

(No Model.)

G. J. PORTER.
APPARATUS FOR DRAWING OFF LIQUIDS.

No. 554,894.

Patented Feb. 18, 1896.

FIG. 1.

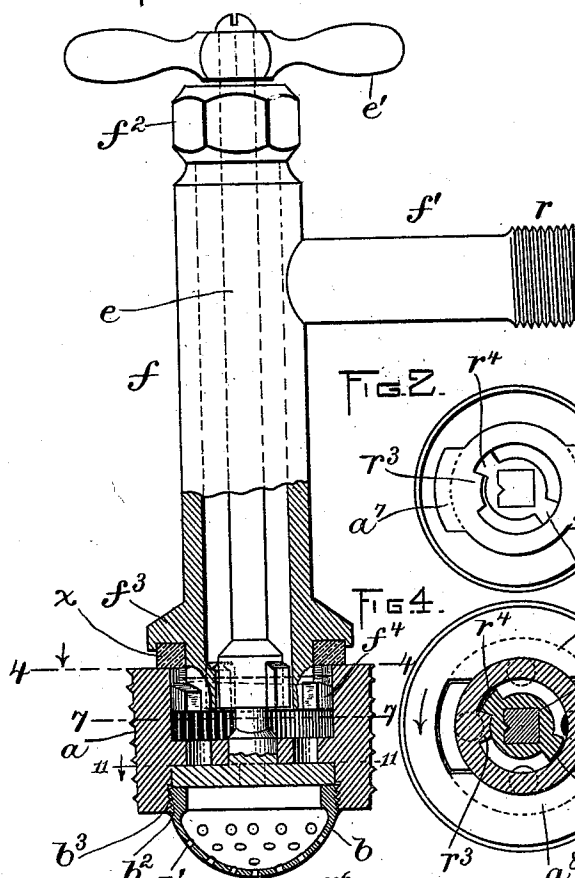


FIG. 10.

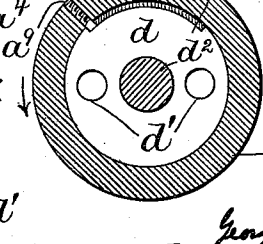
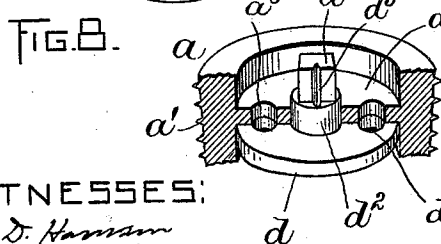
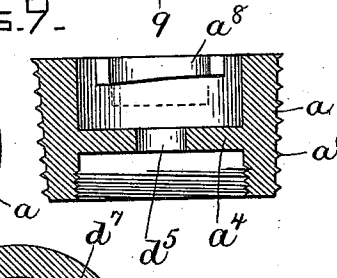
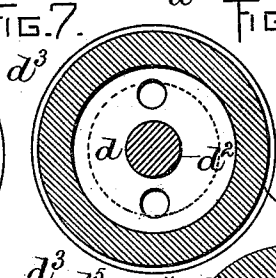
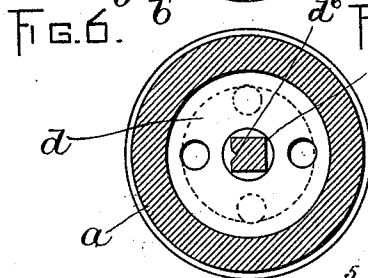
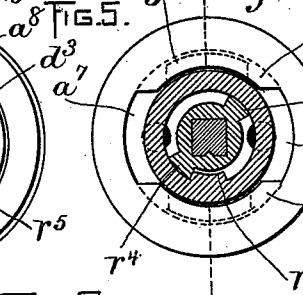
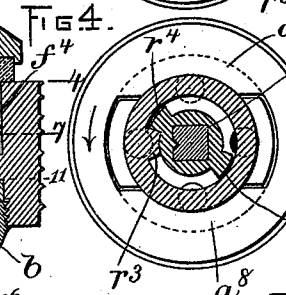
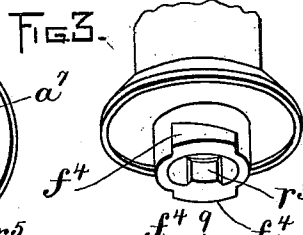
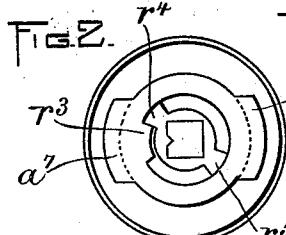
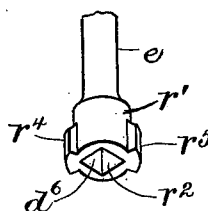


FIG. 11.

WITNESSES:
A. D. Harrison
Rollin A. Bell.

INVENTOR:
G. J. Porter
Wright, Brown & Quincy
Attys.

UNITED STATES PATENT OFFICE.

GEORGE J. PORTER, OF MEDFORD, MASSACHUSETTS.

