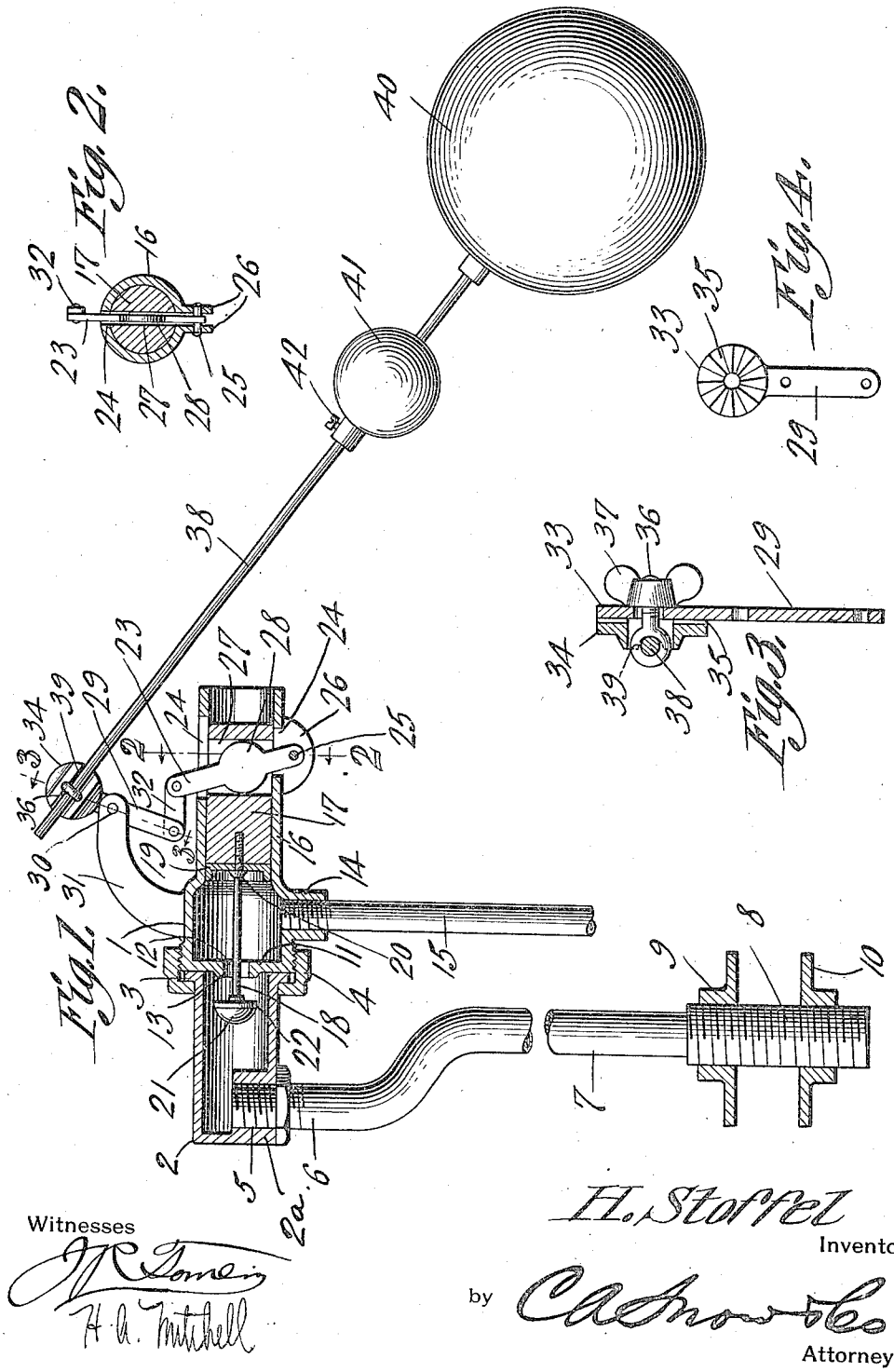
H. STOFFEL.

VALVE.

APPLICATION FILED SEPT. 20, 1917.

1,280,326.

Patented Oct. 1, 1918.



Witnesses

J. C. Lonergan

H. A. Mitchell

H. Stoffel

Inventor

by Cushman & Co.

