Oct. 2, 1956 N. E. RICE 2,765,092

BEVERAGE DISPENSING SYSTEM

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FIG. 1

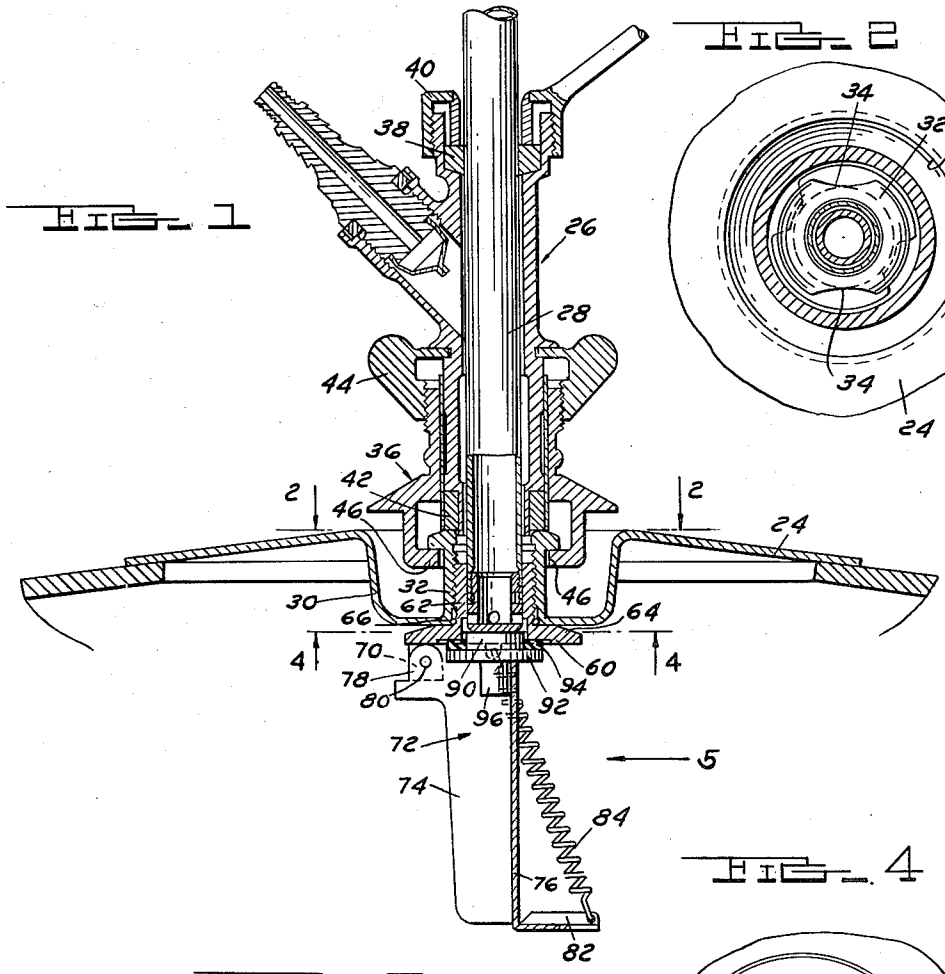


FIG. 2

FIG. 3

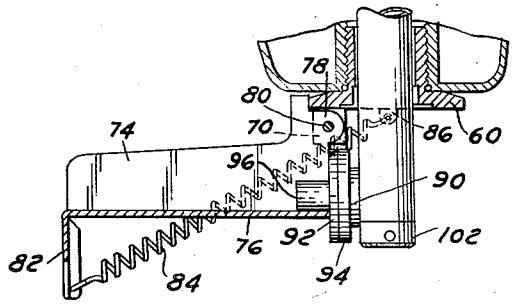
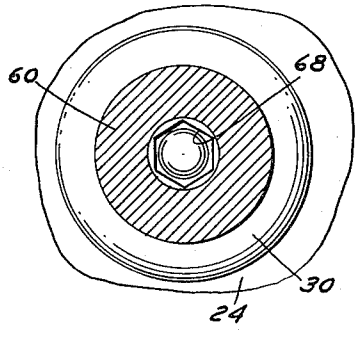


