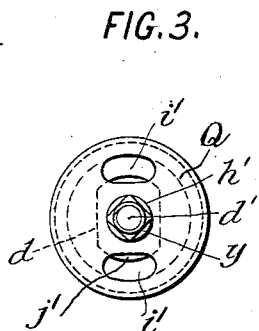
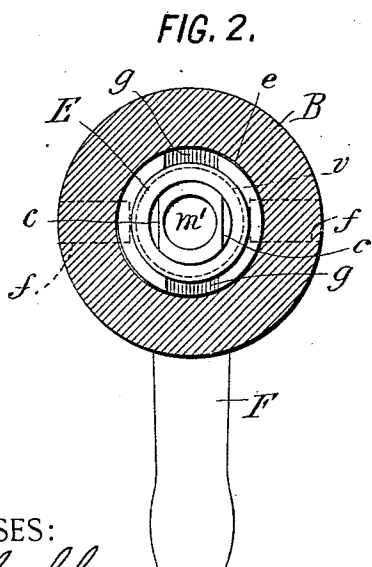
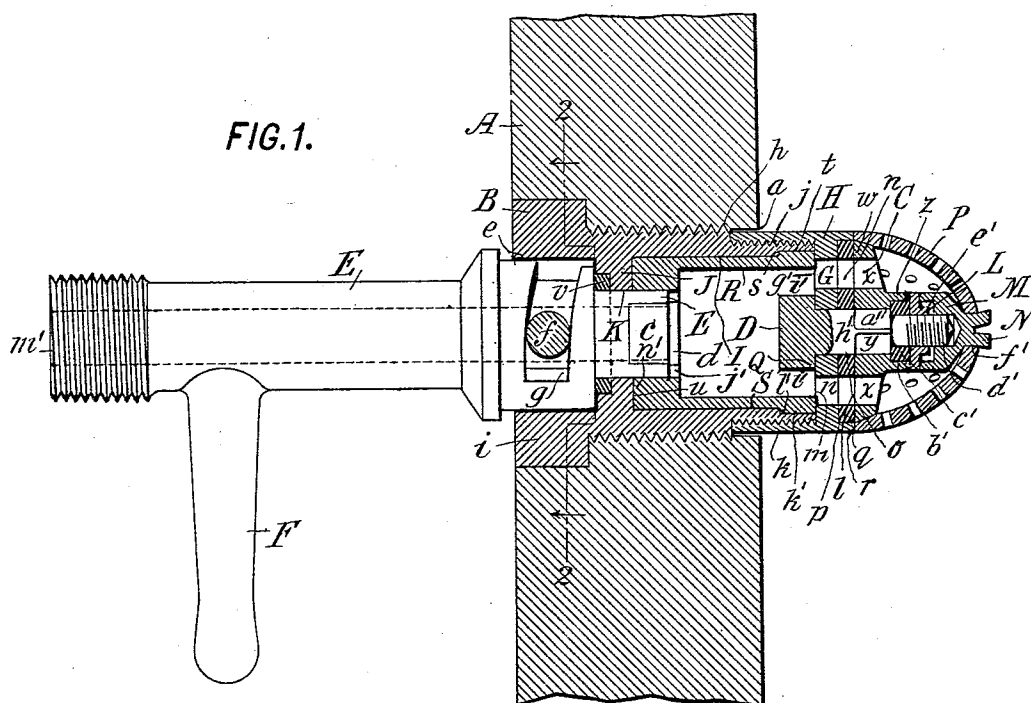


C. C. LININDOLL.
TAP OR OTHER VALVE.

Patented Feb. 25, 1896.



WITNESSES:
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UNITED STATES PATENT OFFICE.

CHARLES C. LININDOLL, OF FORT EDWARD, NEW YORK.

TAP OR OTHER VALVE.

SPECIFICATION forming part of Letters Patent No. 555,174, dated February 25, 1896.

Application filed August 12, 1895. Serial No. 558,975. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. LININDOLL, a citizen of the United States, and a resident of Fort Edward, Washington county, New York, have invented certain new and useful Improvements in Taps or other Valves, of which the following is a specification.

This invention relates to taps and other valves, and particularly taps or faucets for withdrawing liquids—such as beer, ale, and the like—from casks or other receptacles.

Various constructions for this purpose have heretofore been employed, the most common of which comprises a thimble which is screwed into the barrel-head, a valve-casing attached to the barrel by screwing it into this thimble and having a valve-seat within the barrel, a rotary gate or valve proper swiveled to this casing, a spigot having a separable coupling connecting it to the casing and a tubular key engaging the gate and opening the valve as the spigot is rotated to couple it to the casing and closing the valve on the reverse or uncoupling rotation of the spigot.

My present invention aims to provide certain improvements in taps and the like which operate on this general principle, and to this end I provide certain novel features of construction, arrangement and combination which will be fully hereinafter set forth.