APPARATUS FOR DRAWING OFF LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 554,894, dated February 18, 1896.

Application filed March 4, 1895. Serial No. 540,407. (No model.)

To all whom it may concern:

Be it known that I, GEORGE J. PORTER, of Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Drawing off Liquids, of which the following is a specification.

This invention relates to a new and improved apparatus for drawing off liquids, and has for its object, among other things, to provide means whereby upon the removal of the delivery-tube from the plug the valve will be automatically locked.

The invention consists in the novel features of construction and relative arrangement of parts fully described in the specification, clearly illustrated in the drawings, and particularly pointed out in the claims.

Reference is to be had to the accompanying drawings, in which like characters indicate like parts in all the figures wherever they occur.

In the drawings, Figure 1 represents a front elevation of an apparatus made in accordance with my invention, the lower portion thereof being shown in vertical section. Fig. 2 represents a top plan view of the plug and the position of the flanges on the key and tube when the latter is inserted into the plug. Fig. 3 is a perspective view showing the exterior cam-flanges and the interior lugs. Fig. 4 is a horizontal sectional view on the line 4 4 of Fig. 1, looking in the direction of the arrow. Fig. 5 is a view similar to Fig. 1, showing the position of the parts when the tube has been seated in the bushing and the valve turned. Figs. 6 and 7 are respectively horizontal sectional views on the line 7 7 of Fig. 1, showing the openings in the valve and diaphragm. In Fig. 6 these openings are shown out of communication with each other. In Fig. 7 these openings are shown as registered and forming a passage-way into the barrel or cask. Fig. 8 is a perspective view of the plug and valve, the plug being in section and the apertures in the plug and valve registering as in Fig. 7. Fig. 9 is a vertical sectional view of the plug on the line 9 9 of Fig. 5. Fig. 10 is a detail view of the key. Fig. 11 is a horizontal sectional view on the line 11 11 of Fig. 1, showing the means for preventing the valve from being turned in the wrong direction

when the tube is inserted, and before the tube is turned to lock it in position.

In apparatus for drawing off beer and other liquids, as at present constructed, should the operator forget to turn the key before removing the tube from the tap or plug, a large quantity of the liquid escapes and is lost before the valve can be closed. Experience has shown that it is not safe to rely upon the memory of the operator, and that some provision should be made whereby the removal of the tube will automatically close the valve. My invention accomplishes this end, and makes it impossible to remove the tube without closing the valve.

f represents a tube of the conventional shape and proportions provided near its top with a pipe f' communicating with the interior of said tube, the pipe f' being provided at its free end with screw-threads r in order to couple the pipe with a hose or with another pipe that leads to the vessel to be filled. The interior of this tube f is hollow, as shown. Mounted in this tube is a key e provided at its upper end with a handle e' and at its lower end with an enlargement r' having a socket r^2 of a shape to fit the stem of the valve hereinafter described. A stuffing-box f^2 is mounted upon the top of the tube f surrounding the shank of the key e . The lower part of the tube is provided with an exterior flange f^3 and at its lower end on its exterior with cams f^4 . A packing-ring or washer x is preferably mounted upon this tube immediately below the flange f^3 . The interior of this tube at its lower end is provided with a lug r^3 opposite one of the cams f^4 arranged to engage similarly-disposed flanges r^4 r^5 upon the exterior of the enlargement r' of the key. The key can be turned in the tube, but is not designed to be withdrawn except by removal of the stuffing-box.

a represents a tap or plug provided upon its exterior with screw-threads a' for engaging the sides of the aperture or bung-hole of the cask or barrel in which the tap or plug is to be secured. This plug is provided upon its exterior with a diaphragm a^1 , perforated, as at a^5 , to form a passage-way from the interior of the cask or receptacle to which the plug is attached. Formed in the center of this diaphragm is an aperture d^5 in which is mounted

the stem d^2 of a valve d . This valve d is disk-shaped of a size to fit the interior bore of the plug, and provided with holes d' to register with the apertures a^5 in the diaphragm when the valve is in a certain position. By turning the valve the unperforated portion of the diaphragm will cover the openings in the valve, and the unperforated portion of the valve will cover the openings in the diaphragm, and so close communication to the interior of the cask. The valve makes a ground joint against the diaphragm across the plug. The valve is forced into place by a strainer b provided with the usual apertures b' and with exterior screw-threads b^2 at its upper end which engage interior screw-threads b^3 at the lower end of the plug. The strainer should be screwed up against the valve tight enough so that the latter will not be displaced accidentally, but will only move when positively actuated through the medium of the key.

The tap or plug is provided on its upper end with interior segmental cam-shaped flanges a^8 , leaving spaces a^7 not occupied by said flanges, and in which the cams f^4 on the tube can be inserted. The stem of the valve, as shown, has a reduced portion d^3 . This is provided upon its exterior with any desired arrangement of flanges or grooves to engage correspondingly-shaped parts upon the interior of the key. I have shown the stem of the valve provided with a projection d^5 , a similarly-shaped groove d^6 being formed upon the interior of the key. I do not desire to limit myself to the particular shape or location of these registering parts. The object of having the construction just referred to is to insure the tube and key being inserted into the plug in the same way each time. Until the corresponding parts on the stem of the valve and the interior of the key register, the tube cannot be dropped into the plug.

