O. JAEGER.

DISPENSING MACHINE.

APPLICATION FILED JUNE 26, 1919.

1,327,712.

Patented Jan. 13, 1920.

3 SHEETS—SHEET 1.

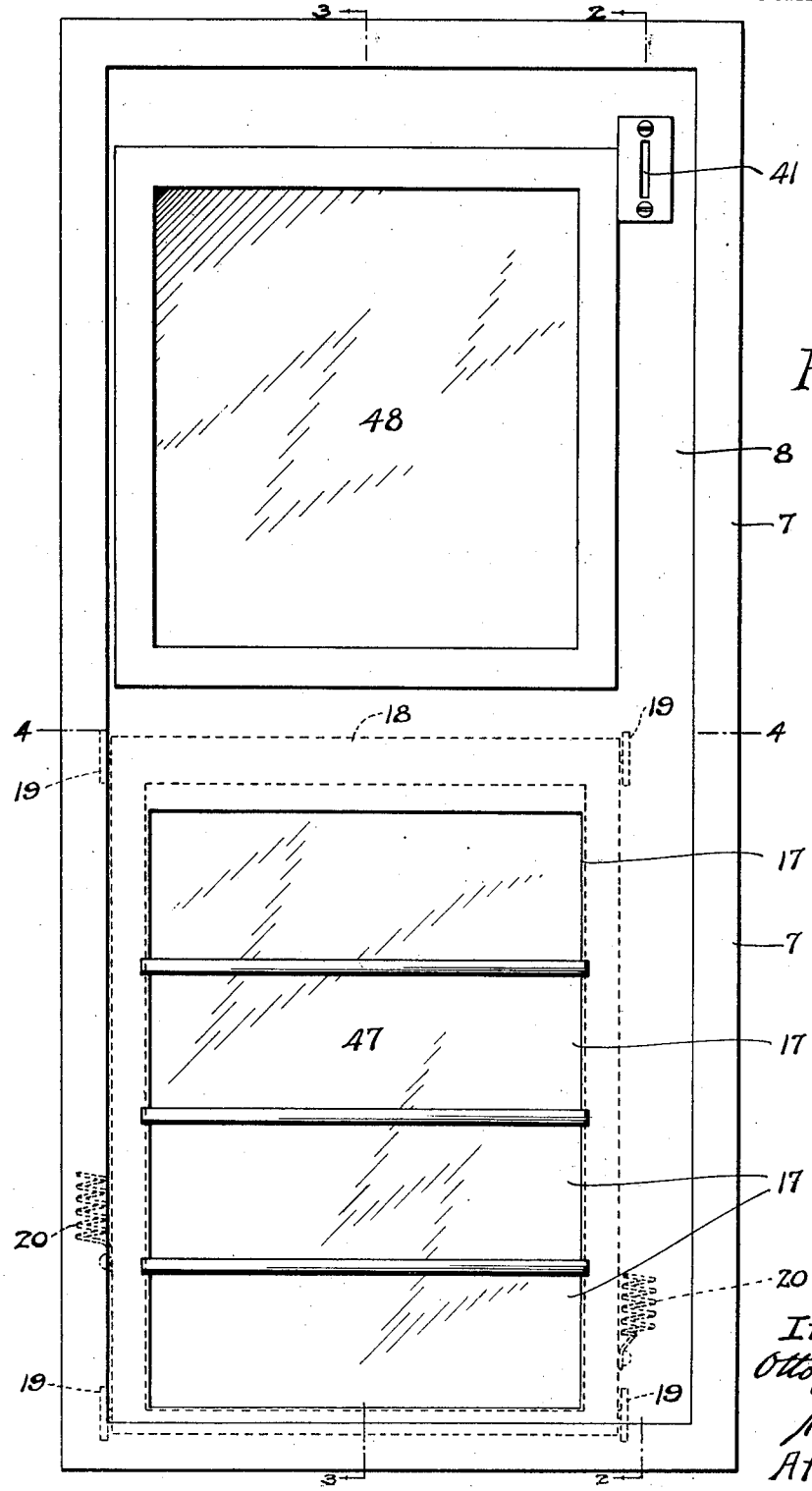


Fig. 1.

