

(No Model.)

J. DAVID.
HYDROMETER CUP AND THIEF.

No. 284,393.

Patented Sept. 4, 1883.

Fig. 2.

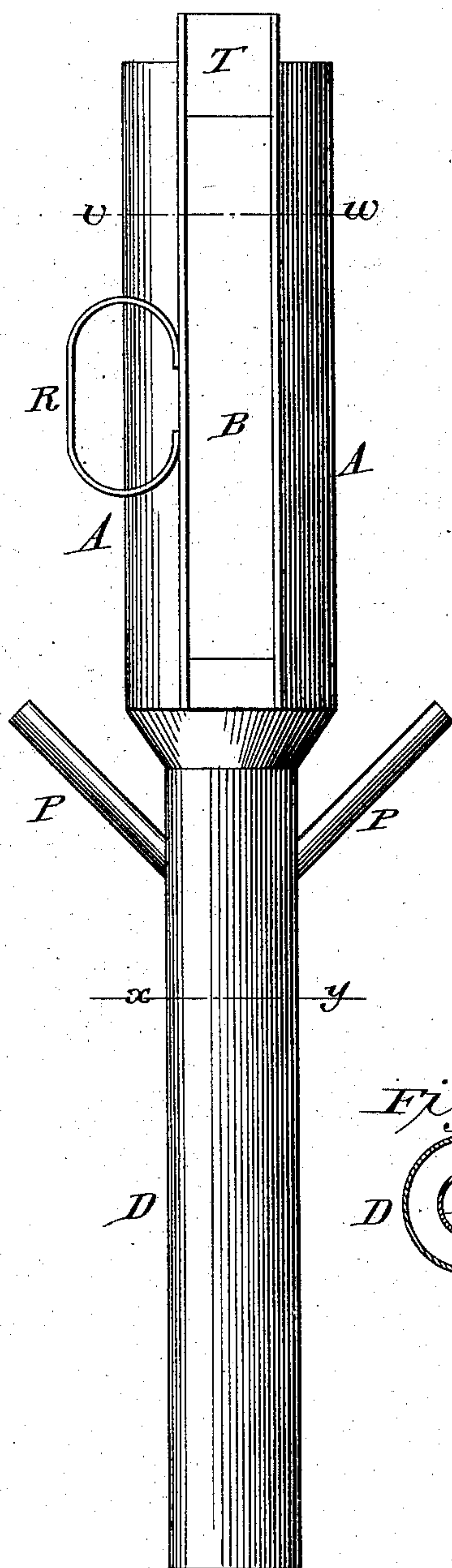


Fig. 1.

