Dec. 28, 1937. G. J. SCOFIELD 2,103,391

VENDING APPARATUS OR THE LIKE

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Fig. 1.

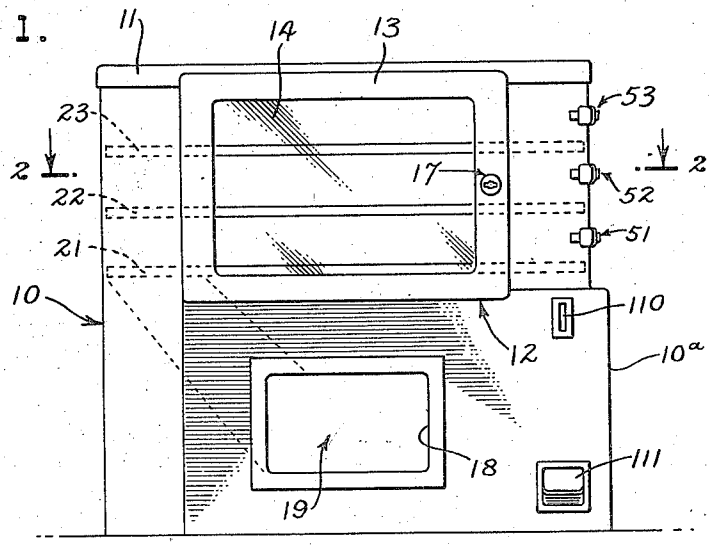
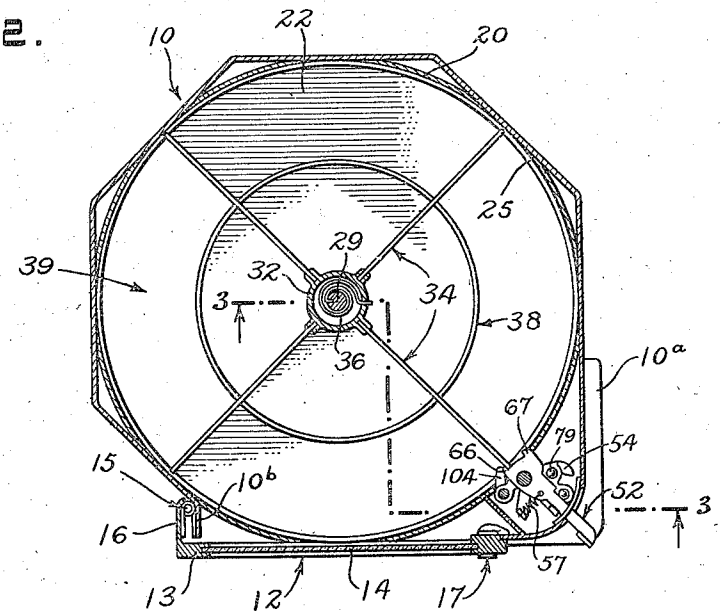


Fig. 2.



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Fig. 3.

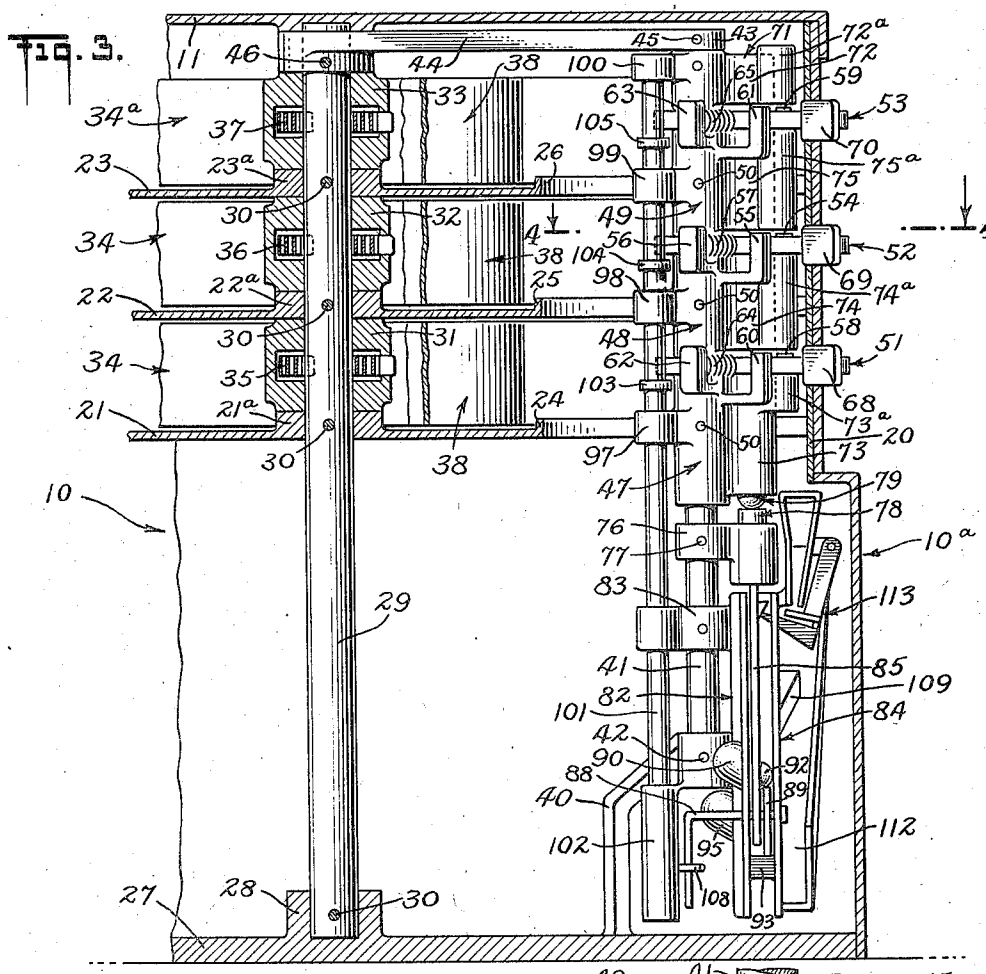


Fig. 4.

