No. 615,359. Patented Dec. 6, 1898.

N. MERENESS.

AUTOMATIC VENDING MACHINE.

(Application filed Mar. 21, 1898.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

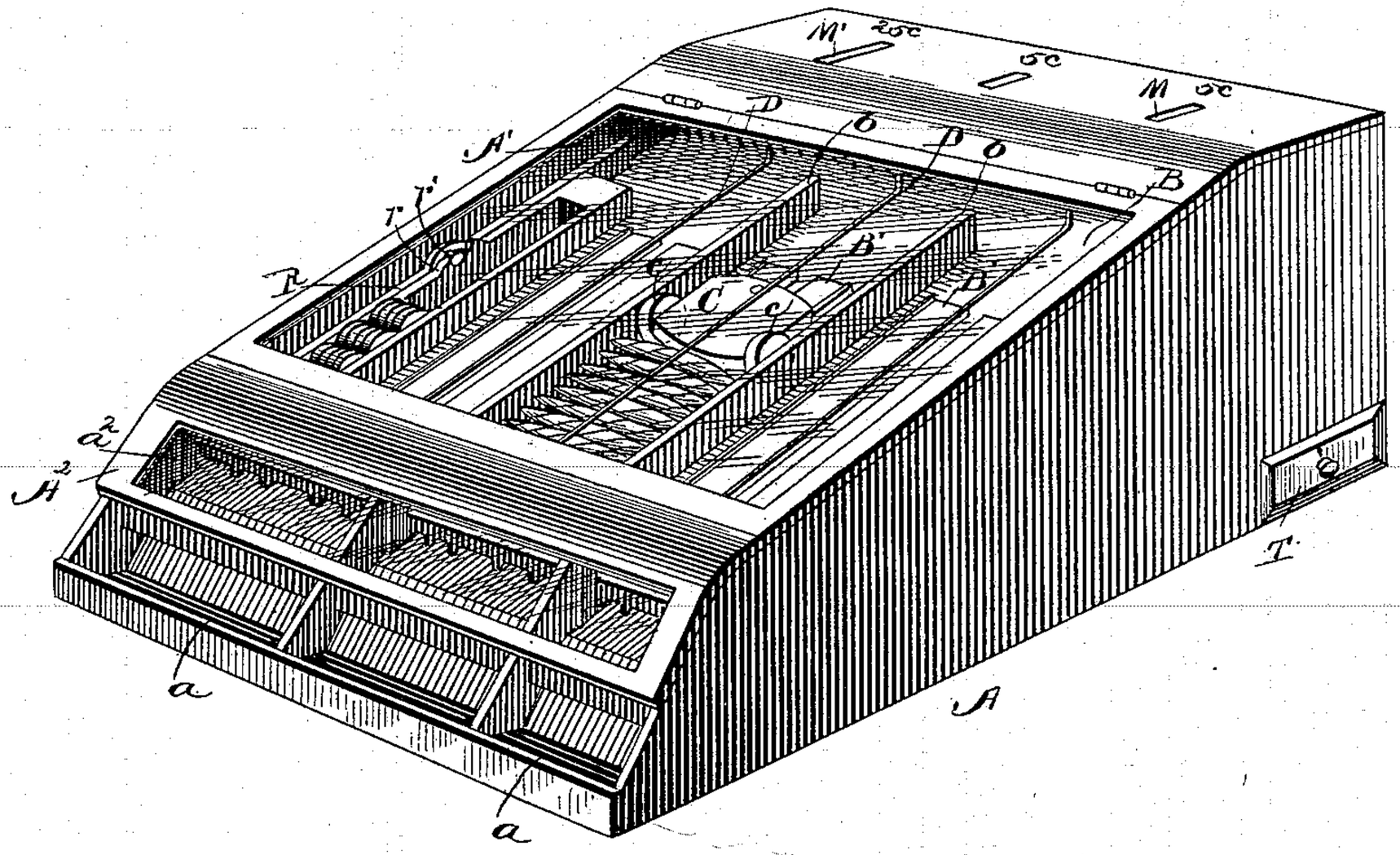


Fig. 4.

