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S. L. GOLDMAN

BOTTLE CLOSURE APPLYING DEVICE

Filed Jan. 26, 1922

2 Sheets-Sheet 1

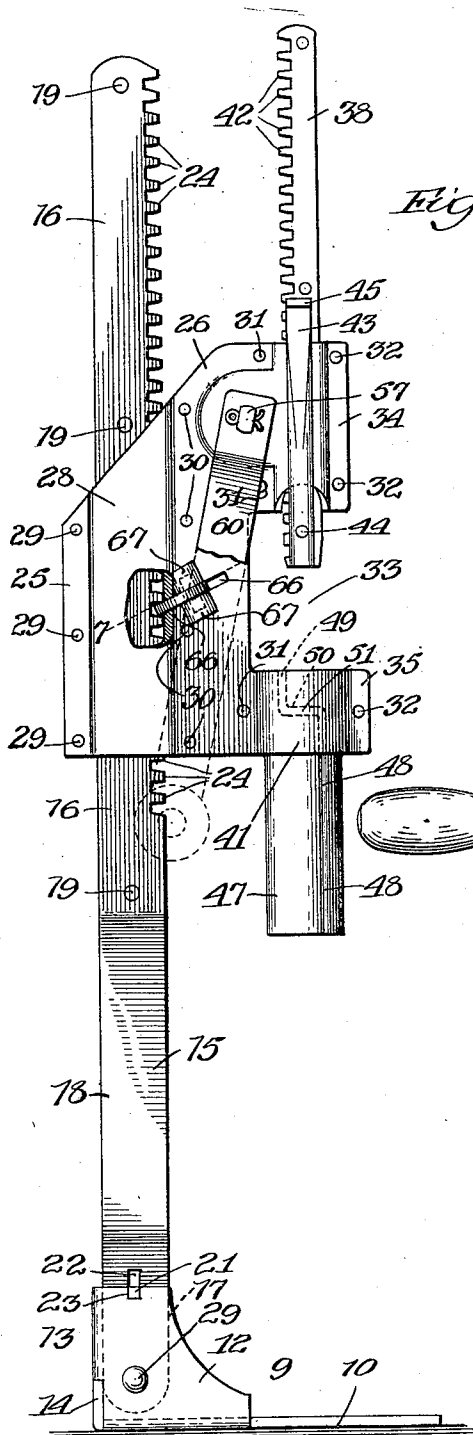


Fig. 1.

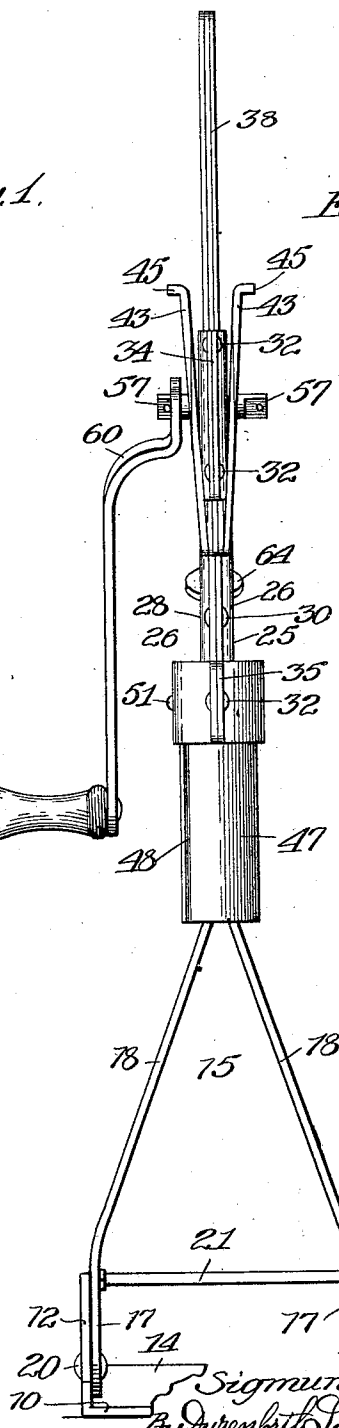


Fig. 2.

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UNITED STATES PATENT OFFICE.

SIGMUND L. GOLDMAN, OF CHICAGO, ILLINOIS.

BOTTLE-CLOSURE-APPLYING DEVICE.

Application filed January 26, 1922. Serial No. 531,958.

To all whom it may concern:

Be it known that I, SIGMUND L. GOLDMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Bottle-Closure-Appling Devices, of which the following is a specification.

My invention relates generally to bottle-closure-applying devices, and as to certain features thereof to devices adapted more particularly for applying corks to sealing position in the mouths of bottles.

