No. 698,993. Patented Apr. 29, 1902.

A. MUSCIACCO.

TRANSPORTABLE DEVICE FOR DRAWING CONSTANT QUANTITIES OF LIQUIDS OF VARYING DENSITIES.

(No Model.) (Application filed July 2, 1901.) 2 Sheets—Sheet 1.

Fig. 1.

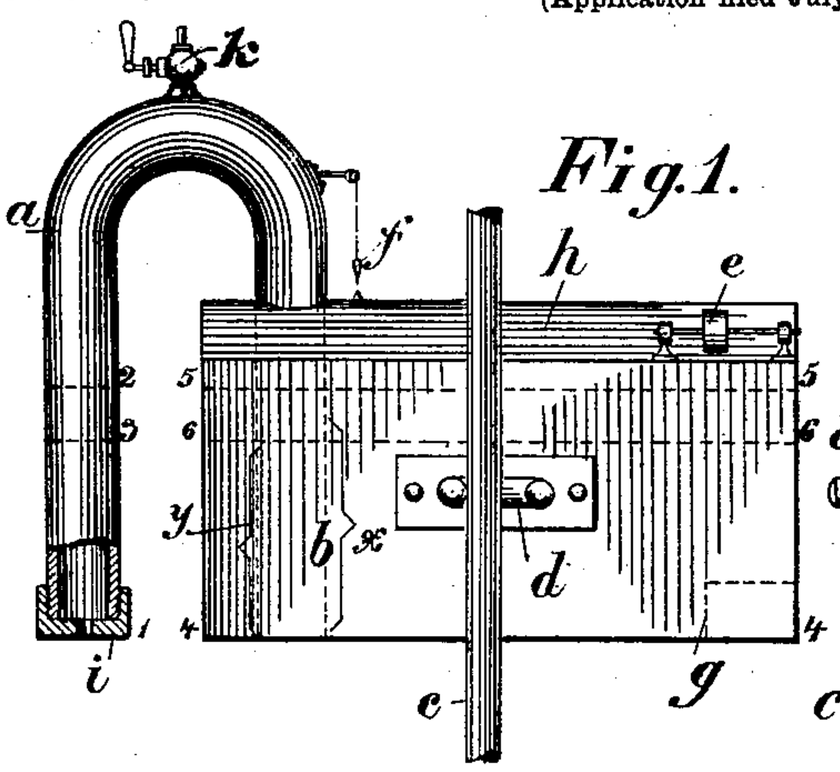


Fig. 2.

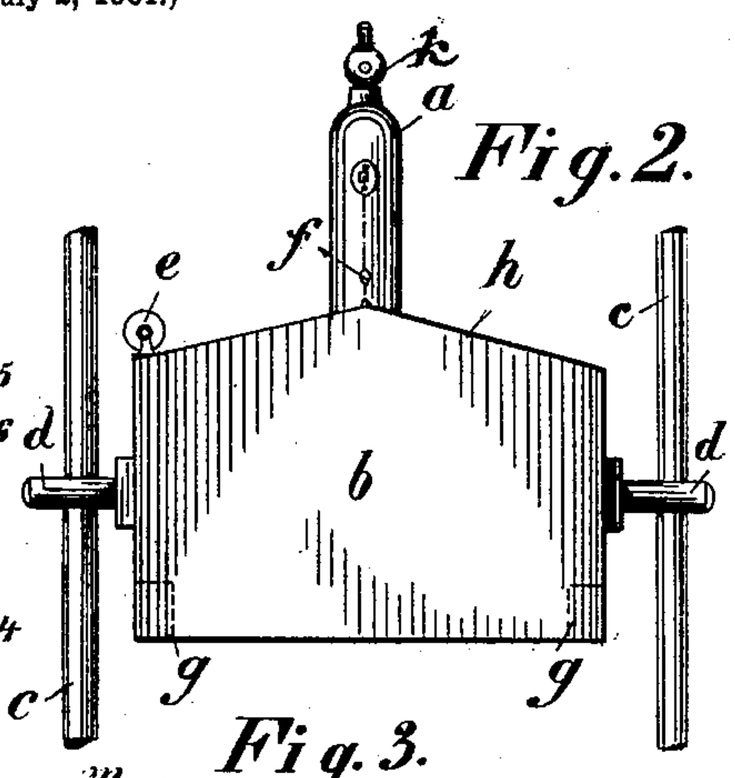


Fig. 3.

