

(No Model.)

C. McDOUGALL.
BUNG OR TAPPING DEVICE.

No. 534,568.

Patented Feb. 19, 1895.

Fig. 1.

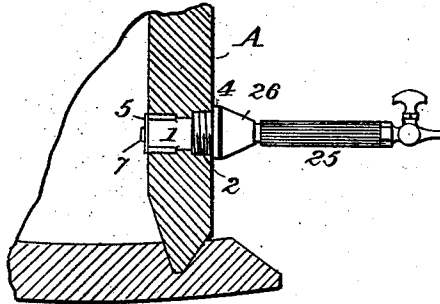


Fig. 2.

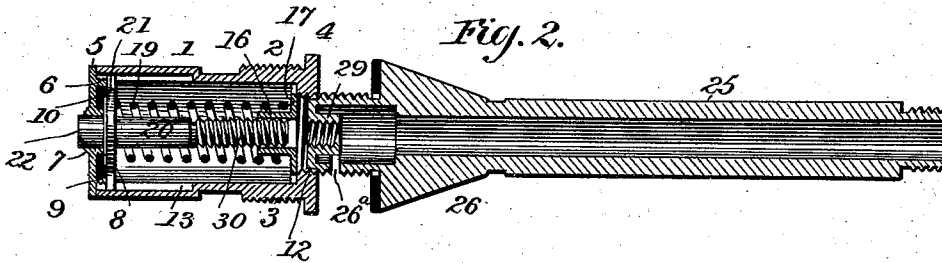


Fig. 3.

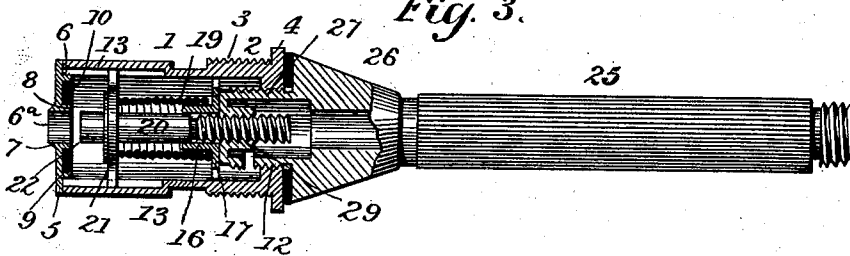


Fig. 4.

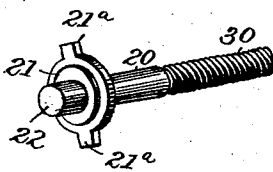


Fig. 5.

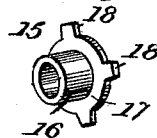
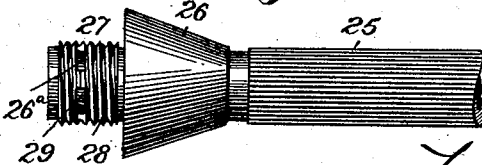


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

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BUNG OR TAPPING DEVICE.

SPECIFICATION forming part of Letters Patent No. 534,568, dated February 19, 1895.

Application filed October 2, 1894. Serial No. 524,773. (No model.)

To all whom it may concern:

Be it known that I, COLIN McDOUGALL, residing in the city, county, and State of New York, have invented certain new and useful
5 Improvements in Bungs or Tapping Devices, of which the following is a specification.

This invention relates to certain new and useful improvements in combined bungs and faucets for barrels and casks, and it consists
10 substantially in such features of construction and combinations of parts as will hereinafter be more particularly described.

The invention has reference more especially to that class of bungs or tapping devices
15 in which the outlet opening or bung-hole of a barrel or cask is normally closed by a valve, and which latter is opened to permit outflow of the liquid on the insertion of a faucet or a similar draw-off pipe. A great many devices
20 of this character have been heretofore devised, but while some are found to be thoroughly effective for the purpose intended, a great many others have proven entirely inadequate to the needs of a perfect bung or
25 tap. One of the principal disadvantages with the faulty kind is that the valve and its actuating spring are extremely liable to get out of order or become broken; while still another disadvantage is that in the transportation of the barrel or cask, it is a very easy
30 matter for train hands or other operatives to gain access to the interior of the barrel or cask by very simple means, thereby causing considerable loss of the liquid contents which otherwise might be saved.

