UNITED STATES PATENT OFFICE.

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BEER-RACKING APPARATUS.


To all whom it may concern:

Be it known that I, HENRY L. MOMBURG, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Beer-Racking Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention is a means for filling receptacles, and I have chosen to illustrate the same in this application as embodied in a beer-racking apparatus.

One object of my invention is the provision of means for rapidly filling kegs or other receptacles with liquid.

Another object of my invention is the provision of means for completely filling the kegs or other receptacles with liquid without wasting the liquid.

As the liquid—e.g. beer, for instance—is supplied to or introduced into the keg it will foam and the foam will float on top of the liquid as the keg is filled. Now in order to completely fill the keg it has been necessary to allow the foam to run out of the bung-hole and be wasted, the beer also overflowing unless shut off just as the liquid reaches the bung-hole. This operates to waste considerable beer when filling a number of kegs, and as the filling operation should be completed as speedily as possible the drip and overflow beer wasted is a considerable amount.

My invention is designed to avoid all waste from any source whatever, and if a little care be used no appreciable amount of beer need be wasted.

Of course if the foam in the keg is not allowed to overflow then a "short" keg is the result, the beer not completely filling the keg, and the air commingled with the foam will operate to make the beer "flat" and destroy the taste and freshness. By the use of my apparatus this danger is avoided, since the keg is filled completely with beer, the foam being forced out of the keg, and hence when the bung is driven into the keg there is no air left in the keg and the beer retains its original strength, freshness, and taste.

Another object of my invention is the provision of a means for receiving the foam and overflow beer from one keg and supplying it to the succeeding keg to be filled without impairing the beer in the slightest, and yet effecting a saving of the liquid.

Another object of my invention is the provision of a novel means for retaining the filling-tube in the keg by releasably locking it in place when inserted through the bung-hole.

A further object of my invention is the provision of an inexpensive, simple, and neat racking apparatus which will effectually perform all the work required in a highly efficient manner.

To these ends my invention consists, broadly, of a suitable supporting-frame, upon which is carried the filling tube or tubes, which are provided with means for receiving the overflow beer, which means is also connected with a member, likewise carried by the frame, for causing the expulsion of the overflow beer into the next keg to be filled, together with means for connecting the filling-tube with the source of supply.

Of course my invention is by no means limited in its use to beer; but may be used in connection with any liquid which is to be placed in receptacles, whether kegs, bottles, or what not.

My invention also consists in certain novel features and combinations of parts or their equivalents, which will be more fully described hereinafter and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of one embodiment of my invention. Fig. 2 is a side view thereof. Fig. 3 is a detail view, in vertical section, of the filling-bung or sleeve and its connected parts. Figs. 4 and 5 are detailed top plan and side views, respectively, of the means for forcing and releasably retaining the filling-bung in the bung-hole or opening of the receptacle; and Figs. 6 and 7 are side and top plan views, respectively, of the means for releasably locking the filling-tube in the receptacle being filled.

In this particular embodiment of my invention herein illustrated, my invention being capable of use in other forms of devices, A indicates the frame or support, which is preferably of the inverted-L-shaped form, as shown, and comprises a skeleton top and back, at right angles to each other and each comprising an oblong section, the frames be-
The frame may be supported from the ceiling or elsewhere by means of the suspension-hooks 1, 1, or it may be otherwise supported and is adapted to carry the entire mechanism.

A platform 2 is provided, the same extending horizontally from the lower end or side of the lower section 2 of the frame and being supported by the straps 3, 3, projecting from the side 2, and the straps 4, 4, projecting upwardly and outwardly to the front rail 5 of the upper section of the frame, the straps being provided with hooks taking over the rails 2 and 5 and permitting the platform and its connected parts to be lifted off or removed from the frame for cleaning or other purposes.

An air tank or reservoir 6 is supported upon this platform, the tank being provided with a gage-glass 7 for a purpose hereinafter set forth and having a cover 6a removably secured to the body portion by means of suitable fastening means.

