H. E. TEMPLE.

VALVE MECHANISM.

APPLICATION FILED JUNE 12, 1914.

1,188,112.

Patented June 20, 1916.

2 SHEETS—SHEET 1.

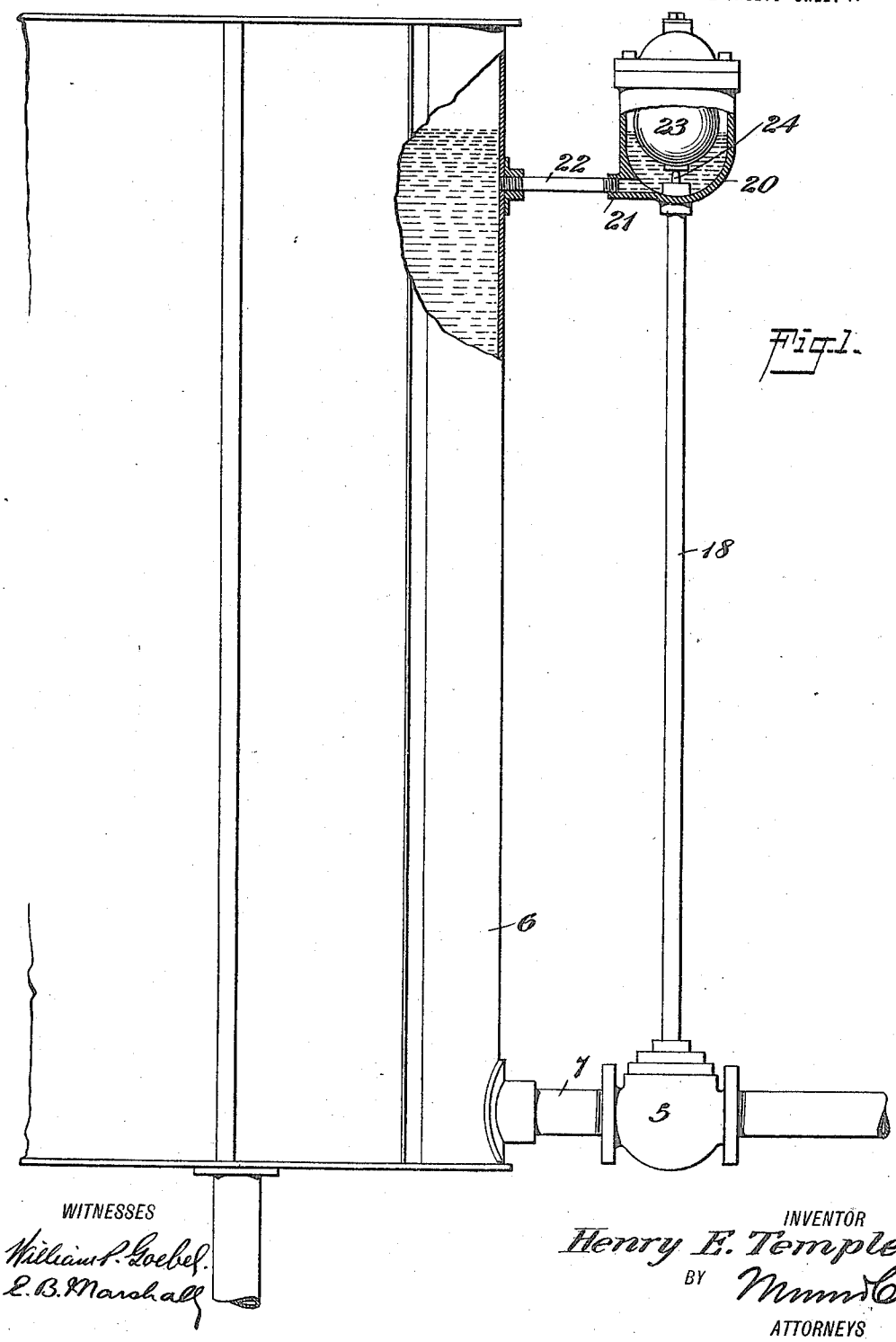


Fig. 1.

WITNESSES

William P. Goebel.

E. B. Marshall

INVENTOR

Henry E. Temple

BY Munn & Co

ATTORNEYS

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

H. E. TEMPLE.

VALVE MECHANISM.

APPLICATION FILED JUNE 12, 1914.

1,188,112.

Patented June 20, 1916.