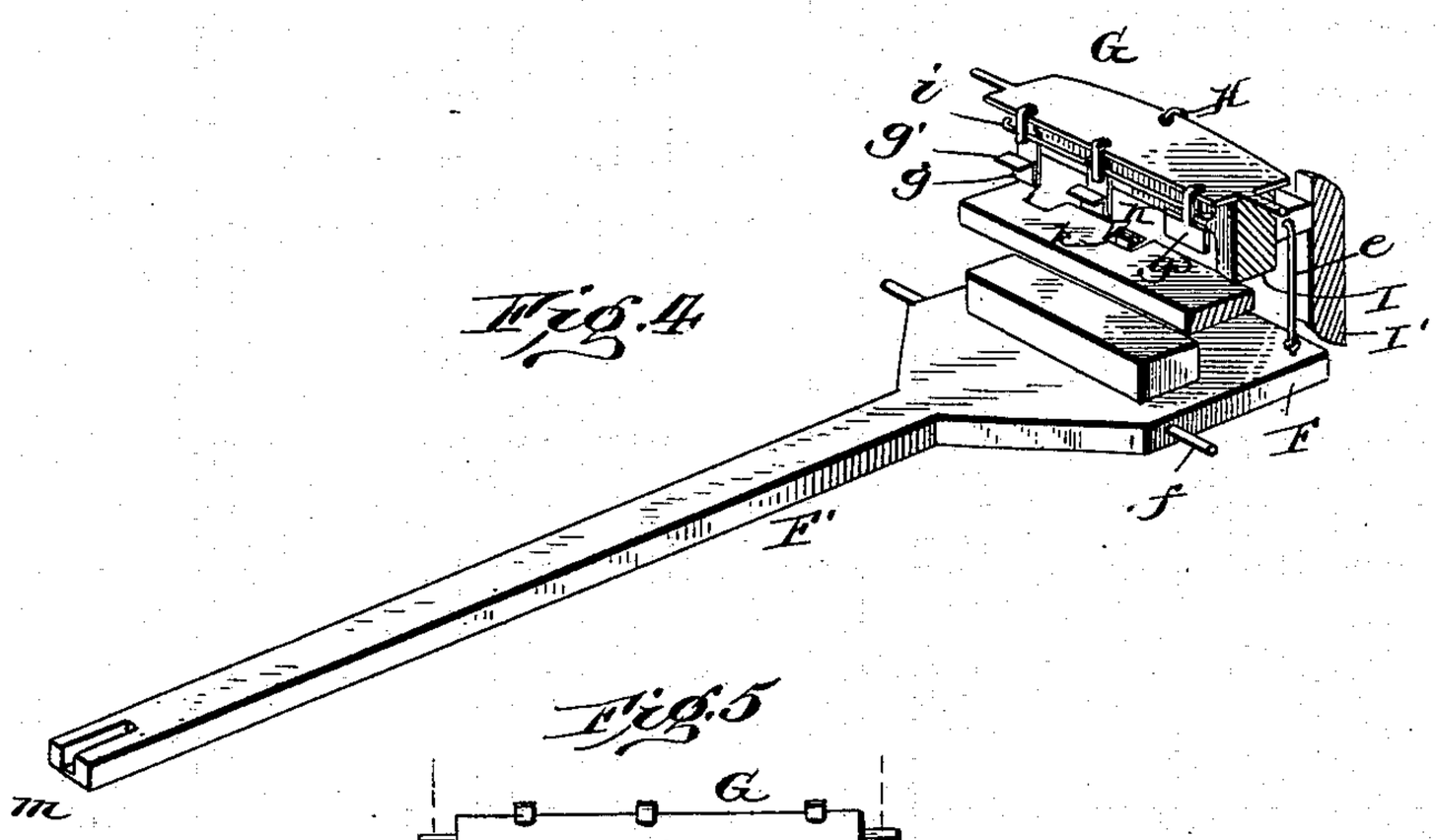
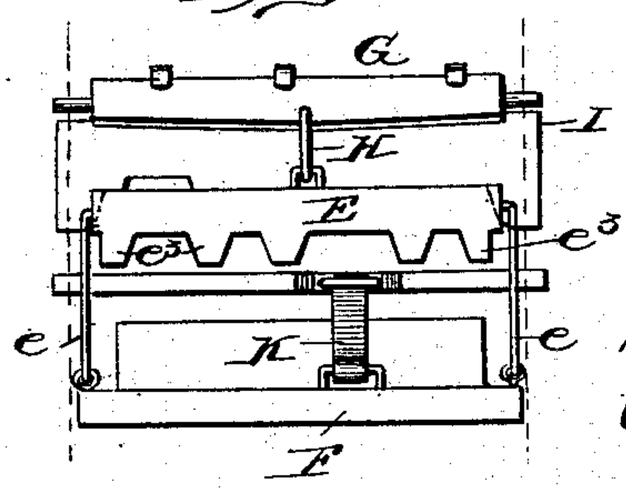


Fig. 5.