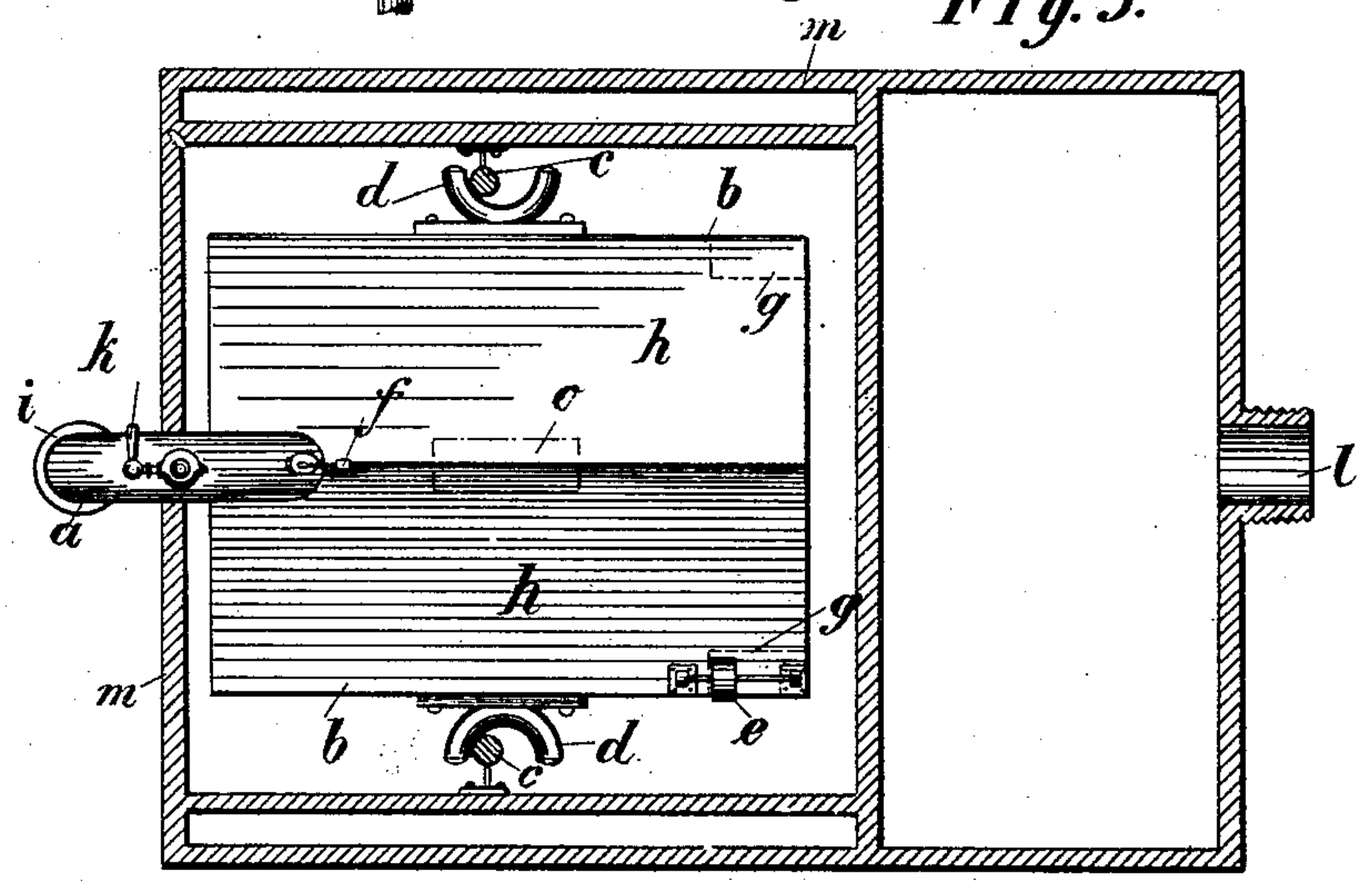


Fig. 4.

