

L. E. CANNING.

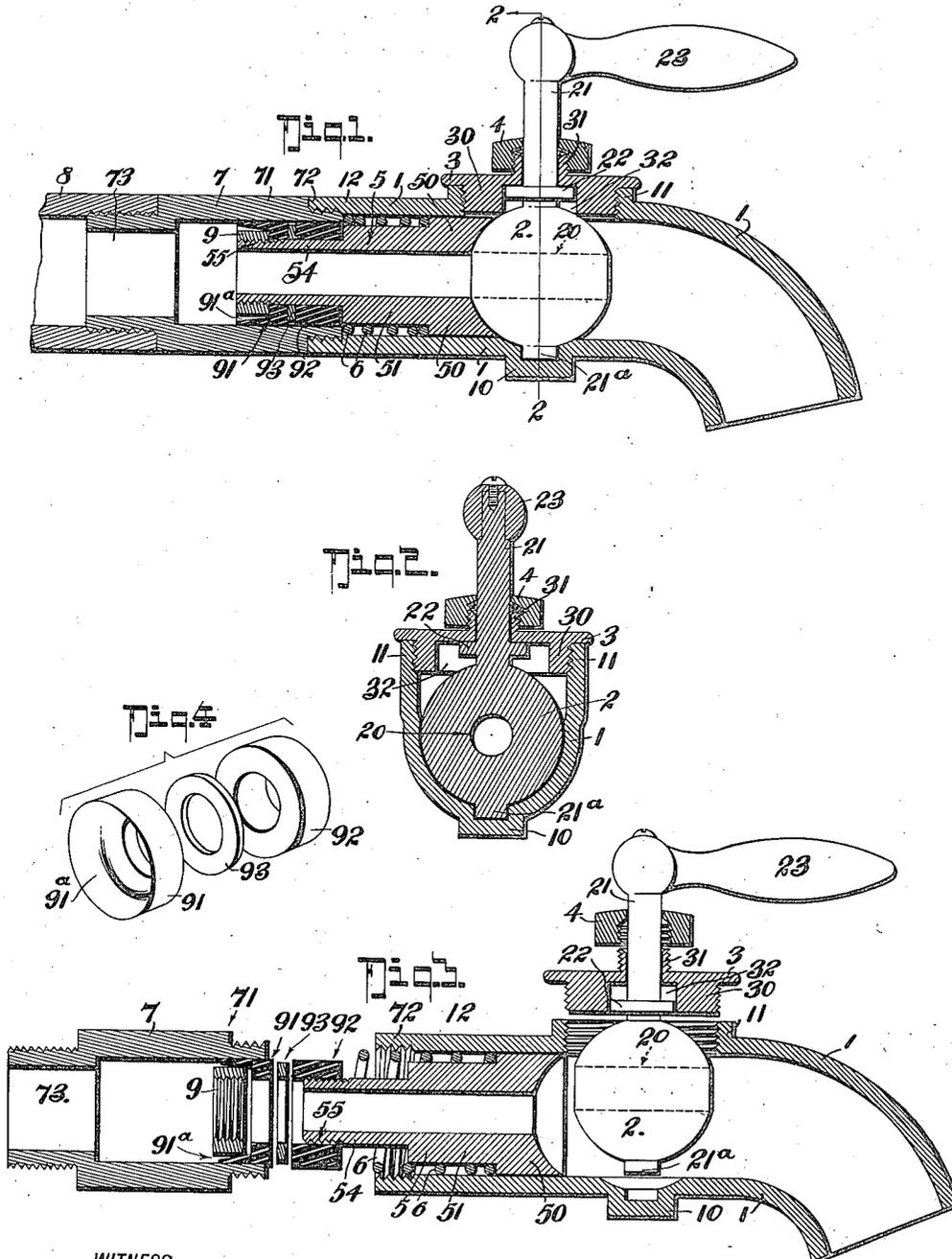
VALVE.

APPLICATION FILED SEPT. 17, 1915.

Patented Aug. 22, 1916.

2 SHEETS—SHEET 1.

1,195,336.



