

P. J. DUGAN.

VALVE.

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1,112,992.

Patented Oct. 6, 1914

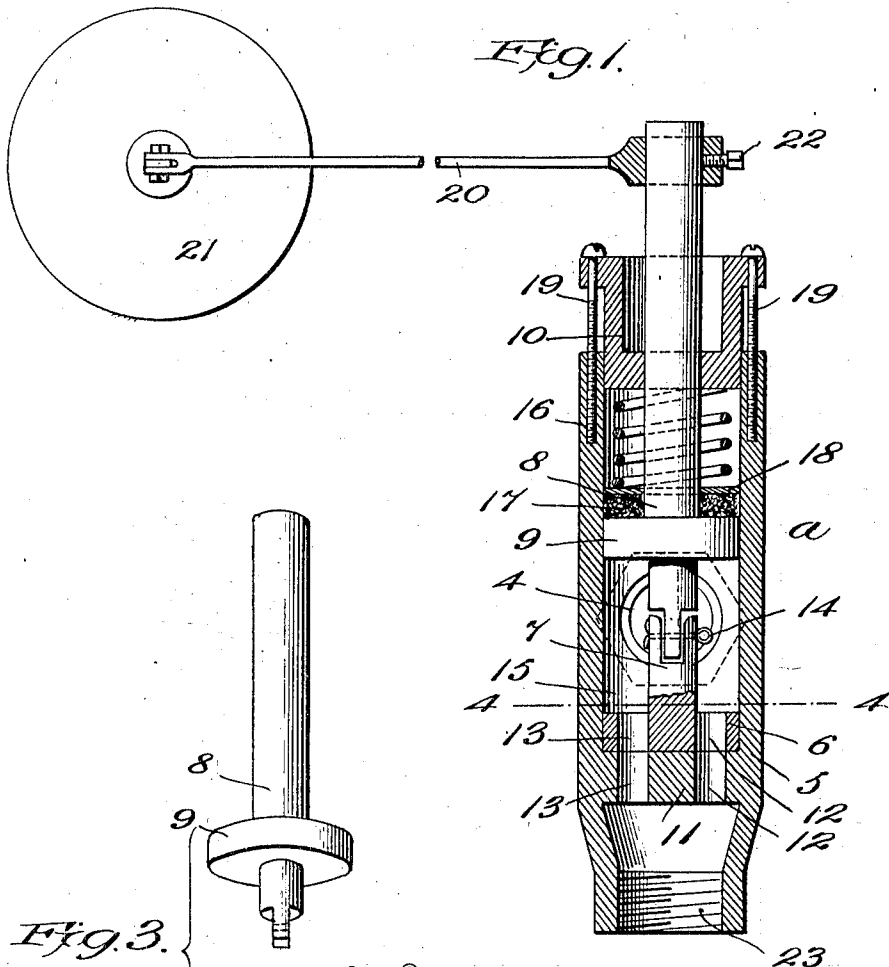


Fig. 1.

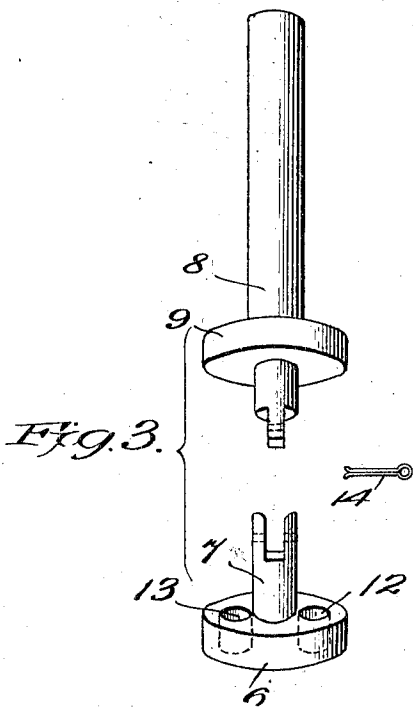


Fig. 3.

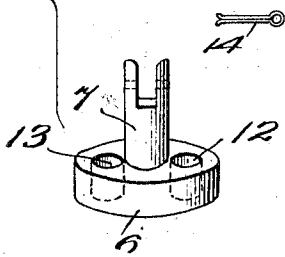


Fig. A.

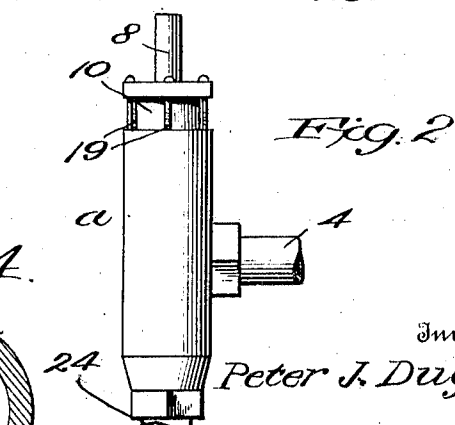
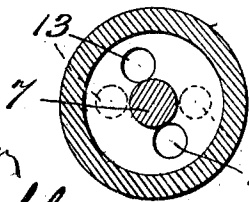


Fig. 2.



Witnesses

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VALVE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PETER J. DUGAN, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented new and useful Improvements in Valves, of which the following is a specification.

