

No. 636,300.

Patented Nov. 7, 1899.

R. O. STEBBINS.  
PORTABLE FILTER.

(Application filed Jan. 25, 1899.)

(No Model.)

Fig. 1.

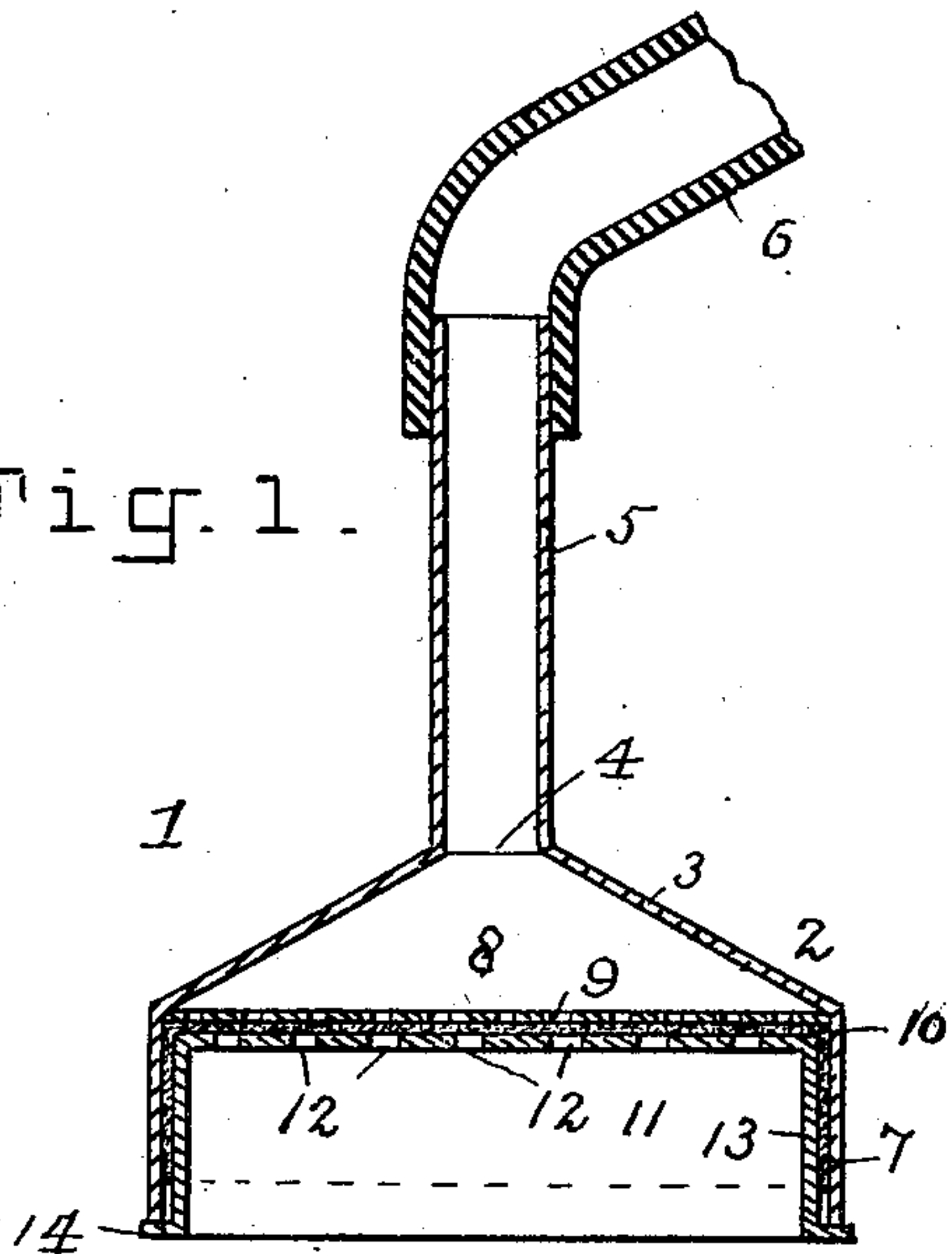


Fig. 2.

