

Feb. 1, 1944.

C. H. BRINTON ET AL
FEEDING AND SERVING MECHANISM

2,340,639

Filed Oct. 22, 1941

6 Sheets-Sheet 1

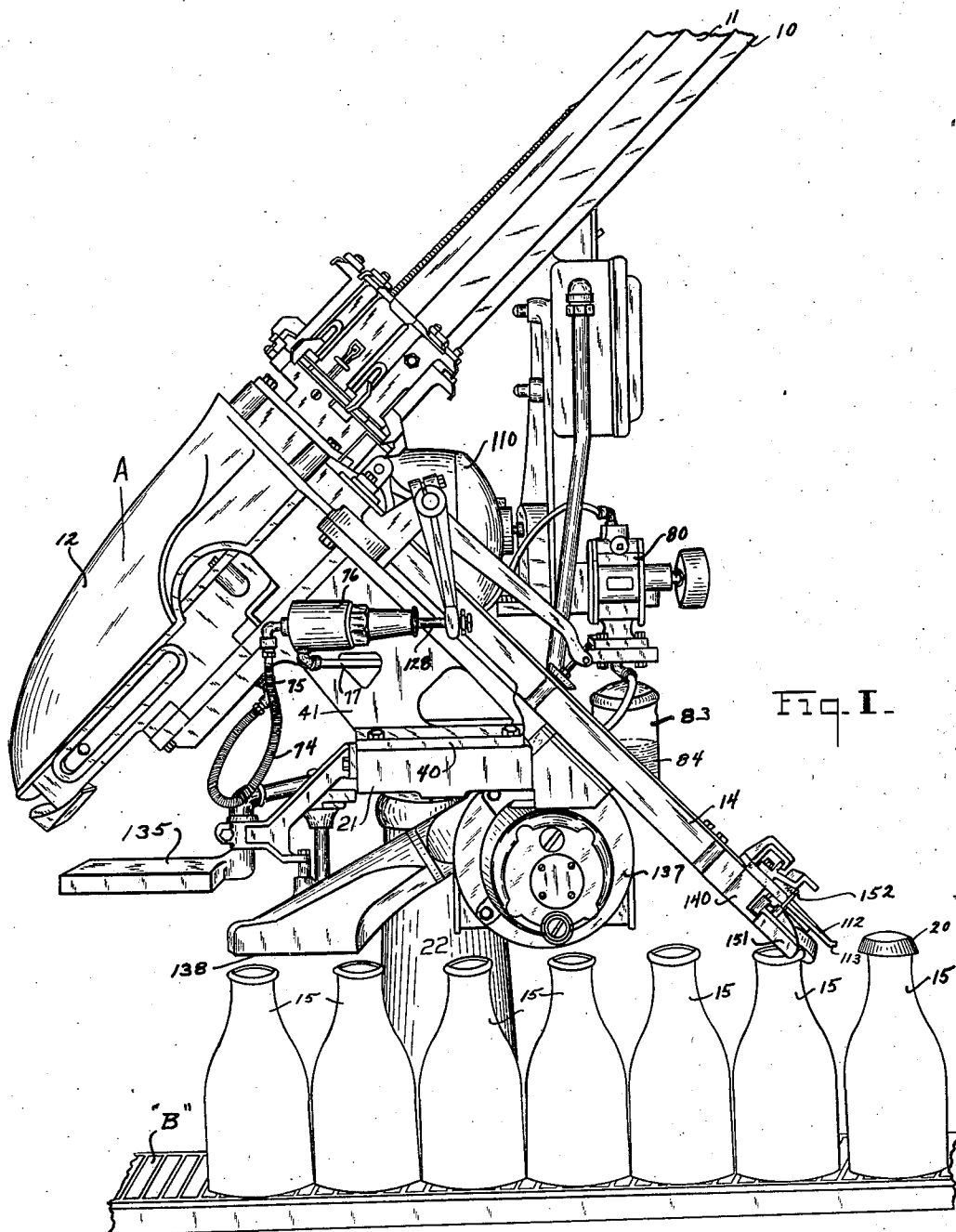


Fig. I.

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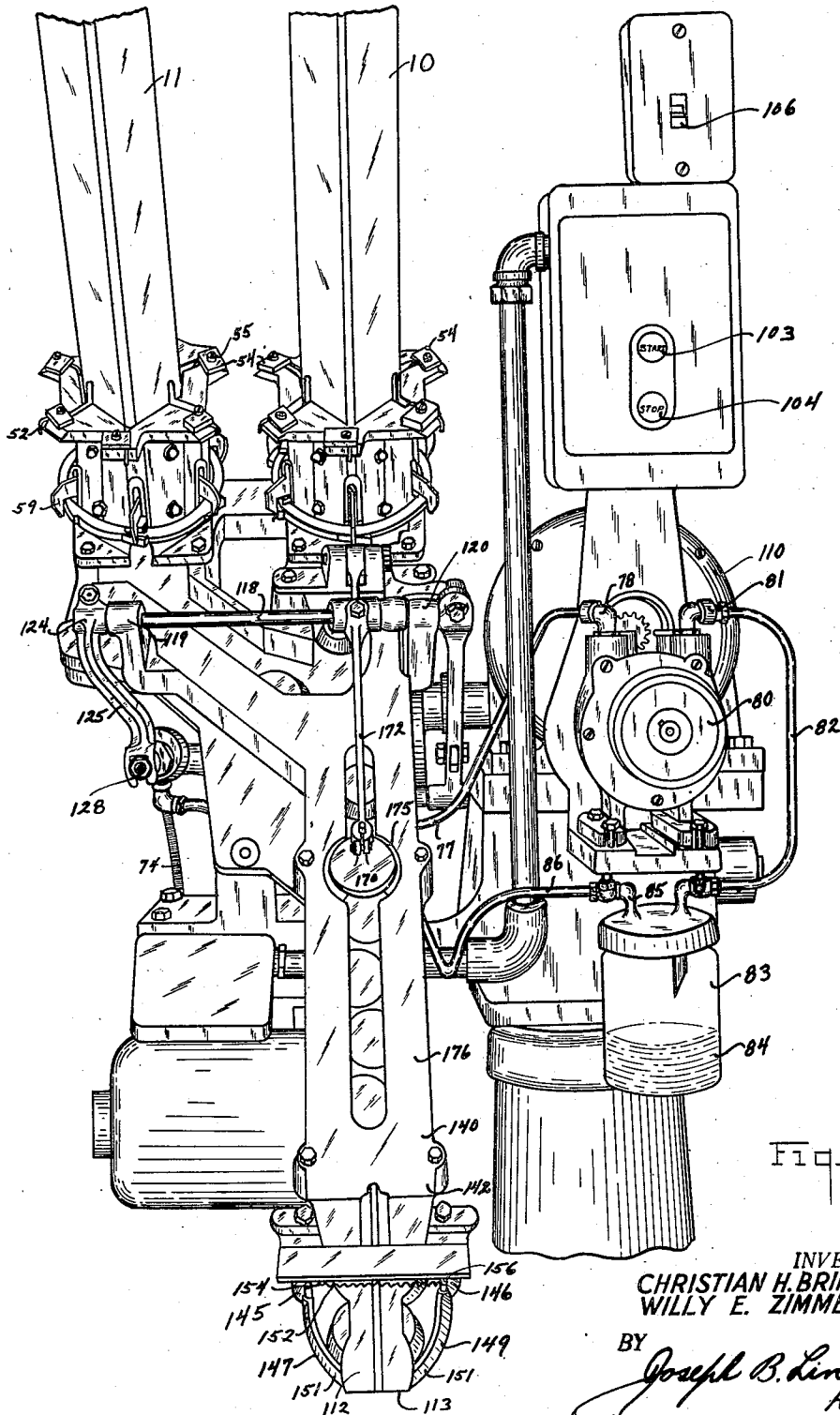
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6 Sheets-Sheet 3

