(No Model.)

J. H. GRUBB & R. H. BINNS.

VALVE.

No. 534,043. Patented Feb. 12, 1895.

Fig. 1.

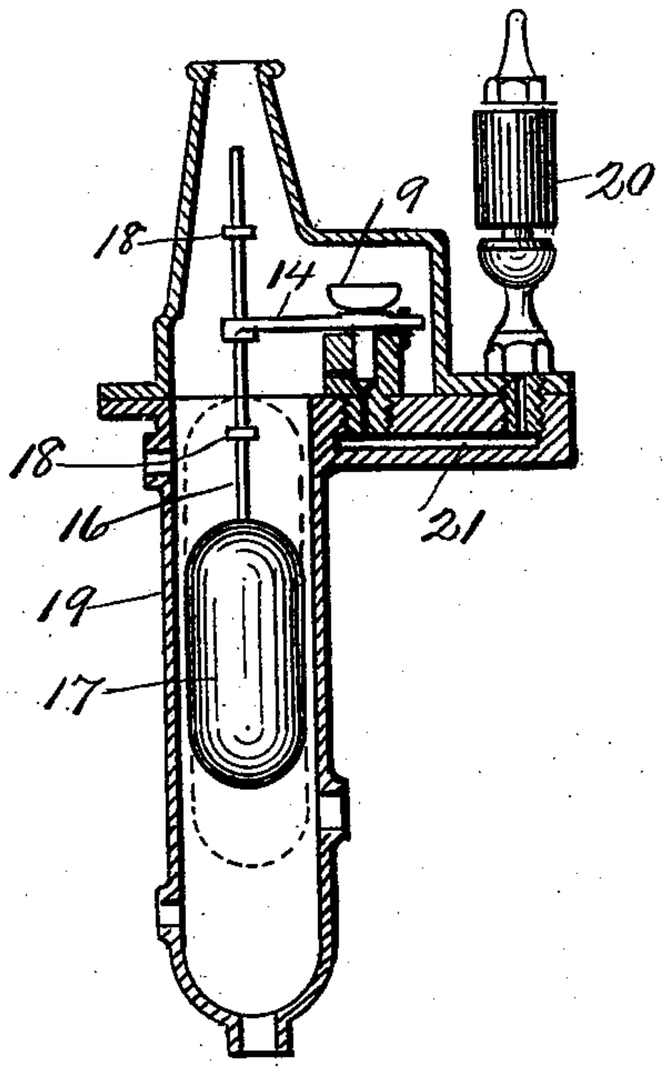


Fig. 2.

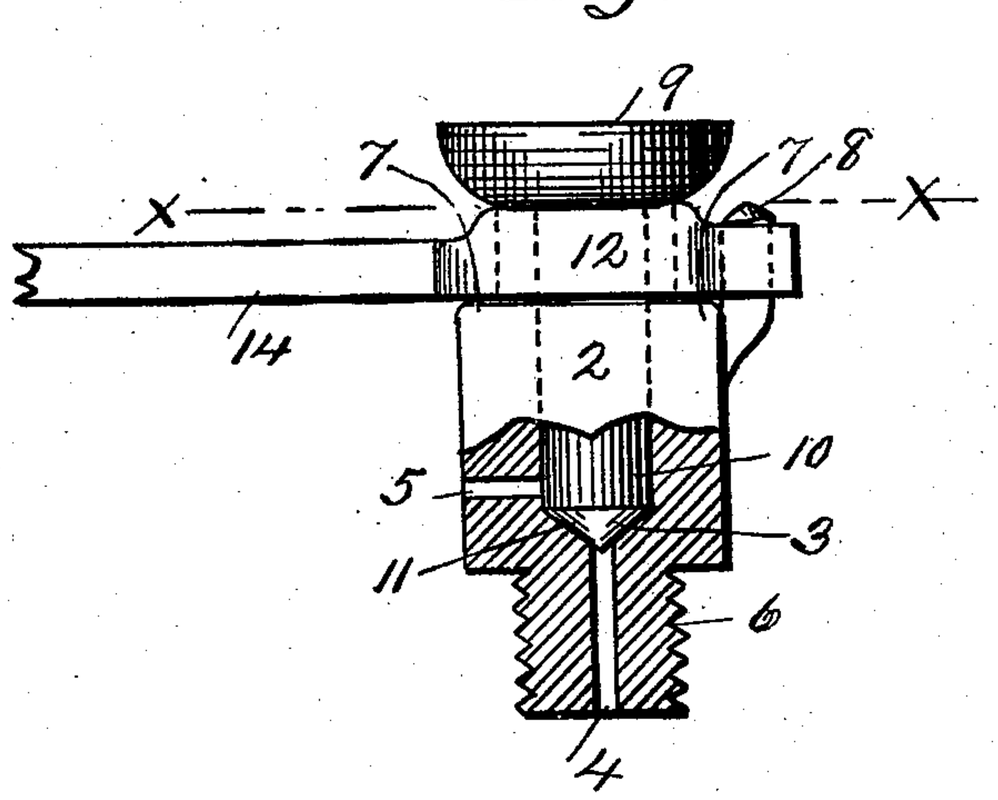
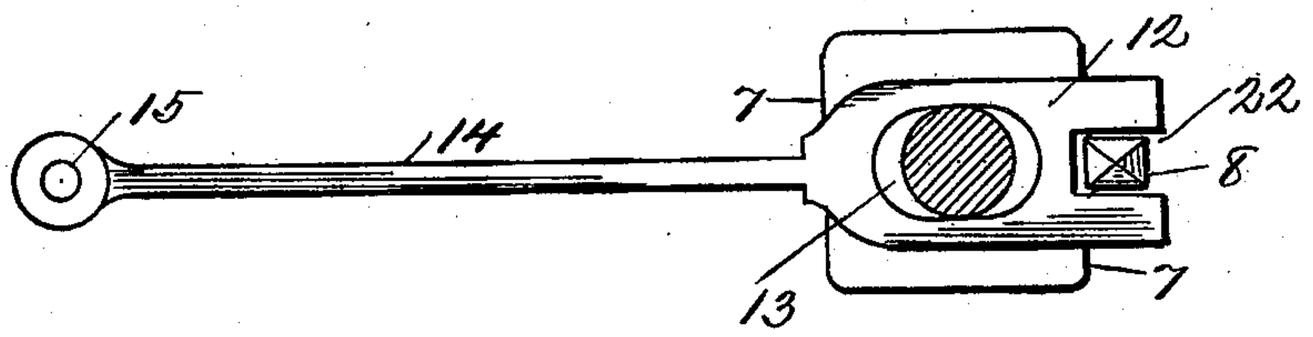


