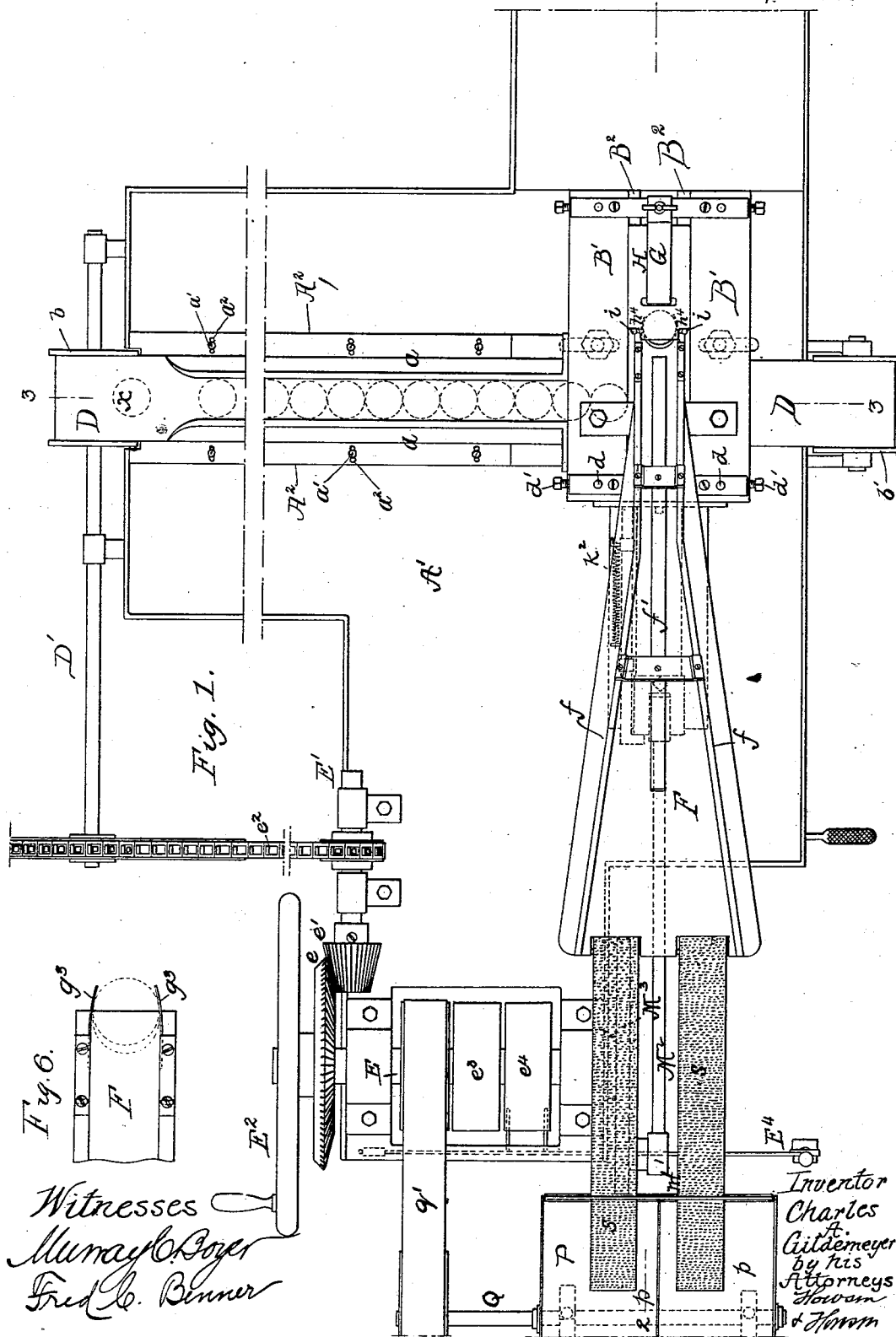


3 Sheets—Sheet 1.

MACHINE FOR PLACING COVERS ON BOXES AND CANS.

