No. 725,912. PATENTED APR. 21, 1903.

B. C. ANDERSON.

BUSHING VALVE AND FAUCET COUPLING.

APPLICATION FILED FEB. 11, 1902.

NO MODEL.

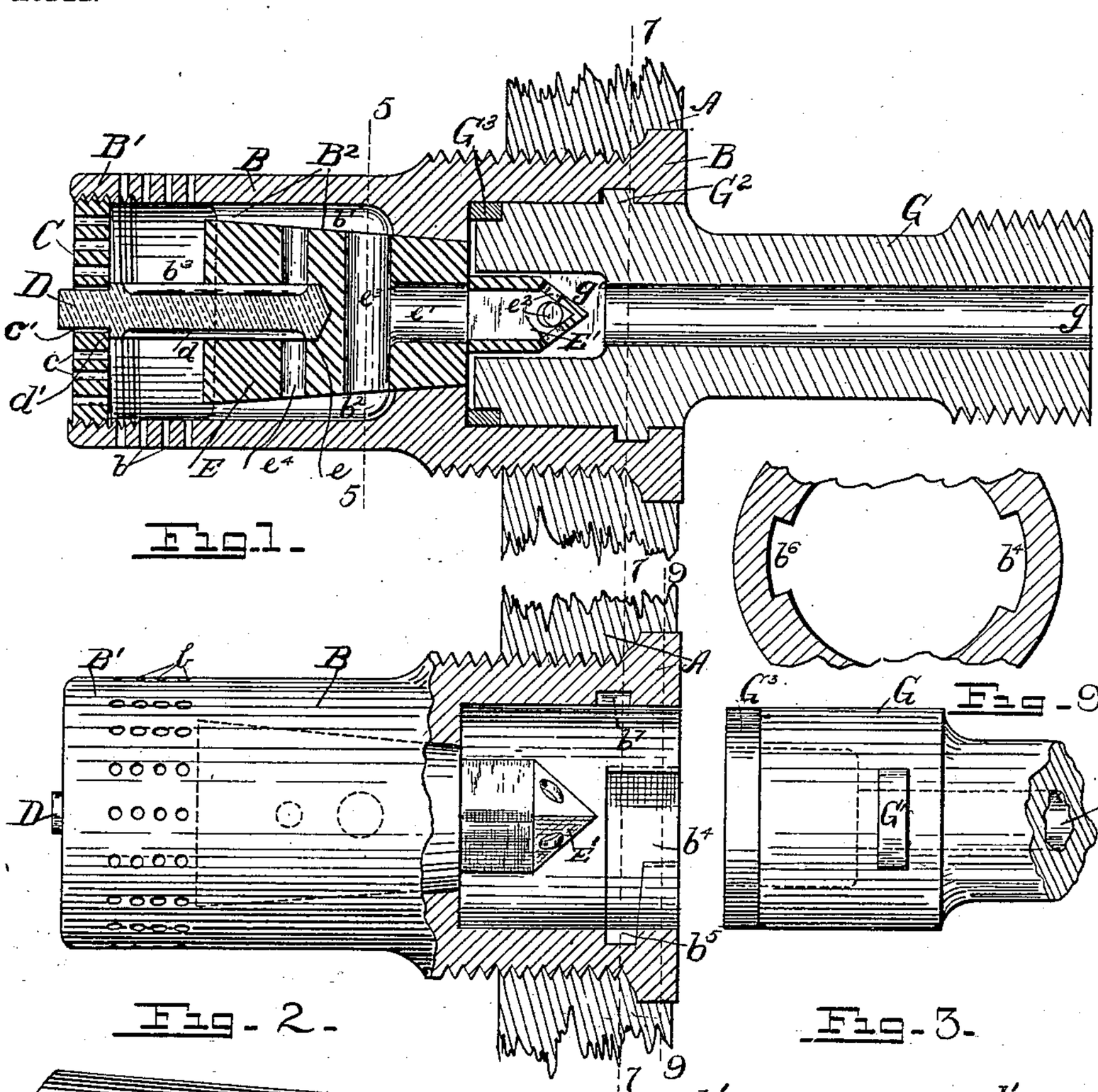

Fig. 1.

