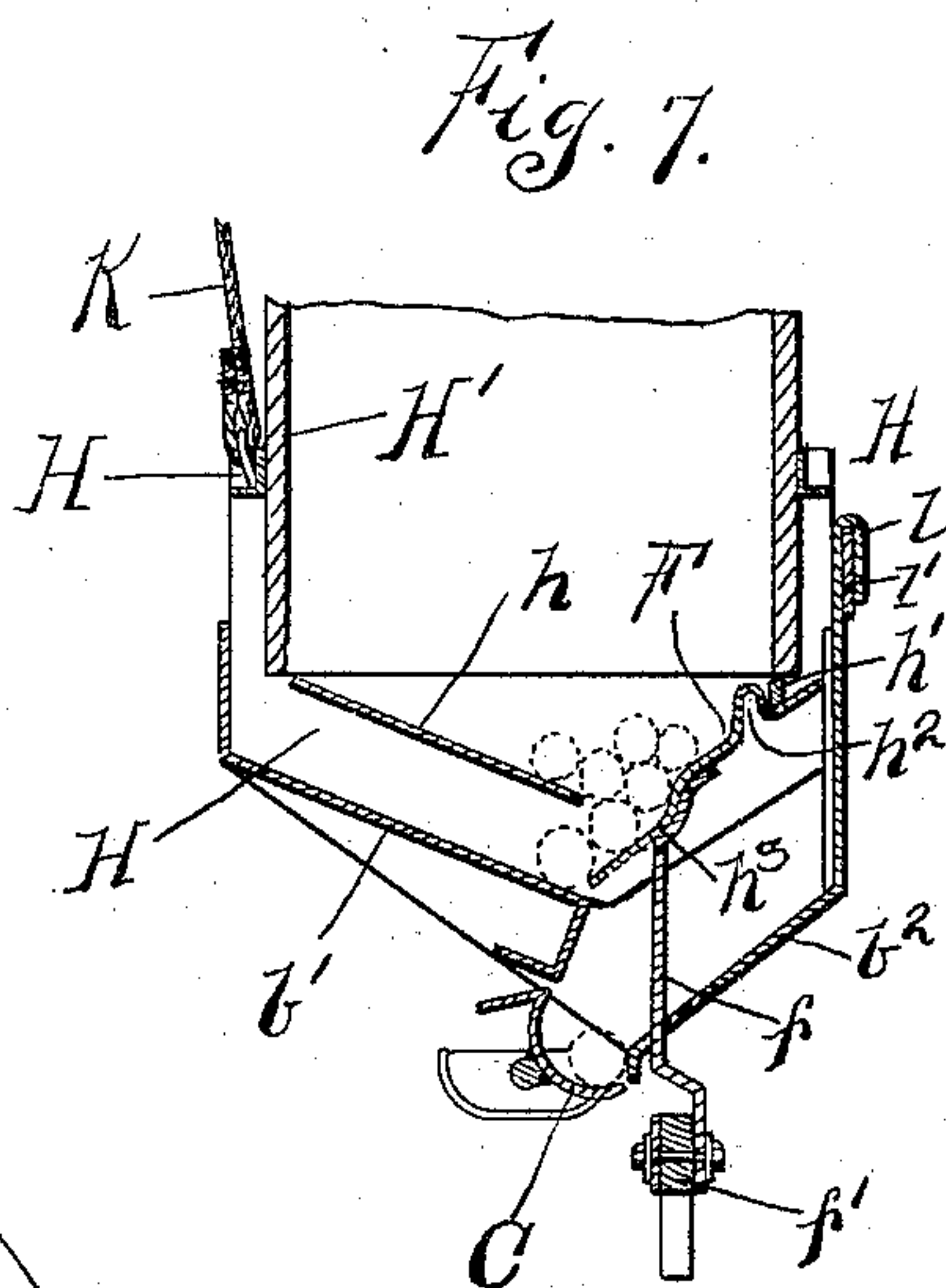
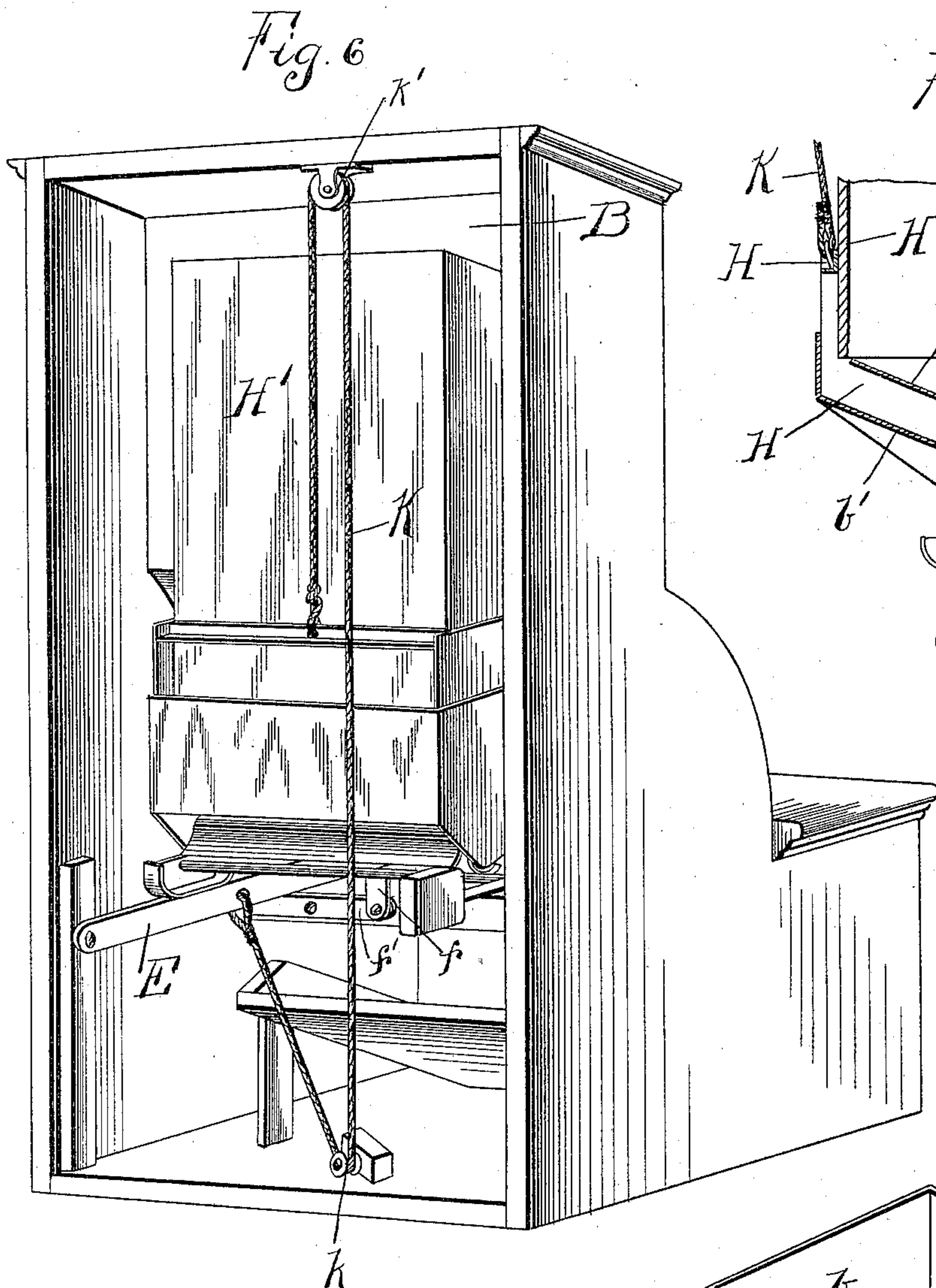
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

