Feb. 11, 1941. A. E. GEBERT ET AL 2,231,266

VENDING MACHINE

Filed Oct. 10, 1938 7 Sheets-Sheet 1

Fig. 1

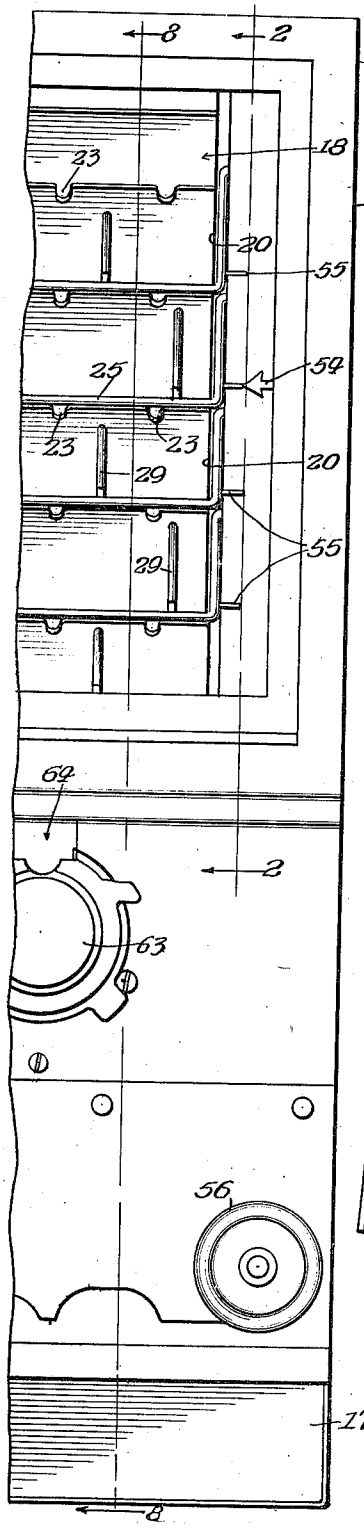


Fig. 3

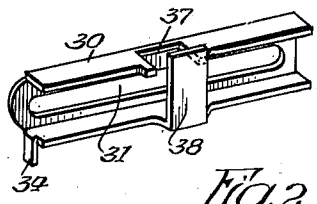
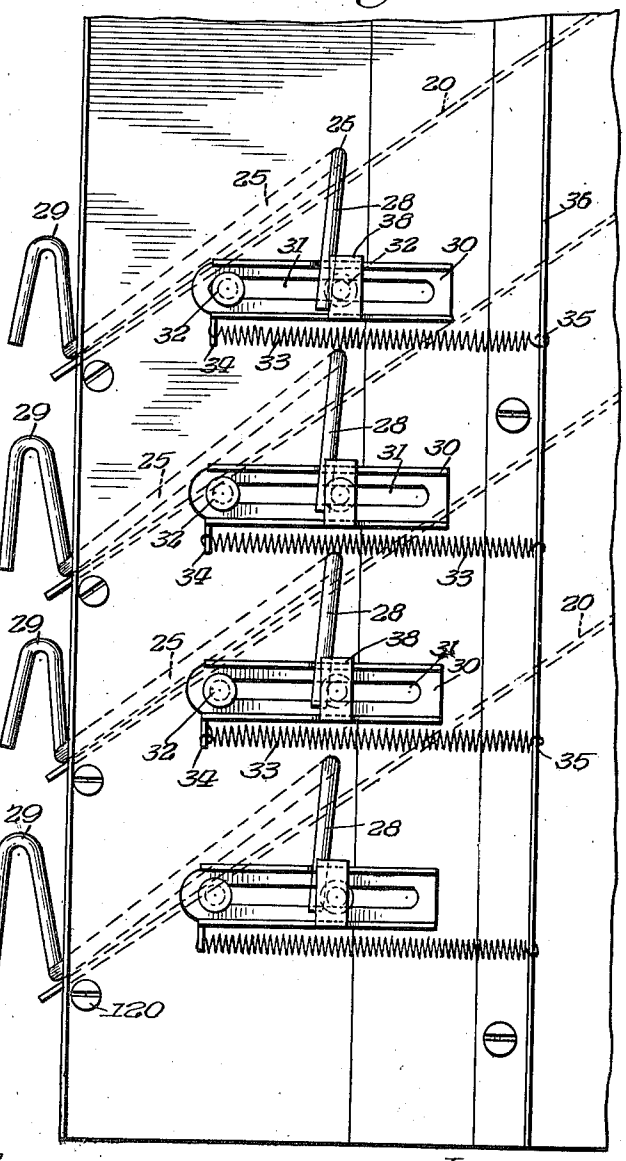


Fig. 2



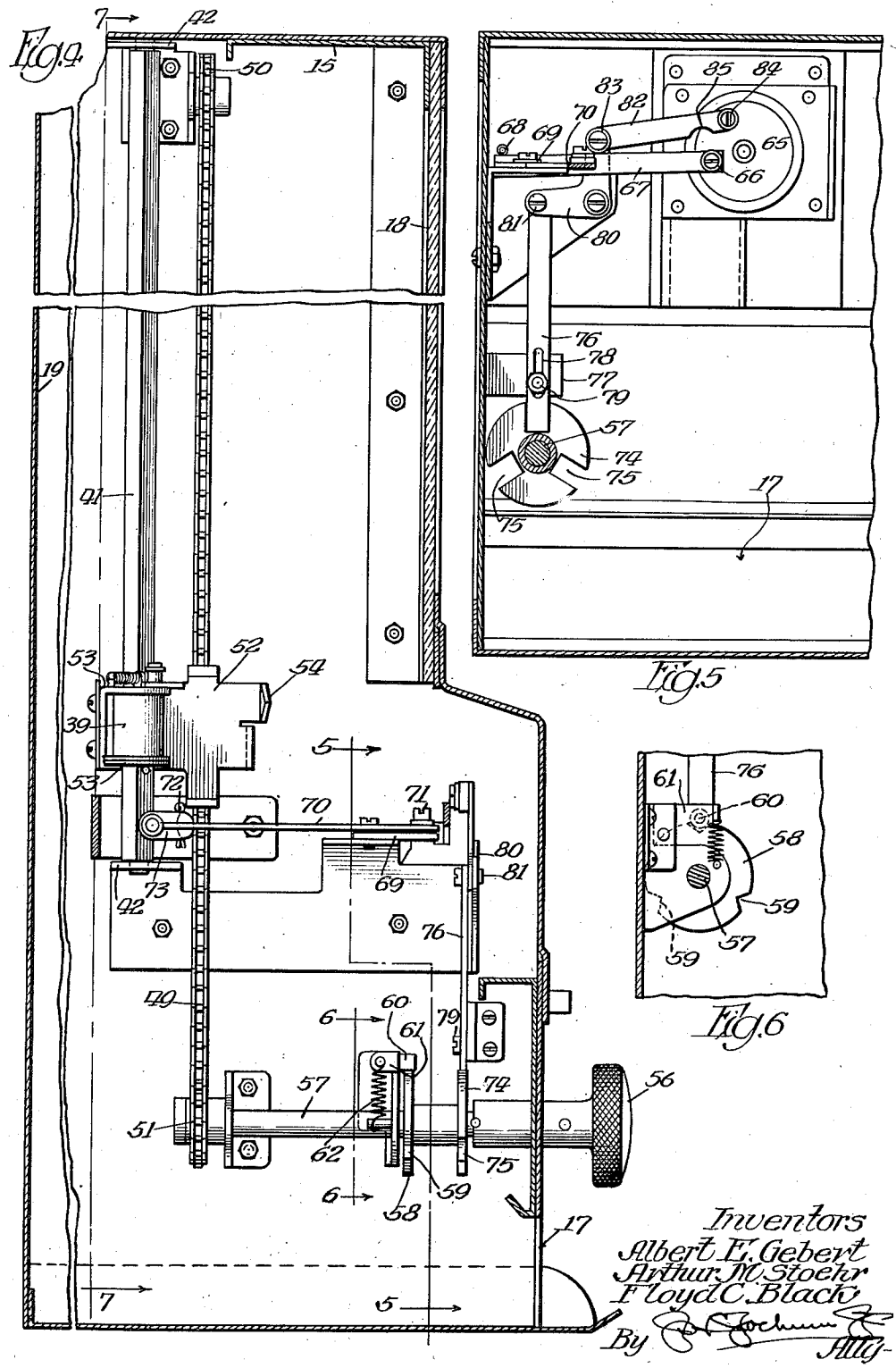
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Feb. 11, 1941. A. E. GEBERT ET AL 2,231,266