The general object of the invention is to refine the construction of float valves in point of simplicity of construction, durability and general efficiency. And to this end the invention resides in arranging the valve horizontally in a tank and disposing the valve body to turn vertically rather than oscillate under the action of the float, and constructing the valve body so that the surrounding fluid pressure will have little or no effect upon the movement of the body.

Other objects will appear and be better understood from that embodiment of my invention of which the following is a specification, reference being had to the accompanying drawings forming part hereof, in which:—

Figure 1 is a contracted plan of my invention showing the valve casing in section. Fig. 2 is a detail plan looking at right angles to Fig. 1 with the float mechanism removed. Fig. 3 is a detail perspective of the parts of the valve body. Fig. 4 is a vertical cross section on the line 4—4 of Fig. 1.

The valve herein shown and indicated generally by *a* is intended for use with such tanks as are arranged at an elevation, whereby to have the water which they hold, supplied by gravity to a point situated below the tank. In this connection the valve *a* serves as a governor or controller in that it gradually opens as the water in the tank recedes below a certain predetermined level and closes upon the water column in the tank attaining such predetermined level. In this construction the valve *a* includes a casing 5 which is tapped at its central portion to receive one end of a supply pipe 6, which end portion of the said supply pipe 6 may be disposed either horizontally or vertically in the tank, whereby to support the valve *a* horizontally as shown.

The casing is designed for receiving the valve body which includes a valve proper 6 and stem sections 7 and 8, a centering device 9 and a bonnet 10. The valve proper 6 is circular in contour conforming to the cross sectional contour of the interior of the casing 5, and bears on a seat or parti-

tion 11, as shown. The valve proper 6 and the seat or partition 11 are provided with ports or passages indicated by 12—12 and 13—13. When the parts are positioned as shown in Fig. 1, the ports 12—12 and 13—13 register but when the parts are turned to the position shown in Fig. 4, these ports are out of registration. The adjacent ends of the sections 7 and 8 of the stem interfit and are detachably tied together by suitable fastening means, such as a cotter pin 14. The centering head 9 operates to prevent wobbling of the valve body and is disposed to one side of the opening for the inlet pipe 4 and in spaced relation to the valve proper 6 so that the intervening space between the parts 6 and 9 constitutes an inlet chamber 15 between which and the tank (not shown) communication is controlled by the valve body 6. The valve proper 6 is yieldingly held to its seat by the pressure of a spring 16 which surrounds the section 8 of the stem and which also functions as a tightener for the packing 17 interposed between the centering head 9 and a disk 18. The bonnet 10 surrounds the section 8 of the valve stem and operates to vary the tension on the spring 16, the said bonnet being arranged in one end of the valve casing 5 and adjustably connected by screws 19—19 to the said valve casing. The bonnet also functions as a centering device for the section 8 of the stem, one end of which section projects beyond the bonnet and passes through the arm 20 of the float 21, a suitable fastening device such as a set screw 22, being employed for detachably connecting the arm 20 to the stem. The outlet end of the casing may open directly into the tank or as shown in Fig. 1 and indicated by 23, may be adapted for connection to an outlet pipe indicated by 24 in Fig. 2.

From the foregoing the operation of the device will be largely understood, it being obvious that when in use the parts will be adjusted so as to have the ports 12—12 and 13—13 register when the water level descends to a predetermined point and to be out of registration when the said water level ascends to a predetermined point. Here it will be observed that during the rise or fall of the water column in the tank, the valve body will turn gradually, whereby, the ports 12 and 13 of the valve proper will gradually turn into or out of registration with the corresponding ports of the seat 11. During

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 this turning of the valve body it will be observed that the parts thereof do not operate against the direction in which the fluid pressure in the chamber 15 acts, in fact there is
 5 no bodily movement whatever had on the part of the valve proper 6, hence there will be required but a small amount of pressure on the part of the float 21 to turn the valve body.

10 It will, of course, be understood that the valve herein shown may be used in connection with any apparatus desired to be controlled by a governor. For instance, a steam pump arranged for lifting liquid to an elevated tank. When used in this connection
 15 it will be observed that the supply of motive fluid to the pump when the valve is connected in the steam line, may be controlled by the rise and fall of the water level in the tank in which the valve is arranged. Where
 20 it is desired to have the valve operated other than by the rise and fall of a water column and such as by fluid pressure, the float 21 may be dispensed with and a diaphragm
 25 substituted in lieu thereof, in which connec-

tion the diaphragm will be arranged in the fluid pressure line and operate under the rise and fall of the fluid pressure.

What is claimed as new is:

A, valve comprising a casing having an inlet and an outlet, an apertured partition located in the casing between the inlet and outlet, an apertured valve rotatably and slidably mounted in the casing and having
 30 a stem section, a stem attached to said stem section and carrying a head which fits snugly and slidably in the casing at the opposite side of the inlet from that at which the outlet is located, a bonnet attached to the casing and through which said stem
 35 passes, a packing located in the casing against the head, a disk located against the packing and a spring interposed between the disk and bonnet.
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In testimony whereof I affix my signature
 45 in presence of two witnesses.

PETER J. DUGAN.

Witnesses:

JOHN A. DONEGAN,
 GEO. A. BYRNE.