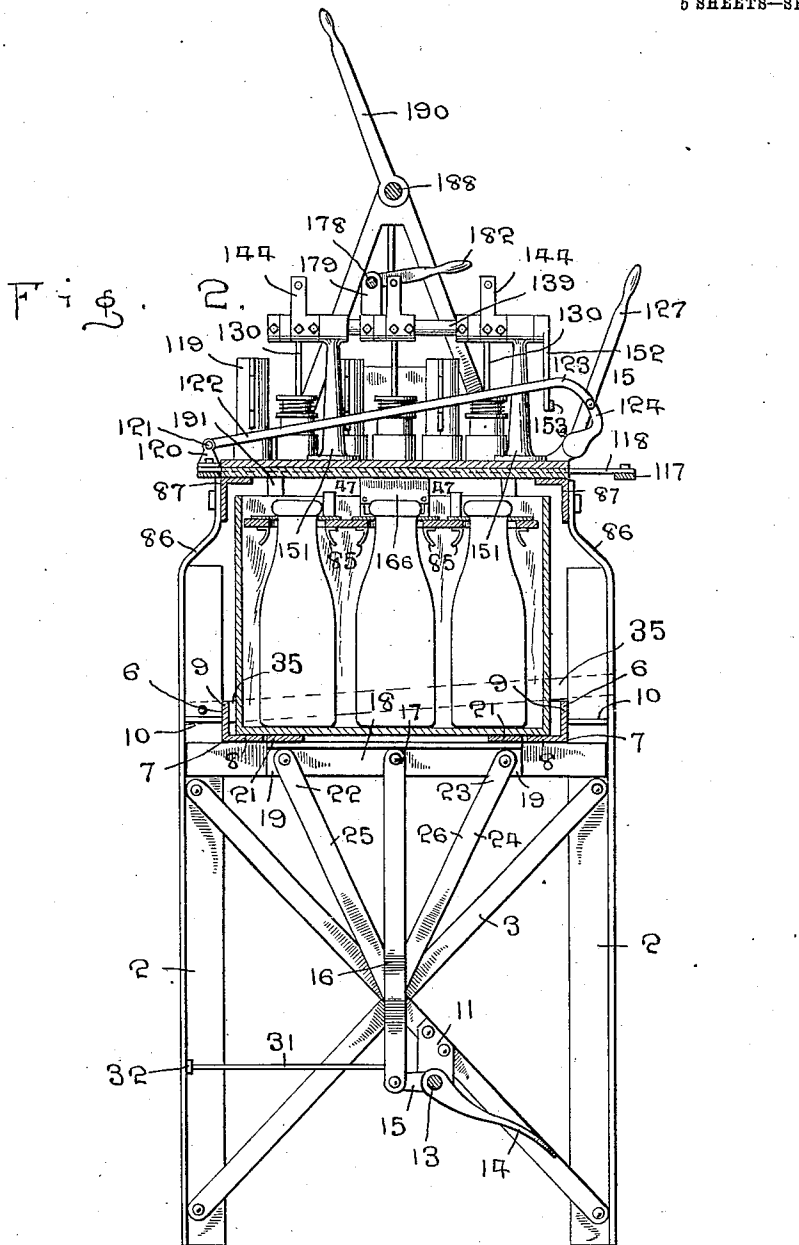


D. S. YARD.
MACHINE FOR CAPPING MILK BOTTLES.
APPLICATION FILED SEPT. 28, 1908.

935,879.

Patented Oct. 5, 1909.
5 SHEETS—SHEET 2.



WITNESSES:

