Nov. 14, 1950 C. H. DIXON 2,529,600

ARTICLE DELIVERY MECHANISM

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Fig. 1

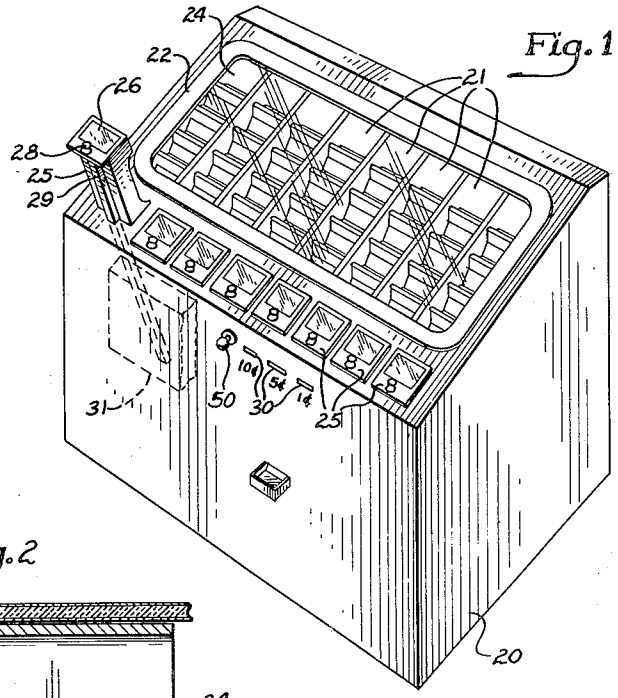


Fig. 2

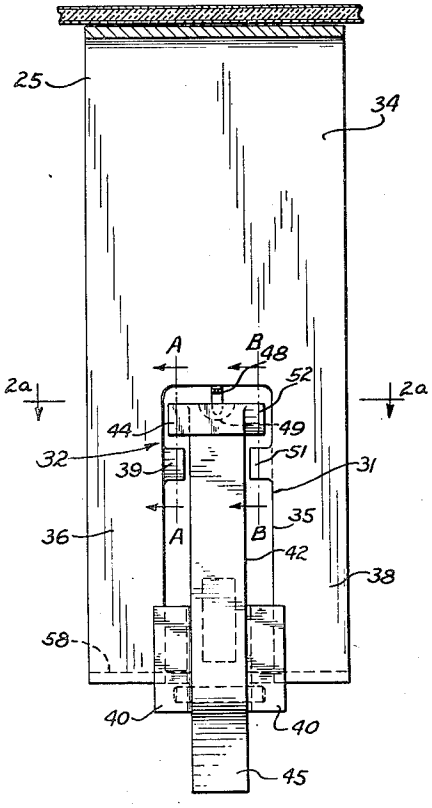
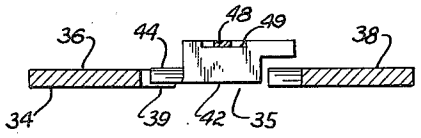


