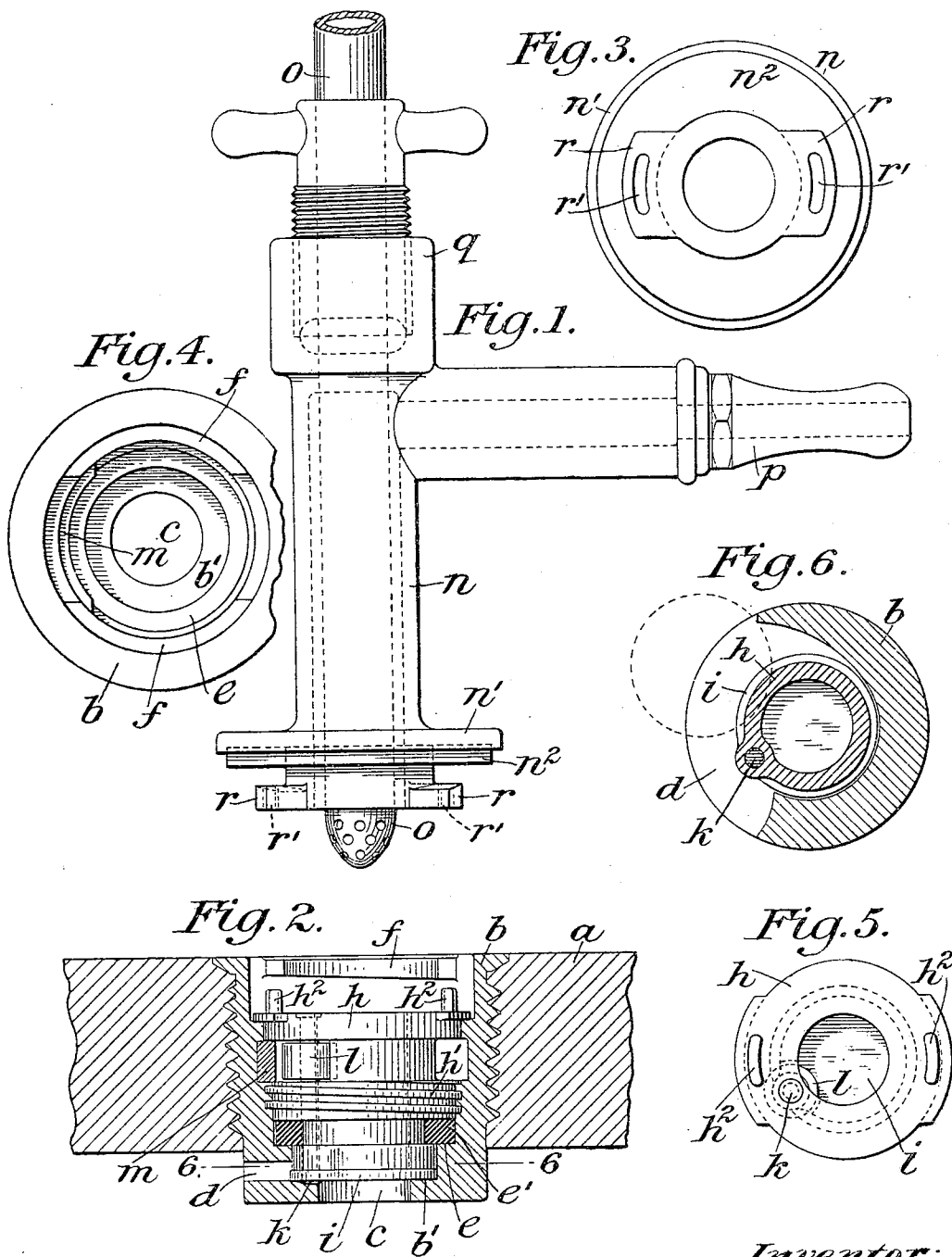


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C. F. TERNEY.
VALVE OR BUNG FOR BEER BARRELS, &c.
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Witnesses:

Chas. H. King.
A. N. Jesbera.

Inventor:

Charles F. Terney
by Redding, Kiddle & Greeley
Attys.

UNITED STATES PATENT OFFICE.

CHARLES F. TERNEY, OF NEW YORK, N. Y., ASSIGNOR TO HELENA TERNEY,
OF BROOKLYN, NEW YORK.

VALVE OR BUNG FOR BEER-BARRELS, &c.