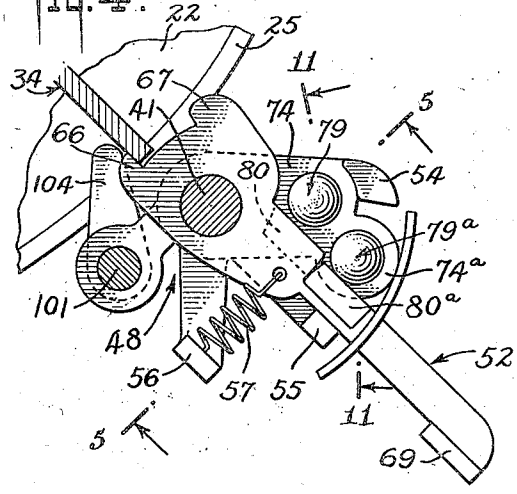
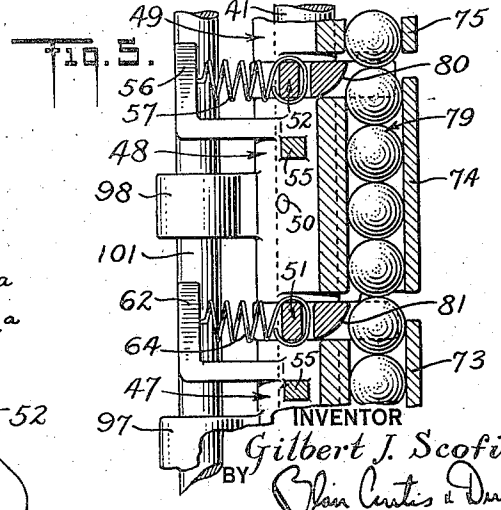


Fig. 5.



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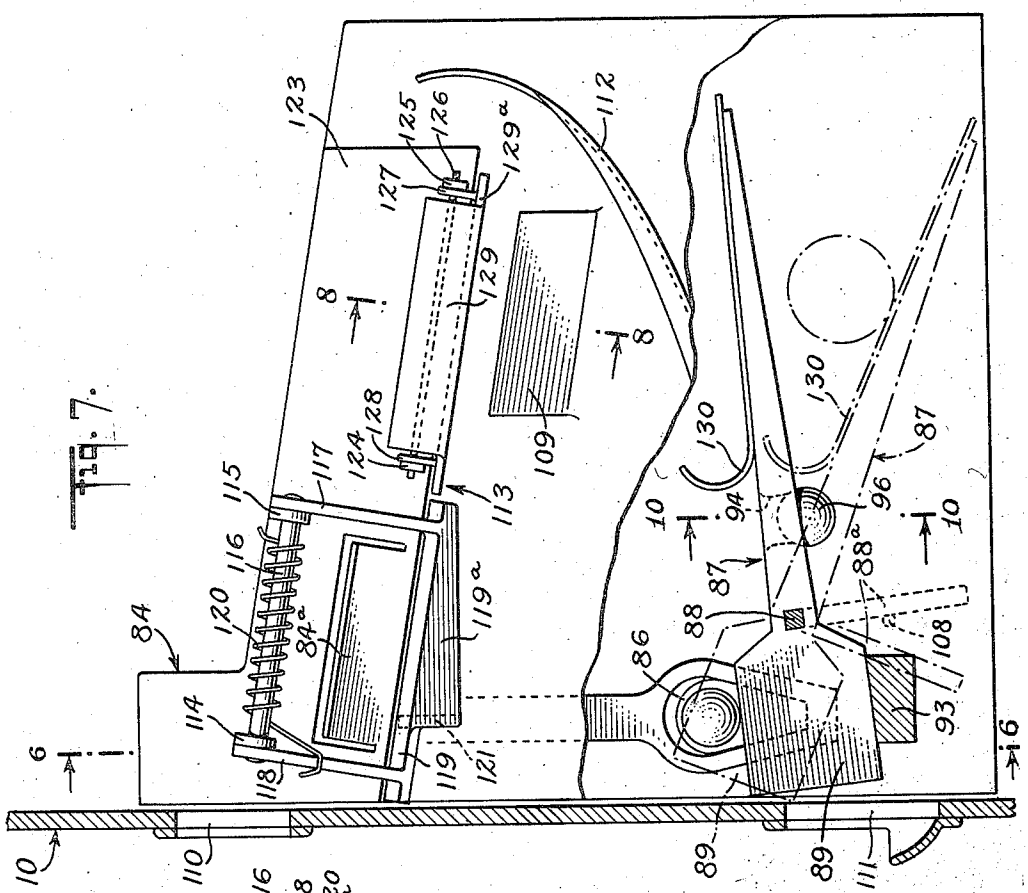


Fig. 7.