Fig. 2a



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Fig. 3

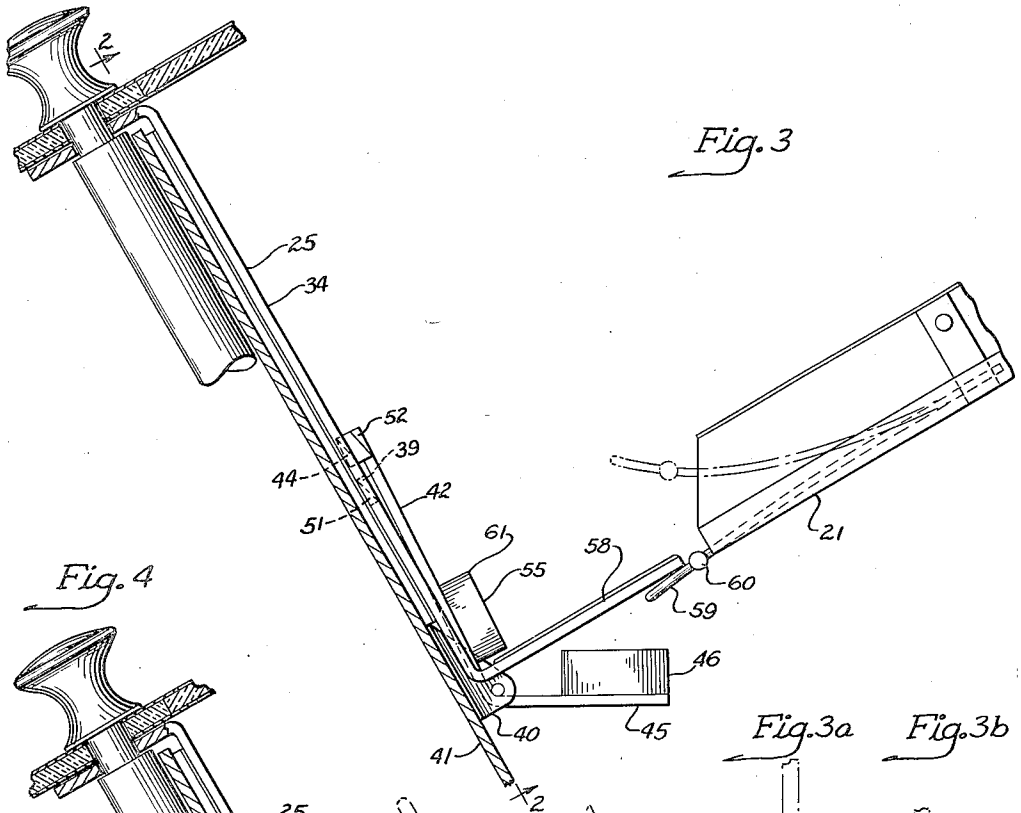


Fig. 4

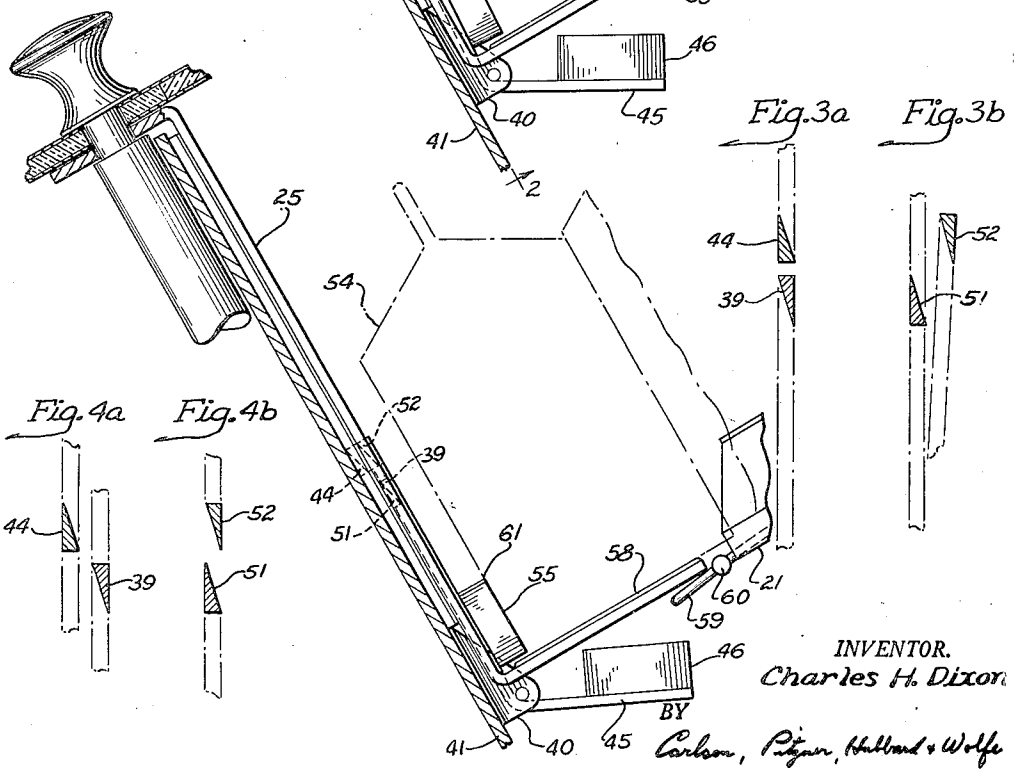


Fig. 3a

Fig. 3b

Fig. 4a

Fig. 4b

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ARTICLE DELIVERY MECHANISM

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Fig. 5

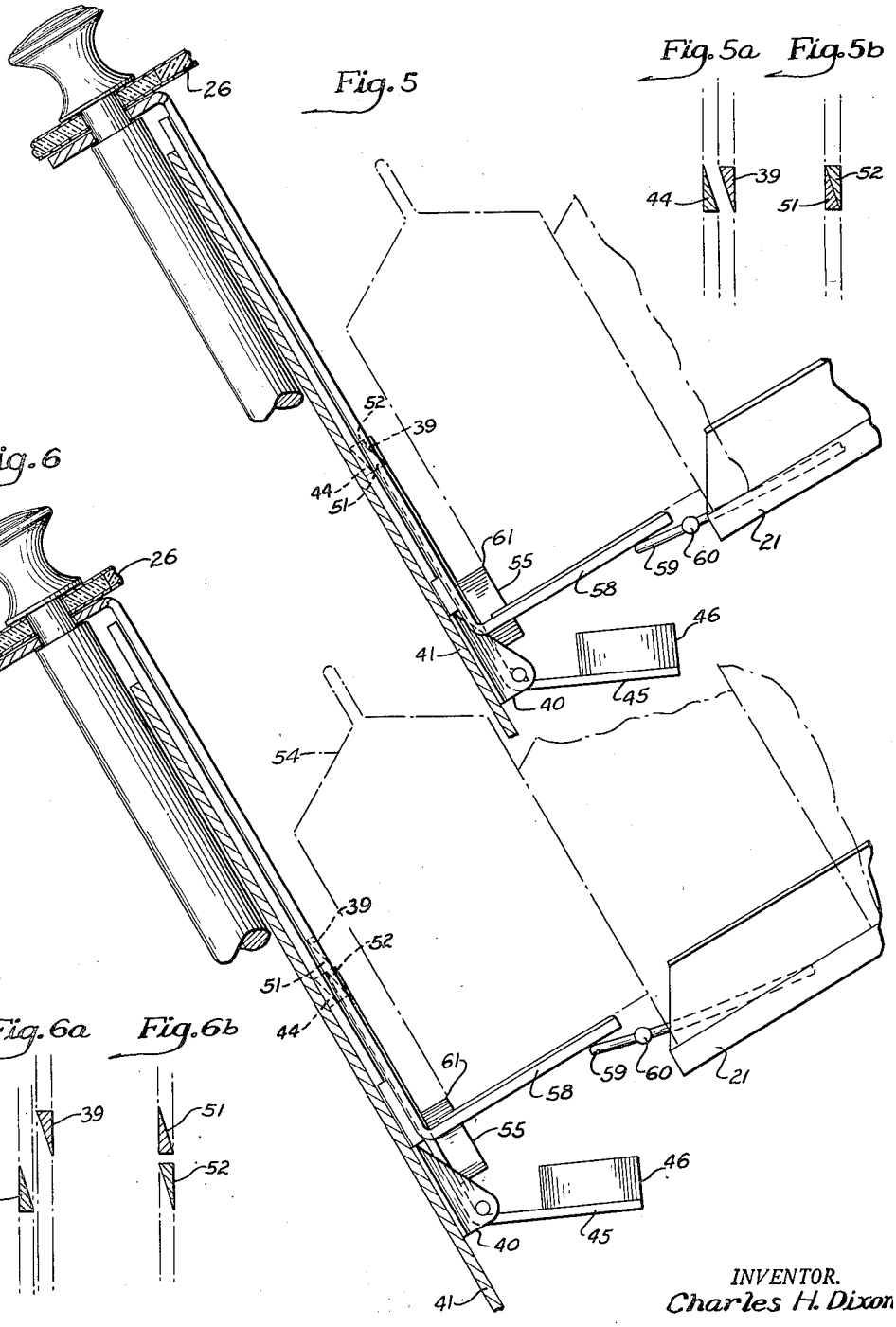


Fig. 5a Fig. 5b

Fig. 6

Fig. 6a Fig. 6b