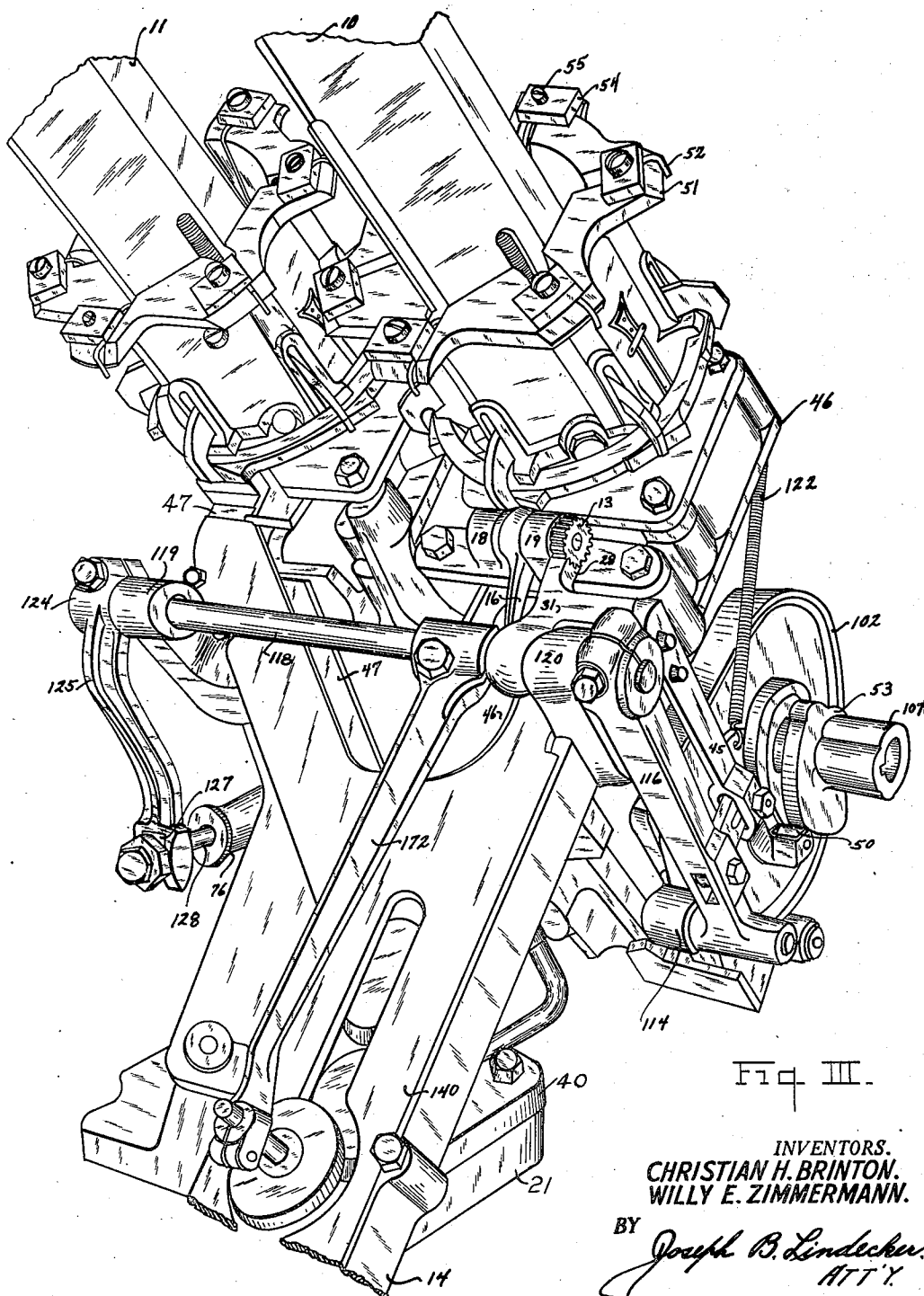


Fig. III.

