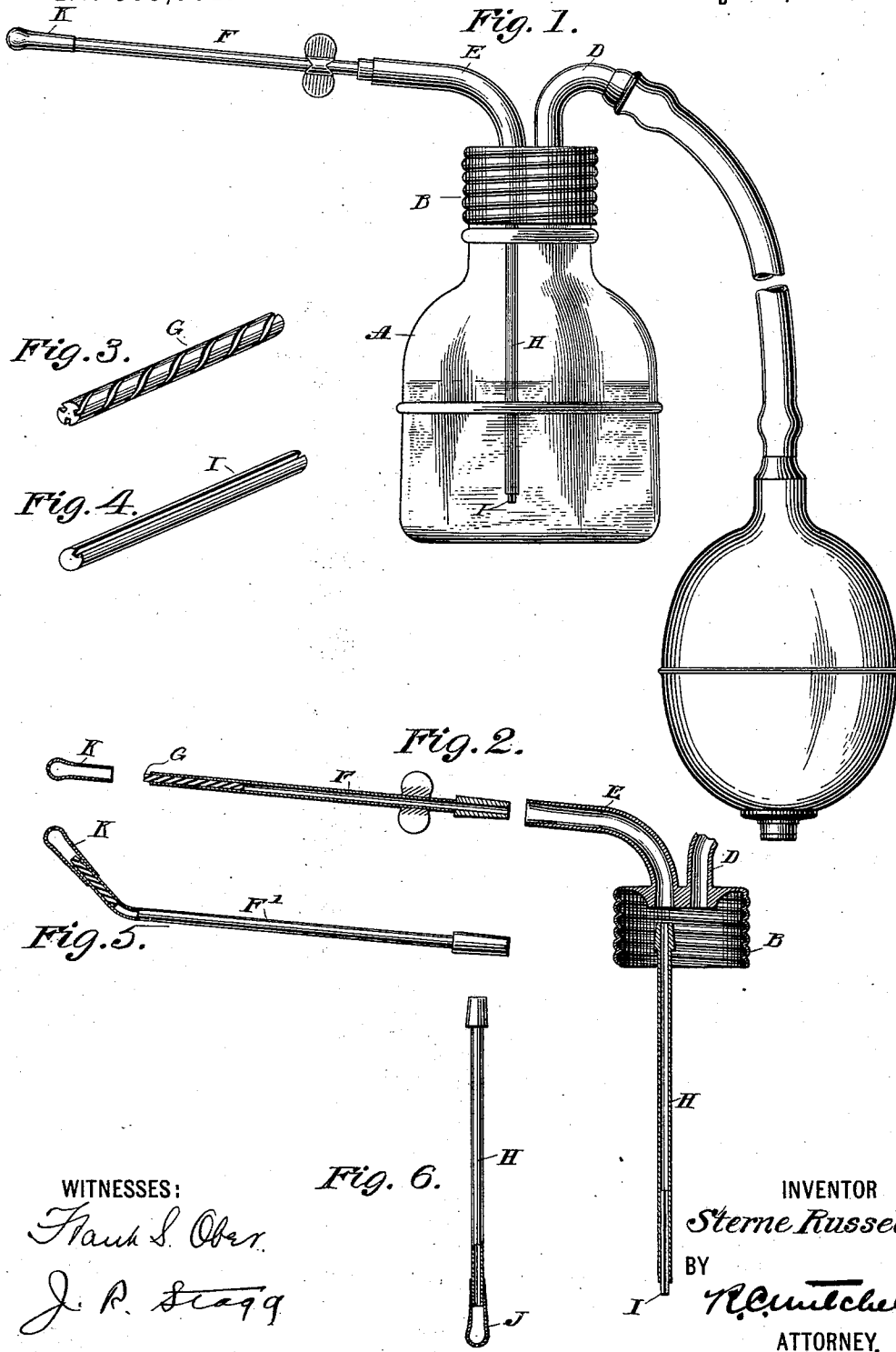


(No Model.)

S. RUSSELL.
ATOMIZER.

No. 539,961.

Patented May 28, 1895.



UNITED STATES PATENT OFFICE.

STERNE RUSSELL, OF NAUGATUCK, CONNECTICUT.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 539,961, dated May 28, 1895.

Application filed October 13, 1894. Serial No. 525,784. (No model.)

