Nov. 11, 1941. J. V. HUSKAMP 2,262,182

CLOSURE VALVE FOR CONTAINERS

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Fig. 1.

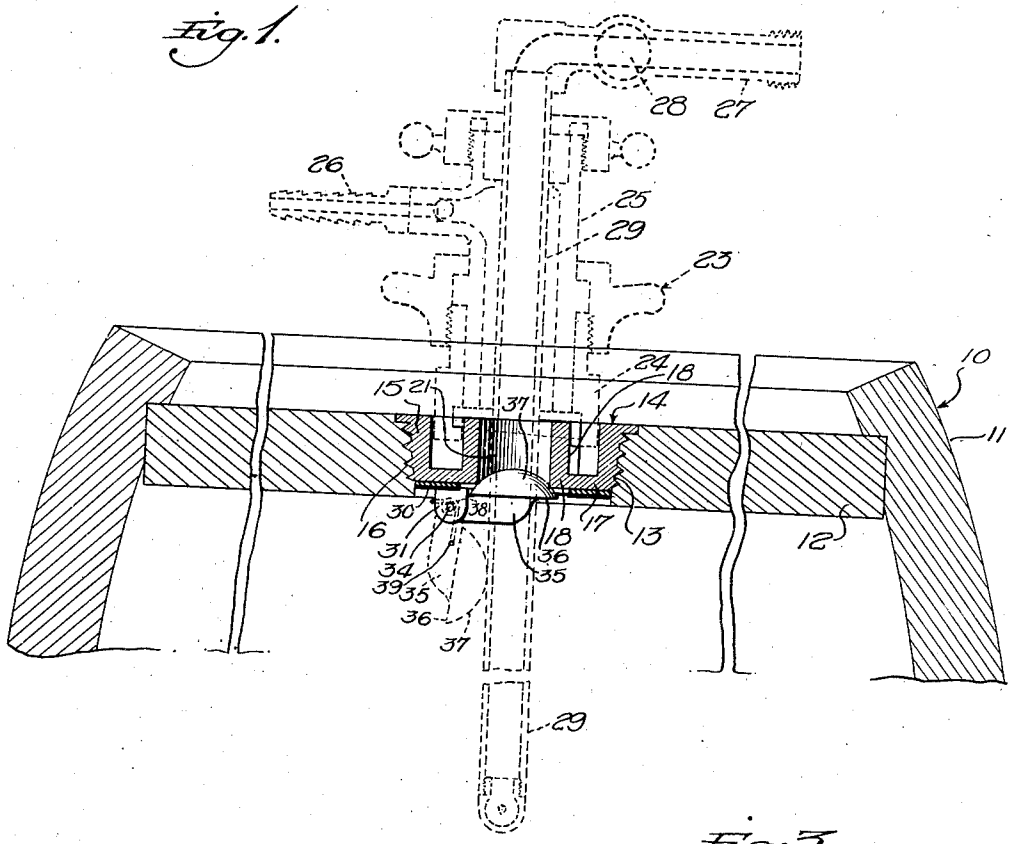


Fig. 3.

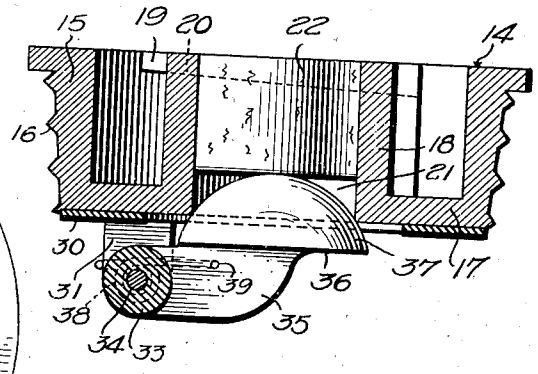
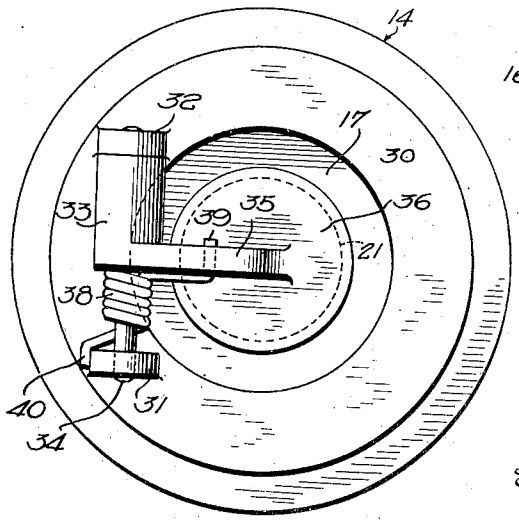


Fig. 2.



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CLOSURE VALVE FOR CONTAINERS

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3 Claims. (Cl. 217—100)

This invention relates to closure valves for containers, and more particularly to a valve adapted for use with the bushings of beer kegs.