In the accompanying drawings, which illustrate the preferred adaptation of my invention, Figure 1 is a fragmentary section of a barrel-head, showing my improved tap in axial section applied thereto and in the open position and the discharge or draw-off pipe or spigot in elevation and applied to the tap. Fig. 2 is a vertical cross-section thereof cut on the line 2 2 in Fig. 1, showing the key in end elevation; and Fig. 3 is an end elevation of the stem and valve Q in the open position.

Referring to the drawings, let A represent a barrel-head; *a*, a hole therethrough; B, the thimble or casing of the tap; C, the valve proper thereof; D, the stem of the latter; E, the draw-off or key, and F the handle of the latter. These parts in their general features are of usual construction and of well-known operation.

The key E may be any suitable member for operating the valve, being usually tubular and having flat or other faces *c* engaging re-

ciprocal flats or faces *d* on the stem, whereby the key and valve are locked together and the latter may be turned to the open or closed position by the former. To couple the key to the thimble the thimble has a socket *e* carrying diametrically-opposite inwardly-projecting pins *f*, and the key has diametrically-opposite tapering grooves *g*, which receive the pins *f* when the key is passed into the casing and by a quarter-turn lock the key to the casing. As usual, the casing B has an external thread *h* screwing into the hole *a* and thereby coupling the tap to the barrel-head. The outer face, *i*, of the tap comes substantially flush with the corresponding face of the barrel-head, and the outer end of the tap substantially fills the outer part of the hole *a*.

According to my improved construction the casing B has a reduced inner end having an external screw-thread *j*, and the valve-seat G is formed in a separate cap H, having an internally-screw-threaded forwardly-projecting flange *k*, the thread of which screws on the thread *j* of the casing with a tight fit, thus closing the inner end of the casing against outlet through the tap except at the valve-seat. The seat G is formed as a disk-like web or bridge crossing the interior of the cap H, and has flat seating-faces at its opposite sides, the outer one lettered *l* and the inner one lettered *m*, between which faces are two ducts or valve-openings *n*, which are arc-shaped and equally distant from a circular central bearing *o*, which traverses the seat axially. The seating-face *l* is preferably a composition or other packing material face, and is formed by providing a recess *p* at the outer side of the cap and pressing or otherwise fixing in this recess a washer *q*, the face of which is flush with the outer edge *r* of the cap.

Internally the inner end of the casing B is constructed with a cylindrical chamber I, extending from the inner face, *m*, of the seat inwardly to an annular bridge or shoulder J, and having a slight shoulder *s* near the seat and a slight enlargement *t* between this shoulder and the seat, and a flat end face *u* at the bridge J. Through the bridge is a circular passage K leading from the chamber I to the outer socket *e*, and at the junction of this passage and socket is an annular packing-ring *v*.

The valve proper, C, may be any suitable rotary or oscillating disk or gate. I prefer to construct it as an annular disk having a flat seating-face *w*, embracing the face *l* of the seat, and two arc-shaped ducts *x* coinciding in shape and position to the ducts *n*, and when in one position giving communication through the valve, and when turned out of coincidence with the latter ducts closing communication therethrough. Except where traversed by the ducts *x* the valve-disk is a complete imperforate disk, and its diameter is preferably equal to that of the packing-disk *q*, preferably corresponding to the diameter of the socket *p*, so that the packing-disk is completely covered and protected by the valve-disk, and in case any wear occurs the latter can follow the packing-disk inwardly of its recess. Centrally the valve-disk is connected to its stem in any suitable manner to insure a rotary movement of the valve with the stem. This is best accomplished by forming the valve-disk with a square hole *a'* receiving the squared part *y* of the stem. Beyond this hole the valve-disk has a boss *z* having an outwardly-opening socket *b'*. In this socket is an annular packing *c'*, which surrounds the cylindrical screw-threaded end *d'* of the stem, making a leak-tight joint at this point. This packing and the valve-disk are both held in position on the stem by a wrench-nut L, screwed on the end of the stem against the packing, and this nut is locked by a lock-nut M screwed on the stem against it. The nut L has a smooth annular face outside its wrench-faces at rear, and the lock-nut M has a socket *e'* receiving and inclosing the rear of the wrench-nut and an annular wall surrounding this socket embracing the annular rear face of the wrench-nut. The lock-nut is preferably imperforate, the screw-threaded hole in it terminating in advance of its rear wall, so that it constitutes an inclosing cover for the nut L and end of the stem. As shown, it has a reduced rearwardly-extending head N, which is notched for the screw-driver.

One feature of improvement resides in the construction and application of the sieve P, which is a perforated substantially hemispherical member extending from the flange *r* outwardly and inclosing the valve-disk and nuts, and having centrally an aperture *f'* which passes over the head M of the lock-nut. The strainer is secured in place by slightly opening the notch in this head, so that the sides of the latter are expanded at the outer side of the strainer. By the reverse operation the strainer is released and may be removed.

