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A. F. BLESCH.

VALVE.

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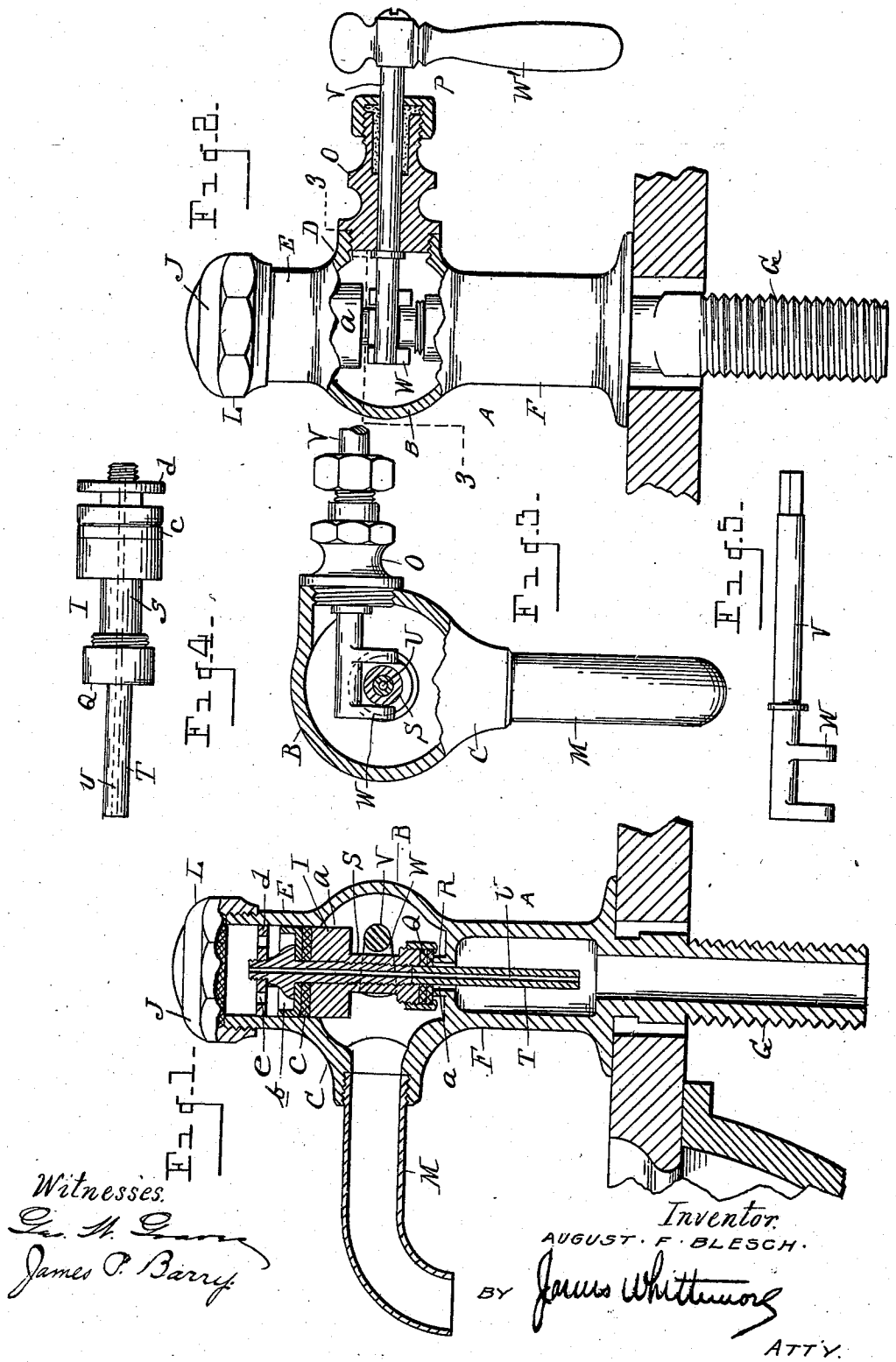

UNITED STATES PATENT OFFICE.

AUGUST F. BLESCH, OF DETROIT, MICHIGAN.

VALVE.

No. 867,341. Specification of Letters Patent. Patented Oct. 1, 1907.

Application filed September 30, 1905. Serial No. 280,735.

To all whom it may concern:

Be it known that I, AUGUST F. BLESCH, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Valves, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates generally to valves, and particularly to a slow closing valve designed in this instance as a basin cock, and it has for its object the production of a valve mechanism of this character in which the valve will be closed automatically by the pressure and be capable of use under different pressures.

A further object of the invention is to so construct the parts that the valve packing will be protected from the heat and the life accordingly prolonged.

With these objects in view my invention consists in the novel construction of the valve and in the peculiar arrangement and combination of the various parts thereof as more fully hereinafter set forth and illustrated.

In the drawings, Figure 1 is a vertical central section through a basin valve embodying my invention. Fig. 2 is a sectional view thereof in rear elevation. Fig. 3 is a section taken on line 3—3, of Fig. 2. Fig. 4 is a detached view of the valve proper and piston, and, Fig. 5 is a detached plan view of the valve operating device.

A represents the valve casing having a central enlarged section B provided with a lateral discharge opening C and a threaded opening D, and oppositely extending cylindrical sections E and F. The latter section constitutes the inlet for the cock and is provided with a threaded nipple G engaging the basin H in the usual manner. The interior of the section E constitutes the piston chamber containing the piston 1, and closed at its top by a threaded cap J having a wrench hold L by means of which it can be readily removed.