A pressure-gage 8 is mounted on the cover, from which also projects an exhaust or outlet pipe 9, provided with a valve or cock 9a. A pipe 10, leading from any suitable source of air-pressure, communicates with the tank through the cover, foam-pipes 11, 11 also leading into the tank from the upper end thereof, as shown, and while these connections may be made in any suitable manner, I have shown the exhaust-pipe 9 as leading from the pressure-gage-pipe support and the inlet and foam pipes all communicating through a single tube with the interior of the tank.

A liquid-outlet pipe 12 leads from the lower end or base of the tank and is provided with a cock 12a for the purpose of draining the tank of its liquid contents, as hereinafter described.

Preferably located in front of the tank 6 and mounted on the platform 2, through which it projects, is a tube 13 of comparatively large diameter, the upper end of which is provided with a sight-glass 14, the tube terminating in a multiple-branched connection 15, from which lead the flexible tubes or pipes 16, 16, communicating with the filling-tubes hereinafter described, the connection at its base being provided with a cock 17 for the purpose of determining the kind of liquid being supplied to the filling-tubes. Thus in a beer-racking apparatus it is desirable to fill some receptacles with dark and others with light beer or special brews, and while the sight-glass 14 may sometimes be depended upon to determine which brew is being supplied it is often more feasible to test it by withdrawing a certain amount from the cock 17, the sight-glass being more useful in determining the flow of the liquid. Again, after the apparatus has been employed with one brew and it

is desired to change the brew or supply another liquid, that brew remaining in the pipes may be drawn off by means of the cock 17, and in first supplying beer or liquid to the receptacles to be filled, it is the better plan to permit the first supply, which may be impure or dirty, to run out of the cock until the clear pure liquid commences to flow through the pipe. To the lower end of the tube 13 is secured the flexible supply-pipe 18, leading from any suitable source.

The filling-tubes, to which the pipes or flexible conducting means 16, 16 lead, each preferably comprises an adjusting-rod 19, a tube 20, the upper end of which is secured to the lower end of the rod by a coupling 21, and a filling-bung or hollow sleeve slideable on the tube 20 and located normally about half-way between the ends of the tube 20.

This cistern may vary with the height or diameter of the receptacle to be filled.

The upper end of the rod 19 passes loosely through an aperture formed in the outer end of a crowding-clamp comprising a member 22, which member is pivotally journaled at its inner end on the front rail 5 of the frame and is movable laterally thereon, set-collars 23, 23 being located on each side of the locking member to adjustably retain the locking member in the desired position and prevent lateral movement thereof on the rail, permitting the locking member a swinging movement on the rail, however.

A preferably approximately rectangular aperture 24 is formed in the member and intersects the aperture in which the rod 19 is received. Located loosely within the aperture 24 is a plate 25 of similar conformation, having an orifice 26 in alignment with and of larger diameter than the aperture through which rod 19 passes, the rod also passing through the orifice 26.

A locking screw 27 passes through the outer end of the member 22, the inner end of the screw abutting the edge of the plate 25 and crowding it over, carrying the rod 19 therewith, which is thus adjustably clamped between one side of the inner periphery of the crowding-plate 20 and the opposite side of the inner periphery of the aperture in the member 22. This crowding-clamp adjustably sustains and locks the filling-tube at any desired height, dependent upon the height or diameter of the receptacle to be filled, and it may here be stated that it is this crowding-clamp which holds the filling-tube tightly in place in the receptacle to prevent the tube from moving or jerking about. The passage of the liquid under pressure through the hose 16 and filling-tube tends to straighten the hose and as a result thereof would cause the undesirable movement of the tube referred to, just as in a firehose, were it not for the crowding-clamp, which locks and holds the filling-tube firmly in place.
Intermediate the ends of the hollow filling-tube, though preferably near the upper end thereof, is located a branch 28, to which the end of the hose 16 is connected, and the lower end of the filling-tube, which is inserted in the receptacle to be filled and is forced down tightly on the bottom thereof, is scalloped, as shown, to permit the liquid to escape. Just beneath the branch 28 is located a cock or valve 29 for controlling the flow of liquid, and beneath the cock 29 is formed an air-inlet 30, controlled by a valve 30* for a purpose hereinafter set forth.