Fig. 2.

Fig. 3.

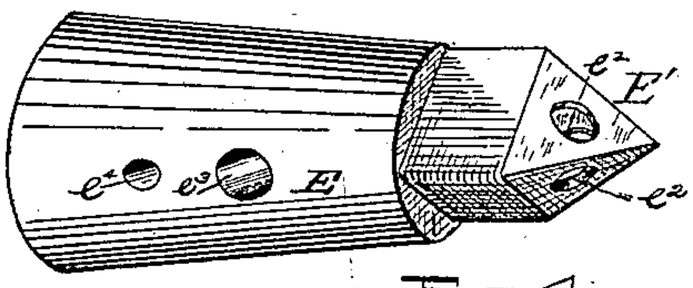

Fig. 4.

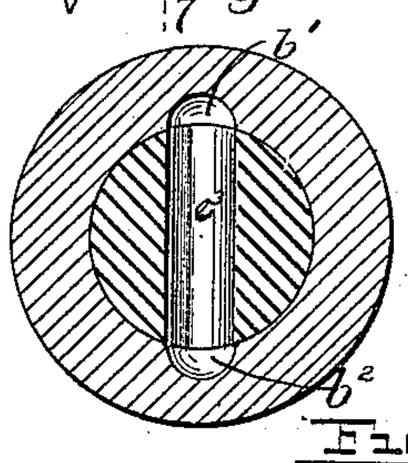

Fig. 5.

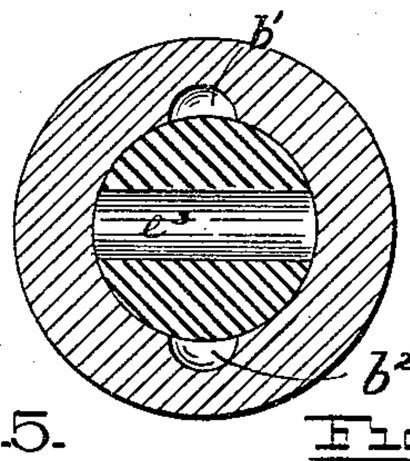

Fig. 6.

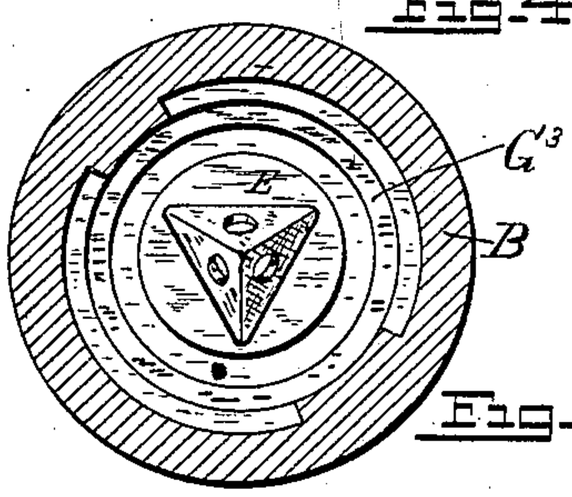

Fig. 7.

Fig. 8.

WITNESSES:

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BUSHING-VALVE AND FAUCET-COUPLING.

SPECIFICATION forming part of Letters Patent No. 725,912, dated April 21, 1903.

Application filed February 11, 1902. Serial No. 93,498. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN C. ANDERSON, a citizen of the United States, residing in the borough of Brooklyn, in the city and State of New York, have invented a certain new and useful Improvement in Bushing-Valves and Faucet-Couplings, of which the following is a specification.

My invention is intended more especially for fitting in the thick wooden ends of beer-barrels and will be described as thus applied.

