

*Wiley & Miller,*  
*Liqued Measure.*

*No. 103404.*

*Patented May 24, 1870.*

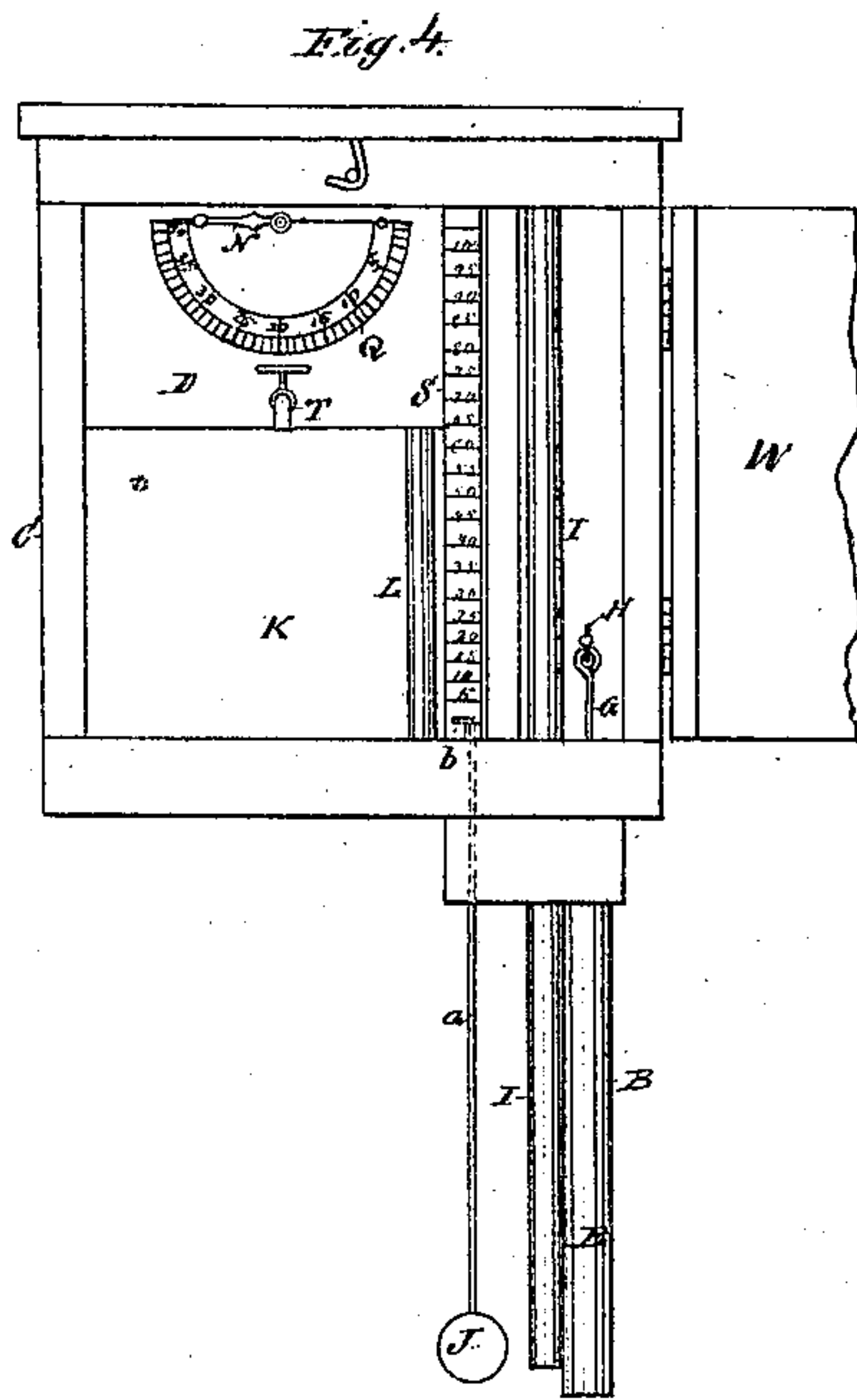
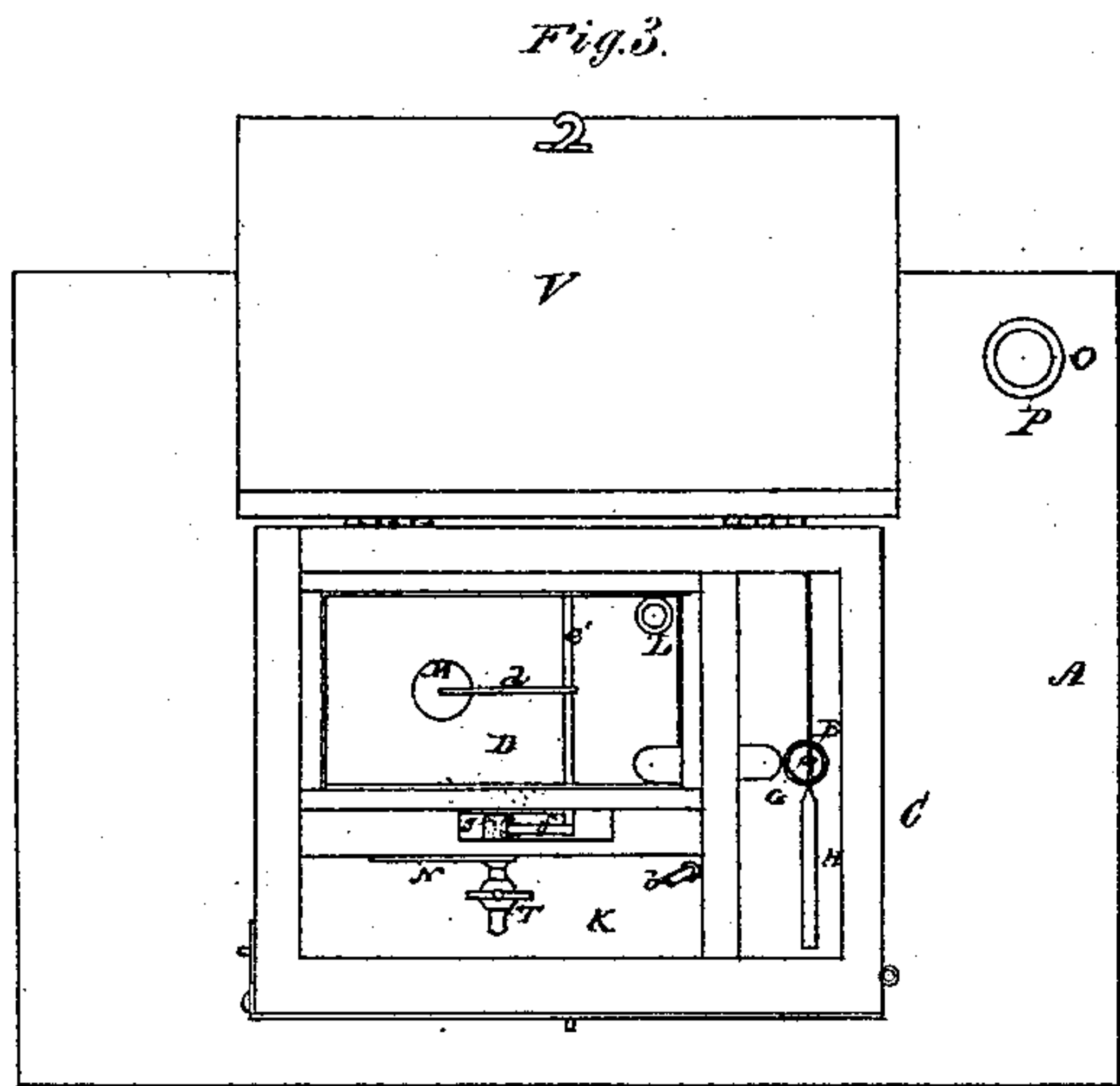