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H. R. Andrews

BY

INVENTOR

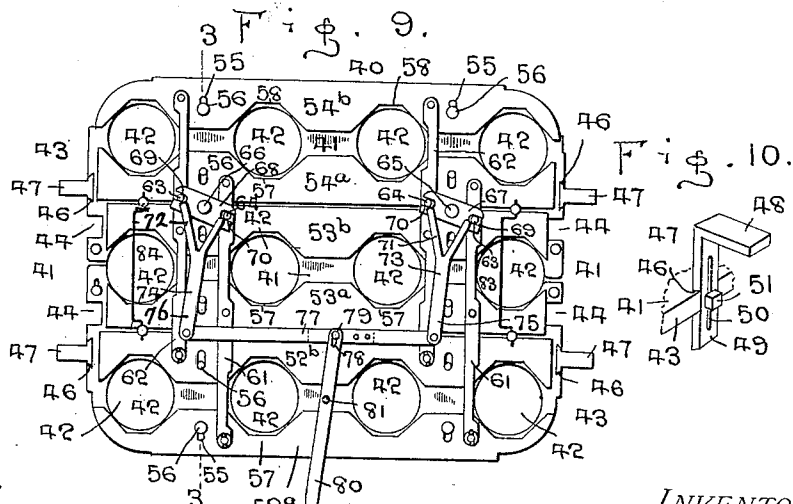
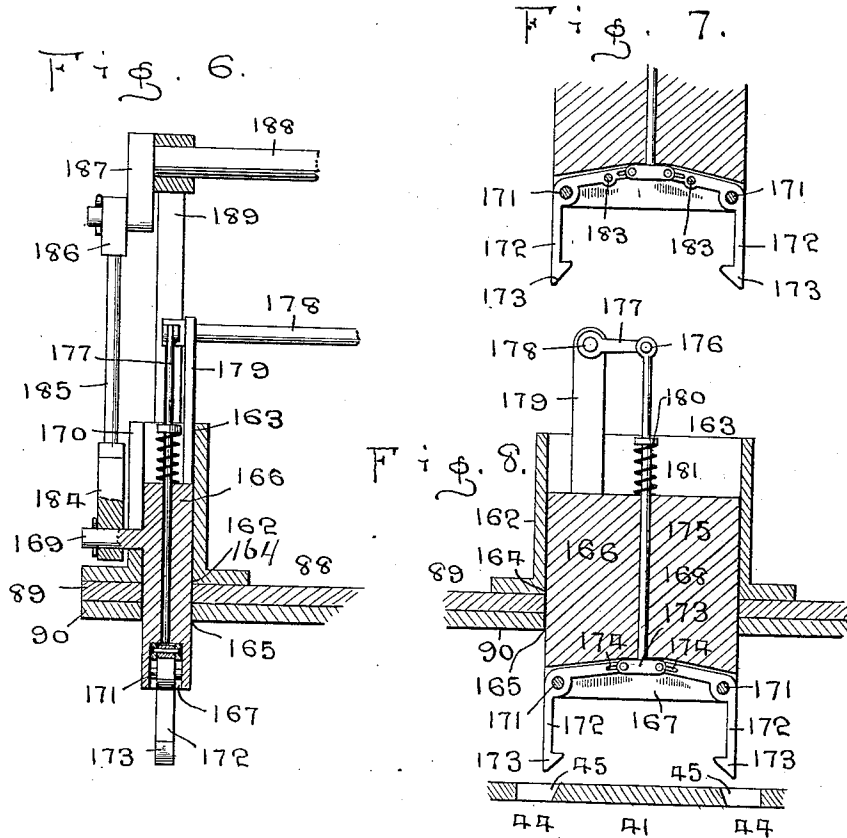
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Fig. 11.

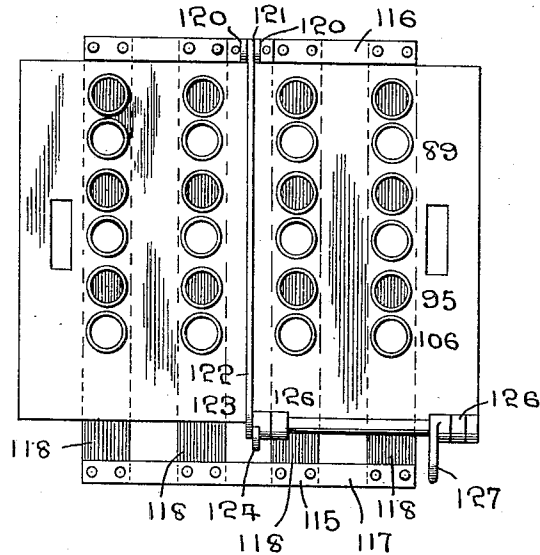
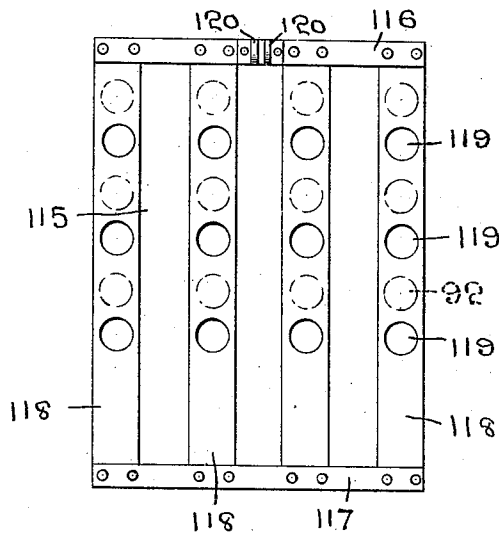


Fig. 12.



