Sept. 4, 1923. 1,466,722

G. J. HUNTLEY

PACKAGING APPARATUS

Filed Sept. 24, 1920 3 Sheets-Sheet 1

Fig. 1.

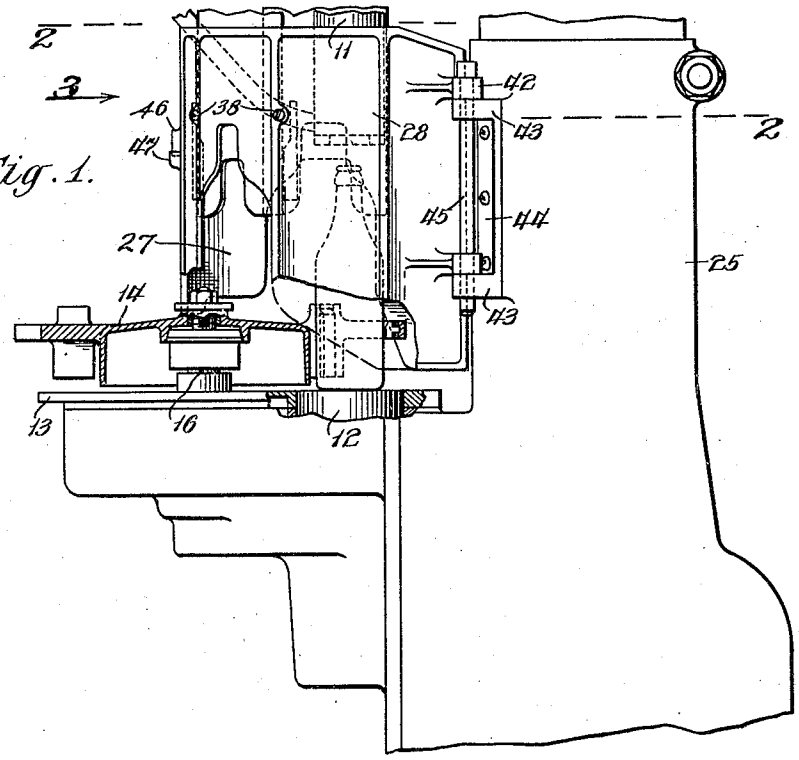
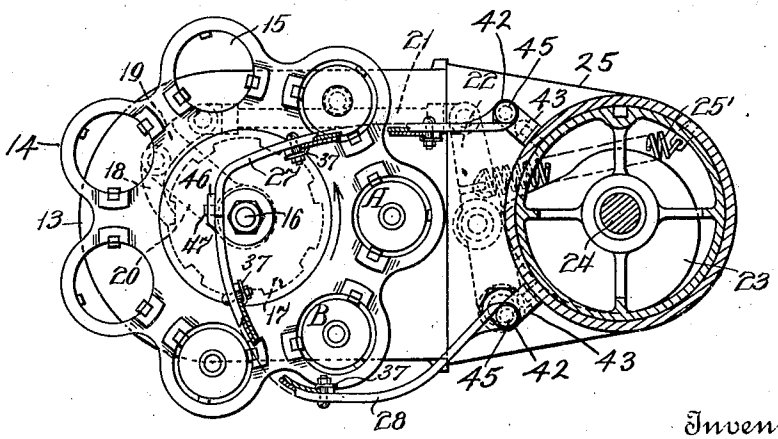


Fig. 2.



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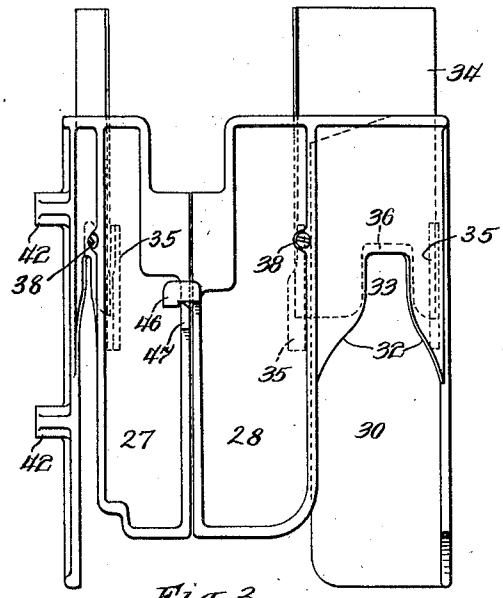


Fig. 3.