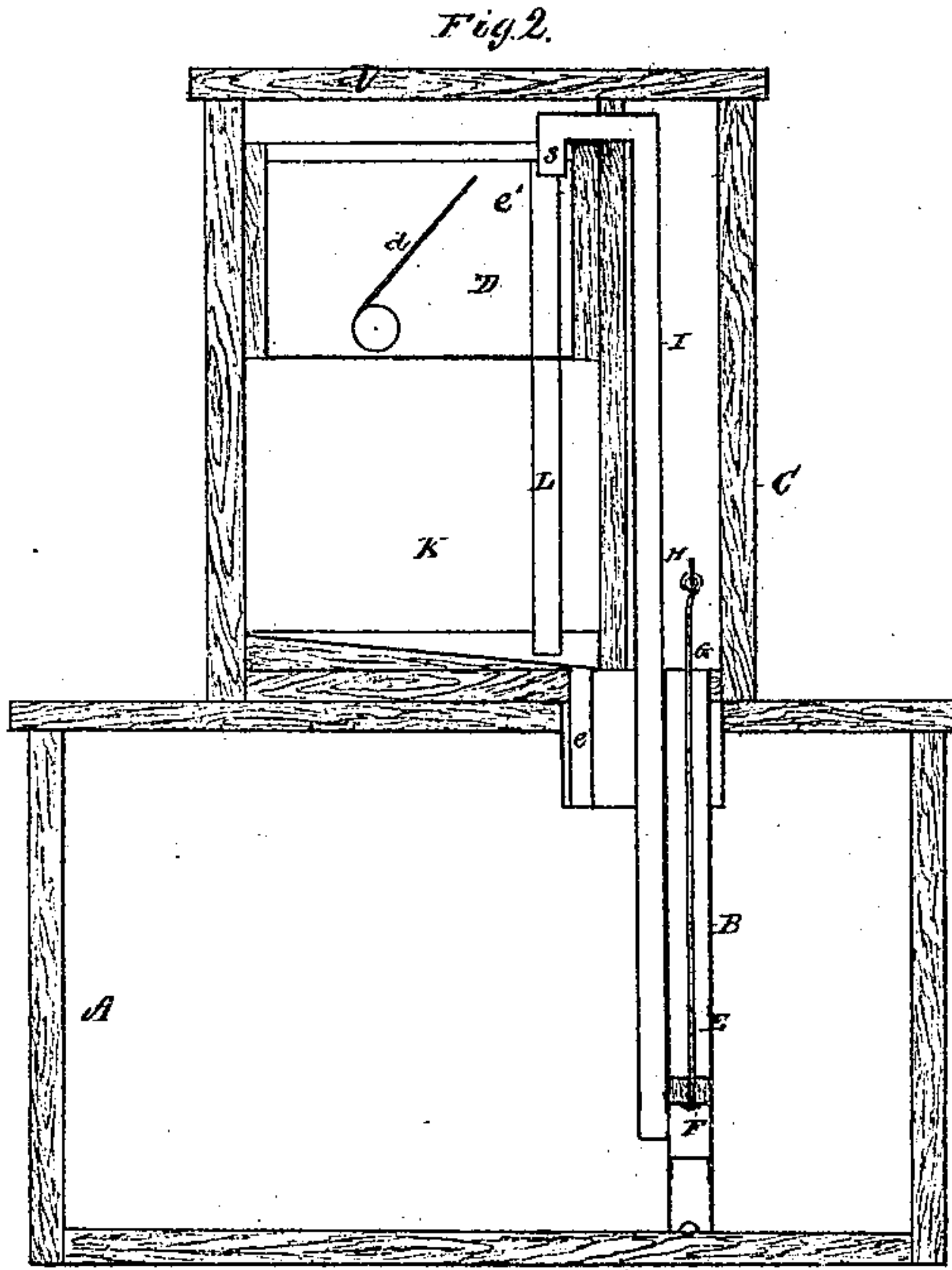