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AUTOMATIC VENDING MACHINE.

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(No Model.) 3 Sheets—Sheet 2.

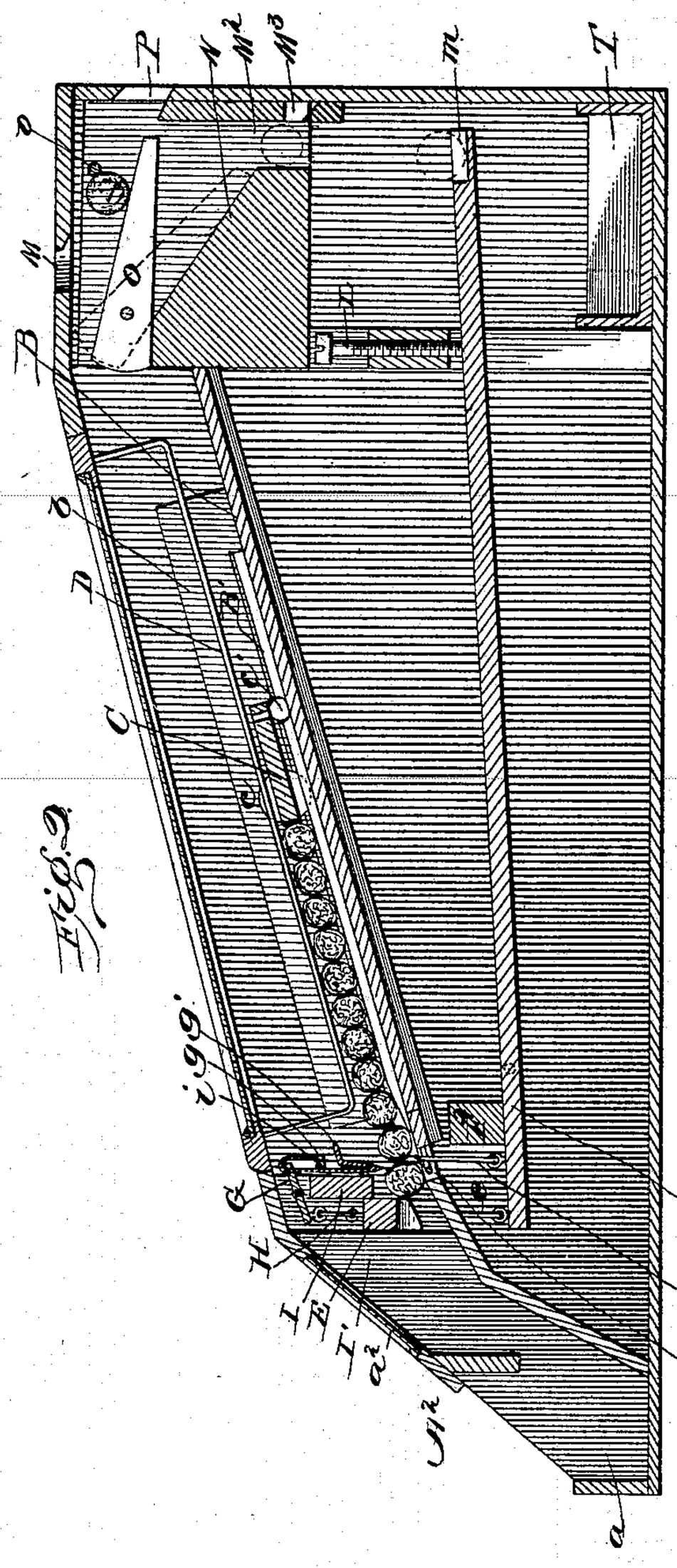

Fig. 1.

