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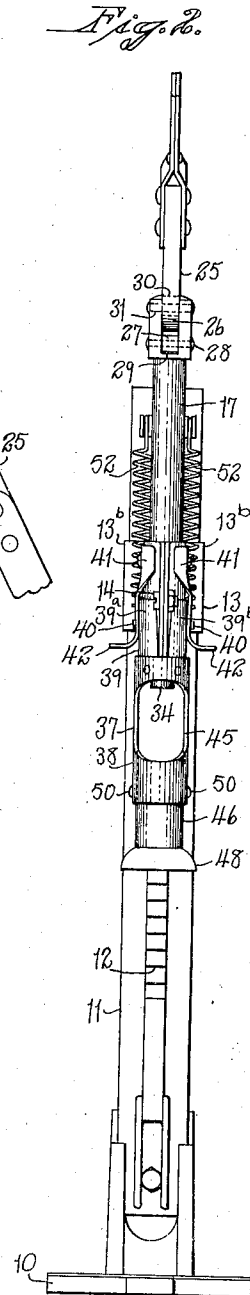
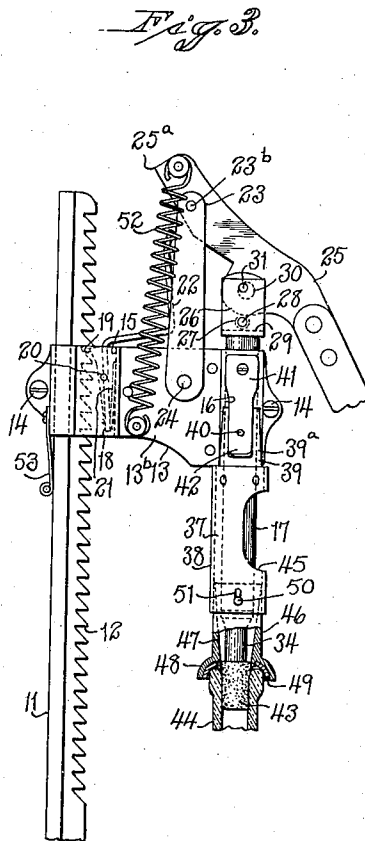
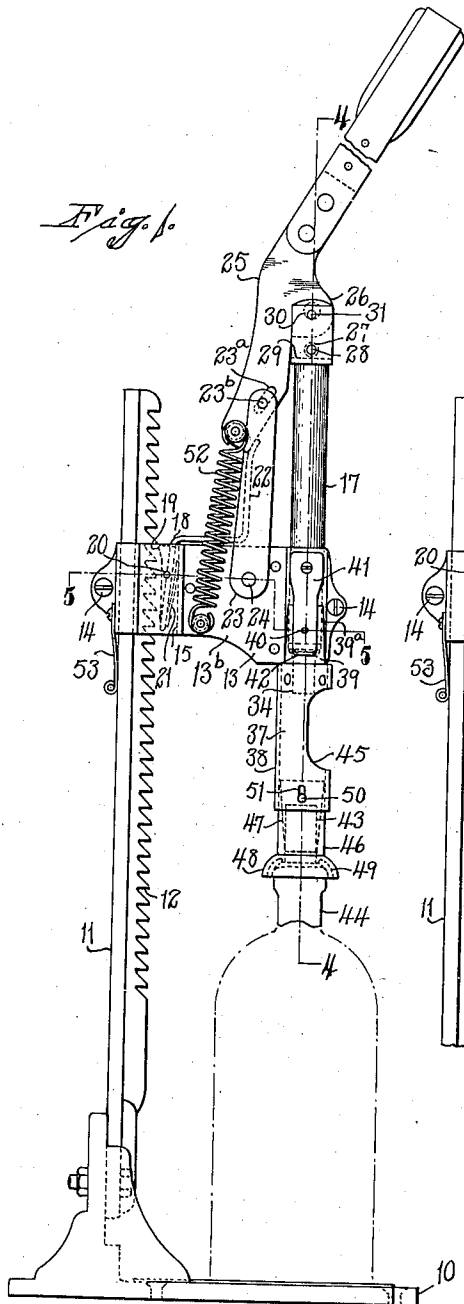
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1,990,301