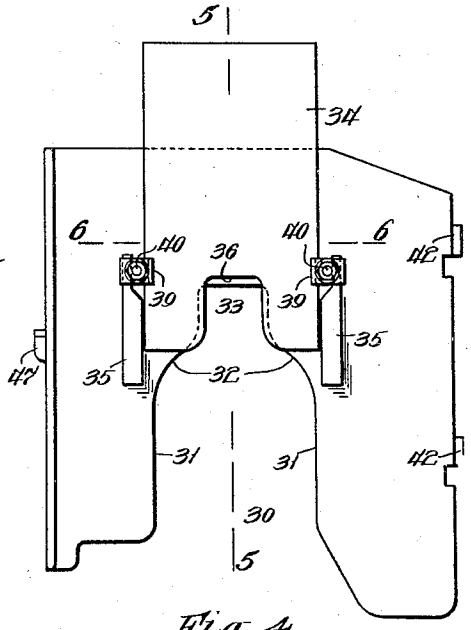


Fig. 4.

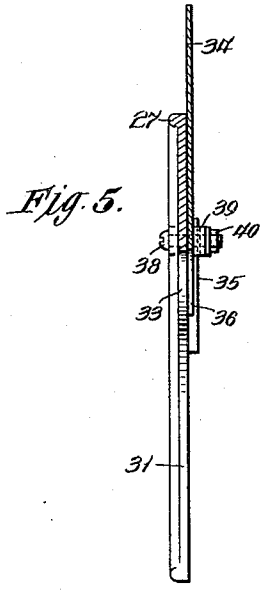
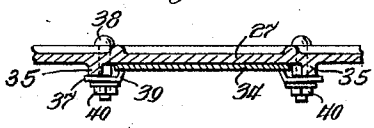


Fig. 5.

Fig. 6.



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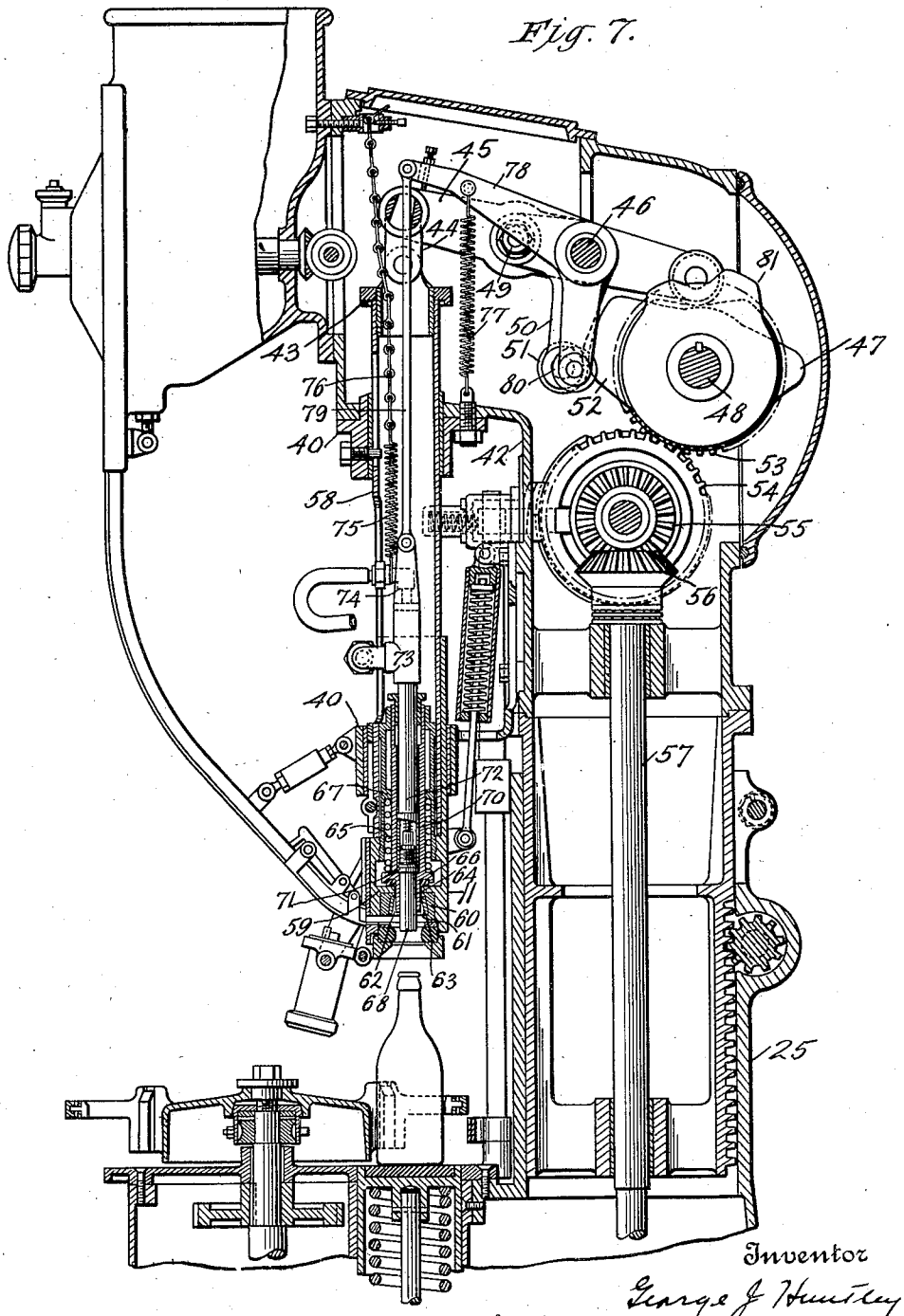
Sept. 4, 1923. 1,466,722