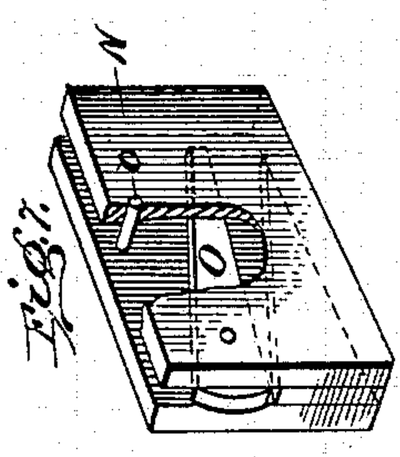

Fig. 2.

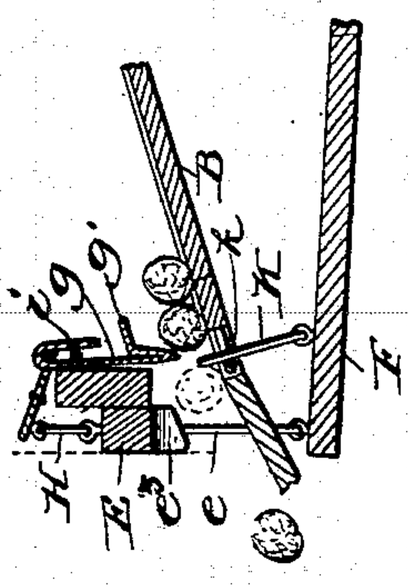

Fig. 6.

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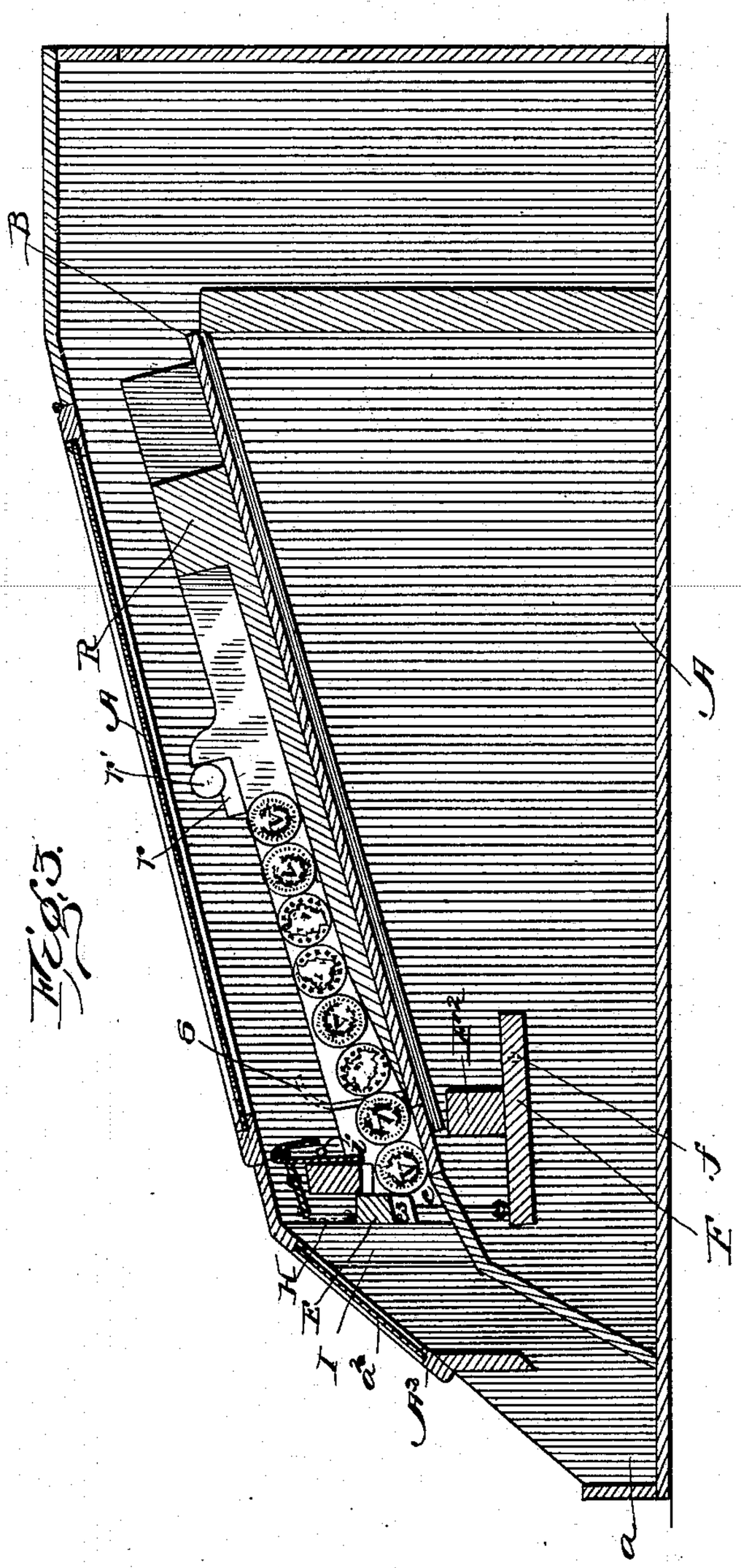

Fig. 3.