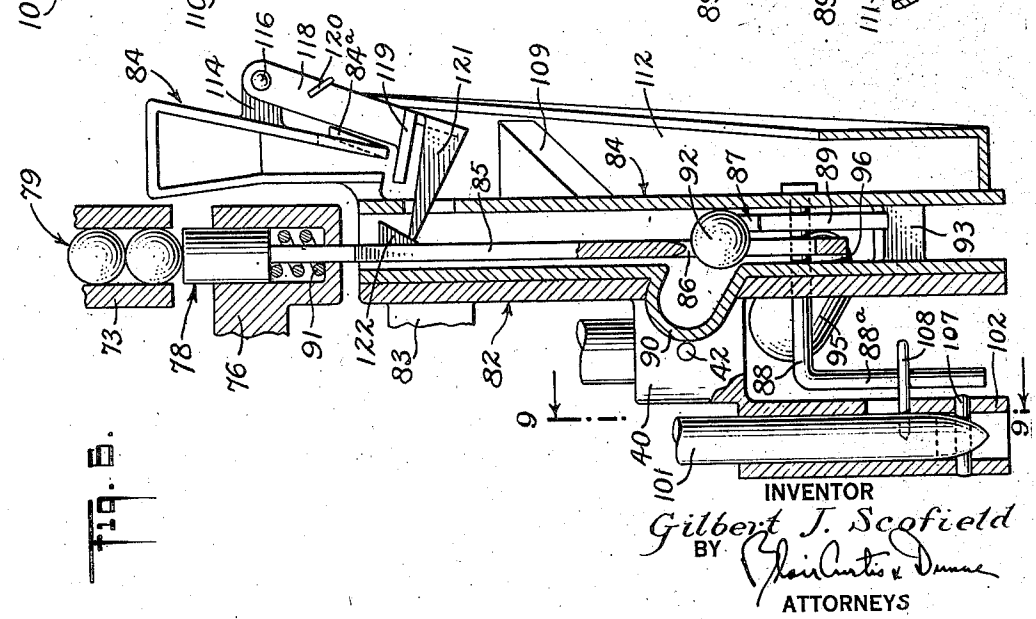


Fig. 8.

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VENDING APPARATUS OR THE LIKE

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Fig. 8.

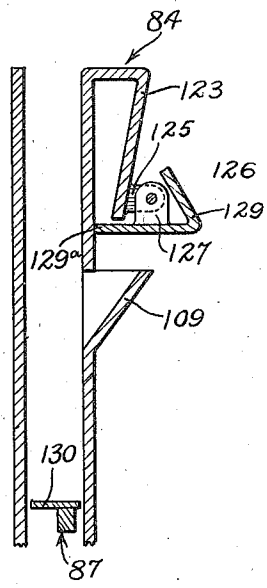


Fig. 11.

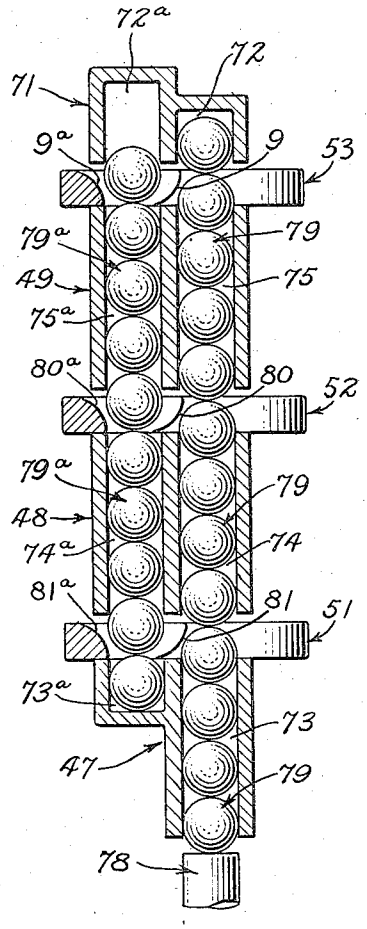


Fig. 9.

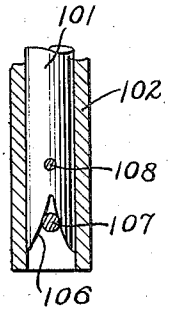
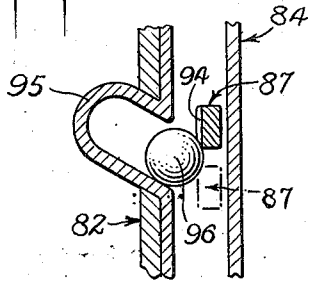


Fig. 10.



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Patented Dec. 28, 1937

2,103,391

UNITED STATES PATENT OFFICE

2,103,391

VENDING APPARATUS OR THE LIKE

Gilbert J. Scofield, Loudonville, N. Y.

Application December 8, 1933, Serial No. 701,411

10 Claims. (Cl. 312—94)

This invention relates to vending apparatus or the like.

One of the objects of this invention is to provide vending apparatus which will be strong, durable and attractive in appearance. Another object is to provide apparatus of the above character which will be inexpensive to manufacture with a minimum amount of labor. Another object is to provide apparatus of the above character which will be reliable and efficient in operation. Another object is to provide apparatus of the above character whose operation will be simple and foolproof. Another object is to provide apparatus of the above character wherein the articles to be sold may be effectively and attractively displayed without interfering with the reliable operation of the apparatus. Another object is to provide apparatus of the above character which may be refilled easily and which will hold a sufficient number of saleable articles to avoid refilling frequently. Another object is to provide apparatus of the above character which may be easily operated and yet amply safeguard against various fraudulent processes for removing the articles without depositing the proper sum of money. Another object is to provide apparatus of the above character which will detect and be unresponsive to the application of counterfeit coins or the like. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts as will be exemplified in the structure to be hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which is shown one of the various possible embodiments of this invention,

Figure 1 is a front elevation of my apparatus ready for use;

Figure 2 is a horizontal sectional view of the apparatus shown in Figure 1, taken along the line 2—2 of Figure 1;

Figure 3 is a vertical sectional view on an enlarged scale taken along the line 3—3 of Figure 2;

Figure 4 is a horizontal sectional view on an enlarged scale, taken along the line 4—4 of Figure 3;

Figure 5 is a fragmentary vertical sectional view, on an enlarged scale, taken along the line 5—5 of Figure 4;

Figure 6 is a fragmentary vertical sectional view on line 6—6 of Fig. 7, and showing on an enlarged scale certain of the parts shown in the lower right-hand portion of Figure 4;

Figure 7 is a fragmentary vertical sectional view of a portion of my apparatus, certain of the parts thereof being broken away;

Figure 8 is a fragmentary vertical sectional view taken along the line 8—8 of Figure 7;

Figure 9 is a fragmentary vertical sectional view taken along the line 9—9 of Figure 6;

Figure 10 is a fragmentary vertical sectional view taken along the line 10—10 of Figure 7, and

Figure 11 is a vertical sectional view, taken along the line 11—11 of Figure 4.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings in detail, there is shown in Figure 1 a casing generally indicated at 10 which may be formed from sheet metal or the like and the greater portion of whose periphery is substantially octagonal in shape as better shown in Figure 2. Fitting over the top of casing 10 is a cover 11 preferably flanged over the sides of the casing and suitably secured thereto in any convenient manner. As better shown in Figure 2, the portion 10*a* of casing 10 extends outwardly from the general octagonal shape of the casing to allow sufficient space for apparatus to be described in detail hereinafter.

