(No Model.)

M. T. SCHUBERTH.

SIPHON.

No. 421,057. Patented Feb. 11, 1890.

Fig. 4

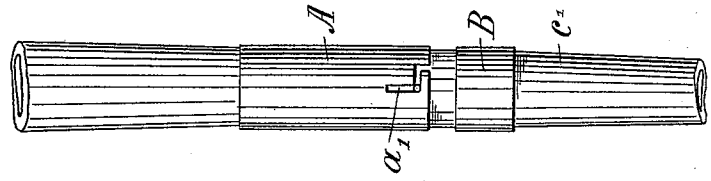


Fig. 3

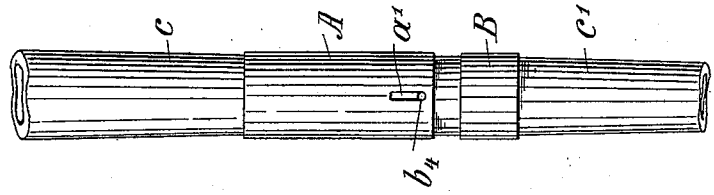


Fig. 2

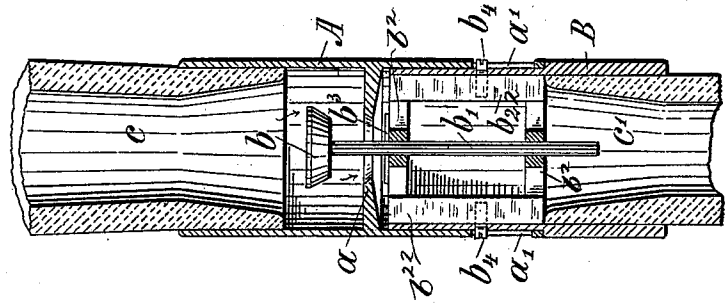
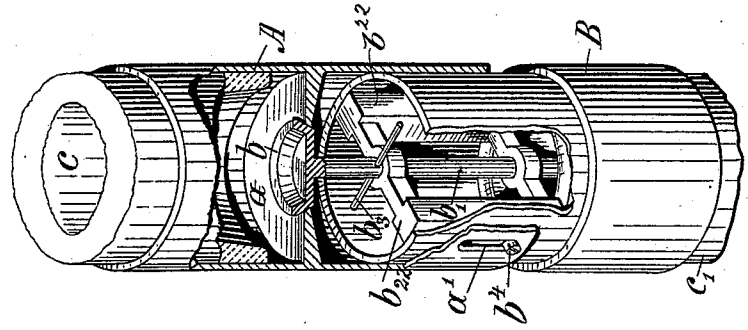


Fig. 1



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UNITED STATES PATENT OFFICE.

MICHAEL THEODOR SCHUBERTH, OF MALACZKA, AUSTRIA-HUNGARY.

SIPHON.

SPECIFICATION forming part of Letters Patent No. 421,057, dated February 11, 1890.

Application filed November 26, 1889. Serial No. 331,705. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL THEODOR SCHUBERTH, a subject of the King of Hungary, residing at Malaczka, in the Province of Poszony, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Siphons; 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 letters of reference marked thereon, which form a part of this specification.

Referring to the drawings, Figure 1 is an isometric view of so much of a siphon as will be necessary to illustrate the invention, the valve being shown on its seat. Fig. 2 is a vertical section showing the valve off its seat, both these figures being drawn to an enlarged scale. Figs. 3 and 4 are elevations, the latter showing a modification in the construction.

The invention relates more particularly to that class of siphons ordinarily used for sampling from casks and other like vessels, and has for its object to provide means whereby the liquid drawn into the siphon is retained therein without excluding access of air thereto—that is to say, without necessitating the closure of the end of the siphon, to which suction is applied.

The invention consists, essentially, in the combination, with the suction end of a siphon, of a gravity-valve, and of means for unseating the valve to allow the liquid drawn into the siphon to flow out again, substantially as hereinafter fully described, and pointed out in the claims.

The suction end of the siphon—namely, that end that is immersed in the liquid and through which such liquid is drawn in when a partial vacuum is formed in the siphon-tube—is provided with a valve-seat a, that co-operates with a valve b of any suitable form, as a ball-valve or a cup-valve, such as shown in the drawings, whose stem b' is guided in suitable bearings. These bearings may be formed in a cross-head or cross-heads b^2, connected by vertical arms b^{22}, thus forming a frame which may have free motion within the lower part or suction end of the siphon, the movements thereof being guided by pins b^4, projecting from the vertical arms b^{22}, said pins extending into vertical slots a', formed in the siphon-walls. When so constructed, the said pins or screws b^4 may be made of such a length as to project sufficiently from the siphon-walls to provide a hand-hold for lifting the valve-bearings and the valve, through whose stem b' passes a cross-rod b^3. When in their normal positions, the pins b^4 lie in the lower end of the slots a', the cross-rod lies upon the upper cross-head bearing, and the valve is seated on its seat.