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UNITED STATES PATENT OFFICE.

NORMAN MERENESS, OF SEWARD, NEW YORK.

AUTOMATIC VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 615,359, dated December 6, 1898.

Application filed March 21, 1898. Serial No. 674,632. (No model.)

To all whom it may concern:

Be it known that I, NORMAN MERENESS, a citizen of the United States, and a resident of Seward, in the county of Schoharie and State of New York, have invented certain new and useful Improvements in Automatic Vending-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in vending-machines which are adapted to automatically eject or drop the goods upon the deposit in the machine of suitable coin and to eject spurious or light-weight coins; and the invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now described, and the particular features of novelty pointed out in the appended claims.

Referring to the accompanying drawings, Figure 1 is a perspective view of a vending apparatus adapted more especially for disposing of cigars and the like constructed in accordance with my present invention. Fig. 2 is a central vertical section through the same. Fig. 3 is a similar section showing the construction of the change-controlling mechanism. Fig. 4 is a detail perspective view of the coin-controlled lever for releasing the article to be vended and the mechanism for retaining the remaining body of articles, so as to allow but one to be ejected at each operation of the lever. Fig. 5 is a detail front elevation of the mechanism shown in Fig. 4. Fig. 6 is a detail section through the same mechanism, showing the coin-controlled lever depressed and one of the articles being ejected, this view corresponding to Fig. 2, but with the mechanism in its operated position instead of in its normal position, as in said last-mentioned view. Fig. 7 is a detail perspective, partially broken away, of the coin-selecting safety mechanism for preventing the operation of the machine by means of blanks, spurious coins, or the introduction of a wire or the like.

Like letters of reference in the several figures indicate the same parts.

I show my present invention as applied in an apparatus for the automatic vending of cigars and returning to the purchaser a certain number of coins in change should he deposit a larger coin than is necessary for the purchase of a single cigar; but it will be understood that the mechanism is well adapted for vending articles other than cigars, and hence while I shall describe the same in its illustrated form I do not wish to be limited in said particular.

The letter A indicates the casing of the apparatus, which is preferably made somewhat after the manner of an ordinary show-case, with an inclined glass cover A′, beneath which the articles to be vended are arranged in any desired number of parallel columns upon an inclined floor or subbase B, so as to be exposed to view at all times. At the bottom or lower end of the casing A a series of receiving-troughs *a*, corresponding in number to the number of columns within the casing, are provided for catching the articles as they are released from the apparatus to prevent them from falling upon the floor or ground, and in order to prevent tampering with the apparatus from the lower end a guard A^2 is provided, extending nearly down to the troughs *a*, leaving only sufficient space for the insertion of the hand to remove the article. This guard A^2 may be provided with a glass panel a^2, as shown, if desired.

The inclined floor B is preferably provided with a series of low partitions *b* to separate the columns of articles, and between these partitions there are arranged tracks or ways B′, upon which the articles to be vended are supported and down which they may roll or slide without undue friction.

For the purpose of advancing the articles as they are successively removed from the lower end I preferably mount upon each column a weighted pusher C, having antifriction-rollers *c* for supporting its forward end and a pin or downwardly-extending projection *c*′ at its rear end, which works between the tracks B′ and guides and maintains the pusher in alinement. The articles are held down upon the tracks, should any tendency to buckle upwardly be manifested, by means of the overlying guide wires or rods D, depending from the cover A′ of the casing.