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6 Sheets-Sheet 4

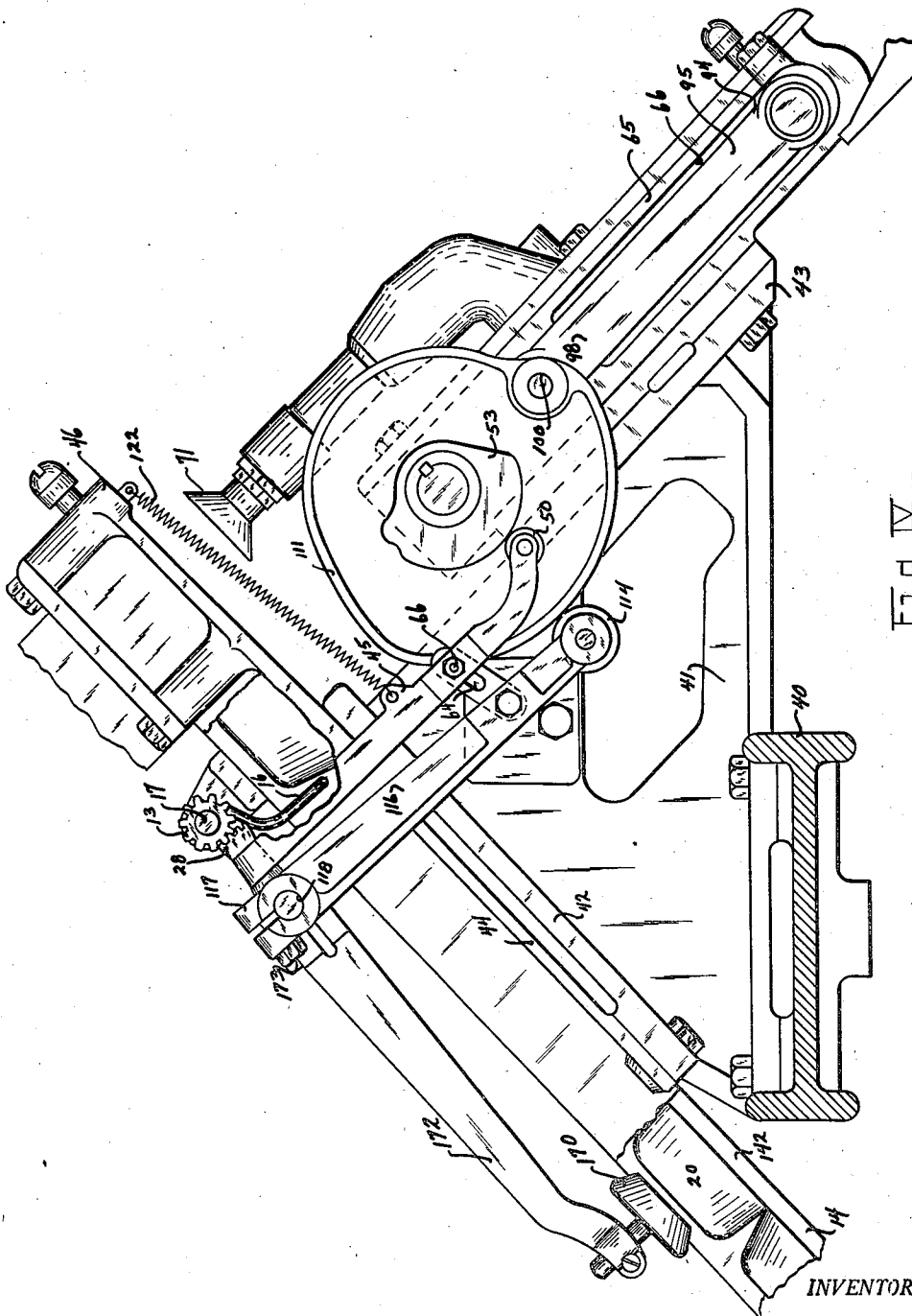


Fig. IV.

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6 Sheets-Sheet 5

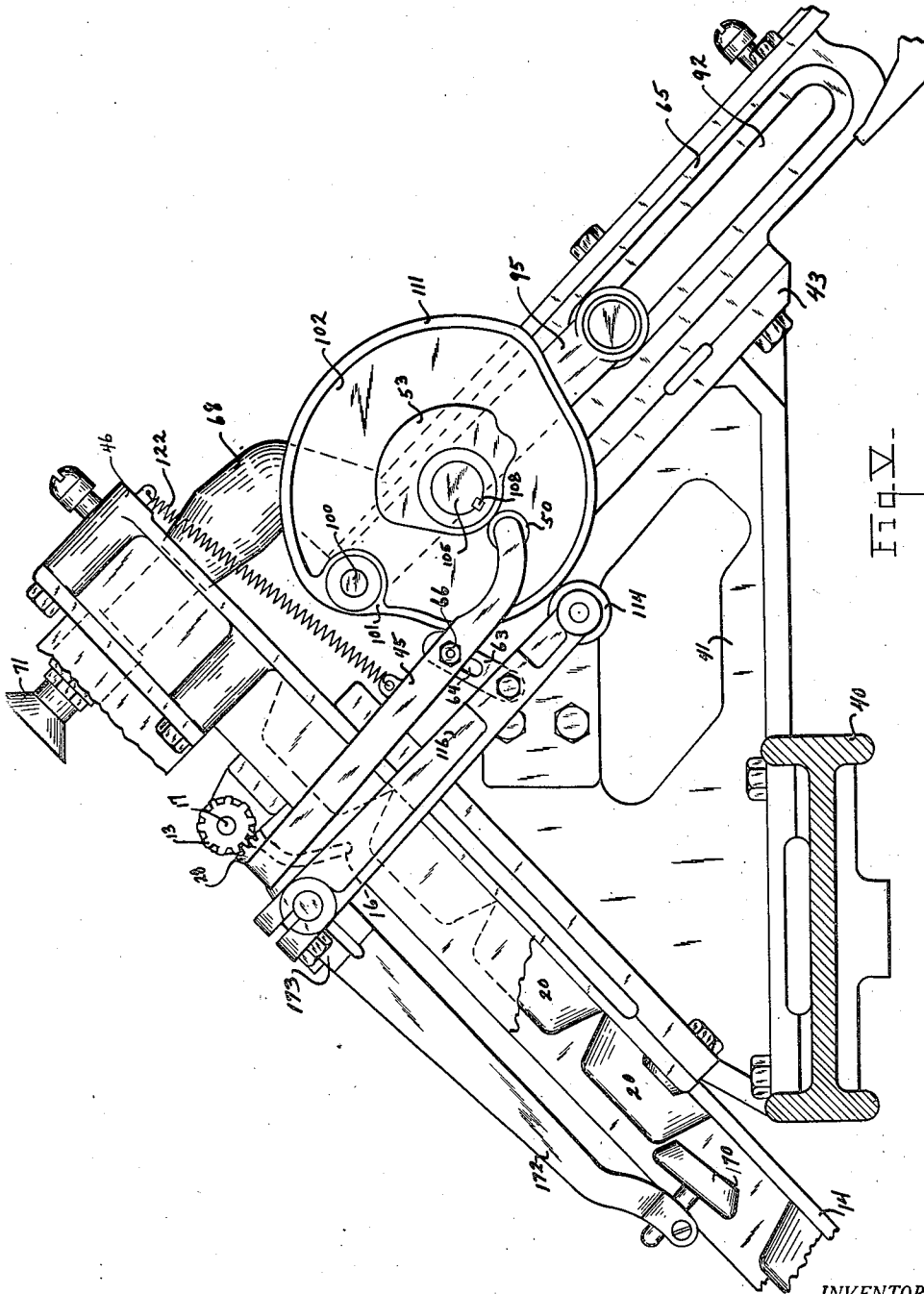


Fig. 5

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6 Sheets-Sheet 6

Fig. VI.

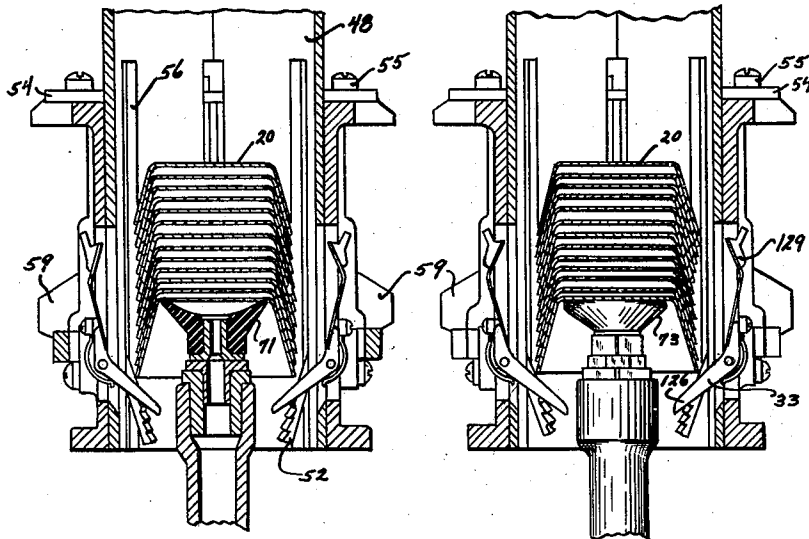


Fig. VII.

