United States Patent

[11] **3,540,466**

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[33] **Germany**
[31] **1,657,146**

[54] **SAFETY COUPLING FOR CONNECTING A CONTAINER TO A LIQUID DISPENSING APPARATUS**
10 Claims, 9 Drawing Figs.

[52] U.S. Cl. 137/327, 222/561, 251/92, 285/39, 285/258
[51] Int. Cl. F16k 51/00
[50] Field of Search ..... 141/311, 392; 222/(Inquired), 561; 215/(Inquired); 137/Inquired), 327; 251/(Inquired), 92; 285/(Inquired), 39, 258

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ABSTRACT: A bottle is coupled to a liquid dispensing apparatus by a tubular, valved connector whose valve is locked in the closed position unless the connector is attached to the dispensing apparatus or a special key is used. The coupling holding the connector to the bottle can be disengaged only by means of a key inserted through the open valve in the connector, whereby unauthorized withdrawal of liquid from the bottle is made difficult or impossible.

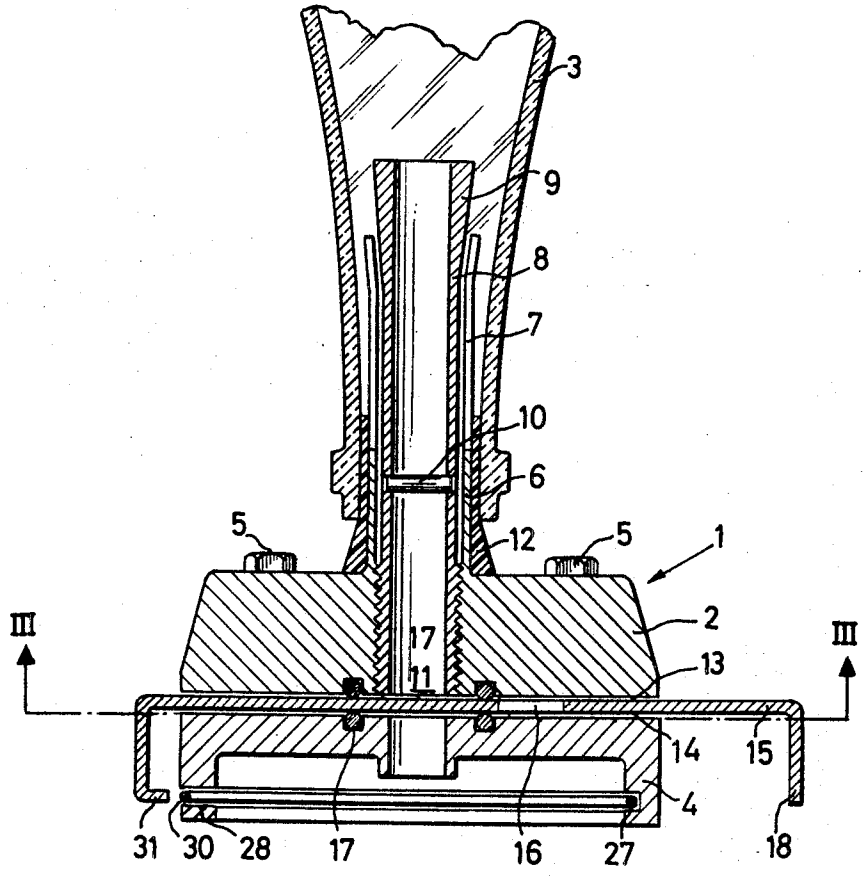


Fig.1.