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Fig. 7

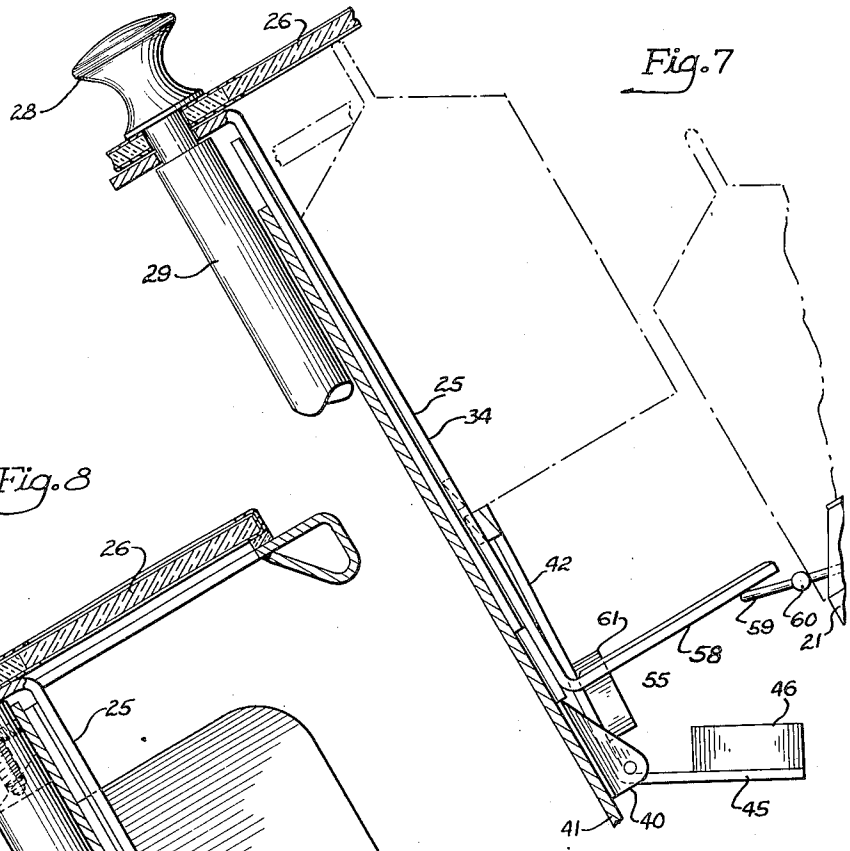
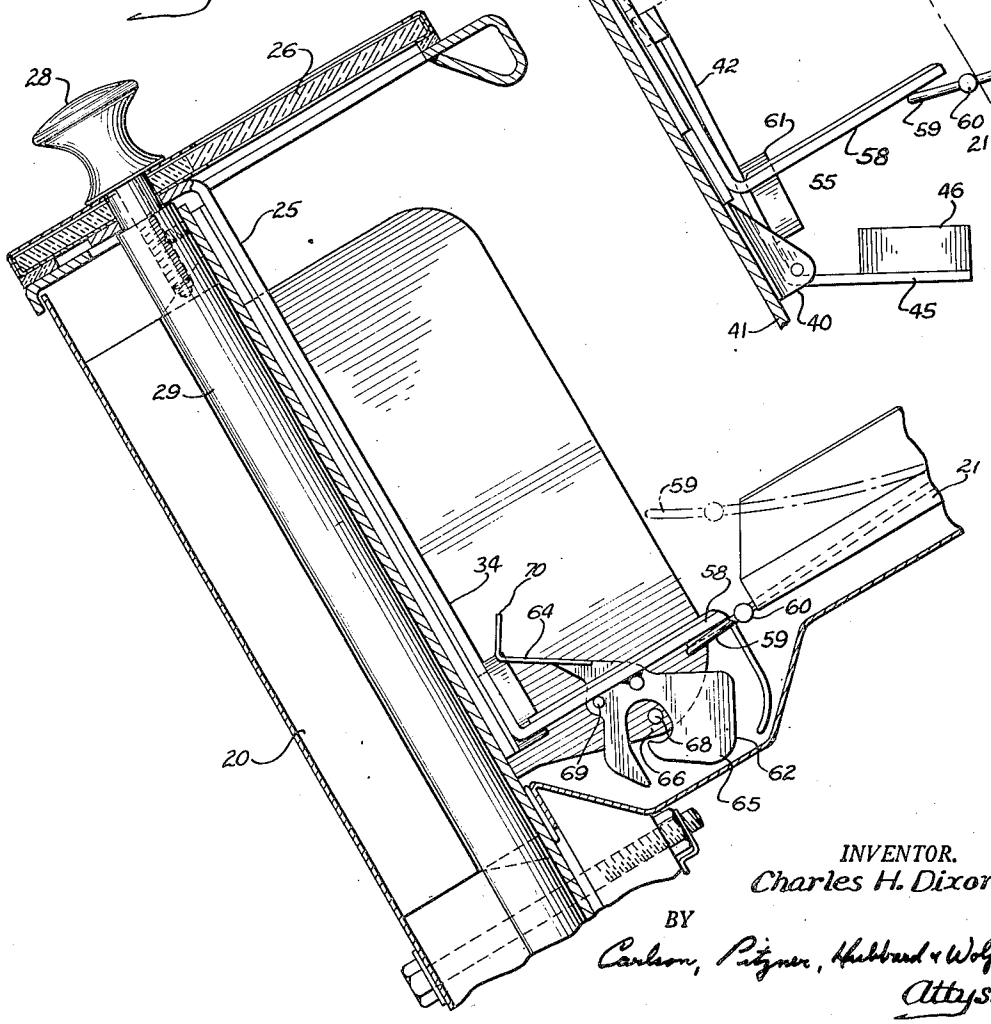


Fig. 8



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ARTICLE DELIVERY MECHANISM

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Fig. 9

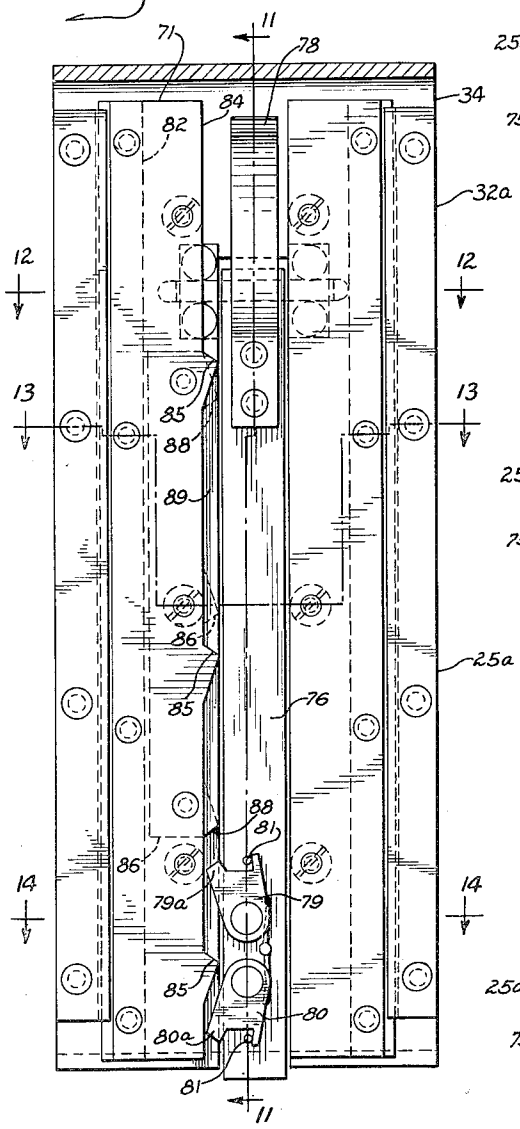


Fig. 12

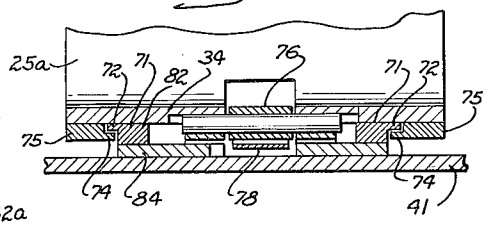


Fig. 13

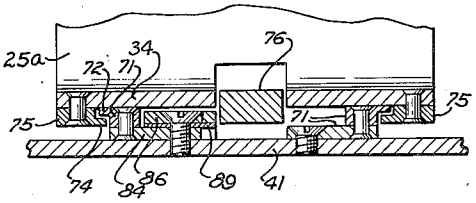
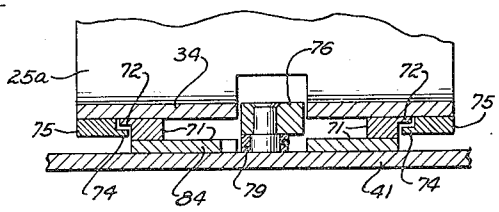