Patented June 30, 1896.



(No Model.)

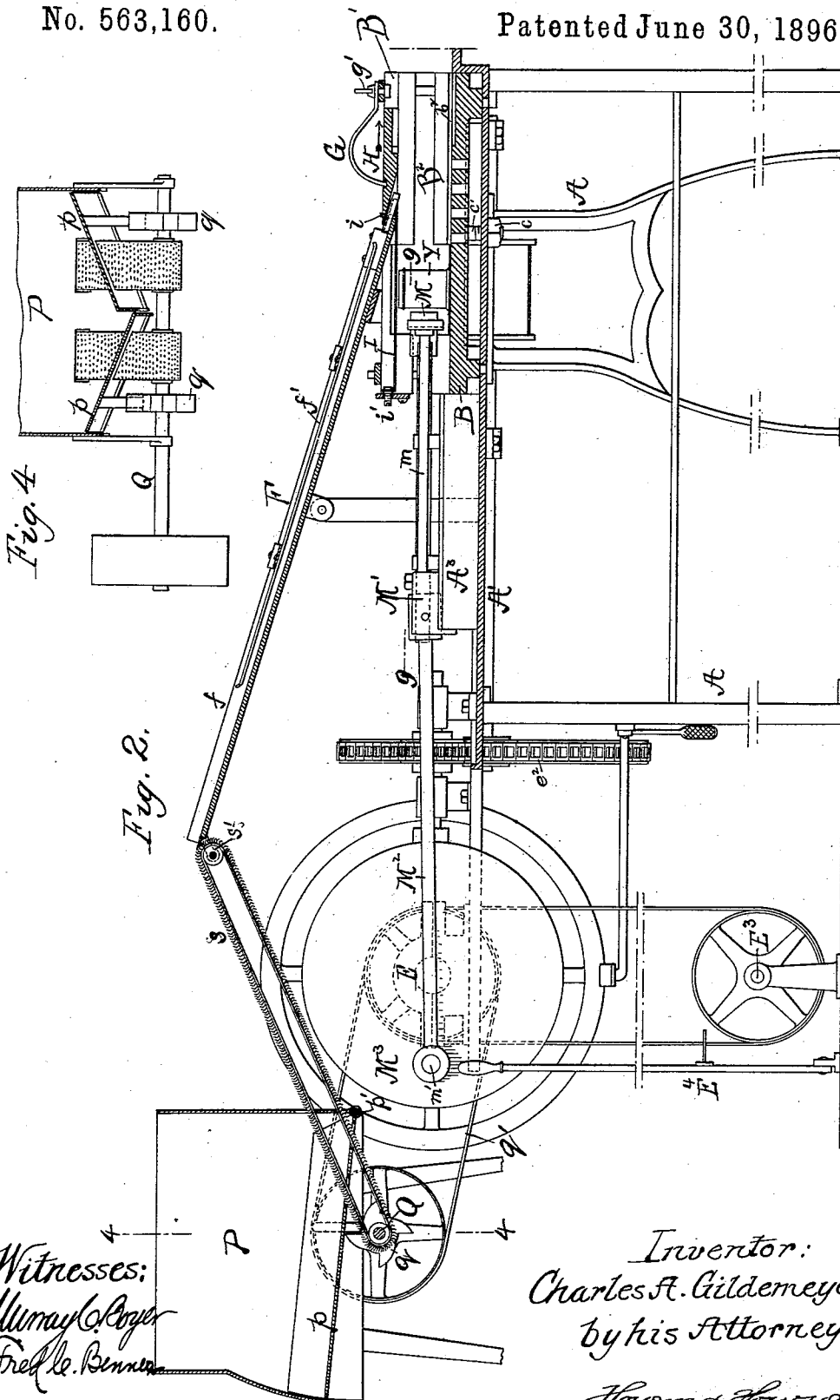
3 Sheets—Sheet 2.

C. A. GILDEMEYER.

MACHINE FOR PLACING COVERS ON BOXES AND CANS.