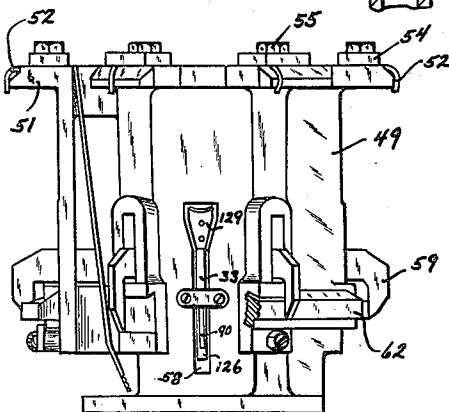
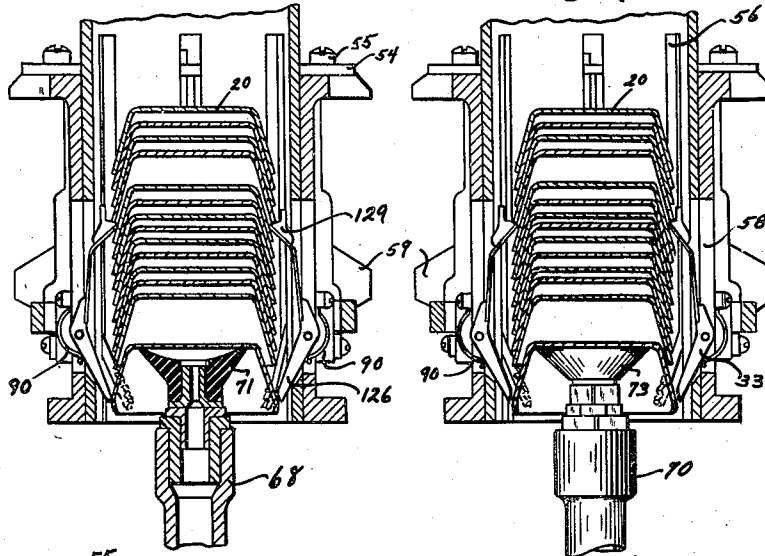


Fig. VIII.

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UNITED STATES PATENT OFFICE

2,340,639

FEEDING AND SERVING MECHANISM

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Application October 22, 1941, Serial No. 416,062

17 Claims. Cl. (226—88.1)

This invention relates to a new and improved feeding and serving mechanism, similar in function and design as described in Patent #2,304,146, invention of C. H. Brinton, and issued Dec. 8, 1942; this new invention including all the objects of invention as expressed in the first eight paragraphs of said patent.

This new and improved combination and arrangement of elements producing a new and beneficial result has a still further object of the invention residing in the provision of a feeding and serving means having in combination a plurality of article retaining means, each adapted to temporarily hold a plurality of articles to be delivered; a receiving device having a single outlet, means to transport the articles simultaneously from the retaining means to said receiving device, means operable to temporarily restrict or detain the movement of one of said articles so as to allow the articles to be deposited in alternate sequence to the single serving outlet.

An additional object of the invention resides in the provision of a feeding and serving means having in combination a pair of magazines each retaining a stack of articles to be delivered to a receiving device having a dual inlet and a single outlet, means to transport two articles simultaneously to said dual inlet, means to restrain, arrest or restrict movement of one of said articles so as to allow the articles to be deposited in alternate sequence to the single serving outlet, and means in each magazine operable to temporarily support the weight of substantially all of said articles therein to relieve the weight thereof from the next article to be delivered.

The present invention relates to improvements in feeding and serving mechanisms and is believed to be an improvement over the actuating mechanism for feeding and serving articles shown and fully disclosed in Patent #2,076,116 issued to C. H. Brinton, April 6, 1937; and Patent No. 2,304,146 issued to C. H. Brinton, Dec. 8, 1942; therefore for purpose of describing the present invention, only its essential parts are illustrated and described.

Further objects and advantages are within the scope of this invention such as relate to the arrangement, operation and function of the related elements of the structure, to various details of construction and to combinations of parts, ele-

ments per se, and to economies of manufacture and numerous other features as will be apparent from a consideration of the specification and drawings of a form of the invention, which may be preferred, in which:

Figure I is a side view of a form of machine or apparatus of the invention, shown for adaptation in use with, for example, a bottle sealing machine, which latter machine is shown in outline;

Figure II is a front view of the mechanism shown in Figure I;

Figure III is a side perspective view of the capping mechanism shown in Figure I, the electric motor being removed for the purpose of clearly showing the dual cam actuating means for operating the novel closure feeding mechanism;

Figure IV is a side elevational view of the dual feeding mechanism shown in Figure III with portions of the serving chute broken away for purpose of illustrating how the closure retaining member retains a closure in the upper part of said chute.

Figure V is a side elevational view of the dual feeding mechanism as shown in Figure IV with portions of the serving chute broken away for purpose of illustration;

Figure VI is a fragmentary detailed sectional view of the dual serving chute for purpose of illustration;

Figure VII is a fragmentary detailed sectional view, showing the vacuum transporting means withdrawing the lowermost closure, and also showing that each magazine is equipped with means to support the weight of substantially all the closures in the upper part of the closure supply chute positioned above said cap being withdrawn therefrom;

Figure VIII is a fragmentary side elevational view of the lowermost portion of one of the closure magazine sleeve-like supporting member for the purpose of illustration.

The principles and features of the present invention are shown in the drawings as embodied in a mechanism particularly adapted for use in feeding and serving or applying skirted caps or closures which may be of paper, fiber or other suitable materials to milk bottles or other containers, but it is to be understood that the mechanism may be varied widely, still retaining the

principles and features herein indicated, the invention being susceptible of use with any mechanism where it is desired to selectively or periodically feed and deliver closures, and that the embodiment herein shown and described, is illustrative only of one use to which this invention may be utilized.

Referring to the drawings in detail, particularly to Figure I, the device of my invention A is shown in association with a milk bottle conveying mechanism B for use with a closure sealing machine. The device of the invention is preferably constructed as a portable and adjustable unitary structure including a multiple closure retaining means or magazines 10 and 11, a closure feeding or withdrawing mechanism located within the cover or guard 12 and a closure serving device 14. The latter adapted to apply the closures to the milk bottle 15 moved by the conveyor B.

Carried on a pedestal or frame member 21 secured to the top of a vertically movable standard or post 22 as an adjustable unitary structure are the magazines for retaining independent supplies of closures 20, the feeding mechanism, the serving chute and associated instrumentalities of the invention. The post 22 which is preferably of a hollow cylindrical configuration closed at its upper end and having means therein for adjusting the unitary structure of the invention disclosed in Patent #2,304,146.

The arm or ledge 40 preferably forming an integral part of frame 21 fixedly supports a bracket 41 of triangular configuration carrying on its inclined surface 42 the base member or casting 44 of Y-formation and of channel shaped cross section forming a component element of the cap delivery chute 14. On the upper surface of each of the arms 46 and 47 of member 44 rest the cap retaining means 10 and 11 in inclined relation, clearly shown in Figures I, II, and III of the drawings.

