C. W. HITCHNER.

COIN CONTROLLED VENDING MACHINE.

APPLICATION FILED JAN. 21, 1915.

1,159,939.

Patented Nov. 9, 1915.

4 SHEETS—SHEET 1.

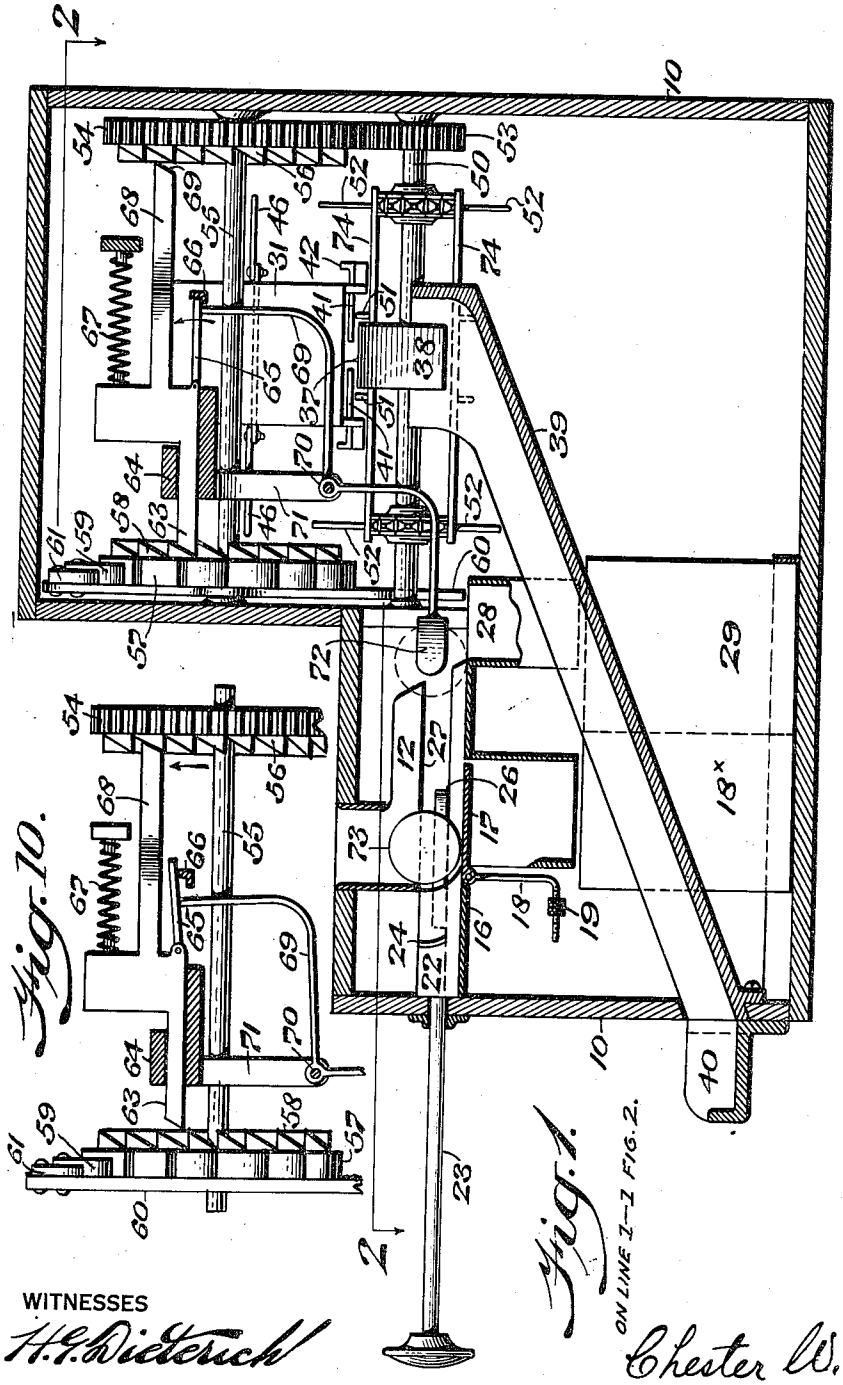

Fig. 1.

Fig. 10.

Fig. 9.

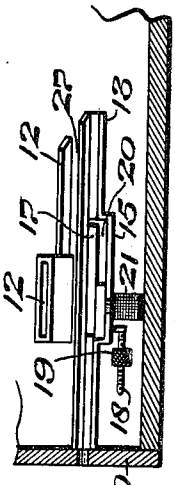

Fig. 8.