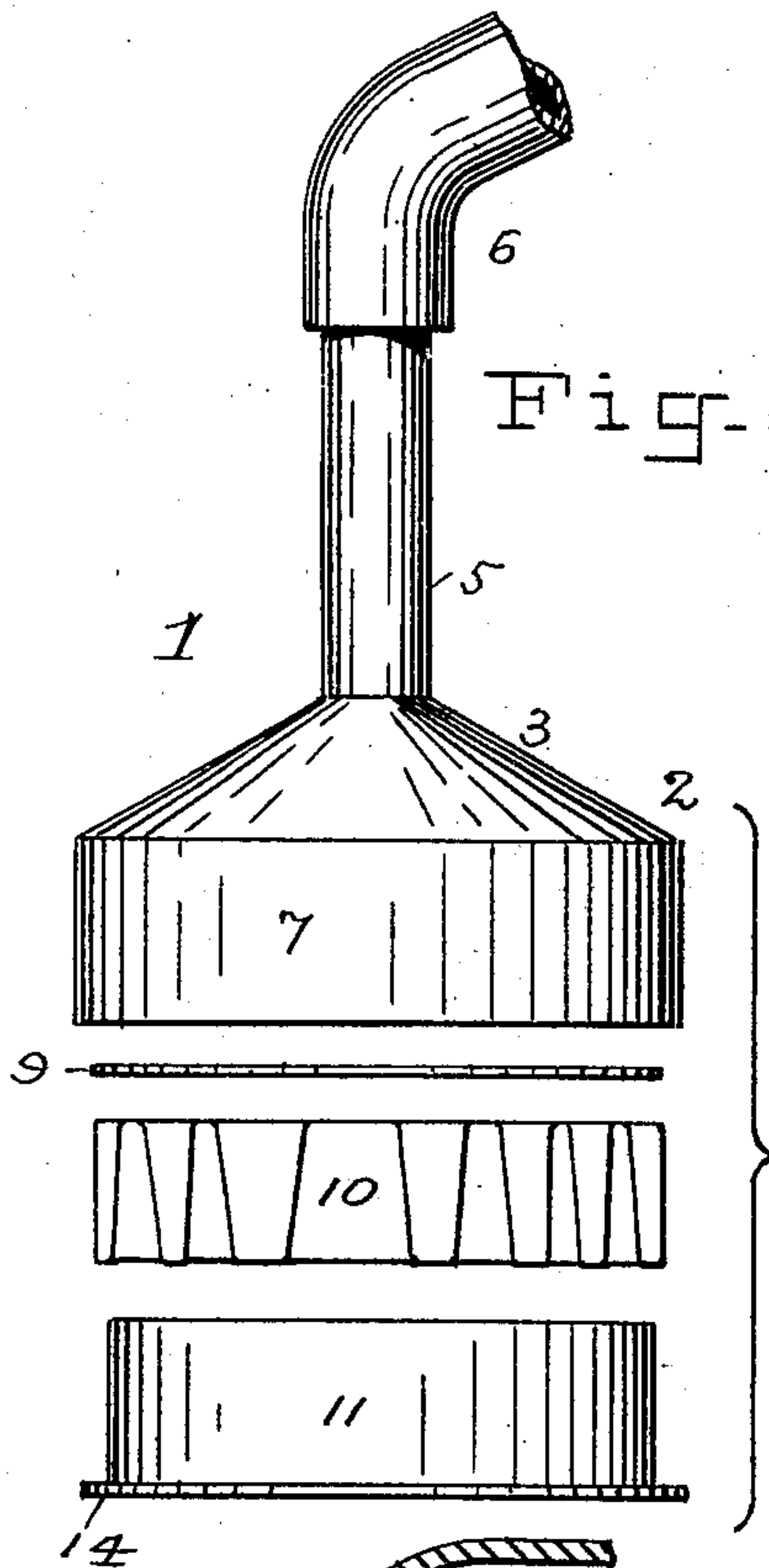


Fig. 3.

