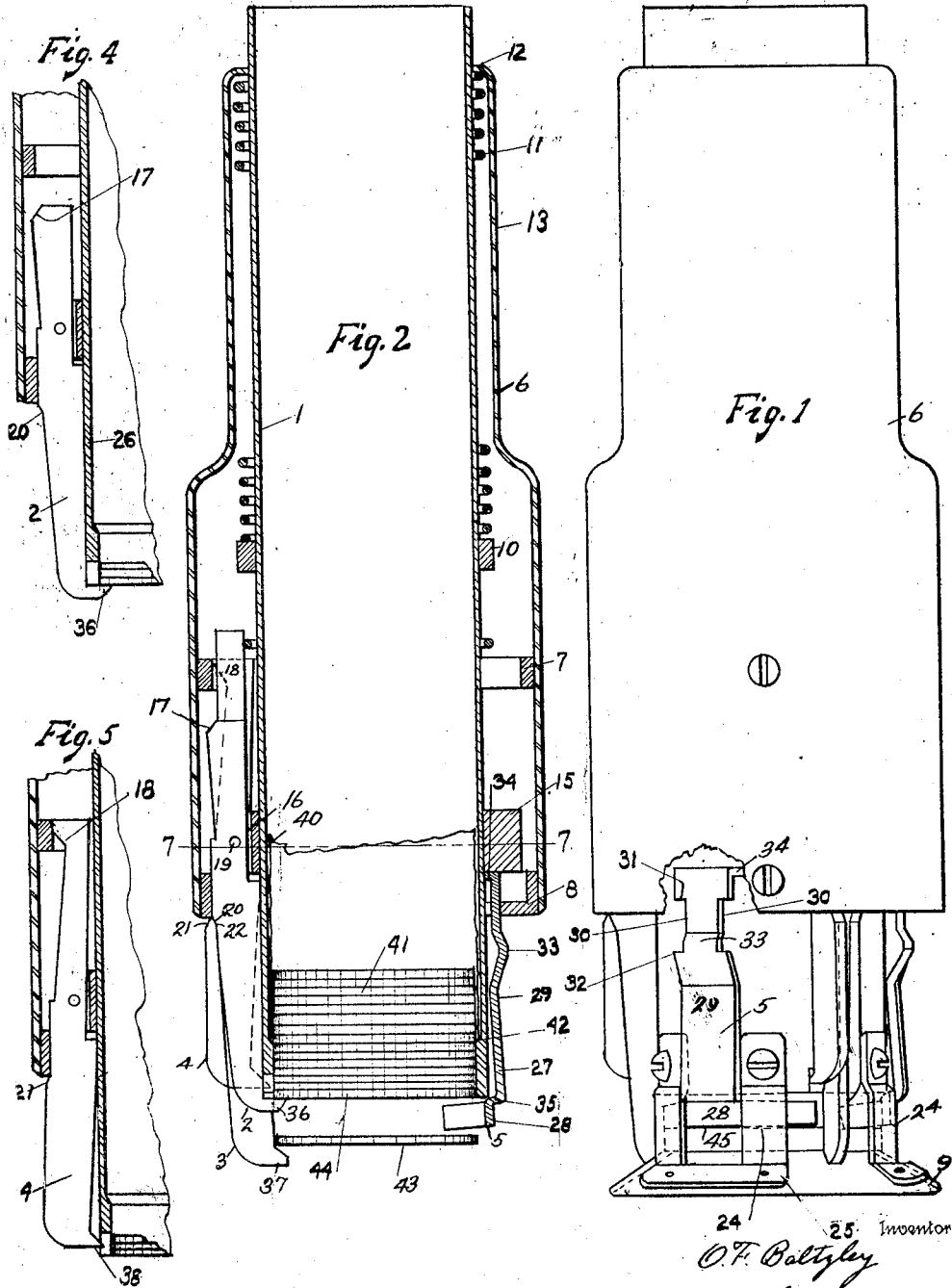


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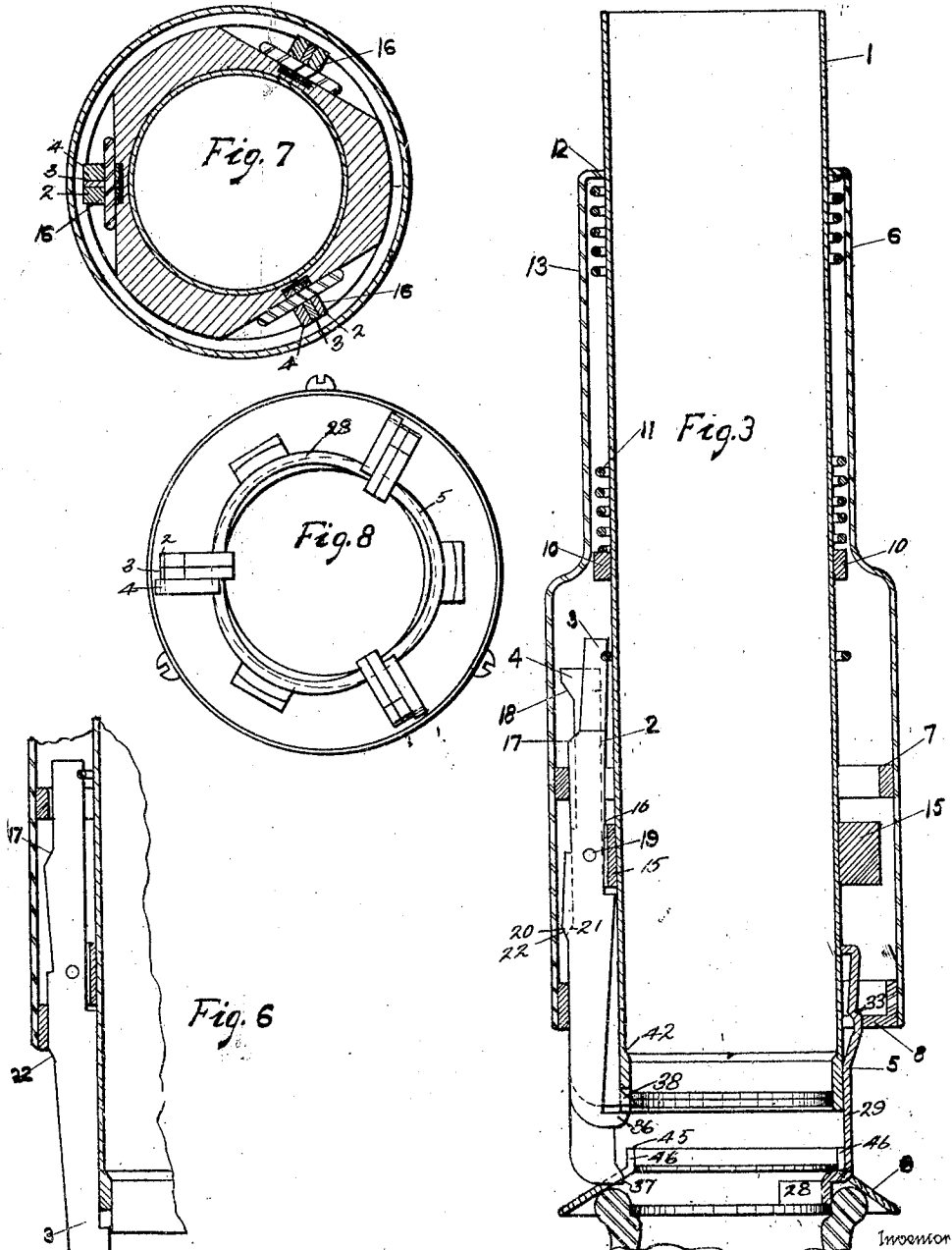
Witness
Howard A. Lee
M. M. Hale

25. Inventor
O. F. Baltzley
Stuart & Stuart
 Attorneys

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Patented Jan. 21, 1913.

2 SHEETS-SHEET 2.



Witnessed
Thorvald A. Lee
M. M. Cole

O. F. Baltzley
by
Stewart & Stewart
Attorneys

UNITED STATES PATENT OFFICE.

OREN FRANCIS BALTZLEY, OF HAGERSTOWN, MARYLAND, ASSIGNOR OF ONE-HALF TO
ROBERT M. RUPP, OF HAGERSTOWN, MARYLAND.