WITNESSES:

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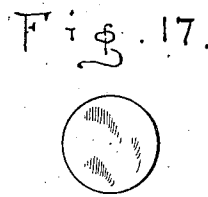
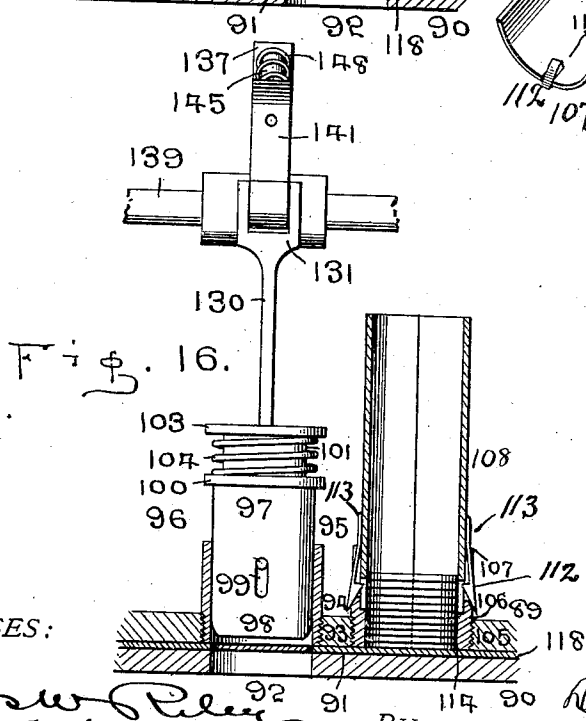
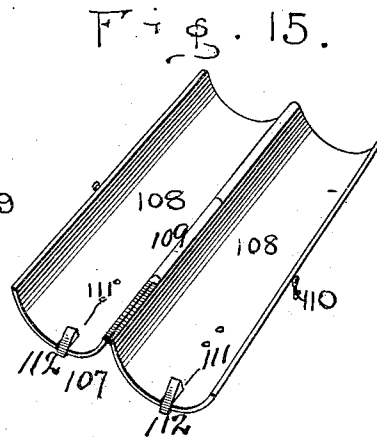
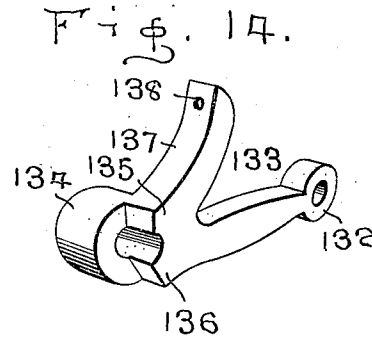
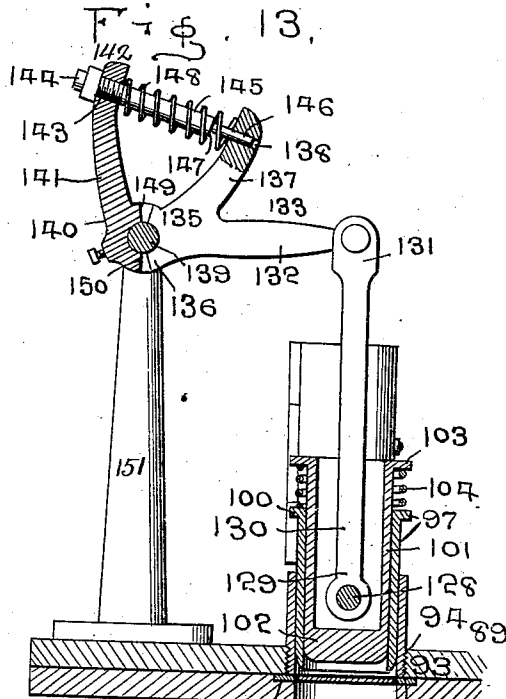
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

DAVID S. YARD, OF OLEAN, NEW YORK.

MACHINE FOR CAPPING MILK-BOTTLES.

935,879.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed September 28, 1908. Serial No. 455,050.

To all whom it may concern:

Be it known that I, DAVID S. YARD, citizen of the United States, residing at Olean, in the county of Cattaraugus and State of New York, have invented certain new and useful Improvements in Machines for Capping Milk-Bottles, of which the following is a specification.

This invention relates to a new and useful improvement in devices for placing closures upon receptacles for liquids, and more particularly to machines for putting flexible caps, such as those made of paper, upon bottles containing milk, that is, my invention relates especially to machines for capping milk bottles.

In devices of this kind, for them to be acceptable and used as a practicable and efficient substitute for "hand-capping," there is a demand for certain attributes which, so far as I am aware, are not possessed by any device hitherto brought to my knowledge. With rapidity of action there must be not only certainty, but accuracy of operation. Accommodation must be made for differences of sizes and shapes in bottles and due precaution against liability of breakage with consequent loss of material and time.

The invention hereinafter set forth fully obtains the desired result, as has been clearly demonstrated by the actual use and operation of the device herein shown and described.

With the end in view, the present invention consists of a machine or apparatus having the construction hereinafter set forth.