ON LINE 2—2 FIG. 2.

WITNESSES

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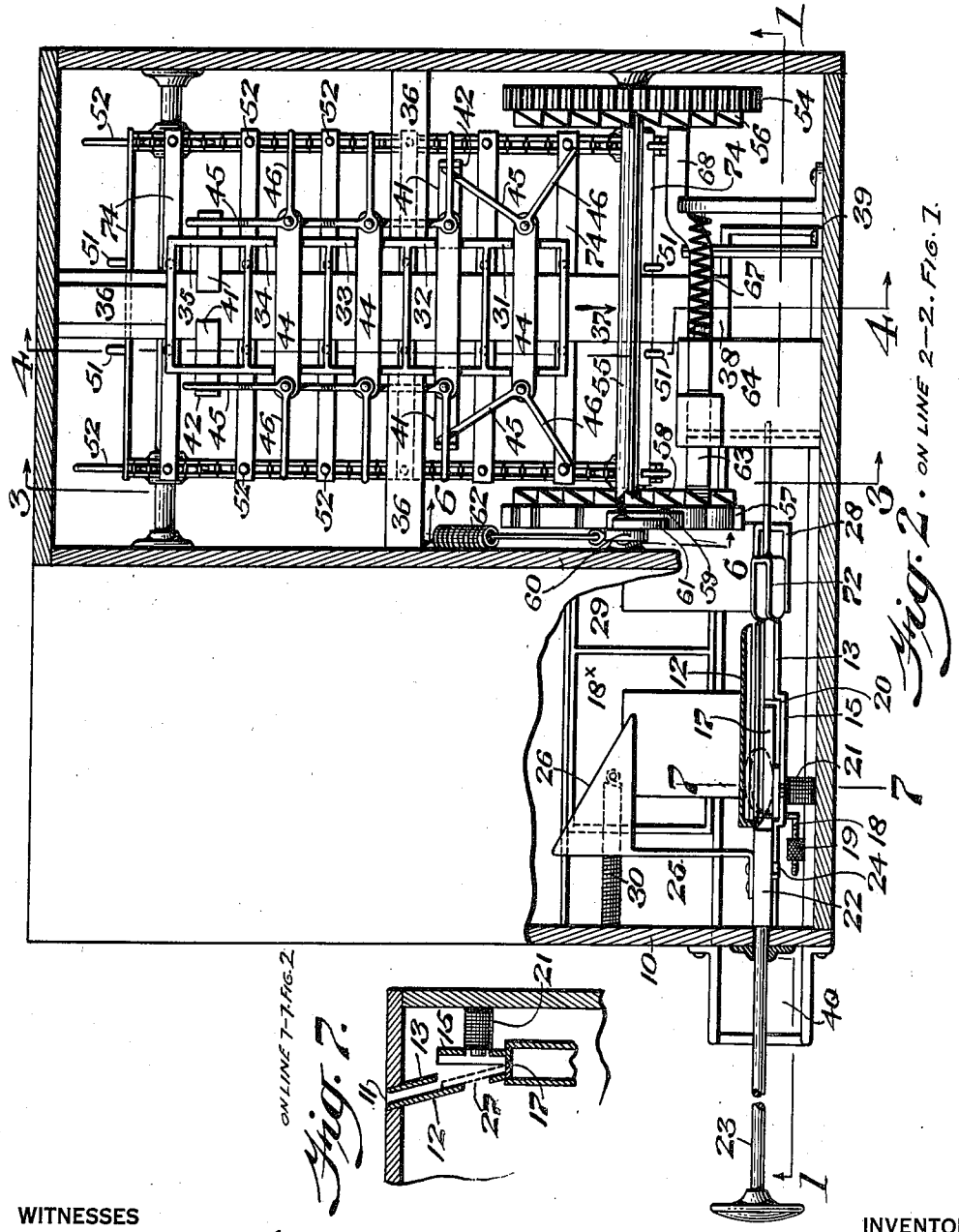

Fig. 2. ON LINE 2—2. FIG. 7.