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3 SHEETS—SHEET 2.

Fig. 2.

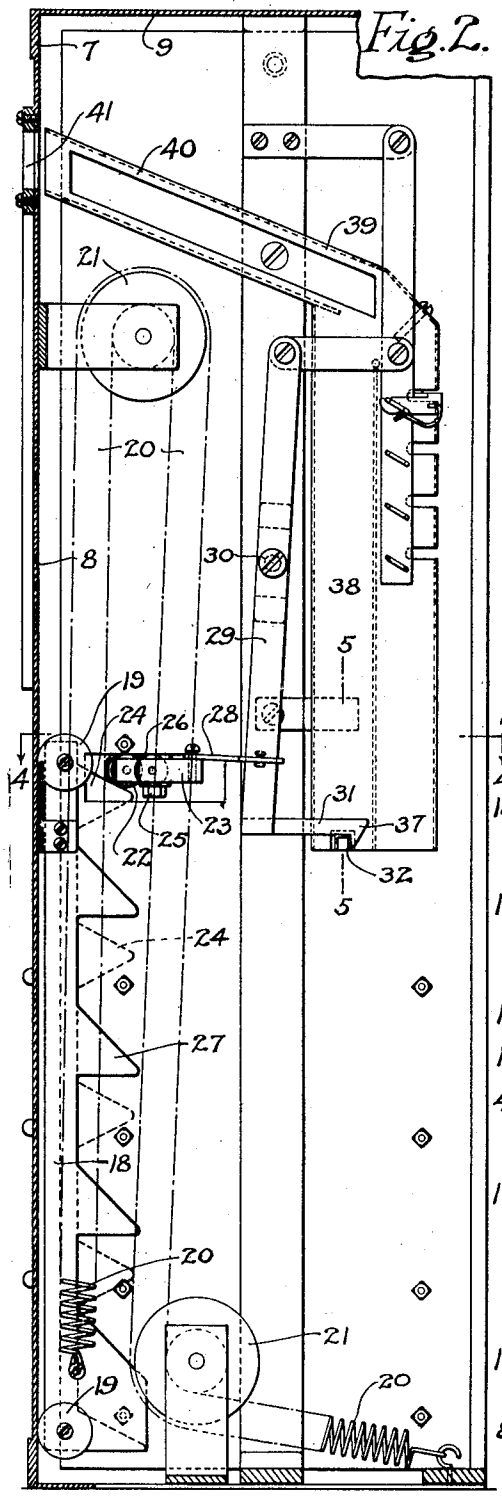
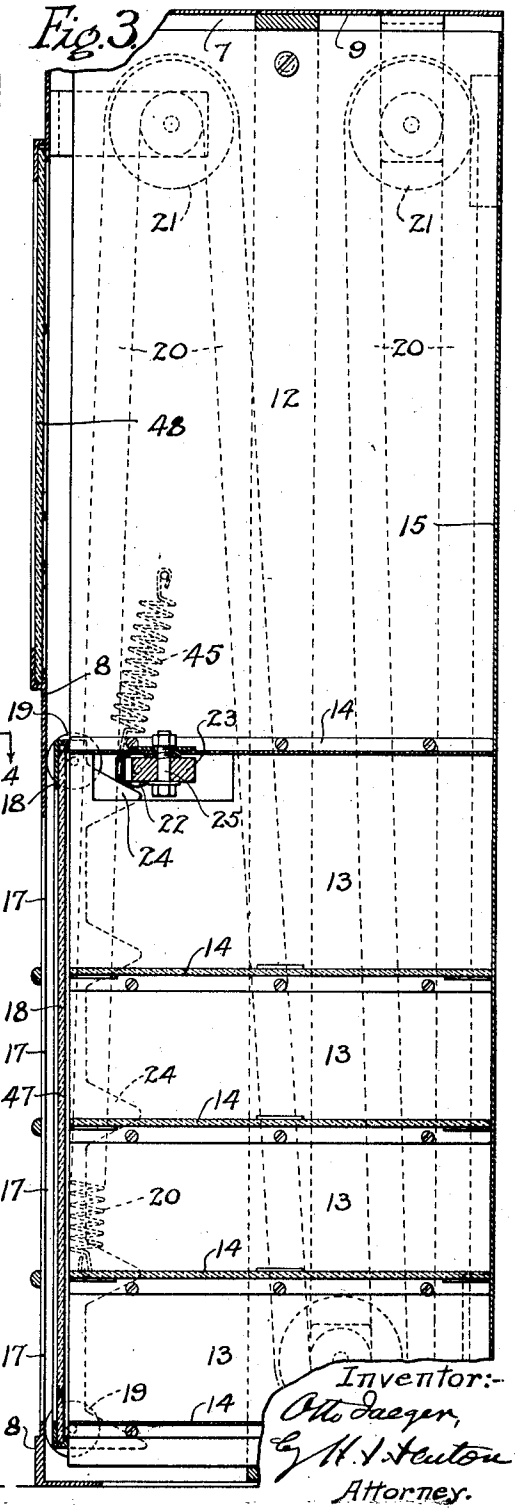