Fig. 14



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ARTICLE DELIVERY MECHANISM

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Fig. 10

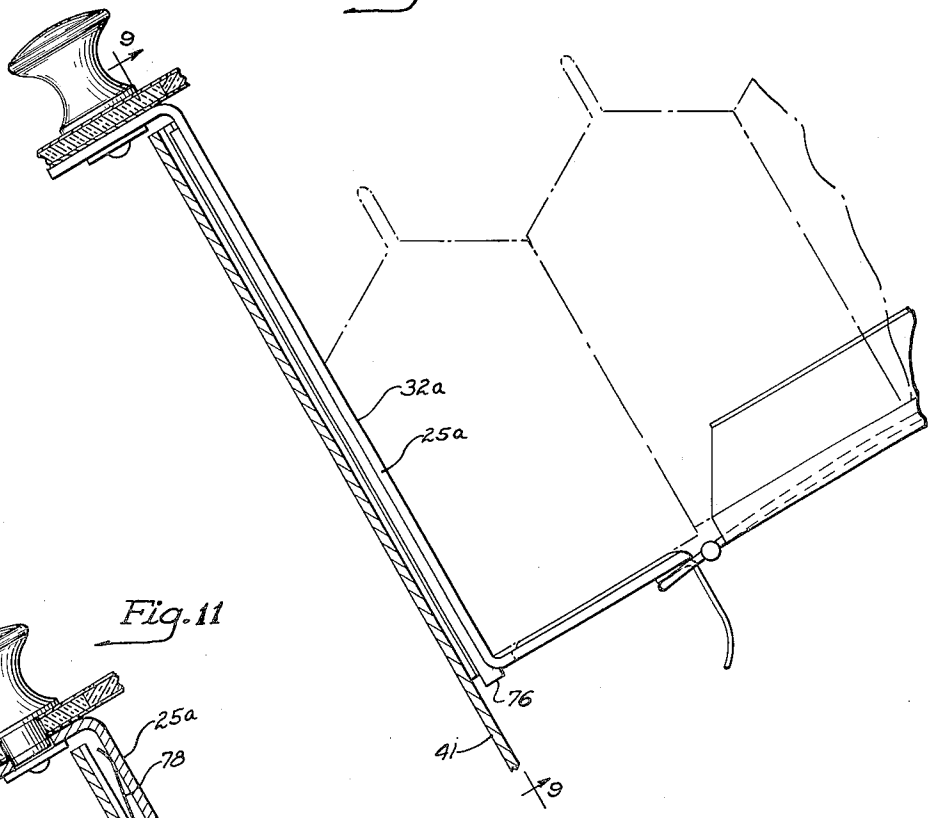
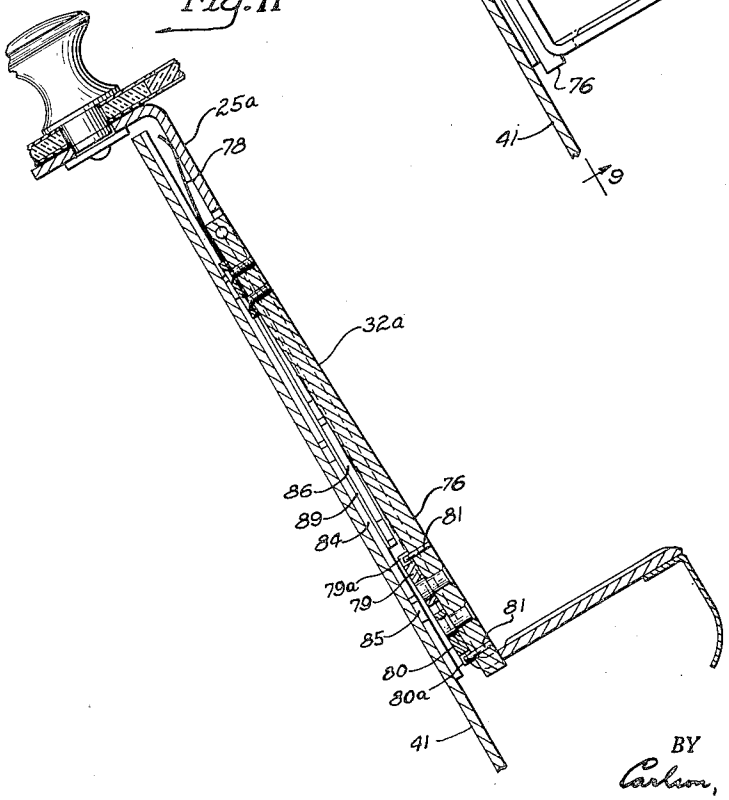


Fig. 11



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UNITED STATES PATENT OFFICE

2,529,600

ARTICLE DELIVERY MECHANISM

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Application October 21, 1947, Serial No. 781,159

9 Claims. (Cl. 312—67)

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The present invention relates generally to vending machines and more specifically to a novel article delivery mechanism of particular but not exclusive utility in connection with a vending machine of the character disclosed in my prior Patent No. 2,425,870 issued on August 19, 1947.

Reference may be had to the foregoing patent for a detailed description of the vending machine disclosed therein. For present purposes, however, it will suffice to say that such a machine comprises a cabinet or housing having a plurality of inclined chutes for the reception and gravity feeding of various articles of purchase such as cartons of milk. Associated with the lower ends of respective chutes and adapted to selectively dispense articles therefrom are a plurality of article delivery receptacles or traps, each mounted for movement in a direction substantially normal to its chute. Upon the depositing of coinage equal to the purchase price in a coin controlled mechanism, the latter serves to actuate appropriate releasing means thus allowing the customer to lift any selected one of the delivery traps and thereby claim his purchase. As an incident to the raising of a delivery trap, the deposited coinage is dropped into a box within the coin mechanism from which it then becomes non-returnable. When the delivery trap has reached its upper limit of travel the purchased article may easily be removed therefrom. If the trap is released at that point, it will return by gravity to its original locked position where it will receive another article from its associated chute, permitting a repetition of the vending cycle.