One of my objects is to provide in bottle-closure-applying devices of the type employing an upright supporting in position thereon, a head, or slide, in which the closure-engaging member is movable, improvements in the means for holding the head, or slide, in the desired position of vertical adjustment on the upright. Another object is to provide a novel, simple and inexpensive construction of bottle-corking device. Another object is to provide a bottle-corking device by which the operation of corking a bottle may be quickly and accurately performed, regardless of the height of the bottle to be corked, within the range of sizes of bottles for use in connection with which the devices are designed to operate; another object is to provide improvements whereby the corks will be inserted to a uniform predetermined position in the mouths of the bottles; and other objects as will be understood from the following description.

Referring to the accompanying drawings:

Figure 1 is a view in side elevation of a bottle-corking machine constructed in accordance with my invention, the operating handle therefor and a part of the head being broken away, and the cork-guide being shown in the position to which it may be moved for preventing it from dropping out of engagement with the head, or slide. Figure 2 is a view in front elevation of the structure shown in Fig. 1, with a portion of the base broken away. Figure 3 is a view in sectional side elevation of the structure shown in the preceding figures. Figure 4 is a broken front view of the structure shown in Fig. 3, with certain of the parts thereof sectioned. Figure 5 is a broken front view of the parts shown in Fig. 4, the positions of the parts shown in this figure being those assumed in the final movement of effecting the corking operation, certain parts of the

structure being shown in section. Figure 6 is an enlarged section taken at the line 6 on Fig. 3 and viewed in the direction of the arrows; and Figure 7 is an enlarged broken section taken at the line 7 on Fig. 1 and viewed in the direction of the arrow.

Referring to the construction shown in Figs. 1 to 7 inclusive, the device comprises a base represented at 9, this base being formed of a plate-portion 10 preferably provided with openings 11 therethrough at which the base may be attached, as through the medium of screws, one being shown at 11^a, to a support, as for example a table, if desired. The opposite side edges of the plate 10 adjacent the rear edge thereof, is provided at its rear edge with an inwardly-projecting plate-like portion 13, these parts extending in a direction toward each other and reaching short of the plate 10. The rear edge of the plate 10 is provided with an upwardly-extending flange 14 which extends immediately beneath, and closely adjacent to, the portions 13, whereby the flange 14 acts as a stop in conjunction with the portions 13, the plate-portions 12 and flanges 13 and 14 being preferably formed integrally with the plate 10. The device also comprises an upright represented generally at 15 and which, in the particular construction shown, is formed of a pair of bars each having a flat upper portion 16, a flat lower portion 17 laterally offset from the portion 16 as shown in Fig. 2, and an outwardly-inclining portion 18. The bars fit flatwise together at their portions 16 at which they are secured against displacement by rivets 19, the upright 15 extending at its portion 17 into the space provided between the plate-portions 12 and being pivotally connected to the latter as through the medium of the rivets 20, adapting the upright to be swung on the base from vertical position to horizontal position and vice versa. The upright 15 is shown as provided with a locking bar 21 extending through vertically elongated slots 22 in the portions 17 of the upright, this bar in the vertical position of the upright extending at its extremities into upwardly-opening slots 23 provided in the upper edges of the portions 12, this bar being adapted to be raised out of the slots 23 to free the upright for movement to horizontal position.

The upper portion of the upright 15 is shown as provided, along one edge, with rack-teeth 24, these teeth being formed in

both of the bar portions 16 and serving, in connection with means hereinafter described to hold the head, or slide, of the device, in vertically-adjusted position.

5 The vertically adjustable head referred to is represented at 25, this head being shown as formed of a pair of sheet metal plates 26 which fit flatwise together. These plates are deflected in opposite directions, as represented at 27, to provide a vertically-disposed guideway 28 at which the head 25 surrounds the rack portion of the upright 15, these plates being riveted together at opposite sides of the upright, as indicated at 29 and 30. these plates being also riveted by vertical rows of rivets, represented at 31 and 32. The plates 26 are recessed along one edge, as represented at 33, thereby affording upper and lower projections 34 and 35. 15 The plates 26 at the portion 34 of the head are deflected outwardly in opposite directions, as represented at 36, to afford a vertically disposed channel 37 in which a plunger 38 is vertically movable, the channel 37 opening laterally into a substantially circular recess 39 provided between the plates 26 and formed by outwardly deflecting the metal as shown and above stated. The plates 26 at the portion 25 of the head and 20 between the rivets 31 and 32, are deflected outwardly in opposite directions, as represented at 40, to provide a substantially circular vertically-disposed channel represented at 41.