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY STOFFEL, OF TULSA, OKLAHOMA.

VALVE.

1,280,326. Specification of Letters Patent. Patented Oct. 1, 1918.

Application filed September 20, 1917. Serial No. 192,331.

To all whom it may concern:

Be it known that I, HENRY STOFFEL, a citizen of the United States, residing at Tulsa, in the county of Tulsa and State of Oklahoma, have invented a new and useful Valve, of which the following is a specification.

The present invention appertains to valves, and relates to improvements in float controlled valves.

It is the object of the invention to provide a novel operative connection between the float and valve member to operate the latter in an effective manner, and permit of adjustments being made to suit the various conditions, the valve member being unseated against the fluid pressure and seating automatically as a check valve should the operating mechanism become broken or injured.

Another object is the provision of novel means for adjusting the opening of the valve by the operating mechanism.

A further object of the invention is the provision of a novel connection between the fluid supply pipe and valve casing, permitting of the ready attachment and separation thereof.

A still further object of the invention is the provision of novel means for supporting the valve casing from the upstanding fluid supply pipe and permitting the valve casing to be offset or adjusted toward either side which is especially desirable in a flushing tank to avoid interference with the plunger or flushing device.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein:

Figure 1 is a side elevation of the valve structure, portions being shown in section.

Figs. 2 and 3 are sectional details on the respective lines 2—2 and 3—3 of Fig. 1.

Fig. 4 is an elevation of one of the levers of the valve actuating mechanism.

The valve casing 1 is disposed in the horizontal position, as illustrated, and is supported by a cup-shaped tail piece or member 2 having an end wall 2^a, and having an outstanding flange 3 at its open end abutting against one end of the casing 1 and fastened to the casing by means of a union 4 threaded thereon and having an inturned flange or lip overlapping the flange 3. The tail piece 2 is provided near its closed end with an internal sleeve integral with the end wall 2^a and with one side of the member 2, the sleeve being threaded onto the upper end portion 6 of an upstanding water or fluid supply pipe 7, the lower end of which is threaded or otherwise engaged into a sleeve 8 to extend through the bottom of the tank. The sleeve 8 has an upper flange or nut 9 to seat on the bottom of the tank, and a binding nut 10 is threaded on the sleeve to bear upwardly against the bottom of the tank for firmly supporting the pipe 7 and preventing leakage. The sleeve 8 also serves as a coupling for attaching the pipe leading to the source of water. The upper end portion 6 of the upstanding pipe 7 is offset to one side of the axis of the pipe 7, whereby the offset portion 6 can be adjusted in various directions, by turning the pipe 7, to support the casing 1 and its tail piece 2 in different planes parallel to itself. This permits the casing to be adjusted to a convenient position in the tank to avoid the interference with other parts therein. The valve casing 1 can be readily detached by unscrewing the union 4, which can slide back onto the tail piece 2.

That end of the casing 1 which is secured to the tail piece 2 has a partition or diaphragm 11 with a central inlet 12 and a surrounding rib 13 forming a valve seat projecting outwardly from the valve casing into the tail piece 2. The casing 1 is further provided with a lateral outlet 14, lowermost as illustrated, and into which an outlet tube or nozzle 15 is threaded or otherwise secured. The tube 15 can extend to a point near the bottom of the tank to render the inflow of water as noiseless as possible.

The casing 1 has a tubular extension or cylinder 16 at that end opposite to the end or partition 11, and a plunger or piston 17 is slidable in the extension 16 toward and away from the inlet 12. A valve stem 18

projects through the inlet 12 and has one end threaded into the adjacent end of the plunger 17 and a cup-shaped packing 19 is fastened to said end of the plunger to fit snugly within the extension 16, said packing being held in place by a collar 20 of the stem 18. The free end of the stem is provided with a valve head or member 21 movable within the tail piece 2, and having a washer or packing 22 to seat against the valve seat 13. When the plunger 17 moves away from the valve seat, the valve head moves toward said seat, the valve head being seatable in the direction of flow from the pipe 7 into the casing 1, therefore, acting as a check valve when free to do so. Thus, should the actuating mechanism become broken, or injured, the valve head will be seated by the fluid pressure to avoid waste of fluid, overflow thereof, or the like. When the valve member or head is unseated, the fluid in flowing into the casing will also exert a pressure against the plunger of piston 17, tending to move it away from the valve seat to seat the valve head.