DEVICE FOR APPLYING BOTTLE CLOSURES, ETC

Filed July 10, 1933

2 Sheets-Sheet 1



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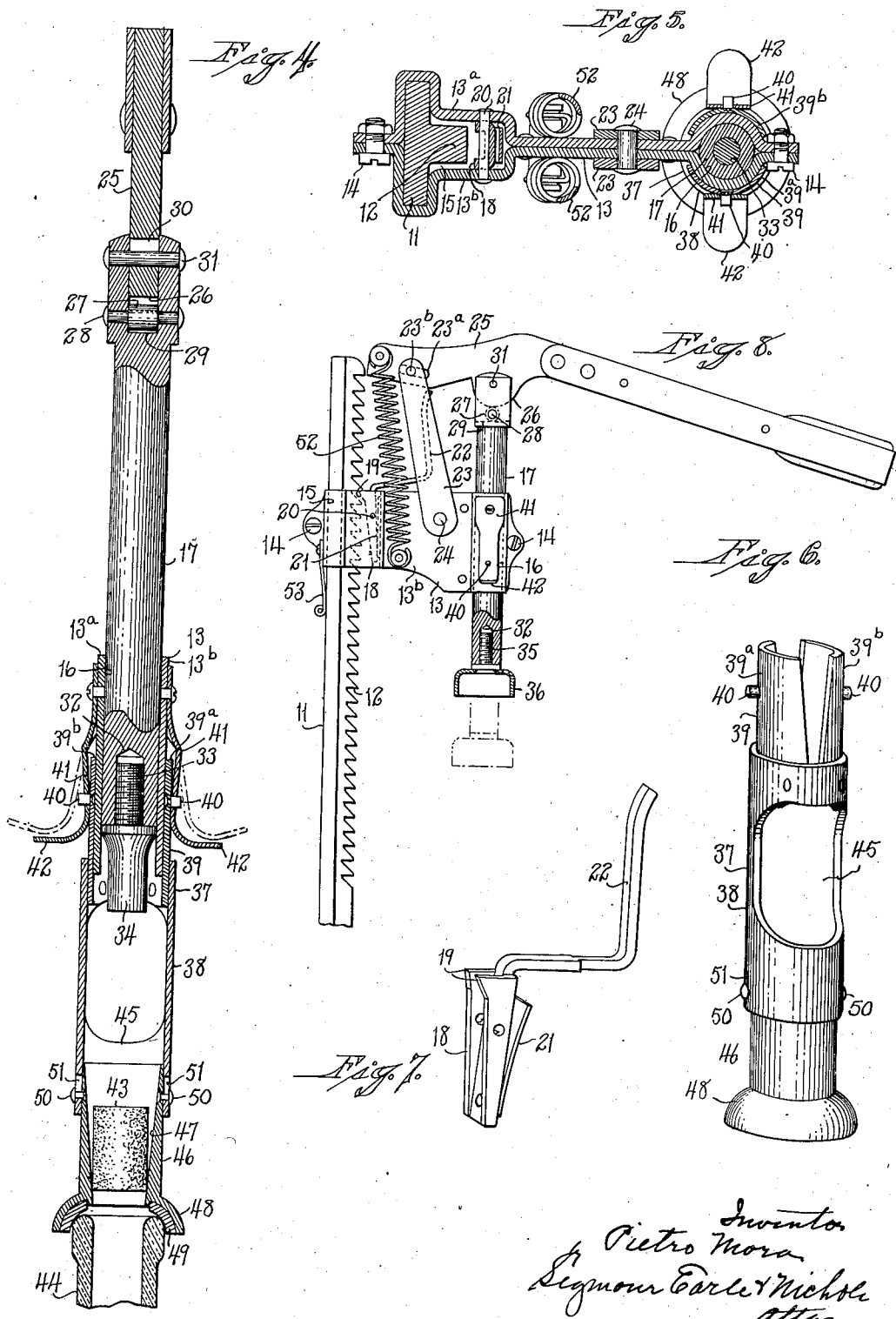
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DEVICE FOR APPLYING BOTTLE CLOSURES, ETC

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2 Sheets-Sheet 2



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DEVICE FOR APPLYING BOTTLE
CLOSURES, ETC.Pietro Mora, West Haven, Conn., assignor of one-
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4 Claims. (Cl. 226—89)

This invention relates to an improvement in machines or devices for applying closures such, for instance, as corks and caps to bottles and other containers.