35 The plunger 38 comprises a rack bar 42 located and vertically movable, in the channel 37, this bar being provided with fingers 43 which fit flatwise against the outer, opposite, surfaces of the bar 42 and are secured thereto at their lower ends as by the rivet 44. The surfaces of the bar 42 against which the fingers 43 extend are beveled as indicated, whereby these fingers diverge upwardly, their upper ends being provided 45 with outwardly-extending shoulders or stop surfaces, represented at 45. The fingers 43 extend exteriorly of the plates 26, the latter being beveled at their lower portions as represented at 46 to avoid obstruction to the movement of the plunger. 50

The device shown also comprises a cork guide shown as a cylindrical member 47 mounted in the channel 41 to be rotatable and longitudinally movable therein, the 55 outer surface of the guide 47 containing a groove formed of two portions 48 and 49 extending lengthwise of the guide and throughout the length of the latter, and a cross, connecting, portion 50 whereby the guide is provided with a groove in its outer surface extending end to end of the guide, but of zigzag formation. The wall of the channel 41 is provided with a pin 51 which extends at its inner end into the groove thus 60 provided in the guide, for a purpose herein-

after described. The guide 47 contains an opening extending entirely therethrough from top to bottom, this opening being formed of the downwardly-tapering portion 52 which extends throughout the greater 70 height of the guide, and the cylindrical portion 53 at the lower extremity of the guide which is of considerably larger diameter than the lower end of the portion 52 of the opening. 75

The plunger 38 cooperates with means for forcing it downwardly to properly position the cork in the mouth of the bottle, these means shown comprising a gear 54 containing an opening 55 therethrough and of angular shape at which the gear surrounds, and interlocks with, the angle-shaped portion 56 of a pivot shaft 57 for the gear, which is journaled at its portions 58 in bearing portions 59 formed in the opposed 80 plates 26, the metal of these plates being preferably deflected outwardly as shown in forming the opening through these plates to receive the shaft 57. 85

Washers, as for example of brass and 90 represented at 58^a surround the portions 58 of the shaft and are interposed between the gear 54 and the adjacent surfaces of the plates 26 to prevent rusting of the gear 54 to the plates 26. The gear 54 meshes with 95 the teeth of the rack 42 and is rotated, for actuating the rack, by means of a crank handle 60 containing an elongated opening 61 at which it fits over the angular-shaped outer end of the shaft 57. 100

In the arrangement shown the means for securing the head 25 in the desired vertically adjusted position on the upright 15 comprises a disk 64 containing a pin 65 located eccentrically of the center of the disk and extending at its opposite ends beyond the upper and lower faces of said disk. In this construction the plates 26 are slotted as indicated at 66 to receive this disk, the slots in these plates extending through a 105 portion of the walls of the channel portion 28, as shown most clearly in Fig. 7. The disk is journaled at the pin 65 in the plates, and to this end the plates are outwardly deflected both above and below the plane of the disk 64, as represented at 67, the pin being journaled in the space provided between these deflected portions. The proportions of the parts just described are such that 120 when the disk 64 is rotated to the position shown in Fig. 1, an edge of this disk will extend into the space between adjacent teeth of the rack 24 and thereby hold the head 25 in vertically-adjusted position thereon, and when the disk is rotated 125 throughout one-half a revolution, the disk will be withdrawn from the plane of the teeth 24 and offer no obstruction to the vertical movement of the head 25 on the upright. The slot 66 is preferably inclined to 130

the horizontal, as shown in Fig. 1, in order that the disk 64 shall incline to the same degree as the under edges of the teeth 24 whereby in adjusting the disk 64 in the space between adjacent rack teeth the head 25 will be rigidly held in adjusted position on the upright.

In the use of the device, the cork guide 47 would be assembled with the head 25 to a position in which the pin 51 extends into the portion 48 of the groove, thereby permitting of the vertical movement of the guide 47 on the head. The head 25 having been vertically adjusted on the upright 15 to extend at the desired elevation for cooperation with a bottle the upper portion of which is shown at 100, and of a given height, and which is to be corked, the operator, the guide 47 being in the lowered position shown in Fig. 3, inserts a cork into the upper end of the opening 52, the cork, which is represented at 68, occupying substantially the position shown in Fig. 3. The dotted cork shown in this figure represents the cork in one of the positions it occupies in being introduced into the guide 47. The cork having been introduced into the guide 47, and the rack 42 being in raised position, the operator slides the guide 47 upwardly and positions the bottle 100 on the base 10, and thereupon slides the guide 47 downwardly on the head 25 to a position in which the mouth of the bottle extends into the recess 53. The operator then actuates the gear 54, through the medium of the handle 60, to depress the plunger the lower end of which engages with the cork 68 and forces the latter through the lower end of the opening 52 and into the mouth of the bottle as shown in Fig. 5, the downward movement of the plunger being arrested by the engagement of the shoulder portions 45 with the upper edge of the guide 47 as shown in Fig. 5 whereby the cork 68 is introduced into the mouth of the bottle to a predetermined point. The corking operation having been performed, the operator reverses rotation of the gear 54 to withdraw the plunger to the position shown in Fig. 3, removes the corked bottle and introduces another cork into the guide 47 for repetition of the operation stated.