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PACKAGING APPARATUS

Filed Sept. 24, 1920 3 Sheets-Sheet 3

Fig. 7.



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Patented Sept. 4, 1923. 1,466,722

UNITED STATES PATENT OFFICE.

GEORGE J. HUNTLEY, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE CROWN CORK AND SEAL COMPANY OF BALTIMORE CITY, OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND.

PACKAGING APPARATUS.

Application filed September 24, 1920. Serial No. 412,533.

To all whom it may concern:

Be it known that I, GEORGE J. HUNTLEY, a subject of Great Britain, residing at Baltimore city, State of Maryland, have invented certain new and useful Improvements in Packaging Apparatus, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to packaging apparatus.

In bottling charged liquids the bottles sometimes burst while being filled. In order to protect the operator from flying glass, guards or shields have been used but they are subject to various objections. For example, with bottle guards as heretofore known, it has been necessary to provide means for moving the guard into and out of position for each bottle filled.

It is the principal object of the present invention to provide a packaging apparatus having a bottle guard that avoids the movement mentioned, and, at the same time, one that effectively performs its proper function.

With this general object in view the invention consists in the combinations, details of construction and arrangements of parts which will first be described in connection with the accompanying drawings and then more particularly pointed out.

In the drawings—

Figure 1 is a view in elevation with parts in vertical section, of so much of a packaging machine as is necessary to an understanding of the invention.

Figure 2 is a cross-sectional view taken on the broken line 2—2 of Fig. 1.

Figure 3 is a view in front elevation of the bottle guard, looking in the direction of the arrow 3 of Fig. 1.

Figure 4 is a view of the bottle guard in rear elevation.

Figure 5 is a sectional view taken on the line 5—5 of Figure 4.

Figure 6 is a similar view taken on the line 6—6 of Fig. 4, and

Fig. 7 is a vertical sectional view through a packaging apparatus, the bottle guard being removed.

Referring to the drawings, the apparatus here illustrated as an example, includes a filling head and a bottle support capable of relative movement. For example, the packaging head may be reciprocated toward and away from the bottle. In the present embodiment, above the bottle support hereinafter referred to is a packaging head including a hollow plunger 58 slidable in bearing brackets 40 on a support 42, carried by a base or standard 25. Threaded into the top of plunger 40 is a nut 43 connected by a link 44 with a rocking lever 45 fulcrumed on a shaft 46. The other arm of lever 45 carries a roller running on a cam 47 driven by cam shaft 48. Pinned to the lever 45 as at 49 is a second lever 50 having a roller 51 running on a cam 52 also on cam shaft 48. Through the mechanism described the plunger 11 is reciprocated as hereinafter more fully referred to. The cam shaft 48 is driven by a gear 53 meshing with a gear 54 the hub of which is secured to a bevel pinion 55. This pinion is rotated by a bevel gear 56 on a vertical shaft 57 which may be driven in any suitable manner.