VENDING MACHINE

Filed Oct. 10, 1938 7 Sheets-Sheet 2

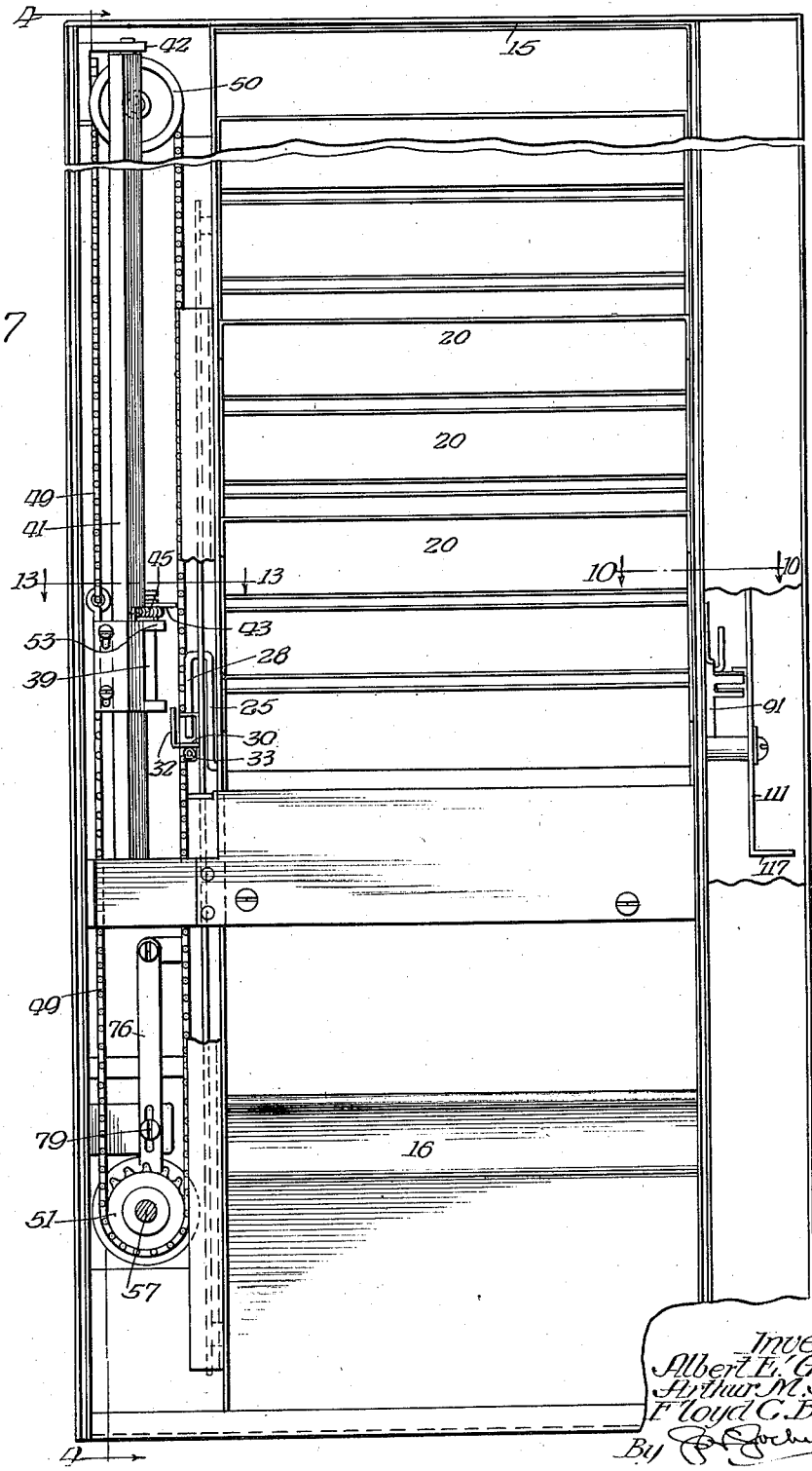


Feb. 11, 1941. A. E. GEBERT ET AL 2,231,266

VENDING MACHINE

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Fig. 7



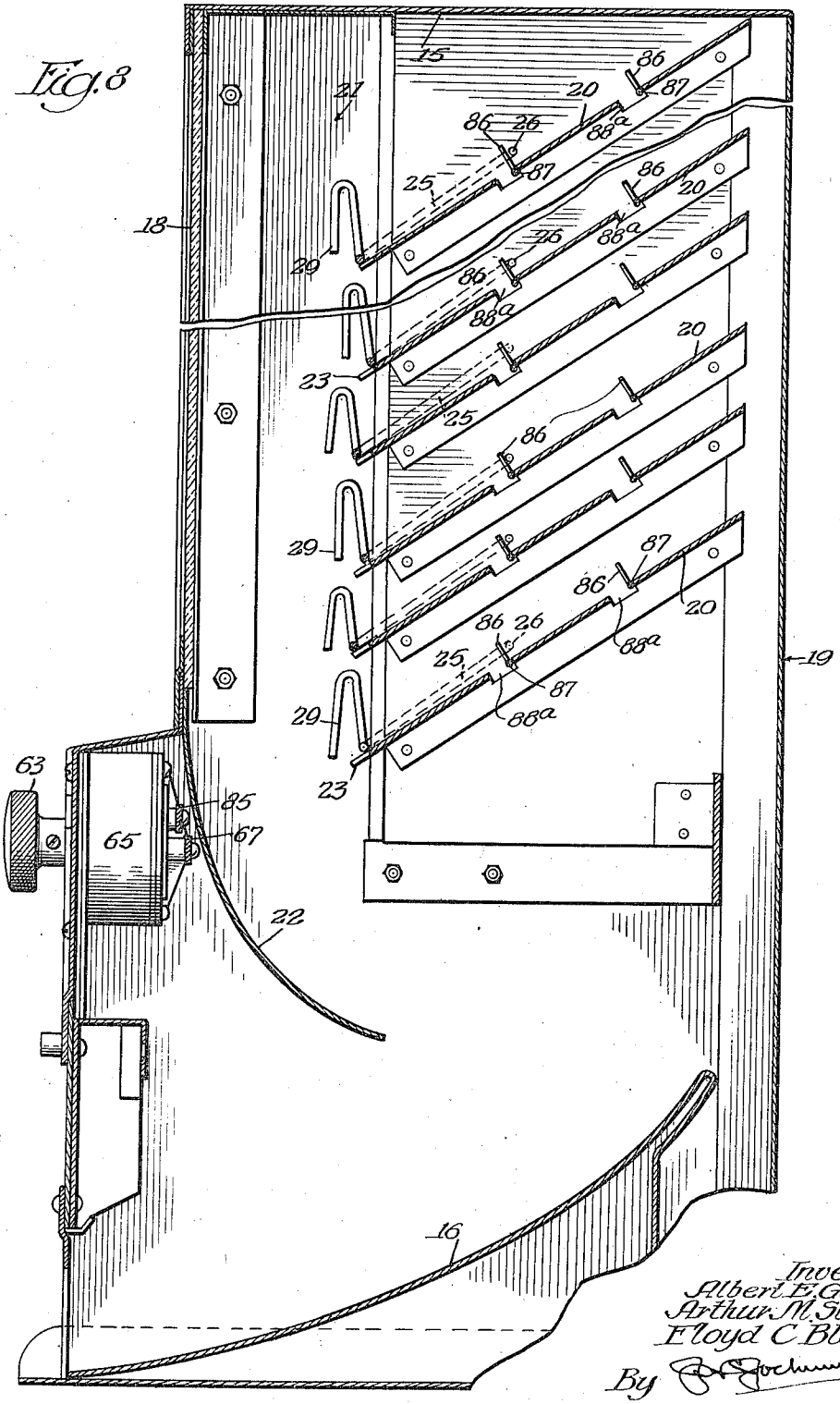
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VENDING MACHINE