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH H. GRUBB AND RALPH H. BINNS, OF PITTSBURG, PENNSYLVANIA.

VALVE.

SPECIFICATION forming part of Letters Patent No. 534,043, dated February 12, 1895.

Application filed September 28, 1894. Serial No. 524,356. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH H. GRUBB and RALPH H. BINNS, citizens of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Valves, of which the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1, is an elevation of the valve applied to a water column. Fig. 2, is a broken away elevation of the valve and lever enlarged, and Fig. 3, a plan of same.

Our invention relates to that class of steam valves which are intended to rise and fall automatically through the actuation of a lever directly or indirectly acting upon the valve, said valve being contained in an inclosing chamber.

In the accompanying drawings which make part of this specification, we have illustrated the valve as applied to a water column containing a float, and used to indicate the level of the water in a boiler, at the two critical points of high and low water, but we desire to claim our valve also independently of such connection, and for all uses to which it is susceptible, such as in pump regulators and analogous appliances.

In the several views, 2, is a valve case, having seat 3.

4, is a steam passage through the case and 5, 5, lateral steam passages connecting with 4.

6, is a threaded lower end of the case by which it may be attached to the water column. Upon the top of said valve case are fulcrum points, 7, 7, at front and back, here shown as ribs running clear across the case and leaving between themselves a depression for the entrance of the steam so that the valve stem head may not stick.

8, is a guide projecting from the top of the valve case to prevent lateral motion.

9, is the cap of the valve stem.

10, is the valve stem and 11, the plug valve at the lower end thereof.

The lever which operates the valve has a weighted head 12, with suitable aperture 13, to pass the valve stem and slot 22, or equivalent opening for guide 8.

14, is a rearwardly projecting arm of the lever here shown with an eye 15 at rear end to pass float rod 16, having float 17. The float rod is provided with knockers 18, 18, in the usual way to engage eye 15.

19, is the shell of the water column connected with the boiler in the usual manner.

20, is a steam operated alarm, and 21, is a steam passage leading from the valve case to said alarm.

In operation, as the water in the boiler rises or falls beyond a predetermined height, the knockers 18, 18, set at corresponding points on the rod 16, will engage with eye 15, and raise or depress arm 14. In either event head 12, fulcruming either in front or back of the valve case will be raised, lifting valve stem cap 9 and sounding the alarm. When the level of the water is at its proper height the pressure of the steam will force the valve back to its seat. That the pressure of the steam may act freely it is desirable that the weight of cap, valve stem and lever head, should counterbalance weight of rearwardly projecting arm of lever. When so constructed the valve may seat itself independently of steam pressure. Guide 8 may be omitted and arm 14 variously modified in shape or made double to act with two float rods, one on each side of the case.

The shape and weight of lever head 12 and the particular openings in same, may be varied by the skillful designer, as may be the peculiar shape and size of the fulcrum points 7, 7.

The weight necessary to overcome weight of arm 14 may be divided as desired between head 12, cap 9 and valve stem 10.

Having described our invention, we claim—

1. The combination of an inclosing chamber; a valve case secured in said chamber; a valve having a stem and cap; a lever provided with a head having an opening through which the valve stem passes, said head lying between the top surface of the valve case and the under surface of the cap of the valve stem, and said lever and valve being removable from the case by merely lifting the valve stem.

2. The combination of a valve case; a valve

having a stem and cap; a lever provided with a head having an opening through which the valve stem passes, said head lying between the top surface of the valve case and the under surface of the cap of the valve stem, and said lever and valve being removable from the case by merely lifting the valve stem.

In testimony whereof we have hereunto set our hands this 17th day of September, A. D. 1894.

JOSEPH H. GRUBB.
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Witnesses:
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