In the present embodiment, the plunger 58 carries a tubular head member 11. The latter has an internal shoulder 59 and below this shoulder is located a throat carrier 60 with a conical throat ring or capping die 61. In the throat is a crown chamber 62 below which is a crown platform plate 63. Extending into the capping die is a capping plunger 64 tubular in form to accommodate a nozzle. The capping plunger is relatively movable in the head and is normally held in its lowermost relative position by a spring 65. This spring, which is under some initial compression, bears against a shoulder 66 on the capping plunger and against a shouldered guide sleeve 67.

In the embodiment here illustrated, slidable in the capping plunger 64 is a nozzle 68. This nozzle is connected by means of a coupling with a tube 70 which forms a continuation of the bore of the nozzle. The upper end of the nozzle is embraced by a shouldered collar 71 which seats within the capping plunger above its shoulder and is threaded into a liquid supply tube 72. The nozzle has a spiral channel opening into the interior of collar 71 to communicate with the supply tube. This supply tube is threaded into a coupling 73 communicating with a suitable source of supply. Threaded into

the top of tube 70 is an elbow coupling 74 communicating with a suitable receiver for displaced air and free gas. Connected to this elbow is a spring 75 connected to an anchored chain 76 by which the tube is suspended. As the packaging head descends through the cam and lever mechanism described, the tube 70 and coupling 73 descend with it by virtue of a spring 77, the nozzle unit also descending. Spring 77 acts on a rocker arm 78 connected by a link 79 with coupling 73. Rocker arm 78 carries a roller 80 actuated by a cam 81 on cam shaft 48 for elevating the parts connected with link 79.

Certain features of the above described packaging head are claimed in applicant's co-pending application, Ser. No. 468,233.

There is provided means for feeding bottles to and from filling positions. Such means may include a rotary spider having a number of bottle receiving pockets. Although capable of various constructions, as shown in the present embodiment, located above a stationary table 13 is a bottle feeding spider 14, having a plurality of spaced bottle receiving pockets 15. This spider is rotated with a step by step movement to carry the bottles to and from filling position. To this end, in the present exemplification, the spider is mounted on a vertical shaft 16 rotated by a ratchet 17. Cooperating with the ratchet is a pawl 18 on a pawl carrier 19. This carrier is hung from shaft 16 by an arm 20. To actuate the pawl carrier, a link 21 connects the carrier with a pivoted lever 22. This lever is moved in one direction as here shown by a cam 23 mounted on a suitably rotated shaft 24 and in the opposite direction by a spring 25'. Shaft 24 may be rotated in any suitable manner.

Bottles placed in the pockets 15 at a point removed from the head, are fed step by step across the table 13 onto the plunger 12. During the pause of the feeding mechanism the head is lowered to the bottle for the packaging operation and is thereafter elevated. The next stroke of the spider moves the filled bottle away from filling position and delivers the next one for filling.

There is provided a normally stationary bottle guard capacitated to permit movement of the bottles into and out of filling position. In structures embodying the invention to the best advantage the bottle guard is in the form of a wall for enclosing the bottle being filled and having a gateway for the passage of the bottles. Although capable of various constructions, in that here illustrated as an example, mounted as hereinafter described, on a stationary support 25, are two curved shell plates 27 and 28. These shell plates, as appears in Fig. 2, form a wall or enclosure that extends out over the table 13 and encloses the bottle A which is being filled. This wall is of a vertical height to extend considerably above the top of the bottle, as appears in Fig. 1. In the present embodiment, the shell plate 28 is bulged or curved outwardly sufficiently to enclose also the bottle next succeeding the bottle being filled. This bottle, designated by B, may be receiving syrup while the bottle A is being filled.

To permit passage of the bottles, the wall or enclosure is provided with an in-gateway and an out-gateway and in structures embodying the invention to the best advantage, the gateways substantially conform in outline to the shape of the bottles. To this end, in the present embodiment, each shell plate has a gateway 30, that in plate 28 for the in-feeding bottles and that in plate 27 for the out-feeding bottles.

