H. H. REYNOLDS.

HYDROMETER OR STORAGE BATTERY TESTER.

APPLICATION FILED AUG. 9, 1918.

1,291,147. Patented Jan. 14, 1919.

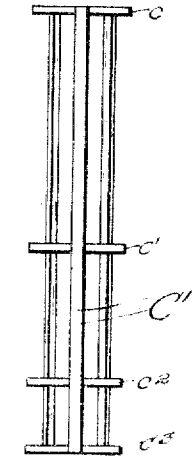


Fig. 4

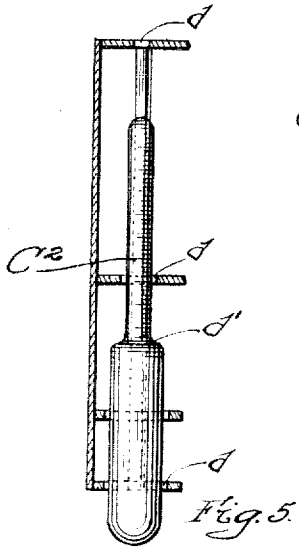


Fig. 5

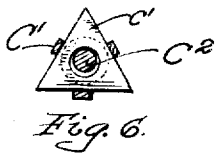


Fig. 6.

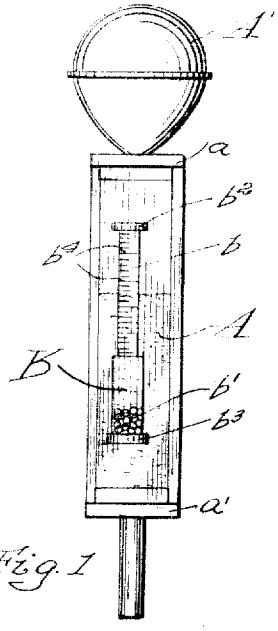


Fig. 1

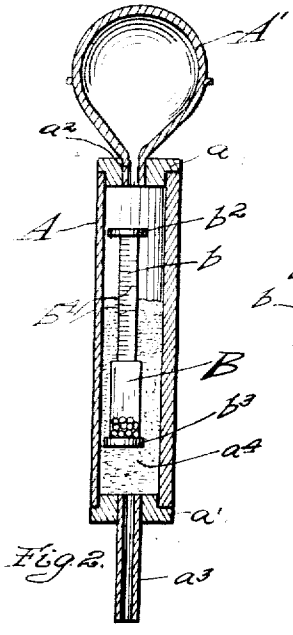


Fig. 2.



Fig. 3.

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UNITED STATES PATENT OFFICE.

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HYDROMETER OR STORAGE-BATTERY TESTER.

1,291,147. Specification of Letters Patent. Patented Jan. 14, 1919.

Application filed August 9, 1918. Serial No. 249,065.

To all whom it may concern:

Be it known that I, HARRY H. REYNOLDS, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Hydrometers or Storage-Battery Testers, of which the following, taken in connection with the drawings, is a description.

My invention has for its object the production of a hydrometer or storage battery tester designed to be used in testing the specific gravity of liquids, more particularly so used in connection with automobiles.

Heretofore, devices of this kind have been constructed of glass tubes which were easily broken, and which were difficult to read, owing to the shape and construction of the same. My invention is designed to overcome these difficulties, first by constructing same of transparent, non-breakable material, and second by shaping the same so that the printing is placed upon plane surfaces, so that it can be easily read.

A further object of my invention is to provide a guide member to be placed inside of the syringe when the same is used in connection with a tester such as is now found on the market.

A further object of my invention is to produce a device of the class described which shall be so constructed, proportioned, and adapted for the purpose it is intended that friction in movement of the test tube is practically eliminated, thereby giving very accurate results when used.

A further object of the invention is to produce a device of the class described which is simple, cheap, and durable, not liable to get out of order, and always ready for use when needed.

In the accompanying drawings I have illustrated what I now consider the preferred form of my invention, although certain details of construction may be changed without departing from the spirit thereof, and in these drawings,

Figure 1 is a plan view of my hydrometer;

Fig. 2 is a vertical cross section of the same;

Fig. 3 is a transverse sectional view;

Fig. 4 is a plan view of a guide member with the tube removed;

Fig. 5 is a sectional view of a guide member with the tube in position; and

Fig. 6 is a transverse sectional view of the same.

Referring to the drawings, A is a casing which is angular in cross section, as shown more particularly in Fig. 3. This casing is more preferably formed of celluloid, pyralin, or other non-breakable transparent material, so shaped that the sides thereof will present plane surfaces. In this instance I have shown the casing formed of three sides, but I contemplate making it square, hexagonal, octagonal, etc., as desired.

Caps, a—a', are cemented or otherwise secured at the top and bottom of this casing, forming closure for same. Each of these caps is provided with an opening therethrough, the cap, a, receiving the stem, a^2, of the rubber bulb, A', and the cap a', receiving the end of the tubular member, a^3, which provides a passageway into the inner chamber, a^4, of the casing, A.

Positioned within this casing, A, is a float formed of transparent material comprising a hollow elongated body, B, which terminates in an elongated neck portion, b. This float is weighted at the bottom thereof as at b'. Arranged on all of the faces of the neck portion, b, are calibrations, b^2, gaged to indicate the specific gravity of the liquid to be tested. The disks, b^2—b^3 are secured to the upper and lower extremities of the float, respectively, and are designed to contact with the sides of the casing, A, thereby reducing to a minimum the friction caused by the movement of the float, B.

When it is desired to use a glass tube in connection with the angular casing, A, I provide a retaining guide, C, which is formed of a plurality of angular plates, c—c'—c^2—c^3, spaced apart and held in position by strips, C' secured thereto at the edges thereof, as shown more clearly in Fig. 6. The plates, c—c'—c^2—c^3, are provided with openings therethrough to accommodate the hydrometer, C^2. These openings, d, are of suitable size to allow the hydrometer to float in the liquid, but not large enough to allow the shoulder, d', on the tube to pass through the plate c.

When a hydrometer of the construction

shown in Figs. 1 and 2 is used, the liquid to be tested is drawn into the casing, A, through the tube, a^3, by the compression of the bulb, A', and the weighted float B, will sink in the liquid, indicating the specific gravity of said liquid by the readings on the calibrations, b^4.

The calibrations and readings presented on the hydrometer are displayed through the transparent material of the float and the casing by being placed upon the inside of the neck of the hydrometer and displayed through the same.

I claim:

1. A hydrometer syringe comprising an elongated transparent casing, angular in cross section, and means for drawing liquid into said casing.

2. A hydrometer syringe comprising an elongated, non-frangible, transparent casing, angular in cross section, means for drawing liquid into said casing, a hydrometer or float in said casing, also angular in cross section, and provided with calibrations readable through the body of said hydrometer.

3. A hydrometer syringe comprising an elongated, non-frangible, transparent casing, angular in cross section, means for drawing liquid into said casing, a hydrometer or float in said casing which is angular in cross section and provided with calibrations readable through the body of said hydrometer, said hydrometer conforming in general outline to the form of the casing, disks closing the top and bottom of the hydrometer body, said disks being larger in diameter than the width of the hydrometer body.

In testimony whereof I have signed this specification.

HARRY H. REYNOLDS.