It is the common practice to market draft beer in kegs one head of which is provided with a bushing having a central vent opening and provided with means whereby a tapping unit may be connected to the bushing. The tapping units now in use include a tubular body adapted to be clamped in position on the bushing and provided with a lateral extension for connection with a source of pressure whereby pressure may be maintained in the keg to feed the beer from the keg and to prevent loss of carbonation from the beer. Such devices further include an axially slidable tapping rod or tube, the bushing having the vent opening thereof closed by a cork which is driven into the barrel by sliding movement of the tapping rod to operative position.

After the keg has been emptied the cork remains in the keg and the vent opening is open to the atmosphere with attendant disadvantages which are well known. For example, dirt, insects and the like find their way into the keg and the exposure to the atmosphere of the little beer remaining in the keg results in the rapid decomposition thereof with the formation of slime. This results in the necessity for repitching the barrels or kegs, which adds substantially to the cost of each filling of the keg.

An important object of the present invention is to provide a novel valve for use with beer keg bushings which is adapted to be opened upon the pushing of the cork into the keg and to be maintained in open position so long as the tapping rod remains in operative position, the valve automatically closing upon the removal of the tapping rod to effectively seal the keg against the entrance of foreign material thereinto and to greatly retard the decomposition of the beer remaining in the keg.

A further object is to provide a valve of the character referred to which is embodied with the bushing in such a way that the latter may be applied to the keg in the conventional manner, all of the elements of the valve and associated parts lying wholly within the periphery of the bushing.

A further object is to provide a device of the character referred to which permits the removal of the tapping rod, if any leakage should occur in the tapping unit, and which, under such conditions, will effectively seal the keg and prevent the loss of pressure therefrom, thus also preventing the beer from becoming flat.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawing I have shown one embodiment of the invention. In this showing—

Figure 1 is a sectional view of one end of a keg showing the bushing and valve in position therein, a tapping unit being shown in dotted lines,

Figure 2 is a bottom plan view of the valve and bushing, and,

Figure 3 is an enlarged sectional view of the same, the valve being shown in elevation.

Referring to the drawing the numeral **10** designates a beer or other keg as a whole comprising the usual staves **11** having heads connected thereto, one of which is illustrated and is indicated by the numeral **12**. Such head is provided with an opening **13** in which is arranged a bushing indicated as a whole by the numeral **14**. Such bushing is provided with an annular outer wall **15** the outer face of which is tapered and threaded as at **16** for reception in the opening **13**. The threads **16** are relatively large as is well known to form an effective connection between the bushing and the head **12**. The threads of the bushing usually are coated with shellac or other similar composition before the bushing is applied. The bushing normally forms a permanent part of the keg, but may be removed when desired, as is well known.

The bushing further comprises a bottom wall **17** and an inner cylindrical flange **18** projecting upwardly therefrom, such flange being provided at its upper end with radially extending lugs **19** the lower faces of which are sloped as at **20** (Figure 3) for connection with the corresponding lugs of a tapping unit to be referred to. The cylindrical wall **18** forms a vent opening **21** which is closed by a cork or other plug **22** after the keg has been filled with beer. The bushing per se is conventional and forms no part of the present invention.

A tapping unit has been shown in dotted lines in Figure 1 and has been indicated as a whole by the numeral **23**. This unit forms no part of the present invention and need not be described in detail, the unit having been shown generally in dotted lines to make clear the use of the present invention, to be described. The tapping unit is provided with a lower coupling **24** having lugs at its lower end to engage the lugs **19** to secure the unit in position, the sleeve **24** being carried by the body **25** of the tapping unit into which air

or other gas may be pumped through a connection 26 to maintain pressure in the keg.

The tapping unit further includes a beer outlet 27 controlled by a valve 28 and such outlet is connected to a conventional tap rod 29 which extends downwardly through the body 25 in concentric spaced relation therewith. When the tapping unit is in operation, the lower end of the tap rod 29 will be arranged adjacent the bottom head of the keg and beer will flow outwardly therethrough. The space between the rod 29 and the body 25 permits the flow of air or other gas under pressure from the connection 26 to the interior of the keg.

The embodiment of the present invention, as illustrated, comprises a relatively thin plate 30 which may be sweat on the lower face of the bottom wall 17 of the bushing. It will be apparent, of course, that the plate 30 may be secured in position in any manner. The plate 30 carries a pair of relatively widely spaced ears 31 and 32 depending therefrom. It will be apparent that the plate 30 and ears 31 and 32 lie wholly within the limits of the periphery of the bottom wall 17, and thus do not interfere with the insertion of the bushing 15 into the keg head.

A sleeve 33 is rotatable on a pin 34 secured at its ends to the ears 31 and 32. One end of the sleeve 33 contacts with the ear 32 and the other end of the sleeve carries a preferably integral arm 35 to which is secured a valve element 36 having a substantially hemispherical face 37 engageable in the lower end of the cylindrical sleeve portion of the bushing. A torsion spring 38 surrounds the pin 34 between the arm 35 and the ear 31, one end of the spring having a projecting portion 39 engaging the arm 35, and the other end of the spring having a projecting end 40 engaging the ear 31. Thus it will be apparent that the ears 31 and 32 support the valve and its associated parts and that these ears are secured to or formed integral with the plate 30. It also will be apparent that the bushing 14 may be formed with the ears 31 and 32 integral therewith, thus eliminating the necessity for employing the plate 30.

