No. 732,059. PATENTED JUNE 30, 1903.

G. S. DYER.

LIQUID SAMPLER.

APPLICATION FILED APR. 25, 1901.

NO MODEL.

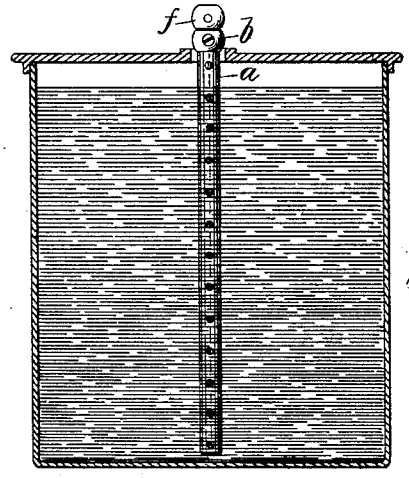


Fig. I

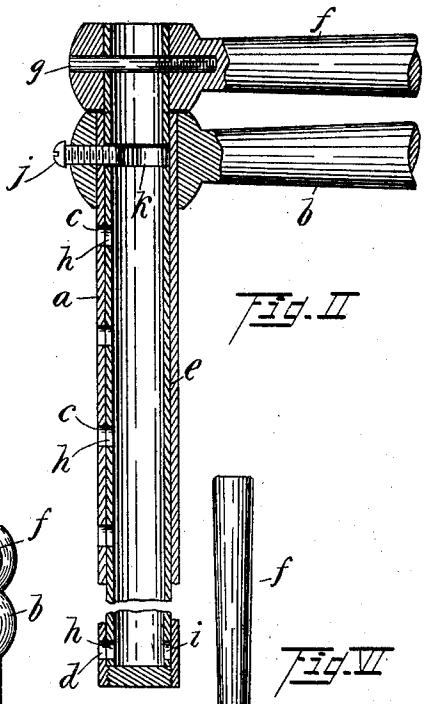


Fig. II

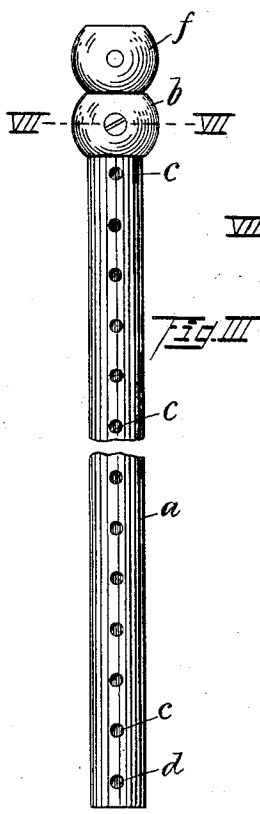


Fig. III

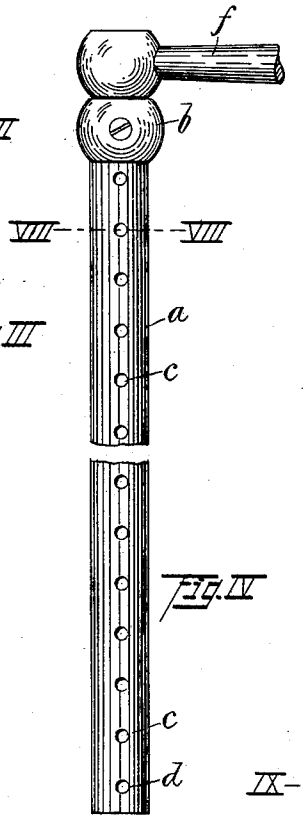


Fig. IV

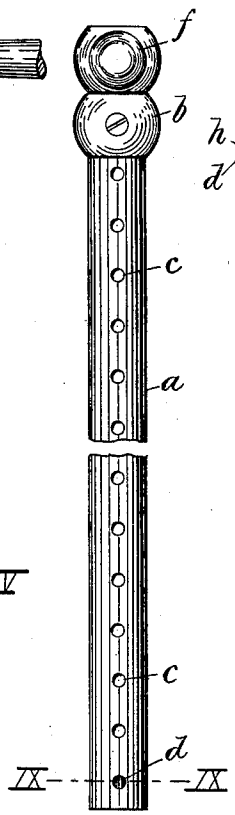


Fig. V

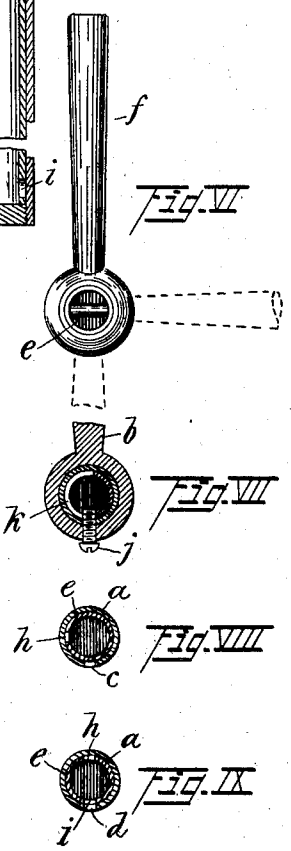


Fig. VI

Fig. VII

Fig. VIII

Fig. IX

Witnesses:

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No. 732,059. Patented June 30, 1903.

UNITED STATES PATENT OFFICE.