Fig. 7. ON LINE 7-7, FIG. 2

WITNESSES

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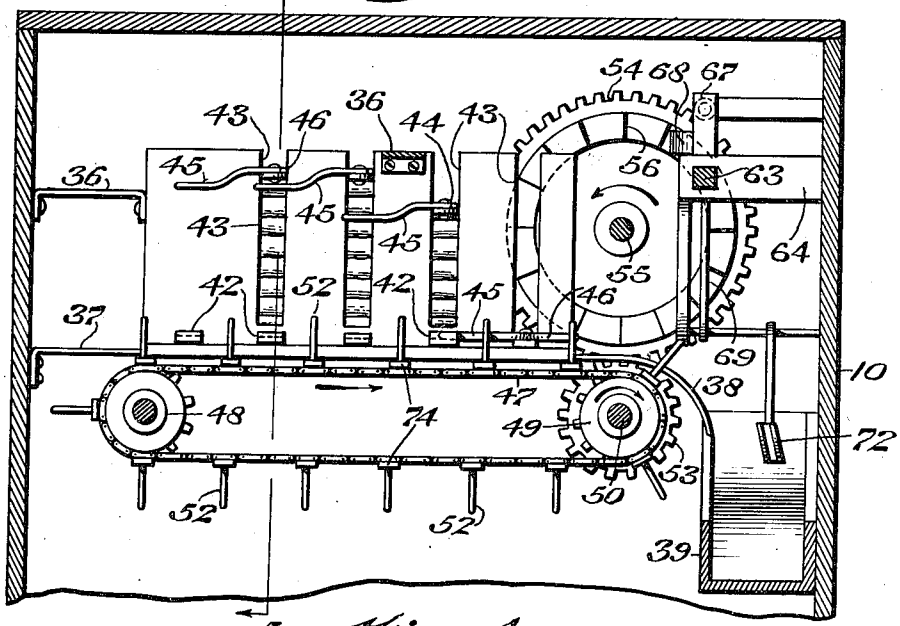
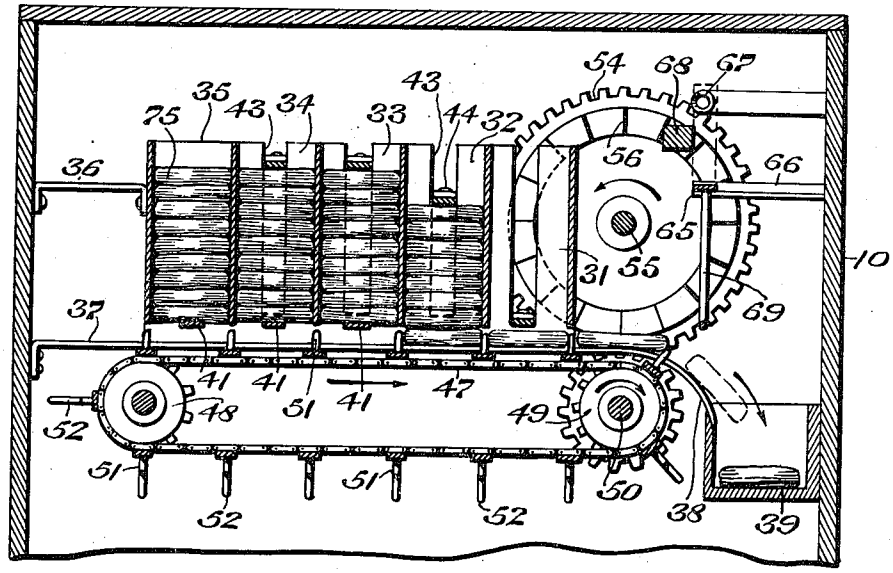
4 SHEETS—SHEET 3.

5 Fig. 3 ON LINE 3-3 FIG. 2.



5 Fig. 4 ON LINE 4-4 FIG. 2.



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4 SHEETS—SHEET 4.

Fig. 6. ON LINE 6-6. FIG. 2.