The opening 52 through the guide 47 is preferably of a cross sectional area at its lower end, immediately above the portion 53, less than the cross-sectional area of the mouth of the bottle whereby the cork 68 is caused to be so compressed that it is considerably smaller than the mouth of the bottle.

It will be noted that the shaft 57 is flattened at both ends and the handle 60 is removably connected with this shaft, it being held against displacement thereon by the cotter pin as shown. This feature permits of the ready attachment of the handle 60

to either end of the shaft and the shifting of the same from one end to the other as desired to render the device operable from either the left or the right hand side.

It is of advantage to employ an upright having a rack portion as described through the medium of which the head 25 is adjusted thereon in different vertical positions, inasmuch as thereby the upright may be used interchangeably with corking mechanism, and with seal-applying riders or slides such as are commonly known and involving a toothed member pivotally supported on the slide or rider and engaging at its teeth with the teeth of the rack, rotation of the toothed member serving, by its engagement with the rack, to effect vertical movement of the rider or slide on the upright. Thus it is only necessary to furnish one upright with a set of bottle-corking and seal-applying, or capping devices, with the manifest advantage of economy of construction.

When it is desired to remove the slide 47 for any purpose this may be readily effected by rotating, and drawing down on the slide, to disengage the groove in the latter from the pin 51, the connection between the slide 47 and the head 25 being in the nature of a bayonet joint.

A corking device constructed in accordance with my invention is not only of simple and economical construction, but is positive in operation and permits of the corking of bottles with the maximum ease and with great rapidity.

While I have illustrated and described a particular construction embodying my invention, together with a modification thereof, I do not wish to be understood as intending to limit it thereto as various changes and alterations may be made therein and various other modifications presented without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is:

1. In a bottle-corking device, the combination of a head, a cork-guide having bayonet slot engagement with said head and movable up and down on said head, and a plunger adapted to engage a cork in said cork-guide.

2. In a bottle-corking device, the combination of a head provided with a cork-guide, a plunger adapted to be moved in said cork-guide, said plunger having a bar-portion guidingly engaging said head and a finger secured at its lower end to said bar and located exteriorly of said head, said finger being provided with a stop surface adapted to engage said cork-guide for limiting movement of said plunger in said guide.

3. In a bottle-corking device, the combination of a head provided with a cork-guide, a plunger adapted to be moved in said cork-

guide, said plunger having a bar-portion guidingly engaging said head and provided with rack teeth, and a finger secured at its lower end to said bar and located exteriorly of said head, said finger being provided with a stop surface adapted to engage said cork-guide for limiting movement of said plunger in said guide, and a toothed rotatable member meshing with said teeth for reciprocating said bar.

4. In a bottle-closure-applying device, the combination of an upright having a toothed portion, a slide on said upright, said slide containing a slot intersecting the plane of said teeth, and a disk in said slot and rotatable on said slide into and out of intersection with said teeth.

5. In a bottle-closure-applying device, the combination of an upright having a toothed portion, a slide on said upright, said slide containing a slot intersecting the plane of said teeth, and a disk located in said slot and eccentrically journaled on said slide, for the purpose set forth.

6. In a bottle-closure-applying device, the combination of an upright having a toothed portion, a slide on said upright, said slide

being formed of flatwise-opposed plate portions and containing a slot intersecting the plane of said teeth, and a disk in said slot, said disk having a journal, a portion of said slide being deflected outwardly to form a space between said plate portions in which said journal is journaled.

7. In a bottle-closure-applying device, the combination of an upright having a toothed portion, a slide on said upright, said slide being formed of flatwise-opposed plate portions and containing a slot intersecting the plane of said teeth, and a disk in said slot, said disk having a journal, opposed portions of said plate-portions being deflected outwardly to form a space between said plate-portions in which said journal is journaled.

8. In a bottle-closure-applying device, the combination of an upright having a toothed portion, a slide on said upright, said slide being formed of flatwise-opposed plate portions and containing a slot intersecting the plane of said teeth, and a disk in said slot, said disk having journals at its opposite faces, journaled in said slide between said plate portions.

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