In the annexed drawings: Figure 1 represents a perspective view of the device, without the clamp frame. Fig. 2 (Sheet II), a transverse vertical section, with the clamp frame and bottle receptacle. Fig. 3 (Sheet I), a transverse section on line 3—3 of Fig. 9 (Sheet III). Fig. 4, a sectional detail of the same, Fig. 9. Fig. 5, a perspective detail of the latch at one corner of the machine, Fig. 1. Fig. 6, enlarged detail partly in elevation and partly in vertical longitudinal section of the machine, showing part of the lifting mechanism. Figs. 7 and 8, vertical sections of two forms of the lifting mechanism taken transversely of the machine at one end. Fig. 9, a plan view of the clamp frame. Fig. 10, a perspective detail of a feature of the clamp frame. Fig. 11, a detail plan

view of the top or bed of the machine and the cap feeding frame. Fig. 12, a detail plan view of the cap feeding frame. Fig. 13, an enlarged detail view partly in elevation and partly in section of a plunger and part of the mechanism for operating the plunger. Fig. 14, a detail of part of the plunger operating mechanism. Fig. 15, a perspective inside view of the cap magazine opened. Fig. 16, a detail partly in elevation and partly in section of the cap magazine, the plunger and part of the plunger operating mechanism. Fig. 17, one of the caps to be used in the machine.

In these drawings: the numeral 1 represents a table or frame suitable to carry the various features of this invention. This table 1 has supporting legs 2, 2, 2, 2, with strengthening cross braces 3, 3, 4, 4, and at the ends transverse horizontal braces 5, 5. These end transverse braces 5, 5 are to be placed at a height adapted for the use of the machine. Resting upon these braces 5, 5 are the ends 6, 6 of two lengthwise bars or strips 7, 7 having the bottoms 8, 8 and the edges or vertical parts 9, 9, by which latter the strips 7, 7 are secured to the legs 2 by bolts 10. To the lower ends of one of each pair of cross braces 3 and 4 there are secured bearings 11, 11 in which are journaled the ends 12, 12 of a rock shaft 13 which extends lengthwise of the frame 1, and is provided with a treadle 14. Rigidly secured to the rock shaft 13 near its ends and inside of the bearings 11, 11 are two arms 15, 15, the outer ends of which are pivotally connected to rods 16, 16, which extend upwardly and at their top ends 17, 17 are pivotally connected to the vertical portions of transverse horizontal strips 18, 18, to the ends 19, 19 of the tops of which there are secured the ends 20, 20 of flat longitudinal strips 21, 21 which extend lengthwise of the machine just within the strips 7, 7, parallel therewith and having their ends 20, 20 extending over and beyond the end transverse braces 5, 5. Rigidly secured to the ends 19, 19 of the transverse strips 18, 18 are the top ends 22, 23 of braces 24, 25. The brace 24 has an oblique portion 26, and a vertical portion 27. At or near the angle 28 where the two portions 26 and 27 meet there is secured the lower end 29 of the other brace 25, this brace 25 and the oblique portion 26 of the brace 24 thus con-

verging and being united at or near the angle 28. To the vertical portion 27 of the brace 24 there is secured one end 30 of a spring guy 31, the other end 32 of which is secured to one leg 2 of the machine.

In one projecting end of one of the strips 7 there is a notch 33 and just above it in the adjacent leg 2 there is another notch 34. Pivoted to this leg 2 on the outside and in line with the notch 33 is a bar 35 having the handle 36 and the two adjuster screws or bolts 37 and 38, the inner end 39 of the screw 37 being placed so as to engage the notch 34 when the bar is swung up.

As far as thus described, and for clearness it may be stated that, the features detailed disclose a frame having two supports on which the box containing the bottles of milk may be placed, and within these supports a lifter frame which by pressure on the treadle and intervening mechanism may be raised to lift the bottles to the capping mechanism, the lifter frame being held accurately in its vertical movements.

The numeral 40 (Figs. 3 and 9) indicates the clamp frame. This consists of a rigid base plate 41 having therethrough as many holes 42 as there are to be bottles to be capped, in the present instance twelve arranged in four rows of three each. In the ends 43, 43 of this plate 41 there are two vertical notches 44, 44, preferably having bevels 45, 45 on the inside, as shown in Fig. 8. In each end 43, 43 of this base plate 41 there are made two vertical dovetailed notches 46, 46, in which are held angular supports 47, 47, having top horizontal portions 48, 48 and vertical portions 49, 49, with slots 50, 50, the vertical portions 49, 49 fitted into and engaging the dovetailed notches 46, 46, in which they are held in vertical adjustment by the screws 51, 51.