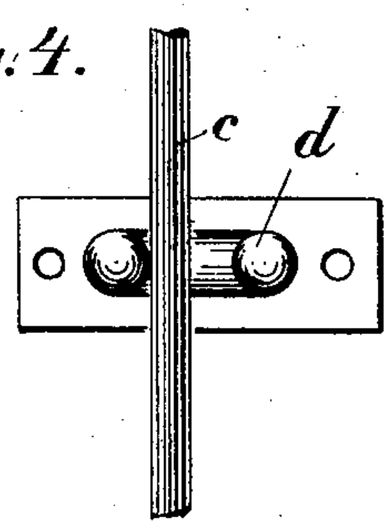


Fig. 5.

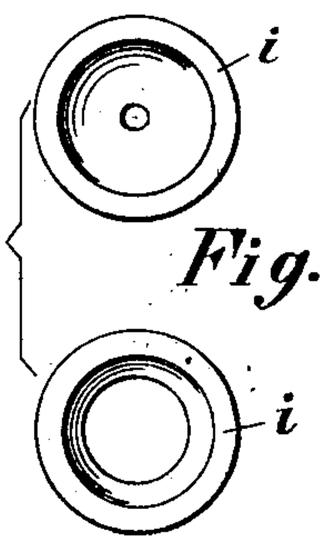
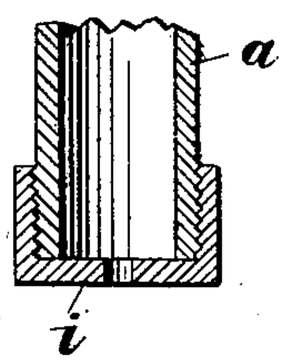


Fig. 6.



WITNESSES:

Joseph H. Niles.
Harry S. Foot.

INVENTOR
Augusto Musciacco
by Howson & Howson
ATTORNEYS.

No. 698,993. Patented Apr. 29, 1902.