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To all whom it may concern:

Be it known that I, CHARLES F. TERNEY, a citizen of the United States, residing in the borough of Brooklyn, in the city of New York, in the State of New York, have invented certain new and useful Improvements in Valves or Bungs for Beer-Barrels, &c., of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to closures for beer-barrels, &c., commonly known in the art in their various forms by the general term "bungs." Devices of this character in common use heretofore may be grouped into two classes, the one class including devices which comprise a metal bushing secured in the barrel and a removable stopper secured in said bushing and the other class including the so-called "safety" or "locking" bungs having valves to be operated by keys. Bungs of the former class are simple and inexpensive and permit the use of a tap rod or tube, whereby the same bung-hole or opening permits the flow of beer outward and the inflow of air or gas, making the provision of a second opening in the barrel unnecessary. These devices, however, do not provide for the automatic closing of the barrel when empty, and as a sequence in the return of the empty barrels from the customer to the brewery, for example, the entrance of foreign matter into the barrels becomes possible and the barrels frequently become infected and sour. The bungs of the second class, which include the locking or safety valves, insure the sealing of the barrel when the tap is removed, and therefore prevent absolutely the admission of foreign matter and of germs to the empty barrels.

It is the object of the present invention to provide a device which shall embody the advantages of both classes of bungs, particularly in providing for the automatic closure of the bung whenever the service-tap is discontinued, and at the same time for the use of a tap rod or tube, so that there need be but one opening in each barrel and the manipulation of but one service-tap shall be necessary.

The improved bung is of the safety or locking type; but in accordance with the invention the valve which is operated by the application of the key or tap is moved out of the path of the tap rod or tube. Provision is also made for the free movement of the valve in

closing and in opening and for the tight sealing of the same when closed, so that there can be no escape of either liquid or gas.

The invention will be more fully explained hereinafter with reference to the accompanying drawings, in which, for the purpose of illustration and explanation of the nature of the invention, it is shown as embodied in a convenient and practical form.

In the drawings, Figure 1 is a view in elevation of an ordinary service-tap adapted for use with a tap rod or tube. Fig. 2 is a view in sectional elevation of the improved bung. Fig. 3 is an end view of the tap. Fig. 4 is an outside end view of the bushing, partly broken away to save space. Fig. 5 is an outside end view of the rotating plug. Fig. 6 is a section on the plane indicated by the line 6-6 of Fig. 2.

In the embodiment of the invention illustrated in the drawings the head or bung-stave *a* of a keg or other package is shown as having threaded therein a bushing *b*, which projects inwardly beyond the surface of the head or stave. Its end is bored axially, as indicated at *c*, to provide a passage for beer and also for the tap-rod and is slotted laterally in that portion which projects inwardly beyond the head or stave, as shown at *d* in Figs. 2 and 6. At *e* it is shouldered to form a seat for a gasket *e'*, and near its outer end it is provided with the usual spirally-inclined ribs *f* for coöperation with the tap in the usual manner. Seated in the bushing is a rotating plug *h*, having at *h'* a screw-threaded engagement with the bushing, preferably left-handed and of low pitch. The screw-threaded portion *h'* forms a shoulder for coöperation with the gasket *e'*, which fills the space between the faces of the plug and bushing, and at its upper end the plug is provided with lugs *h''* for engagement with the tap. The rotating screw-plug is also bored axially and at its lower end carries a movable valve-disk *i*, which is adapted to be seated between the shoulder *b'* of the bushing *b* and the lower end of the rotating screw-plug to close the passage through the opening *c* of the bushing and through the screw-plug. The valve-disk is also arranged to be moved laterally through the slot *d*, and for this purpose it is secured upon the squared end of a spindle *k*, which is mounted in a suitable bearing bored therefor in the wall of the screw-plug parallel with the axis thereof, said spindle also having secured thereon a friction

wheel or gear *l*, adapted for operative engagement with a corresponding track *m*, secured or formed in the bushing *b*. Thus it will be seen that as the screw-plug *h* is rotated, as hereinafter described, the spindle *k* will also
 5 be rotated through the engagement of the gear *l* and track *m*, and the valve-disk *i* will be swung outward through the slot *d*.

The tap *n* is formed substantially as usual
 10 when intended for coöperation with a tap rod or tube *o*. It may be provided with a connection, as at *p*, for air or gas supply, and with a stuffing-box, as at *q*, to prevent leakage around the tap-rod. Its base-plate *n'* is ar-
 15 ranged to cover the bushing *b* and is provided with a gasket *n''* to make a tight joint therewith. The extension of the tap beyond the base-plate *n'* is provided with lugs *r* to co-
 20 operate with the spiral ribs *f* of the bushing for the purpose of drawing the gasket *n''* tightly against the face of the bushing, and the lugs *r* are recessed, as shown at *r'* in Figs. 1 and 3, to engage the lugs *h''* of the screw-
 plug *h*.