WITNESS
Charles J. Diller.

INVENTOR
L. E. Canning

BY
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ATTORNEY

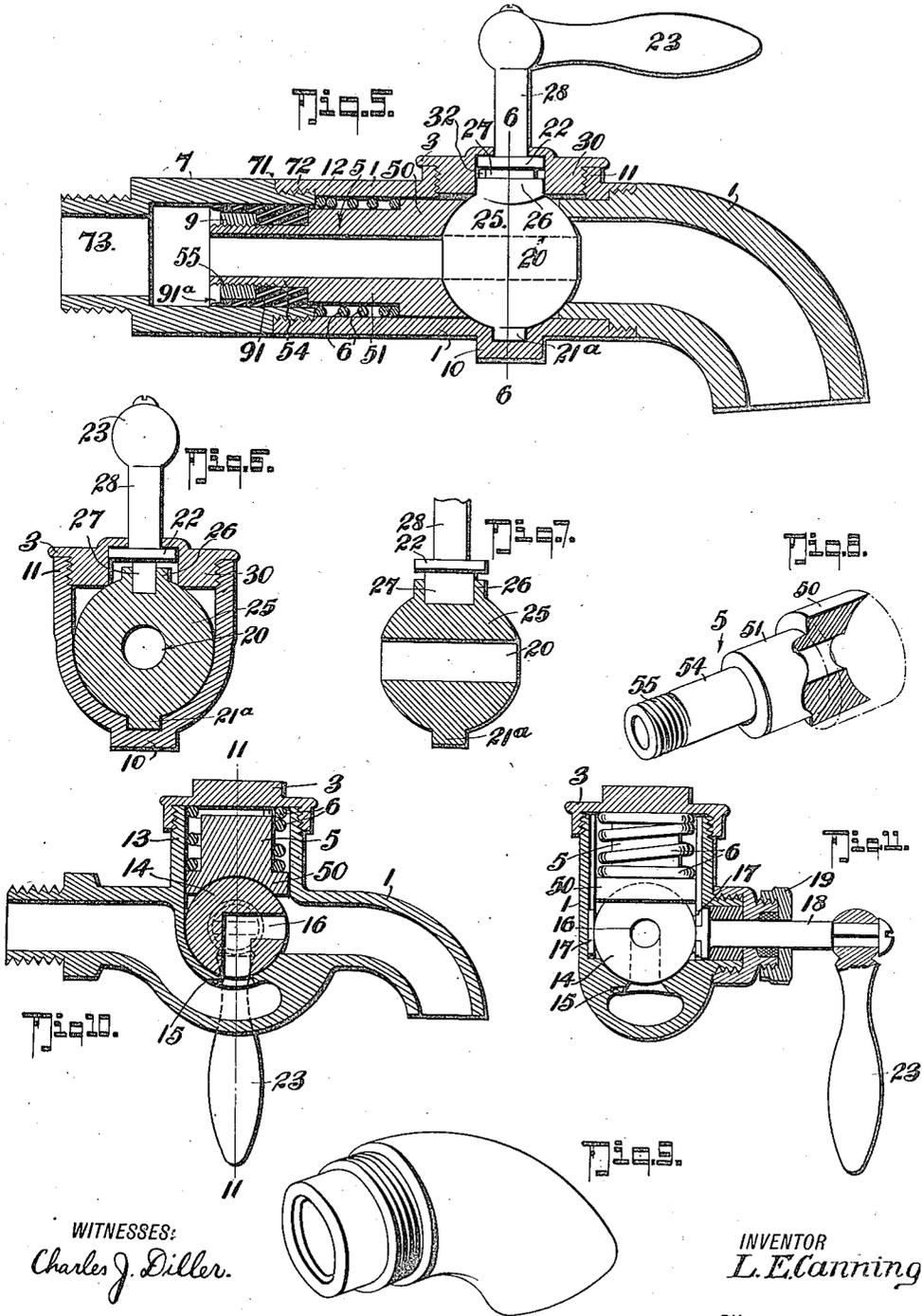
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UNITED STATES PATENT OFFICE.