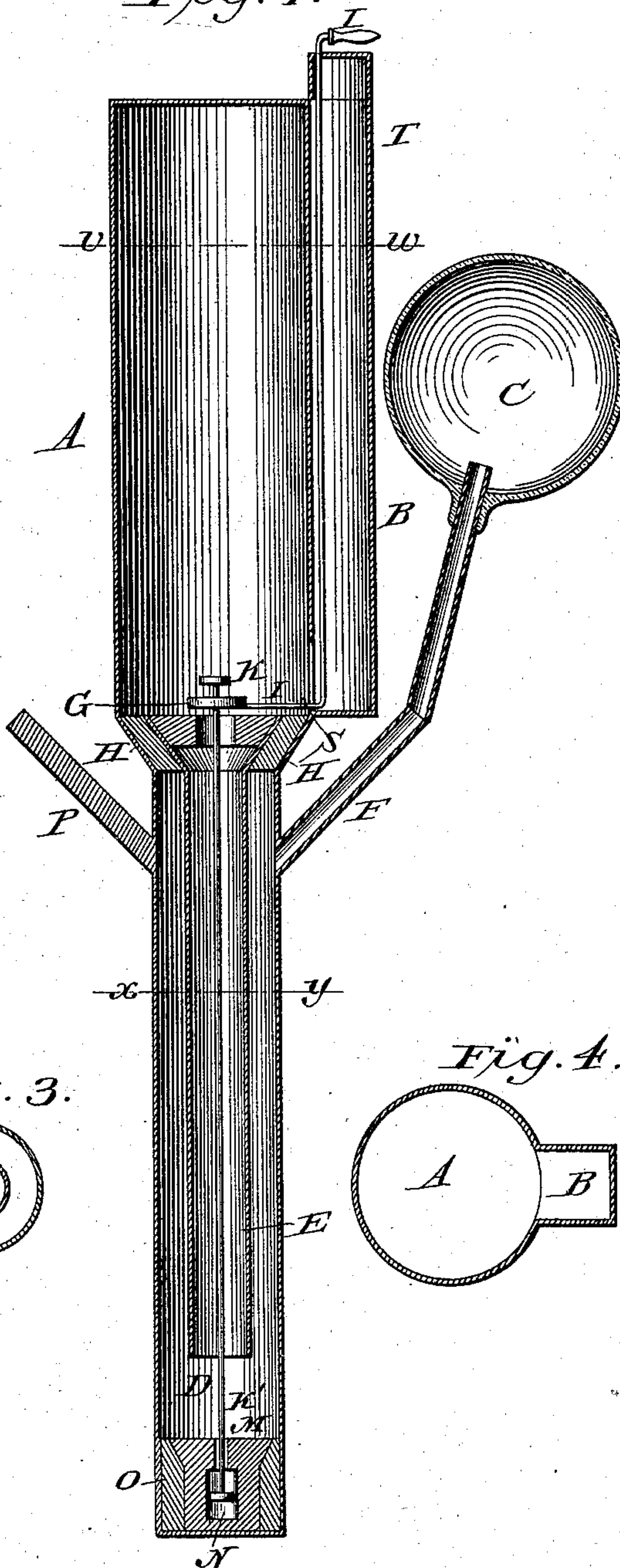


Fig. 3.

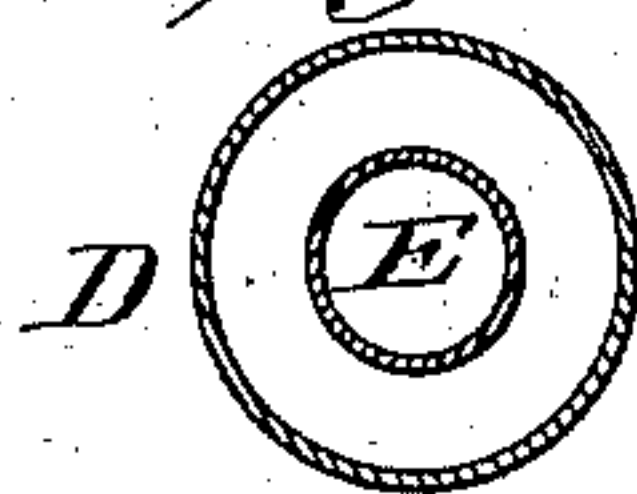
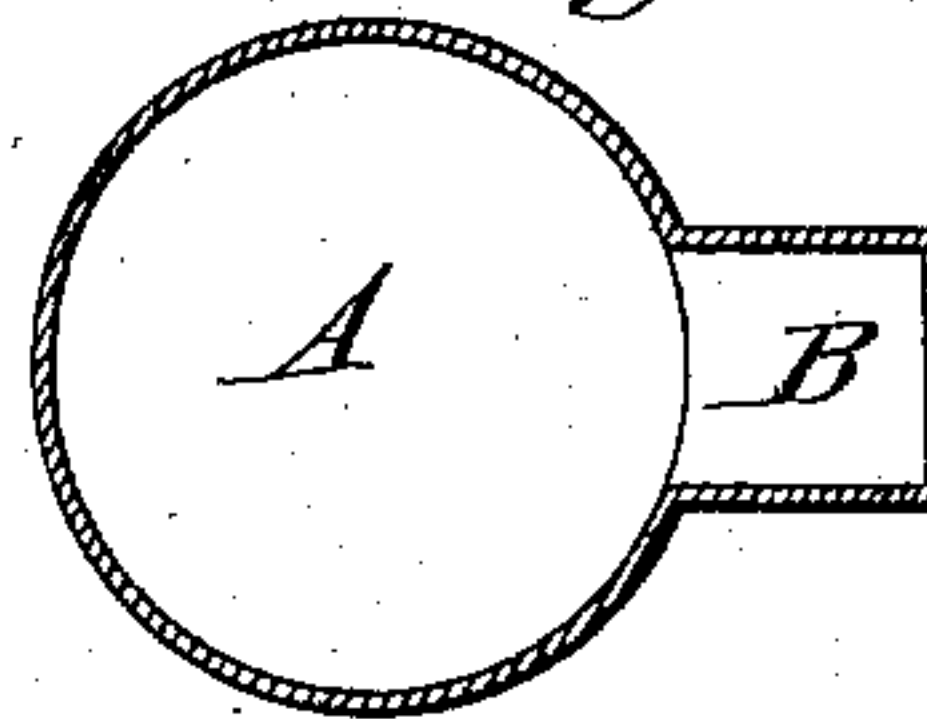