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 4.

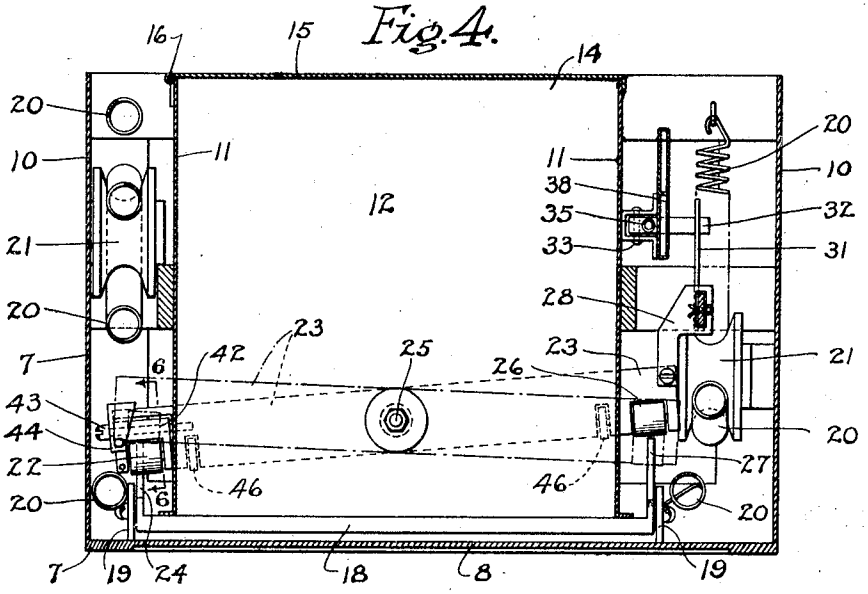


Fig. 5.

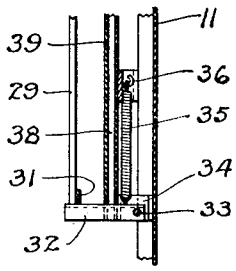
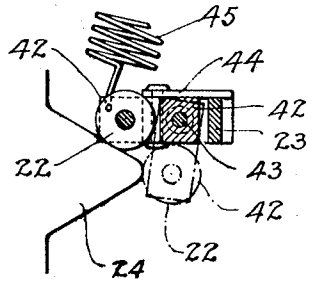


Fig. 6.



Inventor:
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UNITED STATES PATENT OFFICE.

OTTO JAEGER, OF ELKINS PARK, PENNSYLVANIA, ASSIGNOR TO HARRY S. KELSEY, OF BOSTON, MASSACHUSETTS.

DISPENSING-MACHINE.

1,327,712. Specification of Letters Patent. **Patented Jan. 13, 1920.**

Application filed June 26, 1919. Serial No. 306,787.