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Fig. 8



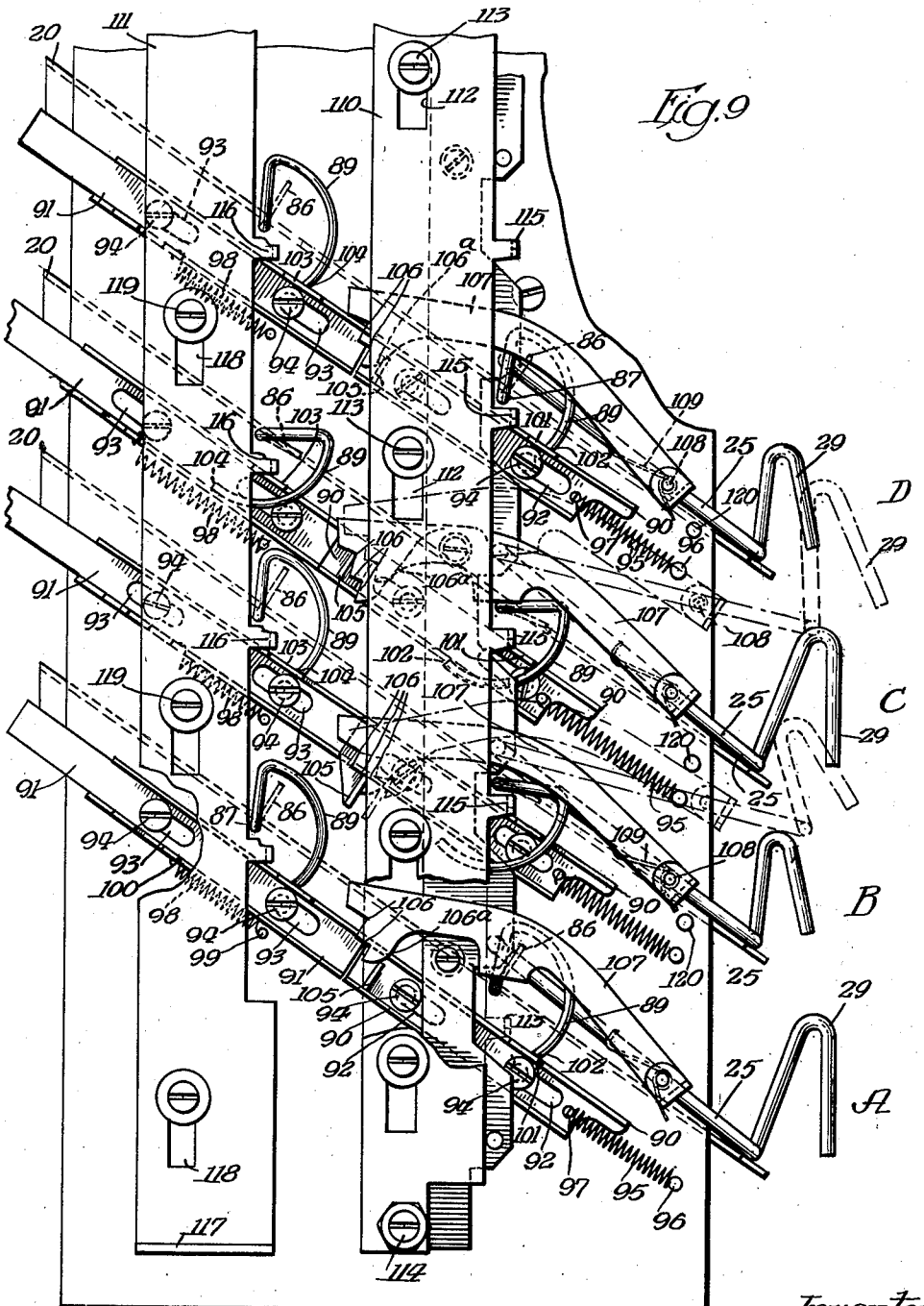
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VENDING MACHINE

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Fig. 9



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VENDING MACHINE

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Fig. 10

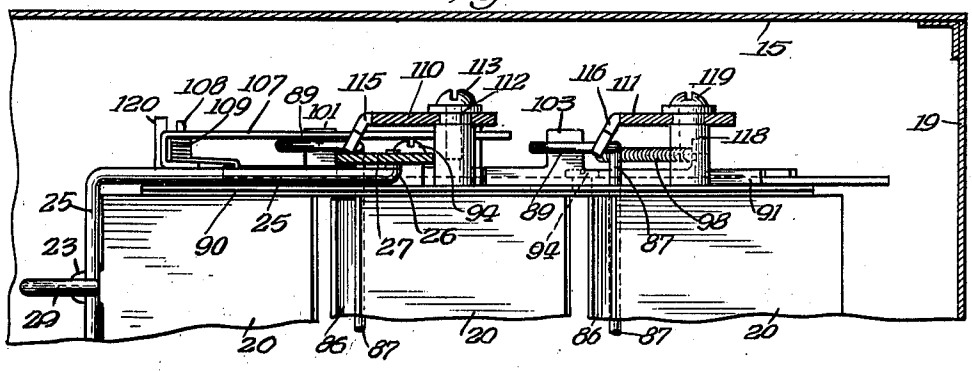


Fig. 11

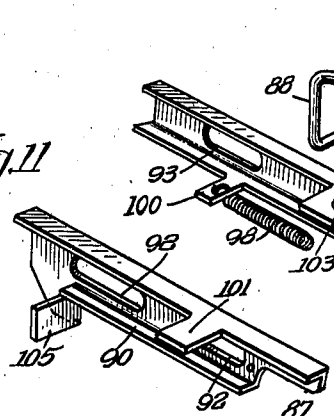
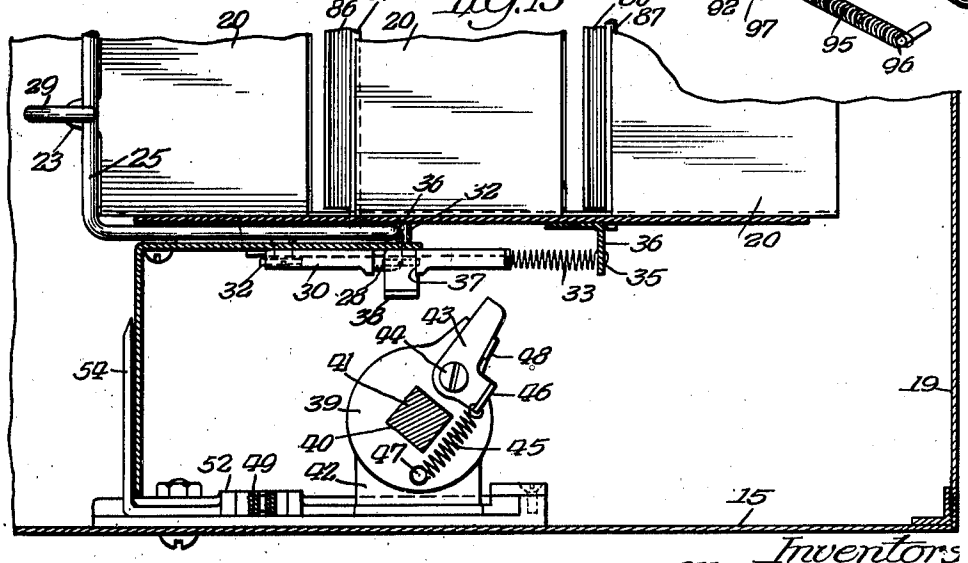


Fig. 12

Fig. 13



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VENDING MACHINE

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Fig. 14.