Fig. 4.



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HYDROMETER CUP AND THIEF.

SPECIFICATION forming part of Letters Patent No. 284,393, dated September 4, 1883.

Application filed November 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, JACOB DAVID, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Hydrometer Cup and Thief, of which the following is a specification.

My invention relates to a thief for taking fluid from a barrel in conjunction with a hydrometer and thermometer cup; and the object of my invention is to take fluid from a barrel by the use of a thief, fill the hydrometer-cup, and test the liquid by both hydrometer and thermometer without removing the thief from the barrel; second, to keep a continuous stream of liquor obtained from the center of the barrel going through the cup, so as to impart to the cup the same temperature as the fluid in the barrel; third, to return the fluid to the barrel without waste. I attain these objects by the instrument illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section. Fig. 2 is an elevation. Fig. 3 is a plan view of a cross-section on the line X Y. Fig. 4 is a plan view of a cross-section of the hydrometer and thermometer cup A B on the line V W.

Similar letters refer to similar parts throughout the several views.

The hydrometer-cup A, Figs. 1, 2, and 4, is of the usual pattern and kind most commonly used by gagers, having a thermometer-chamber, B, as shown. The bottom of the hydrometer-cup A is removed, and the hollow cylinder or tube D is attached in a permanent manner thereto by the cylindrical piece H, as shown at Fig. 1. The cylindrical piece H also forms a seat for the valve G. The cylinder or tube E is also attached in a permanent manner to the piece H, as shown at Fig. 1, which tube E is shorter and smaller in diameter, and is placed inside the tube D, as shown at Figs. 1 and 3. A valve is also placed inside the lower end of the tube D, as shown at Fig. 1, of which O is the seat and M the valve. The seat and valve O M is large enough to fill the entire diameter of the tube D at the bottom end. The valve M has in the center a small chamber, as shown at N, Fig. 1. The rod K connects the two valves G and M, as shown at Fig. 1. One end of the rod K is inserted into the valve M loosely, the hole through the valve-disk M be-

ing larger in diameter than the rod K, and on the end of the rod K, inside the chamber N of the valve M, is a button or nut, which plays loosely up and down in the chamber N and prevents the rod K from coming out of the valve M, as shown at K', Fig. 1. The other end of the rod K passes through the valve G and projects a short distance above, having on the end a button or nut, as shown at K, Fig. 1. The valve G is rigidly fastened to the rod K, which passes through it, so that the rod K cannot move without moving the valve G, and the valve G cannot move without moving the rod K.

I, Fig. 1, is a wire, having a handle above the chamber B, at T, passing down through the chamber B and inclosing the rod K loosely by an eye between the valve G and the button on top of the rod K, as shown.

F is a small tube, that enters the side of the thief-tube D, and the other end of the tube F enters an elastic hollow ball or bulb, made of rubber, similar to those commonly used on atomizers.

The parts marked P, Figs. 1 and 2, are projections or stops attached to the side of the tube D, which prevents the thief from sinking into the barrel too far, and at the same time keeps the thief away from the edges of the bung-hole, thus allowing an overflow from the cup to cling to the sides of the cup and thief and return to the inside of the barrel without waste.

The handle R is attached to the outside of the front or thermometer chamber B of the cup, as shown at Fig. 2, and the front or thermometer chamber B is extended and raised higher than the hydrometer-chamber A of the cup, as shown at T, Figs. 1 and 2.