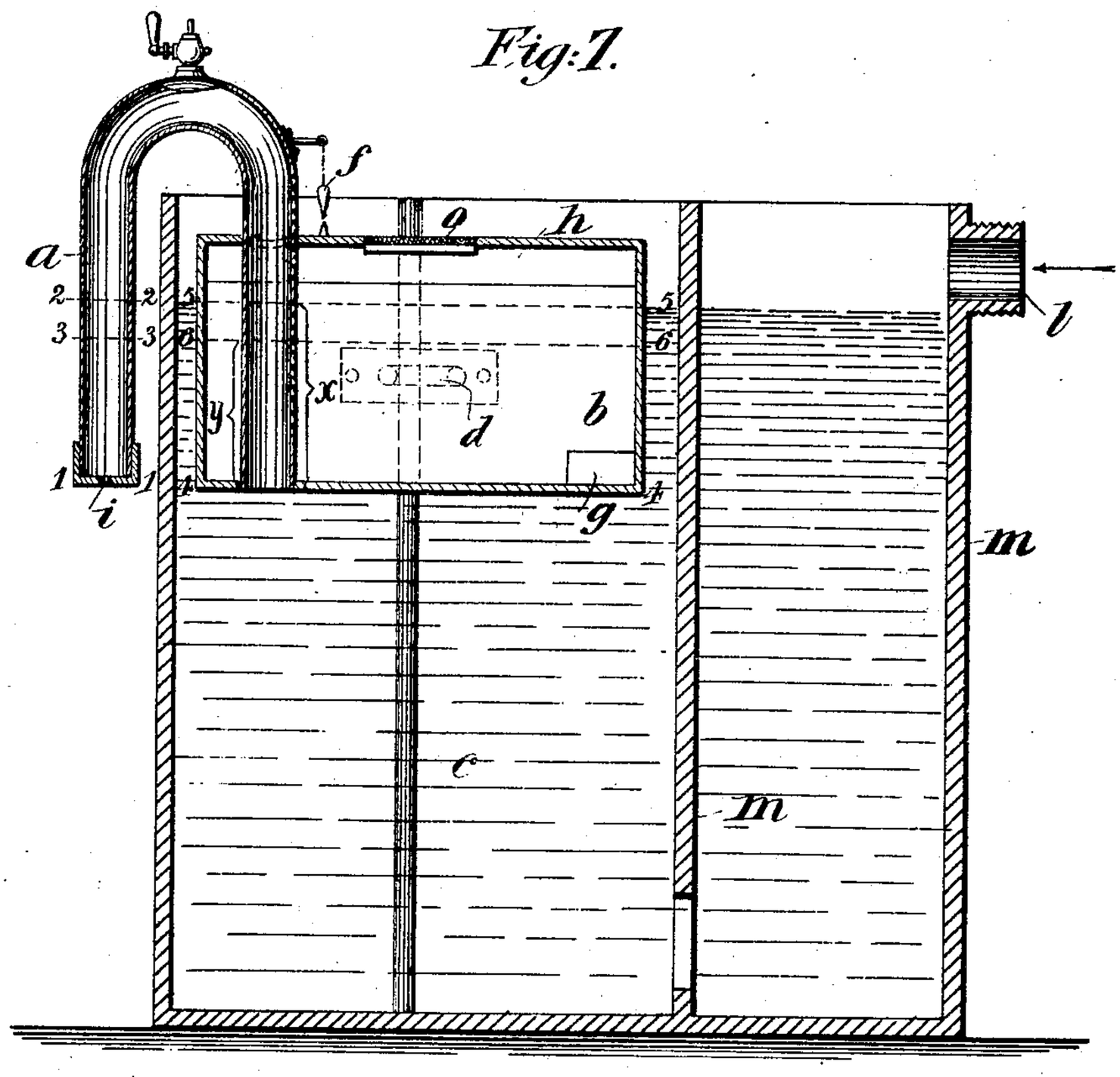
A. MUSCIACCO.

TRANSPORTABLE DEVICE FOR DRAWING CONSTANT QUANTITIES OF LIQUIDS OF VARYING DENSITIES.

Application filed July 2, 1901.

(No Model.) 2 Sheets—Sheet 2.

Fig: 1.



WITNESSES:

Walter Woelcham

6 Broadway.

INVENTOR

Augusto Musciacco.

BY Goepel & Wadle

ATTORNEYS.

UNITED STATES PATENT OFFICE.

AUGUSTO MUSCIACCO, OF BERLIN, GERMANY.

TRANSPORTABLE DEVICE FOR DRAWING CONSTANT QUANTITIES OF LIQUIDS OF VARYING DENSITIES.

SPECIFICATION forming part of Letters Patent No. 698,993, dated April 29, 1902.

Application filed July 2, 1901. Serial No. 66,826. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTO MUSCIACCO, merchant, a subject of the King of Italy, and a resident of 18 Belle-Alliancestrasse, Berlin, in the Province of Brandenburg, Germany, have invented new and useful Improvements in Transportable Devices for Drawing Constant Quantities of Liquids of Varying Densities; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

This invention relates to a device for drawing off equal quantities of liquids of varying densities in equal periods of time, such as are used in apparatus for evaporation or distillation of various liquids; and the object of the invention is to provide a device of this character with means for regulating the flow of liquid from a liquid-containing vessel through said device and to provide means for reliably adjusting said device in operative position.

To this end the invention consists of a liquid-containing vessel, a float guided in the same, a siphon having one of its arms passing vertically through said float and the other arm extending exteriorly of said liquid-containing vessel, adjustable caps provided for the outer end of said siphon, guide-rods in said liquid-containing vessel, guide-arms on said float, and means for balancing said float, as will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of the float, showing the siphon partly in section. Fig. 2 is an end elevation of the same. Fig. 3 is a plan view of the float, showing the same in position in a liquid-containing vessel, which latter is shown in section. Fig. 4 is a detail view of means for guiding the float in the liquid-containing vessel. Figs. 5 and 6 are detail views of adjustable caps for the siphon; and Fig. 7 is a central longitudinal section, in vertical direction, of Fig. 3.