No. 563,160.

Patented June 30, 1896.



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MACHINE FOR PLACING COVERS ON BOXES AND CANS.

No. 563,160.

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Fig. 3.

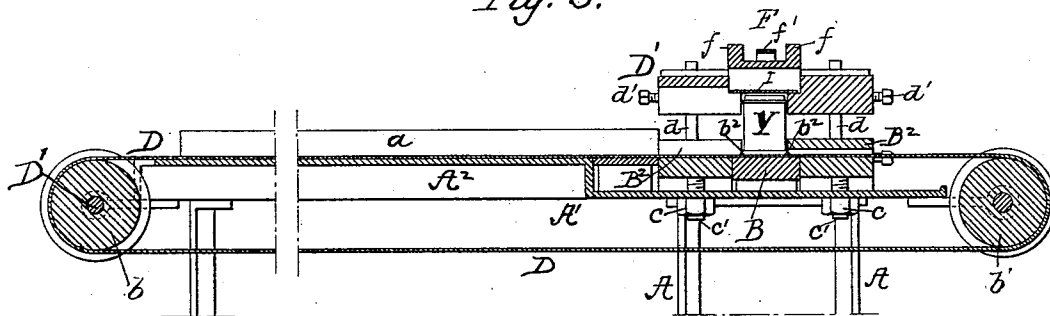


Fig. 5.

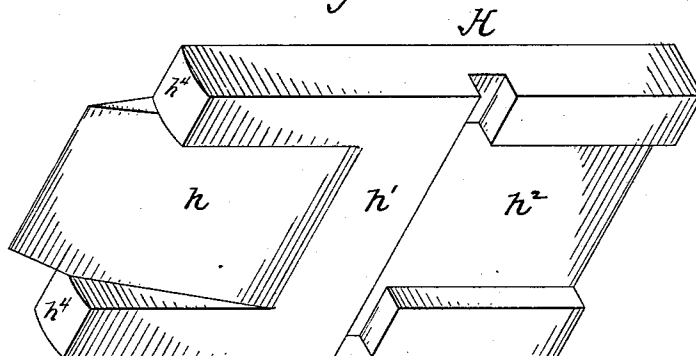


Fig. 7.

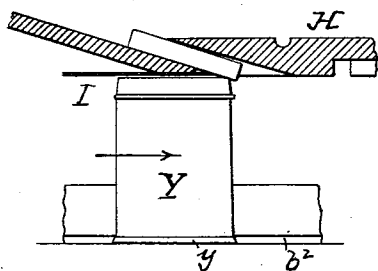


Fig. 8.

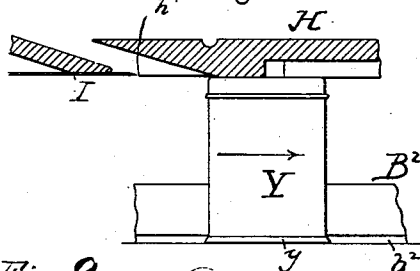
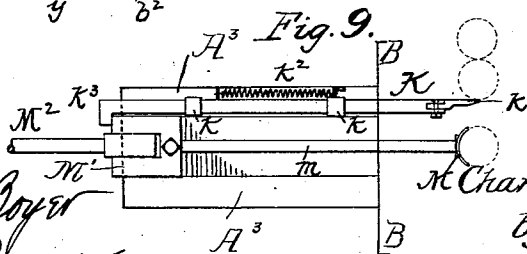


Fig. 9.



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UNITED STATES PATENT OFFICE.

CHARLES A. GILDEMEYER, OF HADDONFIELD, NEW JERSEY, ASSIGNOR OF
ONE-HALF TO HENRY D. MOORE, OF SAME PLACE.

MACHINE FOR PLACING COVERS ON BOXES OR CANS.

SPECIFICATION forming part of Letters Patent No. 563,160, dated June 30, 1896.