In order now to successively eject or drop

the articles from the lower end of the columns, a retaining-gate E is supported at the lower end of each column upon links or vertically-extending rods *e*, pivotally connected, preferably somewhat loosely, at their lower ends to the forwardly-extending shorter but heavier end F of the coin-controlled lever F′. The lever F F′ is pivotally mounted at *f* in the casing or partition, and in order to secure the required weight on its shorter arm it is provided with a counterweight F^2, which will normally cause the depression of the forward arm of the lever and gate E connected therewith, but upon the dropping of a coin of the required weight upon its longer arm will be moved in a direction to cause the elevation of the gate E and the release of the article resting against it. Such release, however, would release the whole column of articles, and in order to prevent the release of but a single article I provide a cut-off for arresting the movement of the column of articles save the first one, as follows: Pivotally supported in the casing above the gate E is a cut-off lever G, and depending from the inner end or side of this cut-off lever G are a series of retaining-fingers *g*, each preferably provided with a lateral projection *g′*, which when the fingers are depressed will extend out over the article held by the fingers and prevent its upward movement. These cut-off fingers *g* are loosely connected with the inner edge of the cut-off lever G, so as to permit them to rest, practically by their own weight, in front of or upon the article following the one to be ejected, and thereby, while having sufficient resistance to hold the succeeding articles in the column, will not, should their downward motion be arrested by striking the article, prevent the operation of the releasing mechanism. The outer edge of the cut-off lever G is connected by a link H with the gate E, and the parts are preferably so proportioned that the tendency of the cut-off lever is to tilt in a direction to lower the fingers *g*, and hence when the coin-controlled lever is moved to release an article the cut-off mechanism does not retard, but, on the contrary, tends to assist the movement thereof. In order to support the cut-off fingers against swinging toward the gate, I preferably provide a cross-bar I, against which they may work, and which cross-bar I, together with the side guides I′, also form the vertical guides for the gate E. In addition, if desired, a guide-rod *i* may extend parallel with the cross-bar I in front of the cut-off fingers to insure their proper alinement at all times.

It will be seen from the foregoing that when the rear end of the coin-controlled lever is depressed by a coin its forward end, together with the gate E, will be raised, and simultaneously the cut-off will be depressed, thereby releasing the first article in the column and holding in check the remaining articles, and in order to insure the discharge of the first article should it stick or not drop away from the column readily I provide on the forward end of the lever F F′ an upwardly-extending finger K, preferably loosely connected to the said lever and adapted to pass up through a guide-opening *k* in position to project up between the first and second articles in the column and as the coin-controlled lever moves to separate the two and impart a forward impetus to the first article, as illustrated clearly in Fig. 6, thereby insuring its discharge.

For the purpose of adjusting accurately the position of the gate and coin-controlled lever to articles of different diameter or to insure a correct operation a limiting-screw L is mounted in the casing at the rear end and adapted to form the stop for said lever.

For controlling the admission of the coins by means of which the lever is operated I provide first a series of apertures M M′ in the top of the casing, at the rear end, gaged to admit only coins of the proper size, and immediately beneath each of these apertures a vertically-slotted block N is mounted in position to receive the coin and convey it down into position to drop upon the rear end or into a seat *m*, carried by the rear end of the coin-operated lever, as indicated by the dotted lines in Fig. 2. In the block N, I mount a testing or balance lever O, which is weighted so as to be depressed by a coin of proper weight, as indicated by the dotted lines in Fig. 2, but to maintain its normal position should a coin of lighter weight be dropped thereupon and to discharge said coin from its lower end through a discharge-aperture P at the rear end of the casing. To further insure the depression of the lever by a coin of the proper weight, I preferably provide a cross-bar *o*, against which a coin of proper diameter will be arrested in its travel down the lever O, as indicated by the full lines in Fig. 2, whereby said lever is given a longer time to move, as will be readily understood.

The entrance-aperture M and the discharge-aperture M^2 over the block N are arranged out of line with each other, and should an attempt be made to operate the device by means of a wire or stick through the aperture M, I provide a means for catching the end of said wire or stick, consisting of a recess M^3 in the wall of the block and casing, thereby preventing the further introduction of the same or the successful operation of the apparatus.

It is very desirable in an apparatus of this character to provide some means whereby coins of different denominations can be introduced, and I have shown a means herein for permitting the introduction to two of the columns of five-cent pieces; but the other column is arranged for the introduction of twenty-five-cent pieces, and the mechanism is arranged to discharge one of the cigars or articles to be vended, together with four five-cent pieces in change. Thus the purchaser

may drop in his quarter and receive in return a cigar and twenty cents in change. This result I accomplish by providing a separate and preferably removable trough R at one side of the twenty-five-cent column, as shown particularly in Figs. 1 and 3, which trough is adapted for the reception of a column of five-cent pieces arranged four abreast. The lowermost series of the five-cent pieces will rest against the gate E, which at this point is made of a proper height to control the same, and a somewhat wider cut-off finger g^3 is provided for retaining the column of nickels when the first four nickels are released. The change mechanism is controlled by the same gate and cut-off lever which controls the twenty-five-cent column of articles to be vended, as heretofore described.