Placed on top of the base plate 41 of the clamp frame 40 are sets of clamping plates consisting of two members to each set and as many sets as there are rows of bottles to be capped. In the present instance there are shown (Fig. 9) three sets of clamping plates consisting of the members 52^a, 52^b, 53^a, 53^b; and 54^a, 54^b. These plates are held to the base plate 41 by slot 55 and screw 56 connection, some of the screws being headed so that the clamping plates are free to be moved upon the base plate, but will not be accidentally separated therefrom. These clamping plates have in their inner edges notches of a size and shape adapted to the necks of the ordinary milk bottles, these notches 57, 58 being arranged in pairs just over the holes 42. On the under side one of these clamping plates, as 52^b, may be provided with a small double spring detent 59 having the head beveled on both sides and to engage in either direction a slight rack 60 in the upper surface

of the base plate 41 (see Fig. 4, Sheet I). Two transverse bars 61, 61 are secured to the clamping plate members 52^a, 53^a and 54^a and two other transverse bars 62, 62 are secured to the clamping plate members 52^b, 53^b, and 54^b, the bars 61, 61 and 62, 62 having on their outer surfaces studs 63, 64, 63, 64 arranged in pairs in convenient juxtaposition. Rising from the base plate 41 between clamping plates 53^b and 54^a and between the two studs 63, 64, 63, 64 of each pair of studs are pivot posts 65, 66 which carry rocking plates 67, 68 having at their ends notches 69, 70. Loosely secured to the rocking plates 67, 68 are the forked ends 71, 72 of connecting links 73, 74, the other ends 75, 76 of which are jointed to a cross-bar 77, to which is pivoted by a slot 78 and screw 79 connection the end of a lever 80 held by a pivot 81 to the base plate 41 between the clamping plate members 52^a and 52^b and having a handle 82 extending beyond the edge of the clamp frame 40. If desired, the clamp frame 40 may have two bail handles 83, 84, which are pivoted so as to be swung up or down.

On the under side of the base plate 41 around each hole 42 there may be placed a set of spring guides 85, three to each hole, curving outwardly from the holes (see Figs. 2 and 3).

At the tops 86 of the legs 2 of the table there are fastened supporting strips 87, 87 on which is secured the top or bed 88 of the capping machine. This bed consists of two plates 89 and 90, one secured on top of the other. The lower plate 90 has in its top several transverse grooves 91, in the present instance four. Passing through this lower plate 90 in these grooves and properly spaced apart are a number of holes 92, in the present instance three, making twelve in all, and of a size to permit the passage of the usual cap of a milk bottle.

In the upper plate 89 there is the same number of holes 93 which register with the holes 92 in the lower plate. These holes 93 are slightly larger than the holes 92 and are threaded. Engaging the threaded holes 93 are the threaded ends 94 of vertical hollow plunger guide cylinders 95, which hold the capping plungers 96. These plungers consist of an outer shell 97 having the operative rounded bottom end 98, slot 99 in the shell, and a circular lip 100 at the top, and a hollow cylindrical center 101, having a solid rounded bottom end 102, a pin which engages the slot 99, a circular lip 103 at the top which is open. Surrounding the center 101 between the two lips 100 and 103 is a spiral spring 104.

Adjacent to the holes 93 and over the transverse grooves 91 of the lower plate 90 there is the same number of threaded holes 105, one for and alongside of each hole 93.

In these threaded holes 105 there are placed the threaded ends of vertical hollow magazine receiving cylinders or seats 106, having a size adapted to magazines 107 which are adapted to carry the usual size caps for milk bottles. These magazines 107 are made cylindrical in form, preferably of two portions 108 and 108 held together by hinges 109 and having a clasp 110 and notches 111 in which are the beveled hooked ends 112 of spring catches 113 secured to the outside of the magazine. In these magazines are placed on the catches 113 the caps, such as shown in Figs. 16 and 17.

Between the top plate 89 and the lower plate 90 there is held the cap feeding frame 115. This consists of two end bars 116 and 117, several, in this instance four, cross-bars 118, each bar having three holes 119 adapted in size to the cap of a milk bottle. These cross-bars 118 rest in the transverse grooves 91 of the bottom plate 90, the end bars 116 and 117 being outside of and beyond the top or bed 88 of the machine. One bar 116 has the two vertical ears 120, 120, between which is pivoted one end 121 of a rod 122 which passes over and above the machine and has its other end 123 jointed to a link 124 which is carried by one end of a rock shaft 125 journaled in bearings 126 and having a handle 127.

Passing through the centers 97 of a plunger 96 is a pin 128 on which is pivoted the lower end 129 of a vertical connecting rod 130, the upper end 131 of which is pivoted to a finger 132 of a crank 133. This crank 133 has a hub 134, the two shoulders 135, 136 and another arm 137 having the hole 138 therein, the hub 134 being out of line with the shoulders and arms which are in line with one another. This crank is held loosely upon a shaft 139. On the same shaft there is rigidly locked in juxtaposition to the crank 133 the hub 140 carrying an arm 141 in line with the arm 137 of the crank 133. In the end 142 of the arm 141 there is a hole 143 in which is fastened one end 144 of a rod 145 which has a diminished end 146 within the hole 138 of the arm 137 of the crank 133 and a shoulder 147. Surrounding the rod 145 is a spiral spring 148 bearing between the two arms 137 and 141. Extending from the hub 140 are two shoulders 149 and 150 corresponding to and in line with the two shoulders 135 and 136 of the crank 133, these shoulders being made and arranged so that they flare away from the center, as shown in Fig. 13. Each plunger is to be provided with the construction just described connecting it with a shaft 139. There is to be one shaft 139 for each row of plungers. In the present instance there would be four, as shown in Fig. 1. Each shaft 139 is journaled in two standards 151

rising from the top of the bed 88 of the machine.

