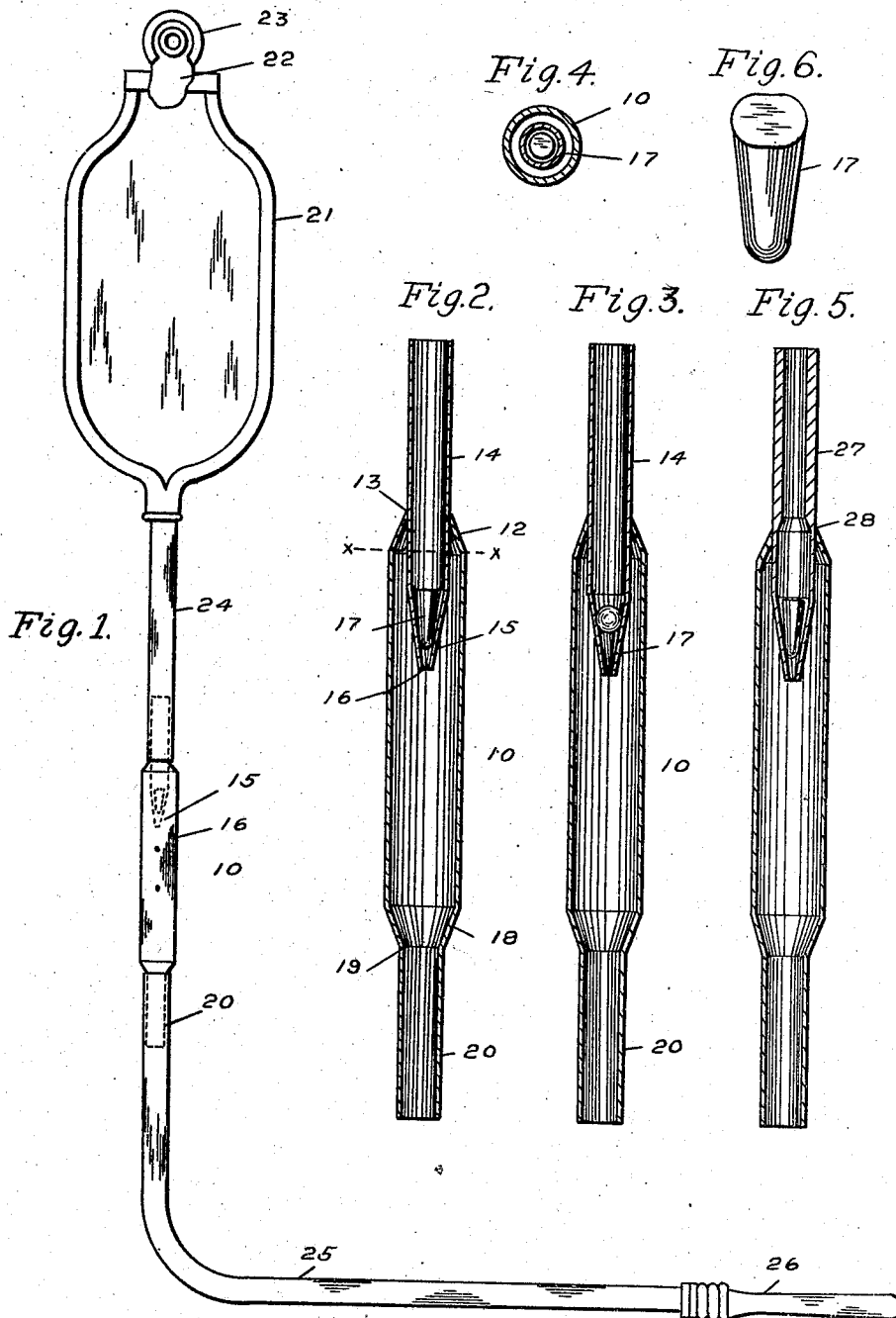


E. K. SCOTT.
LIQUID DROPPER.
APPLICATION FILED JUNE 11, 1909.

939,556.

Patented Nov. 9, 1909.



Witnesses.

C. L. Brown

S. L. C. Hasson

Inventor,
E. K. Scott
By Richard Manning
Attorney.

UNITED STATES PATENT OFFICE.

EUEIDAS K. SCOTT, OF KANSAS CITY, MISSOURI.

LIQUID-DROPPER.

939,556.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed June 11, 1909. Serial No. 501,552.

To all whom it may concern:

Be it known that I, EUEIDAS K. SCOTT, a citizen of the United States of America, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Liquid-Droppers; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

In the treatment of general diseases, and in the administration of medicaments within the rectal cavity, and particularly that of salt water, for assimilation with the blood through the rectum, the quantity required should be minute and equally proportioned, so that absorption shall be complete, and failure in this respect at once observed. In the ordinary liquid dropper the amount is variable, and this is owing to the variable-ness of liquid supply.

The object of my invention is to afford a minute supply of the liquid equally proportioned or measured and self regulated, the construction of which invention will be first fully described and then specifically pointed out in the claim.