WALTER DYER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
AURELIUS E. STEVENS, OF SAME PLACE.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 610,673, dated September 13, 1898.

Application filed September 2, 1897. Serial No. 650,344. (No model.)

To all whom it may concern:

Be it known that I, WALTER DYER, a subject of the Queen of Great Britain, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention relates to coin-controlled apparatus for vending merchandise, and particularly for vending cigars, and has for its object to simplify the construction of such apparatus, to prevent clogging of the merchandise in the hopper or conduit leading to the separating and delivering mechanism, and otherwise to improve the construction of the machine.

In the drawings, Figure 1 is a vertical transverse section through a machine embodying my invention upon a line passing from front to rear; Fig. 2, a section upon the correspondingly-numbered line in the preceding figure; Fig. 3, a section through the hopper and merchandise-chamber on the line 3 3 of Fig. 2; Fig. 4, a sectional detail as indicated in Fig. 3, and Fig. 5 a horizontal section on the line 5 5 of Fig. 2. Fig. 6 is a perspective view of a machine embodying my invention in its preferable form. Fig. 7 is a cross-section thereof broken away, and Fig. 8 is a detail.

A represents the casing of the machine, formed as a small cabinet with a door A' at its rear for access to the interior and with glass or other transparent panes *a a'* in said door and in the front wall at a suitable height for the inspection of the contents. Between these panes, in the construction chosen for illustration, is located the chamber B, of sufficient size to hold a box of cigars placed on end, exposing the lid through the front pane and the bottom through the rear pane, and at the base of this chamber is located a hopper B', the top of which registers with or conforms in dimensions to the end of the cigar-box and which is constructed with perpendicular ends *b* and converging bottoms *b' b'*, the latter or forward of which depends below the other, as at *b³*, leaving a space *b⁴* between of sufficient length and width to freely pass a single cigar. Pivoted to the rear of the delivery-spout thus formed is an oscillat-

ing dropper C, which is roughly S-shaped in cross-section, the lower arm *c* forming a delivery trap or trough shutting against the depending forward lip *b²* and normally closing the spout and of sufficient capacity to receive a single cigar, while the upper and rear arm or reach *c'* is described from a wedging-point upon a radius closely approximating the distance between its axis of movement and the rear or shorter lip *b'* of the spout and normally rests with said wedging-point just beneath or behind said rear or shorter lip, so that when the dropper is oscillated on its shaft *c²* this reach acts as a guard and moves past and in close proximity to said lip and closes the throatway of the spout, cutting off the access of the superimposed mass of cigars to such passage while the one already deposited in the trough is being delivered by the tipping incidental to such oscillation. Beneath the dropper is an inclined delivery-chute D, which conducts the cigar so delivered to a receptacle D' in front of the machine, from which it can be removed by hand. To the dropper-shaft is attached a lever E, the rear end of which is weighted, as at *e*, while the front end extends beneath the coin-chute E' and is provided with a trap *e'* for the temporary reception of the nickel or other coin by which the machine is operated. The weight upon this lever is or may be adjustable to adapt it to operate the dropper by the action of coins of different weight or to feed lighter or heavier cigars or other articles for the same weight of coin.

One great difficulty in feeding cigars or similar merchandise in vending-machines has been a liability to bridge or clog in the conduit or hopper, so that intending purchasers often receive nothing in response to the deposit of their money. To do away with this, I propose to provide the hopper with a lifter, jarrer, knocker, or stirring device which will break up any such bridge at each operation of the machine. A practical form of such stirring or lifting device is a plate F, overlying the front converging side of the hopper and so connected with an external button or key F', which must be operated before the dropper will respond to the weight of the

nickel inserted, that it will be raised against the contents of the hopper each time that a cigar is delivered and preceding such delivery, lifting the superposed contents away from the cigar or other article in the delivery-trap and by the approach of its rear edge to the shorter or rear lip of the spout so narrowing the passage as to stop or cut off the feed, the separation thus made leaving a space for the guard to play through. To this end a tang f , depending from this plate and fixed rigidly thereto, is connected to the inner end of a short lever f' , hereinafter termed the "lifter-lever," the outer end of which is normally held up by a spring f^2 , so that the lifter-plate normally rests upon the bottom of the hopper. A transverse lever F^2 , hereinafter termed the "operating-lever," suitably pivoted on the framework of the machine and extending parallel with the coin-controlled lever or trip-lever, projects through an elongated slot f^3 in the front wall of the casing and carries the above-mentioned button, bearing in its way upon the spring-seated end of the lifter-lever, so that it is normally held up by the spring which controls the latter, but when pressed down will depress the lifter-lever and raise the lifter-plate.