As a matter of convenience the trough R is made removable and is held in place by having a wedge-shaped projection r at one edge passed in beneath the head of a stud r' on the wall of the apparatus, it being made removable to facilitate the filling thereof with nickels, and when so removed I provide a slide S for closing its forward end to prevent the escape of the nickels when placed in the trough, which slide is removed after the trough has been replaced within the apparatus. The projection r is made wedge shape to fit tightly beneath the head of the stud r'.

The working parts of the mechanism, it will be noticed, are exceedingly simple and not liable to get out of repair under all conditions and under all circumstances, the looseness of the connections between the coin-controlled lever, the gate, the cut-off lever, and the fingers being calculated to prevent any binding of the parts between themselves should the conditions vary slightly from normal, as might be occasioned by the presence of articles of slightly-different diameters or shape in the apparatus.

In operation a coin is deposited in the opening M, which coin, if of the proper size and weight, will depress the selecting-lever O and, passing down through the block N, will strike the long arm of the coin-controlled lever F and depress the same. This movement will raise the gate E and simultaneously permit the cut-off to descend between the first and second articles and upon the latter, and the ejecting-finger K will insure a discharge of the first article the moment the gate has been raised high enough to permit the same to move.

In order to prevent undue friction between the first article in the column and the gate, the operative face of said gate is preferably provided with a series of beveled teeth or projections e^3, with which the said article contacts. By these means a relatively long article, such as a cigar, for instance, will not tilt or create enough friction against the gate to effect its operation by the relatively light coin on the operating-lever.

The coins dropped upon the coin-operated lever roll off the same as it moves downwardly from the normal horizontal position into an inclined position and are received in a drawer or receptacle T, which may be located at any convenient point in the casing.

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

1. In an automatic vending apparatus, the combination with the guides for the column of articles to be vended, the pivoted coin-controlled lever, the gate for retaining the column of articles and connections between said gate and lever, of the cut-off lever operating in unison with the gate, the cut-off fingers loosely connected with the lever and cooperating with the column at a point above the gate and the finger operated by the lever and coöperating with the inner side of the article released by the gate; substantially as described.

2. In an automatic vending-machine, the combination with the inclined floor, having raised tracks or ways thereon for supporting the articles to be vended, and a pusher guided by said tracks or ways for advancing said articles along said tracks or ways, of a gate for arresting the movement of the column of articles, a coin-controlled lever for operating said gate and a cut-off for determining the number of articles discharged at each operation; substantially as described.

3. In an automatic vending-machine, the combination with the inclined floor having guides for the articles to be vended, the movable cover and the overlying rod carried by the cover for holding the articles against upward movement, of a gate for checking the forward movement of the column of articles, a cut-off for determining the number of articles discharged at each operation and the coin-operated lever connected with said gate and cut-off for operating the same; substantially as described.

4. In an automatic vending and change-making apparatus the combination with the casing, the inclined floor therein having the guideways for the column of articles to be vended, the gate at the lower end of said floor for checking the egress of the articles and a coin-operated lever controlling said gate, of a removable coin-trough mounted in said casing and having its discharge end at the lower end of the floor in position for the contents of said trough to be controlled by the gate; substantially as described.

5. In an automatic vending-machine, the combination with the guides or ways for the column of articles to be vended, the coin-operated lever, the gate for checking the egress of the column of articles and the cut-off lever, of the cut-off fingers loosely suspended on said lever, the weight of the lever and fingers being so proportioned as to automatically intercept the column of articles, and a

connection between the cut-off lever and gate for holding the cut-off out of action; substantially as described.

6. In an automatic vending-machine, the combination with the guides or ways for the column of articles to be vended, the gate for checking the egress of said column and a controlling coin-operated lever, of a cut-off connected with said gate and having a lateral projection for overlying and preventing the upward movement of the articles with which it coöperates; substantially as described.

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Witnesses:
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I. F. WINNIE.