Application filed November 19, 1894. Serial No. 529,296. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. GILDEMEYER, a citizen of the United States, and a resident of Haddonfield, Camden county, New Jersey, have invented certain Improvements in Machines for Placing Covers on Boxes or Cans, of which the following is a specification.

The object of my invention is to rapidly and accurately cover or cap boxes and cans automatically, as fully described hereinafter, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of my improved machine for automatically placing covers or caps on cans or boxes. Fig. 2 is a longitudinal sectional view on the line 2 2, Fig. 1. Fig. 3 is a transverse sectional view on the line 3 3, Fig. 1. Fig. 4 is a transverse sectional view on the line 4 4, Fig. 2. Fig. 5 is an inverted perspective view of the capping-block. Fig. 6 is an enlarged plan view of a portion of Fig. 1, illustrating the spring-fingers for holding the caps or covers. Figs. 7 and 8 are diagram views illustrating the operation of the machine; and Fig. 9 is a sectional plan view on the line 9 9, Fig. 2.

I may state at the beginning of the specification that the cans or boxes and the caps or covers for the same are fed to a certain portion of the machine on independent ways, and the cover is so adjusted, as shown in Fig. 7, that when the can is moved forward in the direction of the arrow its upper edge will engage with the flange of the cover, and as the movement of the box is continued it will draw the cover from its chute and the capping-block will force the cover down onto its seat on the box, which will then be carried away from the machine.

I will now describe in detail the construction of the machine.

A is the frame of the machine, supporting a table A', upon which is mounted the bed B.

D is an endless belt extending across the machine, as shown in Figs. 1 and 3. This belt travels over a raised platform A², over a portion of the bed B, and around rollers b b', the roller b being the driven roller and is mounted on the shaft D', which is driven from the driving-shaft E through the medium of the bevel-gear and pinion e e', shaft E',

and chain e². The feed of this belt is constant and its face is smooth, so that cans or boxes placed upon the belt at the point x will be fed by the belt toward the bed B.

On each side of the belt and secured to the bed of the machine are raised strips a a', which serve as guides to keep the cans or boxes in a single line while they are being carried to the bed B. These guides are held in place by set-screws a' and may be adjusted or replaced to accommodate boxes or cans of different sizes, the set-screws a' being mounted in the slots a², so as to allow for a lateral movement of the guides.

Situated at right angles, in the present instance, in respect to the belt D is an inclined chute F for the caps or covers of the boxes.

The caps are fed, in the present instance, to the upper portion of the chute F, and are allowed to slide down the same by gravity. The chute is provided with inclined sides f f', so that the caps or covers will be directed in a single line to the discharge-point. At the end of the chute are two spring-fingers g³, Fig. 6, which are laterally adjustable. These spring-fingers hold the caps or covers in the proper position to be engaged by the can or box when it is pushed forward under the cap, as explained above. The fingers will yield sufficiently to allow the cap to be released quickly.

H is a shoe or block mounted in front of the chute F and above the bed B. This block has an inclined way h, a flat portion h', and a cut-away portion h², as shown in Fig. 5. The block is so mounted in respect to the chute F that the inclined portion h will be directly above the cap or cover when it is held in the position between the spring-fingers, and the block is adjusted to such a height that the cover will be forced onto the box.

G is a spring for holding the block H in position. This spring will yield and allow the block to raise or yield should a can not be properly capped, thus avoiding the breaking of the parts or the crushing of the can. The spring is held in place by a set-screw or thumb-nut g', which can be loosened, so as to allow for the ready removal of the spring and block.

The block H is adapted to a frame B', mounted on rods d, projecting from the bed

and secured in position by set-screws d' . By loosening these set-screws the frame can be raised or lowered to accommodate boxes or cans of different height.

5 On each side of the table B are guides B^2 , which are undercut at b^2 to fit the base-flange y of the can or box Y. These guides are laterally adjustable, so as to fit cans or boxes of different sizes, being secured in position
10 by nuts c , adapted to screw-bolts c' , projecting from the guides and through the table, as shown in Fig. 3.