To operate the instrument, insert the tube D into the barrel whose contents are to be tested or proved until the entrance of the thief is arrested or stopped by the projections or stops P and the small tube F coming in contact with the bung-hole edge. The tube D being considerably smaller than the bung-hole, and the stops P and small tube F being attached at an angle to the tube D, as shown at Figs. 1 and 2, the tube D will be in the center of the bung-hole, with an annular space all around the tube D. By the action of dropping the thief into the barrel, the valve M, being loose, allows the spirit or other fluid con-

tained in the barrel to enter the tubes D and E up to the same height as the height of the liquid in the barrel. By squeezing the ball or bulb C with the hand the air in the bulb or ball C is pressed downward and against the surface of the liquid that is in the annular space between the inside of the tube D and the outside of the tube E, which forces the liquid up through the tube E and valve G H into the cup A B. By releasing the ball or bulb C after squeezing the ball again expands, causing a vacuum in the tube D, which vacuum the liquid in the barrel rushes through the valve O M to fill. The liquid that has been forced into the cup A B is retained in its place by the closing of the valve G. By again squeezing the bulb C the operation of forcing the fluid into the cup A B through the tube E is repeated, and the operation is to be repeated until the cup A B is full. By having the valve M loose, with room to play up and down on the connecting-rod K, when the liquid enters the tubes D E through the valve O M the valve-disk M will rise without disturbing the valve G, so when the fluid is forced through the valve H G into the cup the valve-disk G will rise to allow the passage of the fluid without raising the valve-disk M from its position on the seat O. Whenever desirable to give the cup the same temperature as the liquid in the barrel, by continually squeezing and relaxing the bulb any quantity of the fluid can be passed through and over the cup A, while by having the top part of the cup B at T raised higher than the part A, all the overflow will return to the barrel by capillary attraction without waste. By having the sides of the chamber B higher than the sides of the adjacent chamber A all the overflow of liquid, when forced from the barrel through the hydrometer-cup, takes place over the sides of the cup A, thus returning directly to the barrel. If the sides of both chambers are of a uniform height, the overflow will be nearly equal over the sides of each chamber, and a portion of the overflow will be diverted by the chamber B down the sides of the chamber B and flow over onto the outside of the barrel, and not return through the bung-hole. By having the handle R placed on the side of the chamber B when the overflow takes place none of the liquid is diverted from a line with the bung-hole and obstructed in its passage to the inside of the barrel, as would be the case if the handle were placed on the side of

the chamber A. The thief and cup can remain in the barrel when the hydrometer is inserted, or can be lifted out of the barrel and held up by the handle R, the closed valves G and M retaining the liquor in the cup and thief. By raising the rod I by the handle at T it raises the valve G, and the valve G, having the rod K attached to the valve M, as before described, raises the valve M, thus emptying the cup and thief through the bottom while lifting the instrument out of barrel. The loop or stop S prevents the rod I and valves G and M from being raised too high.

I am aware that prior to my invention hydrometer-cups have been combined with a thief. Therefore I do not claim such a combination, broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. A thief for raising liquids, consisting of an outer tube fitted on the bottom, with a valve, O M, and an interior tube shorter and smaller than the exterior tube, having the lower end open and the upper end fitted with and closed by a valve, G, a connecting-rod, K, between the valves G and O M, and a lifting-rod, I, having a small projecting tube, F, with one end inserted into the outer tube, D, and the other end inserted into an elastic ball, all substantially for the purpose shown and described.

2. A thief having an outer tube, D, fitted on the bottom, with a valve, O M, and an interior or inner tube fitted on the top, with a valve, G, and a connecting-rod, K, from the valve G to the valve O M, a lifting-rod, I, having an elastic ball connected to the outer or large tube, D, by a small tube, F, and projections or stops P, substantially as shown and described.

3. The combination of a thief, substantially as shown and described, with a hydrometer-cup having a thermometer-chamber with its walls projecting above the sides of the hydrometer-chamber, substantially as shown and described.

4. A thief combined with a hydrometer-chamber, and a thermometer-chamber, the walls of the latter chamber projecting above the sides of the hydrometer-chamber, and a handle, R, affixed to the thermometer-chamber, substantially as shown and described.

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