There have been many efforts to provide a sufficiently liberal circular aperture in the wood and to insert therein a metal bushing, which shall be permanently set and endure all the wear which subsequently accrues in many insertions and removals of the interior parts. My bushing thus applies. It is important that the application and removal of the parts be effected with ease and rapidity. It is important to give a large filtering area, and at the same time to have but a small valve. My invention attains this and also a central delivery, avoiding the necessity for filtering laterally into the coupling.

I have devised important improvements in the details of construction and in the mode of operation, which are set forth in the accompanying description and pointed out in the claims.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a central longitudinal section, showing the bushing with the coupling attached. Fig. 2 is a corresponding section, partly in elevation, with the coupling removed. Fig. 3 is an elevation showing a portion of such coupling. Fig. 4 is a perspective view of the longitudinal plug inclosed in the bushing. Fig. 5 is a transverse section on the line 5 5 in Fig. 1. Fig. 6 is a corresponding section showing the same with the plug turned into the closed position. Fig. 7 is a section on the line 7 7 seen from the right in Fig. 2. Fig. 8 is a perspective view of a pin removed. Fig. 9 is a partial transverse section on the line 9 9 in Fig 2.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is the wood of the barrel, and B a hollow casting of brass engaged therein by screw-threads, as indicated, and which I will term the "bushing." It extends into the interior of the barrel. The inner end B′ has liberal perforations *b*. The extreme inner end is internally screw-threaded and receives a perforated disk C *c*, screw-threaded on its exterior and having a circular hole *c′* in the center, which latter receives a pin D, extending toward the center of the barrel in the axial line of the bushing. This pin has longitudinal channels or deep flutes *d*, the purpose of which will presently appear.

I provide a rotatable plug E, extending in the axial line of the interior and capable of being partially rotated by a moderate force. The exterior of this plug is finished conically. A portion B^2 of the interior of the bushing B is finished with a corresponding taper, with the addition of longitudinal channels b' b^2, which extend only a portion of the length of the tapered part B^2.

The pin D extends into a corresponding circular hole *e* in the inner end of the axis of the tapering plug. The outer end of the pin D is contracted by a shoulder *d′* and matches in the hole *c′* in the disk. When the disk is screwed up, it presses the pin, and consequently the plug E, endwise into a closer fit by its action on the shoulder *d′*. It is capable of yielding slightly, so that in case there is any imperfection in the manufacture the plug may be governed entirely by its bearing in the tapered interior B^2 of the bushing. The latter bearing may be adjusted with great delicacy by the action of the screw-threads induced by the partial turning of the disk C in one direction or the other.

A sufficient length near the outer end of the plug E is triangular where it extends into the larger space beyond the close-fitting tapered portion of the bushing. Such triangular portion of the plug may be considerably smaller than shown; but I prefer to make it of about as large size as the construction will allow. The extreme outer end is tapered rapidly, constituting a pyramidal end E′. An axial passage *e′* extends a considerable por-

tion of the length of this plug. From it branches e^2 lead diagonally outward through the pyramidal end E′. The other, the inner end of the passage e', communicates with a transverse passage e^3, which may be so liberal as to allow a sufficient flow when the plug is turned so that the ends of this hole coincide with the channels b' b^2.

So far as yet described it will be understood that when the plug E has its nicely-finished conical surface held to a fair but gentle bearing against the corresponding tapered surface B^2 of the interior of the bushing it will when standing in one position allow the beer to flow along the channels b' b^2 inward in both directions through the hole e^3, thence along the axial passage e', and finally outward through the apertures e^2. When, on the contrary, the plug is turned a quarter-revolution, as shown in Fig. 6, bringing the hole e^3 out of coincidence with the channels b' b^2, the escape is tightly stopped. There being two of the channels b' b^2, gives admission for liquor into each end of the transverse passage e^3, thus increasing the flow and balances the pressure on the opposite side of the plug.

