

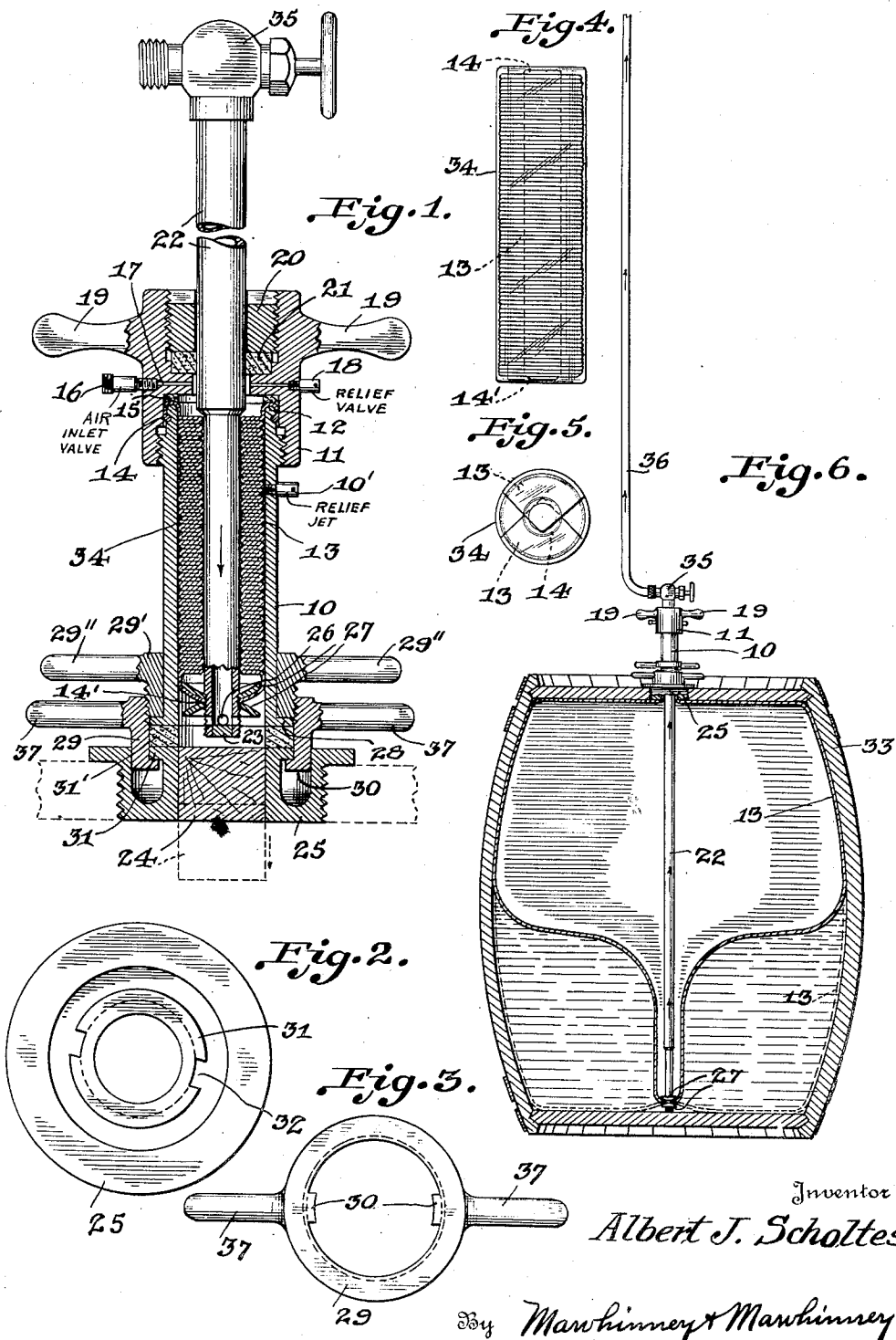
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EXTRACTOR

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EXTRACTOR

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The present invention relates to an improved device for extracting beer from barrels or other liquids from containers wherein the liquids are adapted to be extracted or removed from the barrels or containers by fluid under pressure.

Another object of the present invention is to provide an extractor of this type wherein the air or other fluid employed is maintained out of contact with the liquid to be extracted, and wherein the expanding member of the extractor may be introduced through the bung-hole of the barrel and wherein the liquid itself may be withdrawn or ejected through the same bung-hole.