To all whom it may concern:

Be it known that I, OTTO JAEGER, a citizen of the United States, residing at Elkins Park, in the county of Montgomery, State of Pennsylvania, have invented certain new and useful Improvements in Dispensing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improvements in dispensing machines having a plurality of compartments adapted to receive and display the articles to be dispensed and provided with means whereby the compartments may be opened successively to permit the removal of the articles contained therein.

Such machines are usually used for vending purposes and are provided with a rear door, under the control of the attendant, for opening the compartments, at the back thereof, for the purpose of supplying them with the articles to be dispensed or sold; and such machines are provided with a front door and means to control and operate it for the purpose of opening the compartments at the front of the machine successively to permit the contents of the compartments to be removed therefrom, one at a time.

The object of my invention is to improve the mechanism for controlling and operating the front door, and with this object in view, my invented machine consists of the elements, and the combinations of them hereinafter described and claimed.

In the accompanying drawings, illustrating my invention,

Figure 1 is a front elevation of my improved dispensing machine.

Figs. 2 and 3 are vertical sections thereof, on lines 2—2 and 3—3, respectively, of Fig. 1.

Fig. 4 is a horizontal section through the machine, on line 4—4 of Fig. 1.

Fig. 5 is a sectional detail of the latch arm and associated parts, on line 5—5 of Fig. 2.

Fig. 6, is a sectional detail of the escapement lever and one of the racks, on line 6—6 of Fig. 4.

Referring to the drawings, 7 designates a suitable frame or casing which includes in its construction a front wall 8, a top wall 9 and outer and inner side walls 10 and 11, respectively. The casing 7, between its inner side walls 11, is divided into a large upper compartment 12 and a series of smaller compartments 13 below the same by horizontal walls or shelves 14 which extend between and are secured to the inner side walls 11.

The back of the compartments 12 and 13 is normally closed by a door 15 which extends between the walls 11 and which is hinged at 16 to one of them. By opening the door 15 access may be readily had to the interior of the compartments from the rear of the casing for the introduction of articles thereto or their removal therefrom, as desired. The front wall 8 of the casing 7 is provided with a series of openings 17 therein, which correspond in number and position with the compartments 13 and through which access may be had to the compartments 13 for the removal of articles therefrom.

The compartments 13 at the front thereof are normally closed by a door 18 which is fitted to slide vertically between the front wall 8 and the forward edges of the inner side walls 11 of the casing, the upper and lower ends of the respective sides of the door 18 being provided with suitable anti-friction rollers 19 which are adapted to bear against the inner face of the front wall 8.

The door 18 is adapted to be raised to clear the openings 17 and thereby open the compartments 13 at the front thereof, by two long coiled springs 20 located within the spaces between the inner and outer side walls 10 and 11 on the respective sides of the compartments 12 and 13. The forward ends of the springs 20 are attached to the sides of the door 18 and the rearward ends thereof are attached to the casing 7. The springs 20 pass from the door 18 up and down and around grooved guiding rollers 21

which are suitably journaled in the casing 7, as shown in the drawings.

The door 18 is held down in the closed position, illustrated, against the action of the springs 20 by a roller 22 which is carried by one end of a lever 23 and which engages the top face of the upper tooth of a rack 24 which is formed on or carried by one side of the door 18 and projects rearwardly therefrom. The lever 23 is fulcrumed, at 25, on the under side of the upper wall 14 and the other end thereof carries a roller 26 which is adapted to be engaged by the teeth of a rack 27 carried by the other side of the door 18 and projecting rearwardly therefrom.