One of the objects of the present invention is to provide a superior device for the insertion of corks into bottles, etc., which may be effectively operated by relatively unskilled persons.

Another object is to provide a device of the class described, which may be readily employed either for inserting corks or applying caps to bottles and other containers.

A further object is to provide a device of the class described having superior ease of adjustment.

Other objects and advantages will appear to those skilled in the art, considered in conjunction with the accompanying drawings and appended claims.

In the accompanying drawings:

Fig. 1 is a view in side elevation of one form which a device embodying the present invention may assume, the plunger being shown in its elevated position preparatory to the insertion of

a cork into a bottle;

Fig. 2 is an edge view thereof;

Fig. 3 is a broken view in side elevation showing the plunger depressed to insert a cork into a bottle;

Fig. 4 is a vertical, sectional view taken on the line 4—4 of Fig. 1, but on a larger scale;

Fig. 5 is a horizontal, sectional view taken on the line 5—5 of Fig. 1, but on a larger scale;

Fig. 6 is a perspective view of a corking fixture, detached;

Fig. 7 is a perspective view of the locking-unit, detached; and

Fig. 8 is a broken view in side elevation showing the device converted for applying caps to bottles and the like.

The device herein chosen for the illustration of the present invention includes a base 10 having rigidly secured to it a vertical standard 11 of T-shaped form in cross-section and provided with

a vertical series of ratchet-like locking-teeth 12. Mounted upon the standard 11 with capacity for vertical movement thereon is a forwardly-offsetting bracket, generally designated by the

reference character 13 and comprising two complementary sheet-metal plates 13^a and 13^b arranged in opposition and secured together into

a unit by bolts 14 or other suitable means. The plates 13 are suitably formed or pressed so that

when assembled together, as shown particularly

in Fig. 5, they cooperate at their inner ends

to form a guide-passage 15 receiving the standard 11, and cooperating at their outer ends to form a cylindrical guide-passage 16, for the reception of a plunger 17.

The forward portion of the passage 15 in the bracket 13 also accommodates a latch 18 formed of sheet-metal and folded as shown into U-shaped form in cross-section to provide a pair of ratchet-like locking-teeth 19—19 adapted to interengage with the teeth 12 of the standard 11, as will hereinafter appear. The said latch 18 is pivotally mounted on a transverse pin 20 extending through the respective plates 13^a and 13^b of the bracket 13, and is also provided with a spring-finger 21 which bears against the forward wall of the passage 15 and exerts a constant effort to swing the said latch in a direction required to engage its teeth 19—19 with the teeth 12 of the standard.

The latch 18 is also provided with a forwardly-and-upwardly-offsetting operating-arm 22 adapted to be accommodated between a pair of complementary spaced-apart links 23—23 which are pivotally connected at their lower ends by means of a pin 24 to the bracket 13, and pivotally connected at their opposite ends to an operating-lever 25 adjacent the rear end thereof by means of a slot 23^a in the said lever and a pin 23^b carried by the said links.

The operating-arm 22 of the latch 18 is normally engaged by the nose 25^a of the lever 25, as indicated in Fig. 1, for the purpose of holding the teeth 19—19 of the said latch out of engagement with the teeth 12 of the standard 11, to thus permit the bracket 13 and the parts carried thereby to be conveniently shifted vertically.

The operating-lever 25 is provided with a downwardly-extending thrust-lug 26 having a rounded periphery, as shown, and adapted to bear against a roller 27 rotatably mounted by means of a pin 28 in a groove 29 in the upper end of the plunger 17, before referred to, and into which the thrust-lug 26 extends for engagement with said roller, as clearly shown in the drawings. The thrust-lug 26 of the operating-lever 25 is also provided with a transverse passage 30 through which extends a limiting-pin 31 mounted in the upper end of the plunger 17 and serving to prevent the displacement of the said thrust-lug from the groove 29, while at the same time permitting sufficient freedom of movement between the lever and plunger.