To all whom it may concern:

Be it known that I, STERNE RUSSELL, a citizen of the United States, residing at Naugatuck, in the county of New Haven, State of Connecticut, have invented a new and useful Improvement in Atomizers, of which the following is a full, clear, and exact specification.

My invention relates to improvements in atomizers hereinafter fully set forth.

10 The object of my invention is to produce an atomizer of simple construction, all the parts of which being readily accessible for cleaning, and which will, by mechanical action, cause the liquid to be atomized without
15 mixing air with the liquid in the atomizing tube just prior to its being ejected therefrom as is ordinarily done.

My invention is illustrated by the accompanying drawings, in which—

20 Figure 1 is a perspective side elevation of the complete apparatus. Fig. 2 is a vertical section of a cap and supply and atomizing tubes. Figs. 3 and 4 show details of the apparatus in perspective, each being enlarged with relation to the other views. Figs. 5 and 6 are side
25 elevations of atomizing and supply tubes, respectively, partly in section.

A is a liquid receptacle made substantially air-tight by a close fitting stopper or cap B.

30 E and D are two tubes projecting from said cap. The tube D connects the interior of the receptacle with the source of air pressure, which may be a suitable bulb or other form of pump as desired.

35 H is a detachable supply tube adapted to conduct liquid from the interior of the receptacle A to the tube E.

F is an atomizing tube, preferably detachably connected to the tube E as shown. This
40 tube F is provided with only a single conduit through which liquid alone passes.

To cause the liquid to atomize without mixing air with the same, as is ordinarily done, I insert into the outer end of the tube F a
45 core G, the surface of which is provided with one or more grooves therein cut on a spiral as shown. By creating pressure within the receptacle by means of the bulb or pump referred to, liquid is forced up through the supply tube H through the tube E and thence
50 through the atomizing tube F. The arrangement of the grooves in the core G at the for-

ward end of said atomizing tube F, gives to the liquid as it is ejected a rapid twist so that when it is ejected it breaks or separates into
55 fine drops. The size of these drops may be materially reduced by utilizing a cap K, adapted to slide over the end of the tube F, the said cap K being provided with a perforation centrally located in the end thereof. In
60 order to regulate the amount of liquid to be forced through the said atomizing tube and the grooves in the core, I provide any suitable means in the lower end of the tube H whereby the capacity of the said tube may be
65 regulated or varied, for it has been demonstrated that to facilitate the more perfect effectiveness of the device, the quantity of liquid supplied to the atomizing tube should be proportionate to the size and shape of the
70 grooves formed in the core G.

One form of device for varying the capacity of the supply tube is shown in Fig. 4, which consists in a core I having a longitudinal groove therein, the said core being adapted to
75 fit within the lower end of the supply tube, and the groove permitting the liquid to pass thereinto. If desirable a cap J having perforations of suitable size may be substituted in place of the core I.

The particular advantage of this instrument is the simplicity of its construction and operation. It being composed of parts which are detachable, every portion of the device is readily accessible for cleaning; a feature
80 which is most desirable in case it should be used as a physician's instrument, in which case the parts are all subjected to an antiseptic wash. In operation it will be observed that the liquid is not mixed with air during
85 the process of atomizing, as is common in the ordinary atomizer, but, on the contrary, the atomizing is accomplished entirely by the mechanical construction at the forward end of the atomizing tube F.

In the modification shown in Fig. 5, the atomizing tube F' illustrates the desirability of having the tube detachable, so that tubes of various shapes may be substituted in place of the ordinary straight tube if desirable.
95

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

1. In an atomizer, an atomizing tube having
100

a single conduit therethrough, a core located in the forward end of the said atomizing tube, said core being provided with one or more spiral grooves in its surface for the purpose
5 described, with a supply tube leading into the interior of the receptacle, and adapted to conduct liquid contained therein to the said atomizing tube, and with means for affording air pressure within the liquid receptacle.

10 2. In an atomizer, an atomizing tube having a single conduit therethrough, a core located in the forward end of said atomizing tube,

said core being provided with one or more spiral grooves in its surface, a centrally perforated cap at the forward end of said atomizing tube, with a supply tube adapted to conduct the liquid from the interior of the receptacle to the said atomizing tube, and with means for forcing the liquid through said supply and atomizing tubes.

STERNE RUSSELL.

Witnesses:

S. D. BINGHAM,
EDWIN TURNER.