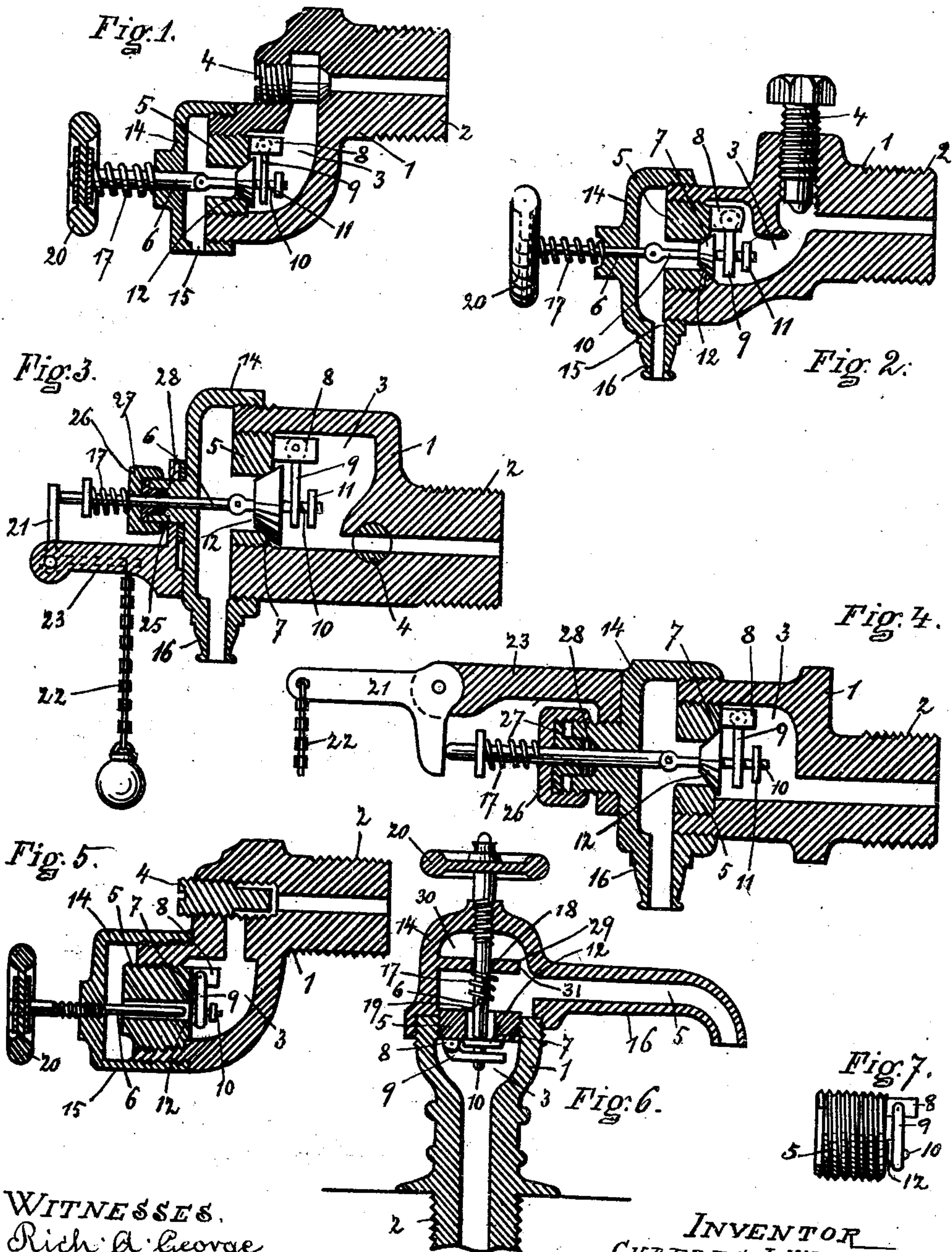


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VALVE.

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923,470.

Patented June 1, 1909.



WITNESSES.
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VALVE.

No. 923,470.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES I. WILLIAMS, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Valves, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to an improved valve, and I declare the following is a full, clear, concise and exact description thereof, sufficient to enable one skilled in the art to make and use the same, reference being had to the accompanying drawings in which like reference characters refer to like parts throughout.

The invention is shown in a variety of forms and comprises the features and combinations set forth herein, including economy of construction and of space, simplicity, cleanliness and efficiency.

In the drawings, the views are of longitudinal sections of various forms of the device, Figures 1 and 2 showing forms which are quite similar, but having a different shut-off. Figs. 3 and 4 show forms in which the valve is operated by a lever. Fig. 5 is a view of a modified and simple form of the invention, and Fig. 6 shows it as applied to a basin faucet. Fig. 7 is a view of a single member of the device. The other figures show the device used as a gage or try cock.

Referring to the figures in detail, 1 represents what may be conveniently termed the casing of the valve and has a threaded end 2 for mounting in the boiler or in the stand or connected pipe. The casing has a passage from one end to the other but at the outer end the passage is substantially enlarged, making a chamber 3. Means are provided for closing the smaller portion of the bore or passage, between the supply or boiler and the chamber. This is a shut-off bolt 4 shown in Fig. 1 as mounted to be screwed in to close the end of the smaller bore or part of the passage. In Fig. 2 it is shown located transverse that bore. In Fig. 3 the shut-off bolt is indicated in a different position, in each case the casing being formed to provide a seat for the valve. In the other forms the cut-off is not shown but may be readily supplied in view of the showing made.