The lower end of the plunger 17 is provided with an internally-threaded axial socket 32, which is adapted to interchangeably receive 55

either the threaded stem 33 of a corking-head 34 or the corresponding stem 35 of a capping-head 36 (Fig. 8).

Removably secured to the bracket 13, as shown in Figs. 1 to 4 inclusive, is a tubular corking fixture, generally designated by the reference character 37 and comprising a tubular body 38 having secured to its upper end a coupling-tube 39 having a pair of complementary upwardly-projecting coupling-fingers 39^a—39^a integrally united at their lower ends and transversely curved to snugly fit the periphery of the adjacent portion of the bracket-plates 13^a and 13^b as clearly shown in Fig. 5.

Each of the coupling-fingers 39^a of the corking fixture is provided with an outwardly-projecting stud 40 adapted to enter a suitable perforation in the adjacent one of a pair of spring-coupling-fingers 41—41 secured at their upper ends to the respective bracket-plates 13^a and 13^b and outwardly flared at their lower ends as at 42 to permit them to be manually sprung outwardly into the position in which they are indicated by dotted lines in Fig. 4, so as to release the corking fixture 37 and permit its removal from the bracket 13. As mounted on the device as shown, the corking fixture 37 is arranged coaxially with the plunger 17 so that the corking-head 34 carried thereby may press downwardly therethrough for inserting a cork 43 into a receptacle such, for instance, as a bottle 44.

The tubular body 38 of the corking fixture 37 is provided in its front face with a loading-opening 45 through which corks may be inserted into the interior of the fixture for being subsequently forcibly inserted into a bottle or other receptacle. Telescopically fitting within and depending from the lower end of the body 38 of the said corking fixture with capacity for slight relative axial movement, is an extension-tube 46 having a downwardly-and-inwardly-tapered bore 47 for the guidance of corks and having its extreme lower end flared as at 48 and internally lined with a lead facing or other suitable buffer 49 designed to engage the upper end of a bottle. The said extension-tube has limited axial movement with respect to the body-member 38 to which it is coupled for such movement by diametrically-opposite studs 50—50 extending outwardly therefrom and through vertically-extending slots 51—51 in the lower end of the said body-member 38.

The said axial movement of the tubular extension-tube 46 relatively to the tubular body-member 38, permits the lower end 48 to remain in holding and aligning engagement with a bottle such as 44, even when the position of pawl-teeth 19 happens to be below engaging position with ratchet-teeth 12 prior to such engagement and prior to the start of the cork-applying stroke of lever 25.

For the purpose of normally holding the operating-lever 25 in its elevated position, as shown in Fig. 1, a pair of complementary helical springs 52—52 are connected at their upper ends to the rear end of the said lever and at their lower ends are coupled to the respective opposite sides of the bracket 13.

When the operating-lever 25 is in its upraised position, the bracket 13 is not positively coupled to the standard 11, but the said bracket will remain in adjusted position on the said standard, due to the cramping action of the weighted outer end of the said bracket which carries the lever 25 and plunger 17 and associated parts, the

weight of these parts tending to depress the free outer end of the bracket and thus cramp its guide-passage 15 on the standard.

To further insure the cramping effect referred to, a sheet-metal spring 53 is secured to said bracket and bears against the inner face of the standard 11, so as to exert a constant effort to cant the said bracket in a direction required to depress the free end thereof.

Let it be presumed that it is desired to employ the device for inserting corks into a bottle, and that, accordingly, the device is equipped with the corking fixture as indicated in Figs. 1 to 5 inclusive. A bottle is placed upon the forwardly-projecting portion of the base 10 in axial alignment with the plunger 17, and the bracket 13, and the parts carried thereby, is adjusted vertically until the flared lower end 48 of the extension-tube 46 has its lining or cushion 49 engaged with the neck of the bottle.

If, now, a cork is inserted into the interior of the corking fixture, through the loading-opening 45 in the body 38 thereof, the same will drop downwardly into the tapered bore 47 of the extension-tube 46, which latter will be preferably so proportioned as to have its lower end slightly smaller than the diameter of the cork 43 and so that the same will be held a slight distance above the neck of the bottle to be corked, as indicated in Fig. 4.