The filling-bung 31 comprises, preferably, a hollow sleeve closed at its upper end by means of a stuffing-box 32 and at its lower end provided with a flexible substantially frusto-conically-shaped ring 33, designed to fit into the bung-hole or opening of the receptacle to be filled.

The inner diameter of the chamber 34 within the sleeve or bung is considerably larger than the exterior diameter of the filling-tube 20, and the bore of the ring, while less than that of the sleeve, is greater than the maximum diameter of the tube, whereby communication is formed between the interior of the receptacle being filled and the chamber 34 within the bung. Leading from this chamber is a branch 35, controlled by a cock 35*, from which pipe the foam-pipe 11, having a sight-glass 11*, leads to the upper end of the tank 6, communicating with the interior thereof through the cover, as set forth.

The bung is provided exteriorly with a lug or ear 36, to which one end of a flexible connection 37 is secured, the connection passing over a block 38, carried by a bar 39, extending between the forward suspension-hooks and preferably parallel with the forward rail 5, thence over a block 39, carried by a bar supported on the rear suspension-hooks, the opposite end of the flexible connection having a weight 40 secured thereto, the object of which is to counterbalance the weight of the filling-tube and its connected parts. When the tube is in filling position, it is pulled downward into its lowered position, as shown at the right of Fig. 1 and in Fig. 2, and maintains a normally upright position; but when a tube is not in use it is pushed upwardly and automatically assumes the inclined position shown by the tube at the left in Fig. 1, where it is out of the way and permits the removal and placing the receptacles. In being moved from its inoperative to its operative position, or vice versa, the tube is swung on the forward rail 5 as a center. To adjust the tube to different heights, the crowding-screw 27 is loosened, permitting the rod 19 to be moved vertically in the desired direction, after which the screw is tightened to maintain the adjustment. Of course it is to be understood that the arrangement of the counterbalance is merely a preferred form, any other suitable arrangement being equally effective.

As one means for releasably forcing the filling-bung tightly into the opening of the receptacle 1 provide a clamping device comprising an L-shaped supporting member 41, the flange 42 of which is provided with a crowding-screw 42*, the inner end of which is adapted to engage one edge of a crowding-plate 43, both the member and plate having apertures registering with each other for loosely receiving the filling-tube 20, so as to slide thereon, said clamping device being located just above the filling-bung, the aperture in the crowding-plate being of larger diameter than the tube, so that the clamping device may releasably grip the tube at any point in its range of movement on the tube in the same manner as has heretofore been set forth relative to the crowding-clamp. A cam-lever 44 is pivotally secured to supporting member 41, the cam-lever being approximately Y-shaped in form to embrace the clamping device and having a handle 45, 90 the peripheries of the cams adapted to engage the stuffing-box of the sleeve to force the flexible ring carried thereby down snugly into the opening in the receptacle to be filled.