To one projecting end of each shaft 139 at the same side of the machine there is secured a crank arm 152, and these crank arms are connected together by a connecting bar 153. To one shaft 139 is fastened an operating handle 154. From the inside of the connecting bar 153 there projects a pin 156 which rests in a bayonet slot 157 in a swinging latch strip 158. This latch strip is pivoted to one of the standards 151 and has fastened at its loose end 159 a string 160 which is secured at its upper end to a small handle 161 pivoted to the operating handle 154. Secured at the ends of the bed 88 on top of the top plate 89 are two guide boxes 162, 162 having open tops 163 and open bottoms 164, the latter fitting over and registering with openings or slots 165, 165 which pass clear through both plates 89 and 90. Passing through these slots 165, 165 and up into the guide boxes 162, 162 are the lifting slides 166, 166. These slides have the transverse grooves 167, 167 in their bottom edges and the central bore or passage 168 running from these grooves 167, 167 and opening above the slides. These slides are also provided with arbors 169, 169 which project out through slots 170, 170 in the outer faces of the guide boxes 162, 162.

Held on pivots 171, 171 in the grooves 167, 167 are two bell crank catches 172, 172, having the beveled hooked ends 173, 173 adapted to the beveled openings 44, 44 in the base plate 41 of the clamp frame 40. The other ends 174, 174 of these catches 172, 172 have a slotted connection 173 with the lower end of a rod 175 which passes through the bore 168 of the lifting slides 166, 166, and is connected at the upper ends 176 with a crank 177 extending from a shaft 178 held in bearings 179 rising from the top of the lifting slides 166. The rods 175, 175 have collars 180 between which and the tops of the lifting slides 166 there are spiral springs 181 surrounding the rods 175, 175. The rod 178 extends lengthwise of the machine and is connected to both cranks 177 and has an operating handle 182. If desired, the catches 172, 172 may be held from movement by placing pins 183, 183 there-through, as shown in Fig. 7.

Pivoted to the protruding ends of the arbors 169, 169 are the lower ends 184, 184 of connecting rods 185, 185, which are connected at their upper ends 186, 186 to cranks 187, 187 of the rock shaft 188, which is held in bearings 189, 189 rising from the top of the machine. This rock shaft extends across and above the machine lengthwise and is connected with both lifting slides 166, 166 and has the operating handle 190.

From each end of the bed 88 there de-

pend a pair of guide fingers 191, 191 which are properly spaced apart from each other and are curved away from the edge of the table.

5 Operation: The bottles having been filled with milk are placed on a box or receptacle of the usual kind in the usual way. The clamp frame 40 is then placed over them, the tops of the bottles coming into the holes 42 and between the members of the sets of clamping plates, the spring guides 85 centering the bottles in the frame, the supports 47 resting on the ends of the receptacle. The lever 80 is swung in the direction of the 10 single arrow. Through the cross-bar 77, the connecting links 73, 74, the rocking plates 67, 68, studs 63, 64, and bars 61, 61 and 62, 62, the clamping plates 52^a, 52^b; 53^a, 53^b; and 54^a, 54^b are drawn toward each other in sets 20 or pairs, gripping tightly the necks of the bottles in the box or receptacle. At the same time the head of the double detent 59 slides along the rack 60 and assists in holding the clamping plate against accidental loosening, though permitting positive action. The 25 receptacle with the bottles and the clamp frame, fastened to the bottles is then slid in place on top of the bars or strips 7, 7. To accurately gage the position of the bottles in the machine, the bar 35 is lowered so as to rest in the notch 33 of one of the strips 7 and on top of the other strip 7. The adjuster screws 37 and 38 are adjusted until they are the proper length for the correct 35 adjustment of the bottle receptacle. Of course, after these screws 37 and 38 are all adjusted they need not be changed unless the size of the bottle receptacles varies. When the receptacles are in position as 40 shown in Fig. 2 they are just above the lifter frame. By pressure on the treadle 14, through the two arms 15, 15 and connecting rods 16, 16, the strips 18, 18 and strips 21, 21 are caused to rise, carrying with them 45 the bottle receptacle and its contents. The tops of the edges of the ends of the receptacle are caught under the curved guide fingers 191, 191 at the ends of the bed of the machine, truing the receptacle to the machine. As this 50 action is taking place the operating handle 190 is moved and the rock shaft 188 is turned in the bearings 179, 179, so that, through the cranks 187, 187, the connecting rods 185, 185, and arbors 169, 169, the lifting slides 55 166, 166 carrying the catches 172, 172 are lowered, the hooked ends 173, 173 of the catches 172, 172 passing through the notches 44, 44 in the ends 43, 43 of the base plate 41 of the clamp frame 40. This action pulls 60 down the rods 175, 175, compressing the springs 181, 181 between the collars 180 and the tops of the slides 166. As soon as the hooked ends 173, 173 of the catches 172, 172 have passed below the edge of the base plate

41 the reaction of the spring 181 causes the 65 hooked ends 173, 173 to catch under the edge of the base plate 41. The operating handle 190 is then turned in the opposite direction. This draws up the lifting slides 166, 166 and with them the clamp frame 41 and the con- 70 tained bottles. As this occurs, if there be any inequality in the height of the bottles they will have compensation, as the weight of the bottles will cause them to move, if there be space, until the rims of all the bottles rest 75 upon the top of the clamp frame.