When, as usual, the bushing B is of only moderate thickness, the large diameter of the bore in the outer end of the portion B^2 limits the depth which is allowable for the channels b' b^2. I provide additional passages by means of an additional transverse hole e^4, parallel to the hole e^3. When the plug is turned in the open position, the liquid can not only flow directly from the chamber b^3 into the channels b' b^2, through the contracted outer ends of the latter, but also can flow along the flutes d in the pin D and outward through the hole e^4 to reinforce the streams flowing through those channels, thus promoting the freedom of discharge.

The interior of the outer end of the bushing is formed with longitudinal grooves, serving as coupling-passages, which extend from the outer end longitudinally inward a little distance, as indicated by b^4 b^6, and thence are continued circumferentially and slightly helically on the interior a quarter-revolution, as indicated by b^5 b^7.

G is a coupling-piece, of brass or other suitable material, inserted and removed at will. It has a sufficient axial passage g, through which when in position the beer may flow when the plug E is turned to permit it. The inner end of the passage g is enlarged and made of triangular cross-section, as indicated by g', fitting closely but easily on the triangular portion E′ of the plug. On the coupling-piece are projections G′ G^2. The projection G′ is wider than the projection G^2, and the longitudinal aperture b^4 is correspondingly wider than the groove b^6. (See Fig. 9.) The periphery of the end of the coupling-pin G is provided with a packing-ring of soft rubber G^3. This should be so wide that it bears firmly on the bottom of the recess and prevents any lateral flow of the beer. The same partial rotation of the coupling-piece G which through the projections G′, G^2 and the grooves b^4 b^5 b^6 b^7 engages it tightly with the barrel acts through the engagement of the triangular inner end of its aperture g' on the triangular portion E′ of the plug to effect the turning of the plug. Thus the same motion which insures the firm and tight engagement of the hose turns the plug to allow the beer to flow, and the shutting off of the beer is insured by the same movement in the reverse direction which detaches the coupling.

My invention provides a filtering-surface covering the whole rear disk and a portion of the bushing adjacent thereto. The chamber in the inner end of the bushing receives the strained liquid and flows it through liberal channels, which coincide when the plug is turned into the open position, but are tightly restrained when the plug is in the closed position. The liquid is delivered through the center of the plug. These qualities have been before separately involved in apparatus of this kind, but my combination is unusually efficient.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. The pyramidal end E′ of the plug may be omitted, but I prefer to retain it, as it asists to guide the parts in applying the coupling-piece. It will be understood that the outer end of the coupling-piece may be fitted with a faucet-plug and adapted for delivery of the beer by single glasses or may be variously otherwise formed. I have shown it as adapted for engaging with a length of hose. (Not shown.)

The extension E′ of the plug may be of other pyramidal forms than the triangular form shown, care being taken to give a corresponding form and size to the recess in the coupling which matches thereon.

The perforations c in the disk C may be reduced in number or omitted entirely, the perforations b in the bushing supplying liquid into the inner chamber, or, on the other hand, I can omit the perforations b and supply all the liquid through the perforations c.

Other materials than brass may be used for the bushing.

I claim as my invention—

1. In a bushing-valve and coupling, a tapered plug partially bored axially and bored transversely, in combination with a bushing having a correspondingly-tapered interior provided with a straining-surface including the whole inner end, two longitudinal channels along the outer portion of its interior, and provisions for partially rotating said plug, and also with a central pivot held in a recessed support without screw-threads adapted to hold such plug properly in bearing, all substantially as herein specified.

2. In a bushing-valve and coupling, a tapered plug extending longitudinally and bored transversely and longitudinally, in combination with a bushing having a corre-

spondingly tapered interior provided with longitudinal channels extending a portion of its length, and provisions for partially rotating it and also with a central pivot D, held in a screw-threaded disk C, adapted to allow fine adjustment, and having passages *d* arranged to allow an additional escape of the liquid along such passages and outward through corresponding passages in the plug to reinforce the flow, all substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

BENJAMIN C. ANDERSON.

Witnesses:

J. B. CLAUTICE,

M. F. BOYLE.