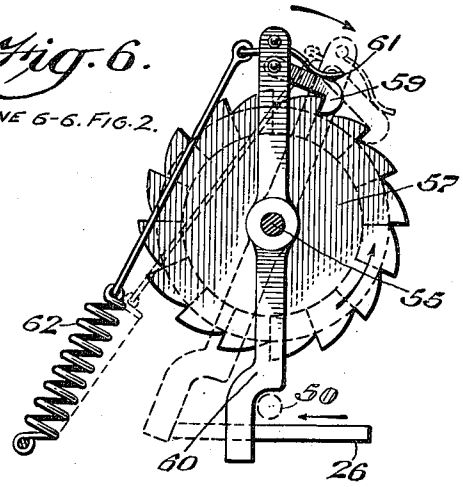
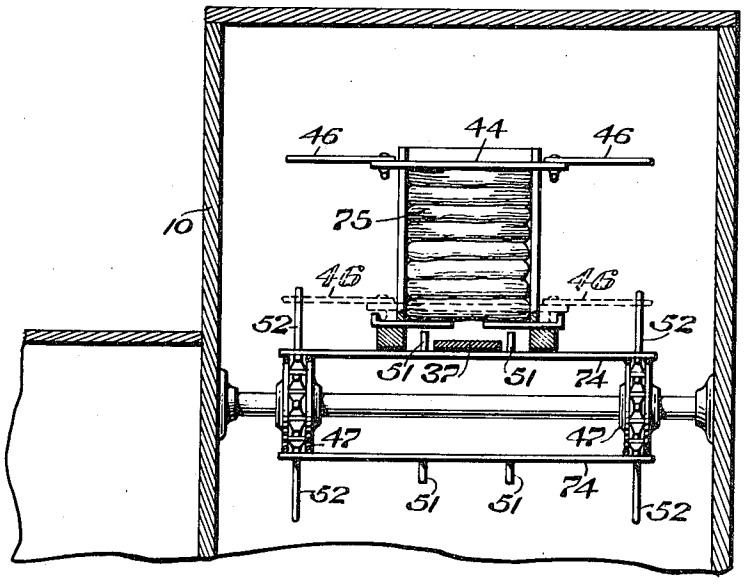


Fig. 5. ON LINE 5-5. FIG. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

CHESTER W. HITCHNER, OF PHILADELPHIA, PENNSYLVANIA.

COIN-CONTROLLED VENDING-MACHINE.

1,159,939. Specification of Letters Patent. Patented Nov. 9, 1915.

Application filed January 21, 1915. Serial No. 3,496.

To all whom it may concern:

Be it known that I, CHESTER W. HITCHNER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Coin-Controlled Vending-Machine, of which the following is a specification.

My invention consists of a novel construction of delivering mechanism comprising novel means for normally locking the same and for releasing the mechanism.

It further consists of novel means for supporting the articles and for releasing and placing the same in position to be removed for delivery.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

For the purpose of illustrating my invention, I have shown one form of the device, as this embodiment best illustrates the principle of my invention, although it is obvious that the various instrumentalities of which my invention consists can be variously arranged and organized, and it is to be understood that my invention is therefore not limited to this construction.

Figure 1 is a vertical sectional view of a coin-controlled apparatus on line 1—1 Fig. 2. Fig. 2 is a horizontal sectional view thereof on line 2—2 Fig. 1. Fig. 3 is a vertical sectional view on line 3—3 Fig. 2. Fig. 4 is a vertical sectional view on line 4—4 Fig. 2. Fig. 5 is a vertical sectional view on line 5—5 Fig. 3. Fig. 6 is a vertical sectional view on line 6—6 Fig. 2, with certain parts removed and showing, in dotted lines, different positions of certain of the parts. Fig. 7 is a vertical sectional view on line 7—7 Fig. 2. Fig. 8 is a plan view of the coin chute with a portion of the casing in section and with the plunger removed. Fig. 9 is a detail sectional view of the plunger. Fig. 10 is a vertical sectional view of a portion of the mechanism shown in Fig. 1, with the parts in a different position therefrom.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings: 10 designates the casing or frame of the machine which is of any suitable form and construction and which, it will be understood, suitably supports and carries the various parts hereinafter described, and it will be further understood that the operation of the various parts is so timed as to operate at the proper time and in the proper sequence to accomplish the desired results.

At a suitable point in the casing 10 I provide an opening 11 which communicates with or receives the end of the coin chute, which, as here shown, is provided with a substantially horizontally extending portion and a portion extending angularly thereof. The chute has a side wall 12 and a side wall 13 forming a coin-slot, the said wall 12 being inclined, as best seen in Fig. 7, and being adapted to hold a proper coin in an inclined position. The wall 13 is provided with an offset portion 15 which is situated angularly with respect to the inclined wall 12 for purposes to be hereinafter described. A portion of the bottom of the slot is open and at this point is pivotally mounted a closure 17 upon a wall 16 thereof, and as here shown, the closure consists of a plate with which is suitably connected a threaded rod 18 having a weight 19, or its equivalent, adjustably mounted on said rod, which is adapted to balance the plate and hold the same in and return the same to its normal closed position, as seen in Fig. 1, it being understood that said plate 17 is adapted to support a coin of the proper weight when received in the chute and is adapted, when a heavier coin is inserted, to be depressed thereby, to discharge the said heavier coin from the coin-slot. As here shown, it is deposited into a suitable receptacle $18^{\times}$, positioned beneath the said plate 17. A portion of the bottom of the chute or slot at the offset 15 thereof is open or cut away as at 20.