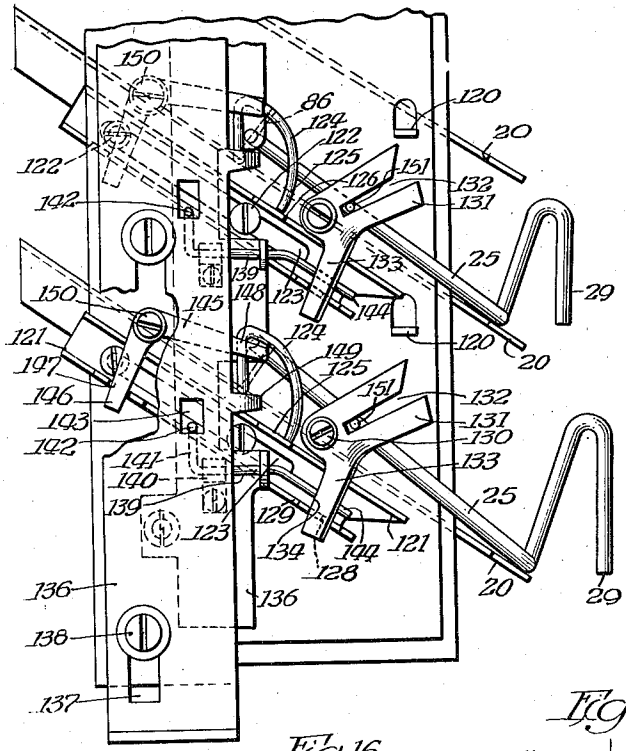


Fig. 15.

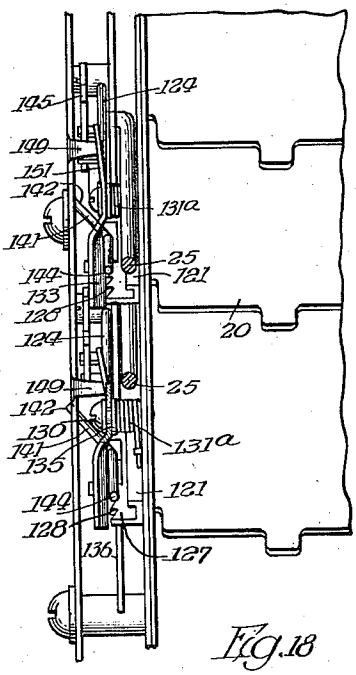


Fig. 16.

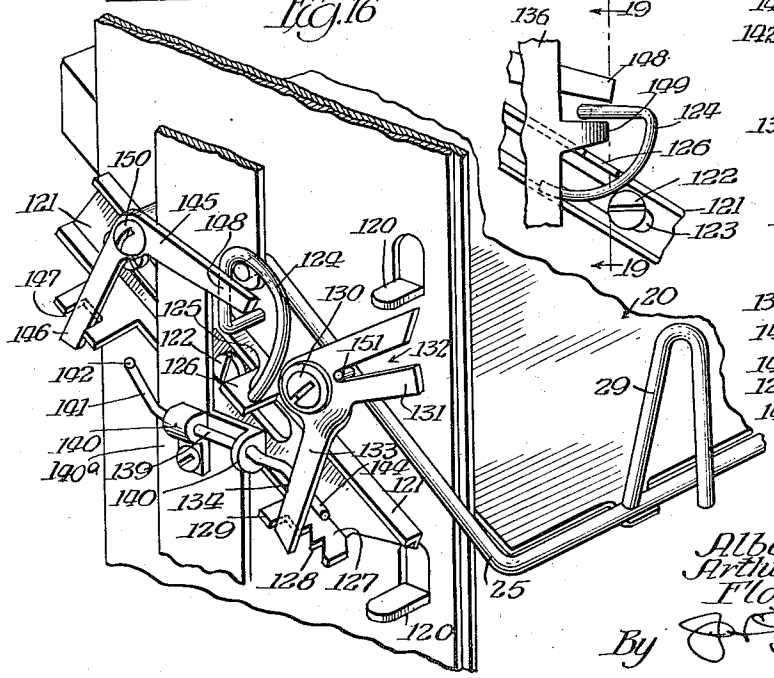


Fig. 17.

Fig. 18.

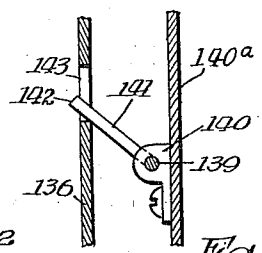
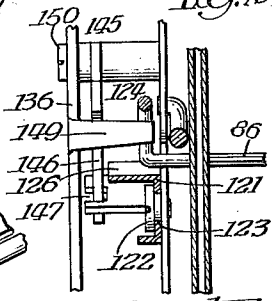


Fig. 19.



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UNITED STATES PATENT OFFICE

2,231,266

VENDING MACHINE

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Application October 10, 1938, Serial No. 234,208

13 Claims. (Cl. 312—95)

This invention relates to improvements in vending machines of the type in which the supports for the articles to be vended are arranged in a column consisting of downwardly inclined supports one above the other and properly spaced to receive the articles therebetween, each support holding its respective article or commodity.

Holding means are provided which co-operate with the supports for the articles, the respective holding means when shifted, operating to release the article so that one may fall or be delivered from the support to the operator of the machine and another article will replace the one vended.

It is one of the objects of the present invention to provide improved means for holding a plurality of articles upon the same support, one in advance of the other, and improved means for successively releasing the articles to be vended, upon proper operation of the machine, thereby insuring that a sufficient supply will be held in reserve to be automatically positioned to be delivered after the delivery of the foremost article.

A further object is to provide improved means for separating the articles on the respective supports from each other and also improved means for locking the separating means against operation.

A further object is to provide improved means for actuating the said locking mechanism to actuate the separating means to release an article.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention and in which

Figure 1 is a view in elevation of a portion of a machine constructed in accordance with the principles of this invention, taken on the outside of the casing.

Figure 2 is a detail sectional view, on an enlarged scale, taken on line 2—2, Figure 1.

Figure 3 is a detail perspective view on an enlarged scale, of one of the actuating elements for one of the article retainers or holders.

Figure 4 is a detail sectional view, partly broken away and with parts omitted, as taken on line 4—4, Figure 7.

Figure 5 is a detail sectional view on an enlarged scale as taken on line 5—5, Figure 4.

Figure 6 is a detail sectional view taken on line 6—6, Figure 4.

Figure 7 is a detail sectional view taken on line 7—7, Figure 4.

Figure 8 is a vertical sectional view taken on line 8—8, Figure 1, with parts omitted and with parts broken away.

Figure 9 is a view similar to Figure 2 taken on the opposite side of the machine.

Figure 10 is an enlarged detail sectional view taken on line 10—10, Figure 7.

Figure 11 is a detail perspective view of one of the locking elements for the article retainers.

Figure 12 is a detail perspective view of a plurality of article retainers and the associated locking and operating mechanism therefor.

Figure 13 is a detail sectional view, on an enlarged scale, taken on line 13—13, Figure 7.

Figure 14 is a detail side elevation of another form of locking and control mechanism for the supplemental retainer.

Figure 15 is an end elevation of Figure 14.

Figure 16 is a detail perspective view, on an enlarged scale of one of the mechanisms shown in Figure 14.

Figure 17 is a detail view partly in elevation and partly in section of the mechanism shown in Figure 16.

Figure 18 is a view partly in elevation and partly in section with parts omitted of the retaining mechanism shown in Figure 16.

Figure 19 is a detail sectional view on line 19—19, Figure 16.

Referring more particularly to the drawings, the numeral 15 designates an enclosing casing which may be of any desired size and configuration and constructed of any suitable material, having arranged in the bottom thereof a chute 16 upon which the articles are deposited and from which the articles are delivered through a delivery door opening 17 in the front of the machine.

The front of the casing is preferably provided with a transparent portion 18 through which the articles may be viewed and the casing may be provided with a removable back or closure 19.

Within the casing are a plurality of superposed supports 20 which preferably incline downwardly toward the front of the casing but terminate short of the front wall to form a passageway 21 into which the articles are delivered as they fall by gravity from the respective supports 20, and through which passageway the articles will fall until they strike a deflector 22 supported at the bottom of said passageway 21 and which extends below the series of supports 20 to direct the articles to the chute 16, thereby rendering it

possible for the operator at all times to view the article while it is resting upon the support 20 and also while falling through the passageway 21.