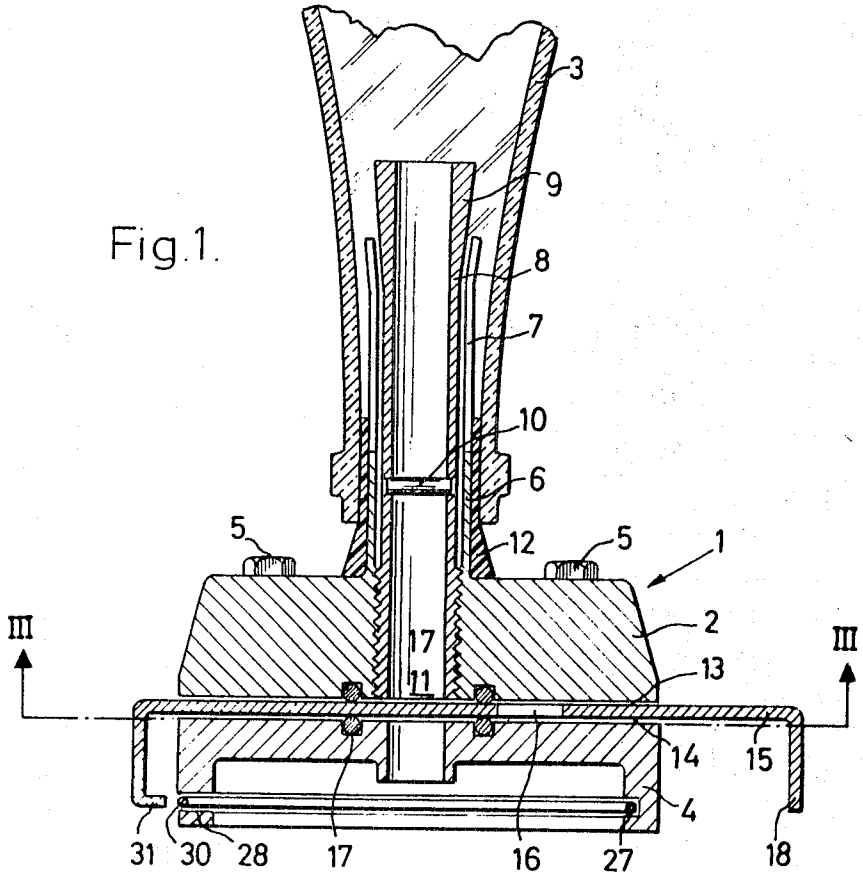
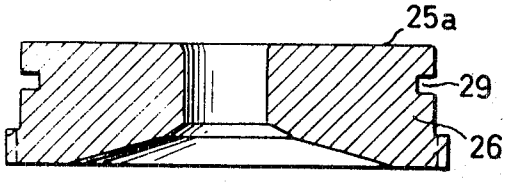


Fig.2.



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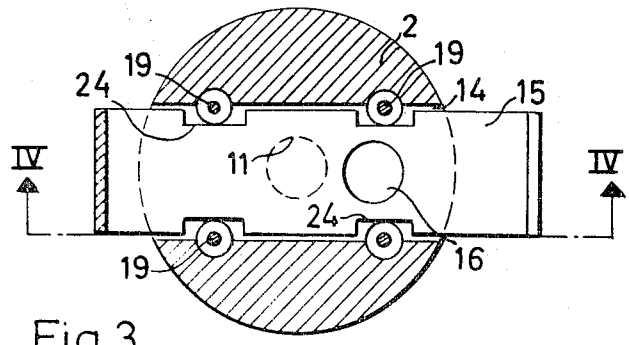


Fig.3.

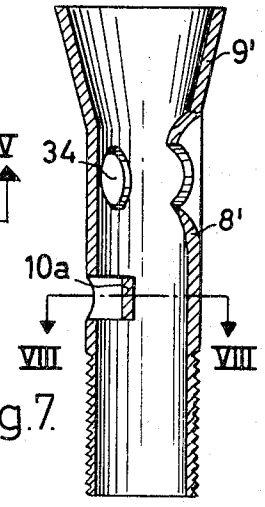


Fig.7.

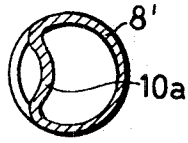


Fig.8.

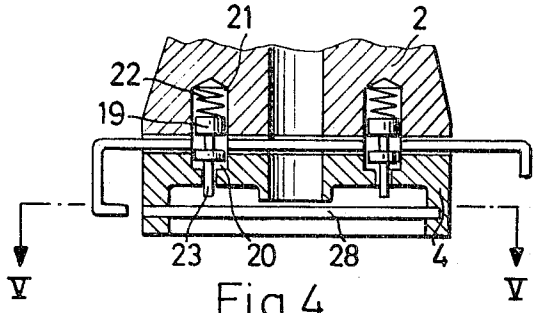


Fig.4.

