Feb. 26, 1924. 1,485,047

P. MUELLER ET AL

SERVICE BOX

Filed Jan. 28, 1920 2 Sheets-Sheet 1

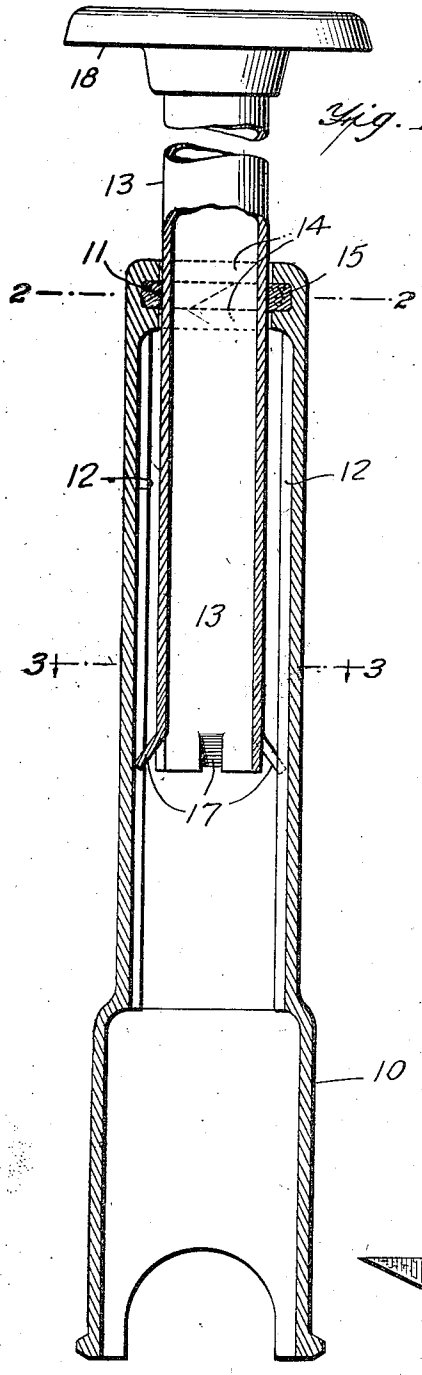


Fig. 1.

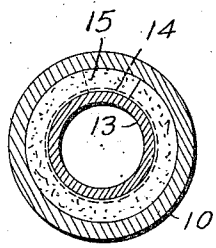


Fig. 2.

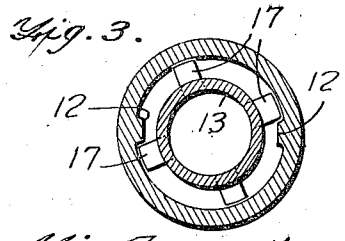


Fig. 3.

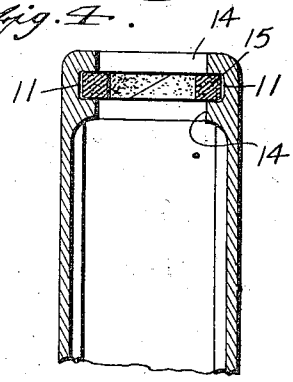


Fig. 4.

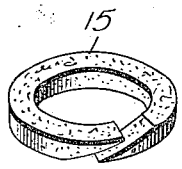


Fig. 6.

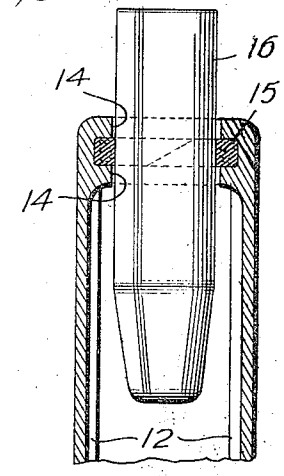


Fig. 5.

Fig. 7.



