

(No Model.)

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

No. 534,042.

Patented Feb. 12, 1895.

Fig. 1.

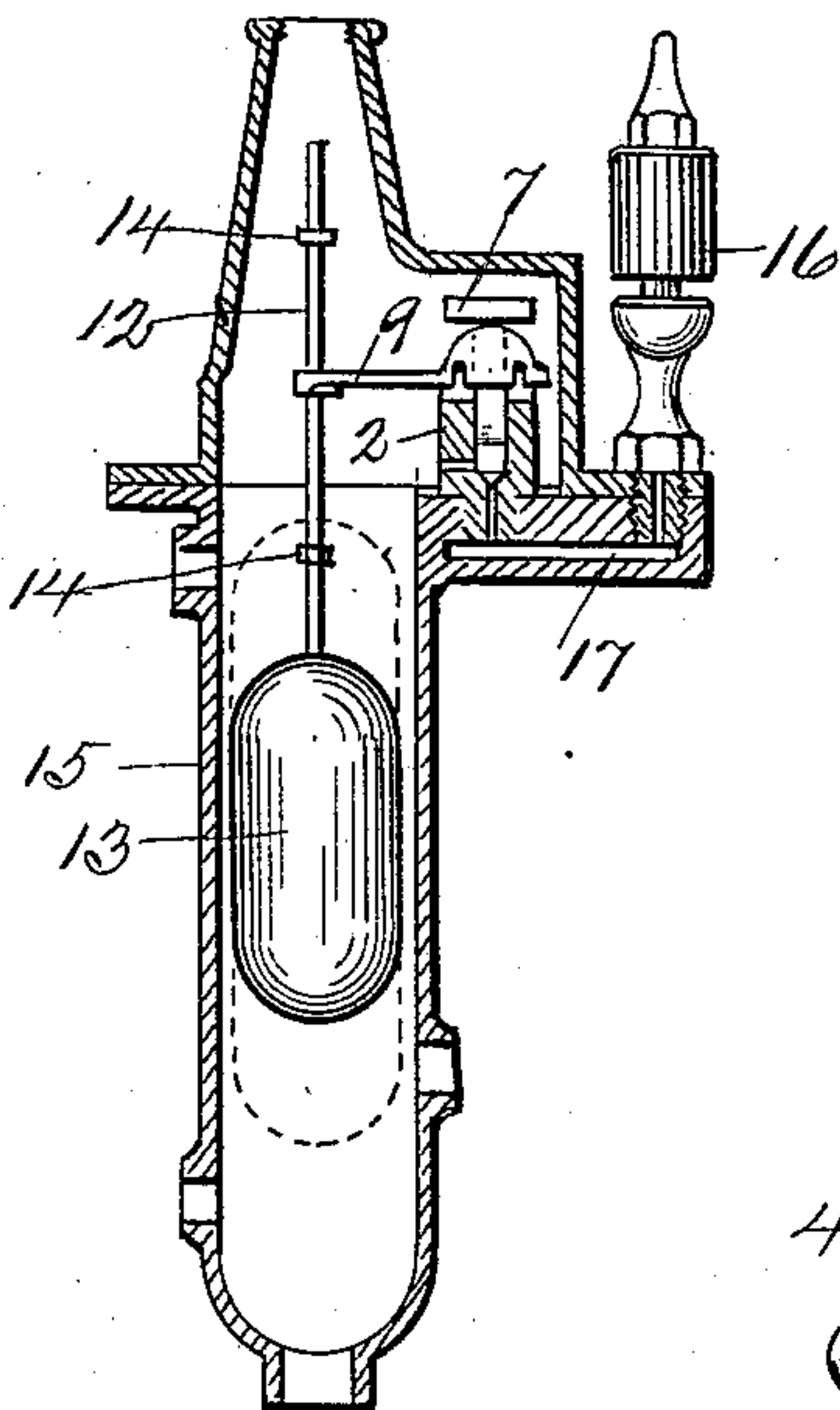


Fig. 2.