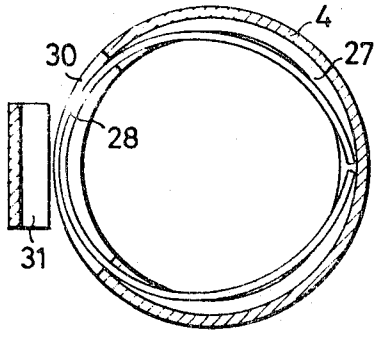


Fig.5.

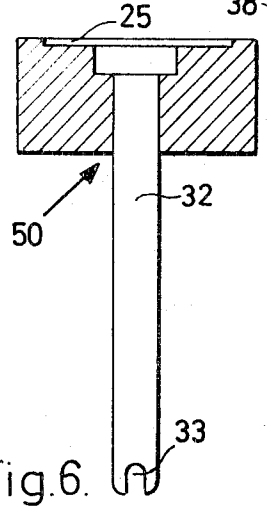


Fig.6.

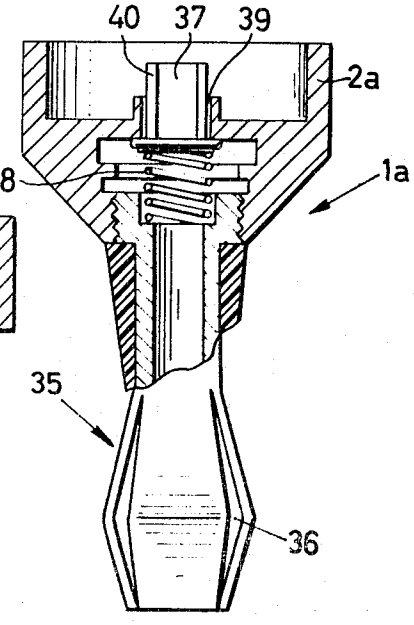


Fig.9.

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SAFETY COUPLING FOR CONNECTING A CONTAINER TO A LIQUID DISPENSING APPARATUS

BACKGROUND OF THE INVENTION

This invention relates to dispensing devices for alcoholic beverages and like liquids, and more particularly to a coupling for connecting a bottle or other container to the dispensing apparatus proper which prevents liquid to be withdrawn from the container otherwise than through the dispensing apparatus.

It is common practice to discharge alcoholic beverages from bottles in bars and similar establishments through dispensing apparatus which releases a metered amount of the liquor when operated. In order to prevent liquor from being withdrawn and sold without a corresponding entry of the sale on a cash register record, liquor dispensing devices have been equipped with counters or other devices which automatically record the amount of liquor dispensed. While such recording devices are useful, they cannot prevent a dishonest bartender from lifting the bottle off the dispensing apparatus, and pouring liquor directly from the bottle into a customer's glass, and from pocketing the proceeds of such a sale.

The object of the invention is the provision of a safety coupling for dispensing apparatus equipped with a recording device or the like which makes it impossible, or at least very difficult, to withdraw liquor from a container while it is not attached to the dispensing apparatus.

SUMMARY OF THE INVENTION

With this object in view, the coupling device of the invention includes a connector formed with a passage and equipped with a valve for the passage and two couplings for coupling the connector to a container and to a dispensing apparatus, respectively, in sealed communication of the passage with the coupled container and apparatus. A lock normally locks the valve in the passage closing position, but permits movement of the valve between the open and closed positions when the connector is coupled to the dispensing apparatus.

A releasing mechanism which permits separation of the connector from the container is normally accessible only through the open valve in the connector for disengaging the container coupling. The coupling which seals the connector to the dispensing apparatus is released automatically when the valve is moved in a direction from the open toward the closed position, whereby separation of the sealed container together with the connector from the dispensing apparatus becomes possible.