As the clamp frame 40 with the bottles is raised the mouths of the bottles are brought immediately under and in alinement with the holes 92 in the bottom plate 90 of the bed 80 88 of the machine. At this time the cap feeding frame 115 is in the position shown in Figs. 1, 2 and 11. The holes 119 in the cross-bars 118 are under the cap magazines 108 with the lowest caps resting in the 85 holes 119, the catches 113 being opened. When the mouths of the bottles are in place under the holes 92, the handle 127 is swung inward and through the rock bar 125 and the rod 122 the cap feeding frame 115 90 is forced inward moving one cap over each hole 92 and immediately under a plunger 96. The cross-bars 118, being held snugly in the transverse grooves 91 of the bottom plate 90, the frame is moved easily and with- 95 out any twist or binding, the grooves guiding the frame in its movement. The small handle 161 is moved and through the string 160 lifts the latch strip 158, allowing the pin 156 to come into the lengthwise part of the 100 bayonet slot 157. The operating handle 154 is then moved, not only operating its shaft 139, but all the others through the connecting bar 153 now released from the latch strip 158. 105

As the shafts 139 are turned the hub 140 and arm 141 carrying the rod 145 move toward the arm 137 until the shoulders 149 and 135 come in contact with diminished end 146 sliding in the hole 138 of the arm 137, 110 the spiral spring being partially compressed. As soon as the shoulder 149 bears against the shoulder 135, the crank 133 turns and through the connecting rod 130 forces down the plunger 96. 115

As the plunger 96 is forced down the resistance of the spiral spring 104 between the circular lip 100 at the top of the shell 97 and the circular lip 103 at the top of the center 101 prevents the center from passing 120 down into the shell and the entire plunger 96 descends. As it does this the rounded bottom 98 of the shell 97 bears down on the edge of the cap, pressing this edge down into the usual seat around the mouth of the 125 bottle. The rounded bottom 98 especially facilitates this seating of the cap and should a bottle be a little off center it would be cen-

tered by this rounded bottom. The pressure of this shell 97 upon the edge of the cap effectually prevents the cap from slipping and holds it for the final action of capping, which is done by the further downward movement of the hollow cylindrical center 101.

When the shell 97 is in place upon the edge of the bottle cap, the center 101 continues to descend, the movement of the center 101 in the shell 96 being permitted by the pin and slot 99 connection between them. As the center 101 is forced down upon the cap the rounded bottom end 98 of the center bears down with a concaving action upon the cap, depressing it and forcing it past the horizontal plane so that the cap is effectually fastened in the mouth of the bottle against any accidental dislodgment.

By having the crank 133 loose on the shaft 139 there is compensation for bottles having seats of different depths. As the plungers descend, as soon as a cap is seated in the bottle having the shallowest seat, should there be such a one, the shaft 139 would cease to turn farther, as the parts would be locked, but the spring 148 partially compressed would then force any crank 133, which was connected to a plunger over a bottle having a deeper seat, farther over and thus force a cap down into such seat.

After the bottles are capped the various mechanisms are reversed. The operating handle 154 is turned back, lifting the plungers from the mouths of the bottles, the pin 156 is caught in the vertical part of the bayonet slot 157 holding the plungers from accidental movement. The handle 127 is turned outward and the cap feeding frame is moved back into the position shown in Figs. 1, 2 and 11, bringing the holes 119 under the cylinders and another cap drops into the holes 119 ready for another stroke. The operating handle 182 is then turned and through the rod 178, cranks 177, 177 and rods 175, 175 depresses the upper ends 174, 174 of the catches 172, 172, releasing the hooked ends 173, 173 from under the edges of the ends 43, 43 of the base plate 41 of the clamp frame 40. As this is done the clamp frame with the bottles drops down into the bottle receptacle. The lifting frame with the receptacle and bottles is then lowered and the receptacle removed from the machine. The lever 80 is then moved in the direction of the two arrows, when the clamp plates are separated, and the clamp frame is removed from over the bottles.

If the modification shown in Fig. 7 is used, the catches 172, 172 are locked under the edges 43, 43 of the base plate 41 and hence cannot be released by any action of the shaft 178. In this case the lever 80 will be moved while the clamp frame is in the

machine and the clamp frame remain in the machine when the receptacle and bottles are removed.

