

1,270,901.

Fig. 1.

Fig. 2.

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AUTOMATIC SUPPLY-VALVE.

1,270,901.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EARL G. WATROUS, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Automatic Supply-Valves, of which the following is a specification.

My invention relates to a valve device for automatically supplying water under pressure to tanks, such as the service tanks for dining cars and the like, to which water is supplied under pressure at the terminal points of the railroad and also at certain division points. The object of my invention is to provide a simple, efficient, and reliable automatic valve operating in connection with a water tank or receiver which is such as to overcome the objections in the practical operation of the present construction of supply valves.

Heretofore, particularly in the case of the service tanks for dining cars and the like, the automatic valve has been located within the tank itself, being operated by a float, but in practice it has been impossible to completely fill the tank with water, besides which the surging of the rather large body of water in the tank, when the car is traveling on the road, causes displacement and injury to the valve and its float and renders the same unreliable in use.

My invention overcomes the difficulties above mentioned by providing an automatic supply valve located extraneous of the service tank and connected therewith and operating in such manner that the tank can be filled to full capacity. Moreover, the construction of valve device is such that it is not subject to any injury or derangement as is encountered in previous constructions of supply valves.

In the drawing Figure 1 is a sectional elevation of my valve device illustrating a portion of a tank in elevation; and Fig. 2 a section on the line 2—2 of Fig. 1.

Referring to the present embodiment of my invention as herein shown, the valve device comprises a case of suitable shape and dimensions and here shown as consisting of a cylindrical body 1, and top and bottom heads 2 and 3 both of which have central openings. Through the opening in the top head there passes a vertical supply pipe 4 onto which screws a coupling sleeve 5 having a central opening or conduit communicating with the supply pipe. This coupling sleeve

is secured to a supply pipe or nozzle 6 by means of the coupling nut 7. The inlet pipe 4 extends centrally and downwardly into the valve casing and is secured at its lower end to a valve seat body 8 whose lower end is screw threaded into the screw threaded opening in the bottom head 3 of the casing. This valve seat body has an inlet port 9 on which seats a float controlled valve 10.

According to the construction shown in the drawing, the valve 10 has a transverse opening 10^a through which passes an irregular shaped lever 11 which is pivoted to the valve seat body at 12. The valve is thus mounted on and carried by the lever 11 at a point intermediate the length of the lever, with the result that as the lever is moved up or down the valve itself is correspondingly moved. The lever 11 is one of the levers of a compound lever system which includes a second lever 13 which is pivoted intermediate its length at 14 upon a bracket arm 15 projecting from the valve seat body. The short arm of this second lever is reversely turned with respect to the long arm and the free end thereof coöperates with the free end of the lever 11. The long arm of the lever 13 extends around the valve seat body and on the other side thereof its free end is pivotally connected by means of a link 16 to the float device.

The float employed herein is of the bell shaped type consisting of a bell 17 having a central depending tube 18 which is fitted to slide up and down upon the inlet supply pipe 4. The link 16 is pivotally connected at its upper end to the tube 18 with the result that the movement of the float is communicated through the compound levers to the valve 10 and the latter thereby opened or closed accordingly as the float is lowered or raised. When the float is in its uppermost position, as shown in Fig. 1, the valve is held to its seat with a considerable pressure. When the level in the service tank, and correspondingly the level in the valve casing, is lowered, the float will descend and the valve will be opened for the admission of water whenever a supply of water is connected with the supply pipe 6. The water thus supplied is under pressure and the construction is such that when the tank has been completely filled, and in fact when pipe 23 has been partially filled as shown in the drawing, the valve will automatically close by reason of the pressure exerted by the

water upon the float, which pressure is transmitted to the compound lever system to the valve. The valve will thereupon be seated against the pressure of the water supply and

no more water can be supplied to the tank. The valve device is located extraneous to the tank 19 and the bottom of such casing is connected therewith by means of the inlet pipe 20. Both the casing and the tank are connected to an air vent pipe 21, the former by means of the pipe 22 and the latter by means of the pipe 23. The valve device is so located with respect to the tank and the leverage of the levers acting upon the valve is such that the water level maintained by the valve device is above the top of the service tank, with the result that the tank can be completely filled with water, the air escaping through the pipe 23 during the filling operation.

I claim:

1. An automatic supply valve device comprising a casing, a supply pipe extending therinto and having a port and valve seat at its lower end, a valve governing said port and adapted to seat upon such seat, a float having a central tube surrounding and arranged to slide upon the supply pipe, and an operating connection between the float tube and valve for controlling the opening and closing movements of the latter.

2. An automatic supply valve device comprising a casing, a supply pipe extending therinto and having a port and valve seat at its lower end, a valve governing said port and adapted to seat upon such seat, a float having a central tube surrounding and arranged to slide upon the supply pipe, and lever mechanism connecting between the tube and valve for controlling the opening and closing movements of the latter.