BOTTLE-CAPPER.

1,050,788.

Specification of Letters Patent.

Patented Jan. 21, 1913.

Application filed May 20, 1912. Serial No. 698,473.

To all whom it may concern:

Be it known that I, OREN F. BALTZLEY, a citizen of the United States of America, residing at Hagerstown, county of Washington, State of Maryland, have invented certain new and useful Improvements in Bottle-Cappers, of which the following is a specification.

This invention relates to a bottle capper which may be conveniently made in the form of a hand tool particularly adapted for use in closing milk bottles but capable of various uses in the bottling art.

There are numerous machines for applying bottle caps and stoppers, but these are all comparatively bulky, elaborate and expensive, and the cost of such machines prohibits their use in any but the largest dairies. The bottle capper which is the subject of this invention is simple in construction, comparatively inexpensive so that it may be used in any dairy, and of a size and shape to be conveniently carried and gripped in the hand and applied successively to the various bottles to be capped.

The capper consists of an upright guide or magazine for the disks, shown in the form of a vertical tube, a plurality of latches for holding the disks, and means for actuating the latches to release the disks one at a time, and one or more pushers to seat each disk when released.

In the preferred form of my invention which I have illustrated, there is a funnel or mouth at the bottom of the guide or magazine tube by means of which the capper is positioned over the mouth of the bottle, and a sliding grip sleeve, having a reduced portion or otherwise adapted to be engaged by hand, inclosing the guide. This sliding grip sleeve is mounted to slide on the magazine and carries various means for actuating the latches and pushers. When the capper is in operative position, the upright guide or container is in alinement with the bottle neck. To seat the cap the sliding grip sleeve is pressed downward, moving for a short distance relatively to the magazine. This traverse is sufficient to actuate the latches and release a cap which is then engaged by the pushers and forced into position in the bottle mouth. After the operation of capping, the sleeve is returned to normal position. This may be done by hand or by means of a spring, the return move-

ment serving to withdraw the pushers and bring another cap into position to be fed to the pushers.

In the accompanying drawings I have shown so much of a bottle capper constructed in accordance with my invention in its preferred form as is necessary to a complete understanding of the nature and operation of the same.

Figure 1 is an elevation of the capper with the parts in normal or retracted position, a portion of the sleeve being broken away to show the upper end of one pusher. Fig. 2 is a vertical central section of the same showing the sleeve in normal position, the pushers being withdrawn. Fig. 3 is a similar section showing the sleeve and a pusher advanced in the act of seating a cap in a bottle. Figs. 4, 5 and 6 are fragmentary sections showing each of the latches respectively in the position which it occupies in Fig. 2. Fig. 7 is a horizontal cross-section on the line 7, 7 Fig. 2. Fig. 8 is a bottom plan of the machine as seen in Fig. 2, the mouthpiece being removed for clearness of illustration.

The bottle capper consists of a guide or magazine shown in the form of a tube 1 on which are mounted a plurality of latches 2, 3 and 4, and a grip-sleeve 6 carrying a plurality of pushers 5 and inclosing the magazine or guide and mounted to slide thereon. Within the sleeve are cam rings 7 and 8 for actuating the latches and pushers, and at the lower end of the magazine is a mouth or funnel 9 to engage the bottle and position the tube in alinement therewith.

Encircling the tube 1, just above the latches, is a ring or collar 10 secured to the tube and forming a seat for the spiral spring 11 which at its upper end engages the grip-sleeve 6 where it is intumed at 12. The spring 11 serves to return the sleeve to normal position after the seating stroke as hereinafter described. For convenience in gripping, the diameter of the upper portion of the sleeve is reduced at 13.

Below the ring 10, mounted on the guide or magazine tube 1, encircling the same, is a ring or collar 15. This ring is slotted at 16 at several points equally spaced about its circumference, and the latches 2, 3 and 4 are pivoted intermediately of their length in the slots 16. Preferably the latches or latch levers 2, 3 and 4 are provided each

with two cam surfaces, one above and the other below the pivot on each lever. Reference character 17 is applied to the upper cam surfaces on the levers 2 and 3, these surfaces being in the same plane as seen in Fig. 3 and overlying each other.