A feature of the present invention is that the barrel or keg may be placed in an upright position with the bung-hole at the center of the top head of the keg and the liquid may be extracted by an expansible member upwardly through the central portion of the barrel, thus eliminating any possibility of the sagging of the expansible member toward one side of the barrel or keg and insuring the even expulsion of the liquid.

A further object of this invention is to provide an expansible member which may be made of rubber or the like; to provide a carrying means having a tube to which the outer end of the expansible member is secured and which may be used for introducing the member into a barrel through the bung-hole thereof; the carrying means also serving to introduce air into the member to expand it and eject the contents of the barrel outwardly through the tube; and to provide means to finally puncture or rupture the expansible member after the contents have been completely ejected from the barrel so that the expansible member cannot be used a second time and will not be subjected unduly to the action of the contents of the barrel which might injure the taste and other qualities of the barrel contents.

A still further object of the invention is to provide a structure wherein the expansible member may be cheaply packaged in a transparent or otherwise formed wrapper in folded condition for positioning in the extractor while folded, and wherein the wrapper may be fitted with the member in the extractor and left therein out of the way so as not to interfere with the operation of the device and which may be readily removed with the punctured member after use.

The invention also aims at the provision of an improved holder and coupling for the extractor so that it may be compactly transported or packed away and may be quickly and easily coupled to the barrel and advanced into position for use.

With the foregoing and other objects in view,

the invention will be more fully described herein-after, and will be more particularly pointed out in the claims appended hereto.

In the drawing, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a fragmentary sectional view, partly in elevation, of the improved extractor coupled in position with the bung of a barrel and ready to be advanced into a position for use, the dotted lines showing the bung-hole stopper partly punched in.

Figure 2 is a detail top plan view of the bung of the barrel.

Figure 3 is a detail bottom plan view of the lower coupling member of the device adapted for interlocking engagement with the bung of Figure 2.

Figure 4 is a detail side elevation of the expansible member folded and in package form for independent distribution and ready to be inserted in the device.

Figure 5 is an end view of the same, and

Figure 6 is a vertical section taken through a barrel or keg showing the device in position thereon and partially expanded, the arrows indicating the direction of flow of the fluid being extracted.

The improved extractor comprises a casing or tube 10 of suitable length which is externally threaded in spaced relation to its upper end for receiving thereover a clamping cap 11. The upper end of the casing 10 is preferably provided with an external annular groove or depression which faces the inner smooth surface of the clamping cap 11, and which is also preferably provided with a rounded upper edge portion 12 to receive thereover and prevent injury to an expansible member 13.

The expansible member 13 may be made of any suitable material, such as rubber, which may be collapsed or folded and slid into the casing 10 and which has an upper open end adapted to be expanded and rolled over the rounded bead 12 at the top of the casing. The member 13 may be provided with a marginal enlargement or bead 14 adapted to engage in the annular groove of the casing and be held tight therein by the action of the clamping nut 11. If desired a packing washer 15 may be placed on the upper end of the casing 10 between the overturned end of the expansible member 13 and the top of the cap 11 for sealing and protecting the expansible member in the cap. The cap 11 is provided in one side with a suitable air receiving valve 16 of the type com-

monly used on automobile tires or the like and the cap has a substantially radial passage 17 for the air which leads to the inner side of the cap, as shown in Figure 1.

5 The cap 11 may also be provided with a suitable relief valve 18 to prevent undue or excessive pressure within the expansible member 13 and thus prevent damage thereto. The upper end of the cap 11 is provided with outstanding handles 19 adapted to be grasped for turning the cap 11 into and out of clamping position upon the upper end of the casing 10. A packing nut 20 may be threaded within the upper end of the cap 11 and may compress a packing washer 21 disposed beneath the nut 20 and against a shoulder provided internally intermediate the ends of the cap.

10 A liquid outlet tube 22 of a diameter less than the internal diameter of the cap 11 and casing 10, is disposed axially therein and is sealed in the upper end of the cap by the packing nut 20 and the packing washer 21. The space beneath the packing washer 21 is open through the lower portion of the cap to the interior of the expansible member 13. The lower end of the tube 22 is closed to provide an abutting end 23 adapted to be used for forcing the plug 24 of a barrel bung-ring 25 inwardly so that the tube 22 may follow the plug 24 to the interior of the barrel. The lower end of the tube 22 is also provided with a suitable number of lateral openings 26 which are preferably disposed adjacent the closed end 23, and the lower end of the tube 22 is externally threaded for receiving thereon a pair of reversely positioned dished washers 27 which flare outwardly about the tube 22 and which are adapted to be clamped toward each other to engage the outer end of the expansible member 13 for holding the latter at its closed end about the lower end of the tube and to also seal the expansible member against the tube. The inner washer is rounded sufficiently to protect the expansible member and prevent injury thereto when sliding the expansible member into and out of the casing 10.

