Oct. 20, 1925

1,557,588

C. HOLTMAN

FERRULE VALVE OPENER

Filed May 31, 1922

Fig. 1.

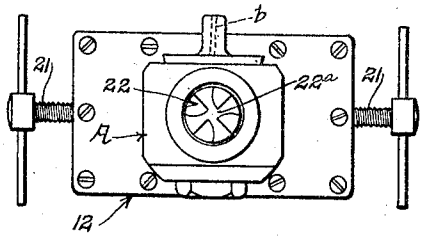


Fig. 2.

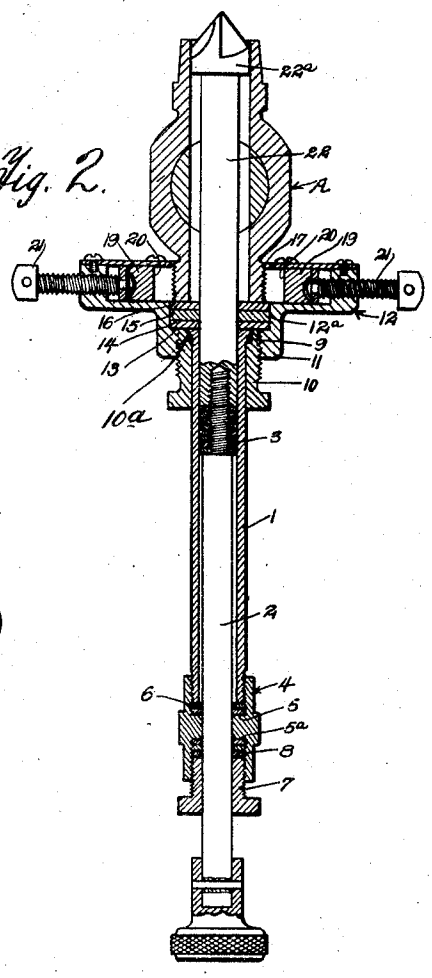
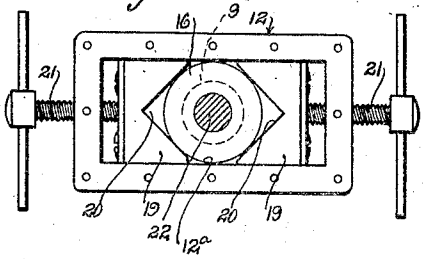


Fig. 3.



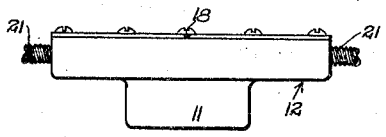


Fig. 4.

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UNITED STATES PATENT OFFICE.

CHARLES HOLTMAN, OF PITTSBURGH, PENNSYLVANIA.

FERRULE-VALVE OPENER.

Application filed May 31, 1922. Serial No. 564,994.

To all whom it may concern:

Be it known that I, CHARLES HOLTMAN, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Ferrule-Valve Openers, of which the following is a specification.

This invention relates to valve openers, and more particularly to an opener specially adapted for use in connection with ferrule valves such as are employed in connecting house water supply pipes to street mains.

One of the main objects of the invention is to provide an opener of simple construction and operation which may be readily attached to the valve and which will prevent leakage and will act to effectually cut out and remove the foreign substances which stop or plug the valve. A further object is to provide an opener of this character which may be readily used in connection with valves of different sizes. Further objects will appear from the detailed description.

In the drawings:—

Figure 1 is a front view of the device as applied.

Figure 2 is a central longitudinal sectional view.

Figure 3 is a front view of the block the front plate being removed.

Figure 4 is a plan view of the block.

The device includes a barrel 1 in which operates a stem 2 on the inner end of which is threaded a piston 3 which fits snugly into the barrel so as to form a water-tight closure. A collar 4 is threaded on the outer end of the barrel and is provided with an inner shoulder 5 between which and the outer end of the barrel is confined a packing gasket 6. An outer collar 7 is threaded into the outer end of collar 4 and a gasket 8 is confined between this outer collar and a shoulder 5^a in collar 4. This provides a double packing about the outer portion of stem or rod 2 which co-operates with piston 3 to effectually prevent any leakage of water through the barrel.