Upon the dropper-shaft where it passes over the operating-lever is secured a locking-shoe G , which rests upon said operating-lever when the latter is up, and thereby prevents any oscillation of the dropper or of the trip-lever, but interposes no obstacle to such operation when the operating-lever is depressed. Thus when a coin is introduced into the machine it will fail to actuate the dropper until the contents of the hopper are lifted or jarred or shaken up by depressing the operating-lever and the consequent movement of the lifter-plate, but immediately following such action the weight of the coin will cause the oscillation of the dropper and the delivery of a cigar resting in the trough thereof.

In its preferable form the jarrer or knocker is arranged to meet a false hopper on the cigar or other box as it ascends—that is, a false hopper H , having inclined deck h and a bridge-bar h' attached or secured to its bottom. This false hopper is made to fit over the open lower end of the cigar-box H' and slip on and off thereof, and its bridge-bar h' is arranged to coact with a longitudinal rib h^2 adjacent to the vertical front wall of the true hopper on the lifter or jarrer plate, the purpose being to attack and break the base of an arch or bridge which is apt to form in the merchandise, springing from the angle between said front wall and the sloping bottom to the corresponding angle at base of the rear wall. Beneath this rib the inclined lifter or jarrer plate is corrugated or formed in steps h^3 , so as to more efficiently aline the falling cigars. The bottom of the true hopper is slotted in series, as at h^4 , for the reception of the tang rigidly fixed to and depending from the lifter,

to allow said lifter to be adjusted for varying sizes of cigars in its functions as a cut-off, and a vertical flange h^5 upon the upright front wall of the true or fixed hopper serves as a guide for said lifter in its bodily reciprocations.

The false hopper, carrying with it the box of cigars, is suspended in such manner that when the operating-lever or key-lever is depressed, thereby raising the jarrer or lifter, it will fall to meet the latter and by its sudden stoppage will shake or jolt the contents of the box downward, and as the operating-lever resumes its normal position it will rise away from the jarrer, drawing the bridge-bar h' out of the pocket between the rib h^2 and the front wall of the fixed hopper and lifting merchandise which may have lodged in the angle at that point. The relative movement is less than the diameter of a cigar or other article to be sold, so that the pocket will never be clogged or filled up. Therefore the bridge-bar will break, either in its descent or in its return, the springers of any arch that may have been formed. A convenient method of accomplishing this movement is by means of a cord, wire, or chain K , passing from the lever down around a pulley or sheave k , thence up over a pulley or sheave K' , and finally to said false hopper. The true hopper may be removably secured in place by clips l , catching over ears l' on vertical posts of the frame.

It is not necessary to the beneficial action of the bridge-bar h' in conjunction with the rib on the bodily-movable jarrer that said bridge-bar and the false hopper to which it is attached shall also be movable, but it is more effective.

In using this machine for the sale of cigars the cover of the box is first opened or torn away, destroying the stamp. Then one end is removed and the box inserted in the merchandise-chamber open end downward and registering with the top of the hopper and with the open and cover side turned to the glass front of the casing to expose the contents therethrough. As thus placed the box, with its stamps, can be inspected by revenue officials in conformity with law through the glass front, while its contents can be gradually drawn off and sold through the machine.

It is obvious that the lifting, jarring, or knocking device may be of different form and differently operated and that the locking of the dropper may be differently effected and that the apparatus may be otherwise modified without departing from the principle of my invention.

I claim—

1. The combination, in a vending-machine, of a hopper for the reception of merchandise, delivery apparatus actuated by the weight of the introduced coin for delivering definite parcels of said merchandise, a manually-controlled operating-lever, and locking mechanism.

ism between said delivery apparatus and the operating-lever whereby the delivery apparatus is held closed while the operating-lever remains at normal.

2. The combination, in a vending-machine, of a hopper for the reception of merchandise, a delivery mechanism for delivering definite parcels of said merchandise, a coin-actuated trip-lever actuating said delivery mechanism, an operating-lever, and locking mechanism between said operating-lever, and the trip-lever, whereby said trip-lever is held against movement until the operating-lever is depressed.

3. The combination, in a vending-machine, of a hopper for the reception of merchandise, a vibrating delivery-trap closing the spout of said hopper, a coin-actuated balanced trip-lever connected to the shaft of said trap, an operating-lever, and locking mechanism between said operating-lever and the trip-lever whereby the trip-lever is held against movement until the operating-lever is depressed.