It will be seen that all parts of this device are easily accessible for cleaning or other purposes, its operation and manipulation being very simple and easily managed as follows: A barrel or keg B, for instance, is placed in the holder C, located approximately vertically beneath the crowding-clamp. The filling-tube, which normally occupies the inclined position shown, is swung forward and the crowding-screw 27 loosened, the discharging end of the filling-tube being inserted in the bung-hole of the barrel or keg and forced downwardly until the lower end of the tube impinges on the opposite wall of the keg. The filling-bung is normally slidable on the tube, the stuffing-box preventing its movement by frictionally engaging the surface of the tube. When the length of the filling-tube has been adjusted, the crowding-screw 27 is tightened, thereby firmly retaining the filling-tube in the receptacle and against movement. The clamping device carrying the cam-lever 44 is now adjusted, if necessary, the filling-bung being so positioned that its ring is received in the opening of the receptacle, and the cam-lever moved into locked position, forcing the filling-bung downwardly, so that its ring fits tightly in the bung. Everything being now fast, the cock 29 is opened and the liquid allowed to pass from the supply-pipe 18 through pipe 13, connection 15, and hose 16 to the filling-tube 20 and into the receptacle. As the receptacle fills with liquid the air in the receptacle escapes through the bore of the ring into the chamber 34 of the filling-bung and from
thence through the looped flexible pipe 11, cock 35 being open, to the air-container 6. It will be seen that as keg after keg is filled the air in this tank will be compressed for a purpose hereinafter noted, and I may state that although I provide a compressed-air inlet 10 it is in practice rarely used, since the filling operation will automatically compress the air. As the foam which rides on top of the liquid reaches the height of the opening it too passes into the chamber 34 of the filling-bung and from thence into the pipe 11, the supply of liquid to the receptacle being continued until the operator sees the clear liquid rising in the gage-glass 11a. Whereupon he knows that the keg is completely filled. He will then close cocks 29 and 35, loosen the crowding-screw 27, and throw lever 44 to unlocked position to release the filling-bung and admit of the raising of the filling-tube out of the receptacle. As the filling-tube is raised out of the filling-receptacle, the cock 30 is opened to admit air above the column of liquid remaining in the tube below cock 29, thereby permitting liquid to fill the keg completely, the level of liquid in which would have been lowered upon the withdrawal of the tube therefrom. Another similar receptacle is now placed in position on the block C, the filling-tube inserted therein and locked in place, the filling-bung forced into the opening, and the air-cock 30a closed. The cock 35 is now opened to permit the beer which has overflowed from the first receptacle and which has collected in the hose 11 to flow into the second keg, thus saving the liquid which would otherwise be lost or wasted, the compressed air in tank 6 operating to force such liquid back into the receptacle to be filled. The cock 29 is now opened to fill the remaining space in the receptacle, and as soon as the clear liquid rises in the sight-glass 11a, the various cocks are closed, as heretofore set forth, and the operation is repeated.

The hose is of sufficient length to permit the filling-tube to be adjusted laterally on the rail 5 and also for the purpose of providing a sufficient length to contain the overflow without utilizing the air-tank 6 as a reservoir therefor, and in practice I find that very little liquid enters the tank, the hose being connected to the upper end thereof for the express purpose of preventing the entrance of liquid to the tank. Should any liquid enter the tank, it will be at once observed through the gage-glass 7, and when it is desired to draw off such liquid the cock 12a of the outlet-pipe 12 is opened and the compressed air utilized, together with gravity, to drain the tank.

The pressure within the tank can at all times be learned from the pressure-gage 8, and when the pressure is too high a sufficient amount may be released through pipe 9.

Of course I can use as many filling-tubes as necessary or convenient, though I have illustrated but two, and, further, it will be noted that the cams of the clamping-lever serve as guides and holders for the crowding-plate, since they project above the plate. Furthermore, owing to the fact that the forward block, through which the flexible connection between the bung and the counter-balance passes, is offset and out of vertical alignment with the bung when the tube is in operative position the tube is caused to assume the rearwardly-inclined position shown when in inoperative position to bring the bung beneath the forward block.

It is evident that many changes might be made in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the exact construction herein set forth.

Having thus fully disclosed my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A filling apparatus comprising a filling-tube, a supply therefor, a bung slidably mounted upon the tube for adjustment relative to the receptacle to be filled, a clamping device adjustable mounted on the tube and capable of movement lengthwise the tube independently of the bung, the clamping device and bung being unconnected and freely movable relative to each other, and a cam member pivotally mounted on the clamping device and adapted to engage the upper end of the bung to force and hold the latter in position.

2. A filling apparatus comprising a filling-tube inserted into the receptacle to be filled, a supply connected with the tube, means for controlling the supply, a filling-bung movable upon and frictionally engaging the tube, a clamping device located above the bung and adjustable on the tube, the clamping device comprising an apertured supporting member, a crowding member having an aperture therein of larger size than that in the supporting member, the apertures registering and receiving the filling-tube, a screw carried by the supporting member and engaging the crowding member to releasably lock the clamping device in its adjusted position and a cam-lever, yoke-shaped at one end to embrace the clamping device, the lever being pivotally secured to the supporting member and adapted to engage the upper end of the filling-bung to releasably lock the bung in position.

