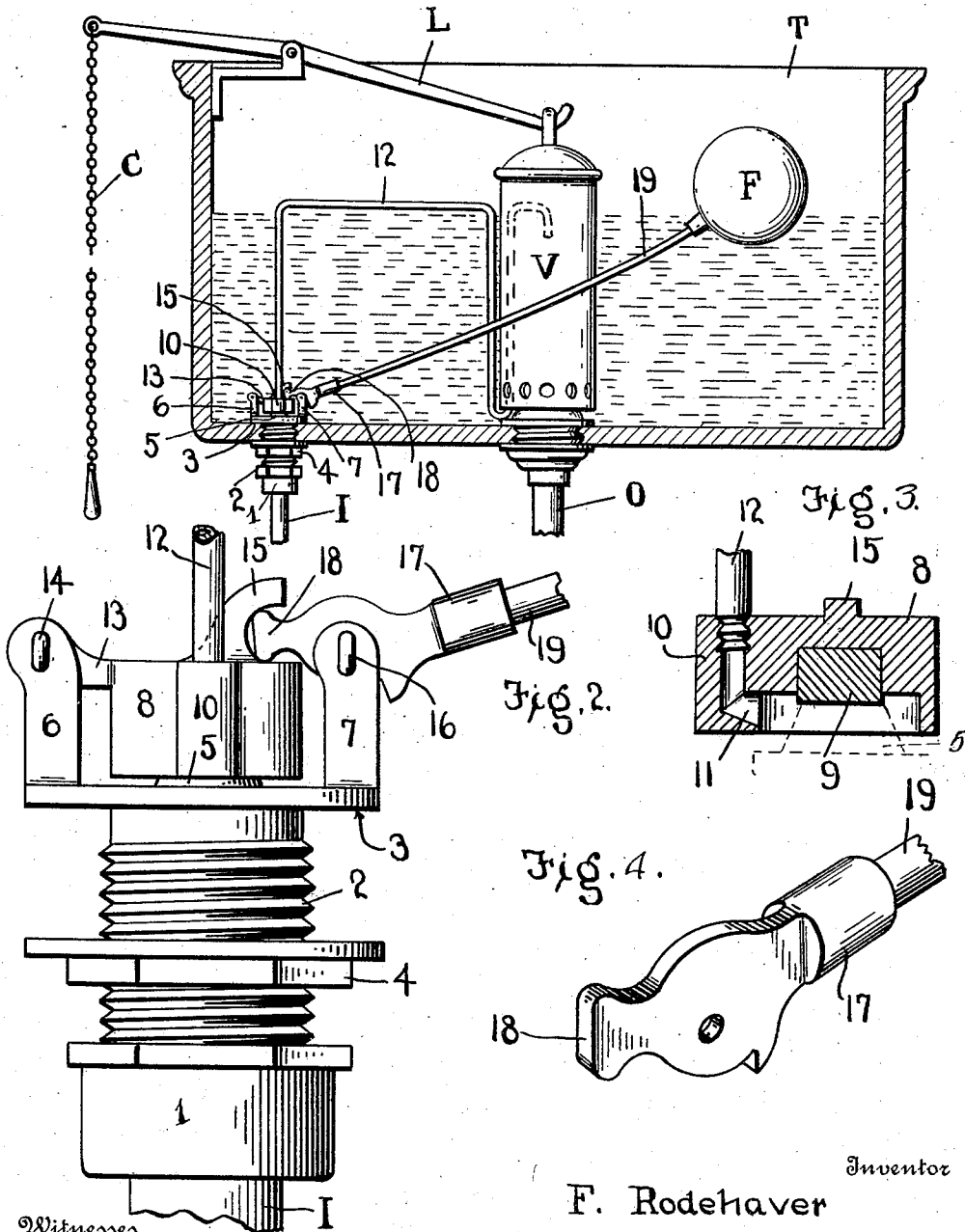


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 FLOAT VALVE.
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1,065,841.

Patented June 24, 1913.

Fig. 1.



Witnesses

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FREEMAN RODEHAVER, OF GREENSBURG, PENNSYLVANIA.

FLOAT-VALVE.

1,065,841.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREEMAN RODEHAVER, a citizen of the United States, residing at Greensburg, in the county of Westmoreland and State of Pennsylvania, have invented certain new and useful Improvements in Float-Valves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to baths and closets, and more especially to water-closet valves; and the object of the same is to produce an improved valve within the flushing tank of a water-closet, such as is ordinarily closed by the rise of the float therein. This object is accomplished by constructing the device in the manner hereinafter more fully described and claimed and as shown in the drawings wherein—

Figure 1 is a general sectional view through a water-closet tank, showing this improved float valve as used in connection therewith; Fig. 2 is an enlarged side elevation of the valve alone. Fig. 3 is a cross section through the valve head, showing the plug and the passage therein and indicating the nipple in dotted lines. Fig. 4 is an enlarged perspective detail of the knob at the inner end of the lever.

In Fig. 1 of the drawings is conventionally shown an elevated flushing tank T wherein is mounted a valve V opened by a lever L controlled by a chain C as usual, which valve throws the interior of the tank into communication with the bowl by an outlet pipe O so that the bowl is flushed after the chain C is pulled, and the letter I designates the inlet pipe for supplying water to the tank in a manner which is well known in the art. It is the valve at the end of this inlet pipe, opened by the descent and closed by the ascent of the float F, which forms the subject matter of the present invention.