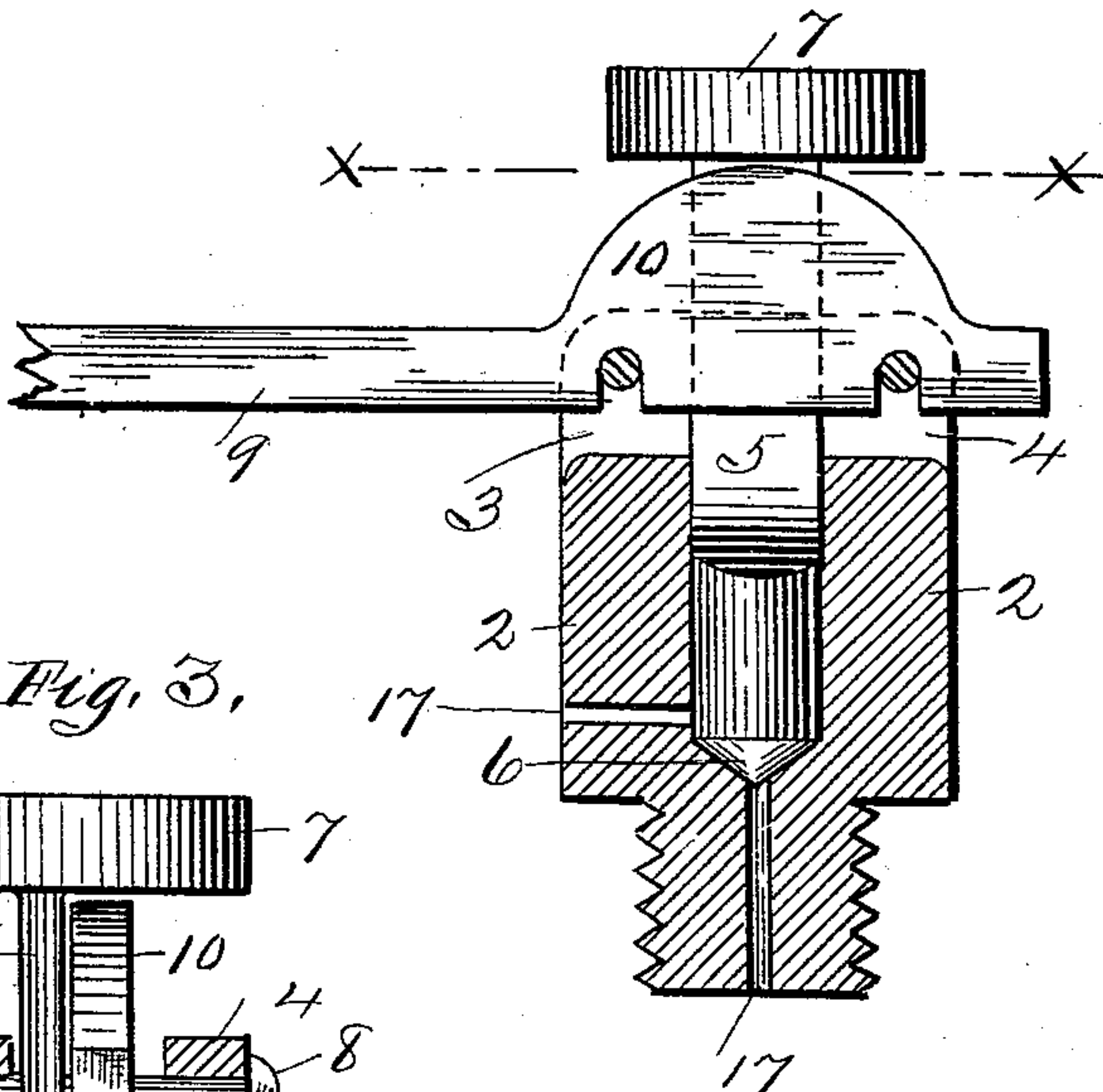


Fig. 3.