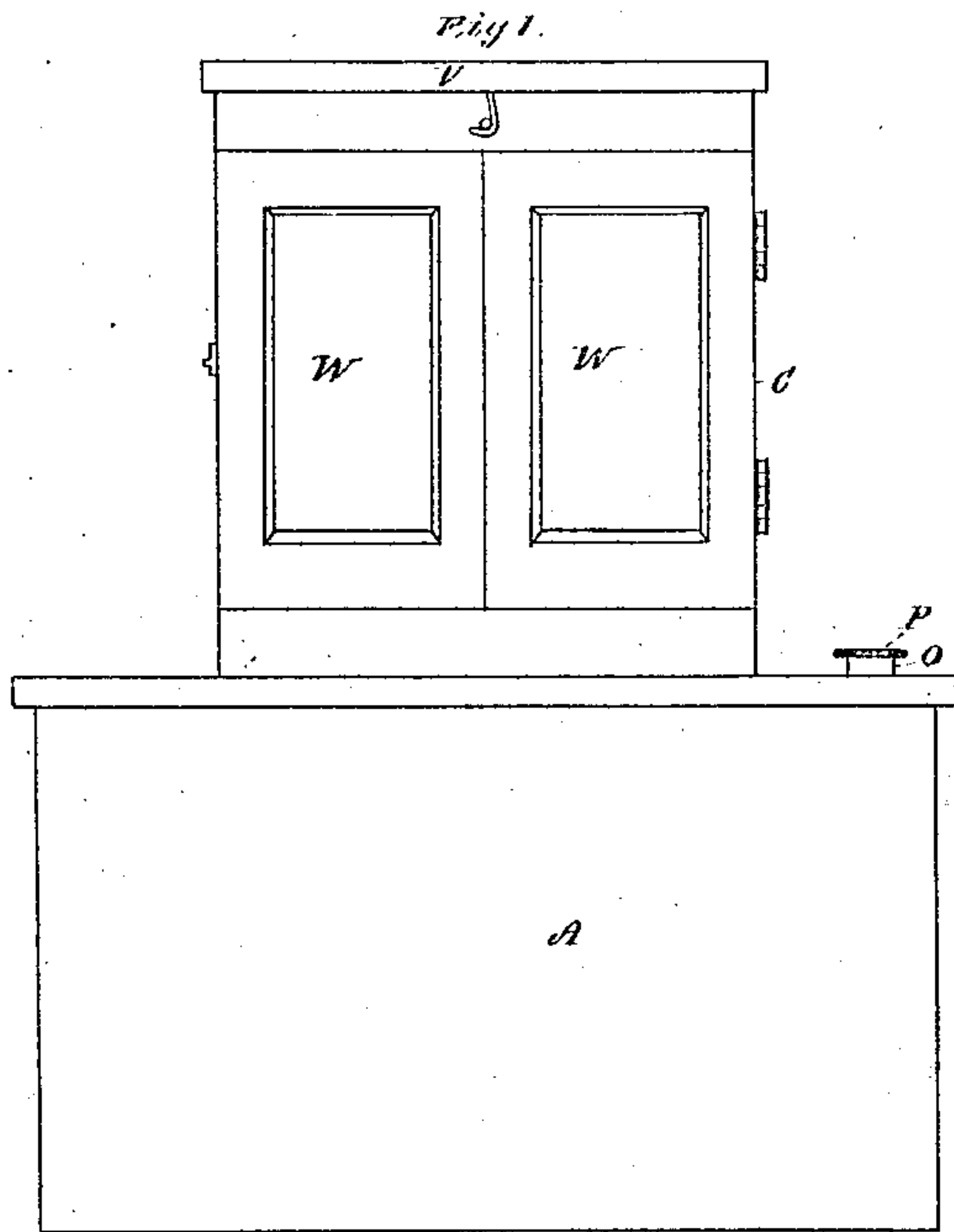
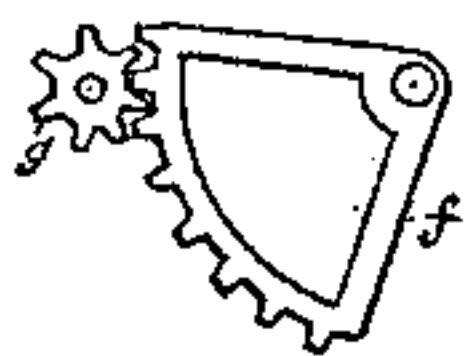