To prevent the block H from being misplaced by the spring G, which engages with the same, I provide pins i , mounted in the guides B^2 , which are engaged by the shoulders h^4 of the block. The block is, however, free to move on the ways on the frame B' in the direction of the arrow, Fig. 2, should the
20 caps jam in the chute. To keep the caps in position to be caught by the cans or boxes, as the caps are projected beyond the edge of the chute F, I provide the spring tongue-plate I, which is preferably capable of longitudinal
25 movement and is held in place by the set-screw i' , by which it may be adjusted. This tongue allows a portion of the cap to project beyond the end of the chute, just sufficient for the can to engage with the same, as shown
30 in Fig. 7.

A central guide-plate f' is preferably arranged above the chute F and is of such a height from the chute that only a single row of caps or covers can be fed at a time to the
35 boxes or cans.

The chute can be removed from the machine and another one placed in position when caps or covers of different sizes are to be fed to the boxes or cans.

40 M is a plunger carried by a piston m , mounted upon a slide M' , adapted to ways A^3 on the bed B. This plunger and slide are reciprocated through the medium of the connecting-rod M^2 and the disk M^3 , having a crank-pin
45 m' , and this disk is mounted on a guiding-shaft E, so that as the said shaft revolves the plunger will be moved forward and will return.

When the plunger is in the position shown in Fig. 2, it allows a can to be carried into its
50 path by the belt D, and as it moves forward it carries the can with it on the bed B directly under a cap or cover, which is so adjusted that as the can continues its movement it will draw the cover from the chute, and the
55 said cover will be forced upon the can or box by the capping-block H, and as the plunger still moves forward the can or box will be discharged from the machine with the cap or cover in position. On the return of the plunger
60 to the position shown by Fig. 2, another can will be carried in front of the plunger by the belt.

In order to prevent the cans from crowding against the plunger as it is moved forward, I
65 provide a slide or gate K, adapted to bearings k , the portions k' of the slide projecting in the path of the belt D when the plunger moves

forward, so as to prevent the belt feeding the cans until the plunger has returned to the position back of the belt. A spring k^2 moves the
70 slide forward as soon as the plunger moves forward and a lug k^3 on the slide K is engaged by the rear of the plunger as it nears the end of the stroke, withdrawing the slide or gate
75 and allowing the can to be fed in front of the plunger, as clearly shown in Fig. 9.

The belt is driven at a greater speed in proportion to the plunger, so that a can will always be in position to be fed in front of the
80 plunger.

The shaft E can be driven by hand, and I have provided for this purpose a hand-wheel E^2 , or it may be driven by power, and I have provided two pulleys e^3 e^4 , one loose and the other fast, on the shaft E. The belt from a
85 counter-shaft E^3 may be directed onto either one of these pulleys by means of the belt-shifter E^4 .

I may feed the caps or covers to the chute F by hand or I may arrange a hopper, as
90 shown in Figs. 1, 2, and 4, from which the caps or covers will be automatically fed to the chute F. This cap or cover feeding arrangement may be constructed as follows: P is the
95 hopper having an inclined bottom p , one side of the same being higher than the other, as shown in Fig. 4, and the bottom of the hopper is agitated by cams q , arranged on the cam-shaft Q, driven by a belt q' from the driving-shaft
100 E. I preferably pivot the bottom p to a bar p' at the front of the hopper and separately agitate the two halves of the bottom by two cams, as shown by Fig. 4, the object being to
105 keep the caps or covers in motion, so that they will rest upon the feeding-belts s s and be carried by the same to the chute F. The feeding-belts s s pass around pulleys on the shaft Q and around a wheel s' on the end of the
110 chute and are preferably made rough, so as to engage with the flange of the cap or cover, but will not engage with the top of the same.

I preferably make these belts s s of card-clothing, which is simply a leather or cotton belt having a series of fine teeth projecting from its surface, and all of the same height.
115 By this means I am enabled to feed the caps to the boxes or cans with the flanges down.