25 It will now be understood that when the tap is inserted in the bushing and is given a quarter-turn to the right a tight connection between the bushing and the tap will be effected and at the same time the screw-plug
 30 will receive a quarter-turn to the right. Through the action of the screw-threads at *h'* the plug will be drawn upward, thus relieving the pressure upon the valve disk or plate *i*, which was before firmly clamped be-
 35 tween the end bearing of the screw-plug and the seat *b'* of the bushing *b*, and at the same time, through the coöperation of the friction wheel or gear *l* with the track *m*, the spindle *k* will be rotated and will turn the
 40 valve-disk *i* outwardly through the slot *d*, as indicated by dotted lines in Fig. 6. As the valve-disk is relieved from the pressure of the screw-plug the movement thereof will be easy. The tap-rod *o* being in position in the
 45 tap is then pushed down through the tap into the barrel and the beer or other liquid is permitted to flow out through the same under the pressure of the air or gas, which is admitted through the connection *p* and through
 50 the space between the tap-rod and the wall of the tap, as usual. Likewise when the tap is disconnected by a quarter-turn to the left the screw-plug is also rotated to the left, causing
 55 the spindle *k* to rotate in a direction to move the valve-disk inward into line with the axial passage through the plug and the passage *c* through the end of the bushing, and the plug will be gradually moved down to firmly clamp the valve-disk upon its seat as the movement
 60 terminates. The gasket *e'* will likewise be clamped between the shoulders and faces of the screw-plug and the bushing, and will therefore prevent the escape of any liquid or gas around the screw-plug. It will thus be
 65 evident that the barrel will be tightly sealed

not only when it is full, but also when it is empty; that the sealing of the barrel is automatically effected upon the withdrawal of the tap, so that the barrel must be returned in a sealed condition; that no removable stopper
 70 of wood or cork or other material is required, and that the use of a tap rod or tube is possible, thereby making it unnecessary to provide each barrel with both a tap-valve and a vent-
 75 valve, as heretofore in devices of this nature.

It will be understood, of course, that various changes in details of construction and arrange-
 80 ment may be made without departing from the spirit of the invention and that the invention is not limited to the precise construction and arrangement shown and described herein.

I claim as my invention—

1. A bung for barrels, &c., comprising a
 85 bushing bored axially, a movable valve-plate adapted to close said axial bore, means to move said valve-plate laterally away from and
 90 toward said axial bore, and means to move said valve-plate away from its seat on said bushing before it is moved laterally away
 95 from said axial bore and tightly against said seat when it has been moved laterally into line therewith, substantially as described.

2. In a bung for barrels, &c., the combina-
 100 tion of a bushing having an axial bore, a valve-plate pivoted at the side of said bore and adapted to close the same, means to swing
 105 said plate on its pivot laterally away from and toward said bore, and means to move said plate away from its seat on said bushing be-
 110 fore it is swung laterally away from said bore and tightly against said seat when it has been moved laterally into line therewith, substan-
 tially as described.

3. In a bung for barrels, &c., the combina-
 105 tion of a bushing having an axial bore, a valve-plate pivotally mounted at one side of said bore and adapted to close the same, a plug
 110 having a threaded engagement with said bushing and adapted to press upon said valve-plate, and means to swing said valve-plate
 upon its pivot laterally away from said bore, substantially as described.

4. In a bung for barrels, &c., the combina-
 115 tion of a bushing having an axial bore and a valve-seat, a valve pivotally mounted at one side of said bore, a rotating plug having a
 120 screw-threaded engagement with said bushing and also having an axial bore and adapted to press said valve against its seat, and means
 actuated by the rotation of said plug to swing said valve-plate upon its pivot, substantially as described.

5. In a bung for barrels, &c., the combina-
 125 tion of a bushing having an axial bore and a valve-seat, a rotatable plug having a screw-threaded engagement with said bushing and
 also having an axial bore, a valve-plate pivotally mounted upon said valve-plug between
 130 the same and the seat on the bushing, and

means actuated by the rotation of said plug to swing said valve-plate upon its pivot, substantially as described.

6. In a bung for barrels, &c., the combination of a bushing having an axial bore and a valve-seat, a rotatable valve-plug having a screw-threaded engagement with said bushing and also having an axial bore, a spindle mounted eccentrically in said valve-plug, a valve-plate carried by said spindle and coop-

erating gears on said spindle and said bushing whereby the spindle is rotated as the screw-plug is rotated, substantially as described.

This specification signed and witnessed this 7th day of December, A. D. 1904.

CHARLES F. TERNEY.

In presence of—

ANTHONY N. JESBERA,

W. B. GREELEY.