45 The outer or lower washer 27 extends downwardly in spaced relation about the openings 26 to prevent injury to the expansible member 13 until the entire contents of the barrel is extracted when the expansible member may be drawn or forced against the openings 26 of the tube to puncture or rupture the member so that it cannot be used again.

50 It will also be noted that the closed end 23 of the tube is spaced downwardly a slight distance below the marginal outer edge of the lower washer 27 so as to leave passage to the openings 26 clear should the tube be forced all the way through the barrel and against the lower head.

55 The lower end of the casing 10 is externally flanged as at 28. The flange 28 slides within a rotatable lower locking nut 29 which is open at its lower end and provided at suitable spaced apart points with inwardly extending lugs 30 adapted to engage beneath an outstanding flange 31 and through recesses 32 disposed within the recessed upper side of the bung-ring 25 of the barrel. The nut 29 has radial handles 37 by means of which the nut may be turned to couple it to the bung-ring 25.

60 A follower nut or upper coupling member 29' is threaded into the lower coupling nut 29 against the flange 28 of the casing and may be turned down thereagainst by radial handles 29".
70 A packing washer 31' lies between the flange 31

of the bung-ring 25 and the lower end of the casing to seal the joint therebetween.

The casing may have, if desired, a relief valve or jet 10' below the cap 11 to vent any abnormal pressure accumulating in the casing exterior to the expansible member 13.

80 The bung-ring 25 is externally threaded in the usual manner and adapted to be threaded into the bung-opening or hole of a barrel 33, as shown in Figure 6. The tube 22 has a suitable control valve 35 on its upper end to which is connected a supply pipe 36 which may lead upwardly to any point of distribution for the liquid.

85 As shown in Figures 4 and 5, the expansible member 13 may be manufactured and packaged as a replacement article. The member 13 comprises a rubber bag substantially cylindrical in shape which is annularly pleated or folded into collapsed form as shown with the relatively small diameter top and bottom openings bounded by the marginal beads 14 and 14'. The collapsed member 13 is encased in a wrapper 34, which may be transparent as shown or of other suitable material, to hold the member 13 folded during handling. The ends of the wrapper 34, as shown in Figure 5, may be folded or closed in any suitable manner and may be torn open to expose the opposite ends of the member 13 for applying the latter to the tube 22 and within the casing 10.

90 To replace the expansible member 13, the cap 11 is removed from the upper end of the casing 10 and the tube 22 with the used expansible member 13 withdrawn. The upper end of the member 13 may be released from the top of the casing and the tube 22 may be pushed through the bottom of the casing, when detached from the barrel 33 so that the threaded washers 27 may be removed from the tube 22 and free the used member 13 for replacement.

95 The ends of the wrapper 34 are now removed and the new member 13 slid upwardly over the reduced lower end of the tube 22. The bead 14 of the expansible member 13 is stretched and overturned upon the top of the casing 10, the bead 14 snapping into the exterior groove beneath the rounded edge 12 of the casing to anchor the upper end of the member in the casing. Prior to this the lower bead 14' of the member is expanded over the replaced inner washer 27 and the outer washer 27 is then turned up against the bead 14' to anchor it to the tube 22 and seal the member 13 about the tube. Replacing the cap 11 on the casing clamps the upper end of the member 13 to the casing and the device is ready for use.

100 In use, the device is assembled, as shown in Figure 1, and the lower coupling nut or member 29, is engaged in the upper recessed side of the bung-ring 25 and is turned to register the lugs 30 with the recesses 32 and to interlock with the flange 31. The upper nut 29' is now turned down against the flange 28 to compress the washer 31' between the upper face of the bung-ring 25 and the lower end of the casing 10.

105 The tube 22 is now forced downwardly with suitable pressure or impact to drive the stopper or plug 24 out of the bung-ring. The tube 22 may now be forced downwardly through the clamping cap 11 and the casing 10 so as to draw out the expansible member 13 and carry it with the tube downwardly through the central portion of the barrel or keg 33 and into the position shown in Figure 6.