One of the objects of the present invention is to provide an article delivery mechanism wherein the lifting of an empty trap through more than a negligible distance will be positively precluded, thus enabling a customer to secure the return of his purchase money in the event that he might have inadvertently selected an empty trap.

Another object is to provide a mechanism of the character set forth and having means for preventing the return of an article delivery trap to its lowered and locked position in the event that the customer loses his grip on the same after his money has been collected but before he has removed the purchased article from the trap.

A further object is to provide a dispensing mechanism of the above type including means for eliminating friction and consequent jamming

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between an article in a loaded delivery trap and the next succeeding article to enter the trap.

Still another object is to provide a mechanism of the foregoing character which will be simple and reliable in operation and yet substantially tamperproof.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings wherein:

Figure 1 is a perspective view of an illustrative vending machine embodying the present invention, one of the article delivery traps being shown in the fully raised position.

Fig. 2 is a fragmentary transverse sectional view taken vertically through an empty article delivery trap in the plane of the line 2—2 of Fig. 3 and showing in elevation the front wall of the trap together with the interlock assembly.

Fig. 2*a* is a horizontal sectional view through the front wall of the trap of Fig. 2 taken in the plane of the line 2*a*—2*a* and showing the end of the latching tongue in plan.

Fig. 3 is a fragmentary side view of an empty article delivery trap showing in profile the floor, the front wall of the trap and the interlock assembly, together with the lower portion of the inclined merchandise chute associated with the trap.

Figs. 3*a* and 3*b* are vertical sectional views through both pairs of latching lugs taken respectively in the planes of the lines A—A and B—B of Fig. 2 but with the trap in the condition of Fig. 3.

Fig. 4 is a fragmentary side view through a trap similar to that shown in Fig. 3 but with the former in a loaded condition.

Figs. 4*a* and 4*b* are vertical sectional views through the latching lugs of Figs. 3*a* and 3*b* but with the delivery trap in the condition illustrated in Fig. 4.

Fig. 5 is a fragmentary side view of the trap shown in Fig. 4 but with the latter elevated through a distance just short of its non-return point.

Figs. 5*a* and 5*b* are vertical sectional views similar to those of Figs. 3*a* and 3*b* but with the trap in the condition illustrated in Fig. 5.

Fig. 6 is a fragmentary side view of the trap illustrated in Fig. 4 but with the latter elevated just above its non-return and coin collecting point.

Figs. 6*a* and 6*b* are vertical sectional views of the locking lugs of Figs. 3*a* and 3*b* but with the trap in the condition illustrated in Fig. 6.

Fig. 7 is a fragmentary side view wherein the trap illustrated in Fig. 6 has been elevated still further and permitted to drop down before the purchased article has been removed therefrom.

Fig. 8 is a fragmentary vertical sectional view through an article delivery trap and showing a trigger mechanism adapted to preclude elevation of the trap until the latter actually receives an article to be vended.

Fig. 9 is a fragmentary transverse sectional view taken vertically through a modified form of article delivery trap in the plane of the line 9—9 of Fig. 10.

Fig. 10 is a fragmentary side view of the modified trap shown in Fig. 9 and with the same in a loaded condition.

Fig. 11 is a vertical sectional view through the trap shown in Fig. 9 and taken in the plane of the line 11—11, the trap being in an empty condition.

Figs. 12, 13 and 14 are horizontal sectional views of the device shown in Fig. 9 and taken respectively in the planes of the lines 12—12, 13—13 and 14—14.

While the invention is susceptible of various modifications and alternative constructions, certain preferred embodiments have been shown in the drawings and will be herein described in some detail, but it is to be understood that there is no intention to limit the invention to the specific forms disclosed, the intention being, on the contrary, to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

Referring to Fig. 1, a vending machine embodying the present invention is there illustrated comprising the usual cabinet or housing 20 which encloses a plurality of inclined chutes 21 for storing various articles to be vended and for feeding the same by gravity to the lower ends of the chutes. The cabinet 20 may also contain suitable machinery for refrigerating the merchandise stored therein, this feature being required in instances such as the present one where the machine is used for dispensing milk in cartons. For display purposes and also to provide a visual indication of the amount of stock on hand in the machine, a covering panel 22 is mounted over the chutes 21 and is fashioned with a relatively large glass window panel 24. Associated respectively with the lower ends of each of the chutes 21 and movable in a plane normal thereto are a corresponding series of article delivery traps 25. In the embodiment illustrated, the top of each trap is equipped with a glazed window 26 and a hand knob 28 for permitting manual elevation of the trap. As in the case of the patented machine mentioned above, upstanding rods 29 are rigidly secured to each of the traps and are adapted to slide in appropriate upright passages to guide the traps as they are elevated. The depositing by a customer of the proper amount of coinage in the coin slots 30 serves to actuate a coin controlled mechanism (not shown) which releases a locking mechanism indicated diagrammatically at 31, thereby permitting any selected one of the traps 25 to be elevated. After the customer has fully elevated the selected trap and has withdrawn the purchased item therefrom, the trap if allowed to fall by gravity will return to its original locked position in the manner already described.

In the event that one or more of the article delivery traps should become empty due, for example to exhaustion or to jamming of the items stored within an associated merchandise chute, provision is made for positively precluding the lifting of such a trap through more than a very slight distance. In the present instance, this is accomplished by means in the form of an interlock assembly 32 which is responsive to the presence of an article in the delivery trap. Turning to Fig. 2, it will be observed that a typical article delivery trap 25 is there shown having a front wall 34 which is fashioned with a relatively wide slot 35 running vertically through a substantial portion of the height of the wall and defining therein two spaced-apart leg portions 36 and 38. Projecting laterally into the slot 35 and unitary with the leg 36 of the trap wall is a latching lug 39 which in the present instance is formed with a simple wedge-like contour and with the wide part of the wedge facing upwardly. Journaled in a pair of laterally spaced brackets 40 rigidly attached to a trap supporting partition 41 within the cabinet 20 is an upstanding latching tongue 42 rockable upon an axis running substantially parallel to the plane of the trap wall 34. The uppermost end of the tongue 42 is formed with a thickened portion from which a wedge-shaped latching lug 44 similar to the lug 39 projects toward the leg 36 of the trap wall 34 in a direction parallel with the plane of the tongue, the lug 44 being offset from such plane by a relatively small distance as indicated in Figs. 2 and 2a. The enlarged part of the wedge of the lug 44 is located at the bottom rather than the top thereof. The tongue 42 is also provided with an arm 45 extending rearwardly under the trap and which carries a weight 46 for biasing the tongue into an inwardly inclined position with respect to the front wall 34 of the trap (see Figs. 3 to 7 inclusive). The inward arcuate movement of the tongue under the biasing force of the weight 46 is limited by means of a stop finger 48 unitary with the trap supporting partition 41 of the cabinet. As indicated in Fig. 2, the finger 48 is adapted to abuttingly engage a semi-circular recess 49 in the thickened upper portion of the latching tongue.