The operation of my improved apparatus is as follows: The stem of the valve being in the position shown in Fig. 4, for example, the tube with the key is inserted into the plug, the cams f^4 passing down through the spaces a^7 not occupied by the cam-shaped flanges a^8 . The interior of the flanges a^8 is formed to fit snugly the sides of the tube. As the tube is dropped into the plug, the corresponding parts of the key and valve-stem will register and interlock. The tube is then given a quarter-turn in the direction of the arrow, (see Fig. 4,) the cams f^4 engaging the cam-shaped flanges a^8 and forcing the washer x firmly against the plug, and thus sealing the parts together. This movement of the plug throws the projection r^3 on the interior of the tube round to the position shown in Fig. 5 and the cams f^4 under the cam-shaped flanges a^8 . The key is then turned in the same direction until the flange r^4 on the exterior of the key strikes the lug r^3 . This movement of the key turns the valve and makes the apertures or openings d' therein register with the openings a^5

in the diaphragm a^4 . When it is desired to close the valve, the key is turned opposite to the direction indicated by the arrow, as shown in Fig. 4, until the flange r^5 opposite the flange r^4 engages the lug r^3 at the point indicated in Fig. 5. Suppose, however, the operator had started to remove the tube without first turning the key. The lug r^3 would engage the flange r^4 on the key, and as the tube was turned to make the cams register with the spaces a^7 the lug r^3 would be brought to the position shown in Fig. 4. This movement of the tube by means of the lug r^3 and flange r^4 engaging will turn the key and valve back to the position shown in Fig. 4, and thus close the valve. In this position the tube may be withdrawn from the tap or plug.

It is to be observed that the cams f^4 on the tube and the cam-shaped flanges a^8 on the plug have their butts or wide ends in engagement of necessity when the tube is inserted. When the tube is turned, the tips of these parts engage. This arrangement prevents the tube being turned in the wrong direction—that is, in a direction opposite to that indicated by the arrow in Fig. 4—so that each time the tube is inserted and turned the part r^3 will occupy the position shown in Fig. 5; otherwise the turning of the tube to seat the same would open the valve. Of course this direction could be reversed. To prevent the valve from being opened after the tube is inserted, but before it is turned into place, I cut away a portion of the periphery of the valve d , as shown at d' , a distance equal to the travel of the valve to make the openings register. With this cut-away portion d' engages a pin a^9 in the plug. When the valve is closed, these parts have the relative position shown in Fig. 11. Now the tube being inserted it is manifestly impossible to turn the valve in a direction opposite to that indicated by the arrow. After the tube is turned to the position shown in Fig. 4 the valve is prevented from being turned in the wrong direction both by the pin a^9 and also by the lug r^3 engaging the flange r^5 . The engagement of the parts r^3 and r^5 prevents movement of the valve in the wrong direction after the tube is seated, but would not prevent it before the tube is turned. To provide for this, I employ the construction referred to in Fig. 11.

The amount of travel of the valve is unimportant. It may be provided with two holes, as shown, or more, and may be given a quarter of a turn to make the holes of the valve register with those in the diaphragm or it may be arranged to have less movement.

From the foregoing it will be seen that I have invented an exceedingly simple and efficient form of apparatus for the purpose in hand—one in which it is impossible for the parts to be inserted unless the valve is closed, one in which the tube must be turned in one direction each time, one in which the valve is prevented from movement in the wrong di-

rection, and one in which the turning of the tube to make the parts f^4 register with the spaces a^7 insures the closing of the valve.

Having thus explained the nature of my invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, what I claim, and desire to secure by Letters Patent, is—

1. An improved faucet comprising in its construction a plug, a valve mounted in said plug, a tube constructed and arranged to engage said plug, a key mounted in said tube, co-acting means upon said key and tube whereby turning of the tube for its removal will operate said key to close said valve, substantially as and for the purpose set forth.

2. An improved faucet comprising in its construction a plug, cam-shaped flanges upon said plug, a tube provided upon its exterior with cams arranged to engage said flanges, said parts being constructed and arranged to prevent the tube from being turned in the wrong direction, a valve mounted in said plug

provided with means for preventing its movement in a wrong direction, a key mounted in said tube and engaging said valve, and co-acting means between said tube and key whereby the turning of the tube to remove the same insures the closing of the valve, substantially as and for the purpose set forth.

3. An improved faucet comprising in its construction a plug, a valve mounted in said plug, a tube constructed and arranged to engage said plug, a key mounted in said tube, complementary interlocking parts formed on said key and valve, and a lug on the interior of said tube arranged to engage flanges on the exterior of said key, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 19th day of February, A. D. 1895.

GEORGE J. PORTER.

Witnesses:

A. D. HARRISON,
ROLLIN ABELL.