GUY S. DYER, OF CLEVELAND, OHIO.

LIQUID-SAMPLER.

SPECIFICATION forming part of Letters Patent No. 732,059, dated June 30, 1903.

Application filed April 25, 1901. Serial No. 57,382. (No model.)

To all whom it may concern:

Be it known that I, GUY S. DYER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Liquid-Samplers, of which the following is a specification.

My invention relates to hand implements designed to be inserted into a body of liquid for the purpose of collecting a small sample therefrom; and it has for its object the provision of such an implement in a compact and convenient form which may readily be inserted through a small aperture, if necessary, in a vessel containing liquid and which will collect, after being inserted to a sufficient depth in said liquid, a sample of the same average quality as the mass of said liquid.

Further objects are to provide convenient means for opening and closing the sampler and for draining the liquid therefrom.

To these ends my invention consists in the features and combinations hereinafter described and claimed, an embodiment thereof being illustrated in the accompanying drawings, in which—

Figure I is a section of a vessel containing liquid, showing the sampler inserted therein through an aperture in the top thereof. Fig. II is a sectional elevation with the middle part broken away. Figs. III, IV, and V are front elevations showing the different positions of the handles and filling and draining apertures, and Fig. VI is a plan view of the device. Fig. VII is a section on line VII VII of Fig. III. Fig. VIII is a section on line VIII VIII of Fig. IV. Fig. IX is a section on line IX IX of Fig. V.

The reference-letter *a* indicates a tube, preferably of metal, of any convenient length; but in order to perform its function of securing a fair average sample of the liquid it should be long enough to reach nearly or quite to the bottom of the vessel in which the liquid is contained, as shown in Fig. I. A handle *b* is fitted to the upper end of said tube, its lower end is closed by a suitable plug or other means, and its front is provided with a number of perforations *c c* and *d* for the influx of the liquid. Fitted to turn inside of said tube, reaching to the bottom plug thereof and projecting above its upper end, is a tube *e*, having secured to its projecting end, preferably by a pin *g*, as shown, a handle *f*, similar to the handle *b*. The tube *e* is provided with perforations *h*, adapted to register, respectively, with the perforations *c* and *d* when the handles *b* and *f* are set parallel with each other, as shown in Figs. I, II, III, and VI. The inner tube *e* is also provided with another perforation, as at *i*, near its lower end, preferably diametrically opposite to the lower perforation *h*, adapted to register with the perforation *d* when said inner tube is turned through a wide angle, preferably one hundred and eighty degrees, as shown in Fig. V.

The handle *b* is fastened to the tube *a* by a screw *j*, threaded through both handle and tube, with its inner end projecting through a slot *k* in the inner tube *e*, the ends of which slot limit the revolution of the inner tube by engaging the said screw. The slot *k* is located in such a position that when the handles *b* and *f* are both set in the same vertical plane the screw *j* bears against one end of it and the perforations *c c* and *d* register with the perforations *h*, as in Figs. II, III, and VII, and when one handle has been turned through a wide angle, as in Figs. V and IX, the said screw bears against the other end of its slot, and the lower perforation *d* registers with the perforation *i*, the other openings in the outer tube being closed; but should one handle be revolved through one-half of the wide angle aforesaid all the perforations in the outer tube would be closed, as shown in Figs. IV and VIII. These positions of the handles are indicated by the dotted lines in Fig. VI.

In using the device it should first be set, as in Fig. IV, with the perforations all closed. It is then thrust into the liquid to be sampled, and the handles being brought into the same vertical plane as in Fig. III opens all the perforations, whereupon the inner tube fills with liquid taken from as many points in the depth of the same as there are perforations in the outer tube, thereby collecting a small quantity of the fluid, which will be of the average quality of the whole mass. The handles are then turned sufficiently to close the perforations, when the sampler may be withdrawn. To discharge the sample, the device

may be simply inverted, but for liquors that are viscid or corrosive, &c., the handles are moved to their opposite positions, as in Fig. V, which registers together the bottom perforations *d* and *i* and forms an outlet for the sample without inverting the device and thereby bringing the liquor contained therein into contact with the upper part thereof.

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

1. In a liquid-sampler, the combination of an outer tube closed at its lower end having a plurality of perforations ranged throughout its length, an inner tube fitted to turn in and projecting above said outer tube having a circumferential slot therein and provided with perforations adapted to register with said outer perforations, a stop secured to said outer tube projecting into said slot and adapted to engage the sides and abut against the ends thereof, and handles attached respectively to the upper ends of said tubes, substantially as set forth.

2. In a liquid-sampler, the combination of an outer tube closed at its lower end and having a plurality of inlet-perforations ranged throughout its length, an inner tube fitted to turn in said outer tube provided with corresponding perforations adapted to register respectively with the said outer perforations, said inner tube having an opening near its lower end adapted to register with the lower one of said inlet-perforations in the outer tube upon the revolution of said tubes from their intake position through an angle relatively to each other, a suitable stop adapted to limit the said angle of revolution of the tubes and prevent their longitudinal displacement, and handles attached respectively to the upper ends of said tubes, substantially as set forth.

In testimony whereof I affix my signature, in the presence of two subscribing witnesses, at Cleveland, Ohio, April 18, 1901.

GUY S. DYER.

Witnesses:
R. G. SMITH,
GEORGE B. RILEY.