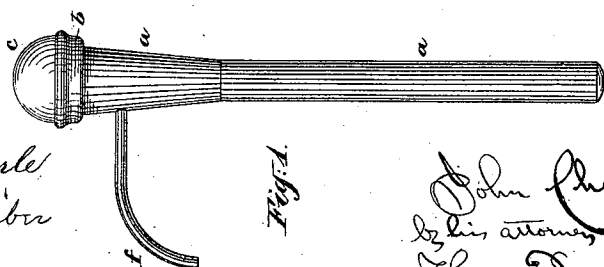
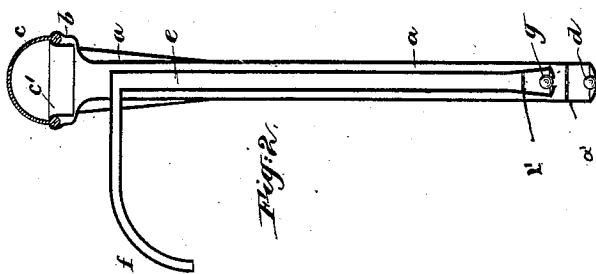
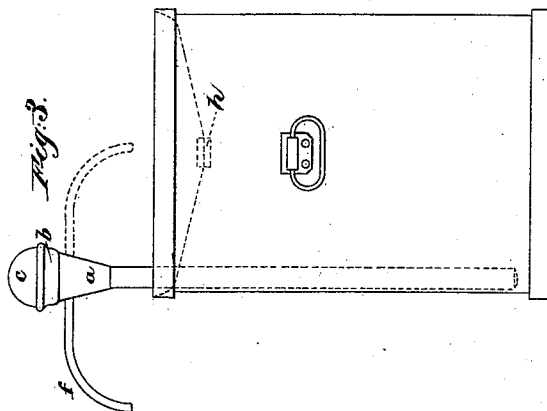
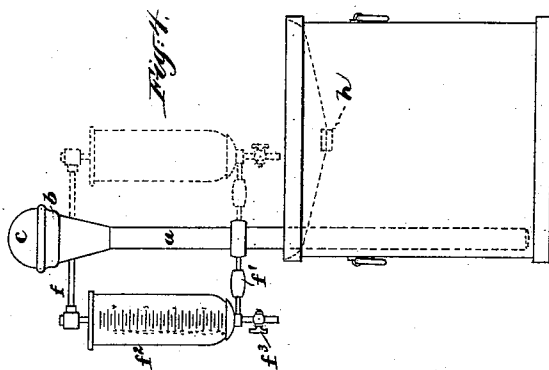


(No Model.)

J. C. MEYERS.
PUMPING AND MEASURING APPARATUS.

No. 470,205.

Patented Mar. 8, 1892.



Witnesses:

Charles R. Searle
Chas. S. Barber

Inventor:

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By his attorney
Thomas Drexel Stetson

UNITED STATES PATENT OFFICE.

JOHN CHARLES MEYERS, OF DUBLIN, IRELAND.

PUMPING AND MEASURING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 470,205, dated March 8, 1892.

Application filed December 4, 1890. Serial No. 373,580. (No model.) Patented in England May 2, 1890, No. 6,751; in France December 3, 1890, No. 209,974; in Belgium December 4, 1890, No. 92,981, and in Austria-Hungary June 22, 1891, No. 9,329.

To all whom it may concern:

Be it known that I, JOHN CHARLES MEYERS, of Dublin, Ireland, have invented a certain new and useful Improvement in Pumping and Measuring Apparatus for Liquids; and I do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to new and improved apparatus whereby the operation of transferring liquids from one vessel to another and measuring the same may be carried on in a safe and convenient manner and without waste. It is especially designed to facilitate the supplying of oil to lamps for domestic or other purposes, as hereinafter described.

It has been patented in England in my name, dated May 2, 1890, No. 6,751; in France, dated December 3, 1890, No. 209,974, and in Belgium, dated December 4, 1890, No. 92,981. An application was made in Austria-Hungary, dated December 4, 1890, and granted June 22, 1891, No. 9,329.