It is obvious that when a partial vacuum is formed in the siphon-tube the valve b is unseated, its stem b' moving freely in its bearings, and when air is again admitted to the siphon-tube the valve will return to its seat under its own weight, or under that and the weight of the body of liquid drawn into the siphon above the valve. Since the cross-rod b^3 of the valve-stem lies on the upper cross-head bearings for said stem when the valve is on its seat, it is obvious that when said bearings are lifted by means of the pins b^4 the valve will be unseated and the liquid will flow out of the suction end of the siphon. In this class of apparatus or instruments it is desirable, however, that access may readily be had to the valve for purposes of cleansing or for other purposes, as well as to the valve-bearings. To this end I preferably connect the glass tube or other tube c to the valve-casing, so as to be readily detached therefrom, thus affording access to the valve and its seat, while I construct the valve-casing itself of two telescopically-joined sections A and B, each provided with registering vertical slots a' for the pins b^4, which are removed when the sections are to be separated. This removal of the pins b^4 may, however, be avoided by forming a bayonet-slot in the outer section A, as shown in Fig. 4.

When the valve-casing of the siphon is constructed of telescopic sections, the lifting of the valve-bearings for unseating the valve may be effected by simply sliding the lower section into the upper one, as shown in Fig. 1, and in this case the pins b^4 may be dis-

pensed with altogether, the cross-head bearings being then rigidly connected with the lower section B.

To afford a better hold in sliding section B into section A, a glass tube c' may be connected with the lower section B, so as to be readily detached therefrom when desired. When such tube is not used and the cross-head bearings are movable within the valve-casing, a suitable seat is formed therein for said cross-head bearings to hold them in position—as, for instance, a flange or seat ring. When, however, the tube c' is used, its upper edge constitutes the seat for the valve-stem bearings.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with a siphon, of a valve-casing at the suction end thereof provided with a valve-seat, a gravity-valve adapted to automatically move off its seat when a vacuum is produced in said siphon, and a locking device to lock the valve against its return to its seat, substantially as and for the purposes specified.

2. The combination, with a siphon, of a valve-casing at the suction end thereof provided with a valve-seat, a gravity-valve adapted to automatically move off its seat when a vacuum is formed in said siphon, and an abutment adapted to move independently of said valve and operating to lock the same against return to its seat, substantially as and for the purposes specified.

3. The combination, with a siphon, of a valve-casing provided with a valve-seat, a gravity-valve having an extension or stem provided with a stop-arm, a movable guide-bearing in which said stem has free endwise motion, and which operates as an abutment for the stop-arm on the valve-stem, and pins or screws projecting from the guide-bearing through elongated slots formed in the valve-casing, substantially as and for the purposes specified.

4. The combination, in a siphon, with a gravity-valve, a stem for said valve, and a stop-arm on said stem, of a valve-casing constructed of two telescopic sections, whereof one is provided with a valve-seat and the other with a guide-bearing in which the valve-stem is free to move endwise, and which serves as an abutment for the stop-arm thereon, substantially as and for the purposes specified.

5. The combination, in a siphon, with a gravity-valve, a stem for said valve, and a stop-arm on said stem, of a valve-casing constructed of two telescopic sections connected by a bayonet-joint, whereof one is provided with a valve-seat and the other with a guide-bearing in which the valve-stem is free to move endwise, and which serves as an abutment for the stop-arm thereon, substantially as and for the purposes specified.

6. The combination, in a siphon, with a gravity-valve, a stem for said valve, and a stop-arm on said stem, of a valve-casing constructed of two telescopic sections, both provided with registering longitudinal slots, a guide-bearing for and in which the valve-stem has free motion and that serves as an abutment for the stop-arm thereon, and pins or screws projecting from said guide-bearing through the slots of the casing-sections, substantially as and for the purposes specified.

7. The combination, in a siphon, with a gravity-valve, a stem for said valve, and a stop-arm on said stem, of a valve-casing constructed of two telescopic sections, both provided with registering longitudinal slots, the slot in the outer section being a bayonet-slot, a guide-bearing for and in which the valve-stem has free motion and that serves as an abutment for the stop-arm thereon, and pins or screws projecting from said guide-bearing through the slots of the casing-sections, substantially as and for the purposes specified.

8. The combination, with the telescopic valve-casing A B and the guide-bearing $b^2\,b^{22}$, of the detachable tube c', substantially as and for the purposes specified.

In testimony whereof I affix my signaure in presence of two witnesses.

MICHAEL THEODOR SCHUBERTH.

Witnesses:
RUDOLF VON PLANK,
NETTIE S. HARRIS.