Referring now to Fig. 3, the trap 25 which is there illustrated is in the empty or unloaded condition. Under such circumstances the latching tongue 42 is maintained at its extreme position of inwardly inclined movement with respect to the trap wall due to the action of the weight 46. This situation results in bringing the latching lug 44 into longitudinal alinement with the lug 39. Consequently, in the event that a customer should deposit his money in the machine and inadvertently select an empty trap, it would be impossible for him to elevate the latter through anything greater than the insignificant distance between the transverse abutting surfaces of the latching lugs 39 and 44 (see Fig. 3a). Upon being confronted with a trap which can not be lifted, the customer is effectively reminded that he must make another selection. If, however, he becomes reluctant to purchase a different brand or item from the one he originally had in mind, he may easily obtain a refund of his purchase money by simply actuating a coin return plunger 50 on the cabinet.

In addition to the foregoing, provision is also made for preventing return of a loaded trap to its original locked position without removal of the purchased article therefrom. This is accomplished preferably by incorporating a double

acting feature into the interlock assembly 32. Thus, the leg 38 of the trap wall is formed with a transversely extending latching lug 51 symmetrical in shape and location to the lug 39 but having the wide portion of its wedge facing downwardly instead of upwardly as in the case of the lug 39. By the same token, the thickened upper portion of the latching tongue 42 is formed with a wedge-shaped projecting lug 52 of similar size and shape to the lug 44 but located in the plane of the tongue 42 and with the wider edge of its wedge-like cross section facing upwardly.

With the trap in the unloaded condition illustrated in Fig. 3 and the tongue 42 at its inward extreme position with respect to the trap wall, the lugs 51 and 52 will be offset vertically from each other as shown in Fig. 3b due to the angular position of the tongue 42.

Assume now that a milk container 54 or a similar article be permitted to slide into the trap 25 of Fig. 3 from the adjacent chute 21. The forward wall of the container would then be brought into abutting engagement with a spacer block 55 which is unitary with the latching tongue 42 (see Fig. 4). Since the container is several times heavier than the biasing weight 46 of the latching tongue, the latter will necessarily be rocked to its extreme position of outward arcuate movement. In the embodiment illustrated, the plane of the tongue then becomes substantially coplanar with the front wall 34 of the trap. Turning now to Figs. 4a and 4b, it will be noted that under the foregoing conditions the movement of the tongue 42 has resulted in the lateral offsetting of the latching lugs 39 and 44 thus eliminating this obstacle to the elevation of the trap. At the same time, the latching lugs 51 and 52 have been brought into alinement with each other as indicated in Fig. 4b, but since any engagement between them will occur along their complementary inclined surfaces these lugs will merely cam past each other without interference as the trap is elevated.

Assume further than the loaded trap shown in Fig. 4 be lifted through a distance just short of the point where the deposited coinage becomes non-returnable, such condition being illustrated in Fig. 5. If the customer should accidentally lose his grip on the hand knob 28 of the trap allowing the latter to drop down to its original position, his money is still returnable and he can conveniently make another attempt to claim his purchase without loss. With the trap in the position indicated in Fig. 5, the latching lugs occupy the relationship shown in Figs. 5a and 5b. Although the camming action between the lugs 51 and 52 has rocked the tongue 42 slightly toward the trap wall so as to bring the lugs 39 and 44 into partial longitudinal alinement, this does not prevent further upward movement of the trap because the lug 39 of the trap wall has already passed by the lug 44.

If the loaded trap 25 be lifted still further, from the position of Fig. 5 to that shown in Fig. 6, the customer's purchase money will have become non-returnable. By the same token, the latching lugs 51 and 52 will have cammed past each other and moved into longitudinal alinement due to the weight force of the container 54 against the spacer block 55 of the latching tongue. Should the customer inadvertently release the trap lifting handle 28 at this point, the trap would be precluded from descending to its original locked position by direct abutment between the wide edges of the lugs 51 and 52. With further lifting of the trap, the container 54 which rests upon the trap floor 58 will slide over the upper end of the spacer block 55 and directly abut the latching tongue 42. As long as such abutting engagement between the container and the tongue 42 continues, the latching lugs 51 and 52 will remain in longitudinal alinement and thus prevent the loaded trap 25 from descending to its lowermost or locked position if the elevating force on the trap be discontinued.

After the container 54 has been slid upwardly by the trap and out of engagement with the latching tongue 42, the latter will return to its inwardly inclined position with respect to the trap wall 34 due to the action of the biasing weight 46. This brings the thickened upper end of the latching tongue substantially inside the inner surface of the trap wall 34, forming what is in effect a shoulder thereon. If the lifting force on the trap 25 should be discontinued at any point in its upward travel from here to the upper extreme or delivery position of the trap, the descent of the latter will be quickly arrested by engagement of the container 54 between the end of the latching tongue 42 and the window 26 in the top of the trap. Under these circumstances, the container serves as a supporting column, holding the trap 25 well above its original locked position (see Fig. 7) and also above the engagement point of the latching lugs 39 and 44. Consequently, the trap 25 will remain in a liftable condition without the deposit of additional coinage and until the purchased article has been claimed.

For the purpose of minimizing the undesirable effect due to friction between an article in a delivery trap and the next succeeding article in the associated chute 21, a novel retaining arrangement is employed. In the embodiment illustrated in Fig. 3, such arrangement comprises a pair of spaced-apart parallel resilient arms 59 rigidly secured to the sides of the chute 21 for movement normal to the plane thereof. The arms 59, which in the present instance are spring wires, project beyond the end of the chute 21 for a sufficient distance to permit their free ends to underlie the floor 58 of the trap when the latter is in its lowest position. If the trap floor happens to be narrower than the chute, the end portions of the wires 59 may be bent toward the trap so as to engage the underside of the trap floor. Spanning the arms or wires 59 and securely attached thereto slightly beyond the end of the chute 21 is a transverse member 60. With the trap 25 in the position indicated in Fig. 3, the underlying ends of the wires 59, due to an upward bias, are held firmly against the underside of the trap floor 58. Assuming that the trap 25 is now in the loaded condition, the forward surface of the container present therein will abut against the spacer block 55 while the rearward surface of the container will abut against the side of the lowermost container in the chute 21. As the loaded trap 25 is elevated, its floor 58 forces the container in the trap to slide frictionally along the abutting surfaces of the spacer block and the end container in the chute 21. At the same time, the spring arms 59 will follow closely the upward movement of the trap floor, the transverse member 60 just clearing the side of the end container in the chute 21. These conditions will prevail until the bottom of the container in the trap has reached the upper edge 61 of the spacer block 55, whereupon such container will slide forwardly in the trap and over the edge 61, losing all contact with the end container in

the chute. Upon the interruption of such contact, this container is immediately accosted by the transverse member 60 which prevents the former from sliding further down the chute. After the container in the trap 25 has been claimed by the purchaser and the trap permitted to descend in an empty condition, the floor 58 merely pushes the spring arms 59 and their transverse member 60 below the bottom of the restrained container, allowing the latter to slide freely from the chute 21 and into the trap for a repetition of the vending cycle.