The upper front portion of casing 10 has an opening formed therein covered by a door generally indicated at 12 (Figure 1), this door preferably comprising a frame 13 carrying any suitable transparent material 14, as, for example, glass. Thus the left-hand side of this opening (Figure 2) is bordered by an outwardly projecting flange portion 10*b* of casing 10 to which is secured one leaf of a hinge generally indicated at 15, as best shown in Figure 2. The other leaf of hinge 15 is secured to a right angle projection 16 of frame 13 so that door 12 is capable of swinging outwardly to allow access to the interior of the container. Suitably disposed within frame 13 is a lock mechanism generally indicated at 17 of any desired character so that the door may be locked in its closed position. Casing 10 is also provided with an opening 18 preferably located below door 12 and connected with a passageway generally indicated at 19 to be more fully described hereinafter.

A cylindrical shell 20 is disposed within the upper portion of casing 10 and suitably secured thereto. Fitted within shell 20 and secured

thereto are a series of regularly spaced horizontal shelves 21, 22 and 23 (Figure 3) preferably having peripheral right angle flanges 24, 25 and 26 formed thereon. Integrally formed with shelves 21, 22 and 23 are collar portions thereof 21a, 22a and 23a, these collar portions being in substantial alinement and preferably having their centers located at the center of cylindrical shell 20. As best shown in Figure 3, casing 10 is provided with a bottom plate 27 secured thereto and having integrally formed therewith a socket portion 28 in alinement with collar portion 21a. A bar 29 is fitted within socket portion 28 and extends through collar portions 21a, 22a, and 23a being fixedly secured in this position preferably by pins 30 extending into the collar portions and socket 28.

Rotatably mounted upon bar 29 and resting upon the top bearing surfaces of collar portions 21a, 22a and 23a are three hub portions 31, 32 and 33 (Figure 3). Each hub portion is provided with a plurality of radially projecting circumferentially spaced partitions generally indicated at 34 and 34a. Partitions 34 and 34a are preferably of a length equal to the radius of cylindrical shell 20 so that upon rotation of the hub portions, they revolve about the shelves. Furthermore the width of partitions 34 and 34a is preferably equal to the space between each of shelves 21, 22 and 23 so that in effect they provide a series of individual compartments between each of the shelves.

Housed within hub portions 31, 32 and 33 are coil springs 35, 36 and 37 each having one end secured to bar 29 and the other end thereof secured to the hub portion. Accordingly these springs tend to force the hub portions and consequently partitions 34 and 34a to rotate in a clockwise direction about bar 29. Suitably disposed between each of partitions 34 and 34a are a series of substantially circular walls generally indicated at 38 as best shown in Figures 2 and 3. As more clearly shown in Figure 2, shelves 21, 22 and 23 have registering openings generally indicated at 39 formed therein, openings 39 being substantially the size of one of the compartments formed by walls 38 and partitions 34 and located as indicated in Figure 2. Openings 39 are also disposed immediately above passageway 19. Accordingly when articles are placed on shelves 21, 22 and 23 in the above-mentioned compartments, it will be seen that rotation of partitions 34 moves the articles along the shelves past window 14 in door 12 (Figure 1) and finally to openings 39 where the articles drop through to passageway 19 thus becoming accessible to the operator of my apparatus by way of opening 18. By controlling the individual rotation of each of hubs 31, 32 and 33, I am thus able to control the dispensing of articles located on each individual shelf and also to display these articles as they pass by window 14.

Partitions 34 and 34a may be of any suitable number according to the articles to be sold by my apparatus. As here shown, partitions 34 are four in number while partitions 34a are eight in number. Thus partitions 34 provide three compartments on shelves 21 and 22, while partitions 34a provide six compartments on shelf 23. Larger articles may be placed upon the lower shelf and it is preferable to locate the hubs carrying the greater number of partitions (in this particular instance hub 33) above the hubs carrying the smaller number of partitions so that the articles from the upper shelf or shelves will fall naturally through the openings provided in each shelf and thence into passageway 19. Various combinations of numbers for the partitions 34 and 34a may be worked out. For example, the lower groups of partitions may be six in number and the upper twelve, providing five compartments below and ten above.

Still referring to Figure 3, there is suitably secured to bottom plate 27 a bracket-like socket part 40 into which one end of a rod 41 is fitted and secured by a pin 42. The upper end of rod 41 is secured to a recessed portion 43 of a brace 44 by a pin 45. Brace 44 is in turn secured to the upper end of bar 29 preferably by way of a pin 46. Thus rod 41 is rigidly secured in position preferably in the vicinity of portion 10a of casing 10. Three frame parts generally indicated at 47, 48 and 49 are fixedly secured to rod 41 preferably by pins 50 in spaced relationship and substantially opposite shelves 21, 22 and 23. Rotatably mounted on rod 41 between frame parts 47, 48 and 49 respectively and on top of frame part 49 are three escapement levers generally indicated at 51, 52 and 53.

Referring now to Figure 4, a stop 54 for limiting the counter-clockwise movement of escapement lever 52 is provided and is preferably an integral portion of frame part 48 extending upwardly and rearwardly therefrom as viewed in Figure 3. Similarly, a stop 55 is provided for limiting the clockwise movement of escapement lever 52 also preferably an integral portion of frame part 48. A right angle bracket portion 56 of frame part 48 extends upwardly therefom, as viewed in Figure 3, and a tension spring 57 is secured thereto and to escapement lever 52. Thus spring 57 holds escapement lever 52 against stop 55 and any movement of the lever in a counter-clockwise direction must be accomplished against the action of this spring. As better shown in Figure 3, frame parts 47 and 49 are also provided with stops 58 and 59 substantially similar in construction to stop 54 (Figure 4) as well as stops 60 and 61 substantially similar in shape and construction to stop 55. Also formed upon frame parts 47 and 49 are right angle projecting portions 62 and 63 and springs 64 and 65 are secured to these portions as well as escapement levers 51 and 53 respectively.