The actuating mechanism for the valve head embodies a lever 23 projecting laterally or upwardly through longitudinal slots 24 in diametrically opposite sides of the extension or cylinder 16 near the free end thereof, the lower end of said lever being pivoted, as at 25, to depending ears 26 projecting from the extension 16 at opposite sides of its lowermost slot 24. The lever 23 projects upwardly through a diametrical slot 27 provided in the plunger 17, and the lever has a rounded portion 28 between its ends working within the slot 27 to slide the plunger back and forth when the lever is oscillated. The lever 23 is, in turn, operated by the lever 29 pivoted between its ends, as at 30, to an upstanding overhanging bracket 31 carried by the top of the casing 1 and projecting over the extension 16. The lower arm of the lever 29 is connected by a link 32 with the upper end of the lever 23, and the lever 29 is operated by a float and weight, as will presently appear.

The upper arm of the lever 29 has a circular jaw 33 at one side of which is disposed a circular jaw or disk 34, said jaws having interengageable radial teeth 35 for the rotary adjustment of the jaw 34, and an eye bolt 36 or other pivot extends through central openings or apertures in said jaws, a nut 37 being threaded on the bolt and bearing against the jaw 33 opposite to the jaw 34. A rod 38 of suitable length extends through the eye of the bolt 36 and is seatable within a diametrical groove 39 with which the jaw 34 is provided at that side opposite to the jaw 33. Thus, when the nut 37 is tightened, the rod 38 is drawn tightly into the groove 39, and the jaws 33 and 34 are clamped together by the same operation. When the nut 37 is loosened, this permits the rod 38 to be slid longitudinally in the groove 39, and said rod can be adjusted angularly relatively to the lever 29 by swinging said rod so that the jaw 34 turns with it. Then, when the nut 37 is again tightened, the parts are clamped in their newly adjusted position, thus permitting the rod 38 to be placed at different angles relatively to the lever 29 and permitting said rod to be adjusted to bring the float 40 at the end thereof near to or farther from said lever, to change the leverage. The float 40 may be of any suitable construction, preferably of the hollow type, and also serve as a weight to depress the rod 38 and swing the lever 29 accordingly when the water level is lowered. When the water level rises, the float 40 in being buoyed up, will swing the lever 29 counter clockwise, as seen in Fig. 1, so that the link 32 will swing the lever 23 toward the right, thereby moving the plunger 17 in the same direction, and moving the valve head toward its seat, assisted by the water pressure. The flow of water is, therefore, shut off as soon as the water level reaches the predetermined height.

To assure of the unseating of the valve head when the water level is lowered, it is preferable to provide a weight 41 upon the rod 38, whereby the weight will assure of the gravitation of the rod 39. This weight 41 is slidable or adjustable on the rod 38, being held in any adjusted position by means of a set screw 42 or its equivalent. The weight 41 can, therefore, be set at the proper position, so as not to prevent the upward movement of the float 40 by the rise in water level, but to assure of the unseating of the valve head or member against the water pressure when the water level is lowered. Thus, when the water level is lowered, the combined weight of the float 40 and weight 41 must be sufficient to swing the rod 39 downwardly with enough leverage to unseat the valve head, the rod 38 swinging the lever 29 clockwise whereby to move the lever 23 and plunger 17 toward the left to move the valve head likewise against water pressure. The adjustment of the weight 41 enables the device to be set to operate smoothly and efficiently, but in some cases, if the float 40 is heavy enough, the weight 41 need not be used. Its presence, however is desirable.

Having thus described the invention, what is claimed as new is:

In a device of the class described, a cup-shaped tail-piece having an end wall and provided with an internal sleeve integral with the end wall and with one side of the tail-piece and having its axis disposed approximately at right angles to the axis of the tail-piece; a pipe received in the sleeve;

a valve casing assembled with the tail-piece in alinement therewith and having a lateral outlet; a valve for controlling the outlet; and float-actuated means for operating the valve.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HENRY STOFFEL.

Witnesses:
E. E. CLULOW,
E. G. CUNNINGHAM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."