The top and bottom faces of the teeth of the rack 24 are oppositely beveled and the top faces of the teeth of the rack 27 are beveled similarly to the top faces of the teeth of the rack 24, and teeth of the rack 27 are arranged in horizontal planes between the teeth of the rack 24, so that when the lever 23 is freed, the upward pressure of the rack 24 against the roller 22 will cause the beveled face of its tooth engaged with the roller to move the same rearwardly to clear the rack 24, and, at the same time to move the lever 23 to the dot-and-dash line position and thereby move the roller 26 forwardly to a position above a tooth of the rack 27. After this movement of the lever 23, the continued upward pull of the springs 20 upon the racks 24 and 27 will cause the top beveled face of the tooth of the rack 27 beneath the roller 26 to engage the same and return the lever 23 to the position shown by full and dotted lines and in position for the next succeeding tooth of the rack 24 to engage the roller 22, whereupon the operation just described will be repeated if the lever 23 is free to move back and forth; and so on, the teeth of the two racks 24 and 27 will engage the rollers 22 and 26 in alternate succession, respectively, and move the lever 23 back and forth from the two positions shown by dot-and-dash lines and by dotted and full lines in Fig. 2. It will thus be seen that the lever 23 in combination with the racks 24 and 27 acts as an escapement device which permits the door 18 to be opened by the springs 20. The teeth of the racks 24 and 27 are spaced and arranged relatively to each other and to the compartments 13 so that each time the racks 24 and 27 move the lever 23 back and forth to free one tooth of the rack 24 from the roller 22 and bring its next succeeding tooth into engagement therewith the door 18 will be raised to open one of the compartments 13.

The lever 23 is held normally in the position shown by dotted and full lines in Fig. 4, preventing the raising of the door 18 by devices which are operative to release the lever 23 and which I shall now describe.

The end of the lever carrying the roller 26 is connected by a link 28 to an arm or lever 29 which is pivoted, at 30, to a part of the casing 7. The lower end of the arm 29 has a hook 31 formed thereon or secured thereto which is adapted to engage a latch arm 32 and prevent the upward pressure of the rack 24 against the roller 22 from moving the lever 23 from the position shown by dotted and full lines in Fig. 4. The latch arm 32 is pivoted, at 33, to a bracket 34 on the casing 7 and it is held normally in the horizontal position, shown in the drawings, by a spring 35 one end of which is attached to the latch arm 32 and the other end of which is attached to a bracket 36 on the casing 7.

The latch arm 32 is adapted to be depressed against the action of the spring 35 to release the hook 31, and when the hook 31 is thus released, the lever 23 is free to be moved back and forth by the racks 24 and 27, as previously explained, the link 28 and the pivoted arm 29 and its hook 31 moving with the lever. The latch arm 32 is released immediately after it is depressed to release the hook 31; and, when the arm 32 is released, the spring 35 returns it to the normal or horizontal position, as shown in the drawings, so that, following the release of the hook 31 by the depression of the arm 32, the rack 24 will move the lever 23 to the dot-and-dash line position and the rack 27 will return the lever 23 to the position shown by dotted and full lines. As the lever 23 is thus returned to this position the arm 29 and hook 31 will be returned to the position shown in Fig. 2, and, during the return of the hook, its beveled end 37 will engage the latch arm 32 and depress it until the hook passes the arm 32, whereupon the arm 32 will spring back to the position shown in Fig. 2 and prevent any further movement of the lever 23 by the rack 24 until the latch arm 32 is again depressed. It will thus be seen that each time the latch arm 32 is depressed and released the escapement device controlling the door 18 will permit the springs 20 to raise the door 18 to open one of the compartments 13, and that successive operations of the latch arm 32 will cause the compartments 13 to be opened successively.

The latch arm 32 may be operated manually or through the instrumentality of a coin or check inserted into the machine. In the drawings I have shown the latch arm 32 extending transversely through the lower end of the vertical portion 38 of a coin guide 39 which is suitably supported within the casing 7. The upper end of the vertical portion of the coin guide 39 communicates with an inclined portion 40 thereof, and the upper end of the inclined portion 40 com-

municates with a slot 41 in the front wall 8 of the casing 7. This construction permits the latch arm 32 to be operated to open the compartments 13 successively by the successive insertion of coins into the slot 41. Each time a coin is inserted therein it passes by gravity down through the coin guide 39, and, as the coin reaches and drops from the bottom of the guide, the coin strikes the latch arm 32 and depresses it to release the hook 31, and, immediately after the hook 31 has been released, the spring 35 returns the arm 32 to normal position to be reëngaged by the hook 31 after the door 18 has been permitted to move to open one compartment 13.