As the details of construction and relative positions of escapement levers 51, 52 and 53 are substantially similar, that of escapement lever 52 only will be described in detail. Turning now to Figure 4, formed on the end of escapement lever 52 is a projection 66 which is so shaped and positioned thereon that it lies in the path of one group of partitions 34 (Figure 2) when the lever abuts against stop 55. Furthermore, projection 66 is so located that when one of partitions 34 abuts thereagainst, the partitions assume the position shown in Figure 2, wherein one of the compartments formed thereby and by walls 38 is in front of window 14 (Figure 1) and another of the compartments is located immediately above openings 39 (Figure 2). Projection 66 is also shaped to permit the passage of these partitions 34 thereby when escapement lever 52 is moved in a counter-clockwise direction and abuts against stop 54. Another projection 67 is so formed on escapement lever 52 as to be out of the path of these partitions 34 when the lever abuts against stop 55 and in the path thereof to abut thereagainst when lever 52 is in substantial engagement with stop 54.

As more clearly shown in Figure 2, it will now be seen that lever 52 acts to prevent rotation of

these partitions 34 and consequently any rotation of hub portion 32 by spring 36 (Figure 3) when in its normal position against stop 55 (Figure 4). However, when escapement lever 52 is moved to substantially engage stop 54, these partitions 34 connected to hub portion 32 are free to rotate about shelf 22 (Figure 3) in response to the action of spring 36 until the next succeeding partition abuts against projection 67. The partitions remain in this position until the escapement lever 52 is released and snapped back against stop 55 by spring 57 to allow the next partition 34 to move on and abut against projection 66. Escapement levers 51, 52 and 53 are preferably provided with enlarged faces 68, 69 and 70. Accordingly, it will now become clear that when articles are placed in each of the compartments on the shelves 21, 22 and 23 and hub portions 31, 32 and 33 are positioned to allow springs 35, 36 and 37 to exert rotatable tension thereon, the movement of the partitions 34 and 34*a* on each of the shelves for a distance substantially equal to the circumferential length of one of the compartments formed by the partitions and the wall 38 (Figure 2) can be effectively controlled by the actuation of levers 51, 52 and 53.

A frame part generally indicated at 71 (Figures 3 and 11) is secured to rod 41 above escapement lever 53 and is provided with cup-like portions 72 and 72*a* (Figure 11). Cylindrical portions 73, 74 and 75 of frame parts 47, 48 and 49 are in substantial registry with cup-like portions 72 (Figure 11) to form a continuous passageway closed at its upper end by cup-like portions 72 and in the path of the pivotal movement of escapement levers 51, 52 and 53 (Figure 4). Cylindrical portions 74*a* and 75*a* of frame parts 48 and 49 are in substantial registry with cup-like portions72*a*, and frame part 47 has formed thereon a cup-like portion 73*a*, all to form a continuous passageway closed at its upper and lower ends.

Thus, as best shown in Figure 4, this last-mentioned continuous passageway formed by cup-like portions 72*a* and 73*a* and cylindrical portions 74*a* and 75*a* is also in the path of pivotal movement of escapement levers 51, 52 and 53. A housing part 76 is secured to rod 41 preferably by way of a pin 77 and has mounted therein a plunger generally indicated at 78 in substantial registry with the bottom of the opening in cylindrical portion 73 (Figure 6). Resting upon plunger 78 and substantially filling the passageway formed by cylindrical portions 73, 74 and 75 as well as cup-like portions 72 are a plurality of balls generally indicated at 79. Disposed within the passageway formed by cup-like portions 72*a* and 73*a* and cylindrical portions 74*a* and 75*a* are a plurality of balls generally indicated at 79*a* resting one upon the other and filling a large portion of this passageway as shown in Figure 11. The uppermost of balls 79*a*, as viewed in Figure 11, is substantially spaced from the top of cup-like portion 72*a*, this distance being substantially equal to the vertical thickness of escapement levers 51, 52 and 53 as viewed in Figure 11. Accordingly as best shown in Figure 11 the pivotal movement of the escapement levers to allow the movement of partitions 34 and 34*a*, as described above, is limited by balls 79 and 79*a* (Figure 4) so that this action cannot transpire until the balls are displaced in both passageways. This displacement can be accomplished by moving balls 79*a* in an upward direction toward the top of cup-like portion 72*a* and by the downward movement of plunger 78 to be described more fully hereinafter.

As more clearly shown in Figures 5 and 11, the portion of escapement lever 52 adjacent balls 79 is provided with a cam face 80 so that movement of the lever toward the balls tends to force the balls therebelow in a downward direction against plunger 78 as viewed in Figure 5. Escapement levers 51 and 53 are also provided with cam surfaces 81 and 9 respectively, similar to cam surface 80. Accordingly when balls 79 are prevented from downward movement, as viewed in Figure 5, by plunger 78 (Figure 6), escapement levers 51, 52 and 53 are prevented from pivoting about rod 41 sufficiently to allow movement of the projections 66 (Figure 4) out of the path of partitions 34 and 34*a*. Only when such movement is possible can the levers be operated to allow movement of partitions 34 and 34*a* as above described.

Cam surfaces 9*a*, 80*a* and 81*a* are also formed on levers 51, 52 and 53 respectively. Balls 79*a* are in the path of these cam surfaces upon pivotal movement of escapement levers 51, 52 and 53 as described above. Furthermore, cam surfaces 9*a*, 80*a* and 81*a* slope in an opposite direction from cam surfaces 9, 80 and 81; thus movement of any of escapement levers 51, 52 and 53 forces the balls thereabove in an upward direction toward the top of cup-like portion 72*a*. Furthermore, balls 79*a* are so positioned with respect to balls 79 and the axes of escapement levers 51, 52 and 53 that the escapement levers must pass substantially through balls 79*a* before cam surfaces 9, 80 or 81 can engage balls 79. Accordingly if balls 79*a* are locked in position against vertical movement it will be seen that none of the escapement levers may be operated to allow rotation of any of partitions 34 or 34*a*.