The present invention has for its object to overcome the objections above noted, and to provide a bung and faucet which is so combined that the use of each is essential to the
40 other, and thereby obviating the loss of the contents of the barrel or cask by theft.

A further object of the present invention is to provide a combined bung and faucet which obviates or prevents the discharge of
45 any of the pitch coating of the cask after the coating has been fractured or broken to permit of the liquid contents being drawn off in the usual manner.

A still further object of the present invention is to provide a combined bung and faucet,
50 the working or internal mechanism of which is maintained free of or out of contact with

the liquid contents of the barrel or cask substantially as will hereinafter more fully appear when taken in connection with the accompanying drawings, in which—

Figure 1 is a sectional view of a portion of a barrel or cask showing the insertion therein of my improved bung and faucet. Fig. 2 is a longitudinal sectional view of my improved
60 bung and faucet, the latter being shown as about ready to be started or screwed home, and both the inlet and outlet valves of the bung proper being closed. Fig. 3 is a similar view representing the faucet or draw-off pipe
55 as being screwed home within the bung, both the inlet and outlet valves of the bung proper being shown open. Fig. 4 is a perspective view in detail of the inlet valve of the bung, showing the construction by which the same
70 is operated as hereinafter described. Fig. 5 is a similar view of the outlet valve of the bung, the same indicating the construction of guides by which the movement thereof in the cylinder is insured. Fig. 6 is a side elevation of the faucet or draw-off pipe by which
75 to indicate more particularly the construction of the inner end thereof which fits or screws into the outer end of the bung proper.

In carrying my invention into effect, I provide a tubular shell or cylinder 1, which, as
80 shown at 2 is enlarged, and formed or provided with a screw thread 3 by which the said shell or cylinder is screwed or inserted into the bung-hole of an ordinary barrel or cask,
85 the depth of said shell or cylinder being usually or preferably about equal to the thickness of the wood of the cask or barrel, or, if desired, the said shell or cylinder might be of a little greater depth and extend partly
90 within the interior of said cask or barrel, which latter is indicated by the letter A. As is usual with beer and ale casks, the interiors thereof are from time to time lined or coated with pitch or other similar material so as to
95 preserve the same from the effects of the contained liquids, and as ordinarily constructed heretofore, it has been quite difficult to prevent some of the pitch or lining of the cask or barrel being drawn off with the contents after the tapping of the keg or barrel
100 has been effected.

As will hereinafter more fully appear, by my construction, whenever a cask or barrel is

tapped for the purpose of drawing off the liquid contents thereof, the interior lining or coating of the cask or barrel is so evenly cut or fractured by the act of tapping the barrel or cask, that not even the slightest particle of the pitch or other lining of the vessel will be drawn off with the liquid. This is a valuable desideratum in this class of inventions, and as hereinafter more particularly pointed out, it will be seen in what manner I accomplish the same.

Referring back to the shell or cylinder 1, it will be seen that at the forward or outer end thereof, there is an annular flange 4 which forms a sealed joint with the keg or cask in which the bung is fitted, while at the inner end thereof there is a cap piece or cover 5, which is provided with a short screw-threaded portion 6, screwing into the inner end of the bung, substantially as shown, and forming a sealed or closed connection therewith. Instead of this form of connection between the closing cap and the inner end of the bung or cylinder, it is evident that other similar forms of connection might be employed, but such as is herein shown has been found to be simple and practical in use.

In referring to the bung and the shell or cylinder, it will of course be understood that the same thing is meant, and as will hereinafter appear all of the working or operative devices of my invention are protected from the clogging effect of the pitch with which the barrel is frequently lined, also the liquid contents of the barrel or cask, and in order that the said contents may not become tainted by the material of which the said bung or cylinder is constructed, the latter may, if desired be coated with some non-corrosive substance for the purpose.