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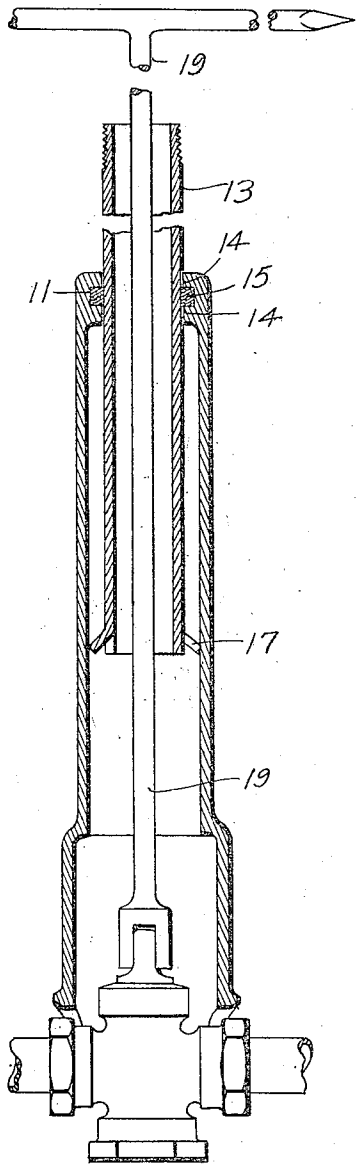


Fig. 8.

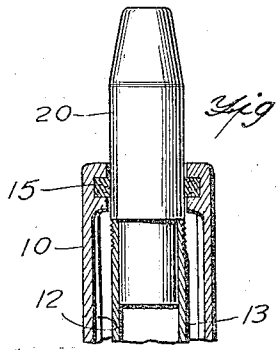
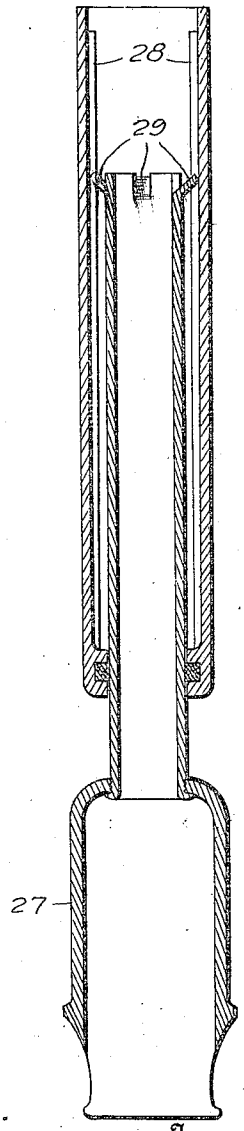


Fig. 9.

Fig. 10.



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UNITED STATES PATENT OFFICE.

PHILIP MUELLER AND ROBERT H. MUELLER, OF DECATUR, ILLINOIS, ASSIGNORS TO ADOLPH MUELLER, TRUSTEE, OF DECATUR, ILLINOIS.

SERVICE BOX.

Application filed January 28, 1920. Serial No. 354,694.

To all whom it may concern:

Be it known that PHILIP MUELLER and ROBERT H. MUELLER, citizens of the United States, residing at Decatur, in the county of Macon and State of Illinois, have invented new and useful Improvements in Service Boxes, of which the following is a specification.

The present invention relates to service boxes and has for its object to provide a service box which may be cheaply manufactured and readily assembled, and in which the parts making up the combination are of such construction as that they may be made with a minimum of machining and finishing.

The construction which we have developed and which is here illustrated and described insures a service box which, when assembled, will be readily adjustable to the various conditions under which it is installed; which, when installed, will protect the corporation cock from the deleterious effects of leakage in and about the service box; and in which all danger of filling so as to prevent access to the service cock for manipulation is eliminated.

In the drawings herewith, we have illustrated embodiments of our invention but it will be understood that variations mechanically may be made without departing from the principle involved.