LAWRENCE EMERY CANNING, OF PITTSBURGH, PENNSYLVANIA.

VALVE.

1,195,336.

Specification of Letters Patent. Patented Aug. 22, 1916.

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To all whom it may concern:

Be it known that I, LAWRENCE EMERY CANNING, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Valves, of which the following is a specification.

My invention primarily has for its object to provide a new and improved form of valve, more particularly of that type utilized as basin cocks, bath tub cocks, curb stops, etc., of a simple and economical construction and in which the several parts are especially so designed that no cuttings or dirt can pass by or under any of the washers, and the valve thereby adapted to grind itself.

With other objects in view that will hereinafter appear, my invention embodies the peculiar construction and novel arrangement of parts that constitute my improved valve, all of which will be hereinafter fully explained, specifically pointed out in the appended claims and illustrated in the accompanying drawings, in which:

Figure 1 is a vertical longitudinal section of a valve that embodies my invention. Fig. 2 is a transverse section thereof on the line 2—2 on Fig. 1. Fig. 3 is a detail view, the several parts of my improved valve being shown in longitudinal section and separated from each other. Fig. 4 is a perspective view showing the packing washers separated. Fig. 5 is a vertical longitudinal section of a modified form of my valve. Fig. 6 is a cross section on the line 6—6 of Fig. 5. Fig. 7 is a detail transverse section of the ball and a portion of the turning key. Fig. 8 is a sectional perspective of the plunger which seats against the aforesaid ball. Fig. 9 is a detail perspective of the faucet nozzle showing the ball valve seat. Fig. 10 is a vertical longitudinal section of a further modification of faucet construction. Fig. 11 is a transverse section on the line 11—11 on Fig. 10 parts being, however, in elevation.

In the accompanying drawings, I have illustrated my invention in the nature of an ordinary spigot or faucet, and the said and preferred form, which is illustrated fully in Figs. 1, 2 and 3 embodies a shell casing 1, which includes a stepped bearing 10 and an internally threaded flange 11 and an internally threaded inlet extension or neck 12.

2 designates a ball or globe valve provided with the usual water passage 20, stem 21 and with a foot portion 21^a for engaging the

stepped bearing 10. The valve stem has a collar 22, the purpose of which will presently appear, and the said stem 21 connects with the usual type of handle 23, as shown. 60

3 designates a cap member that fits over the sleeve 21 and has an externally threaded portion 30 that fits into the threaded flange 11, and includes an externally threaded boss 31 to receive the nut 4 which forms a packing gland, as is clearly shown in Fig. 1, by reference to which it will also be seen the member 3 has a socket 32 that fits over and down against the collar 22 on the valve stem and thereby securely holds the valve down 70 in proper position within the casing or shell 1.

5 designates what I term a tubular plunger or piston device, and the said device fits within the extension or neck 12 of the casing 1 and it includes a dished head 50 that seats against the ball valve 2. Plunger 5 also includes a reduced portion or stem 51 that forms a seat for a stout coiled spring 6 that normally forces the plunger head in a tight 80 frictional contact with the ball valve.

7 designates a tubular coupling member, whose inner end 71 is externally threaded to screw into the internal threads 72 of the inlet end 12 of the valve casing and whose outer 85 end 73 is externally threaded for connecting with the water supply pipe 8.

The plunger 5 also includes a stem or extension 54 of reduced diameter having an external thread 55 on the outer end for receiving a holding nut 9 that engages and holds a pair of rubber washers 91—92 separated by a disk washer 93 all mounted on the extension 54. The washers 91 and 92 assist in retaining the spring 6 in place with the inner end thereof resting against the shoulder 95 formed by the end 71 of the coupling 7, as is best shown in Fig. 1. The outermost one 91 of the washers is in the nature of a cup washer, since that end against which the incoming water flows is dished, as indicated by 91^a, it being understood that the impact of the entering water on the cup washer tends to assist the spring 6, under increased tension, to force or shove up the plunger 105 head to seat against valve 1.