2 SHEETS—SHEET 2.

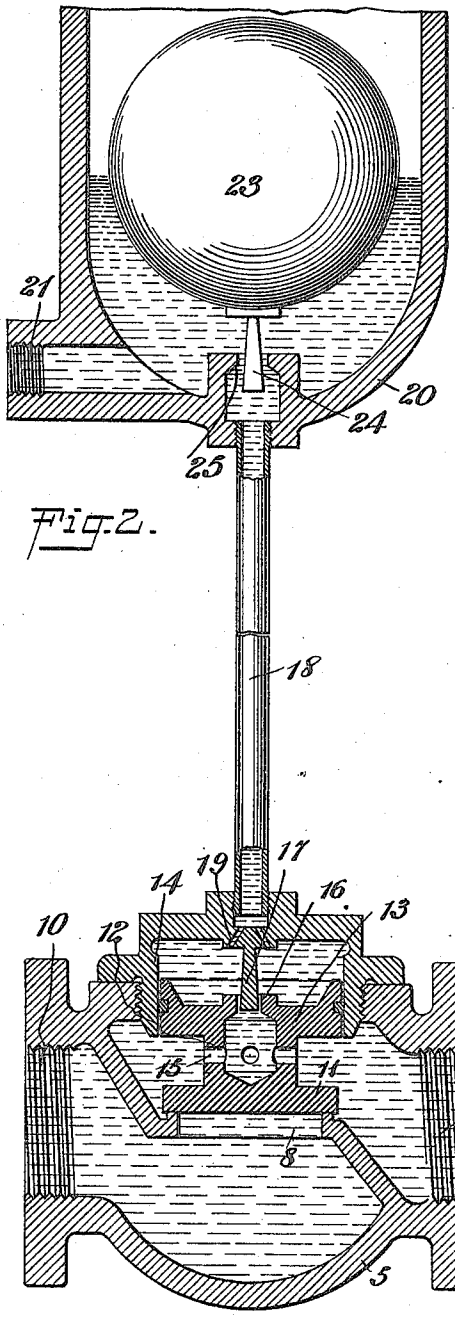


Fig. 2.

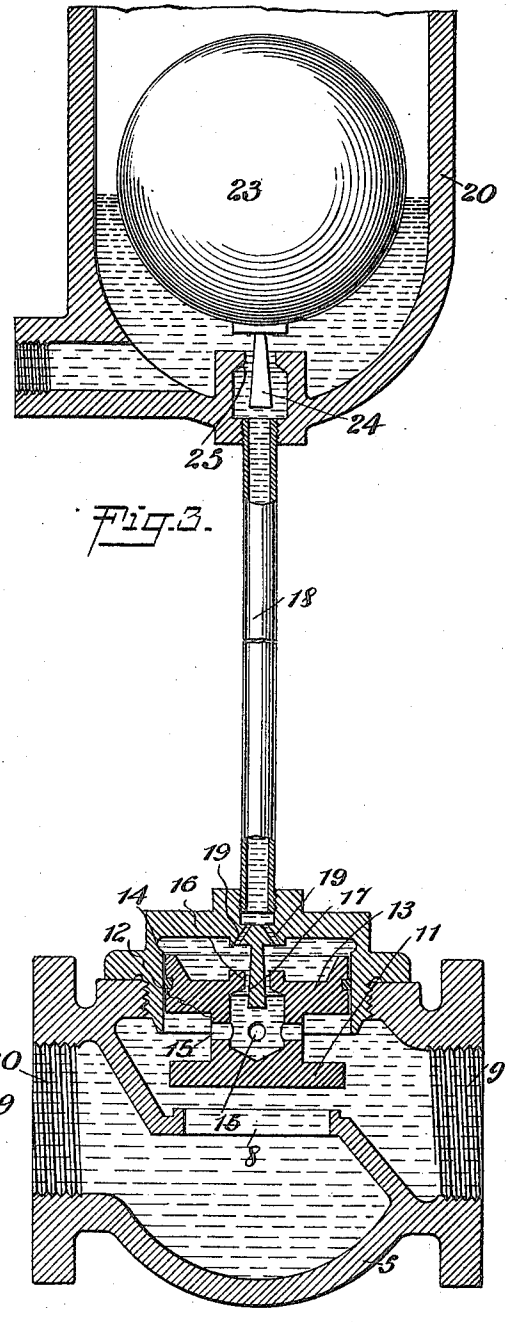


Fig. 3.

WITNESSES

William P. Goebel.

E. B. Marshall

INVENTOR

Henry E. Temple

BY Munn & Co

ATTORNEYS

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY E. TEMPLE, OF WEEHAWKEN, NEW JERSEY.

VALVE MECHANISM.

1,188,112. Specification of Letters Patent. Patented June 20, 1916.

Application filed June 12, 1914. Serial No. 844,748.

To all whom it may concern:

Be it known that I, HENRY E. TEMPLE, a citizen of the United States, and a resident of Weehawken, in the county of Hudson and State of New Jersey, have invented a new and Improved Valve Mechanism, of which the following is a full, clear, and exact description.

My invention has for its object to provide a valve in a suitable casing, hereinafter referred to as the main valve which is operable by differences in pressure on opposed surfaces of a piston to which the main valve is attached, said piston being provided with a small valve and a seat which is operated by the movement of the said piston attached to the main valve disk, and so arranged that its opening is increased as the main valve opens. This valve is hereinafter referred to as the secondary pilot, the main valve casing being in communication through the secondary pilot and a suitable conduit with a second small valve operated by a float or other suitable means, and thence to tank or reservoir. This second valve is hereinafter referred to as the primary pilot. The primary pilot when operated by a float is located with reference to the desired level of the fluid, substantially as shown. The main valve is located at any suitable point in a conduit providing communication with the tank or reservoir.