3. A filling apparatus comprising a filling-tube, a supply therefor, a filling-bung slidably on the tube, a clamping device independent of the bung, the clamping device comprising a supporting-plate, a crowding-plate mounted thereon, means for tightening the plates on the tube, the tube passing through the
plates, and a cam-lever, yoke-shaped at one end to embrace the plates, the cams serving as guides and holders for the crowding-plate and operating to force and hold the bung in position.

4. A filling apparatus comprising a frame, a filling-tube, a supply therefor, a filling-bung slidably mounted on the tube, a counterbalance located in the rear of the apparatus, a flexible connection extending between and directly connecting the counterbalance and bung for retaining the filling-tube in a rearwardly-inclined inoperative position out of the way of the receptacles to be filled and a pivotal connection between the tube near its upper end and the frame.

5. A filling apparatus comprising a frame, a filling-tube, a supply therefor, a filling-bung slidable on the lower end of the tube, a counterbalance, a flexible connection extending between and directly connecting the counterbalance and bung, blocks over which the connection passes, the forward block lying behind the filling-tube when the latter is in operative position in order to cause the tube to assume a rearwardly-inclined position when inoperative and a pivotal connection between the tube near its upper end and the frame.

6. A filling apparatus comprising a suitable support, an apertured member adjustably journaled directly on the support, a filling-tube passing through the aperture in the member and means for releasably locking the member and tube together.

7. A filling apparatus comprising a suitable support, a member journaled thereon, a filling-tube passing through the member, a crowding-plate carried by the member and adapted to engage the tube and means for releasably locking the plate against the tube.

8. A filling apparatus comprising a stationary rod suspended above the receptacles to be filled, a rigid filling-tube, one end of which is received in the receptacle to be filled, a plate slidingly journaled directly on the rod and adapted to project out over the receptacle and means carried by the plate and adjustably and releasably connecting the plate and tube for locking the tube in the receptacle.

9. A filling apparatus comprising a stationary support, a platform, means secured to the platform and removable by the support for sustaining the platform, an air-tank mounted on the platform, a multiple branched connection also mounted on the platform, a source of supply secured to the connection, a plurality of filling-tubes, separate conduits between the connection and each tube, a filling-bung on each tube in communication with the receptacle to be filled, and conduits leading from each filling-bung directly to the upper end of the tank.

10. A beer-racking apparatus comprising a frame, suspension-hooks supporting the frame, bars secured to the suspension-hooks, antifriction means carried by the bars, a platform removably supported by the frame, a tank on the platform, a filling-tube, a supply connected therewith, a filling-bung in communication with the receptacle to be filled and means connecting the bung directly with the upper end of the tank.

11. A filling apparatus comprising a suitable supply, a rigid filling-tube connected therewith, a suitably-supported frame, a plate slidingly journaled directly on the frame and projecting over the receptacle to be filled, means for adjustably and releasably connecting the plate and the upper end of the filling-tube above the connection of the supply with the tube, a counterbalance, pulleys laterally adjustable on the frame and a flexible connection secured directly to the lower end of the tube and to the counterbalance.

12. In a filling apparatus a rigid filling-tube, a suitable supply connected therewith, a filling-bung slidable on the tube, a clamping-plate slidable on the tube and formed independently of the bung, and a lever pivotally secured to the clamping-plate for releasably holding the bung in position on the receptacle being filled.

13. A filling apparatus comprising a rigid filling-tube, a suitable supply connected therewith, a bung slidable and rotatable on and removable from the tube, a clamping-plate slidable and rotatable on the tube, means for adjustably fastening the plate at any point on the tube, the plate and bung capable of movement relative to and independently of each other, and a lever pivoted to the plate and unconnected with the bung, for releasably holding the bung in position on the receptacle to be filled.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY L. MOMBURG.

Witnesses:

ARTHUR BEPPY,
WM. KOCH.