FIG. 4



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FIG. 6

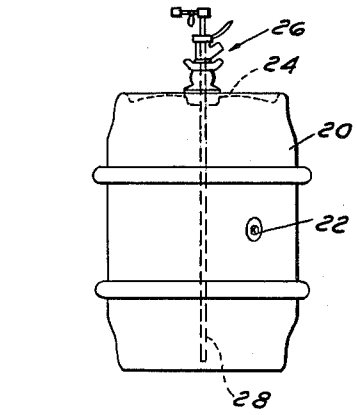
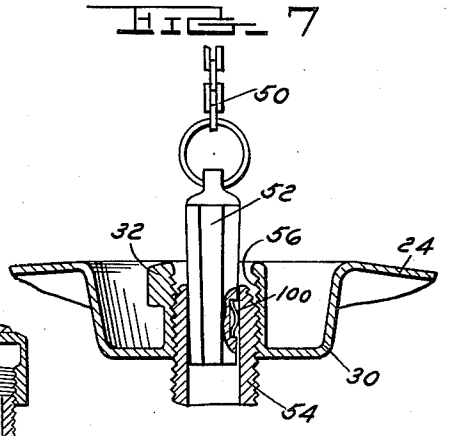


FIG. 7



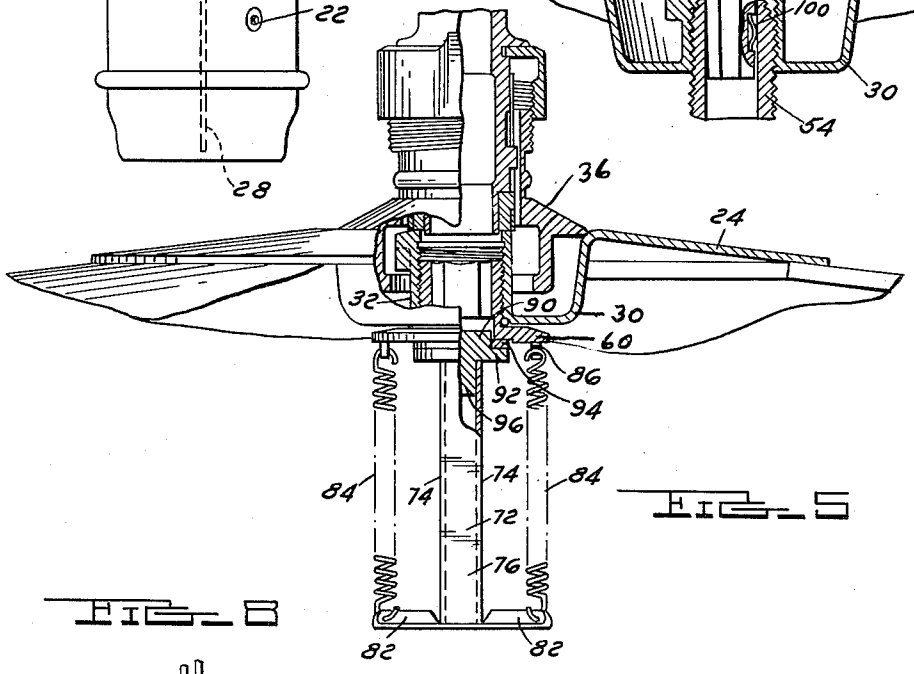


FIG. 5

FIG. 8

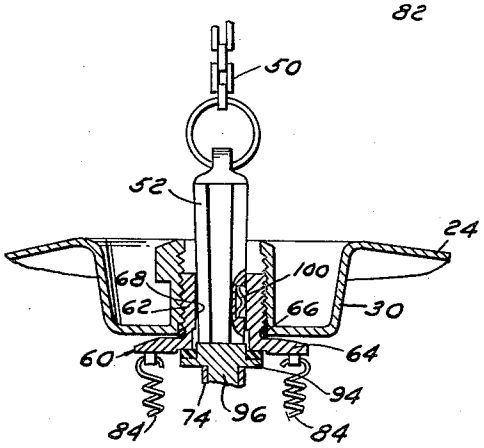
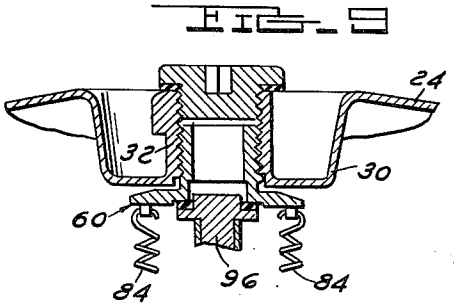


FIG. 9



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2,765,092

Patented Oct. 2, 1956

2,765,092

BEVERAGE DISPENSING SYSTEM

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Application May 5, 1952, Serial No. 286,146

1 Claim. (Cl. 217—100)

This invention relates to a beverage dispensing system.