110 Air under suitable pressure is now supplied through the air inlet valve 16 to expand the

member 13 and the latter spreads over the upper surface of the liquid in the keg and exert pressure against the liquid to force it through the openings 26 in the lower end of the tube 22 and upwardly through the tube, the valve 35 and into the supply pipe 36.

As shown in Figure 6, the body of liquid presses uniformly against the lower side of the expansible member 13 and equalizes the expansible member so that it will reach entirely across the interior of the barrel or keg 33 and serve as a piston sealed against the sides of the barrel for ejecting the liquid uniformly from all sides and cause the liquid to rise from the bottom of the barrel upwardly through the tube 22. Should a constant force of air pressure be supplied through the air inlet valve 16, and the valve 35, or other controlling valve which may be located in the supply pipe 36, be closed any excess pressure of air within the expansible member 13 and in the barrel 33 will be vented through the relief valve 18 thus preventing injury to the device.

As shown in dotted lines in Figure 6, when the expansible member 13 reaches the lower end of the keg or barrel 33 it will conform thereto and lie flat across the lower head and will flatten out substantially completely, the only portion of the expansible member which is held away from the bottom head being that portion directly engaged by and extending about the lower downwardly flaring washer 27. Finally, the adjacent portion of the expansible member 13 will be forced against the tube 22 over the openings 26 and, by pressure of air, will be punctured or ruptured so that the air will be vented to the tube 22 and the member 13 destroyed from further use. The expansible members 13, being relatively cheap to manufacture may be replenished for each barrel to be emptied, and may be purchased separately in desired lots.

The member 13 is not subjected repeatedly to exposure to the contents of the liquid in the barrels and therefore cannot contaminate the liquid. The contents of the keg or barrel are therefore completely extracted by use of the present device.

As the expansible member is now deflated it, together with the tube 22, may be withdrawn from the barrel 33 when the casing 10 is uncoupled from the bung-ring 25 and the device refilled with a new expansible member 13.

The invention is such that the interchange of the device from one barrel to another may be effected in a relatively short time and by relatively few operations without the exercise of any great amount of skill.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:—

1. A liquid dispenser for barrels and the like comprising a tubular casing, a coupling device mounted on the lower end of the casing for interlocking engagement with the bung of a barrel, a cap mounted on the upper end of the

casing, a tube slidably mounted through the cap and supported thereby in the casing, an expansible member sealed at its outer end about the outer end of the tube, the inner end of said expansible member being clamped between said cap and the upper end of the casing to anchor the outer end of the expansible member from movement toward the inner end of the casing, said tube having an opening in its outer end beyond the expansible member, and air pressure supply means connected to the cap for admitting air under pressure thereto and into the expansible member, said tube adapted to be moved lengthwise through the casing and cap into a barrel and said expansible member adapted to be distended about the tube when moved into the barrel and adapted to be expanded by air pressure to displace the liquid in the barrel.

2. A liquid extractor for barrels and the like, comprising a tubular casing, a cap on the outer end of the casing, a tube sealed through the cap and extending into the casing, an expansible member clamped at its open end between the casing and the cap, said expansible member having an opposite closed end, curved washers secured about the outer end of the tube and engaging said expansible member therebetween to seal the expansible member against the tube and protect the expansible member against abrupt bending, said tube having lateral openings therein for receiving liquid and the lowermost washer overhanging said openings to protect the same, said tube adapted to be forced through the bung-hole of a barrel, and air pressure supply means connected to the cap for introducing air into said expanding member for displacing liquid in the barrel.

3. A liquid extractor for barrels, comprising a casing having a cap, a tube slidably mounted in the cap for axial movement through the casing, an interchangeable expansible member mounted in the casing and detachably anchored at its upper end between the top of the casing and its cap, detachable holding means carried by the lower end of the tube and engaging the lower end of the expansible member, means for detachably securing the lower end of the casing over the bung-hole of a barrel, and means for introducing air under pressure through the cap directly to the interior of the expansible member.

4. A liquid extractor for barrels, comprising a casing having a cap, a tube slidably mounted in the cap for axial movement through the casing, an interchangeable expansible member mounted in the casing and detachably anchored at its upper end between the top of the casing and its cap, detachable holding means carried by the lower end of the tube and engaging the lower end of the expansible member, means for detachably securing the lower end of the casing over the bung-hole of a barrel, means for introducing air under pressure to the interior of the expansible member, and a relief valve carried by the casing for venting air entrapped between the casing and the expansible member and prevent the entrapped air from coming into contact with the liquid in the barrel.

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