21 designates a magnet or other attractive means suitably positioned at the offset portion 15 of the chute and which magnet is adapted to attract and hold a bogus or improper coin when inserted in a substantially upright position, that is to say, it will move the same from the inclined position resting against the inclined wall 12 of the chute.

22 designates a plunger of suitable construction and movably mounted in the coin-slot and which is provided with a push rod 23 slidingly extending through the wall of the casing 10 to a suitable point exterior thereof for engagement by the operator.

24 designates a lug or extension, here

shown on one side of the plunger, which is adapted, when the plunger is actuated, to move in the offset portion 15 of the coin-slot.

Carried upon the opposite side of the plunger, by an arm 25, is a cam member 26 which is adapted at the proper time to engage with and operate means for imparting movement to a delivering mechanism. A slot 27 is here shown as provided in the wall 12 to permit movement of the arm 25 therein.

Suitable means is positioned adjacent the end of the coin-slot to receive or to be engaged by a proper coin in order to actuate the delivery mechanism and at a suitable point adjacent the end of the coin-slot is a guiding member 28 adapted to receive and deliver the coin to a receptacle 29 suitably positioned for this purpose.

The operation of the coin chute will be readily appreciated from the above. A proper coin being inserted in the opening 11 will fall into the chute and upon the movable bottom 17 and will rest against the inclined wall 12 of the chute, being thus held in an inclined position, that is, in the position seen in dotted lines in Fig. 7, and, as the weight 19 has been adjusted to support the plate 17 with the weight of a proper coin thereon, the plate 17 will remain in its closed position and will hold the coin in the slot. The operator, by pushing inwardly upon the rod 23, will actuate the plunger 22, which will engage the coin, still resting against the inclined side 12, and will move it along the horizontally extending portion of the chute and will cause the coin to engage with the means at the end of the chute for actuating the delivery mechanism. At the proper time, the coin will fall therefrom and be directed into the receptacle 29. Upon the release of the plunger 22 by the operator, a spring 30, connected therewith and with a suitable stationary point, will return the parts to their normal position, ready for the next operation. Should, however, a coin or article be deposited into the chute, which is heavier than a proper coin, upon reaching the movable plate 17, it will overcome the effect of the weight 19 and will depress the said plate 17, so that said heavier coin or article will fall from the coin-slot and be deposited in the receptacle 18^{x}. Should a bogus or improper coin or article be inserted into the chute and which is of a material to be attracted by the magnet 21, the action of the same will be to draw the bogus coin from its inclined position against the inclined side 12 and will hold the said bogus coin in a substantially upright position against the offset wall 15. When the operator, at this time, presses in the plunger 22, the latter will not engage the same but the lug 24 carried thereby will engage with the said bogus or improper coin or article and will move the same forwardly until it reaches the opening 20 in the bottom of the offset portion, through which opening it falls into the receptacle 18^{x}, so that the mechanism is not operated.

From the above, it will be understood that I have provided a coin chute which is adapted to discard improper and bogus coins and which is adapted to properly receive and guide a proper coin to operate the delivering mechanism, and I desire it understood that by the use of the terms "improper coin", "bogus coin" or "heavier coin", I desire to cover any improper article, coin, or disk, which may be used.

It will be understood that in the present drawings, I have shown an apparatus or machine which is particularly adapted for dispensing so-called biscuit sandwiches, although the same may be adapted for use on other articles, and I will now describe the dispensing mechanism.