By the above-described invention I am enabled to cover or cap boxes or cans considerably quicker than can possibly be done by
120 hand.

While my invention is especially applicable to capping or covering small boxes or cans holding about an ounce or two, it can be used to cover larger cans and to cover boxes made
125 either of metal, wood, or pasteboard.

I claim as my invention—

1. The combination in a machine for placing caps or covers upon cans or boxes, feeding mechanism for the cans or boxes, a chute
130 for the covers or lids and a spring-tongue at the end of said chute and arranged to engage the under side of the lids or covers and hold them in a position above the path of the cans

or boxes so that they will be engaged by said cans or boxes and forced onto the same by their forward movement, substantially as described.

5 2. The combination of the feeding-belt for the cans, the plunger for forcing one can at a time forward, a chute for the caps, means for holding the caps in position above the path of the cans and mechanism for reciprocating the plunger so that a can will be removed from the belt and carried forward to engage with the caps, substantially as described.

15 3. The combination of the bed, a guideway A³ on the same, a reciprocating plunger moving in said guideway, a chute for the caps, and a transversely-arranged feeding-belt for the cans driven at a higher rate of speed than the plunger, substantially as described.

20 4. The combination of the bed, the chutes for holding the caps mounted above the bed, means for holding the caps in position, a reciprocating plunger adapted to feed the cans or boxes on the bed, a transversely-arranged feeding-belt for the boxes, with a capping-block having an inclined portion adapted to force the cap onto the can when the can is moved forward, substantially as described.

25 5. The combination of the bed, having undercut guideways adapted to receive the bottom flange of the can, a plunger for forcing the can forward, a feed-chute for the caps, a capping-block mounted in front of the feed-chute above the bed, and a transversely-arranged feeding-belt for moving the cans to a position in front of the plunger, substantially as described.

30 6. The combination of the bed, guideways for the can, a reciprocating plunger for feeding the can forward, a feed-chute for the caps, a transversely-arranged carrying-belt for the cans adapted to pass across the bed in front of the plunger, and guides for keeping the cans in a single row on the belt, substantially as described.

35 7. The combination of the bed, transversely-arranged carrying-belt for the cans, a reciprocating plunger adapted to move the cans forward on the bed, an inclined feed-chute for the caps or covers, a capping-block, a frame on which the capping-block rests and

a spring for holding the block in position in respect to the chute, substantially as described.

8. The combination of the bed, a chute 55 above the bed for the caps, spring-fingers at the end of the chute for holding the caps, a capping-block beyond the chute, a plunger for feeding the cans or boxes forward, with transversely-arranged feeding mechanism for feeding the cans to a position in front of the plunger, substantially as described.

9. The combination of the bed, the reciprocating plunger, a transversely-arranged feeding-belt for moving the cans in front of the plunger, a feed-trough for the caps, with a spring slide or gate released when the plunger is moved forward so as to prevent further feeding of the cans and so arranged as to be retracted from the path of the cans 70 when the plunger is reciprocated, substantially as described.

10. The combination of the bed, feeding mechanism for the cans, a reciprocating plunger, the feed-chute for the covers or caps, a 75 hopper, belts extending from the hopper to the feed-chute, said belts having a roughened surface adapted to engage with the flanges of the caps, substantially as described.

11. The combination of the bed, a guideway A³ on the same, the reciprocating plunger for feeding the cans adapted to said guideway, a chute for the caps arranged above the bed, a hopper for the caps, mechanism for agitating said hopper, and feed-belts extending from the hopper to the chute, substantially as described.

12. The combination of the bed, feeding mechanism for the cans, a chute for the caps, a hopper having the bottom made in two sections, mechanism for agitating each section of the bottom, endless belts of card-cloth adapted to engage only with the flanges of the caps, and adapted to carry said caps to the chute, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES A. GILDEMEYER.

Witnesses:

FRED C. BENNER,
JOSEPH H. KLEIN.