The magazines 10 and 11 are particularly illustrated in Figures I, II, III, VI and VII wherein it can be seen that they are similar in construction each comprising a channel shaped member or retaining chute 48 having their web section of V-shaped formation with their side walls substantially parallel. The lower extremity of each of the channel members 48 is supported by irregular shaped sleeve-like members 49 the base of which is fixedly secured to the upper surface of the arms 46 and 47. The sleeves 49 are provided with an outwardly projecting flange 51 upon which are fixed in spaced relation a plurality of resilient fingers 52 by means of clamps 54 held in place by screws 55, clearly shown in Figure VIII. The fingers 52 project inwardly through suitable slots 56 formed in the channel shaped members 48 their ends flaring inwardly and having serrated extremities adapted to engage the caps or closures in each of the channel members 48. Each of the resilient fingers 52 is provided at its intermediate portion with a hook-like member or finger stop 59 adapted to project outwardly through the slots 56.

The tension or inherent flexure in the fingers 52 serves to urge them to their innermost position toward the axis of movement of the caps 20, the inward movement of the fingers being limited by means of an adjustable camming ring-like member 62 carried on the outer surface of the sleeve 49 which is in engagement with the finger stops 59. To adjust the innermost movement of the fingers 52 it is only necessary to rotate the

the camming member 62 to urge the fingers outwardly through the medium of hook-like members 59 in contact therewith so as to change their relative position within the members 48.

The caps designated 20 are positioned in nested formation as particularly illustrated in Figures VI and VII, the uppermost cap being engaged by a weight preferably of cylindrical configuration having a guiding member engaging the edges of the channel member 48 to prevent rotation of the caps 20, but serving to force the caps downwardly into engagement with the cap withdrawing or feeding mechanism.

Each of the sleeve-like members 49 has associated therewith a pair of closure supporting arms 33. Channel members 48 and members 49 as shown in Figures VI and VII, each having a pair of slots 58 arranged vertically at opposite sides thereof, and within said slots are pivotally secured to the side walls of member 49 the arms 33. The lower ends 126 of each of the arms 33 are bent inwardly and are also forced inwardly by means of flat springs 90. The upper end of each of said springs being secured to member 49. The free or lower ends of each of said springs 90 are in contact with the lower ends 126 of arms 33 forcing said lower ends 126 into contact with the lowermost closure of the closures 20 nested within members 48. The upper ends 129 of each of the arms 33 are normally positioned within the slots 58, this being clearly shown in Figure VI. Whenever a closure is withdrawn from the magazines 10 and 11 by members 71 or 73, the closure being withdrawn forces the lower ends 126 of said arms outwardly against the tension of said springs 90, and at the same time the upper ends 129 pivot inwardly, as shown in Figure VII, and interrupts the downward movement of all the closures 20, arranged in the magazines and positioned above said arm ends 129. Substantially the entire weight of all the closures 20 in said magazines 10 and 11 is absorbed by arms 33 as only approximately 10 closures remain in each member 48 below said arms when the lowermost closure is being extracted by the vacuum closure transporting members. Eliminating the weight of the closures nested in the magazines provides a more efficient manner of extracting the lowermost closure nested in each member 48.

I have provided novel and effective mechanism for periodically and simultaneously withdrawing caps from the magazines 10 and 11 to be concurrently deposited in the upper portions 46 and 47 of the inclined serving chute 14. Operable means which will be described below in detail are provided in the upper portion of said chute to temporarily restrain or arrest the movement of one of said caps.

The closure withdrawing mechanism is particularly shown in Figures IV, V, VI, and VII, of the drawings, and comprises a rectangular shaped housing 65 supported on the inclined surface 43 of bracket 41 and which is adapted to receive for movement therein a reciprocable member or slide bar having a pair of interconnected spaced hollow plungers 68 and 70 which projects through the upper wall of the housing 65. The plungers 68 and 70 are in axial alignment with the magazines 10 and 11 carrying at their ends suitable fittings for removably supporting conically or cup shaped hollow flexible members 71 and 73 adapted to engage the caps 20, said flexible members preferably constructed of rubber or other suitable distortable material. Each of the cup-shaped members, in cooperation

with the hollow plungers, is in communication with a connected central passage provided in said reciprocable slide bar, the central passage of said bar periodically registering with openings which communicate one to the atmosphere and the other with a suitable flexible tube 74 the latter having its other end 75 connected to a communicating valve mechanism 76 which in turn is connected by means of conduit 77 to the inlet port 78 of a vacuum pump 80. The outlet port 81 of said pump is provided with a conduit 82 which extends to a glass jar 83 having a liquid 84 therein acting as a liquid filter for the air passing through said conduit 82, the top of said jar having an outlet 85 connected with a conduit 86 for the clean air, said conduit 86 in turn connects with a hollow member positioned adjacent arm portions 46 and 47 of serving chute 14, and having associated therewith discharge nozzles. The air being discharged from the nozzles acting as a means to force downwardly all caps retained by friction or otherwise in the upper part of the serving chute.

The slide bar carrying the pair of hollow plungers 68 and 70 is provided adjacent to its lower extremity with suitable actuating means and which is journaled to the lower end 94 of the pitman or connecting link 95, said means travelling in elongated opening 92 formed in the side wall of the housing 65. The upper end 98 of pitman 95 carries a suitable bearing journaled upon a crank pin which is fixedly carried on the eccentrically located boss 101 of the rotatable cam member 102.

The cam 102 is associated with one end of the shaft 105 by being fixedly secured to a sleeve 107, said sleeve being keyed to shaft 105 by key 108. The shaft 105 forms part of a suitable gear reduction mechanism 109 directly connected at one end of the shaft of the electric motor 110 constituting the common source of power for the vacuum pump 80 and reciprocating member or slide bar and cap withdrawing means carried thereby.

Referring to Figure IV, it can be seen that the peripheral surface 111 of the timing cam 102 coacts with the cam engaging roller 114 carried at one end of arm 116 fixed at its other end 117 to the transversely extending shaft 118, the latter journaled on bearings provided on the uprights 119 and 120 carried by the casting 44 of the receiving chute 14. The cam roller 114 is urged into contact with the cam surface 111 by means of a retractable spring 122 connected to the arm 45 which in turn is connected to arm 116 by link 63.

The shaft 118 fixedly carries adjacent to upright 119 the end 124 of arm 125 the other end of which is formed with an elongated opening 127 adapted to accommodate the valve stem of 128 of the communicating valve mechanism 76 which operates to control the vacuum connection between the inlet port 78 of the vacuum pump 80 through the conduits 74 and 77 and passages to the flexible cap engaging members 71 and 73.