31 designates a container or hopper adapted to receive a plurality of the articles in a stack to be vended and adjacent said container, or in suitable relation thereto, is a second container or hopper 32, which is also adapted to receive a stack or plurality of the articles to be vended, while in suitable relation to said container or hopper 32, I have here shown three other containers or hoppers 33, 34 and 35. It will be understood, however, that two or more of these hoppers or containers may be employed, as may be desired, or necessary, and that said containers are supported or carried in any suitable manner within the casing 10, as for example, by the bars 36. Suitably supported and extending beneath the containers is a guiding and supporting means, here shown as a supporting track 37, which is adapted, at the proper time, to support the articles and the end 38 of which is suitably located and positioned in order to deliver or discharge the articles therefrom into a suitable chute 39 which extends through a suitable opening, to a point exterior of the casing 10, to deposit the article into a delivery receptacle 40. Each of the containers or hoppers, excepting the first hopper 32, are provided with movable closures for initially supporting the articles therein, the closures, in the present instance, consisting of the bars 41 normally extending beneath the open bottom of each hopper, from opposite sides thereof, and slidingly mounted in the walls of the hoppers and each being provided with an engaging means, such as a flange 42. Supported upon the uppermost article of the containers and movable in slots 43 in the side walls thereof are the bars or weights 44, each of which carry, adjacent their opposite

ends, a pivotally mounted elbow lever consisting of the arms 45 and 46, one arm, as 45 of which, at the proper time, is adapted to engage with the engaging means 42 of a closure 41, and the other arm 46 is adapted to be engaged by movable means to be actuated, as will be hereinafter described, to move the closures 41 to open a container, as the preceding container is emptied, so that the stack of articles in that container will lower and rest upon and be supported by the track 37.

Suitably positioned with respect to the track 37 is a movable conveyer mechanism, here shown as endless chains 47, which pass around the sprockets 48 and 49, the latter being here shown as mounted upon a shaft 50. Carried in any suitable manner upon the conveyer are teeth 51, there being two series thereof, as here shown, extending, when in proper position, upon opposite sides of the track 37 and to a point suitably above the same in order to engage with the lowermost article supported by the track, in order that when the conveyer mechanism is properly actuated, it will carry the lowermost article from beneath a stack along the track 37 and will deliver the same into the chute 39 for the discharge of the article from the apparatus. Also carried by the conveyer are the series of pins 52 suitably positioned in order that when a weight 44 has been lowered sufficiently, the arms 46 carried thereby will be located in the path of movement of the pins 52 to be engaged thereby to actuate the elbow lever to open the closures 41 of a container, it being understood that the member 44 and the arms 45 and 46 thereof do not reach this proper position until the container to which it belongs has been emptied of the articles, from which it will be seen that the stack of articles in each container are normally supported therein until the preceding container has been emptied, whereupon the closure of the succeeding container is opened and the stack of articles therein is automatically released to be supported upon the track 37 and so placed in proper position for vending, whereby the contents of the successive containers are brought into operative position.

It will be understood that the movement of the conveyer is controlled by coin actuated mechanism and the movement of the conveyer at each operation must be suitable in order to deliver one article (or a predetermined desired number of articles) at each operation. To accomplish this result, I have mounted a gear 53 upon the shaft 50 through which motion is to be imparted to the conveyer mechanism and meshing with said gear 53 is a gear 54 mounted on a shaft 55, and carried by said gear 54 are the cam teeth 56. Mounted on said shaft 55 is a ratchet wheel 57 having suitable teeth thereon and carrying the cam teeth 58. 59 designates a pawl suitably carried upon a lever 60 and which pawl is yieldingly held in proper position by a spring 61. Connected with the pawl end of the lever 60 is a spring 62 which is also connected with a suitable stationary point, it being understood that the lower end of the lever 60 is in suitable position and relation to the cam member 26 of the plunger 22 of the coin-controlled mechanism, in order that the said lever 60, at the proper time, will be engaged by the cam face 26, as will be hereinafter described.

63 designates a locking member or latch slidingly mounted in the support 64 carried by the casing 10. Pivotally connected with said latch is a rod 65, the free end of which is adapted to normally engage with and abut a stop 66 suitably supported for this purpose.

67 designates a spring, one end of which is connected with said latch 63 and the other end of which is connected with a suitable stationary point, and which spring is adapted, when the rod 65 is released, as will be hereinafter described, to quickly and positively remove the latch 63 from its engagement with one of the teeth 58, carried by the ratchet 57, to release the latter.

68 designates an arm carried by the latch 63 and having a cam face 69′ adapted to be engaged at the proper time by one of the cam faces of the teeth 56 carried by the gear 54, it being understood that this engagement takes place after the spring 67 has removed the latch 63 from its engagement with a tooth 58. It will be understood that the normal position of said latch 63 is such that it is in engagement with one of the teeth 58 in order to prevent movement of the ratchet 57 and thus lock the conveyer, until released by the coin-controlled mechanism. In order to accomplish this, I have provided an arm 69, one end of which is in engagement with the rod 65 and said arm 69 being pivoted at 70 to a support 71, the opposite end of the arm 69 being provided with means for engagement by the coin from the coin chute previously described. As here shown, I have provided a forked member 72 for this purpose suitably situated to receive the coin 73.