M. represents a discharge nozzle fitting within the discharge opening, both being of considerably greater magnitude than the faucet inlet a' so that the water will discharge at a relatively low pressure and spattering be thus effectively prevented.

O is a threaded plug engaging the opening D through which the operating device P for the valve extends.

Q represents the inlet valve, R the seat therefor, and S a reduced section connecting the valve with the piston.

Extending through the connection described and through and beyond the piston and the valve is a piston stem T having a restricted passage U therein leading from the inlet below the valve to a point within the chamber at preferably some distance above the piston as indicated in Fig. 1. At its lower end the stem projects downwardly preferably into the nipple G so as to receive the water at the maximum pressure. The piston referred to is composed of a body a, a cup packing b at the upper end thereof and an interposed section c of non-heat-conducting material. The piston is further provided with a guide plate d threaded upon the stem extension and having apertures e therein for the admission of the water. Further the upper end of the piston that is exposed to the water pressure is of greater area than the similarly exposed surface of the inlet valve so that under normal conditions the difference in pressure will serve to hold the valve to its seat.

The valve operating member is in the form of a spindle V extending through the plug O as shown in Fig. 2, and into the chamber B, where it is provided with a fork W which engages the reduced connection S beneath the piston. At its outer end the spindle is provided with any suitable handle as W'.

The valve described is particularly adapted for use as a hot water faucet, and operates as follows: Water at maximum pressure enters the inlet, and the piston chamber through the restricted passage, exerting pressure upon both the valve and piston, but owing to the relatively greater area of the latter holds the valve to its seat. Upon operating the handle the valve is lifted, the water within the piston chamber above the stem is forced through the restricted passage against the pressure, and the supply from the inlet is discharged through the nozzle at a relatively low pressure for the purpose set forth. Upon releasing the handle water gradually reënters the piston chamber through the passage and the valve closes slowly thus preventing an abrupt checking of the flow and the consequent water hammer.

It will be observed from the construction of the parts that by extending the stem a distance above the piston a quantity of cold water is constantly retained within the chamber, which is but slightly affected by the small amount of hot water that reënters the chamber upon the closing of the inlet valve. The cup packing is thus protected from the hot water from above, and from the heat below by the section of non-heat conducting material. Furthermore the valve by reason of the extension of its restricted passage below the casing inlet and the difference in size between the inlet and discharge openings will operate as readily at a low as at a high water pressure as the water is forced through the stem at a greater pressure than through the discharge nozzle.

What I claim as my invention is:

1. In a slow closing valve, a piston comprising a body, a cup packing at one end thereof, and an intermediate section of non-heat conducting material.

2. In a slow closing valve, a casing having an inlet, a piston chamber thereabove, a lateral discharge, a valve controlling the inlet, a piston within the chamber connected to the valve and having its upper surface of greater area than the surface of the valve exposed to the pressure, a restricted passage leading from the inlet to and within the piston chamber at a point above the piston, and a guide plate interposed between the piston and the outlet of said restricted passage.

3. In a slow closing valve, a casing having an inlet, a piston chamber thereabove and a lateral discharge, a valve controlling the inlet, a piston stem secured to the valve and extending upwardly into the piston chamber, a piston secured to said piston stem and working within the piston chamber and having its upper surface of greater area than the surface of the valve exposed to the pressure, a restricted passage in the piston stem leading from the inlet to and within the piston chamber at a point above the piston, a guide plate on said piston stem intermediate the piston and the outlet of the restricted passage and having fluid passages extending therethrough, and operating means for said valve.

4. In a slow closing valve, the combination with a casing having an inlet, a lateral discharge and a piston chamber above the inlet, a valve controlling said inlet, a piston working within said chamber having an end exposed to the pressure of greater area than the exposed surface of the inlet valve, said piston comprising a body, a cup packing at one end thereof and an intermediate section of non-heat conducting material, and a restricted passage leading from the inlet to and within the piston chamber at a considerable distance beyond the piston, whereby a quantity of water is constantly maintained in the piston chamber above the piston.

5. In a valve, the combination with a casing having an inlet, a lateral discharge, and a piston chamber above the inlet, of a valve controlling the inlet, a piston within the chamber connected to the valve and having an end exposed to the pressure, of greater area than the exposed surface of the inlet valve whereby the latter is seated by fluid pressure, and a restricted passage leading from the inlet to a point within the casing above the piston, and adapted to be flushed by the movement of fluid in a direction opposite to the pressure.

6. In a valve, the combination with a casing having an inlet, a lateral discharge, and a closed piston chamber above the inlet, of a valve controlling the inlet, a piston within the chamber connected to the valve, and having its upper surface exposed to the pressure, of greater area than the exposed surface of the inlet valve, whereby the latter is seated by fluid pressure, a restricted passage leading from the inlet through the valve and piston and communicating with the piston chamber, and means for operating the valve.

7. In a valve, the combination with a casing provided with an inlet, a lateral discharge, and a closed piston chamber above the inlet, of a valve controlling the inlet, a piston within the chamber connected to the valve, and having an end exposed to the pressure, of greater area than the exposed surface of the inlet valve, whereby the latter is seated by fluid pressure only, a restricted passage leading from the piston chamber through the piston and valve and extending below the latter a considerable distance within the casing inlet, and operating means for the valve.

In testimony whereof I affix my signature in presence of two witnesses.

AUGUST F. BLESCH.

Witnesses:
JAMES P. BARRY,
AMELIA WILLIAMS.