Any number of these supports 20 may be provided and the supports may be arranged at any desired or suitable distance above each other to accommodate the various articles to be dispensed. The front edges of the supports 20 may be shaped to form projecting lips 23 (see particularly Figures 1 and 8) so as to permit the operator to view a considerable portion of the article or articles resting upon certain of the supports. These lips may be formed in any suitable manner.

Co-operating with each of the supports 20 is a guard or stop 25 constituting a holder for the articles resting upon the support. These holders or retaining means are preferably formed as a bale or of a substantially U-shaped configuration, the extremities of the sides of the bale being pivotally mounted as at 26 (see particularly Figure 10) in an upright 27 arranged at the respective ends of the supports.

These retaining members are mounted for free pivotal movement and connected to the extremity of one end of the retainer is a depending arm 28 (see particularly Figure 2).

The body portion of the retainer extends across the front edge of the support 20 and may be of any desired or suitable configuration and connected thereto are inverted substantially V-shaped elements 29 secured by one end to the retainer 25, the portions 29 of the retainers 25 being arranged so that they will be disposed between the portions 29 of the next adjacent retainer 25.

These retainers or holders 25, when in the position shown in Figure 2, co-operate with the support 20 to hold an article thereupon and in position to be viewed through the transparent portion 18 of the front of the casing.

In order to release the article, the retainers 25 are moved upwardly by their pivots so as to permit the article to fall by gravity from the support.

This swinging movement is accomplished by means of a slide 30 (see particularly Figures 2 and 3) which is mounted upon a suitable portion of the machine for free sliding movement such as by means of a slot 31 through which pins or fastening elements 32 pass, and the slide is moved in one direction by means of a spring 33 one end of which is secured to an ear or projection 34 on the slide and the other end is anchored as at 35 to a fixed member 36 of the frame. The depending arm or extremity 28 projects into a slot or recess 37 on the slide and the slide is provided with an arm or upwardly projecting portion 38 through the medium of which latter the slide 30 is actuated against the stress of the spring 33 to raise the retaining means or holder 25 to permit the article to be delivered.

Any suitable mechanism may be provided for this purpose but a simple and efficient means embodies a member 39 (see particularly Figures 4 and 13) which is preferably provided with an opening 40 therethrough irregular in cross-section. This member 39 is adapted to move upon a rod or member 41 also angular in cross-section and which fits within the opening 40 so as to cause the member 39 to rotate axially with the rod 41. The rod 41 may be mounted in suitable bearings 42 secured to a suitable part of the frame of the machine.

Mounted upon the member 39 is a dog 43 movable about a pivot 44, and a spring 45 is provided one end of which is secured as at 46 to the dog 43 and the other end is anchored as at 47 to the member 39. The spring 45 tends normally to hold the dog 43 against a stop 48 on the member 39.

The member 39 is movable longitudinally of the rod 41 so as to position the dog 43 adjacent a predetermined one of the slides 30 through the medium of which latter the retainers or holding members 25 are swung about their pivots against the stress of the spring 33.

When the member 39 is moved in one direction the dog 43 will contact the stop 48 and when the extremity of the dog 43 then engages the arm or projection 38 on the slide 30 one wall of the slot 37 will contact the depending arm 28 of the retainer or holders 25 and swing the latter about its pivot to release the article on the support. When, however, the member 39 is moved in the opposite direction the back of the dog 43 engaging the arm 38 will be rocked about the pivot 44 against the stress of the spring 45 thereby allowing the dog 43 to pass back into a position that it may again be positioned against another arm 38 to actuate the retainer 25.

Any suitable means may be provided for moving the member 39 longitudinally of the rod 41.

A simple and efficient means embodies a sprocket chain 49 (see particularly Figures 4 and 7) which passes over a pulley 50 adjacent one end of the rod 41 and also over a sprocket wheel 51 suitably located. Connected to one of the runs of the sprocket chain 49 is a member 52 to which latter the member 39 is connected, the member 39 being preferably disposed between suitable bearings 53 adapting the member 39 for movement with and with respect to the member 52.

When the member 52 is raised or lowered by operation of the sprocket chain 49 the member 39 will slide upon the rod 41 until the dog 43 is positioned adjacent the predetermined arm 38. The rod 41 is then rotated and with it the member 39 causing the dog to swing the retainer 25 about its pivot.

To the member 52 may be connected a pointer or indicator 54 (see particularly Figures 1 and 4) which latter is exposed from the front of the machine.

Indications 55 are provided at predetermined points and with which indications the pointer 54 is adapted to be brought into register to indicate the proper positioning of the actuating dog 43.

Any suitable means may be provided for operating the sprocket chain 49 such for instance as an operating handle 56 suitably located for free access from the front of the machine (see particularly Figure 1).

This operating handle 56 is connected to a shaft 57 to which the sprocket wheel 51 is secured and the shaft is journaled in suitable bearings.

An automatic locking means or arresting mechanism may be provided to arrest the shaft and to assist in holding the pointer and the associated parts in their adjusted positions. Such locking means may consist of a disc 58 having notches 59 in its periphery. A locking dog or roller 60 carried by a member 61 may be provided to enter the notches 59 and a spring 62 controls the operation of the locking dog.

Thus it will be seen that by rotating the handle 56 the pointer 54 may be moved to its desired position. After it has reached this position the rod 41 may be rotated and the selected retainer or holding means 25 will be operated to release the article. Any suitable means may be provided for rocking the rod 41 but preferably coin control

mechanism may be employed, which is adapted upon the insertion of a coin, to permit the shaft to be rocked. Suffice it to say, that the coin control mechanism embodies an operating handle or knob 63 (see Figures 1 and 8) which, upon the insertion of a proper coin in the slot 64 will rotate a disc 65 (see particularly Figure 5). To this disc 65 is pivotally connected, as at 66, a link 67 the other end of which link may be pivotally connected as at 68 to a bell crank lever 69 suitably supported. To the other end of the bell crank lever a link 70 is pivotally connected by one end as at 71, and the other end of the link is pivotally connected as at 72 to an arm or projection 73 (see particularly Figure 4) which latter projects laterally from the shaft 41.

Thus it will be seen that when the knob or handle 63 is rotated in one direction the upright shaft 41 will be rotated in one direction through the medium of the intermediate connecting means and bell crank lever, and likewise when the handle or knob 63 is rotated in the opposite direction the shaft will be correspondingly rotated, so that upon operation of the knob 63 in one direction the operating dog 43 will swing the retainer 25 in one direction and when rotated in the opposite direction the dog 43 will pass the arm 38.

Carried by the shaft 57 (see particularly Figure 4) is another disc 74 which is provided with recesses 75 opening through its periphery and which recesses are preferably in alinement with the recesses 59. A slide 76 mounted to move upon a suitable guide 77 is provided with a slot 78 through which a fastening screw 79 passes. One end of the slide 76, which is preferably in the form of a bar is adapted to enter and fit within the recesses 75. The slide is given its movement by means of a bell crank lever 80 to which one end of the slide 76 is pivotally connected as at 81. To the other end of the bell crank lever 80 a link 82 is pivotally connected, as at 83, and the other end of the link is pivotally connected as at 84 to the disc 65.

The link 82 is preferably provided with a notch 85 to receive the pivot 66 of the link 67 so as not to interfere with the operation of the mechanism.

This additional locking means is provided so that after the mechanism has been operated by the insertion of a coin, it will prevent unauthorized operation of the selecting mechanism and thereby prevent unauthorized removal of another commodity from the machine until after another coin has been inserted.

It will be manifest that inasmuch as the disc 65 is connected with the handle 63 of the coin control mechanism, when the latter is operated, the shaft 41 will be oscillated and therefore in order to prevent movement of the member 39 and indicator 54 longitudinally of the shaft 41 by the manipulation of the handle 56, after the coin control handle 63 is started to operate, this positive locking mechanism is provided as it will be manifest that if the member 39 and the indicator 54 are properly positioned with respect to the support from which it is desired to release or discharge the commodity, one of the recesses 75 in the disc 74 will be in alinement to receive the end of the slide 76 and therefore the coin control mechanism will be permitted to operate; but, should it so happen that the member 39 and the indicator 54 are not in the proper position so that one of the recesses 75 will receive the end of the slide 76, the end of the slide will engage the periphery of the disc 74 and it will therefore be impossible to operate either the coin control mechanism or oscillate the shaft 41.