The operation of the device is as follows:

The bushing 14 is placed in position in the usual manner by being screwed downwardly into the opening 13. After the keg has been filled with beer in the usual manner, it is sealed for delivery and is ready to be tapped.

The sleeve 24 is first attached to the lugs 19 and tightened by being turned with a wrench or the like, whereupon the remaining elements of the tapping unit are assembled in the usual manner, with the exception of the tapping rod 29. After the assembling of the remaining elements of the tapping unit, the tapping rod is inserted into the bushing and tightened with the usual mechanism provided for this purpose to seal the upper end of the body 25, whereupon the tapping rod is pushed downwardly into the keg, the lower end of the tapping rod pushing the cork 22 into the keg. As the cork moves into the keg it engages the valve 37 to turn the valve to the dotted line position shown in Figure 1, whereupon the tapping rod may continue its movement until the lower end of the rod substantially contacts with the bottom head of the keg. Air or other gas then may be pumped into the keg through the connection 26 and the valve 28 may be opened to permit beer to flow from the outlet 27.

After the keg has been emptied, the tapping unit may be removed in the usual manner. It will be apparent that the spring 38 normally maintains the valve 37 in tightly closed position, although the tension of the spring is not needed when the keg is first filled since the cork 22 seals the vent opening 21. After the keg has been emptied the use of the spring 38 is important for the reason that it tightly seats the valve 36, thus effectively preventing the entrance of insects, dirt or any other foreign material into the keg, thus eliminating the necessity for re-pitching the keg with each use. Thus expense incident to the sealing of beer in kegs is materially reduced.

It also will be apparent that if the tapping mechanism should develop a leak or should otherwise fail in operation, the tapping rod may be drawn upwardly and when the lower end of the rod passes the valve 37 the latter will follow the rod until the closed position of the valve is reached, whereupon the tapping rod or the entire tapping unit may be removed for repairs. It will be obvious that the seating of the valve will maintain pressure within the keg, thus preventing loss of carbonation from the beer and preventing the beer from becoming flat.

While the sweating on of the plate 30 provides a highly effective device of the character referred to, it will be obvious that the ears 31 and 32 may be cast integral with the bushing 14, if desired. With either method of manufacture, the device soon saves its cost by reducing the expense incident to repeated re-pitching of the keg. As previously stated, the device also is advantageous in that it permits the removal of the tapping unit before the keg is emptied, without any loss of pressure from the keg.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. In a bushing device for beer and similar kegs, a body having an external surface structure engageable in an opening in a keg to maintain said body in position in such opening, said body having a vent opening therethrough and having a flat bottom surface adjacent such opening, and a valve mechanism for closing the lower end of said vent opening comprising a substantially circular flat plate secured against said flat bottom surface of said body, a pair of ears carried by said plate and depending therefrom, a spherical valve engageable with the bottom of said body to close said vent opening, means for pivotally supporting said valve with respect to said ears, and spring means tending to hold said valve in closed position, said plate being smaller in external diameter than the external diameter of the flat bottom surface of said body and larger in internal diameter than the diameter of said vent opening whereby said plate is movable in its own plane over said flat bottom surface to seat said valve in the lower end of said vent opening prior to securing said plate against said flat bottom surface.

2. The combination with a bushing for beer and similar kegs having a vent opening extending axially therethrough and having a flat bottom face, the outer surface of said bushing being shaped for reception in an opening in the keg whereby the bushing is maintained in position in such opening, of a valve mechanism ar-

ranged beneath the bottom face of said bushing wholly within the radially outer limits thereof, said valve mechanism comprising a valve having a hemispherical face engaging the lower end of said vent opening to form a closure therefor, a substantially circular flat plate carried by said bottom face for pivotally supporting said valve for movement toward and away from closed position, and spring means tending to maintain said valve in closed position, said plate being smaller in external diameter than the external diameter of the flat bottom face of said bushing and larger in internal diameter than the diameter of said vent opening whereby said plate is movable in its own plane over said flat bottom face to seat said valve in the lower end of said vent opening prior to securing said plate against said flat bottom surface.

3. In a closure valve device for a keg bushing having an opening therethrough and formed with a flat bottom surface surrounding such opening, a supporting structure comprising a flat substantially circular plate adapted to be secured against said flat bottom surface of the bushing, said plate having an inner diameter greater than the diameter of the opening in the bushing and an external diameter less than the external diameter of the bushing whereby it is movable in its own plane in contact with the flat bottom surface of the bushing before being secured thereagainst, and an ear structure carried by said plate and depending therefrom, a spherical valve having a radially projecting arm rigid therewith and pivotally supported by said ear structure, and a spring having one end engaging said arm and its other end engaging said supporting structure to tend to maintain said valve in a closed position engaging the bushing at the lower end of the opening therethrough.

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