Fig. 5.



Witnesses

T. Crane,

Oliver Dand

M. H. Wiley and T. Miller

by their attorney

F. P. Hale



# UNITED STATES PATENT OFFICE.

MOSES H. WILEY AND THOMAS MILLER, OF BOSTON, MASS., ASSIGNORS TO  
THEMSELVES AND JOHN H. B. LANG, OF SAME PLACE.

## IMPROVEMENT IN APPARATUS FOR MEASURING LIQUIDS.

Specification forming part of Letters Patent No. **103,401**, dated May 24, 1870.

*To all whom it may concern:*

Be it known that we, MOSES H. WILEY and THOMAS MILLER, both of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Oil Cabinet or Apparatus for Holding and Measuring Liquids; and we do hereby declare that the same is fully described in the following specification and represented in the accompanying drawings.

Of the said drawings, Figure 1 denotes a front elevation of our said invention. Fig. 2 is a vertical and central section taken through the pump and lower return-pipe. Fig. 3 is a top view of the said apparatus with the cover removed or turned back. Fig. 4 is a front elevation of the upper case as removed from the lower one, in order to more clearly exhibit the pump, the lower float, and sundry other working parts of the apparatus. Fig. 5 is a side view of the sectoral rack and pinion attached, respectively, to the arbors of the secondary float, and the upper index pointer or hand.

Our invention relates to an apparatus for holding and measuring oil or other liquid; and it consists in combining with both the main and auxiliary reservoirs or cisterns, (provided with mechanism for raising a fluid from the former to the latter,) or with either of such cisterns, a registering or measuring apparatus, whereby not only the quantity of fluid contained in either of such cisterns may be readily determined, but any quantity, from a gill to the capacity of the smaller cistern, may be accurately measured and drawn from the said smaller cistern, as occasion may require.

In the said drawings, A denotes the base of our said apparatus, the same being a rectangular tank, cistern, or reservoir, which is to be made of metal or any other suitable material or materials, and may be constructed of any required capacity. From the bottom of the said reservoir a pump, B, extends upward through a case or box, C, (erected on the top of the said reservoir,) and has its discharging end opening into or communicating with a secondary reservoir or cistern, D, arranged in the upper part of the said box, as shown in Figs. 2 and 3. This pump may be either a suction, force, or lifting pump, as may be desirable. In the present instance a force-pump is shown, E denoting the pump-

barrel; F, the piston; G, the piston-rod; H, the handle of the pump; I, the discharging tube or pipe leading out of the side of the barrel E, the said barrel and pipe being respectively provided with induction and eduction valves in the ordinary manner.

V is a cover which is hinged to the said box or case C.

J is a ball or float, which is disposed within the main reservoir A, and has a stem or rod, *a*, which extends upward within the compartment K of the case or box C, and carries an index or pointer, *b*, upon its upper end, as seen in Fig. 4. This index or pointer operates in conjunction with a scale, S, of divisions arranged in the compartment K. The said scale is so graduated with respect to its pointer and the capacity of the said reservoir that, when the float rests on the top of the fluid in such reservoir, its pointer will show the exact quantity or number of gallons there may be in the reservoir. In preparing and adapting the said index or pointer and the divisional scale for use, we first pour into the said reservoir (constructed of any given dimensions) five gallons of water or other fluid, and note the point on the "limb" or scale at which the pointer rests. At such point we draw a divisional line, and mark the same 5. Next we pour into the reservoir five gallons more, and then note at what point the pointer or index then slants. At this point we draw another horizontal divisional line and mark the same 10. Thus we continue adding five gallons at a time, and marking the divisions, until the reservoir has been filled and the scale of divisions complete. These divisions may be further subdivided for gallons, quarts, pints, or gills.

O is the filling-port of the said main reservoir, P being the stopper thereof. The said auxiliary reservoir or cistern D is also to be made of metal or other suitable material, and is to be of any capacity that may be desirable. For instance, it may contain forty gallons. The said reservoir is provided with a "tell-tale" or safety-tube, L, so disposed as to prevent the said reservoir from overflowing. In order to do this the bore of this tube L should be of the same or of a greater diameter than the nozzles of the pump, in order that as soon as the surface of the fluid may reach the plane



of the mouth of the safety-tube any surplusage may flow down the said tube as fast as received, and be discharged upon the inclined flooring of the compartment K, from whence, through the return-pipe *e*, it will flow back into the main reservoir. Furthermore, the said secondary cistern is furnished with a stop-cock, T, arranged near the lower edge thereof, the same opening into the apartment K, as shown in Fig. 3.