All of the above described mechanism, i. e. the member 39 and the indicator 54 are arranged on one side of the machine together with the slides 30, one slide being preferably arranged adjacent each of the supports 20 and individual to the retraining or holding members 25.

It is another purpose of the present invention to provide a means whereby a plurality of articles may be held upon each of the supports 20 yet separated from each other, to constitute a reserve supply so that when the foremost article, i. e. the one initially held by the retainer 25 has been dispensed, and after the retainer has moved into an operative position to hold another article, one of the articles on the support from which an article has been vended will be automatically positioned to be held by the retainer 25 so as to be vended upon the next operation of the particular retainer 25.

This is accomplished (reference being had more particularly to Figures 8, 9, 10, 11 and 12) by the provision of additional retainers or article holders 86, any number of which may be provided.

In the present exemplification of the invention these retainers are preferably in the form of gates or members which are connected to a bar 87 along one of their longitudinal edges and these bars are journaled in suitable bearings being preferably disposed in openings 89a in the support 20.

These additional retainers 86 are spaced from each other for any desired or suitable distance in directions across the support and are adapted to be swung into position so as to stand uprightly with respect to the support as shown in Figure 8 and thereby retain or hold an article from advancing on the support, and to be turned downwardly so as to permit the article in the rear thereof to slide forwardly upon the support.

One end of the rod 87 projects beyond the end of the support 20 as shown more clearly in Figures 10 and 11, and is shaped to form an upright portion 88 and a downwardly curved arm portion 89. Slides 90—91 are arranged in alinement and with the proximate ends of adjacent sections in close relation to each other.

In the present exemplification of this invention the structure will be described in connection with a mechanism in which the support 20 is divided into three sections for holding three articles.

The slides 90—91 are provided with slots 92—93 through which fastening screws 94 pass for slidingly mounting them upon the fixed part of the machine. These slides 90—91 are arranged in an inclined position, the angle of inclination being substantially the same as the angle of inclination of the supports 20.

A spring 95 is anchored at one end as at 96 and is connected at its other end as at 97 to the slide 90 and a similar spring 98 is anchored at one end, as at 99, and is connected at its other end, as at 100, to the slide 91. These springs tend normally to move the slides in a forward direction and to a position that a shoulder 101 on the slide 90 will be positioned under the extremity 102 of the arm 89 of the foremost or supplemental additional retainer 86 to hold the latter in an elevated position, while the spring 98 tends normally to move the slide 91 forwardly to position a shoulder 103 thereon beneath the extremity 104 of another of the arms 89, thereby

locking its original retaining member 86 in an operative position.

The slide 90 is also provided with a laterally projecting portion 105 to form a shoulder or projection with which the shoulders or notches 106 on an arm 107 are adapted to engage to move the slide 90 backwardly by a stey by step movement against the stress of the spring 95.

When the slide 90 is at the limit of its forward movement and the slide 91 is also at the limit of its forward movement, the forward end of the slide 91 will be in close proximity to the adjacent end of the slide 90 so that at a predetermined time during the operation of the retainer 25 the slide 90 will operate upon the slide 91 to move the latter and thereby release the retainer 86 controlled thereby.

The arm 107 is pivotally connected as at 108 to the retainer 25 and a spring 109 tends normally to move the arm 107 about its pivot 108 to position one of the notches or shoulders 106 to engage the projection 105.

The normal position of the retainers 86 and the slides 90—91 are as shown in Figure 12.

In this position an article will be retained by each of the retainers 86 and another article will be retained upon the support 20 by the retainer 25, as shown also by the lower unit in Figure 9.

It will be noted that the shoulder or projection 103 is of a width somewhat greater than the width of the shoulder or projection 101. This is important in that it allows the slide 90 to be moved a sufficient distance that the extremity 102 of the arm 89 will disengage the shoulder 101 thereby allowing the retainer 86 to be swung downwardly by the article therebehind permitting this article to be moved forwardly to be retained upon the support 20 by the retainer 25.

When the end 102 of the arm 89 disengages the shoulder 101 it will assume the position shown in Figure 9 by the second unit from the bottom of the figure, the arm 89 then passing behind the shoulder to form a locking means for the slide 90 preventing it from being moved forwardly by the spring 95 during another step of operation of the arm 107. During these movements the extremity 104 of the arm 89 will still be retained upon the shoulder or projection 103 and the supplemental retainer 86 controlled thereby be held in an upright position, as shown also in the second unit from the bottom of Figure 9.

As the retainer 25 is raised about its pivot by the slide 30 as heretofore described, the arm 107 will also be raised but the spring 109 will cause the arm 107 to move about its pivot to successively position the shoulder 106 behind the projection 105 during the successive operations of the retainer 25.

This will cause the slide 90 to be moved backwardly by a ratchet or step by step movement to eventually cause the extremity of the arm 89 to drop off of the shoulder or projection 103. The shoulders or projections 103 are of a width to compensate the various movements of the arm 107 according to the position which these elements assume in the machine and also according to the space between the superposed supports 20.

Thus it will be seen that when the member 39 is positioned in the manner as already described adjacent the member 28 on one of the retainers 25, which has been predeterminedly selected, and the member 39 rotated, the dog 43 will engage the arm 38 to swing the retainer 25 upwardly about its pivot 26 to release the foremost article held by the retainer.

Upon the first movement of the retainer 25 the lowermost shoulder 106 will contact the edge of the projection 105 and the arms 89 will be in engagement with the projections 101 and 103 on the respective slides 90—91. As soon as the retainer 25 is then released, the arm 107 will also be lowered but the shoulder 106 which is in engagement with the projection 105 will move the slide 90 backwardly against the stress of the spring 95 a sufficient distance to cause the extremity 102 of the arm 89 to drop off of the projection 101, as shown in the second unit from the bottom of Figure 9. The article which was held by the retainer 86, the arm 89 of which engaged the projection 101, will then be swung downwardly by the weight of the article therebehind and the article thus released will slide forwardly on the support 20 to be held and retained by the retainer 25 to be subsequently dispensed when the retainer 25 is again raised.

When this foremost article is dispensed by the raising of the retainer 25, the same operation will be repeated and the second notch 106 will move into engagement with the projection 105 to move the slide 91 backwardly against the stress of its spring 98 to allow the extremity 104 of the arm 89 to pass off of the projection 103, thereby releasing the article held by the retainer 86 allowing it to slide forward by gravity until it is retained by the retainer 25.

After the forward retainer 86 has been released and while the member 107 is being moved upwardly to release the rear retainer, the slide 90 will be held locked against forward movement under the stress of the spring 95 by engagement with the arm 89 of the supplemental retainer engaging behind the edge of the projection 101.

Obviously any desired number of these retainers may be provided according to the capacity of the machine and in order to add additional retainers 86, it is only necessary to add additional slides which operate successively. In such instances the only provision or change that would be necessary would be with regard to the width of the projections 101 and 103 as they must be of sufficient width so as to prevent the respective retainers controlled thereby from becoming unlocked until it is desired to dispense the article held by such retainer.

In Figure 9, the lowermost unit indicates the parts as they are in their normal or initial position. The unit B shows the position the parts will assume after the initial article has been dispensed and the foremost supplemental retainer 86 lowered to permit the article originally held thereby to be released and positioned to be retained by the retainer 25. The unit C shows the position the parts will assume when the rear retainer 86 is released so as to permit the article held thereby to move by gravity down the support 20 to be held by the retainer 25, while the unit D shows the parts in the same position as in the unit A, i. e. with the surface 106' of the arm 107 disposed behind the projection 105.

When the articles have all been dispensed from the supports or when it is desired to replenish the supply, after the retainers 86 have been lowered, it is necessary to reset them. This may be accomplished in any desired or suitable manner but preferably by means of a bar or slide 110 which is provided for the front side of the retainers 86 and a similar bar or slide 111 is provided for the rear side. Each of these bars is supported for sliding movement in any suitable manner and for that purpose they may be pro-

vided with slots 112 through which fastening screws or pins 113 pass and which screws or fastening devices engage a suitable part of the frame.