Another feature of improvement comprises an auxiliary valve-disk Q at the inner side of the seat G and a tubular valve-stem D through which the discharge from the valve passes. The valve Q rotates with the disk C and has a smooth annular face *g'* engaging the face *m* of the seat G. It is traversed by ducts *i'*, cor-

responding substantially in shape and position with the ducts through the seat and the disk C and is coupled to the latter to rotate therewith. The valves C and Q are adjusted toward and from each other to give the desired friction and fit against the opposite faces of the seat G, being connected by the cylindrical spindle *h'* of the stem, which spindle fits and turns in the cylindrical aperture *o* through the seat.

The stem D and valve Q are preferably formed as a single piece, and the stem is constructed with a hollow or tubular interior R, extending from the ducts *i'* outwardly and terminating in a contracted neck *j'*, partially cylindrical, and there coinciding with the aperture K through the bridge J, and at its opposite sides having flat or equivalent faces *d* reciprocal to and coinciding with the faces *c* of the key E. Externally the stem is preferably constructed as a cylinder S, snugly fitting the socket I of the casing. This cylinder has a slightly-enlarged cylindrical part *k'* fitting the corresponding enlargement at the outer part of the socket and a shoulder *l'* seating on the shoulder *s* and clamped thereagainst by the screwing up of the cap H. The end of the stem seats against the inner wall of the bridge J.

By this construction the discharge through the valve is all received within the stem and delivered from the interior of the latter into the tubular conduit *m'* of the key, spigot or other discharge used with the tap. The valve-stem makes a sufficiently tight fit with the casing to ordinarily prevent the passage of any of the contents of the cask between the stem and casing. This is prevented by the face of the valve Q at one end and by the face *n'* of the stem, which makes a tight fit with the face *u* of the shoulder J at the other end. The packing *v* between the casing and key prevents leakage between these parts.

The provision of two valves, one at each side of the seat, greatly increases the security of the tap against leakage, while not requiring such pressure of the valve-faces against the seat as will interfere with the free working of the tap.

It will be seen that my improvements provide a simple, strong, and effective tap or valve, and it will be understood that the invention is not limited to the particular details of construction or combination of features, nor to use with the particular character of valve, described and shown as embodying the preferred form of the invention, since it can be availed of according to such modifications of the structural details, such combination of features, and with such valves as circumstances dictate.

What I claim is, in taps, faucets, and other valves and analogous devices, the following-defined novel features and combinations, substantially as hereinbefore set forth, namely:

1. In taps and the like, a tubular casing having a screw-threaded inner end, in com-

5 bination with a screw-threaded cap screwing
 on the end of said casing and having a trans-
 verse valve-seat, a valve engaging said seat
 and controlling communication therethrough,
 10 a stem for said valve fixed thereto and ex-
 tending toward the front of said casing, hav-
 ing a cylindrical part bearing and turning in
 said cap, and having inwardly of said seat
 15 key-faces by which it may be turned by a key
 to operate the valve, and said cap having an
 axial, cylindrical aperture receiving and ro-
 tatively holding the cylindrical part of said
 stem.

2. In taps and the like, a tubular casing
 15 having a screw-threaded inner end, and an
 inner chamber open at its rear, in combination
 with a cap screwed to the inner end of said
 casing and having a valve-seat extending at
 right angles to the axis and closing the rear
 20 end of said chamber, and an axial aperture,
 a rotary valve within said chamber engaging
 said valve-seat, a stem fixed to said valve and
 turning the latter, having a cylindrical part
 traversing and rotating in said aperture in
 25 said cap and fastened thereto axially at the
 rear side thereof, and having key-faces by
 which it can be turned by a key, said cap sep-
 arable from said casing by unscrewing it
 therefrom, whereby said cap, valve and stem

can be separated from said casing without 30
disconnecting them from each other.

3. In taps and the like, a casing having a
 cylindrical part *t* at its inner end and a shoul-
 35 der *s* forwardly of said part, in combination
 with a valve fitting said cylindrical part, seat-
 ing on said shoulder, rotative, and having a
 valve-face toward the inner end of said cas-
 ing, a valve-seat separably connected to the
 inner end of said casing and having a face
 embracing the face of said valve, means for 40
 turning said valve, and a tubular conduit from
 said valve to the outlet from said casing.

4. In taps and the like, a casing B having
 a hollow interior I, in combination with a stem
 D consisting of a hollow cylinder fitting the 45
 interior of said casing having an aperture *j'*
 at one end and a valve Q at its other end, and
 a valve-seat G engaging said valve Q and car-
 ried by said casing, and means for rotating
 said valve and stem. 50

In witness whereof I have hereunto signed
 my name in the presence of two subscribing
 witnesses.

CHARLES C. LININDOLL.

Witnesses:

GEORGE H. FRASER,
 THOMAS F. WALLACE.