The closing cap or cover 5 is formed or provided with a central circular opening 6^a surrounded on the outer side of the cover or cap by a slanting or beveled flange 7, while on the under surface of said cover or cap is an annular flange or rim 8 which surrounds the circular opening 6, and outside of which and nearer to the edge or perimeter of the said cap or cover is an annular flange 9, the said concentric flanges 8 and 9 serving to hold between them a cushion or gasket 10 made of rubber or other suitable material.

With the exception of the short screw-threaded portion which receives the screw-threaded portion 6 of the cap, the inner surface of the shell or bung is smooth, but at the outer end thereof, and interiorly of the annular flange 4 there is also a screw-thread 12 designed to receive the projecting nipple of the faucet or draw-off pipe as will hereinafter be more particularly explained.

The sides of the shell, cylinder, or bung, are cast or formed with diametrically opposite guide channels 13, 13 in which is guided and maintained in position the combined inlet valve and bolt hereinafter described.

Seated within the bung or cylinder, and located at the outer end thereof is the outlet

valve 15 which, as shown, is in the form of a spider having a short tubular portion 16, and a circular flange 17 from which ribs 18 project at regular or certain intervals. The dimensions of this outlet valve are such that the ribs 18 exactly fit within the tubular body of the shell or bung, while there are spaces between these ribs which permit of the outward flow of the liquid when the valve is forced inward by the act of inserting the faucet or draw-off pipe; also contained within the bung or cylinder is a spiral spring 19 which, as shown, fits around the tubular portion 16 of the outlet valve, and is thereby held in central position, it being by the tension of this spring that both the said outlet valve, and the inlet valve (about to be described) are normally held in their closed or outward positions prior to the insertion of the faucet or draw off pipe.

Passing or extending within the cylinder or bung, and also extending centrally of the spiral spring 19 is a stem 20 which is formed or provided at or near its upper end with an inlet valve or head 21, having diametrically opposite guide teats 21^a which fit and work within the channels 13, 13, of the cylinder or bung, and which said valve or head is formed or provided on its upper surface with an annular ridge which coincides with the cushion or gasket 10 and serves to maintain a close joint between the cap or cover 5 when the latter is screwed tightly into place. For the lower portion of its length the stem 20 is screw-threaded, and when the parts are in position previous to the insertion of the faucet or draw-off pipe, the outer end of said stem is flush or nearly so with the outer surface of the outlet valve 15, and the upper projecting portion 22 of the stem is also at the same time a little beyond the annular slanting or beveled flange 7 which surrounds the circular opening 6 in the closing cap or cover 5 hereinafter referred to. In this position it will be understood that the spiral spring 19 is compressed, and in order for the contents of the cask or barrel to be withdrawn, it is of course necessary that the outlet valve of the bung be opened.

It will be seen from the construction thus far explained that the movement or working of the parts is in a direct line and that by virtue of the guides provided for both the inlet and outlet valves, no improper or undesirable working of the parts can take place.

It will further be seen that both of the valves as well as their operating spring are inclosed and out of contact with the liquid contents of the barrel or keg, and that the latter can be lined or coated interiorly with pitch or other suitable substances usually employed for the purpose. As thus arranged, within the side or bung-hole of a barrel or cask, it will be seen that by virtue of the beveled flange 7 of the cap or cover 5 whenever the projecting portion 22 of the stem 20 is forced inwardly, the effect will be to exert a shearing or well defined fracture of the in-

terior hardened coating of pitch or other substance, and to completely cut away the coating from around the opening in such manner as to leave no overhanging or projecting portions. In this way, when the contained liquid is drawn off, no small particles of the pitch or coating will be drawn off with it, and thus is great annoyance overcome.