Referring now to Fig. 8, the article delivery trap 25 there illustrated is equipped with a modified latching means for preventing the elevation of the trap in an unloaded condition. In this instance, such means comprises a latch member 62 rockably suspended from the underside of the trap floor 58 and having a trigger-like arm 64 projecting above the latter. The depending portion of the latch 62 is weighted as at 65 for biasing purposes. Such portion is also fashioned with an offset latching slot 66 which is adapted to engage a latching pin 68 unitary with an adjacent stationary part of the cabinet 20. The clockwise arcuate movement of the latch 62 under the action of its weighted portion 65 is limited by a stop pin 69 which engages the underside of the trap floor 58. As a merchandise container slides from the chute 21 into the trap 25, the weight of the container is sufficient to depress the trigger 64, thus rocking the latch through the necessary angle to disengage the slot 66 from the pin 68 and permitting the trap to be elevated. To allow for the possibility that the pressure of the merchandise containers along the chute 21 might be sufficiently large to hold a container against the forward wall 34 of the trap but clear of the trigger 64, the same may be fashioned with an L-shaped extension arm 70. Such arm, which in the present drawing is shown as a flat spring, renders the latch 62 responsive to the mere presence of an article in the trap 25 as well as to the weight of such article upon the trigger 64.

In Figs. 9 through 14 inclusive a modified trap interlock assembly 32*a* is shown and, like the one already described, is also double acting. As the drawings indicate, the assembly 32*a* is closely associated with the arrangement for guiding the movements of an individual trap 25*a* along the supporting partition 41 as the former is elevated for delivery of vended merchandise. Accordingly, the inner surface of the partition 41 has secured thereto a pair of built-up guide strips 71 having longitudinal flanges 72 for slidably engaging complementary flanges 74 in another pair of guide strips 75, the latter being secured to the front wall 34 of the article delivery trap. Dependably mounted from a pivot located in the upper portion of the trap wall 34 is a latching tongue 76 which, in the present instance, (see Fig. 11) is biased inwardly with respect to the trap wall by means of a leaf spring 78. Adjacent its lower end, the tongue 76 carries a pair of longitudinally spaced, latching pawls 79 and 80 having respective one-directional latching lugs 79*a* and 80*a*. The pawls are spring biased so that their latching lugs project beyond one of the side edges of the tongue 76, the lug 79*a* inclining upwardly and the lug 80*a* inclining downwardly. The limits of rocking movement of the pawls 79 and 80 are established by the use of a pair of stop pins 81 also carried by the latching tongue 76. Upon closer inspection of Fig. 9, it will be observed that the left-hand guide strip 71 on the partition wall 41 actually comprises two separate bars or strips 82 and 84 riveted or otherwise permanently attached together. The edge of the strip 84 adjacent the latching tongue 76 is fashioned with a plurality of one-directional, longitudinally spaced stationary latching lugs or ratchet teeth 85. In addition to the strip 82, a somewhat shorter strip or bar 86 (see Fig. 13) is also rigidly attached to the strip 84. Like the latter, the strip 86 is formed with a comparable number of one-directional longitudinally spaced stationary latching lugs or teeth 88 but which are adapted to act in the opposite direction from the lugs 85.

When the trap 25*a* is empty, the latching tongue 76 assumes the position indicated in Fig. 11 bringing the pawls 79 and 80, together with their latching lugs 79*a* and 80*a*, into the plane of the lugs 88. Under these conditions, it is then possible to elevate the trap only through the negligible distance between the lug 79*a* and the lowermost of the lugs 88 whereupon contact between these elements precludes further upward movement of the trap. If, however, a container 54 should be loaded into the trap 25*a* as indicated in Fig. 10, the latching tongue 76 would be urged forwardly against the bias of the spring 78, becoming substantially coplanar with the front wall 34 of the trap. This brings the pawls and their latching lugs 79*a* and 80*a* into the plane of the lugs 85. Thus the trap in the loaded condition may easily be elevated without interference, the lugs 79*a* and 80*a* merely camming over the inclined undersides of the lugs 85. If, on the other hand, the loaded trap 25*a* should be released at any point along the course of its upward movement, the descent of the latter to its original locked position would be arrested by positive engagement between the lug 80*a* with one of the lugs 85, the particular lug engaged depending upon the point of release of the trap.

The use of a plurality of fixed lugs engageable in either direction results in several advantages. For example, it then becomes possible to positively maintain a trap in the fully elevated position without any necessity for the customer to continue applying lifting force thereto while claiming his purchase. Furthermore, such construction eliminates completely the need for utilizing the merchandise container as a supporting member for a loaded trap which has been inadvertently dropped. In addition to the above, the adverse effects of tampering are virtually eliminated since the re-elevation of an unloaded trap from a position just above the lowest point of engagement of the upwardly acting latching lugs to the fully elevated position is positively precluded. This expedient serves effectively to prevent a person of fraudulent intent from fishing an article out of a storage chute and extricating it from the machine by re-elevating the delivery trap.

By way of making the foregoing latching assembly still more foolproof, a thin spacer plate 89 is interposed between the strips 84 and 86 so as to separate the upwardly acting fixed latching lugs 88 from the downwardly acting fixed lugs 85 throughout the intermediate portion of the travel of the trap 25*a*. This renders it impossible to shift the latching tongue and its lugs from the plane of one set of fixed latching lugs to the plane of the other during the major portion of trap movement. Consequently, the chances of re-elevating an unloaded trap by jarring the ma-

chine to disengage various latching lugs are eliminated.

I claim as my invention:

1. In a vending machine having a housing which encloses a plurality of inclined chutes for storing articles to be vended and feeding the same by gravity to the lower ends of said chutes, the combination comprising dispensing receptacles at the lower ends of said chutes for receiving the lower of the articles in said chutes and movable from an initial locked position to an elevated delivery position, such movement being in a plane substantially normal to the paths of the articles in said chutes, a supporting partition in said housing for said dispensing receptacles, latching means including coacting members carried respectively by said partition and by each of said dispensing receptacles, the members of said means being adapted to coact in response to the absence of an article in a selected one of said dispensing receptacles to prevent elevation of the same, and a second latching means also including coacting members carried respectively by said partition and by each of said dispensing receptacles, the members of said second means being adapted to coact in response to the presence of an article in said one of said dispensing receptacles to preclude the return of the same to the initial locked position.