The exact nature of this invention as well as other objects and many of the attendant advantages thereof will readily become apparent from the following detailed description when considered in connection with the appended drawing.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. 1 shows a coupling device of the invention on a partly illustrated bottle in elevational section on the bottle axis;

FIG. 2 shows a coupling element of a dispensing apparatus matingly engageable with the device of FIG. 1 in a corresponding sectional view;

FIG. 3 shows the apparatus of FIG. 1 in section on the line III–III on a smaller scale than that of FIG. 1;

FIG. 4 illustrates the device of FIG. 3 in section on the line IV–IV;

FIG. 5 shows the device of FIG. 4 in section on the line V–V; and

FIG. 6 illustrates a key for use with the apparatus of FIG. 1 in a corresponding section.

FIGS. 7 and 8 respectively illustrate a modified element for the apparatus of FIG. 1 in a view corresponding to that of FIG. 1 and in transverse section on the line VIII–VIII respectively; and

FIG. 9 illustrates a modified coupling device of the invention in sectional elevation.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring initially to FIG. 1, there is seen a connector body 1 which is of generally circular cross section and consists of two coaxially superposed parts 2 and 4 formed with respective portions of an axial passage 11 and fastened to each other by screws 5. An inverted bottle 3 communicates with the passage 11 in the connector part 2 through a coaxial tubular extension 6 of the latter. The free end of the extension 6 has axial slots 7, and the tong-shaped, somewhat resilient, portions of the extension 6 between the slots 7 may be deflected radially from the illustrated relaxed position to expand the extension 6 and prevent withdrawal of the same from the bottle 3.

The main axial portion of a spigot 8 is received in the extension 6 with sufficient clearance to permit threaded movement of the spigot in the internally threaded passage 11 in the connector part 2. The outer end portion 9 of the spigot 8 is conically enlarged and is locked with the slotted end of the extension 6 when the spigot moves from the illustrated position inward of the connector part 2. A pin 10 passes diametrically through the bore of the spigot 8. A liquid-tight connection between the extension 6 and the neck of the bottle 3 is provided by a sleeve 12 of cork composition, rubber, or the like fixedly mounted on the extension 6.

The lower radial face 13 of the connector part 2 and the opposite face of the connector part 4 jointly define a guide groove 14 for an elongated, flat valve slide 15 formed with an aperture 16 which connects the two parts of the passage 11 when the slide is moved toward the left from the passage-closing position illustrated in FIGS. 1, 3, and 4. O-rings 17 partly recessed in the aforementioned radial faces of the connector parts prevent leakage of liquid from the passage 11 along the slide 15.

One longitudinal end 18 of the slide 15 is offset at right angles to permit convenient grasping of the slide for manual movement of the same between its open and closed positions. The other end 31 is bent twice at right angles to form a coupling release element whose functions will be described hereinbelow.

The valve slide 15 is normally locked in the illustrated closed position by four tumblers 19 partly received in respective notches 24 in the longitudinal edges of the slide 15. As is best seen in FIG. 4, each tumbler 19 is a cylinder axially movable in aligned bores 21 of the connector parts 2, 4 and normally held in a nonillustrated locking position by a helical compression spring 22 in one of the bores. An annular groove 20 in the circumference of the tumbler, when axially aligned with the slide 15, as shown in FIG. 4, permits the slide to open and close the passage 11. Coaxial actuating pins 23 project from the tumblers 19 into the cavity of the approximately cup-shaped connector part 4.

An annular groove 27 in the inner axial wall of the connector part 4 receives a coupling spring 28 which is an oblong, open wire ring, as is best seen in FIG. 5, and extends into a radial slot 30 in the axial wall of the part 4 in the direction of its longer axis when in the illustrated relaxed condition. The aforementioned end 31 of the valve slide 15 enters the slot 30 to compress the spring 28 into a more circular shape fully received in the groove 27 when the slide 15 moves from the passage-opening toward the passage-closing position seen in FIGS. 1, 3, and 4. When relaxed, the spring 28 projects partly from the groove 27.