I have provided means to cause the lowermost cap of each of the magazines 10 and 11 to simultaneously adhere to the flexible cup members 71 and 73 when the same are in the uppermost position that is, the position shown in Figures V and VI so that when a downward movement is imparted to the cup members by the crank arm 95, the caps will be carried past the fingers 52 and simultaneously deposited on each of the arms

46 and 47 of the serving chute 14. To this end the suction side of the pump 80 to produce a normally reduced pressure is communicated to the flexible members 71 and 73 when the same take the uppermost position. Therefore, said members produce a partial vacuum between the cup members 71 and 73 and surface of the caps engaged thereby causing the caps to forcibly adhere to the flexible members so that when the latter are moved downwardly the caps will be carried past the fingers 52 to a position where the lowermost portion of the caps will engage the inner surfaces 130 and/or 131 of each of the arms 46 and 47, atmospheric pressure is admitted so that the partial vacuum in the members 71 and 73 is simultaneously raised to atmospheric pressure, the equalization of pressure and inclination of the arms 46 and 47 will produce an automatic release or disengagement of the caps from the flexible members 71 and 73 depositing the caps concurrently upon said surfaces 130 and 131 of each of the members 46 and 47 of the serving chute 14.

The channel shaped arms 46 and 47 are of different length, the arm 46 being in substantial alignment with the outlet conduit 140 while the arm 47 is angularly displaced with respect to said conduit. The cap deposited on the arm 47 moves downwardly to the single outlet conduit 140 at a rapid rate due to the force of gravity and also the air blast from said air nozzle. The cap deposited on the arm 46 is detained or temporarily arrested thereon by downwardly projecting member 16 carried by the transversely extending shaft 17, the latter journaled on bearings provided on the uprights 18 and 19 supported above arm 46. One end of shaft 17 has secured thereto a gear 13. Said gear 13 meshing with a rack-type gear 28 forming an integral part of one end of arm 31, the opposite end of arm 31 having a suitable bearing associated therewith and carried at one end of shaft 118. Said arm 31 having secured thereto a downwardly extending arm member 45, having a cam roller 50 journaled on the free end thereof. Said cam roller 50 coacts with a cam 53 forming an integral part of sleeve 107. Between downwardly extending arms 45 and 116 is provided a link 63. Said link 63 provided with an open passageway 64 in one end portion thereof, said passage 64 coacting with bolt 66 secured to arm 45. The opposite end of link 63 is journaled to arm 116. Spring 122 is suitably connected at one end to the lower side of the upper end of arm 46, while the opposite end is connected to arm 45, said retractable spring urging said roller 50 into contact with cam 53, and at the same time urging roller 114 in contact with surface 111 of cam 102 throughout the movements of both the cams 53 and 102 due to link 63 having lost motion means in the form of a slot 64 being associated with bolt 66. Said retaining cap positioned in arm 46 is released only after plunger 68 carrying flexible member 71 has reached substantially its lowermost position, and the cap released in arm 47 has entered its proper position in cap chute 14. By this novel means the caps are guided and moved in proper alternate sequence to the single outlet conduit 140 and hence to the point of application or serving outlet 142 for application to the mouths of the bottles or containers 15.

The means to effect the proper application of the cap from the single serving outlet 142 to the mouth of the bottles 15 is particularly shown in

Figures I and II in which it can be seen that the lower extremity of a serving outlet 142 is enlarged and the side walls pivotally carry as at 145 and 146 the wing-like members 147 and 149, each having curved portions 151 which are adapted to engage the neck portion of the bottle 15 as the same passes under the cap applying outlet. The wing-like members 147 and 149 are preferably held in their innermost position by a suitable coil spring 152, the ends of which are suitably secured to post 154 and 156 carried by each of the wing-like members. The spring 152 serves to urge the wing-like members into contact with the skirt of the bottle caps but permits a release when the same are engaged by the moving bottles.

I have provided means whereby the simultaneous withdrawing of the caps from the magazines 10 and 11 and the simultaneous delivery to the serving arms 46 and 47 will be interrupted when there is a predetermined number of caps in the serving chute 14 arising by reason of the fact that the number of bottles 15 travelling on the conveyor B are insufficient in number to withdraw the caps fed into the serving outlet 142 as rapidly as the feeding mechanism normally transfers the caps to the arms 46 and 47. To this end the application of a partial vacuum or a normally reduced pressure to the flexible cups 71 and 73 is interrupted or rendered inoperative through the medium of a cap contacting pad 170 adjustably supported upon the end of the arm 172 having its end 173 fixedly secured to the shaft 118. The pad 170 is adapted to project through a suitable opening 175 formed on the cover 176 which closes the channel shaped conduit or serving outlet 142. As hereinbefore pointed out, the shaft 118 carries the valve operating arm 125 which is connected to the valve stem 128 of the valve mechanism 76 which establishes a connection between the suction side of the pump 80 through the flexible conduit 74 to the flexible members 71 and 73 when the same are in their uppermost position.

As illustrated in Figure VII when the conduit 142 is filled with caps 20 so as to cause the pad 170 to engage the upper surface of one of the caps retained therein, the valve control lever 125 through the adjustable stop or threaded nut will operate the valve stem 128 to its opening position so as to render the connection between the vacuum pump 80 and the flexible members 71 and 73 ineffective. The valve mechanism which controls the connection for the application of a partial vacuum or a normally reduced pressure compared with the atmosphere to flexible cups 71 and 73 may be of any suitable type, preferably of a type wherein the valve is actuated by a valve stem, the valve having one position in which a connection is established between the flexible tube 74 and the conduit 77 connected to the suction side of the pump 80 and wherein said valve is moved by its valve stem to another position to render said connection ineffective such as by by-passing or venting to the atmosphere conduit 77 and flexible tube 74. A preferred form of the valve mechanism of this type is illustrated in detail in the copending application referred to supra. For the purpose of the present invention the general elements of the valve mechanism are illustrated and include the valve chamber or hollow housing 76 to which are connected the flexible tube 74 and the conduit 77. The tube 74 and conduit 77 are normally interconnected by a valve con-

tained within the housing 76 which is in turn actuated by the valve stem 128. The arrangement is such that when the arm 125 moves the valve stem 128 outwardly through the adjustable stop carried thereby the valve head renders the interconnection of conduits 74 and 76 ineffective venting the same to the atmosphere through a suitable opening provided in the hollow housing 76 so that no communication is established between the suction side of pump 80 and the flexible members 71 and 73.

In the embodiment of the invention illustrated, the means to produce a source of normally reduced pressure creating a partial vacuum as compared with atmospheric pressure for rendering by its application the cap withdrawing means effective is in the form of a constantly actuated suction pump 80 carried by the frame 21 which is rotated through a suitable gearing not shown, the latter connected to the shaft of the electric motor 110 which also operates the reciprocating carrier or slide bar 66 of the cap withdrawing mechanism. However, it is to be understood that any suitable pneumatic means operable to cause the hood caps 20 to forcibly adhere to the suction cups 71 and 73 is contemplated.

Means are provided to retain the mouths as well as the necks of the bottles sanitary and prevent germ contamination prior to the application of a hood cap to the mouth of bottles that have been filled and disc capped. These means are located in spaced relation to the serving chute delivery outlet so that their operation is performed during the transfer of the bottles to the serving outlet by the conveyor mechanism and includes a spray nozzle or wash unit 135 which serves for spraying and washing the mouth and neck of the bottle in association with means to accelerate the drying operation by blowing heated air thereto through the use of a blower motor 137 provided with suitable heater coils having spaced outlets located in the bottom of member 138. The blower motor 137 and the wash unit 135 are suitably supported on the lower surface of the arm 40 so that the same are moved concurrently with the magazines, feeder mechanism and cap serving chute when movement is imparted to the post 22.