Similar characters of reference indicate corresponding parts.

Referring to the drawings, *b* represents a rectangular float having a gable-shaped top *h*. Adjacent one side of the float is vertically arranged a siphon *a*, that has one arm extending through the float and the other extending beyond the adjacent wall of the liquid-containing vessel *m*, said siphon communicating with said liquid-containing vessel through the base of the float *a* and the ends of the siphon lying in the same plane. Vertically arranged in the liquid-containing vessel *m* at two opposite sides are the cylindrical guide-bars *c*, that are engaged by the guide-arms *d*, provided at opposite sides of the float, said guide-arms being preferably of semi-annular form and circular cross-section, so as to obtain suitable contact-surfaces between said guide members for the float. In order to counterbalance the weight of the siphon, which is arranged at one side of the float, the weights *g* are provided at the corners of the end opposite from the siphon, so that the float can be maintained in generally vertical position. In order to more accurately balance the float, the slide-weight *e* is provided at the top of the same, by means of which the delicate adjustment or balancing of the float can be obtained, the plummet *f*, suspended from the siphon, serving as means for ascertaining the proper balancing thereof. The outgoing end of the siphon is exteriorly threaded and is adapted to receive the interchangeable caps *i*, which latter being provided with openings of various diameters the proper regulation of the flow of liquid through the siphon can be obtained.

The operation of the device is as follows: Liquid is supplied to the liquid-containing vessel through the opening *l*, and the float is adjusted in the liquid-containg vessel and is then properly balanced. According to the varying density of the liquid the float will be submerged to a greater or less extent, as the weight of the same remains constant. When the density of the liquid is such that the floating-line of the float will reach the height indicated by the line 5 5, Figs. 1 and 7, the amount of liquid displaced by the float will be equal to the weight of the same and the column of liquid at the inner arm of the siphon (indicated by *x*) will be equal to the column 1 2 at the outer arm thereof. The flow of liquid from the liquid-containing vessel is

controlled by the size of the opening in the cap *i*. When the density of the liquid is such that the floating-line coincides with line 6 6, the column of liquid at the inner arm of the siphon (designated *y*) is equal to the column 1 3 at the outer arm thereof, by virtue of the siphon being of the same tubular diameter at each end. As the amount of liquid displaced by the float in each case is equal to the weight of the float, but being of different density, the columns of liquid *x* and *y* are of equal weights, so that in order to obtain the equal flow of liquid through the siphon a cap with an opening of large diameter is applied to the siphon when the liquid is dense, so that the volume of liquid that is conducted off through the siphon can be maintained constant to the volume, (that of less density) which passes through a cap having a smaller opening.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a device for drawing constant quantities of liquid of varying density from a suitable liquid-containing vessel, the combination of a float guided in the liquid-containing vessel, a siphon provided at one end of said float, means in said float for counterbalancing the siphon, and interchangeable caps for said siphon, substantially as set forth.

2. In a device for drawing constant quantities of liquid of varying density from a suitable liquid-containing vessel, the combination of guide-rods arranged in said liquid-containing vessel, a float guided by the same, a siphon provided at one end of said float, interchangeable caps for said siphon, counterbalancing-weights provided in said float, and means for balancing said float, substantially as set forth.

3. In a device for drawing constant quantities of liquid of varying density from a suitable liquid-containing vessel, the combination of a float arranged in said liquid-containing vessel, upright rods for guiding the same, guide-arms on opposite sides of said float for engaging said guide-rods, a siphon having one arm extending through said float at one end thereof, the outer arm of said siphon being arranged exteriorly of said liquid-containing vessel, interchangeable caps provided for the outer end of the siphon, means for counterbalancing the weight of the siphon, and a slidable weight for balancing said float, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

AUGUSTO MUSCIACCO.

Witnesses:
HENRY HASPER,
WOLDEMAR HAUPT.