The present invention is particularly adaptable to beer dispensing equipment and especially to the Peerless system of beverage dispensing. It is desirable to provide a sealed barrel regardless of whether the barrel is full or empty. However, the problem of sealing the barrel in such a way as to permit it to be tapped by the insertion of a tapping tube into the barrel has never been satisfactorily solved.

Certain rubber valves have been used on the barrels used for these tapping systems, but because of their nature and flexible construction their life has been short and at low pressure they invariably leak.

Another complicating factor for valve systems on these barrels used for beer is the fact that the inside of the barrels are often pitched after each use. While this might not be necessary with some metal barrels, still some of the trade continues in the "pitching" operation.

This means that they are coated inside with a hot pitch at about 350 degrees Fahrenheit, and any valve or other equipment used in the barrel must be capable of operating when coated with this pitch and also capable of standing up under the temperatures used for the pitching.

The present invention contemplates a mechanical valve which can be applied to new barrels and also readily adapted to barrels already in use. Inasmuch as the investment of any particular brewing company in stainless steel barrels runs into hundreds of thousands of dollars, the necessity for providing a valve unit which can be adapted to the existing barrels is as important as a valve system which can be used on new barrels.

Briefly, the present invention contemplates a valve assembly which can be inserted into a barrel through the side bung and drawn up into place in the main opening in the barrel head. The valve is adapted to be held in position by springs designed to operate under any circumstances and is also designed to permit ready operation by the insertion of the tapping tube.

In addition, the particular sealing element of the valve is readily exchanged if there should be any accidental damage thereto or wear over a long period of time. Also, the entire unit can be readily exchanged if there is any failure due to faulty material in the original construction.

Other objects and features of the invention relating especially to details of construction and operation will be apparent in the following description and claim.

Drawings accompany the disclosure, and the various views thereof may be briefly described as:

Figure 1, a sectional view of the valve and tapping system illustrating the tapping tube about to enter the barrel.

Figure 2, a sectional view on line 2—2 of Figure 1.

Figure 3, a view of the valve proper shown pushed into open position by the tapping tube.

Figure 4, a sectional view on line 4—4 of Figure 1.

Figure 5, a side view of the valve assembly taken on line 5 of Figure 1.

Figure 6, a view of a barrel with the entire tapping assembly in place.

Figure 7, a view showing a method of tapping an installed bung opening in an existing barrel.

Figure 8, a sectional view showing the manner in which a replacement valve is threaded into position from the inside of a barrel.

Figure 9, a sectional view of the bung with valve in place and a protective cap in the open outer end.

Referring to the drawings, in Figure 6 a steel barrel **20** is shown having a side bung **22** and an end bung plate **24**. The Peerless dispensing unit is shown generally at **26** in Figure 6 having a tap rod **28** extending down into the barrel.

Figures 1, 5 and 7 show in cross section a depressed, cup-like formation **30** in the bung plate **24**. Rising centrally in this depression is a bushing **32** which has bayonet connections **34**, Figure 2, which co-operate with a locking collar **36** on the dispensing unit.

A tap washer **38** is adapted to be compressed by a threaded top nut **40** to seal the cap around the rod **28**. On the top of bushing **32** a compressible bush washer **42** is sealed against the bushing by turning the threaded adjuster ring **44**. The locking collar **36** has lugs **46** which co-operate with the bayonet slots of the bushing **32**.

In present-day installations using the above-described tap mechanism, a seal is obtained by a cork which is driven into the top bung. When the barrel is tapped, the cork is driven down into the barrel by the rod **28** as it is inserted. After the beer has been used and the tap mechanism, including the rod, has been removed from the barrel, this opening in the bushing formerly sealed by the cork is left open to the air. This opening is a source of contamination in the handling of the barrel and necessitates a washing and re-pitching of the barrel before it can be re-filled. In the case of aluminum and stainless steel barrels, this situation results in a pitching operation which might not be necessary if the barrel were sealed at all times.

The present invention contemplates in part an adapting system for using present-day barrels with the sealing mechanism to be disclosed. The first step in the adaptation is the dropping of a chain **50** (Figure 7) having a lead plug **52** through the bushing **32** and out through the side bung **22**, where a thread tap **54** is applied to the lead plug. The chain is then drawn up through the opening of the bushing **32** and a wrench may be applied to the plug **52** to turn the tap **54** and create a threaded opening **56** inside the bushing.