One end of the bar or slide 110 may be provided with a finger engaging portion or handle 114 by means of which the bar or rod may be raised or lowered. Projecting from the bar are a series of lips or extensions 115 which extend under the arm 107 and also the arm 88, the latter being connected to the retainer 86 so that when the bar is raised the projection will first engage and raise the arm 107 about its pivot 108 and against the stress of the spring 109 and then will engage the arm 88 to rock the retainer 86 so as to elevate the extremity 102 of the arm 89 thereby permitting the spring 95 to move the slide 90 forwardly so that the projection or extension 101 will be moved into a position that it will be engaged by the extremity 102 of the arm 89 and the respective retainer 86 will then be locked or maintained in its operative position to hold an article therebehind.

The bar 111 is also provided with projections 116 which operate upon the arms 88 of the rearmost retainer 86 in a similar manner.

Obviously in resetting the machine the foremost rod or bar 110 must be operated first so as to permit the slides 90 to move forwardly a sufficient distance so as not to interfere with the forward movement of the rear slide 91 and the setting of the rearmost retainers 86.

The rear bar 111 may be shaped at one end to provide a finger engaging portion 117 and this rear bar is slidingly mounted by means of slots 118 through which fastening or securing elements 119 pass.

If desired and in order to limit the upward movement of the retainers 25, stops 120 may be provided for that purpose (see particularly Figure 9). The retainers 25 may be limited in their downward movement and held in their operating positions with respect to the support 20 by engagement with the ears or projections 23 at the forward edges of the supports.

In Figures 14 to 19 there is shown a modified form of the invention for locking the supplemental holders or retainers 86 in an operative position and for releasing the same so as to permit the article held in the rear thereof to be delivered toward the front of the support 20 to be held by the retainer 25.

In this form of the invention the slide 121 is held by fastening devices 122 passing through slots 123.

The supplemental retainer 86 is provided with an arc shaped arm 124 the extremity 125 of which is adapted to engage and rest upon a laterally projecting ear or extension 126 on the slide 121, when the slide is in the proper position, so as to lock the supplemental retainer 86 in an operative position.

The slide 121 is also provided with a laterally projecting flange 127 provided with teeth 128 and a laterally projecting ear or extension 129 (see particularly Figure 16).

Pivotally mounted upon a fixed support and intermediate its ends as at 130 is a member 131, having a bifurcation 132 opening through the end thereof. The other end 133 of the member 131 is provided with an edge 134 adapted to successively engage the teeth 128 on the flange 127 of the slide 121, as the member 131 is rocked about its pivot, and thereby impart an intermittent or step by step movement to the member 121 rearwardly until the ear or projection 126 has moved from beneath the extremity 125 of the arm 124 of the supplemental retainer 86, thereby unlocking the latter, allowing it to fall by gravity and by the weight of the article which is behind it, until the supplemental retainer 86 assumes a position to permit the article previously held thereby to slide downwardly upon the support 20 to be held by the retaining member 25. The retaining member 25 will reach its active position with respect to the support 20 just at the time that the ear or projection 126 on the slide 121 passes from beneath the extremity 125 of the arm 124.

If desired, the ear or projection 129 may be caused to serve as a means for limiting the forward movement of the slide 121, as this ear or projection 129 will contact the end 133 of the member 131.

The member 131 is loosely mounted upon its pivot 130 and is adapted for a slight lateral movement with respect thereto, and this may be accomplished by providing an opening 135 (see particularly Figure 15) in the member, which is of a diameter slightly larger than the diameter of the supporting device or pin 130, and spring 131a which encompasses the element 130 and contacts the element 134 to hold the latter in position.

When the slide 121 has reached the limit of its movement in a direction to release the supplemental retainer 86, and in order to reset the supplemental retainer, there may be provided a bar or member 136 which is provided with slots 137 and is held in position by means of screws 138 passing through the slots, so as to permit of a longitudinal movement of the bar.

Adjacent one face of the bar 136 is a releasing device mounted upon a suitable support which preferably comprises a body portion 139 journaled in suitable bearings 140 mounted upon a suitable support 140—A. One end of the body portion 139 is shaped to provide an arm 141, the extremity 142 of which projects into a slot or opening 143 in the bar or member 136, the opening 143 being of a length considerably greater than the diameter of the end 142 of the arm 141 so as to permit the end 142 to readily enter and pass out of such opening when the bar 136 is moved longitudinally, for a purpose to be described.

The other end 144 of the member 139 is disposed behind the end 133 of the member 131, and is so shaped that when the member 139 is turned in its bearings 140, the end 144 will engage the portion 133 of the member 131 to rock the latter laterally upon its pivot 130 so as to move the edge 134 of the portion 133 out of engagement with the teeth 128 to release the slide 121, so that the slide may be moved to its original or normal position, that is, the position in which the ear will be moved so as to permit the extremity 125 of the arm 124 to engage and rest thereupon.

By the provision of the slot 143, upon the first movement of the bar 136 upwardly, the extremity 142 of the arm 141 will move out of the slot and the side of the bar 136 will engage the extremity 142 to hold the end 144 of the member 139 in a position to maintain the edge 134 of the member 131 out of engagement with the teeth 128 to allow the slide 121 to move forwardly, the enlarged bearing or opening 135 in the member 131 and the spring 131a serving to permit such movement of the member 131.

Pivotally mounted upon a fixed support is a bell crank lever 145 one end 146 of which projects

into a slot or bifurcation 147 in the slide 121, and the other end or arm 148 of the bell crank lever 145 projects into the path of movement of an arm or extension 149 on the bar or member 136, so that when the slide 121 has reached the limit of its movement in a direction to release the supplemental retainer 86, the arm or projection 149 will engage the arm 148 of the bell crank lever 145 to rock it about its pivot 150, thereby causing the arm 146 which projects into the bifurcation 147 of the slide 121 to move the slide forwardly so that the ear or projection 126 thereon will be in a position that the extremity 125 on the arm 124 will engage and rest thereupon.

This arm or projection 149 is of a sufficient length that before it contacts the arm 148 of the lever 145 it will engage a portion of the arm 124 to rock the latter about its pivot to reset the supplemental retainer 86 and move the extremity 125 of the arm 124 to a position so that when the bar or member 136 is returned the end 125 of the arm 124 will engage and rest upon the ear 126.

During the time that the slide 121 is in an active position, the arm 148 of the lever 145 will be elevated by the slide but will be moved downwardly or into a position to be engaged by the arm or projection 149, when the latter is moved to reset the mechanism.

With this construction it will be manifest that the slide 121 is positively moved into an active position at the same time that the supplemental retainer 86 is moved into an active position.

The member 131 is swung about its pivot 130 through the action or movement of the retainer 25 about its pivot and to that end there is provided a laterally projecting pin or lug 151 which projects into the bifurcation 132 of this member.

It is to be understood that with the present forms of the invention any number of supplemental retainers 86 may be employed or provided so that an additional supply of articles may be held in reserve upon each of the supports 20, and this may be accomplished by duplicating the slide mechanism 121 and the locking means co-operating therewith.

In the operation of the machine after a coin is inserted into the coin slot the retainer 29 will be held open or raised until the selective handle 56 is operated to indicate a different selection. That is, the dog 43 will slide either up or down on the arm 38 and when it clears this arm, the slide 30 is then returned to its original position, this in turn will lower or close the retainer 29.

While the preferred forms of the invention have been herein shown and described it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:

1. In a vending machine, an inclined support for the articles, retaining means for holding an article thereupon, means for rendering the retaining means inactive to release the article to be delivered from the support, means for actuating the releasing means, a plurality of additional retaining means for holding reserve supplies of articles upon the support and separated from the article held by the first recited retaining means, locking means individual to said retaining means, said locking means embodying a shiftable control element, and means movable in response to the actuation of the first recited retaining means for successively and intermittently shifting said control element to render the said locking means inactive.