The opening into the chamber 3 is threaded for screw plug 5 which is bored for

the valve stem 6, the inner end 7 of such bore being finished to serve as a valve seat. In certain of the forms, as will be seen, this bore is eccentric to the axis of the plug to allow for the mounting and swing of the valve and to make the device of compact form. One particular feature of the device is this plug 5 which provides a removable seat and having mounted on it the valve parts proper enables one to remove such parts for cleaning or renewing in a very simple and quick manner. In Fig. 7 it is seen that the outer end of the plug is adapted for the use of a wrench: it may be otherwise fitted for convenient manipulation.

On the inner end of the plug 5 and adjacent its periphery is stud 8, projecting into the chamber 3, and on which is pivoted link 9 which is pierced at the other end for pin 10 which is loosely supported therein. On the inner end of the pin is head or nut 11, the other end extending into the bore of the plug 5 and adapted if desired for any suitable connection therewith of the stem 6. In the forms shown in Figs. 5 and 6 the valve stem is extended to bear directly against the valve-disk and this form may be used in the other instances shown, if preferred, the fluid pressure normally closing the valve. On the pin 10 and between the plug 5 and the link 9 is the valve-disk 12 which may be a flat disk, as seen in Figs. 5 and 6, or be of conical shape, or of other suitable form, in each case to contact with the plug which is appropriately formed to constitute a valve-seat. The parts which compose the valve are so mounted as automatically to close under the pressure of the boiler or other supply.

A cap 14 is provided, screw-threaded to fit over the threaded end of the casing and has outlet 15 which may be provided with nipple or pipe 16. It is bored for the valve stem 6 to pass and be connected with the pin 10 as by pivotal or link connection. In the forms shown in Figs. 5 and 6 this bore and the stem are threaded so that the valve is opened by turning the stem. But I prefer the form of the device with means provided for the automatic closing of the valve, such as spring 17. In Fig. 6 the spring is within the valve cover being secured to a footing 18 and connected with the stem as by pin 19. In this case the pressure of the spring will automatically close the valve by rotating

when the stem handle 20 is released. In other cases the spring 17 is on the outer part of the stem bearing against handle or wheel 20 and the cover or cap 14. At the same time it is evident that, because of the formation of the casing and the form and arrangement of the bore and chamber, and the manner in which the valve is hung in the chamber the valve will be self-closing under the outward pressure of steam or other supply. In some of the figures a lever 21 and chain 22 are provided instead of handle or wheel 20 for pushing in the valve stem. In such cases a bracket 23 is suitably mounted on the cap to provide a bearing for the lever 21.

Suitable means for packing the valve-stem are shown in Figs. 3 and 4, the cap being provided with a nipple 25 on which bushing 26 is screwed. The nipple has an enlarged bore in the end which receives plug 27, held in by contact of its head with bushing 26, the packing 28 being placed in the recess of the nipple and held by the rear end of the plug 27.

In Fig. 6 is shown an additional feature particularly applicable to such uses. It consists in wall 29 partially inclosing the recess 30 in the head of the cap or cover. It is bored for the stem 6 but not so closely but that there is a slight leakage around the stem. The opening 31, with the said leakage effects a siphon operation, the passage of the water through the outlet 15 drawing out the air in the recess 30 and subsequently taking off the water that finds its way into the recess by the valve-stem.

A particular feature of the construction shown is that it is self-cleaning. In Figs. 1, 2 and 5, for instance, the swinging of the valve breaks up any sediment or crusting that may collect in the chamber 3. This is true in the showing in Figs. 3 and 4 but not to so marked degree. In the form shown in Fig. 6 it is also true, but the particular advantage of my device in such use is that there is no opportunity for sediment to collect on any part of the valve-disk or seat and the rush of supply when the valve is open will clean off any thing that may collect on or about the parts of the valve.

While I have shown the invention as applied to a few uses, it is capable of wide adaptation, without departing from the scope of my invention.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a valve, a casing having a passage therethrough, a plug removably mounted at one end of the passage and being bored to provide a valve seat and a valve-closure means loosely supported on the plug opposite the bore thereof adapted to fit the valve

seat and to be slid along its support to open the valve, substantially as shown.

2. A valve comprising a bored casing, a bored plug mounted in the bore, a valve-stem, a link swingably mounted on the plug, a pin loosely supported on the link and a closure member mounted on the pin adapted to move thereon to close the valve under fluid pressure and to be slid thereon by the stem to open the valve, substantially as described.

3. The combination in a valve, of a bored casing, an outer cap screw-mounted thereon, a plug screw-mounted in the casing, a valve-closure member and means swingably mounted on the plug and supporting said member movably thereon along the axis of the plug-bore, substantially as described.

4. In a valve, a removable plug fitted to act as a valve seat, means for closing the seat, a swinging support on the plug, said means being slidably mounted in said support and adapted to move in line with the axis of the plug, substantially as described.

5. In a valve, a casing provided with a passage therethrough, a plug mounted in said passage and bored and formed for a valve seat at one end thereof, a swinging member mounted on the plug, a closure member slidably mounted on the swinging member, and means for pressing the said closure member from the valve seat, substantially as shown.

6. A valve comprising a bored casing, a bored plug mounted in the bore, a valve-stem extended through the plug, a link swingably mounted on the plug, a pin loosely supported on the link and a closure member mounted on the pin in position to be forced by fluid pressure to close the bore of the plug, the valve stem bearing against the face of the closure member, with means whereby to force it from said plug, substantially as described.

7. In a device of the character described comprising a bored casing, a plug screw-mounted in the bore, itself being bored at one side of its axis and provided with a valve-seat at one end of such bore and a closure member for such valve-seat loosely supported in position to be forced by fluid pressure closely to register against said valve-seat, a cover removably mounted on the casing and a valve-stem supported in the cover and adapted to force said closure member from said valve-seat, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES I. WILLIAMS.

Witnesses:

E. T. DE GIORGI,
H. C. BUCK.