In order to provide a ready means of opening and closing the inlet and outlet valves of the bung or cylinder 1, I provide a faucet or draw-off pipe 25 preferably straight and somewhat enlarged and tapered at 26 so as to conform to the shape and size of said bung or cylinder. The said faucet or draw-off pipe is formed or provided at its inner end with a nipple 27 which is screw-threaded at 28 in conformity with the screw-thread 12 on the interior of the flange 4, and said nipple or screw-thread is broken at opposite points indicated at 26^a, so as to form ports through which the liquid can escape to the pipe whenever the said faucet is properly inserted. Formed with or extending within said screw-threaded nipple is a concentric nipple 29 which is screw-threaded interiorly in conformity with the screw thread of the stem 20, the construction and arrangement being such that when the nipple of the faucet is first inserted and screwed in a short way no effect will be had upon the outlet valve, but by continued turning of the faucet the said outlet valve will be forced inward against the action of the spring, and the ports in the end or sides of the faucet will be brought into communication with the interior of the bung before the inlet valve 21 has even started. Thus by screwing the faucet all the way in the said inlet valve is drawn inwardly by the action of the inner concentric nipple 29 screwing onto the threaded stem 20, and it will be seen that no liquid can pass into the bung from the cask until the faucet has been screwed home.

That part of the stem which is screw-threaded, I will designate by the numeral 30 and inasmuch as it is desirable that the inlet and outlet valves of the bung should be opened to their fullest capacity by the time the faucet or draw off pipe is screwed home, the inclination of the screw-threaded portion 30 of the stem is of course greater than the inclination of the screw-thread of the faucet nipple owing to the differences of the diameters of the two. Thus the effect is that by the time the faucet or draw-off pipe is screwed home, the inlet valve has been drawn in to allow the liquid to pass within the cylinder or bung, while at the same time, the end of the faucet nipple has operated upon or against the outer face of the outlet valve, and the liquid escapes into the ports of the nipple which of course communicate with the interior of the draw-off pipe, and in this way the liquid contained in the cask or barrel can be drawn off at any time in the manner usual

in this class of inventions. Surrounding the faucet nipple and resting against the enlarged or tapered portion thereof, I preferably employ a rubber or other suitable elastic washer or gasket, so as to prevent as much as possible any escape or leakage of the contents of the vessel, while in use.

As will be observed when the parts of the bung proper are all screwed up tightly the projecting portion 22 of the stem of the inlet valve extends slightly beyond the extreme edge of the beveled flange 7 of the cap or cover 5, and consequently when the faucet is inserted and screwed home, the withdrawal of the said projecting portion of the stem necessarily loosens and cuts out a correspondingly shaped piece or portion of the interior coating of the cask or barrel, no loose portions being left to pass out with the liquid when the latter is drawn off. This explanation is simply made in order that there will be no misunderstanding as to the working and operation of the invention. The barrels or casks are ordinarily provided with the bung as herein described, while the faucets are usually held by the party to whom the casks are shipped or sent, so unless the operatives or attendants of the railroads happen to know how to open the bungs, and are provided with the proper kind of faucet, it will be impossible for any of the contents of the casks or barrels to be withdrawn in transit.

In order to tap the cask or barrel the screw-threaded nipple is inserted and screwed up into the annular flange 4, whereupon the face or edge thereof contacts with the outlet valve, and forces the latter inward, and then by continued screwing up of the faucet the screw-threaded portion 30 of the stem is received in the interiorly screw-threaded concentric nipple 29, with the result that the inlet valve of the bung is drawn inwardly not, however, until after the inward movement of the outlet valve has been effected. As before stated the inclinations of the threads of the stem and nipple are so proportioned with respect to their diameters that the full opening of the inlet valve will about coincide with the screwing up of the faucet, thereby preventing leakage which would occur if the inlet valve was opened before the complete sealing of the faucet.

The terms "valve" and "outlet valve" as applied to the element "15" herein is used only in the sense that the same serves as a cut-off to prevent any leakage or escape of liquid through the bung after the liquid in the bung reaches a level lower than will permit outward conductivity thereof by the screw-thread 30 of the stem 20.