In the drawings:

Figure 1 is a view, for the most part in section, of a service box embodying our improvements.

Figure 2 is a view in cross-section on substantially the line 2—2 of Figure 1.

Figure 3 is a view in cross-section substantially on the line 3—3 of Figure 1, looking in the direction of the arrows.

Figure 4 is a sectional view of the upper part of the lower member of the service box.

Figure 5 is a view of the upper end of the lower member showing the method of inserting the gasket.

Figures 6 and 7 are views of the gasket.

Figure 8 is a view similar to Figure 1 showing the service box, the corporation cock and the cock operating key.

Figure 9 is a view in section, similar to Figure 1, showing a slightly different form of assembly.

Figure 10 is a view, illustrating another development of the invention.

Referring to the drawings by numbers, like numbers indicating like parts in the several views, 10 indicates the lower member of the service box which, in its general make-up, is somewhat similar to the service boxes now in use, having the enlarged lower end or housing which covers the corporation cock and the reduced upper end projecting therefrom and integral therewith. The said member 10 is preferably cast and at its upper end has a cast-in gasket receiving groove or seat 11 and has also a plurality of longitudinally disposed ribs 12 cast on its inner bore, two being shown in the present illustration.

Slidingly mounted in the member 10 is the upper member 13 of the box, said upper member being preferably formed of wrought or drawn tubing of a proper diameter to slide freely in the bore of the lower member 10, that bore being defined by the inwardly turned annular ribs 14 cast at the upper end of the member 10 to form the groove 11.

In order that there may be a sealed joint between the members 10 and 13 and one which will also maintain the parts frictionally in adjusted position, we provide a sealing and gripping gasket 15 formed, as shown, of a strip of packing material preferably rectangular in cross-section and cut with the inclined ends as shown, so that when overlapped, the gasket will be continuous. The cross-sectional area of this packing ring 15 is such that when it is inserted in the recess or seat 11 in the upper end of the member 10, it will project into the bore of the member 10 and form a sealing and gripping ring to engage the upper member 13, seal the joint between the two effectively against the ingress of dirt and moisture, and also serve to maintain the parts, by reason of its friction, in any position of adjustment relative to each other to which they may be brought. Furthermore, it prevents contact of metal with metal and danger of the parts becoming rusted together and set after they have been in one position for any considerable length of time is eliminated.

The ring 15, as stated, is of considerably larger area in cross-section than the recess

11 so that it will project within the bore a proper distance, and it must be set tightly in place so as to permit the sliding passage of the member 13 and yet seal the joint and grip that member. We, therefore, preferably install this ring 15 in the manner shown in Figure 5, first by inserting it in place and then by a suitably shaped mandrel 16 forcing the ring 15 snugly to its seat, the mandrel 16 being of substantially the same diameter as the member 13.

By utilizing this packing ring, we are enabled to cast the lower member with the recess or seat and avoid the necessity of machining that seat to receive a spring clamping ring of metal, for the packing ring will accommodate itself to surface inequalities in the casting and give an efficient sealing member for the joint and gripping member for maintaining the parts in proper position.

It will be observed that the diameter of the member 13, since it is defined by the ribs 14, is considerably less than the diameter of the body portion of the member 10. It is essential, however, that the members 10 and 13 be maintained in alignment both to prevent jamming of the parts and consequent difficulty of manipulation and adjustment but also in order that the turning key which is passed down in to the service box, when the cock is to be manipulated, will be directed surely to the cock. In order to maintain the member 13 in direct alignment with the member 10, we provide, at the lower end of the member 13, lugs 17 which are formed by punching out sections of the metal of the tubing from which the member 13 is formed, and this may be done without the necessity of heating the metal since the member 13 is made of wrought or drawn tubing which may be conveniently worked for this operation in a cold state. The number of these lugs 17 may, of course, be varied but we have shown four which will effectively maintain the member 13 against tilting in any direction and insure its proper alignment. In addition to this function, the lugs 17 have the further function of preventing rotation of the member 13 in either direction when the ground cap 18 or its cover which are usually screw threaded in place, are removed or inserted, the lugs 17 engaging the longitudinally disposed ribs 12 on the inside of the member 10.