While I have shown two washers 91—92 separated by the disk 93, mounted on the plunger portion 54, such arrangement of washers being preferred, since the first or 110 cup shaped washer 9, acts to protect the washer 92, but a single one of such washers

may be used in place of the two washers and the separating disk, (see Fig. 4).

By reason of the peculiar construction and novel arrangement of the parts described and illustrated in the drawings, the ball valve when in use is caused to grind itself, for the reason that no dirt or cuttings can pass under or cut the washers, this being readily understood when it is considered that the impact of the water against the cup washer tends to expand the said washer and thereby tightly engage the coupling member attached to the valve casing, and further as the said cup washer is held practically stationary there is little or no wear on the said washer, and by reason thereof no water or dirt can pass between the washer and the coupling member in which it is housed, and in consequence no dirt or cuttings can injure the said washer or pass by the same and lodge between the dished face of the plunger and the ball valve.

In Figs. 5, 6 and 7, I have shown a modified construction of my improved valve and in the said form the valve is a separate member 25, and provided with a non-circular socket 26 to receive the pendent non-circular end 27 of the handle stem 28, which is held down in a tight connection with the valve by the cap devices and the disk washer. In this latter, or modified form, the nozzle end of the faucet or casing has a threaded connection with the body portion of the said casing. It will be noticed in the modified form, the ball valve seats at the top, the bottom and at the opposite sides.

Figs. 10 and 11 show a still further modification of the construction of my faucet, and while the principle of assemblage of the other forms is adhered to, yet the body 1 is slightly altered to admit the provision of a side operated water faucet.

The casing 13 houses the plunger 5 which, in this instance, is vertically disposed and the casing is closed by a suitable cap 3 which, upon being screwed down, increases the tension in the spring 6, which being seated on the shoulder of the dished head 50 forces the said latter part into close engagement with the ball valve 14 and this in turn tightly engages the seat 15, so that fluid may not escape around this latter connection. The ball valve has a duct 16 which when turned to the position shown affords a channel for the flow of the fluid.

Valve 14 has integrally formed templets 17 at its sides which by moving in suitably cored-out grooves in the body of the faucet (see Fig. 11) keep the ball valve in the correct position and also afford a means by

which the valve is turned to any axial position, since one of the templets 17 is cross grooved key-way to admit the rectangular key end of the turning stem 18. 19 indicates a packing gland for the stem 18.

What I claim is:

1. In a valve of the character described, a casing having a straightway fluid passage, a rotatable valve in said passage, a movable valve seat having a fluid passage and including a head that seats against the rotatable valve, a shouldered reduced portion and a stem having a threaded end; a coil spring seated on the said reduced portion, an elastic washer mounted on the stem and engaging the coil spring to hold it up against the shoulder of the reduced portion of the valve seat, and a clamp nut on the thread of the valve seat stem, said nut holding the elastic washer in place.

2. A valve comprising a casing having an inlet and an outlet, a ball valve in the casing between the said inlet and outlet, a valve seat having a fluid passage movably mounted within the inlet end of the casing and having a shouldered portion and a stem having a threaded end, a coil spring mounted on the said shouldered portion that tends to force the valve seat up against the ball valve, an elastic washer including a cup shaped end that receives the impact of the outflowing fluid, the said washer being mounted on the valve seat stem and engaging the coil spring, and a lock nut on the valve stem for holding the parts of the valve seat to their operative position.

3. A valve comprising a casing having an inlet and an outlet, a ball valve in the casing between the said inlet and outlet, a valve seat having a fluid passage movably mounted within the inlet end of the casing and having a shouldered portion and a stem having a threaded end, a coil spring mounted on the said shouldered portion that tends to force the valve seat up against the ball valve, an elastic washer including a cup shaped end that receives the impact of the outflowing fluid, the said washer being mounted on the valve seat stem and engaging the coil spring, a lock nut on the valve stem for holding the parts of the valve seat to their operative position, the said stem of the valve seat extending beyond the inlet end of the valve seat, and a pipe coupling that incases the said extended end and engages the inlet end of the valve casing.

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Witnesses:

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