In the drawings: Figure 1. is a side view of the improved liquid dropper connected with the elevated reservoir, and showing the distribution tube and nozzle. Fig. 2: is an enlarged vertical sectional view of the improved dropper. Fig. 3. is a view of the dropper as seen in Fig. 2, showing an alternate regulator. Fig. 4. is a transverse, sectional view, taken on the line *x, x*, on Fig. 2. Fig. 5. is a view of the dropper as in Fig. 2, showing a modification. Fig. 6. is a detail view of the liquid regulator.

Referring to the drawings, 10 indicates the body of the liquid dropper, which consists of a cylindrical sight tube, of the proper length and made preferably of translucent material, such as glass.

A portion of the upper end of the tube 10 is drawn inwardly the proper distance, and with a gradual reduction to form a neck 12, the opening 13 in which neck is considerably less than the inner circumference of the tube.

Within the opening 13, of neck 12 and a short distance within the upper end

of tube 10 is inserted the lower end of a liquid dispensing or drop tube 14, smaller in circumference than tube 10, the outer surface of which tube is fitted closely and hermetically to the inner circumference of the opening 13, of the neck 12, of tube 10.

The lower end portion 15, of the tube 14, is gradually reduced in circumference or tapered downwardly and inwardly and approximately cone-shaped, and at the lower end of which reduced portion 15 is a small orifice 16, through which the liquid is discharged in small or restricted quantities or drops.

Within the lower portion 15, of the tube 14, is a gravity capillary liquid regulator 17. This constitutes the regulating means for regulating the minuteness and frequency of the liquid passing through the orifice 16, and is made from such material of a specific gravity greater than its buoyancy in water, such as hard rubber. The regulator 17, as illustrated, is elongated or cone-shaped, and in length slightly less than that of the reduced portion 15, of the tube 14, and normally the lower surface of the regulator is in contact with the inner surface of said portion 15, of tube 14. The lower end portion of the sight tube 10 is also reduced in circumference and its sides inclined downwardly and inwardly at 18, to a point 19, from which point the portion 20 reduced in size is extended downwardly a considerable distance.

21 indicates a liquid-holding bag or reservoir, made of india rubber preferably, and of the usual description for holding and dispensing by gravity a quantity of liquid. This bag is provided with an opening 22, at its upper end, for the introduction of the liquid. With the said upper end and back portion of the bag is connected a ring or loop 23, by means of which the bag may be held suspended upon the wall or other support, at the described height.

With the lower discharging end of the bag is connected the upper end of a small liquid conducting tube 25, made of rubber, within the lower end of which tube is inserted the upper end of the dropper tube 14, the contraction of which tube with the surface of tube 14 forming an air-excluding connection. With the other end of the tube 25 is connected an elongated nozzle 26.

In the administration of the liquid the

reservoir 21 is supplied with the liquid in sufficient quantity, and the liquid flows through the tube 24 into the tube 14, and its further flow is impeded by the device 17, which rises slowly in the liquid, so as to admit of a small quantity to pass around the regulator 17, as further described, thence emerge through the orifice 16, in small drops, which pass through the sight tube 10, thence into the smaller portion 20, thence through pipe 25, to the nozzle and emitted from the nozzle in successive drops. Should the quantity of the liquid in the reservoir 21 be sufficient, the specific gravity of the device is such as to rise and fall in the tube 14 without variance in the quantity discharged from the orifice 16, so that a given quantity of the liquid may be administered in a given time.

20 The regulator is composed of such material, preferably hard-rubber which is non-absorbent and sufficiently dense, that the capillary attraction between it and the liquid used is repellent, and therefore in the rise of the regulator 17, a vacuum is occasioned by a sufficient number of the molecules passing the side of the regulator to form a drop, and when the drop is formed gravity attracts the drop, displacing that much liquid, and permits the repellent capillary force existing between the fluid and regulator to raise the regulator 17 sufficiently from close contact with the portion 15, of the dispensary tube to permit another drop to form, as above described. Accuracy in the dispensing of the liquid is thus obtained at all times, and a measured quantity of the liquid passes the regulator and the drops which fall

through the sight tube are equally proportioned.

In the construction of the tubes 10 and 14, from glass, the joining of the tubes with the neck is readily accomplished by fusion, or the tube may be blown and formed together. In order that the regulator may be retained within the reduced portion of the tube 14, the tube is made thicker externally as at 27, in Fig. 5, and the inner circumference of the upper end made smaller, restricting the size of the tube at the point 28, where the union is made with the sight tube. I have shown the regulator cone-shaped in form, but I do not wish to be confined to the shape of the regulator, as the form may be varied, and a ball device employed, as in Fig. 3, if preferred.

With the use of the sight tube the quantity absorbed in administration is readily perceived, as well as any back-flow from any cause backward through the nozzle 26.

Such other modifications may be employed as are within the scope of the appended claim.

Having fully described my invention, what I now claim as new and desire to secure by Letters Patent is:

In liquid droppers, a liquid dispensing receptacle having a restricted discharge opening, means for supplying liquid to said receptacle, and a specific-gravity regulator for regulating the discharge of the liquid.

EUEIDAS K. SCOTT.

Witnesses:

EDWARD E. NABER,
CALVIN S. MATSON.