As shown in Figure 8, the cock key 19 which, as is customary, is at the end of a long operating rod, will be guided straight down to the cock key by the alined member 13 so that any chance that the cock may not be readily engaged because of tilting of the members out of alignment is eliminated.

In Figure 9, we have shown a different manner of setting the gasket 15 than the one shown in Figure 5. In this method of assembling, the removable mandrel 20 will be inserted in the top of the member 13 and thrust upwardly of the member 10 past the packing ring 15 so as to set it in the manner heretofore described. After the member 13 has been passed upwardly into proper position, the mandrel 20 will be removed and the cap or ground piece 18 attached as by screw threading or in any suitable manner to the upper end of the member 13.

In the form shown in Figure 10, the lower member will be composed of the cast base portion 27 having secured therein the upper portion 28 formed of wrought or drawn tubing of proper gauge and with this construction, lugs 29 may be struck out at the upper end of the tubing section as heretofore described in order to form an alining and non-rotatable connection between the two members.

With a construction such as we have heretofore described, the box may be very expeditiously and cheaply constructed and the machine work thereon reduced to a minimum, so that the number of operations necessary to turn out the box are very materially reduced. Furthermore, the joint between the two members being formed of the packing material, may be cut from stock packing into appropriate lengths and without any special manipulation coiled, inserted in the seats and swaged home by the mandrel. The joint produced not only excludes dirt but practically any moisture from passing into the lower box and prevents the metal of the upper member from contacting with that of the lower member, thus guarding against a corroded joint which would prevent shifting of the members relative to each other. By lapping the ring as shown, a continuous seal is provided without any breaks or interstices through which water can seep.

Such variations as are merely mechanical expedients from the structure herein disclosed are to be regarded as within the range of our invention.

We claim:

1. In a service box, the combination of a cast pipe-like member having an annular groove molded in its inner wall at one end thereof, and a longitudinally disposed rib cast on its inner wall; a non-metallic packing ring in said groove so disposed that its inner periphery projects inwardly of the bore of the cast member beyond the inner peripheries of the walls of the groove to form an outstanding non-metallic bearing; and a second wrought iron pipe-like member slidingly mounted in said cast member with its outer wall taking its bearing on and in contact only with said inwardly projecting packing ring, to prevent contact of metal to metal and binding of the parts due to corrosion, said second member hav-

ing an integral lug cut and bent outwardly at its end to engage the rib on the inner wall of said cast member.

2. In a service box, the combination of a cast pipe-like lower member having an annular groove molded in its inner wall at one end thereof, and a plurality of longitudinally disposed ribs cast on its inner wall; a non-metallic packing ring having beveled lapped ends in said groove so disposed that its inner periphery projects inwardly of the bore of the cast member beyond the inner peripheries of the walls of the groove to form an outstanding non-metallic bearing; and a second wrought pipe-like member slidingly mounted in said cast member with its outer wall taking its bearing on and in contact only with said inwardly projecting ring, to prevent contact of metal to metal and binding of the parts due to corrosion, said second member having a plurality of lugs cut and bent outwardly at its end at separated points to engage the ribs on the inner wall of said cast member.

3. In a service box, the combination of a pipe-like lower member having a longitudinally disposed rib on its inner wall; a second pipe-like member of smaller diameter slidingly mounted in said first named member and a plurality of lugs cut and bent outwardly at the end of said second member to contact with the wall of said second member and center said smaller member in said first named larger member in its longitudinal movement, said lugs serving also to engage said rib on the wall of said first named member and limit rotary movement of said second member.

In testimony whereof we have hereunto set our hands.

PHILIP MUELLER.
ROBERT H. MUELLER.