It is thought from the foregoing description, taken in connection with the accompanying drawings, that the construction and operation of my invention will be fully understood.

The various minor details in the construc-

tion could be altered in immaterial degrees, and I therefore do not wish to be understood as limiting myself to the precise details herein shown and described.

5 What I claim is—

1. A bung for barrels or casks, the same comprising a cylinder or shell provided at each end with a normally closed valve, said valves opening inwardly or toward each other
10 and a faucet or draw-off pipe fitting one end of said cylinder or shell and adapted to open both valves when the same is screwed up or inserted, substantially as described.

2. A bung for barrels or casks, the same
15 comprising a cylinder or shell enlarged at one end and screw-threaded exteriorly, and provided at each end with a normally closed valve, said valves opening inwardly or toward each other and a faucet or draw-off pipe fitting said
20 cylinder or shell and adapted to open the valves one in advance of the other when the said pipe is screwed up or inserted, substantially as described.

3. A bung for barrels or casks, the same
25 comprising a cylinder or shell provided interiorly at each end with a normally closed valve, the valves opening inwardly or toward each other and a faucet or draw-off pipe fitting one end of said cylinder or shell and adapted
30 to open both valves when forced into place, the said faucet or pipe being provided with ports communicating with the shell, substantially as shown and for the purpose set forth.

4. A bung for barrels or casks, the same
35 comprising a cylinder or shell having at its inner end a central opening bordered by a sharp projecting flange, a normally closed inlet valve, the stem of which protrudes through said opening beyond the flange, a normally
40 closed outlet valve, and a faucet or draw-off pipe adapted when screwed up or forced into place to withdraw said stem and open both valves, substantially as described.

5. In a bung for barrels or casks, the combination of a cylinder or shell interiorly screw-threaded for a short distance at one end and closed at the opposite end by a screw-cap having a central opening, an inlet valve located within said shell, the stem of which normally closes said central opening and is screw-threaded for a portion of its length, an outlet valve located at the opposite end of the shell and receiving the screw-threaded end of the stem, a spring normally closing both valves,
55 and a faucet or draw-off pipe adapted when

screwed home to withdraw said stem and open both valves, substantially as described.

6. A bung for barrels or casks, the same comprising a cylinder or shell having diametrically opposite guides, an outlet valve
60 formed with projecting teats and intermediate spaces, an inlet valve having projections fitting the guides and formed with a screw-threaded stem, a screw-cap closing the inner end of the shell, and a faucet or draw-off pipe
65 provided with a nipple screw-threaded exteriorly to fit the shell, and having an internal thread fitting the thread of the valve stem, substantially as described.

7. A bung for barrels or casks, the same
70 comprising a cylinder or shell provided at each end with a normally closed valve, a stem fitted to one of said valves and screw-threaded for a part of its length, and a faucet or draw-off pipe provided with a nipple having internal and external screw threads of different inclinations, substantially as shown and for the purpose set forth.

8. A bung for casks or barrels comprising a cylinder or shell having at its inner end an opening surrounded by a sharp or beveled shaped flange, a valve the stem of which normally projects through said opening beyond the flange, and a faucet or draw-off pipe adapted when inserted within the cylinder to
85 open said valve and withdraw the stem, substantially as shown and for the purpose described.

9. In a bung for casks or barrels, the combination of the shell enlarged at one end and screw-threaded to receive a faucet, the screw-cap closing the inner end of the shell and formed with the central opening, the gasket seated within said cap, the outlet valve at one end of the cylinder, the inlet valve having the stem screw-threaded as described, and the faucet or draw-off pipe having the nipple screw-threaded externally to fit the shell, and screw-threaded internally to receive the valve stem, the said nipple being provided with
90 the ports affording a communication between said draw-off pipe and bung, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of
95 two subscribing witnesses.

COLIN McDOUGALL.

Witnesses:

T. B. CLARKSON,
ADNA G. BOWEN.