The construction shown in Fig. 8 may be preferable, as it is the more sanitary, since the clamp frame may the more readily be cleaned.

Having described my invention, what I claim is:

1. The supporting frame having the lengthwise bars or strips 7, 7, and the bar 35 having the adjuster screws 37, 38 and hinged to one end of the supporting frame.

2. The supporting frame having the lengthwise bars or strips 7, 7, one of which has the notch 33, the legs 2, 2, 2, 2, one of which, the one at the notch 33, has the notch 34, and the bar 35 having the adjuster screws 37, 38 and hinged to the leg 2 which has the notch 34.

3. The clamp frame consisting of a base plate having a number of holes, and sets of clamping plates consisting of two members to each set having on their inner edges notches arranged in pairs over the holes in the base plate, and means for moving the members of each set of clamping plates to and from each other.

4. The clamp frame consisting of a base plate having a number of holes, and sets of clamping plates consisting of two members to each set having on their inner edges notches arranged in pairs over the holes in the base plate, bars connected to and connecting the members of the several sets in two series, all the members on one side being connected together and all the members on the other side being connected together, and operating levers connected to said bars.

5. The clamping frame 40 having a base plate 41 with the holes 42 therein, the clamping plates arranged in sets 52^a, 52^b; 53^a, 53^b; and 54^a, 54^b and having the notches 37, 38 arranged in pairs just over the holes 42 in the base plate 41; the bars 61, 61 and 62, 62 connected to and connecting the plates 52^a, 53^a, 54^a and 52^b, 53^b, 54^b, respectively, the bars having studs 63, 64 in pairs; the pivot posts 65, 66 between the two studs of each pair and carrying the rocking plates 67, 68 having notches 69, 70 which engage the studs 63, 64; the forked levers 73, 74 at one end connected to the rocking plates 65, 66 and at the other end to a cross-bar 77; the cross-bar 77; and the lever 80 connected to the cross-bar 77.

6. The clamping frame having the dovetailed notches 46, 46 at each end and the angular supports 47, 47 held in the notches by a slot and pin adjustment.

7. The clamp frame having the notches at each end, in combination with the two lifting slides having the hooked catches to engage such notches.

8. The clamp frame having the notches in combination with the lifting slides having the catches to engage such notches, and mechanism to release the catches from the notches.

9. The lifting slide having the groove in its bottom, and a bore running from this groove and opening above the slide, the hooked catches pivoted in the groove, the rod connected to the catches, and a rod passing through the bore and having a collar, a spring surrounding the rod between the collar and the top of the slide, and means for moving the slide up and down, and separate means for moving the rod up and down.

10. The combination of the lifting slides 166 having the bearings 179, the grooves 167 in their bottoms, and the bores 168 running from the grooves 167 and opening above the slide, the hooked bell crank catches 172 pivoted in the grooves 167, the rods 175 having the collars 180 above the slides and loosely connected to the upper ends 174 of the catches 172, the spiral springs 181 surrounding the rods 175 between the slides 166 and the collars 180, the shaft 178 held in the bearings 179 of the slides 166, and having cranks 177 connected to the rods 175 at their upper ends 176, and the operating handle 182.

11. The lifting slides having the arbors in combination with the rock shaft, and the connecting rods connected to the arbors and the rock shaft.

12. The combination of the lifting slides 166, 166, having the arbors 169, 169; the rock shaft 188 and its operating handle 190 and crank 187, 187, and the connecting rods 185, 185 connected to the arbors 169, 169 and the cranks 187, 187.

13. In a device for capping bottles, the

combination of a frame provided with perforations for receiving the caps with plungers arranged above and in line with such perforations, each plunger consisting of two parts, an outer shell and an inner center, the bottom of the center being normally above that of the shell.

14. In a device for capping bottles, the combination of a frame provided with perforations for receiving the caps with plungers arranged above and in line with such perforations, each plunger consisting of two parts, an outer shell and an inner center, the bottom of the center being rounded and normally above that of the shell.

15. The combination of the plungers, the shaft 139, the cranks 133 loose on the shaft and connected to the plungers and the hubs, and arms fastened to the shaft 139 in line with the cranks 133.

16. The combination of the shaft 139, the hub 140 having the arm 141 with the hole 143, the rod 145 having a diminished end 146 and held by one end 144 in the hole 143, the crank 133 having the finger 132, and the arm 137 with the hole 138 in which the diminished end 138 of the rod 145 rests, the spiral spring 148 around the rod 145 and between the arms 137 and 141, the crank 133 having the flaring shoulders 135, 136, and the hub 140 having similar shoulders 149, 150, the crank 133 being loose on the shaft 139, and the hub 140 being fast on the shaft 139, the two sets of shoulders and the two arms being in line.

In testimony whereof I have affixed my signature, in presence of two witnesses.

DAVID S. YARD.

Witnesses:

CHAS. P. LUTHER,

CHAS. T. PUHL.