The inlet pipe I is connected by means of any suitable coupling 1 with the lower end of the externally threaded body 2 of the valve, said body having a shoulder 3 at its upper end and a nut 4 on its threads between which shoulder and nut the bottom of the tank T is clamped in a water-tight manner as usual, so that the coupling holds the pipe I to the valve body and the clamp

holds the body to the tank—the latter being mounted on the wall or other suitable support—and the upper end of the valve body standing inside the tank and having a slightly elevated nipple 5 whose upper extremity is to form the valve seat in a manner to be made clear. Rising from said shoulder at opposite sides of the nipple are two rigid lugs 6 and 7, each by preference forked at its upper end and its fork-arms provided with alined eyes. Between these lugs is removably disposed an inverted cup-shaped valve 8 preferably carrying within it a rubber or other soft plug 9 adapted to close upon the seat 5 when borne downward, and one side of the shell of the valve is offset as at 10 and cored with a passage 11 opening radially inward beneath said plug, while a fine refill pipe 12 leads from the upper end of said passage to and into the outlet pipe O for a purpose to be made clear hereinafter. This valve is provided at one side with a radially projecting perforated ear 13 extending between the fork-arms of the lug 6 and pivotally connected therewith by a removable member such as a split pin 14; mounted on the top of the cup-shaped member is a hook 15; and pivoted as by a split pin 16 is a lever 17 having a knob 18 at its inner end which works under the hook and a rod 19 at its outer end to which the float F is attached.

The parts are by preference entirely of metal excepting the plug which may well be of rubber; and the sizes, proportions, and exact details are unimportant. Having been set up as shown in Fig. 1 of the drawings, the action is as follows: When the chain C is pulled the lever L opens the valve V, the water in the tank T runs through the outlet pipe O and flushes the bowl, and the fall of the water level permits the float F to fall so that the movement of its rod turns the lever on its pivot and the knob at the inner end of the lever engaging the hook on the valve raises the valve and its plug off the valve seat 5. Water now flows through the inlet pipe I and rushes upward into the cup-shaped body of the valve and out under the edge of its shell to replenish the water drawn from the tank, and meanwhile some of the inrushing water will pass upward through the passage in the offset at one side of the cup, and through the refill pipe 12 into the outlet pipe O so that fresh

water is emptied into the bowl to replenish that which has run out. The gradual rise of the water level within the tank lifts the float F, and as the lever turns on its pivot the knob within said hook causes the valve to move downward until the plug again closes upon the nipple 5 and the inlet of water is shut off.

It happens occasionally that pivots become displaced or broken, or valves of this character refuse to work. If the pivot through the lug 6 should thus suffer injury, it could easily be replaced without disarranging the parts of the valve. So also with the pivot through the lug 6. But if both pivots are removed it will be impossible to take the valve out of place with my improved construction unless it be raised straight upward from between the lugs, one of which stands so close to that side of the valve-shell that the latter strikes the inner face of the lug as it swings around its fulcrum pivot and thereby limits the opening movement of the valve as well as preventing a too great flexing of the refill pipe 12. This I consider a beneficial feature, because the water flowing through the inlet pipe cannot open the valve unduly wide, as it enters the cup and is thereby immediately directed downward below the surface of the water already in the tank T so that noise is avoided such as is usually so objectionable in devices of this character, the parts are thoroughly cleansed at each operation of the valve, some of the water is almost certain to be diverted through the passage 11 and the refill pipe for the purpose above set forth, and such pipe is not bent seriously and therefore may be made of flexible copper or the like and will withstand long usage. Yet all parts of the device are accessible to the plumber from above, and if the pivot pins employed are split pins as shown in the drawings the parts can be separated and reassembled without the use of a tool. Attention is directed to the fact that when the split pins are removed and the valve taken out of place, the fine pipe 12 comes with it so that it may be entirely removed from the water closet fixture as for repair.

What is claimed as new is:—

1. In a valve of the class described, the combination with the valve body having a nipple rising therefrom; of a cup-shaped valve head whose shell surrounds said nipple and has a lateral offset cored with a passage opening into the cup, a soft plug seated in the bottom of the latter above said passage, a fine pipe connected with the other end of such passage and adapted to be led to the outlet of a water-closet cistern, and means

for opening said valve by raising its head a slight distance above said nipple.

2. In a valve of the class described, the combination with the valve body having an upright nipple rising therefrom and lugs also rising vertically therefrom at opposite sides of the nipple, a lever pivoted between its ends to one lug and having a knob at its inner extremity, and means for raising and lowering the outer end of said lever; of a cup-shaped valve head whose shell surrounds said nipple and has a lateral offset cored with a passage opening into the cup, a hook rising from one side of said head and engaging said knob, an ear projecting rigidly from one side of said head, means for detachably pivoting it to one of said lugs in such position that the lower edge of the shell at the remote side of the head strikes the other lug when the valve opens, and a fine pipe led from said passage.

3. In a valve of the class described, the combination with the valve body comprising an upright nipple and upright forked lugs at opposite sides thereof; of the valve head adapted to close upon said nipple and having a perforated ear projecting rigidly from one side between the fork-arms of one of said lugs, a split pin through said arms and ear detachably pivoting the head to this lug in such position that its opposite edge strikes the other lug to prevent it opening unduly, actuating mechanism removably pivoted between the fork arms of the last-named lug for raising and lowering the valve-head on its pivot, and a refill pipe whose inlet end opens through the valve head, for the purpose set forth.

4. In a valve of the class described, the combination with the valve body having a seat; of a cup-shaped valve head whose shell has a lateral offset cored with a passage opening into the cup, a refill pipe connected with the passage and adapted to be led to the outlet of a water-closet cistern, means for opening said valve by raising its head a slight distance, and means for limiting said opening movement.

5. A valve of the class described comprising a fixed seat, a movable valve head cooperating therewith, means for actuating the head, and a refill pipe whose inlet end is connected with the head and opens adjacent said seat.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FREEMAN RODEHAVER.

Witnesses:

E. H. WRIGHT,
H. P. TICE.