It will be understood that the teeth 51 and pins 52 are carried in any suitable manner, and as here shown, it will be seen that I have provided two chains passing around suitable sprockets, which chains are connected by the bars 74 connected therewith and extending therebetween, and which bars carry the said teeth 51 and pins 52.

The operation of the parts just described is as follows: The containers are filled with the articles 75 to be vended. The articles of

the first container are resting upon the track 37 and the articles in the succeeding containers are supported by the closures 41, which have been positioned to extend suitably beneath the open bottoms of the containers and between the same and the track 37. The weights 44 are resting upon the uppermost articles in the proper containers with the arms 45 and 46 in suitable initial position. The parts being in the position seen in Fig. 1, with the latch 63 locked, a proper coin 73 is inserted in the coin chute and the plunger 22 actuated. The coin will be delivered into the fork 72 and will rock the arm 69 upon its pivot 70, which will raise the end of the arm 69 in engagement with the rod 65, removing the latter from its engagement with the stop 66, immediately upon which the spring 67 acts to remove the latch 63 from its engagement with a tooth 58 and moves the arm 68 into position to have its face 69 engaged by the cam face of a tooth 56, at the proper time. In the meantime, the cam 26 engages with the lower end of the lever 60, rocking the same on its pivot and moving it to the position seen in dotted lines in Fig. 6, and causing the pawl to engage with the next succeeding tooth. When the plunger 22 is released and is returned to normal position by the spring 30, the spring 62 actuates the lever 60 to return the same to its normal position (seen in full lines Fig. 6) and thus moving the ratchet 57 the distance of one tooth. This actuates the shaft 55 and imparts movement to the gear 54 and thence to the gear 53. The movement of the gear 53, rotates the shaft 50 and moves the conveyer mechanism a suitable distance to remove the lowermost article from the stack of the first container 31, by the engagement of the teeth 51 therewith, and will deliver the same to the chute 39 down which it passes to the delivery receptacle 40. When the latch 63 is moved over, by the spring 67, and the cam face 69 of the arm 68 is located in position to be engaged by the cam face of a tooth 56, it will be seen that the rotation of the gear 54 caused by the rotation of the shaft 55 will cause the cam faces, which are in engagement, to overcome the tension of the spring 67, and will force back the arm 68 and the latch 63 to cause the latter to engage with the next succeeding tooth 58 and will permit the rod 65 to fall into position to again engage the stop 66, so that the parts are again locked ready for the next operation. These operations are repeated at each insertion of a proper coin until the last article in the first container 31 is deposited upon the track 37, at which time the arms 46 of the weight 44, heretofore supported by the articles in the container 31, are in position to be engaged by and actuated by the pins 52 moving with the conveyer, and this will rock the elbow levers upon their pivots and will cause their arms 45, which have been lowered into engagement with the flanges 42 of the closures 41 of the second container 32 to move outwardly as seen in Fig. 2, thus removing the said closures from beneath the articles in the second container 32 and will allow the stack of articles therein to be lowered in said container and to rest upon and be supported by the track 37, so that these articles are then in position to have the lowermost one thereof engaged by the teeth 51 when the conveyer is operated. Each time a proper coin is inserted, the operations previously described are repeated, until the articles from the second container have been exhausted, after which the closures 41 of the next succeeding container are opened to permit the stack of articles therein to rest upon and be supported by the track 37, so that these articles are then in position to be vended. After all the containers have been emptied, the casing is opened, and the weights 44 are removed and the containers again filled, the closures for the bottoms having been first returned to their normal position to support the articles initially in the containers and the elbow arms are placed in their proper initial position ready for the next operation.

From the above, it will be understood that I have provided means for supporting a plurality of separate stacks of articles with means automatically operated for placing each successive stack into operative position with respect to the conveyer as the preceding stack is exhausted, in order that the lowermost article from the stacks is removed by the proper actuation of the dispensing mechanism.