Referring now more particularly to Figures 3 and 6, a fitting generally indicated at 82 is secured to rod 41 preferably by way of a collar 83 and socket 40. Secured to fitting 82 in any convenient manner is a casing generally indicated at 84, thus being positioned immediately below housing part 76. Thus a bar 85 secured to plunger 78 extends through housing part 76 and down into casing 84. The lower portion of bar 85 has formed therein an aperture 86 (Figure 7).

Disposed within housing part 76 beneath plunger 78 is an expansion spring 91 forcing plunger 78 against balls 79 and consequently tending to pull bar 85 upwardly. Housing part 76 is of sufficient depth (Figure 6) to allow plunger 78 to be depressed against the action of spring 91 a sufficient distance to allow any of escapement levers 51, 52 and 53 to move against stops 58, 54 and 59. Thus when bar 85 is prevented from any substantial downward movement from the position thereof shown in Figure 6, escapement levers 51, 52 and 53 are held against effective actuation.

As more clearly shown in Figure 7, a lever part generally indicated at 87 is rigidly secured to a pin member 88. Pin member 88 is rotatably mounted within casing 84 and preferably fitting 82 and has a right angle extension 88*a* to be described more fully hereinafter. Lever part 87 has an enlarged portion 89 formed on one end thereof immediately adjacent that portion of bar 85 in which aperture 86 is located. Furthermore lever part 87 is so located with respect to aperture 86 that when it is in its depressed position (the dotted line position shown in Figure 7), por-

tion 89 substantially covers aperture 86, but when it is in its upper position (the full line position shown in Figure 7) a considerable portion of the aperture is left exposed by portion 89. A suitable stop 93 secured to casing 84 is provided for preventing further pivotal movement of lever part 87 when it has reached its upper position.

A recess 90 (Figure 6) is provided in casing 84 substantially opposite aperture 86 when bar 85 is in its upper position (Figure 6). Resting upon portion 89 of lever part 87, as best shown in Figure 6, is a ball 92 which extends through aperture 86 (Figure 7) and lies opposite recess 90 when lever part 87 is in its upper position as shown in Figure 6. Accordingly any substantial downward movement of bar 85 is prevented by the bar coming into engagement with the ball although a slight amount of play is preferably left therebetween for a purpose to be described more fully hereinafter. However, when lever part 87 is depressed to its lower position (Figure 7), portion 89 thereof forces ball 92 through aperture 86 and into recess 90 a sufficient distance to allow bar 85 to move downwardly. As described above, the downward movement of bar 85 unlocks escapement levers 51, 52 and 53. Accordingly, it will now become clear that when lever part 87 (Figure 6) is in its upper position as best shown in Figure 6, bar 85 is prevented from downward movement and consequently the escapement levers cannot be effectively operated. On the other hand, when lever part 87 is in its depressed position as best shown in Figure 7, bar 85 may move downwardly and consequently any of escapement levers 51, 52 and 53 may be actuated.

As pointed out above, when lever part 87 is in its depressed position to force ball 92 into recess 90, bar 85 is free to move vertically and thus any one of escapement levers 51, 52 and 53 may be pivoted against stops 58, 54 and 59 (Figure 3) to make for the delivery of an article by allowing for the rotation of partitions 34 or 34a. When, for example, escapement lever 52 is moved throughout its pivotal path until it engages stop 54 (Figure 4) its cam surface 89a forces the ball 79a thereabove up toward the top of cup-like portion 72a. Only after accomplishing this, is it moved a sufficient distance to unlock partitions 34.

When in this position against stop 54, there is room for practically no further vertical movement of the balls 79a and consequently escapement levers 53 and 51 cannot be operated. Further still, when escapement lever 52 is released to be drawn back against stop 55 by spring 57, there may be a moment before ball 92 (Figure 6) returns to the position shown in Figure 6 to lock bar 85 against vertical movement as described above. During this time it might be possible to actuate either escapement lever 51 or escapement lever 53. However, after escapement lever 52 has been drawn out of the path of balls 79 (Figures 11 and 4) so that ball 92 (Figure 6) is free to roll back into its locking position, escapement levers 51 and 53 are still prevented from actuation by balls 79a because escapement lever 52 has not moved out of the path of these balls, thus still holding them against any substantial vertical movement. Accordingly I have provided an auxiliary locking means which effectively prevents any fraudulent manipulation of the escapement levers. Of course by the time escapement lever 52 has moved out of the path of ball 79a, ball 92 has time to roll back into its locking position.

The right-hand portion of lever part 87, as viewed in Figure 7, is provided with a shallow substantially vertical groove 94 immediately adjacent a recess 95 formed in casing 84. A ball 96 rests against lever part 87 in groove 94 opposite recess 95. Thus, as best shown in Figure 10, pivotal movement of lever part 87 in an upward or downward direction, as viewed in Figure 7, causes ball 96 to ride up into recess 95 until the lever part reaches either its upper or depressed position. Accordingly ball 96 acts to resist any accidental tendency of lever part 87 to pivot in an upward or downward direction without the assistance of an outside impetus such as the dropping of a coin thereon as will be described more fully hereinafter.

A rod 101 (Figure 3) is rotatably mounted within a series of collars 97, 98, 99 and 100 preferably secured to an integral with frame pieces 47, 48, 49 and 71. Rod 101 is seated within a socket 102 preferably connected to socket part 40. Rigidly secured to rod 101 are a series of arms 103, 104, and 105. As more clearly shown in Figure 4, these arms extend inwardly into the path of partitions 34 and 34a so that the passage of the partitions on any of shelves 21, 22, and 23 by the arms kicks them to impart partial rotation to rod 101.