I have provided a control or switching mechanism 103 and 104 for closing and opening the circuits of the motor 110. I have provided a switch 106 for closing and opening the circuits of the blower motor 137 as well as the heater coils associated therewith. The actuation of the switch mechanisms 103, 104 and 106 by the operator to a position to close the circuits will start the electric motors 110 and 137 so that each of the bottles already filled and disc capped which are moved by the conveying mechanism toward the serving chute 14 is prior to the engagement of the mouth of the bottle with the wing-like members or fingers 147 and 149 successively sprayed by the water nozzle 135 and dried by blowing air thereto through the blower motor outlets in member 138. Movement of the conveyor mechanism B will carry the bottle past the blower motor outlets to a position wherein the forward upper portion of the bottle mouth will engage the inner surface of the skirt or depending portion of the hood cap 20, forward movement of the bottle will carry the hood cap past the wing-like members 147 and 149 causing the horizontal portion 113 of the leveling finger 112 to press the upper flat portion of the hood cap

over the bottle mouth thus completing the cap applying operation. It is to be understood that the motor 110 is constantly actuating the vacuum producing pump 80 and reciprocating the suction cups 71 and 73 through the carrier or slide bar 66 and the pitman 95 eccentrically connected to the timing cam 102 which is rotated through the gear reduction mechanism 109 directly connected to one end of the shaft of the electric motor 110, so that when a hood cap is withdrawn by a bottle passing beneath the serving outlet the hood caps in the serving conduit 142 gradually slide downwardly. The downward movement of the caps will allow the pad 170 carried by the arm 172 fixed to the shaft 118 to gradually move downwardly between the caps. The downward movement of the pad 170 is caused by the rotative action, imparted to the shaft 118 by the arm 116 fixed thereto, produced by the spring 122 when the roller 114 contacts the dwell of the cam 102. The shaft 118 will also move the valve timing arm 125 to allow the valve stem 128 to in turn operate suitable means contained within the communicating valve mechanism 76 thus connecting the suction side of the pump 80 to the flexible conduits 74 and 77 connected with suitable openings so as to establish a connection from the suction side of the pump 80 to the side bar 66.

The position of the dwell of the timing cam 102, and the position of the dwell of the cam 53, with respect to the location of the eccentrically located crank pin 100 carried thereby is such that when the cam dwell of cam 102 is engaged by the cam riding element 114 the slide bar or carrier 66 reciprocated by the pitman 95 connected to pin 100 is in its uppermost position as particularly illustrated in Figure V, at which time there is a registration between the valve mechanism to the source of reduced pressure 80 so that when the suction cups 71 and 73 contact with the lower face of the hood cap next to be delivered and held by the resilient fingers 52, a reduced pressure is applied to the hood cap by the communication set up by the valve mechanism between the source of normally reduced pressure 80 and the suction cups 71 and 73 which will cause the lowermost hood cap of each stack to forcibly adhere to the suction cups producing an extracting engagement. This extracting engagement will serve to carry the hood caps in the downward movement or withdrawing stroke of the carrier 66 past the serrated portions of the fingers 52 to a position where the lower edge of the skirt portion is in engagement with the wall sections adjacent to the openings on the base of the receiving chute through which the suction cups are moved in their reciprocating movement. It is clearly understood that each of the openings on the base plate of the arms 46 and 47 is of suitable dimension to allow the passage of the suction cups 71 and 73 but smaller than the diameter of the skirt of the hood caps 20 so that their lowermost edge is engaged by the surfaces of the base plate of the serving chute 14 adjacent to the openings before the carrier 66 approaches substantially the end of its withdrawing stroke. The base plate of the receiving chute is so arranged that when engagement of the skirt of the hood caps take place with said surfaces, air is admitted by operable means so that a partial vacuum in the suction cups 71 and 73 simultaneously rises to atmospheric pressure. Equalization of pressure and the engagement of the lowermost

portion of the cap with the receiving surface of each of the arms 46 and 47 will cause the simultaneous disengagement of the hood caps from the suction cups and the simultaneous deposition of the hood caps in each of the arms 46 and 47. As hereinbefore pointed out, the cap in the angular displaced arm 47 travels freely to the serving chute 14 while the cap deposited in arm 46 is retained or retarded temporarily by member 16 so as to allow the caps to enter the serving chute 14 in proper alternate sequence.

The foregoing operation is accomplished during the normal cycle. However, when no withdrawal of the caps takes place due to the fact that a bottle has not been moved past the serving chute 14, the caps in the conduit 142 will remain stationary and the pad 170 will contact the upper surface of a hood cap, under the combined action of cam urging roller 122 and mechanism associated with valve 76, thus preventing the cam roller 114 from engaging the cam dwell of said cam 102 causing the valve mechanism 76 to function in a manner providing an opening to the atmosphere so that no communication is established between the suction side of pump 80 and the flexible members 71 and 73. Therefore, when the slide bar 66 reaches its upper position to cause cups 71 and 73 to engage the lowermost hood cap there is no application of a reduced pressure and consequently no extracting engagement between the suction cups and the hood caps to overcome the action of the resilient fingers 52. In this manner the withdrawing means are rendered ineffective to transport simultaneously a hood cap from each of the magazines 10 and 11 to the serving chute arms 46 and 47.

As shown in Figure I, means are provided to enclose the cap withdrawing and transporting mechanism in the form of a cover 12 as well as suitable means to cause the lubrication of the parts and to collect excess oil and grease so as to insure the smooth running of the mechanism preventing the possibility of oil or other foreign matter to accidentally fall on the bottles or on the hood caps. In addition, it should be noted that due to the particular correlation and coordination of the number of magazines or cap retaining means with the simultaneously actuated cap withdrawing elements, and the member 16 disposed in arms 46 for temporarily restricting the movement of one of said caps, I have materially simplified the loading of the retaining means 10 and 11 by the operator as the caps will be exhausted at the same time in each magazine so that the simultaneous loading of the magazines can be effected by the operator.

It is apparent that, within the scope of the invention, modifications and different arrangements may be made other than is herein disclosed, and the present disclosure is illustrative merely, the invention comprehending all variations thereof.

We claim:

1. In combination, a plurality of article retaining means, each adapted to temporarily hold a plurality of articles to be delivered; a receiving device for said articles having a single serving outlet; article engaging means adjacent to said retaining means; a mechanism for moving said article engaging means into extracting engagement with one article from each of said retaining means and transporting said articles simultaneously to said receiving device; means operable to release said articles simultaneously from said en-

gaging means to deposit the same on said receiving device; means operable to temporarily restrict the movement of one of said articles; and means associated with said receiving device to guide said simultaneously deposited articles in alternate sequence to said serving outlet.