Another object of the invention is to provide a valve in a suitable casing operable by a piston having an auxiliary valve whose opening is gradually increased with the opening of the main valve to admit an increasing quantity of fluid above the piston and equalize the pressure in the chamber above the valve in any mid position, thus providing a means for controlling the flow of liquid, air, gas, etc., from remote points, either automatically or manually through a suitable primary pilot.

Additional objects of the invention will appear in the following specification in which the preferred form of my invention is disclosed.

In the drawings similar reference characters refer to similar parts in all the views in which—

Figure 1 is a side elevation showing how my invention is applied, parts being broken away to show the construction. Fig. 2 is an enlarged sectional view showing my invention with the main valve closed; and Fig. 3 is a view similar to that shown in Fig. 2, but with the parts in the position which they assume when the main valve is open.

Figs. 1, 2 and 3 show one application of the invention. The description refers to all parts for the purpose of clearly showing its operation.

By referring to the drawings it will be seen that a valve casing 5 is provided which communicates with the tank or reservoir 6 by a pipe or conduit 7. This valve casing 5 has a main valve seat 8, an inlet 9 and an outlet to the conduit 7 at 10. For coöperating with the main valve seat 8 I provide a valve 11 having a hollow valve stem 12 which carries the piston 13 which is movably disposed in the chamber 14 in the valve casing 5. Between the valve 11 and the piston 13 there are inlets 15 to the interior of the valve stem 14, so that a fluid entering the inlet 9 may flow to the interior of the valve stem 14. The piston 13 has a valve seat 16 which coöperates with the tapering pin valve 17 which depends from the top of the casing 5 as shown in the drawings. From the top of the casing 5 there leads a conduit 18, the interior at the top of the casing 5 communicating with this conduit 18 through the passages 19. The conduit 18 leads to the casing 20 which communicates with the tank or reservoir 6, through a port 21 and a conduit 22. In the casing 20 there is a float 23 to which is secured a depending pin valve 24, the pin valve 24 being disposed in a valve seat 25 which communicates with the conduit 18.

When the float 23 is raised by the fluid in the tank or reservoir 6, and the casing 20, to a position where the pin valve 24 will substantially close the valve seat 25, the fluid entering the inlet 9 of the casing 5 will have substantially the same pressure above and below the piston 13 and the weight of the piston 13 and the valve 11 with the suction of the water passing through the valve seat 8, will move the valve 11 downwardly against its seat 8. But when the level of the fluid in the tank or reservoir 6 falls the float 23 will move downwardly, thereby operating the pin valve 24 to permit the water under pressure in the casing 5 at its inlet 9, to pass through the inlets 15 and the valve seat 16 to the top of the casing 5, water then flowing through the passages 19 to the conduit 18, thence through the valve seat 25 to the casing 20. This upward movement of the

fluid will reduce the pressure at the top of the piston 13 relatively to the pressure at the bottom of the piston 13, which will cause an upward movement of the piston 13, thereby raising the valve 11 from its seat 8. As the valve 24 is of a tapering pin type, a slight lowering of the level of the fluid in the tank or reservoir 6 will permit the water to flow slowly through the conduit 18 which will raise the piston 13 slightly, thereby raising the valve 11 a short distance to permit some fluid to flow through the valve seat 8. But when the level of the fluid in the tank or reservoir 6 is lowered any considerable degree, the float 23 will fall considerably lower which will uncover a greater area of the opening through valve seat 25, thereby permitting a greater quantity of fluid to flow through the conduit 18 and with this greater flow of fluid through the conduit 18, the piston 13 will rise a greater distance, thereby opening wider the valve seat 16 because of the shape of the pin valve 17 which will permit a freer flowing of the fluid to the conduit 18.

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

In a valve mechanism, a casing having a chamber and a valve seat, a main valve for coöperating with the valve seat and having a valve stem, a piston normally disposed in the chamber and having opposed surfaces against which fluid under pressure may act, the piston being secured to the valve stem, there being a passage extending through the valve stem from the valve casing between the main valve and the piston and through the piston to the chamber beyond the piston, the passage furnishing at all times communication from one side of the piston to the other side of the piston, a tapering pin valve for gradually increasing the unobstructed opening through the passage with the movement of the main valve from its seat, a float casing disposed over the valve casing and having a valve seat in its bottom, a conduit connecting the valve casing with the float casing at the valve seat therein, a tapering pin valve for coöperating with the last mentioned valve seat, and a float secured to the pin valve for raising and lowering the pin valve relatively to its seat.

In testimony whereof I have signed my name to this specification in the presence of the two subscribing witnesses.

HENRY E. TEMPLE.

Witnesses:
J. W. SPENCER,
HARRY W. WALSH.

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