Reference character 18 indicates the cam surface at the upper end of the lever 4. The surfaces 17 and 18 are oppositely inclined, but all the upper cam surfaces cooperate with the cam ring 7 on the sleeve 6 to actuate the latches as hereinafter described. Below the pivot 19, on which the latches are mounted, each is provided with a second or lower cam surface 20 on lever 2, 21 on lever 4, and 22 on lever 3 to cooperate with the cam ring 8 at the lower end of the grip sleeve 6, which cam ring is slotted to receive the latches. The surfaces 20 and 22 are in the same plane and coincide the one with the other as seen in Fig. 2. The inclination of these surfaces is opposite to that of the cam surface 21 on the lever 4.

The funnel or mouth 9, as shown, is secured to the lower end of the magazine or guide tube 1 by means of vertical bridge pieces or supports, each having two legs 24 which are fastened by means of screws to the lower end of the tube and extend downward, having feet 25 which are fastened by rivets or other suitable means to the funnel or mouth 9. The legs 24 of the supports or bridge pieces are spaced apart and the lower ends of the latches swing between the legs into and out of the path of the disks, stoppers or caps, as hereinafter described. The inner or front edges of the latch levers are vertical at 26 when the latches are in forward or operative position so that they bear against the outer face of the tube and limit the movement of the latches, the tube surface acting as a stop. At the lower end of the latch 2 is a right angular hook or catch 36 inwardly disposed. The latch 3 is provided with a hooked end 37 similarly disposed, and the latch 4 has an inturned point or hook 38. The pushers 27 are provided each with an arcuate foot 28 of an outside radius slightly less than the inside radius of the guide 1 at its lower extremity. The length of these arcs is greater than the distance between the legs 24. The feet are placed inside the supports, their shanks or legs 29 extending out between the supports and being offset just above the foot to form a shoulder 35, and from there extending upward through slots in the lower cam ring 8. The pusher shanks, as shown, are slotted at each side at 30 adjacent their upper extremities, forming top shoulders 31 and bottom shoulders 32. The top shoulders 31 normally rest on the top of the cam ring and serve as a means for suspending the pushers, and the bottom shoulders are engaged by the

cam 8 to force the pushers down in the seating stroke. Adjacent the bottom shoulder 32, each pusher shank or leg is bent outward, forming a cam surface or incline 33. The top end 34 of the shank is turned over at an angle so that when the top end of the pusher is forced against the ring 15, as hereinafter described, this angular portion 34 takes a bearing against the bottom face of the ring, causing the lower end of the pusher to be thrown out and withdrawn from the path of the disks.

In the operation of the machine, a package or cartridge 40 containing caps 41 arranged in the form of a cylinder or a number of loose caps are placed in the tube or guide 1, the wrapper or cylindrical walls of the cartridge resting on an internal shoulder 42 formed for this purpose near the bottom of the guide. If the caps are in a cartridge or package, the lower end is opened before inserting so as to release the caps, and the lower caps or disks drop downward, the bottom cap resting on the catch or hook 36 at the lower end of the latch 2. For the purpose of bringing the first cap into operative position, i. e., beneath the feet 28 of the pushers, as shown at 43 in Fig. 2, the grip sleeve is given a preliminary stroke. For this purpose the funnel 9 may be placed on the mouth of the bottle or rested on any suitable support. The reduced portion 13 of the sleeve is then grasped in the hand and the sleeve forced down. In initial position the cam ring 7 rests on the upper portion of the latch lever 4 above the shoulder of the cam surface 18. As the sleeve moves downward, the cam ring passes from this cam surface, releasing the latch 4. At the same time the cam ring 8 rides up on the cam surface 21 of this latch, and its lower end is swung inward, the pointed catch 38 being inserted between the bottom cap 44 and the one next above it. Immediately following this the cam ring 8 passes off of the shoulders or cam surfaces 20 and 22, so that the latches 2 and 3 are released. As the sleeve advances, the cam ring 7 engages the cam surfaces 17 of the latch levers 2 and 3, swinging the levers about the pivot 19, throwing their lower ends out and moving the hooks so that the bottom disk or cap is released by the latch 2 and its hook or catch 36, but before the bottom disk is released, the pushers 27 have been slightly lowered by the downward movement of the cam 8 upon which they are supported and caused to rest upon the upper edge 45 of the mouth or funnel 9 which acts as a stop. Thus their ends 34 are released from engagement with the stationary ring 15 on the guide, and the surface of the cam 8 has engaged the cam surface 33 of the pushers and moved them inward so that their shoulders 35 are in position to receive and support the bottom