W is the door of the said compartment, the same being hinged to the case C.

Within the secondary cistern D a float, M, is suspended by a wire or arm, *d*, which is connected at its other end to a horizontal rocker-shaft or arbor, *e'*, which is supported in bearings formed in the walls of the said cistern. This arbor extends transversely across the said cistern, and has one end thereof extending through the side of the cistern, and carries on its outer projecting end a segmental rack, *f*, which engages with a pinion, *g*, disposed on the arbor *h*, which carries the index hand or pointer N, as shown in Fig. 3. The said pointer N operates with a divided arc or semi-circular scale, Q, of divisions arranged within the compartment K, as shown in said figure. This scale may be so graduated as to indicate any amount from a gill up to the full capacity of the cistern. The said index-hand is to be so connected with the float that when the float may be at its highest position in the cistern the pointer shall stand or point to the commencement or zero of the scale, and as the float may descend by the withdrawal of the fluid from the cistern the pointer will fall and indicate the exact quantity of the fluid withdrawn. In preparing and arranging the said hand or index and its scale of divisions for use, we first fill the said secondary or retail cistern full of water, (which we will suppose to be forty gallons by actual measurement). We then note the point on the semicircle at which the hand or pointer stands, which we find to be horizontal or thereabouts. This we term the "zero" point, showing that the vessel is full, or that none has been withdrawn therefrom. Next, by means of the stop-cock T, we draw off five gallons and note the point on the semicircle at which the said pointer then stands. We then draw a radial line at such point and mark the said division-line 5. We then draw off another five gallons, and again note the point at which the hand then stands. At this point we draw another radial divisional line and mark the same 10; and so continue drawing off five gallons at a time, and marking the divisions until the amount contained in the said cistern has been drawn off, and the scale divided into equal parts of five gallons each. We next subdivide each of such parts into five equal portions, thus making each line on the scale denote one gallon. If desirable, the scale may be further subdivided, so as to register quarts, pints, or gills.

Having described the construction of our

said invention, we will now describe its mode of operation.

In using the said apparatus, we first pour into the main reservoir or cistern any quantity of oil or other liquid less than its capacity, the pointer attached to the float of such cistern indicating on its scale the exact number of gallons poured in, or what quantity there may be in the said cistern. We next pump up from the main reservoir or cistern a sufficient quantity of the liquid to fill the secondary or smaller cistern, the float of the latter rising with the increase of the fluid. Its index or hand, when such vessel is full, will stand at the zero or commencement of its scale, showing that the cistern is filled to its greatest capacity; or, the smaller cistern may be partially filled, in which case the index or pointer will show how much the cistern lacks of being full. For instance, should we fill the cistern until the hand stands at 5 on the scale, we know that the cistern lacks five gallons of being full. If we suppose the pointer to stand at the zero or the commencement of the scale, and we desire to draw out three gallons, for instance, we have simply to turn the stop-cock and allow the liquid to run until the hand or pointer shall have fallen to the third division of the scale, when the cock is to be closed. If next we wish to draw one gallon, we again turn the cock and allow the fluid to run until the hand has descended to the fourth division of the scale, when the cock is to be closed. Thus any quantity may be drawn and accurately measured, even pints and gills, if the scale is graduated to note such measures.

From the above it will be seen that our invention not only enables a grocer or dealer in oils or other fluids to dispense with the use of the various measures heretofore employed, but enables him at a glance to know the exact quantity of liquid there may be in each of his cisterns. It also enables him to detect any fraud there may be in gaging the barrels or vessels in which he buys his liquid, as by pouring their contents into the larger reservoir the pointer will show what quantity or number of gallons has been poured into such reservoir, or what quantity such casks or vessels actually contained.

Having described the construction and operation of our invention, what we claim is as follows:

The combination and arrangement, in a single article of furniture constructed as described, of the main cistern A, secondary cistern D, pump B, chamber K, and registering and measuring apparatus of the character specified, all placed in the relations and operating together in the manner and for the purpose set forth.

MOSES H. WILEY.  
THOMAS MILLER.

Witnesses:

F. P. HALE,  
JNO. R. SCOTT.