The nature, construction, and operation of my invention will be readily understood on reference to the accompanying drawings.

Figure 1 is an elevation, and Fig. 2 a vertical section, showing important parts of the improved apparatus. Fig. 3 shows its application, and Fig. 4 is a similar view showing the addition of a graduated measuring-glass which makes the device complete.

Similar letters of reference designate corresponding parts in all the figures.

In the construction of the apparatus *a* is an outer tube of suitable metal provided at the top with a cup or cone *b*, to which is fitted an india-rubber cap *c*, having a hemispherical form with a thickened edge, as shown in Fig. 2. This rubber bulb or cap is held securely in position by a ring *c'*, which is first placed in the cap before the latter is pressed into the cup or cone. By this means the cap is very securely held, but can be readily removed or renewed when required. In the lower end of the tube is an aperture closed by a marble *d* and loosely held down by a grated horizontal partition *a'*, as shown. Within this tube is arranged a tube *e*, provided with an

exit-port *f* at the top, and at its lower end with an elongated chamber, in the bottom of which is an aperture closed by a marble *g*, loosely held down by a grated partition *e'*, as shown.

As thus constructed, the apparatus may be introduced to any vessel from which it is desired to draw off liquids, and its action is as follows: Upon pressing the cap an impulse of air will pass down the annular space and escape through the inner tube by lifting the marble *g*, which will immediately resume its seat. As the india-rubber cap re-expands, (there being now a partial vacuum in the annular space,) the liquid will run through the valve *d*, rising in the annular space until the next pressure of the cap, which, acting on the liquid thus received in the annular space, causes it to ascend the inner tube through the valve *g* (it cannot return to the vessel owing to the closing of the valve *d* meantime) and escape through the exit pipe. On the second re-expansion of the cap the operation is repeated, and thus the flow of liquid is maintained.

Fig. 3 represents the application of the apparatus to an ordinary cistern—for example, a domestic oil-vessel. The top of this vessel is slightly inclined toward the center and the pump apparatus may be turned half round, so as to enable drops which may fall from the exit-pipe to return to the cistern through the filling-aperture *h*.

Fig. 4 shows the application of the apparatus in combination with a device for measuring purposes. Between the exit-pipe *f* and an arm *f'* is mounted a glass cylinder *f''*, which is graduated according to pleasure, and is provided at its lower end with an ordinary tap. By this arrangement certain quantities of liquid can be pumped into and measured in the cylinder, whereupon an empty vessel is applied and the tap turned and the measured quantity thus drained off. The pump apparatus in this case may also be turned half-round, as indicated in dotted lines, so as to allow drops to return to the original vessel and thus obviate waste or dropping of liquids on the floor.

It is obvious that my invention may be used on the siphon principle when discharging liq-

uid from one vessel to another of a lower level. For this purpose it is only necessary to prolong the length of the exit-pipe by the addition of a flexible or other tube, and once the
5 current is established in the manner above described the liquid will flow continuously. To arrest the flow, air may be admitted through a suitable valve formed in the exit-pipe. In this respect the apparatus may be used with
10 advantage for discharging casks, barrels, and such like vessels.

Having thus described the nature of my said invention, I declare that what I claim is—

15 1. In a device of the class described, the combination of an external tube having an enlarged upper end with a lip at its upper edge, an elastic bulb in the form of a hemisphere and having a thickened or beaded edge,
20 and a ring provided at its upper edge with a lip adapted to engage the inner side of the thickened or beaded edge of said elastic bulb

and to clamp the latter against the beaded upper edge of the external tube, substantially as and for the purpose set forth. 25

2. In a pump, an elastic bulb *c* in the form of a hemisphere with a thickened rim, the tube *a*, having the enlargement *b* at the upper end with an internal lip adapted to apply on the outer face of the bulb *c* and take hold
30 above such thickened rim, and the internal ring *c'*, adapted to apply on the inner face and similarly engage above the thickened rim thereon, in combination with each other and with the inner tube *e* and valves *d* and *g*, all
35 arranged to serve as herein specified.

Dated this 20th day of November, 1890.

JOHN CHARLES MEYERS.

Witnesses:

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