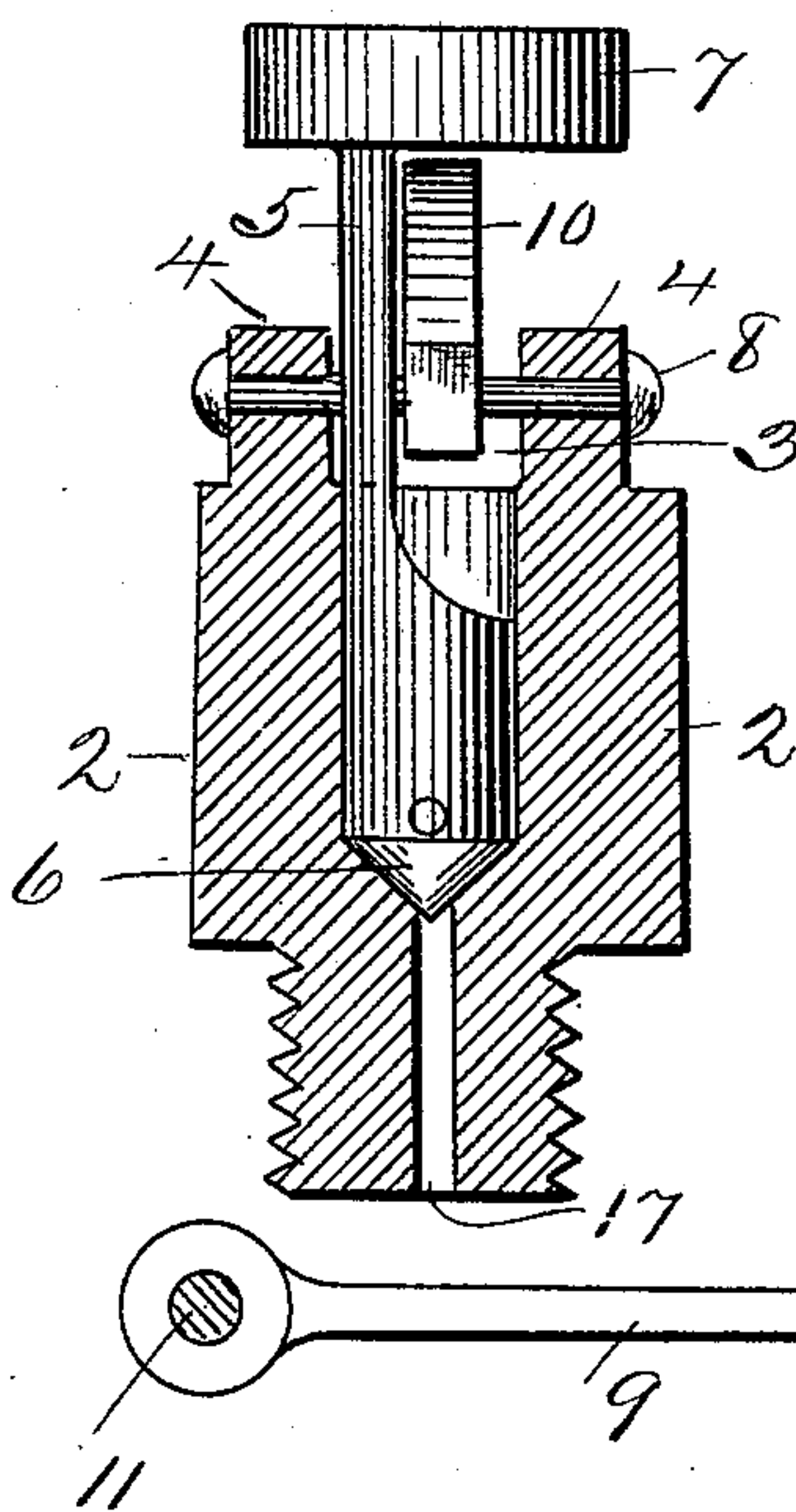
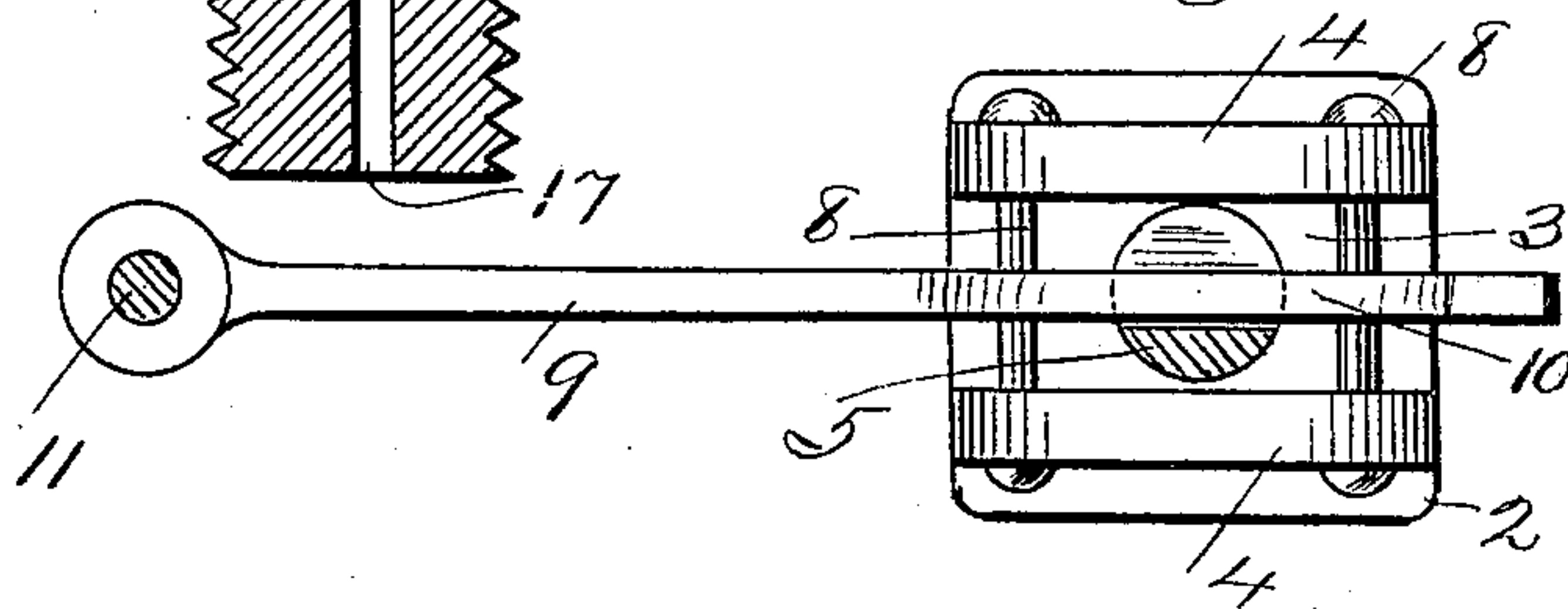