If, now, the operating-lever 25 is swung downwardly from the position in which it is shown in Fig. 1 into the position in which it is shown in Fig. 3, the operating-arm 22 of the latch 18 will be released by the nose 25^a of the said lever to permit the spring-finger 21 to assert itself to swing the latch 18 in the direction required to engage the teeth 19—19 with the ratchet-like teeth 12 of the standard 11, so as to positively prevent at this time the bracket 13 and associated parts from moving upwardly. Concurrently with the latching action just described, the plunger 17 will be depressed so as to engage its corking-head 34 with the upper surface of the cork 43 now lying in the tapered bore 47 of the extension-tube 46. The continued downward movement of the plunger 17 will force the said cork downwardly through the tapered bore 47 and into the opening in the bottle 44; the said tapered bore 47 being preferably proportioned as before described, so as to laterally compress the cork during its downward movement to facilitate its more ready entry into the bottle.

Now upon the operating-lever 25 being released, the same will be returned to its upraised position, in which it is shown in Fig. 1, by the action of the springs 52 and at the same time the operating-arm 22 of the latch 18 will be engaged by the nose 25^a of the lever 25, with the effect of swinging the said latch so as to disengage the teeth 19—19 from the teeth 12 of the standard 11.

If, now, it should be desired to employ the device for applying the common metallic caps to bottles, the corking fixture 37 may be readily removed by spreading the spring coupling-fingers 41 into the positions in which they are indicated by broken lines in Fig. 4, to thus permit the axial downward movement of the said fixture with reference to the plunger 17 and the ultimate total disassociation of the said fixture from the said plunger. The corking-head 34 may now be unscrewed from the plunger and the capping-head 36 attached thereto by threading its stem 35 into the socket 32 in the plunger 75

17, as indicated in Fig. 8. The device may now be operated for capping bottles in substantially the same manner as described for corking, save that the caps, as is the usual custom, are first placed upon the top of the bottle to be capped, and the capping-head 36 subsequently brought downwardly in place thereon to crimp the cap in place in the ordinary manner of bottle capping.

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are therefore to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

I claim:

1. A device of the class described comprising: supporting-means; operating-means; a movable closure-applying member operatively associated with the said operating-means and carried by the said supporting-means with capacity for movement with respect thereto; and a tubular corking-fixture having its upper end readily, detachably connected by spring-coupling means to said supporting-means, and having a lateral loading-opening below its point of connection to receive corks; said tubular corking-fixture when connected to said supporting-means being in position to interiorly receive the said closure-applying means to permit the latter to force corks into bottles, and when disconnected, permitting the device to be used for the application of bottle caps or the like.

2. A device of the class described comprising: supporting-means; operating-means; a movable closure-applying member operatively associated with the said operating-means and carried by the said supporting-means with capacity for movement with respect thereto; and a tubular corking-fixture having its upper end readily, detachably connected by opposed spring-coupling fingers to said supporting-means, and having a

lateral loading-opening below its point of connection to receive corks; said tubular corking-fixture when connected to said supporting-means being in position to interiorly receive the said closure-applying means to permit the latter to force corks into bottles, and when disconnected, permitting the device to be used for the application of bottle caps or the like.

3. A device of the class described comprising: a standard having latching-teeth thereon; a supporting-member slidably mounted upon said standard; a closure-applying member carried by the said supporting-member; latching-means connected to said supporting-member; and operating-means for the closure-applying member, connected to said supporting-member, said operating-means being adapted to be moved to closure-applying position and to inoperative position, and being so constructed and arranged that when it is moved toward closure-applying position it automatically causes said latching-means to move into engagement with the latching-teeth of the said standard, and when moved to inoperative position it automatically causes said latching-means to move out of engagement with the latching-teeth of said standard.

4. A device of the class described comprising: a standard having latching-teeth thereon; a supporting-member slidably mounted on said standard; a closure-applying plunger carried by said supporting-member; latching-means carried by said supporting-member and yieldably urged into engagement with said latching-teeth; and an operating-lever for said plunger, connected to said supporting-member, said operating-lever being adapted to be moved to closure-applying position and to inoperative position, and being so constructed and arranged that when it is moved toward closure-applying position it automatically permits said latching-means to move into engagement with said latching-teeth, and when moved to inoperative position it automatically moves said latching-means out of engagement with said latching-teeth.

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