Turning now to Figure 9, the lower portion of rod 101 has a cam surface 106 formed thereon in engagement with a pin 107 fixed to socket 102. A pin 108 is secured to rod 101 and extends through a suitable slot formed in socket 102 to engage extension 88a of pin member 88 (Figures 3 and 6). Thus partial rotation of rod 101 induced by the movement of one of partitions 34 and 34a by arm 104 for example causes the rod to ride up on pin 107 to kick extension 88a in a counter-clockwise direction as viewed in Figure 7. Accordingly when lever part 87 is in its lower position so that extension 88a is in substantial engagement with pin 108 and the escapement levers 51, 52 and 53 are unlocked, as described above, the rotation of one of hubs 31, 32, and 33 (Figure 3) moves pin 108 to force lever part 87 to assume its upper position thereby locking the escapement levers against further actuation.

As best shown in Figures 6 and 7, casing 84 is provided with a trough shaped opening 109 so positioned that when coins are dropped therein they are directed onto lever part 87 to depress it as will be described more fully hereinafter. Casing 10 is provided with a suitable slot 110 for the reception of the coins to be used in actuating the apparatus and also an opening 111 of any suitable construction for the return of undesirable coins or the like. Leading from return opening 111 to a position to the rear of trough shaped opening 109, as best shown in Figures 6 and 7, is a return passageway 112. A sloping runway generally indicated at 113 connects slot 110 with return passageway 112 and a portion thereof to be described more fully hereinafter passes over trough shaped opening 109.

Secured to casing 84 are a pair of spaced lugs 114 and 115 (Figure 7) rotatably mounted within which is a shaft 116. A pair of depending arms 117 and 118 are preferably secured to shaft 116 and support in turn a table portion 119 (Figure 6) forming a part of runway 113. A spiral spring 120 encircles shaft 116 having one end in engagement with casing 84 and the other end hooked

about arm 118. Thus spring 120 tends to force arms 118 and 117 in a clockwise direction as viewed in Figure 6. A projecting arm portion 121, as best shown in Figure 6, is connected to table 119 and extends through an opening in casing 84 to engage a cam surface stud 122 on bar 85. Thus reciprocation of bar 85 in turn reciprocates table 119 about shaft 116 as an axis by way of arm 121. Table 119 is provided with a flanged section 119a depending toward return passageway 112 and the table slopes in the direction thereof (Figure 6) to direct coins or the like to the return passageway in a manner to be more fully described hereinafter.

As best shown in Figures 6 and 7, a portion 84a of casing 84 is cut away and extends outwardly therefrom as viewed in Figure 6. The distance between the top edge of the casing immediately above portion 84a and the top of table 119 is less than the diameter of the coin to be used to operate my apparatus. Accordingly, if this coin is a nickel, upon being directed to table 119 it rests against the right-hand portion of casing 84 (Figure 6) and is thus free to roll down table 119 unimpeded. On the other hand, if the diameter of the coin inserted in slot 110 is smaller than that of a nickel, the coin upon landing on table 119 falls back on portion 84a of the casing and is usually prevented from leaving table 119 when it engages the edge of the casing adjacent the lower section of portion 84a, as viewed in Figure 7.

Referring now to Figures 7 and 8, a depending portion 123 of casing 84 immediately above trough shaped opening 109 has secured thereto a pair of spaced lugs 124 and 125 supporting a shaft 126. Pivotally supported by shaft 126 are a pair of lugs 127 and 128 connected to a table 129, a portion 129a of which (Figure 8) forms a part of runway 113. Thus table 129 pivots about shaft 126 as an axis and a projecting portion 129b thereof forms a counterweight against its pivotal movement in a counter-clockwise direction as viewed in Figure 8. Table 129 is so counterweighted with respect to its downward slope toward return passageway 112 (Figure 7) that when a coin of proper weight is passing thereover on its course from slot 110, the table pivots sufficiently to drop the coin in trough shaped opening 109.

It will now become clear that if anyone attempts to operate my apparatus by inserting a coin which is too light in slot 110, the coin will do either one of three things. It may travel down runway 113 but in passing over table 129 it will not be heavy enough to pivot the table about its axis and will thus pass into return passageway 112. On the other hand, it may be so light (where for example a leather slug is used) that it will not run down the runway and will remain upon table 119. Again the coin may be smaller in diameter and thus be stopped on table 119 by portion 85a of casing 85 as pointed out above. In this case the person who inserted the coin will attempt to operate one of escapement levers 51, 52 and 53 (Figure 3) thus causing the reciprocation of bar 85 due to the play between aperture 86 (Figure 7) and ball 92 to cause lug 122 to ride along the end of arm 121 (Figure 6). As pointed out above, this reciprocates table 119 about its axis and this reciprocation together with the slope of the table (Figure 6) dumps the light coin or the like over the edge thereof where it is directed by way of flange 119a (Figure 7) down onto return passageway 112.

If anyone attempts to insert a coin in slot 110 which is too heavy, it rushes down runway 113 and onto table 129. Due to the extra weight in the coin or the like, table 129 pivots about its axis quickly and dumps the coin off onto the return passageway before it has time to travel to a position over trough 109. Accordingly the only coins or the like which are directed to lever part 87 by way of trough 109 are those of proper weight which pivot table 129 about its axis. Thus I have provided an extremely simple and effective apparatus for detecting coins of improper or counterfeit character while making ample provision that good coins reach the lever part 87 to unlock the escapement levers as described above. Preferably lever part 87 is provided with a flanged plate 130 (Figures 7 and 8) to catch the coins dropped through trough shaped opening 109.

In operation, the machine is first loaded by opening door 12 and placing articles in each of the compartments while winding up the hubs against the action of springs 35, 36 and 37 (Figure 3) so that shelves 21 and 22 contain three articles and shelf 23 contains six articles; one article on each shelf is exposed for view through window 14 (Figure 1). The door is then locked and the partitions 34 and 34a on each shelf are reliably held against rotation by escapement levers 51, 52 and 53. A prospective purchaser may view the articles on each shelf and after making a selection he deposits a coin in slot 110. This coin, if of proper character, will actuate lever part 87 to unlock all of the escapement levers, and, if of improper character, will return through return passageway 112 all as described above. The purchaser then presses the escapement lever opposite the shelf upon which rests the article which he desires. Thus the partitions 34 and 34a on this shelf are allowed to rotate a distance equal to one of the compartments formed thereby and by wall 38 (Figure 3) to carry the article which was exposed in front of window 14 (Figure 1) to openings 39 where it drops into passageway 19 and becomes accessible to the purchaser by way of opening 18.