The tap **54** is then threaded out of the opening **56** and dropped out through the side bung **22** and removed from the lead. The barrel is then ready for the application of a valve shown in Figures 1, 3 and 5. This valve has a body portion **60** having a threaded neck **62** adapted to thread into the tapped bushing **32**.

The body has an outwardly extending face portion **64** carrying a washer **66** to form a seal between the valve body and the lower surface of the bushing **32**. The interior of the neck portion **62** has a hexagonal shape as at **68**, Figure 4, to permit tightening of the valve into the opening. Depending from the flanged body portion **60** on one side thereof are two spaced lugs **70** which, as a clevis, pivotally support a cage member **72** having a U-shaped cross section with sides **74** connected by a bight portion **76**.

Lugs **78** co-operate with a pivot **80** to mount the cage on the body portion **60**. At the lower end of the cage, as shown in Figures 1 and 5, two spreading arms **82** diverge away from the main portion of the cage. From the ends of these arms tension coil springs **84** extend upwardly to small, spring-retaining lugs **86** depending from the flange of the valve. The valve closure member for the body consists of a plug member **90** having an annular flange **92** which supports a rubber washer **94** which co-operates

with the seat formed on the bottom surface of the valve body around the opening therein.

A small stud projection **96** enters the cage **72** between the sides **74** and is positioned at one side by the bight portion **76**. The sides **74** are hollowed out slightly to receive the cylindrical shape of the stud **96**, and the lugs **70** and **78** serve to retain the flange **92** at the other side.

The installation into position is accomplished also with the chain **50** and the lead plug **52** which is passed down through the bushing **32** and out through the side bung **22**. The valve is then fastened on as shown in Figure 8, a small spring **100** serving to engage one of the hexagonal walls of the inside of the valve. The valve is drawn through the side bung and up into position, where it can be threaded into place and sealed against the bottom wall of the depressed recess **30**, as shown especially in Figure 8.

The lead plug **52** serves as a wrench to tighten the valve into position. In Figure 1 the valve is shown in position in the top bung and the valve plug is in closed sealing position relative to the valve body. The tap rod **28** is shown in Figure 1 in position ready to open the valve.

In Figure 3 the tap rod is shown as it has been pressed down against the valve to urge the valve to open position. It will be seen that the end **102** of the tap rod exerts its force against the metal plug member **90** and does not disturb or touch the sealing member **94**. The springs **84** are stretched to the position shown in Figure 3, and the valve is held in this position as long as the tap rod is in the barrel. As soon as the tap rod is withdrawn, the valve arm or cage **74** swings into closed position by reason of the springs **84**.

The coil springs **84** are preferably about two inches in length when no tension is applied. They are applied under tension in closed position so that the overall length is about 2¼ inches, and in full open position the springs are stretched to about 3 inches. This is well within the elastic limit of the spring steel; and due to the fact that two relatively long springs are used, the construction is designed for extremely long spring life. Pressures within the beer barrels seldom exceed 15 pounds per square inch; and of course, in closed position the pressure tends to urge the valve more tightly toward its seat.

Even if it is necessary to pitch the barrels, the valve operates perfectly well regardless of the amount of pitching and is not subject to any destruction as a result of the pitching temperature of 350 degrees Fahrenheit. Pitching has no effect whatsoever on the opening or closing of the valve. The sealing ring **94** is preferably formed of neoprene.

It will be understood, of course, that as present-day barrels become discarded due to obsolescence the new barrels may be actually manufactured with the threaded socket as shown in Figure 8 to receive the valves.

In Figure 9 a sectional view shows the use of a screw bung plug if this is desired. For long shipments under certain conditions, this added protection may be desired to keep the tap-hole free from damage. Also, it affords a double seal up to the time that the barrel is actually tapped and can be used too as a temporary seal before valves are installed.

I claim:

A valve for use with a pressure container having a threaded bushing on one wall shaped to co-operate with a dispensing apparatus and having two sealing surfaces, one at the outer end and one at the inner end, said valve comprising, a threaded nipple to be held in the threaded portion of said bushing, a flange on said nipple for co-operating with the inner sealing surface of the bushing to seal the same, and means pivotally mounted on said flange to close the nipple from within the container comprising an elongate member having an opening at one end, a valve closure plug removably located in said latter opening, means on said flange mounting said member in pivotal relation to said nipple and means to bias said last member in co-axial relation to said nipple when in closed position, said member being movable by pressure on said closure plug to a position transverse to the axis of said nipple.

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