The bottle 3 can be connected by the connector body 1 and the elements mounted thereon to a dispensing apparatus equipped with a counter or meter, not themselves relevant to this invention. FIG. 2 shows a coupling element 26 of the dispensing apparatus, not otherwise illustrated, which is dimensioned for conforming partial insertion into the cavity of the connector part 4. A radial top face 25*a* of the coupling element is formed with a bore aligned with the passage 11 when the coupling element is received in the connector part 4, and receiving a raised rim about the orifice of the passage in the cavity of the connector part. The depth of axial insertion of the element 26 into the part 4 is determined by engagement of

the spring 28 with an annular groove 29 in the element 26. If the coupling element 26 is received in the connector part 4, the slide may be moved sufficiently in a direction from the open toward the closed position, that is, toward the right, as viewed in FIG. 1, to engage the coupling release end 31 of the slide 15 with the coupling spring 28, thereby to withdraw the spring from the groove 29 entirely into the groove 27, and to permit separation of the bottle 3 and the connector body 1 from the dispensing apparatus represented in the drawing by its element 26.

While the coupling element 26 is secured to the connector body 1 by the coupling spring 28, its top face 25*a* engages the free ends of the actuating pins 23 and pushes the tumblers 19 into the position seen in FIG. 4 in which the tumblers permit the valve slide 15 to be moved manually by means of its end 18.

The key 50 shown in FIG. 6 has an approximately cylindrical body whose top radial face 25 is shaped for insertion into the cavity of the connector part 4 and for simultaneously pushing the plungers 19 into the unlocked position.

The key 50 may thus be used for opening the passage 11 when the bottle 3 with the attached connector body 1 is removed from the dispensing apparatus 26. A flat metal bar 32 is approximately coaxially attached to the key body, and its free end has a notch 33. The strip is narrow enough to pass through the aligned passage 11 and aperture 16, and long enough for engagement of the pin 10 in the notch 33. When the key body is turned while the notch 33 receives the pin 10, the spigot 8 may be moved outward of the extension 6 until the latter can contract resiliently to the position seen in FIG. 1 in which the bottle 3 may be slipped from the connector body 1.

In using the coupling device of this invention, a bottle is uncorked, and the extension 6 of the coupling device is inserted into the upwardly directed bottle neck while the spigot 8 is in the position shown in FIG. 1 and the slotted end of the extension 6 is relaxed. The spigot is then turned by means of the key 50 to expand the extension 6, and fixedly to couple the bottle to the connector part 2 while the valve slide 15 is in the open position. The valve is then shifted into the closed position seen in FIG. 1, whereupon the bottle 3 may safely be inverted, and the connector part 4 slipped over the normally fixed coupling element 26. When the valve slide 15 is further moved toward the right, the coupling spring 28 is deformed to permit the coupling element 26 to reach its operative position in which the spring 28 enters the groove 29 to secure the bottle 3 and the connector 1 on the dispensing apparatus, while the tumblers 19 are shifted to unlock the slide 15. The valve slide 15 may now be operated freely as needed to release the liquor from the bottle 3.

When the bottle is empty, it may be disengaged together with the connector 1 from the dispensing apparatus by shifting the slide 15 to the right, as viewed in FIG. 1, and another bottle, previously uncorked, fitted with a coupling device of the invention, and sealed by closing the valve slide 15, may be installed quickly without tools or keys.

The key 50 thus is needed only for sealing uncorked bottles prior to installation on the dispensing apparatus, and for separating bottles from the coupling device when removed from the dispensing apparatus. The key 50 may be retained by a supervisor who may, from time to time, make a group of bottles ready for use on the dispensing equipment. The bottles and their content may thereafter be safely handled by unsupervised personnel, and the supervisor, using the key 50, may reclaim the coupling devices from the emptied bottles at any convenient time.

It is impossible, or at least very difficult without tools, to remove liquor from a bottle equipped with the coupling device of the invention otherwise than through the dispensing apparatus partly shown at 26.

As shown in FIGS. 7 and 8, the spigot 8 may be replaced in the apparatus of FIG. 1 by a spigot 8' having radial openings 34 which prevent the trapping of a small amount of liquor between the neck of the bottle 3 and the spigot 8 unavoidable in the first-described device, and thus permits the bottle to be emptied into the dispensing apparatus virtually to the last drop. As is also shown in FIGS. 7 and 8, the pin 10 may be replaced by an integral portion 10*a* of the spigot wall which is severed from the remainder of the wall in two spaced radial planes and displaced toward the spigot axis for engagement by the key 50. Instead of the enlarged heavy end 9 of the spigot 8, the free end 9' of the spigot 8' is conically flared, as by spinning.