Fig. 4.



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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. 534,042, dated February 12, 1895.

Application filed September 28, 1894: Serial No. 524,355. (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, an enlarged view partly in section and partly in elevation of valve and lever; Fig. 3, a like view at right angles to Fig. 2, and Fig. 4, a plan of valve and lever.

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 said 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 slot 3 at the top between two flanges 4 4. 5 is a recessed valve stem terminating in plug valve 6, and having cap 7.

8, 8, are fulcrum pins spanning slot 3 and on which the lever pivots which raises the valve. This lever consists of rearwardly extending arm 9 and cam shaped head, 10, pivoted at two points eccentric to arc or arcs of cam. By virtue of the recess in valve stem the cam of the lever is permitted to be placed centrally under cap 7, and therefore gives a vertical movement to cap, valve stem and valve instead of an oblique push. The arm 9 of lever has eye 11, to pass float rod 12, bearing float 13 at its lower end. The float rod is provided with knockers, 14, 14, in the usual way to engage eye 11.

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

16, is a steam operated alarm and 17, 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 14, 14, set at corresponding positions on rod 12, will engage with eye 11, and raise or depress arm 9. In either event cam head, 10, will be moved on an arc eccentric with one of the two pivotal points and will consequently push up vertically the cap 7 and raise the valve, sounding the alarm. When the level of the water is restored to its proper height, the pressure of the steam will force the valve back to its seat.

The weight of metal may be so distributed in cam head 10 and in cap 7 and in valve stem, that this combined weight may offset weight of arm 9 and the valve seat itself as soon as action of float rod and knockers ceases, independently of the steam pressure.

The shape, position and point of attachment of the actuating lever may be widely varied without departing from the principle of our invention. The valve stem may also be set at one side of the path of movement of the lever and not required to be recessed, or it may be set centrally and slotted.

Having described our invention, we claim—

1. The combination of a slotted valve case, a valve stem with cap moving in said case; a lever with cam shaped head pivoted beneath said cap to the case at two points eccentrically to the arc or arcs of the head.

2. The combination of a slotted valve case; a recessed valve stem; a cap for said stem; a lever moving in the recess of said stem and beneath the center of said cap, said lever with cam shaped head pivoted beneath said cap to the case at two points eccentrically to the arc or arcs of the head.

3. The combination of a steam actuated alarm; a slotted valve case, a valve stem with cap moving in said case; a lever with cam shaped head pivoted beneath said cap to the case at two points eccentrically to the arc or arcs of the head.

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

JOSEPH H. GRUBB.
RALPH H. BINNS.

Witnesses:

WM. L. PIERCE,
WILLIAM BEAL.