4. The combination, in a vending-machine, of a hopper for the reception of merchandise, a vibrating delivery-trap closing the spout of said hopper, a coin-actuated balanced trip-lever connected to the shaft of said trap, an operating-lever, and a locking-shoe connected to said trip-lever and normally resting upon the operating-lever to hold said trap closed until the operating-lever is depressed.

5. The combination, in a vending-machine, of a hopper for the reception of merchandise, an oscillating trap closing the spout of said hopper, a balanced trip-lever connected to the shaft of said trap, a coin-chute delivering to the unweighted end of said lever, and a locking device holding said lever against movement until mechanically released.

6. The combination, in a vending-machine, of a hopper for the reception of merchandise, an oscillating trap closing the spout of said hopper, a balanced trip-lever connected to the shaft of said trap, a coin-chute delivering to the unweighted end of said lever, an agitator acting upon the contents of said hopper, an operating-lever for actuating said agitator, and locking mechanism between said operating-lever and the trip-lever whereby the latter is prevented from movement until the former is actuated.

7. The combination, in a vending-machine, of a hopper for the reception of merchandise, an oscillating trap closing the spout of said hopper, a balanced trip-lever connected to the shaft of said trap, an agitator acting upon the contents of said hopper, a spring-supported operating-lever for actuating said agitator, and a locking-shoe upon the trip-lever against which the operating-lever closes when at rest.

8. The combination with the hopper, having converging sides or bottoms with one lip below the other, of the oscillating trap pivoted upon an axis subjacent to the upper lip, closing against the lower lip and having a con-

centric guard that moves past the upper lip, and a jarrer or stirrer actuated to move up from the lower lip concurrently with the dumping movement of the trap.

9. The combination with the hopper having a spout with one lip depending below the other, of a trap pivoted subjacent to the shorter lip and closing against the lower lip, and a coacting cut-off plate moved from the lower lip toward the upper or shorter lip to intermit the feed.

10. The combination with the hopper having a spout with one lip depending below the other, of an oscillating trap closing against the lower lip, a concentric guard upon said trap moving past the upper lip, a cut-off plate working upward from said lower lip toward the upper lip, and mechanism for actuating said cut-off plate.

11. The combination with the hopper, of the trap closing the spout of said hopper, and the bodily-movable agitator actuated to move vertically and uniformly up from the bottom of said hopper to lift and jar the contents thereof.

12. The combination with the hopper and delivery mechanism, of means for moving the merchandise-receptacle away from and toward the hopper to shake the contents.

13. The combination with the fixed hopper and its delivery mechanism, of a box for the reception of merchandise, a false hopper fitting the open lower end of said box, a lever operated from the exterior of the casing, and connections between said lever and the false hopper whereby the false hopper and the superposed box are caused to move away from and toward the fixed hopper with the movements of the lever.

14. The combination with the fixed hopper, of the bodily-movable lifter or jarrer having a longitudinal rib adjacent to the angle between the proximate vertical wall of said hopper and its sloping bottom, and a bridge-bar arranged to be received in the pocket between said rib and wall as the jarrer rises.

15. The combination with the hopper and with the separating mechanism, of the bodily-movable lifter or jarrer having a longitudinal rib adjacent to the proximate vertical wall of the hopper, and a bridge-bar coacting with said rib and moving adversely to the movements of the jarrer.

16. The combination with the fixed hopper, of the lifter or jarrer and the false hopper movable in opposition to said lifter or jarrer.

17. The combination with the fixed hopper having converging bottoms, of the bodily-movable false hopper having a longitudinal rib, and the oppositely-movable false bottom having a coacting bridge-bar.

18. The combination with the lifter or jarrer and its tang, of the hopper having a series of slots for the reception of such tang.

19. The combination with the hopper and with the delivery mechanism, of the bodily

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and vertically movable inclined lifter or jarrier
corrugated or stepped to facilitate the feed of
the contents.

20. The combination with the hopper hav-
5 ing one lip of its spout depending below the
other, of a vertically-playing cut-off plate
moving from the lower lip toward the upper

or shorter lip, and means for the adjustment
of said cut-off plate.

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Witnesses:

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