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

1. In a device of the character stated, a plurality of stacks of articles, guiding means adapted to support the first stack and extending beneath the remaining stacks, independent supporting means for each of the said remaining stacks, for normally holding the same above the guiding means, means carried by a stack and moved when the stack is exhausted to engage the closure of the next succeeding stack, means for removing the article resting on the guiding means and for operating said engaging means when the latter is properly positioned therefor, to remove the same from beneath the stack whereby the succeeding stack is caused to rest on the guiding means, and mechanism for actuating the removing means a proper distance for vending an article.

2. In a device of the character stated, a plurality of stacks of articles, guiding means

adapted to support the first stack and extending beneath the remaining stacks, independent supporting means for each of the said remaining stacks for normally holding the same above the guiding means, means for successively and automatically actuating said independent supporting means as the next preceding stack of articles is exhausted, a movable conveyer for removing the article resting on the guiding means and operating the engaging means when positioned therefor, to remove the closure from beneath a stack, whereby the next succeeding stack is caused to rest on said guiding means, means for actuating said conveyer, and mechanism for operating said actuating means to move said conveyer a proper distance for vending an article.

3. In a device of the character stated, a container for a stack of the articles, a second container suitably supported with respect to the first container and adapted to receive a stack of the articles, a movable closure for said second container adapted to normally support the articles therein, a supporting track beneath said containers adapted to successively support the stacks of articles in the containers, a movable conveyer operatively mounted with respect to said stacks, means carried by the conveyer for engaging the lowermost articles supported by the track, means for actuating the conveyer to remove the said lowermost article and to deliver the same, mechanism for operating the actuating mechanism, and means actuated by the conveyer when the first container is empty for removing the closure from beneath the articles in the second container, whereby the said articles will rest upon and be supported by the said track.

4. In a device of the character stated, a container for a stack of the articles, a second container suitably supported with respect to the first container and adapted to receive a stack of the articles, a movable closure for said second container adapted to normally support the articles therein, a supporting track beneath said containers adapted to successively support the stacks of articles in the containers, a movable conveyer operatively mounted with respect to said stacks, means carried by the conveyer for engaging the lowermost articles supported by the track, means for actuating the conveyer to remove the said lowermost article and to deliver the same, mechanism for operating the actuating mechanism, and means adapted to be positioned, when the first container is empty, to be actuated by the conveyer for opening the closure for the second container, whereby the articles therein will rest upon and be supported by the said track.

5. In a device of the character stated, a container for a stack of the articles, a second container suitably supported with respect to the first container and adapted to receive a stack of the articles, a removable closure for said second container adapted to normally support the articles therein, a supporting track beneath said containers adapted to successively support the articles of the containers, a weight in the first container and lowered as the articles are removed, a pivotally mounted arm carried by said weight and adapted to engage the said closure when the first container is empty, a movable conveyer for removing the article resting on the track, means carried by said conveyer for actuating said arm to open said closure, whereby the articles carried in said second container are caused to rest upon and be supported by said track, means for actuating said conveyer, and mechanism for operating the actuating mechanism to move said conveyer a proper distance for vending an article.

6. In a device of the character stated, a container for a stack of the articles, a second container pivotally supported with respect to the first container and adapted to receive a stack of the articles, a removable closure for said second container adapted to normally support the articles therein, a supporting track beneath said container adapted to support the articles of the first container until removed and adapted to support the articles of the second container when the closure thereof is opened, a weight in the first container and lowered as the articles are removed, a pivotally mounted elbow lever carried by said weight and having one member adapted to engage with said closure when the first container is empty, a movable conveyer having means for engaging the lowermost article resting on the track, means carried by said conveyer adapted to engage with the other member of the elbow lever to actuate the same to open said closure, whereby the articles carried in said second container are caused to rest upon and to be supported by the track, means for actuating said conveyer a predetermined distance, and mechanism for operating the actuating mechanism to move said conveyer.

7. In a device of the character stated, a container for a stack of articles, a second container suitably supported with respect to the first container and adapted to receive a stack of articles, guiding means adapted to support the first stack and extending beneath the remaining stacks, a slidable closure for said second container for normally holding the stack above the guiding means, an actuating member in the first container, lowered as the articles are removed and adapted to engage said closure when the first container is empty, a movable conveyer for

removing the article resting on the guiding means, means carried by the conveyer for operating the actuating member to open said closure whereby the articles in the second container are caused to rest upon and to be supported by said track, means for actuating said conveyer, and mechanism for operating the actuating mechanism to move the conveyer a proper distance for vending an article.

CHESTER W. HITCHNER.

Witnesses:
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M. E. BYRNE.