disk, see Fig. 3. If the downward stroke is continued, the cam ring 8 will engage the bottom shoulders 32 of the pushers 27 and force them downward so that they will perform the seating operation, the shoulders 35 passing into slots 46 in the edge or flange 45, but at this stage there is no disk in position to be seated, and nothing further is accomplished until the sleeve 6 is retracted. As the sleeve moves upward, the cam 8 rides up on the cam surfaces 20 and 22, swinging the latches 2 and 3 inward and bringing the catches 36 and 37 into the path of the disks as shown in Fig. 2. At the same time the pushers are withdrawn by engagement of the cam 8 with the top shoulders 31, and the end 34 is forced against the rings 15, throwing the pushers outward and releasing the disk 41 so that it drops and rests on the catches 37 of the levers 3 as shown in Fig. 2. Next the latches 4 are swung outward, the cam 8 passing off from the cam shoulders 21 and the cam 7 engaging the cams 18 at their upper end to move them positively, so that the disks in the magazine or guide are released and rest upon the catches 36 of the latches 2.

The capper is now ready for operation and may be placed at the funnel engaging the mouth of the bottle to be capped, or the priming operation may, as we have stated, be performed with the capper in position on the bottle. When the sleeve 6 is again forced down, the pushers 27 drop slightly so that they rest on the top surface 45 of the funnel or mouth 9 as described, and are forced inward by engagement of the cam 8 with the cam surface 33 of the pushers. At the same time the latch 4 is swung inward, the catch 38 being inserted between the lower cap 44 of those in the magazine and the one just about it, and the latches 2 and 3 are swung outward, the bottom cap 44 dropping on the shoulders 35 of the pushers, and the cap 41 carried by the latches 3 is released. As the sleeve moves downward, the cam 8 engages the shoulders 32 of the pushers and forces them against the cap, seating it in the bottle neck. As the sleeve is withdrawn, the latches 2 and 3 are again advanced into the path of the caps, the latch 4 is retracted, the pusher is retracted and withdrawn, the cap thereon dropping on to the latches 3 as previously described, and the tool is ready to be applied to the next bottle.

The capping operation as described may be easily performed, the bottles being capped in quick succession with slight effort. The operation is simple and may be performed by the lowest grade of labor. All that is necessary for the operator to do is to place the caps in the magazine and apply the tool successively to the mouths of the bottles to be capped, the grip sleeve being forced down each time the tool is applied to the bottle.

It will be apparent from study of the operation which we have described that the caps are supported with substantial continuity and that there is no opportunity for the caps to turn and become folded or creased, and it is to this end that the pushers are caused to catch the cap and drop it on the latches 3, and the latches 3 are in turn provided to catch the cap when dropped by the pushers and release it immediately above the bottle neck so that it drops into position without opportunity for it to turn. Aside from this consideration the pushers 27 might be caused to dwell in their outward position until the cap dropped by the latches 2 is passed, and the latches 3 might be removed.

I have thus described in detail a single embodiment of my invention in order that its nature and operation may be clearly understood. However, the construction of the device and the arrangement of the parts may be widely varied without departure from the principle of my invention. The specific terms herein are used in their descriptive rather than in their limiting sense, and the scope of the invention is defined in the claims.

I claim—

1. In a bottle capper, an upright guide for caps, a plurality of latches, one over the other, for feeding the caps, a pusher for inserting the caps, and means reciprocating in an upright path for actuating the latches successively to release the caps in turn and advancing the pusher to seat the caps.

2. A bottle capper consisting of an upright guide, a plurality of latches, one over the other, for feeding the caps one at a time, a pusher and a single integral member moving in a vertical path to actuate the latches successively to release the caps and advance the pusher to seat the caps.