Accordingly it will be seen that I have provided vending apparatus by which the purchaser obtains the precise article which he has seen through window 14. Furthermore, ample provision is made for guarding against fraudulent use of the machine as the escapement levers can only be unlocked when a coin of proper character has been inserted in slot 110. The entire construction is simple in character, easy to manufacture and assemble, and free from complicated manipulations in the operation thereof. The operation of the escapement levers is so obvious that a prospective purchaser is not required to read detailed instructions before making his purchase, and, in fact, an individual of ordinary intelligence usually guesses how to operate it without reading any instructions.

It will thus be seen that I have provided a thoroughly practical and efficient apparatus in which the several objects hereinabove mentioned as well as many others are successfully accomplished.

As many possible embodiments may be made of the above invention and as many changes might be made in the embodiment above set forth, it is to be undertood that all matter hereinbefore set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. In apparatus of the general nature of that herein described, in combination, an enclosure, a plurality of spaced horizontal shelves in said enclosure, said shelves having registering openings formed therein, means for conveying articles which have passed through said openings to an opening in said enclosure, radially extending partitions disposed between each adjacent pair of said shelves and adapted to rotate about an axis, said partitions dividing the space between each of said shelves into a series of substantially individual compartments, resilient means adapted to rotate said partitions about said axis, and hand operable escapement means for permitting partial rotation of said partitions between pairs of said shelves independently of each other and stopping said partitions so that one of said compartments formed thereby is always in registry with said openings.

2. In apparatus of the general nature of that herein described, in combination, an enclosure, a plurality of spaced horizontal shelves in said enclosure, said shelves having registering openings formed therein, means for conveying articles which have passed through said openings to an opening in said enclosure, radially extending partitions disposed between each of said shelves and adapted to rotate about an axis, said partitions dividing the space between each adjacent pair of said shelves into a series of substantially individual compartments, resilient means adapted to rotate said partitions about said axis, and escapement means for permitting partial rotation of said partitions between pairs of said shelves independently of each other and stopping said partitions so that one of said compartments formed thereby is always in registry with said openings.

3. In apparatus of the general nature of that herein described, in combination, an enclosure, a shaft in said enclosure, a plurality of spaced article supporting shelves secured to said shaft and having registering openings formed therein, rotatable compartment forming partitions associated with each of said shelves, and means for moving said partitions over said shelves to sweep articles disposed thereon into said openings.

4. In apparatus of the general nature of that herein described, in combination, an enclosure, a shaft in said enclosure, a plurality of spaced article supporting shelves secured to said shaft and having registering openings formed therein, rotatable compartment forming partitions associated with each of said shelves, means for moving said partitions over said shelves to sweep articles disposed thereon into said openings, and escapement means associated with said partitions and operable to permit rotation thereof.

5. In apparatus of the general nature of that herein described, in combination, an enclosure, a shaft in said enclosure, a plurality of spaced article supporting shelves secured to said shaft and having registering openings formed therein, rotatable compartment forming partitions associated with each of said shelves, and spring means associated with said shaft for moving said partitions over said shelves to sweep articles disposed thereon into said openings.

6. An apparatus of the general nature of that herein described, in combination, an enclosure, a shaft fixedly disposed in said enclosure, a pair of shelves secured to said shaft, a hub disposed between said shelves and about said shaft, a spring having one of its ends secured to said shaft and its other end secured to said hub, a plurality of partition members secured to said hub and lying between said shelves, said partition members and said hub forming a rotatable unit comprising a plurality of compartments with said shelf, said spring adapted to impart rotation to the unit to cause said partitions to sweep over one of said shelves, and means for controlling rotation of said unit in its spring imparted direction of rotation.

7. An apparatus of the general nature of that herein described, in combination, an enclosure, a fixed shaft disposed in said enclosure, a plurality of shelves secured to said shaft, a plurality of units each being disposed between adjacent pairs of shelves and rotatably associated with said shaft, each unit comprising a plurality of partition members forming compartments between adjacent shelves, means associated with said shaft and said units for effecting rotation of said units in one direction, said units being rotatable in another direction to store energy in said means, and means for controlling rotation of said units in said first mentioned direction of rotation.

8. An apparatus of the general nature of that herein described, in combination, an enclosure, a fixed shaft disposed in said enclosure, a plurality of shelves secured to said shaft, a plurality of units each being disposed between adjacent pairs of shelves and rotatably associated with said shaft, each unit comprising a plurality of partition members forming compartments between adjacent shelves, means associated with said shaft and said units for effecting rotation of said units in one direction, and a manually operable escapement lever operatively associated with the partitions of each of said units.

9. An apparatus of the general nature of that herein described, in combination, an enclosure, a plurality of spaced horizontal shelves in said enclosure, said shelves having registering openings formed therein, means for conveying articles which have passed through said openings to an opening in said enclosure, radially extending partitions disposed between each adjacent pair of said shelves and adapted to rotate about an axis, said partitions dividing the space between each of said shelves into a series of substantially individual compartments, resilient means adapted to rotate said partitions about said axis, and manually operable escapement means including a plurality of actuating levers individually operable for permitting partial rotation of said partitions between pairs of said shelves independently of each other and stopping said partitions so that one of said compartments formed thereby is always in registry with said openings.

10. An apparatus of the general nature of that herein described, in combination, an enclosure, a plurality of shelves horizontally disposed in said enclosure and fixedly secured thereto, a plurality of partition members disposed between each adjacent pair of shelves, each adjacent pair of partition members forming a compartment, said shelves having registering openings formed therein, and means for moving said partitions over said shelves to sweep articles disposed thereon into said openings.

GILBERT J. SCOFIELD.