After the door 18 has been raised to open all the compartments 13, the door 18 is moved downwardly by hand against the action of the springs 20 to the position closing all the compartments, as shown in the drawings, and this is done while the hook 31 is engaged with the latch arm 32 preventing movement of the lever 23. To permit such downward movement of the door 18, I mount the roller 22 on a bracket 42 which is pivoted, at 43, to the lever 23, and I hold the bracket 42 up in the position shown by full lines in Fig. 6, with a stop part 44 on the lever 23 in engagement with the bracket 42, by a spring 45, one end of which is attached to the bracket 42 and the other end of which is attached to one of the inner side walls 11 of the casing 7. When the door 18 is moved downwardly to close the same, the beveled bottom faces of the teeth of the rack 24 engage the roller 22 and move it out of their path by swinging the bracket 42 downwardly against the action of the spring 45, to the position shown by dot-and-dash lines in Fig. 6. The bracket 42 springs back to its normal position after each tooth passes it; and, after the door 18 has been closed, the roller 22 is above the uppermost tooth of the rack 24, as illustrated, to hold the door 18 closed and to permit it to be opened, as previously described.

During the operation of opening the door 18, the racks 24 and 27 press the lever 23 toward the wall 14 on which it is mounted, and, therefore, to relieve the strain upon the pivot pin of the lever 23 and to reduce friction, I provide the lever 23 with suitable rollers 46 which bear against the wall 14 above it.

The door 18 is provided with a large transparent panel 47 of glass which exposes the contents of the compartments 13 to view; and the front wall 8 of the casing 7 is provided with a transparent panel 48 for the purpose of displaying any articles which may be placed within the upper compartment 12.

I claim as my invention:—

1. In a dispensing machine the combination with a casing providing a plurality of storing compartments and a slidable door normally closing said compartments, and with means having a constant tendency to move it in a direction to open them successively, of an escapement device operative to control the movement of the door in said direction, comprising two racks carried by opposite sides of the door, and a coöperating lever centrally pivoted on a fixed support, each of the opposite ends of said lever being adapted to engage one of said racks, in alternating succession, and rocked on its pivotal bearing by the constant tendency of the movable door to move said lever into engagement therewith and thereby open one compartment each time the lever is rocked, and a latch device locking the lever against any movement and operable to release the same.

2. In a dispensing machine, the combination with a casing provided with a plurality of storing compartments, of a movable door normally closing all of said compartments, means constantly tending to move the door to open position, and means tending to hold the door in closed position and operative to release the same to open said compartments successively, said means comprising two opposite racks carried by the door, and a coacting centrally pivoted lever having opposite ends adapted to respectively engage one of said racks and open one compartment, and to be moved out of engagement with the other rack to close the adjacent compartment, said lever being rocked on its pivotal bearing by the upward movement of the door, and means to lock the lever against movement by one of said racks and operative to release the same.

3. In a dispensing machine the combination with a casing having a plurality of storing compartments, a movable door normally closing said compartments and means constantly tending to move it in a direction to open them, of an escapement device operative to control successively, as respects each compartment, the normal movement of the door in said direction, said device comprising two opposite racks carried by the door and a coöperating lever, centrally pivoted on the casing, having opposite ends adapted to be engaged by said racks respectively in alternating succession and rocked on its pivotal bearing by the upward tendency of movement of the door to effect such engagement, and means to automatically lock the lever against movement by one rack when the lever is moved by the other rack to a predetermined position, said means being operative to release the same.

4. In a dispensing machine and in com-

bination, a casing having a plurality of storing compartments, a movable door closing said compartments and tending to move in a direction to open them successively, an escapement device for controlling the movement of the door in said direction and comprising two racks carried by the door and a coöperating lever, said door and racks tending to move said lever back and forth from one rack to the other in alternate succession, and said lever permitting the door to move to open one compartment each time the lever is permitted to move back and forth, a movable latch to automatically lock the lever against movement by one rack when the lever is moved by the other rack to a predetermined position, said latch being operative to release the lever.