3. A bottle capper consisting of an upright guide or magazine, a grip member mounted to slide up and down the guide, means on the guide and controlling means therefor on the grip member for supporting the caps and releasing them in turn, and pushers carried by the grip member for seating the caps.

4. In a bottle capper, an upright guide or magazine, a grip member mounted to slide up and down the guide, means for supporting the caps and controlling means therefor whereby the caps are released in turn, and pushers carried by the grip member for seating the caps.

5. In a bottle-capping machine, an upright guide or magazine, a grip member mounted to slide up and down the guide, movable means for supporting the caps, means for actuating said means to release the caps in turn at each stroke of the grip member, and pushers mounted on the grip member to swing radially and to have a limited vertical

motion relatively thereto, a stop for the pushers on which they rest at intervals, cam portions on the pushers, means on the grip members to engage the cam member on each 5 pusher when it rests on the support to force it inward so it is over the bottle neck and free to move downward with the grip sleeve to seat the cap.

6. A bottle capper consisting of a vertical 10 guide or magazine for caps, latches to support the caps mounted at the lower end of the guide and arranged in sets with the cap-engaging portions of one set above those of the next, a reciprocating member mounted 15 to move in the direction of the length of the guide, means thereon to actuate the latches to release the caps in turn and pushers actuated by the reciprocating member to seat the caps.

20 7. A bottle capper consisting of an upright guide or magazine for caps, latches at the lower end of the guide to support the caps, the latches arranged in sets with the cap-engaging portions of each set above 25 those of the next set, a grip member mounted to move in the direction of the guide, means thereon to actuate the latches to release the caps in turn, pushers mounted on the grip member to swing radially and have 30 a limited vertical motion relatively thereto a stop for the pushers to support them, intervals, and means on the grip member to engage the pushers and swing them inward when they rest on the stop so that they clear 35 the stop and are free to move downward with the grip member to seat the cap.

8. A bottle capper consisting of an upright guide for the caps, a plurality of sets 40 of latches mounted to move into and out of the path of the caps, the latches arranged with the cap-engaging portions of each set above those of the next, means vertically reciprocating for actuating the latches to move into and out of the path of the caps, 45 the adjacent sets moving alternately to release the caps one at a time, means for seating the caps, and means for actuating the same to seat each cap as released.

9. A bottle capper consisting of an upright 50 guide or magazine for caps, three sets of latches mounted to move into and out of the path of the caps, the cap engaging portions

of the latches of each set being above those of the next, means vertically reciprocating for actuating the latches to move into 55 and out of the path of the caps, the adjacent sets moving alternately to release the caps one at a time and control them in their downward movement, pushers, and means for actuating the same to seat each cap as it 60 is released.

10. A bottle capper consisting of an upright guide or magazine for caps, a plurality of sets of latches mounted on the guide to swing into and out of the path of the caps 65 and having cam surfaces thereon, the cap engaging portions of the latches of each set being above those of the next set, a member sliding on the guide and having cam surfaces for actuating the latches to move into 70 and out of the path of the caps to release the same in turn, the adjacent sets moving alternately to release the caps one at a time and control them in their downward movement, a pusher and means for actuating the 75 same to seat each cap as it is released.

11. A bottle capper consisting of an upright guide or magazine for caps, a plurality of sets of latches mounted on the guide to swing into and out of the path of the caps 80 and having cam surfaces thereon, the cap engaging portions of the latches of each set being above those of the next set, a member sliding on the guide and having cam surfaces for actuating the latches to move into 85 and out of the path of the caps to release the same in turn, the adjacent sets moving alternately to release the caps one at a time and control them in their downward movement, a pusher mounted on the sliding member 90 to swing radially and have a limited vertical movement relatively thereto, the pusher having a shoulder to receive the cap, means for swinging it in to catch the cap and means for swinging it out to drop the 95 cap, the pusher moving downward with the sleeve to seat the cap.

Signed by me at Hagerstown, Washington county, Md., this 13th day of May 1912.

OREN FRANCIS BALTZLEY.

Witnesses:

ROBT. M. RUPP,
A. YINGLING.