As the bottle guard here shown is for use with bottles of the ordinary shape, the sides 31 of the gateways are parallel and are spaced apart sufficiently to pass the bottles. Near the top the sides 31 are curved inwardly, as at 32, to conform to the shoulder of the bottles. The gateways terminate in a narrowed portion 33 corresponding to the bottle neck. With the construction described there is substantially no unnecessary opening in the guard and the bottles themselves aid in protecting the operator from flying glass.

There is provided means for adjusting the size of the gateway, so that it may conform substantially to the outline of the bottles being filled regardless of the size of the bottle. This may be accomplished in various ways, as for example, by forming the gateway to accommodate the largest bottles to be used and providing a movable gate for reducing the size of the gateway. Although capable of various constructions, in that here illustrated, associated with each gateway is an adjusting gate in the form of a plate 34 slidable in guide lugs 35 carried by the shell plates. At the bottom of each gate, is formed a notch 36 substantially conforming to the neck portion 33 of the gateway. For a smaller bottle, the gate is lowered to such position that its notch 36 will pass the bottles and the gateway still conforms substantially to the shape of the bottles. With the construction described bottles of various sizes, as for example, quarts, pints and splits, may be used with the same apparatus without sacrifice of any protecting effect of the bottle guard.

Means is provided for holding the gate 34 in any given position. Although capable of various constructions, in that here shown as an example, a pair of spring washers 37 are mounted on bolts 38 located on opposite sides of the gate. These washers have lugs 39 for engaging the gate 34 and they are locked in holding position by nuts 40 on the

bolts 38, which clamp the washers against lugs 35 on the shell plate.

There is provided means for mounting the bottle guard so that it may be moved out of normal position to provide access to the bottle being filled, the filling head, and the like.

In structures embodying the invention to the best advantage, the shell plates are pivoted to the support 25 to swing apart. Although capable of various constructions, in that shown in the present embodiment, on the rear edge of each shell plate 27, 28 are formed two spaced bosses 42. These rest on like bosses 43, formed on a bracket 44 which is attached to the support 25 in any suitable manner. Passing through the bosses 42, 43 are headed pintles 45.

With the construction described, the shell plates can swing toward and away from each other. When brought together, they form an enclosure for the bottle being filled; when swung apart they permit access to the parts normally enclosed.

In order to latch the two plates 27, 28 together to normally hold them closed, there is provided, in the present embodiment, on one of the front adjoining edges of the shell plates, a latch 46 which takes over a lug or block 47 on the adjacent edge of the other plate.

With a construction as above described, the operator is effectively protected by a guard or shield that is relatively stationary; the guard is readily opened to provide access to the parts enclosed; and it is easily attached to machines already in use.

Claims.

1. In a packaging apparatus, and in combination, a filling head, means for feeding bottles into and out of filling position beneath said head, a stationary bottle guard for enclosing the bottle being filled and having a gateway for the passage of the bottles, and means for adjusting the size of the gateway.

2. In a packaging apparatus, and in combination, a filling head, means for feeding bottles into and out of filling position beneath said head, a stationary bottle guard for enclosing the bottle being filled and having a gateway for the passage of the bottles, a slidable plate for varying the size of the gateway, and means for holding said plate in a given position.

3. In a packaging apparatus, and in combination, a filling head, means for feeding bottles into and out of filling position beneath said head, a support, two shell plates pivoted to said support to swing toward and away from each other, and forming, when brought together, a bottle guard for enclosing the bottle being filled, each of said shells having a gateway for the passage of the bottles.

4. In a packaging apparatus, and in combination, a filling head, means for feeding bottles into and out of filling position beneath said head, two brackets for attachment to a support, and shell plates pivotally mounted on said brackets to swing toward and away from each other, and forming, when brought together, a bottle guard for enclosing the bottle being filled, each of said shells having a gateway for the passage of the bottles.

5. In a packaging apparatus, and in combination, a filling head, means for feeding bottles into and out of filling position beneath said head, a support, and two shell plates, normally stationary in bottle enclosing position and mounted on said support to be movable into and out of bottle enclosing position, each of said shell plates having a gate-way for the passage of the bottles.

In testimony whereof, I have hereunto set my hand.

GEORGE J. HUNTLEY.