The modified connector body 1*a* shown in FIG. 9 has a cup-shaped end portion 2*a* dimensioned to fit over the coupling element 26. An axial bore in the body 1*a* is partly threaded and receives one end of a tube 35 whose other axially projects from the 1*a*, has axial slots 36, and is expanded into a resilient bulb which may be inserted into the neck of a bottle, and is thereafter retained in the bottle by its resiliency.

An internal shoulder 39 of the connector portion 2*a* provides a seat for a valve 37 which is a flanged tube having axial slots 40. The flange of the valve 37 is biased by a helical compression spring 38 into sealing engagement with the shoulder 39, whereby the passage through the body 1*a* and the tube 35 is closed, and the end of the valve 37 remote from the flange projects into the cavity of the end portion 2*a*. When the coupling element 26 of the dispensing apparatus is received in the coupling device shown in FIG. 9, the valve 37 is displaced axially inward of the body 1*a*, the flange of the valve 37 is lifted from the shoulder 39, and liquid can flow by gravity from a nonillustrated bottle on the slotted portion of the tube 35 into the dispensing apparatus.

I claim:

1. A coupling device for coupling a container adapted to contain a liquid to apparatus for dispensing said liquid comprising, in combination:

a. a connector body formed with a passage therethrough;

b. a valve member mounted on said body for movement between respective positions in which said member opens and closes said passage;

c. first and second coupling means on said body for engaging said container and said apparatus respectively, and for coupling said container and said apparatus to said body in sealed communication with said passage;

d. locking means responsive to movement of said valve member into said passage-closing position for locking the valve member in the last-mentioned position thereof, and responsive to engagement of said second coupling means with said dispensing apparatus for permitting movement of said valve member between said positions of the same;

e. first releasing means accessible only through said passage in the open condition of the same for releasing said first coupling means and for thereby permitting separation of said connector body from said container; and

f. second releasing means responsive to movement of said valve member in a direction from the passage opening toward the passage closing position for releasing said second coupling means and for thereby permitting separation of said connector body from said apparatus.

2. A device as set forth in claim 1, wherein said valve member is slidably mounted on said body for reciprocating movement between said positions thereof, and said locking means include a tumbler member, yieldably resilient means biasing said tumbler member toward a position in which the tumbler member lockingly engages the valve member, and an actuating member projecting from said body for engagement by said dispensing apparatus, and operatively connected to said tumbler member.

3. A device as set forth in claim 2, further comprising a key member dimensioned for engagement with said actuating member when the latter is not engaged by said dispensing apparatus, and for thereby permitting movement of said valve member between said positions of the same, said key means being freely movable toward and away from said connector member.

4. A device as set forth in claim 1, wherein said connector body is formed with a recess, and said second coupling means include a coupling spring normally partly received in said recess and partly projecting from the same for coupling engagement with said apparatus, said second releasing means being operative to retract said coupling spring into said recess.

5. A device as set forth in claim 4, wherein said second releasing means include a releasing element mounted on said valve member for movement therewith and engageable with said coupling spring by said movement of the valve member.

6. A device as set forth in claim 5, wherein said connector body has a cavity and an axial wall in said cavity, said recess being formed in said wall and annular, said coupling spring being oblong when in the relaxed condition.

7. A device as set forth in claim 6, wherein said connector body is formed with a slot therethrough communicating with said recess, said releasing element moving into and out of said recess through said slot when said valve member moves between said positions thereof.

8. A device as set forth in claim 1 wherein said first coupling means include a tubular member having one axial end fixed to said connector body and an axially slotted other end, a flaring member mounted on said connector member for axial movement into and out of said tubular member and dimensioned for resiliently expanding the slotted end of the tubular member when received in the same, said first releasing means including means for axially moving the flaring member outward of said slotted end.

9. A device as set forth in claim 8, further comprising a key member freely movable toward and away from said connector body and dimensioned for insertion in said passage in the open condition of the same, said first releasing means including elements on said key member and on said flaring member engageable for axial movement of said flaring member by said key member.

10. A device as set forth in claim 9, wherein said flaring member is tubular and threadedly mounted on said connector body.