2. A dispensing mechanism for use in a vending machine having an inclined chute for storing articles to be vended and feeding the same by gravity from the lower end of said chute to an associated dispensing receptacle, the latter being liftable in a direction normal to the plane of said chute and from an initial locked position in response to the actuation of a coin controlled device, said mechanism comprising, in combination, a fixed support for said dispensing receptacle, latching means including coacting latching lugs carried respectively by said fixed support and by said dispensing receptacle, the lugs of said means being adapted to coact in response to the absence of an article from said receptacle to prevent lifting of the same, and a second latching means also including coacting latching lugs carried respectively by said fixed support and by said dispensing receptacle, the lugs of said second means being adapted to coact in response to the presence of an article in said receptacle to preclude the return of the same to the initial locked position.

3. An article delivery mechanism for use in a vending machine having an inclined chute for storing a series of articles to be vended and for loading the same by gravity into an associated dispensing receptacle liftable from an initial locked position upon the actuation of a coin controlled device, said mechanism comprising, in combination, a fixed support for said receptacle, latching lugs defined in the wall of said receptacle by a relatively large longitudinal slot, a latching tongue rockably mounted on said support so as to extend into the slot, latching lugs projecting from the upstanding end of said latching tongue, biasing means for causing said tongue to aline certain of said latching lugs when said receptacle is in an unloaded condition and thus prevent the same from being lifted, said tongue being adapted when said receptacle is in a loaded condition to longitudinally aline certain other of said latching lugs and thus prevent the descent of said receptacle to the initial locked position.

4. An article delivery mechanism for use in a vending machine having an inclined chute for storing a series of articles to be vended and for loading the same by gravity into an associated dispensing receptacle, the latter being liftable in a direction normal to the plane of said chute and from an initial locked position in response to the actuation of a coin controlled device, said mechanism comprising, in combination, a fixed support for said receptacle, latching lugs defined in the front wall of said receptacle by a relatively large longitudinal slot, a latching tongue rockably mounted on said support so as to extend into the slot, latching lugs projecting from the upstanding end of said latching tongue, a biasing weight carried by said tongue and adapted when said receptacle is in an unloaded condition to position said tongue so as to bring one of the latching lugs thereon into longitudinal alinement with one of the latching lugs of the receptacle wall thus preventing the lifting of said receptacle, said tongue being adapted when said receptacle is in a loaded condition to bring the other of said lugs on the end of the former into longitudinal alinement with the other of said lugs on the receptacle wall, thus preventing the descent of said receptacle to the initial locked position.

5. An article delivery mechanism for use in a vending machine having an inclined chute for storing a series of articles to be vended and for loading the same by gravity into an associated dispensing receptacle liftable from an initial locked position upon the actuation of a coin controlled device, said mechanism comprising, in combination, a fixed support for said receptacle, a first bar rigidly attached to said support and having a plurality of longitudinally spaced latching lugs unitary therewith, a second bar overlying said first bar and also having a plurality of longitudinally spaced latching lugs unitary therewith, a latching tongue rockably mounted on said receptacle, pawls carried by said latching tongue, latching lugs unitary with said pawls, and biasing means for causing said tongue to move its latching lugs into the plane of the latching lugs of said second bar when said receptacle is in an unloaded condition and thus prevent the same from being elevated, said tongue being adapted when said receptacle is in a loaded condition to move its latching lugs into the plane of the latching lugs of said first bar to prevent the descent of said receptacle to the initial locked position.

6. In a vending machine having an inclined chute for storing a series of articles to be vended and for loading the same by gravity into an associated dispensing trap liftable from an initial locked position upon the actuation of a coin controlled device, an article delivery mechanism comprising the combination of a fixed support for said trap, a first bar rigidly attached to said support and having a plurality of one-directional longitudinally spaced stationary latching lugs unitary therewith, a second bar overlying said first bar and also having a plurality of one-directional longitudinally spaced stationary latching lugs unitary therewith but arranged to act in the opposite direction from those of said first bar, a latching tongue dependably pivoted on said trap and bodily movable with the same, a pair of pawls carried by said latching tongue, one-directional latching lugs unitary with said pawls, and resilient biasing means for causing said tongue to move its latching lugs into engaging alinement in the plane of the latching lugs of said second bar when said trap is in an unloaded condition and thus prevent the same from being elevated, said tongue being adapted when said trap is in a loaded condition to move its latching lugs into engaging

alinement in the plane of the latching lugs of said first bar to prevent the descent of said trap into the initial locked position.

7. In an interlock assembly for an article delivery mechanism of the character set forth, the combination of a liftable dispensing receptacle, a plurality of one-directional latching lugs unitary with a first bar, a plurality of one-directional latching lugs unitary with a second bar but arranged to act in the opposite direction from those of said first bar, a rockable latching tongue movable bodily with said receptacle and carrying a pair of one-directional latching lugs adapted to engage the lugs of either of said bars to arrest either upward or downward movement of said receptacle, and a spacer plate interposed between said bars so as to preclude the shifting of said latching tongue and its lugs from the plane of one of said bars to the plane of the other of said bars throughout the major and intermediate portion of receptacle movement.

8. In an article delivery mechanism for use with a vending machine having an inclined chute for storing and gravitationally sliding a series of articles to appropriate dispensing means, the combination of a liftable dispensing receptacle adapted to receive the foremost article of said series, a non-liftable spacer block mounted independently of said receptacle and adapted to arrest the movement of said series only during initial lifting movement of said receptacle when the article in the same is interposed between said block and the next adjacent article in said series, a pair of spaced-apart resilient arms mounted on the sides of the inclined chute and having free ends which abut on the underside of said receptacle, a transverse bar rigidly attached to said arms and located adjacent the end of the chute, said arms being adapted to bring said transverse bar into contact with the next adjacent article in said series as the article in said receptacle passes out of contact with the next adjacent article and with said spacer block by reason of the lifting of said receptacle.

9. In a vending machine having an inclined chute for storing articles to be vended and feeding the same by gravity to a liftable delivery receptacle located at the lower end of said chute, said dispensing receptacle being movable from an initial locked position to an elevated delivery position, the combination comprising a latching tongue mounted for arcuate movement between two extreme positions, said tongue being shiftable into one of said positions upon the entry of an article of merchandise into said delivery receptacle, biasing means for yieldably holding said tongue in the other of said extreme positions, a first group of latching members carried by said tongue, a second group of latching members mounted independently of said tongue, certain latching members of said first and second groups being effective to preclude elevation of said delivery receptacle with said tongue in said one of its extreme positions, certain other latching members of said first and second groups being effective to preclude return of said receptacle to its initial locked position with said tongue in said other extreme position.

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