2. In a vending machine, an inclined support for the articles, a retaining element for holding an article thereupon, means for actuating the retaining element to release the article to be delivered from the support, a plurality of additional retaining elements for maintaining reserve supplies of articles upon the support and separated from the article held by the first recited retaining element, locking means individual to the said additional retaining elements for locking them in position to retain the articles, each of said locking means embodying a shiftable control element, and means movable in response to the actuation of the first recited retaining element for imparting steps of movement to one of said control elements, the latter being operable to shift another of the control elements.

3. In a vending machine an inclined support for the articles, retaining means for maintaining an article thereupon, releasing means, means for operating the releasing means to render the retaining means inactive, additional retaining means for maintaining a reserve supply of articles upon the support and separated from the article held by the first recited retaining means, locking means for the said additional retaining means, said locking means embodying a slidable element and an abutment connected with the respective retaining means adapted to engage a portion of the slidable element to lock the retaining means against actuation, and means responsive to the movement of the first said retaining means for shifting the said slidable element to cause the said abutment to become disengaged from the said slidable element, thereby adapting said additional retaining means for operation to release the article held thereby.

4. In a vending machine, an inclined support for the articles, retaining means for maintaining an article thereupon, releasing means, means for actuating the releasing means to render the retaining means inactive, a plurality of additional retaining means for maintaining a reserve supply of articles upon the support and separated from the article held by the first recited retaining means, locking means individual to the said additional retaining means, each of said locking means embodying a slidable element and an abutment connected with the retaining means adapted to engage a portion of the slidable element to lock the respective retaining means against actuation, and means responsive to the actuation of the first said retaining means for successively shifting said slidable elements to cause the respective abutments to become disengaged from the respective slidable element, thereby adapting said additional retaining means for operation to release the article held thereby, a plurality of said slidable elements being arranged in alinement and separate from each other, one of said elements being actuated by the other at a predetermined time in the cycle of movement of the said other element.

5. In a vending machine, an inclined support for the articles, a retaining means for retaining an article thereupon, an additional and pivotally mounted retaining member for maintaining a reserve supply of articles upon the support and separate from the article held by the first recited retaining means, locking means for maintaining said additional retaining member against

movement about its pivot, said locking means embodying a slidable element, means tending normally to move the element in one direction, a shoulder on said slidable element, an abutment on said additional retaining member adapted to engage said shoulder, means for shifting the first recited retaining means to release the article held thereby, and means controlled by the first said retaining means for engaging and moving said slidable element to cause said shoulder and abutment to be moved out of engagement, thereby adapting said additional retaining member to be swung about its pivot by the released article to permit an article held thereby to move into a position to be held by the first said retaining means.

6. In a vending machine an inclined support for the articles, a retaining means for retaining an article thereupon, a plurality of additional and pivotally mounted retaining members for maintaining reserve supplies of articles upon the support and separate from the article held by the first recited retaining means, locking means individual to the said additional retaining members for maintaining them against movement about their pivots, said locking means each embodying a slidable element, means tending normally to move the elements in one direction, a shoulder on each of said slidable elements, an abutment on each of said additional retaining members adapted to engage the respective said shoulders, means for shifting the first recited retaining means to release the article held thereby, and means controlled by the first said retaining means for engaging and moving one of said slidable elements to cause its shoulder and co-operating abutment to be moved out of engagement, thereby adapting the respective additional retaining member to be swung about its pivot to permit the article held thereby for movement into a position to be held by the first said retaining means, a plurality of said slidable elements being arranged in alinement and separated from each other, one of said slidable elements being movable in advance of the other and the said other element being subsequently engaged and moved by the first said element.

7. In a vending machine, an inclined support for the articles, a retaining means for retaining an article thereupon, an additional and pivotally mounted retaining member for maintaining a reserve supply of articles upon the support and separate from the articles held by the first recited retaining means, locking means for maintaining said additional retaining member against movement about its pivot, said locking means embodying a slidable element, means for moving the element in one direction, a shoulder on said slidable element, an abutment on said additional retaining member adapted to engage said shoulder, means for shifting the first recited retaining means to release the article held thereby, means controlled by the first said retaining means adapted to move said slidable element to cause said shoulder and abutment to be moved out of engagement thereby adapting said additional retaining member to be swung about its pivot to permit the article held thereby to move into a position to be held by the first said retaining means, said abutment forming a portion of an arm adapted to move behind said shoulder to lock said slidable element against movement in one direction.

8. In a vending machine, an inclined support for the articles, a plurality of separate retaining means for retaining the articles thereupon, said retaining means being arranged one in advance of the other, means for actuating one of the retaining means to release the article held thereby, means embodying a shiftable locking element for the other retaining means, and means controlled by the said actuated retaining means for shifting said element to release another of said retaining means at a predetermined time in the cycle of operation of the actuated retaining means, thereby adapting the said another retaining means to be operated to permit the article held thereby to move into position to be held by the first said actuated retaining means, the said locking means embodying a spring controlled pivotally mounted arm movable about its pivot upon the actuation of the first recited retaining means.

9. In a vending machine an inclined support for the articles, a plurality of separate retaining means for retaining the articles upon the support, said retaining means arranged one in advance of the other, means for actuating one of the retaining means to release the article held thereby, locking means for the other retaining means, and means controlled by the said actuated retaining means for rendering the said locking means inactive at a predetermined time in the cycle of operation of the said actuated retaining means, thereby adapting another of said retaining means to be released to permit the article held thereby to move into position to be held by the first said actuated retaining means, the said locking means embodying a spring controlled arm pivotally connected with one of the said retaining means, the said arm being provided with a plurality of shoulders adapted to successively engage a portion of the said locking means to shift the last said element with a step by step movement.

10. In a vending machine, an inclined support for the articles, retaining means for holding an article upon the support, a supplemental retainer for also retaining articles upon said support, locking means, said locking means embodying a slide, means connected with the supplemental article retainer for engagement with a portion of said slide for locking the supplemental retainer in operative position, a pivotally mounted element, a connection between said pivotally mounted element and said slide whereby upon movement of the said element about its pivot a step by step movement will be imparted to said slide to move it into a position to release the said supplemental article retainer, means whereby upon actuation of the first said retainer means said pivotally mounted element will be swung about its pivot, and means for actuating the first said retaining means.

11. In a vending machine, an inclined support for the articles, retaining means for holding an article upon the support, a supplemental retainer for also holding articles upon said support, locking means, said locking means embodying a slide, means connected with the supplemental article retainer for engagement with a portion of said slide for locking the supplemental article retainer in operative position, a pivotally mounted element, a connection between said pivotally mounted element and said slide whereby upon movement of the said element about its pivot a step by step movement will be imparted to said slide to move it into a position to release the said supplemental article retainer, means whereby upon actuation of the first said retaining means said pivotally mounted element will be swung

about its pivot, means for actuating the first said retaining means, and means for rendering said connection inactive at will.

12. In a vending machine, an inclined support for the articles, retaining means for holding an article upon the support, a supplemental retainer for also holding articles upon said support, locking means, said locking means embodying a slide, means connected with the supplemental article retainer for engagement with a portion of said slide for locking the supplemental article retainer in operative position, a pivotally mounted element, a connection between said pivotally mounted element and said slide whereby upon movement of the said element about its pivot a step by step movement will be imparted to said slide to move it into a position to release the said supplemental article retainer, means whereby upon actuation of the first said retaining means, said pivotally mounted element will be swung about its pivot, means for actuating the first said article retaining means, means for rendering said article connection inactive at will, and means whereby the last said means will also operate to reset the said additional article retaining means into an active position with respect to said support.

13. In a vending machine, an inclined support for the articles, retaining means for holding an article upon the support, a supplemental retainer for also holding articles upon said support, locking means, said locking means embodying a slide, means connected with the supplemental article retainer for engagement with a portion of said slide for locking the supplemental article retainer in operative position, a pivotally mounted element, a connection between said pivotally mounted element and said slide whereby upon movement of the said element about its pivot a step by step movement will be imparted to said slide to move it into a position to release the said supplemental article retainer, means whereby upon actuation of the first said article retaining means said pivotally mounted element will be swung about its pivot, means for actuating the first said article retaining means, means for rendering said connection inactive at will and for resetting the said supplemental article retainer into an active position with respect to said support, and means responsive to the operation of the last said means for positively shifting said slide in one direction.

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