At its inner end barrel is provided with an outer annular flange 9 which fits into an annular recess 10^a provided in the inner end of a sleeve 10 which is threaded into a neck 11 which projects from a block 12, the recess 10^a being of such depth that the inner face of flange 9 is flush with the inner end of sleeve 10. The block is provided, at the inner end of the neck, with a recess 12^a of greater diameter than the interior diameter of the neck which forms an annular shoulder 13 for reception of a washer 14 of leather or other suitable material. A brass washer 15 is positioned in advance of washer 14 and a second leather washer 16 is placed in front of the brass washer. The block is further provided, through its other wall, with a circular opening 17 in alignment with the recess 12^a, this opening being adapted to receive neck *a* of a ferrule valve A of a known type. At the center of each side of its front wall the block is also provided with marks 18 by means of which the stem of the valve can be centered in the opening 17 by aligning either of the marks with center-pin *b* of the valve. After the neck of the valve has been properly positioned in the block with the end of the neck in contact with washer 16, it is tightly secured in position by means of gripping jaws 19 provided in their inner faces with V-shaped recesses 20, these jaws being slidably mounted in the block and adjusting screws 21 being threaded through the ends of the block and connected to the respective jaws. By forcing the jaws into gripping engagement with the neck of the valve, the block is tightly secured to the valve, after which sleeve 10 is threaded into neck 11 so as to force washer 16 tightly against the inner end of the valve neck, the sleeve being forced tightly against washer 14. This provides a tight closure at the valve neck which serves to effectually eliminate possibility of leakage when the valve is opened and the tool is being used.

Before the block is attached to the neck of the valve the tool 2 is applied by inserting the shank of the tool through the washers into the inner end of barrel 1, the tool being threaded onto the threaded end portion 2^a of stem 2 which projects beyond piston 3. After the block has been secured to the valve the stem 2 with the tool attached is forced through the valve, which has been opened, and is simultaneously turned so that the cutting head 22 provided at the inner end of the tool serves to effectually cut away and remove all foreign material within the valve. After this has been accomplished the stem is withdrawn

so as to withdraw the tool from the valve, after which the valve is closed and the block is removed, the valve being then connected to the main or water supply pipe from which it was originally disconnected. Tools of different sizes may be used by the simple expedient of changing the washers, washers with smaller openings being used for the smaller tools and vice versa. By providing the block and associated parts I produce a tool which can be used for valves of different sizes and in which all leakage when the tool is applied or removed is prevented.

What I claim is:—

1. In a valve opener, a barrel, a rod slidably and rotatably mounted in the barrel, a block, means for securing the block to a valve, said means being adjustable to accommodate valves of different sizes, means for securing the barrel to said block, a cutting tool secured on the inner end of said rod, and means for effecting a water-tight closure between the valve and the barrel and about said tool.

2. In a valve opener, a barrel, a rod slidably and rotatably mounted in said barrel, a cutting tool secured on one end of the rod, a block, means for securing said block on a valve neck and adjustable to accommodate valves of different sizes, means for securing the barrel to the block, and means for effecting a water-tight closure between the valve neck and the barrel.

3. In a valve opener, a barrel, a rod slidably mounted in the barrel, a cutting tool secured on said rod, a block provided with an opening for reception of a valve neck, gripping members oppositely adjustable across said opening for securing the block to the valve neck, means for securing said barrel to the block, and means for effecting a water-tight closure between the barrel and the end of the valve neck.

4. In a valve opener, a barrel, a rod slidable through said barrel, a cutting tool carried by said rod, a block provided with an opening for reception of a valve neck, means for securing said block to the valve neck, said means being adjustable to accommodate valve necks of different sizes, the block being provided with a neck disposed in alignment with said opening and with a recess contiguous to and concentric with the inner end of said block neck, a member threaded into said block neck, said member and the barrel being provided with co-operating means for securing the barrel to the block, and packing members mounted in said recess in advance of said member.

5. In a valve opener, a block provided with an opening for reception of a valve neck, means for securing said block to the valve neck, said means being adjustable to accommodate valve necks of different sizes, the block being provided with a neck disposed in alignment with said opening, a barrel provided at one end with an outer annular shoulder, a member threaded into the neck of the block and engaging beneath the shoulder of the barrel, a rod slidable through the barrel, and a cutting tool carried by said rod.

6. In a valve opener, a block provided with an opening for reception of a valve neck, means for securing said block to the valve neck, said means being adjustable to accommodate valve necks of different sizes, the block being provided with a neck disposed in alignment with said opening, a barrel provided at one end with an outer annular shoulder, a member threaded into the neck of the block and engaging beneath the shoulder of the barrel, a rod slidable through the barrel, a cutting tool carried by said rod, and means for effecting a water-tight closure between the valve neck and the inner end of said barrel, said means also forming a closure about the shank of the tool.

In testimony whereof I affix my signature.

CHARLES HOLTMAN.