5. In a dispensing machine and in combination, a casing having a plurality of storing compartments, a movable door closing said compartments and tending to move in a direction to open them successively, an escapement device for controlling the movement of the door in said direction and comprising two racks carried by the door and a coöperating lever, said door and racks tending to move said lever back and forth from one rack to the other in alternate succession, and said lever permitting the door to move to open one compartment each time the lever is permitted to move back and forth, a hook operatively connected to the lever, and a latch adapted to be engaged by said hook to lock the lever against movement by one rack when it is moved by the other rack to a predetermined position, said latch being operative to release the lever.

6. In a dispensing machine and in combination, a casing having a plurality of storing compartments, a movable door closing said compartments and tending to move in a direction to open them successively, an escapement device for controlling the movement of the door in said direction and comprising two racks carried by the door and a coöperating lever, said door and racks tending to move said lever back and forth from one rack to the other in alternate succession, and said lever permitting the door to move to open one compartment each time the lever is permitted to move back and forth, a hook operatively connected to the lever, and a spring pressed latch adapted to be engaged by said hook to lock the lever against movement by one rack when it is moved by the other rack to a predetermined position, said latch being operative against its spring action to release the hook, and said hook having a beveled portion adapted to operate the latch to cause the engagement of the hook therewith when the lever is moved to said position.

7. In a dispensing machine and in combination, a casing having a plurality of storing compartments, a movable door closing said compartments and tending to move in a direction to open them successively, an escapement device for controlling the movement of the door in said direction and comprising two racks carried by the door and a coöperating lever, said door and racks tending to move said lever back and forth from one rack to the other in alternate succession, and said lever permitting the door to move to open one compartment each time the lever is permitted to move back and forth, a pivoted arm provided with a hook, a link connecting the arm and the lever, and a latch adapted to be engaged by said hook to lock the lever against movement by one rack when it is moved by the other rack to a predetermined position, said latch being operative to release the lever.

8. In a dispensing machine and in combination, a casing having a plurality of storing compartments, a movable door closing said compartments and tending to move in a direction to open them successively, an escapement device for controlling the movement of the door in said direction and comprising two racks carried by the door and a coöperating lever, said door and racks tending to move said lever back and forth from one rack to the other in alternate succession, and said lever permitting the door to move to open one compartment each time the lever is permitted to move back and forth, a pivoted arm provided with a hook, a link connecting the arm and the lever, and a spring pressed latch adapted to be engaged by said hook to lock the lever against movement by one rack when it is moved by the other rack to a predetermined position, said latch being operative against its spring action to release the hook, and said hook having a beveled portion adapted to operate the latch to cause the engagement of the hook therewith when the lever is moved to said position.

9. In a dispensing machine and in combination, a casing having a plurality of storing compartments, a movable door closing said compartments and tending to move in a direction to open them successively, an escapement device for controlling the movement of the door in said direction and comprising two racks carried by the door and a coöperating lever, said door and racks tending to move said lever back and forth from one rack to the other in alternate succession, and said lever permitting the door to move to open one compartment each time the lever is permitted to move back and forth, and means to control the movement of the lever, said lever having a pivoted member preventing movement of one of said racks in said direction when engaged therewith and

permitting movement of the rack in a reverse direction when engaged therewith.

10. In a dispensing machine and in combination, a casing having a storing compartment, a movable door closing the compartment, springs on the respective sides of the compartment passing around pulleys on the casing and connected to the door and the casing and tending to move the door to open the compartment, and means to hold the door in the closed position against the action of said springs, said means being operative to release the door.

In testimony whereof, I have hereunto affixed my signature this 24th day of June, A. D. 1919.

OTTO JAEGER.

Witnesses:
J. M. TUNIS,
ALEXANDER PARK.