2. In combination, means for retaining independent supplies of articles to be delivered; a receiving device for said articles having a single serving outlet; a mechanism for extracting the next article to be delivered from each of said independent supply and transporting said articles simultaneously to said receiving device; means operable to temporarily restrict the movement of one of said articles; and means associated with said receiving device for guiding the simultaneously transported articles in alternate sequence to said single serving outlet.

3. In combination, a plurality of article retaining means, each adapted to temporarily hold a plurality of articles to be delivered; a receiving device for said articles having a single serving outlet; article engaging means adjacent to said retaining means; means movable between said retaining means and said receiving device; said movable means being operable in one position into extracting engagement with one article located in each of said retaining means for transporting said articles simultaneously from said retaining means to said receiving device; said movable means operable in its other position to release said articles simultaneously to deposit the same on said receiving device; means operable to temporarily restrict the movement of one of said articles; and means associated with said receiving device for guiding the simultaneously deposited articles in alternate sequence to said serving outlet.

4. In combination, a plurality of article retaining means, each adapted to temporarily hold a plurality of articles to be delivered; a receiving device for said articles having a single serving outlet; article engaging means adjacent to said retaining means; means for moving said article engaging means into contacting engagement with one article located in each of said retaining means; means effective at the time of contact of said article engaging means with said articles to cause an extracting engagement of said means with said articles for transporting said articles simultaneously from said retaining means to said receiving device; and means operable to release said articles simultaneously from said engaging means to effect the deposit of said articles on said receiving device; means operable to temporarily arrest the movement of one of said articles; and means to guide the deposited articles on said receiving device in alternate sequence to said serving outlet.

5. In combination, a plurality of article retaining means, each adapted to temporarily hold a plurality of articles to be delivered; each retaining means having means operable to temporarily support the weight of substantially all of said articles therein to relieve the weight thereof from the next article to be delivered; an inclined receiving device for said articles; a pair of passages at the top thereof connected to a single serving conduit at the bottom thereof; article engaging means; a mechanism for moving said article engaging means into extracting engagement with one article from each of said retaining means for transporting said articles simultaneously to said receiving device; means operable to release said articles from said engaging means to deposit the

same simultaneously in said passages; operable means in one of said passages to temporarily delay the movement of one of said articles; whereby the simultaneously deposited articles in said passages are guided in alternate sequence to said serving conduit.

6. In combination, a plurality of article retaining means, each adapted to temporarily hold a plurality of articles to be delivered; each retaining means having means operable to temporarily support the weight of substantially all of said articles therein to relieve the weight thereof from the next article to be delivered; an inclined receiving device for said articles; a pair of passages at the top thereof connected to a single serving conduit at the bottom thereof; article engaging means; a mechanism for moving said article engaging means into extracting engagement with one article from each of said retaining means for transporting said articles simultaneously to said receiving device; means operable to release said articles from said engaging means to deposit the same simultaneously in said passages; one of said passages being in substantial alignment with said serving conduit; and the other passage angularly displaced with respect to said serving conduit; operable means in one of said passages to temporarily arrest the movement of one of said articles; whereby the simultaneously deposited articles in said passages are guided in alternate sequence to said serving conduit.

7. In combination, means for retaining independent stacks of hood caps; a plurality of suction applying cups adapted to engage simultaneously with the lowermost hood cap in each stack to be delivered therefrom; a reciprocating carrier on which said cups are mounted; means for setting up communication between the cups and a source of a vacuum on the withdrawing stroke of the carrier and between the cups and atmosphere after the cups have withdrawn a hood cap; and a plurality of conduits for receiving in separate relation the withdrawn hood caps and for transferring the same to a common delivery passage, one of said conduits being shorter than the other and in substantial axial alignment with said delivery passage and having operable means therein to temporarily delay the movement of the hood cap placed therein for causing the hood caps received in said conduits to be transferred in alternate sequence to said delivery passage.

8. In combination, means for retaining independent supplies of articles to be delivered; a receiving device for said articles having a single serving outlet; a mechanism for extracting one article to be delivered from each of said independent supplies, and transporting said articles simultaneously to said receiving device; and means operable to temporarily arrest the movement of one of said articles whereby the simultaneously transported articles are delivered in sequence to said single serving outlet.

9. In combination, a receiving device for articles having converging chutes and a single serving outlet; means for temporarily arresting the movement of articles in one of said chutes; and means dependent upon the number of articles in said receiving device for controlling the operation of said article arresting means.

10. In combination, an article receiving device having a plurality of receiving inlets and a common outlet; a mechanism for delivering articles simultaneously to said inlets; means for delaying the movement of articles in one of said inlets; and means dependent upon the number

of articles in said receiving device for rendering said article delivering mechanism ineffective.

11. In combination, article retaining means adapted to temporarily hold in juxtaposed relation articles to be delivered; withdrawing means for removing an article from said retaining means; and mechanical means operable by the withdrawal of the article to be delivered for engaging other articles located in said retaining means for relieving the weight thereof from said article withdrawing means.

12. In combination, article retaining means; a mechanism including a member having extracting engagement with a portion of the surface of the next article to be delivered for withdrawing the same from said retaining means; and means in the path of movement of the article being withdrawn operable to hold in position other articles located in said retaining means.

13. In combination, retaining means for holding articles to be delivered; means at the termination of said retaining means for engaging said articles; and means rendered operable by the article being delivered for engaging other articles adjacent thereto, and holding the same in position during the delivering operation.

14. In combination, article retaining means adapted to hold in juxtaposed relation articles to be delivered; withdrawing means for delivering an article from said retaining means; and mechanical means rendered operable upon the withdrawal of an article for temporarily holding other articles located in said retaining means and thereby relieving the weight thereof from the article being withdrawn.

15. In combination, article retaining means; a mechanism including a member having extracting engagement with a portion of the surface of the next article to be delivered for withdrawing the same from said retaining means; and means for retaining said articles including a movable member located in the path of movement of the

article being withdrawn operable to hold in position other articles located in said retaining means.

16. In combination, retaining means for holding articles to be delivered; resilient means associated with said retaining means for engaging said articles; and means rendered operable by the article being delivered for engaging articles adjacent thereto to temporarily support and relieve the weight thereof from the article being delivered.

17. In combination, a common receiving device having a single outlet, a plurality of article retaining means, each adapted to retain a plurality of articles to be delivered to said receiving device; article engaging means adjacent to said retaining means; a mechanism for moving said article engaging means into extracting engagement with one article from each of said retaining means and transporting said articles simultaneously to said receiving device; mechanical means rendered operable upon the withdrawal of one of said articles from one of said retaining means for temporarily holding articles located above said article and in said retaining means, and thereby relieving the weight thereof from the article being withdrawn; means operable to release said articles simultaneously from said engaging means to deposit the same on said receiving device; said articles forced downwardly simultaneously by a blast of clean air; an air pump and an air filter for supplying said clean air; means operable to temporarily arrest the movement of one of said articles; means associated with said receiving device to guide said simultaneously deposited articles in alternate sequence to said serving outlet; means for delivering containers adjacent said outlet; and means actuated by a container to release an article from said outlet.

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