3. An automatic supply valve device comprising a casing, a supply pipe extending into the casing and secured to the top and bottom thereof, said pipe having an inlet port at its lower end, a valve governing said port, a float having a central tube surrounding and arranged to slide upon the supply pipe, and means for operatively connecting the float and valve for actuating the latter.

4. An automatic supply valve device comprising a casing, a top inlet and bottom outlet, a valve seat body secured in said outlet and having an inlet port adapted to communicate with the interior of the casing, a valve arranged within said body and governing said port, a supply pipe secured at its upper end in said inlet in the casing and at its lower end in said body to communicate with said inlet port, a float within the casing and means for operatively connecting the float and valve for actuating the latter.

5. An automatic supply valve device comprising a casing, a top inlet and bottom outlet, a valve seat body secured in said outlet

and having an inlet port adapted to communicate with the interior of the casing, a valve arranged within said body and governing said port, a supply pipe secured at its upper end in said inlet in the casing and at its lower end in said body to communicate with said inlet port, a float within the casing and means for operatively connecting the float and valve for actuating the latter, comprising lever mechanism pivoted upon said body and operatively connected with the float and valve respectively.

6. An automatic supply valve device comprising a casing, a top inlet and bottom outlet, a valve seat body secured in said outlet and having an inlet port adapted to communicate with the interior of the casing, a valve arranged within said body and governing said port, a supply pipe secured at its upper end in said inlet in the casing and at its lower end in said body to communicate with said inlet port, a float within the casing, and means for operatively connecting the float and valve for actuating the latter, comprising a lever pivoted at one end to said body and connected intermediate its length with said valve, a second lever pivoted on said body and cooperating with the other end of the first lever, and a link connection between the second lever and the float.

7. An automatic supply valve device comprising a casing, a top inlet and bottom outlet, a valve seat body secured in said outlet and having an inlet port adapted to communicate with the interior of the casing, a valve arranged within said body and governing said port, a supply pipe secured at its upper end in said inlet in the casing and at its lower end in said body, and means for operatively connecting the float and valve for actuating the latter, comprising a lever pivoted at one end to said body, a second lever pivoted on said body and cooperating with the other end of the first lever, and a link connection between the second lever and the float, said valve having a stem provided with an opening through which the first lever passes.

8. An automatic supply valve device comprising a casing, a supply pipe extending therinto and having an inlet port, a valve proper governing said port, compound levers pivoted within the casing, on one of which levers the valve is mounted, and a float arranged to slide upon the supply pipe and operatively connected with said levers.

9. An automatic supply valve device comprising a casing, a supply pipe extending therinto and having an inlet port, a valve proper governing said port, compound levers pivoted within the casing, on one of which levers the valve is mounted, and a bell-shaped float having its interior communicating with the interior of the casing and

provided with a central tube surrounding and arranged to slide upon the supply pipe, said float being operatively connected with said levers.

5 10. An automatic supply valve device comprising a casing, a supply pipe extending
thereinto and having an inlet port, a valve
proper governing said port, compound levers
10 pivoted within the casing consisting of
a lever which is pivoted at one end and
which bears intermediate its length against
the valve, a second lever which is pivoted
intermediate its length and one of whose
15 ends bears against the free end of the first
lever, a float having a tube slidably mounted
upon the supply pipe, and an operating connection
between the tube of the float and the
second lever.

20 11. An automatic supply valve device comprising a casing having top and bottom openings,
an inlet pipe in the top opening, a valve
seat arranged in the bottom opening and
having an inlet port connecting with
25 said pipe, and a valve governing said port,
said seat having a discharge opening establishing
communication between the interior of the casing
and said bottom opening thereof.

30 12. An automatic supply valve device comprising a casing having top and bottom openings,
an inlet pipe in the top opening, a valve
seat arranged in the bottom opening and
having an inlet port connecting with
said pipe, and a valve governing said port,
25 said seat having a discharge opening establishing
communication between the interior of the casing
and said bottom opening thereof, compound levers pivoted on the

valve seat and one of them being operatively
connected with the valve, and a float 40
arranged within the casing and operatively
connected with one of said levers.

13. An automatic supply valve device comprising a casing having top and bottom openings,
an inlet pipe in the top opening, a 45
valve seat arranged in the bottom opening
and having an inlet port connecting with
said pipe, and a valve governing said port,
said seat having a discharge opening establishing
communication between the interior 50
of the casing and said bottom opening
thereof, compound levers pivoted on the
valve seat and one of them being operatively
connected with the valve, a bell-shaped float
arranged to slide on said inlet pipe and 55
operatively connected with one of said levers.

14. An automatic supply valve device comprising a casing having top and bottom openings,
an inlet pipe in the top opening, a 60
valve seat arranged in the bottom opening
and having an inlet port connecting with
said pipe, and a valve governing said port,
said seat having a discharge opening establishing
communication between the interior 65
of the casing and said bottom opening
thereof, compound levers pivoted on the
valve seat and one of them being operatively
connected with the valve, a bell-shaped float
having a central tube arranged to slide on
said inlet pipe and operatively connected 70
with one of said levers.

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Witnesses:

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