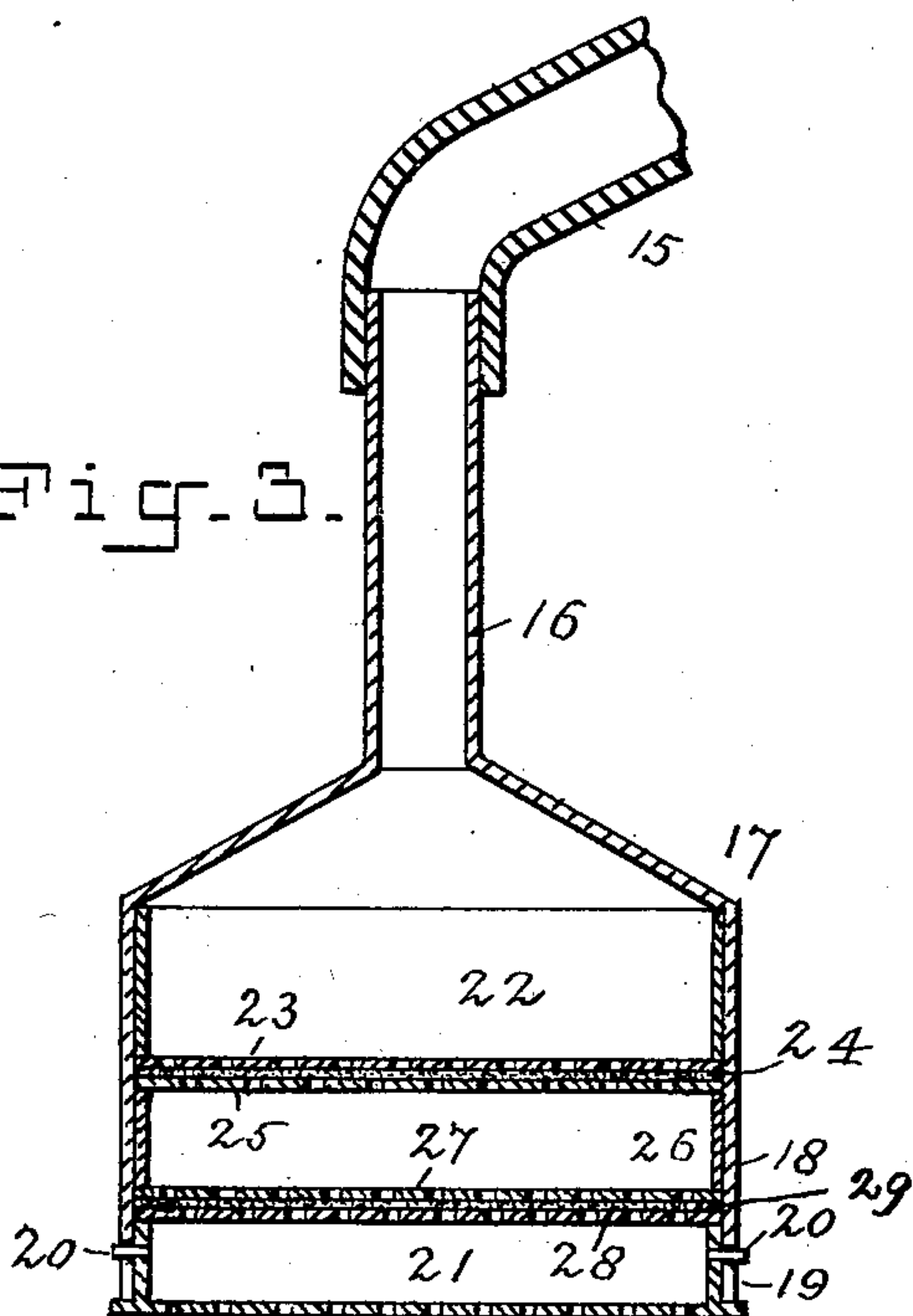
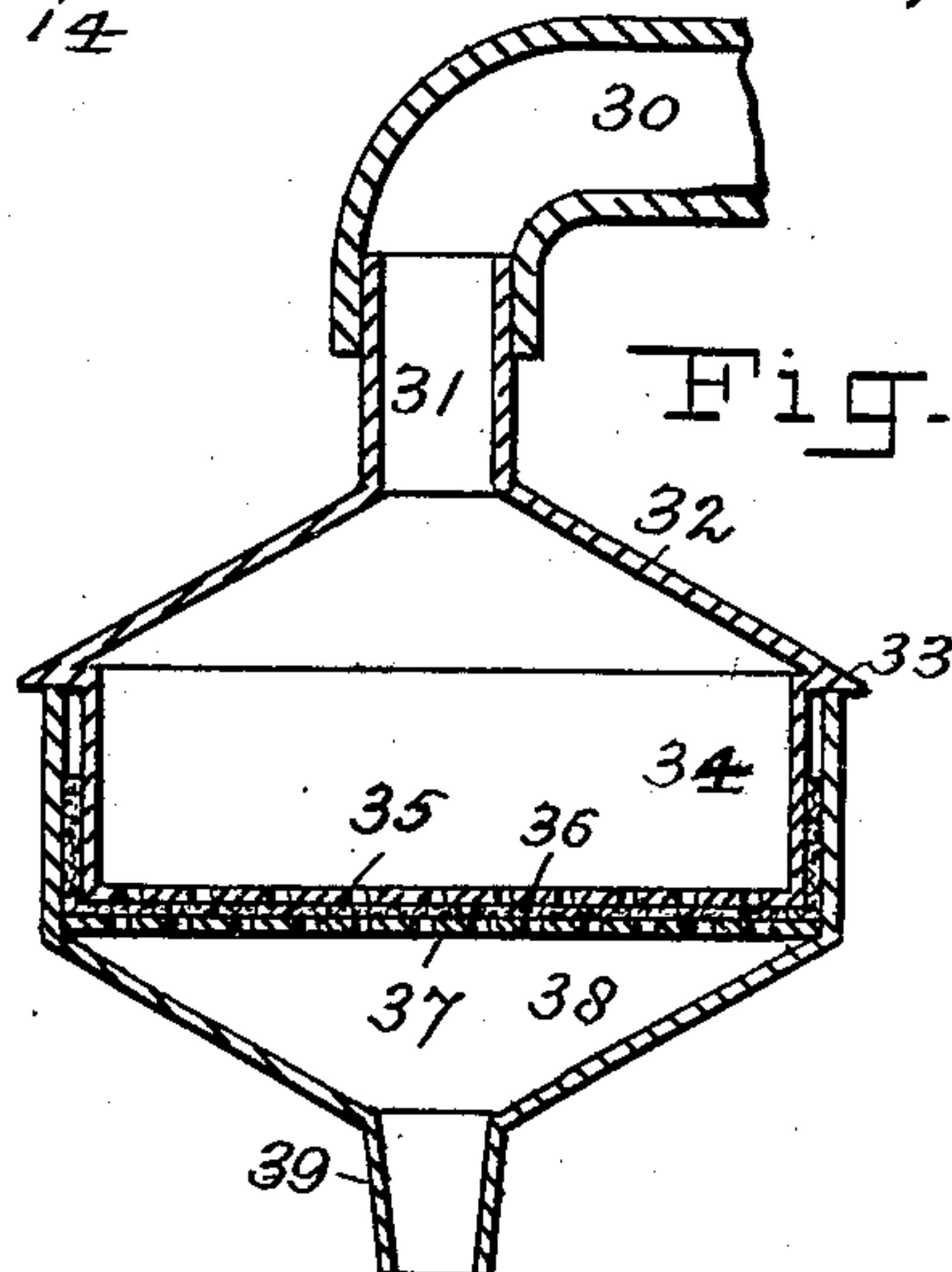


Fig. 4.



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# UNITED STATES PATENT OFFICE.

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## PORTABLE FILTER.

SPECIFICATION forming part of Letters Patent No. 636,300, dated November 7, 1899.

Application filed January 25, 1899. Serial No. 703,323. (No model.)

*To all whom it may concern:*

Be it known that I, ROSWELL O. STEBBINS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Portable Filters; 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.

This invention relates to apparatus for removing foreign matter and impurities from liquids, and particularly to that class of devices known as "filters;" and some of the objects of this invention are to provide a portable filter of such size as to be conveniently carried in the pocket of the clothing while traveling or hunting without adding to the weight carried by the traveler or his inconvenience.

Another object is to produce such a filter that can be easily operated and which can be readily disconnected and put together for the purpose of removing the filtering material or for cleaning the parts of the filter when necessary.

A further object is to construct such a filter of as few parts as possible and to form the parts with a minimum amount of complications in order that the filter can be constructed cheaply and rapidly by ordinary machinery and to produce such an article that will be positive and effective in operation and one that cannot get out of order.

With these and other objects in view the invention consists in the construction, combination, and arrangement of parts, substantially as hereinafter more fully described in the following specification and illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal section of one form of my improved filter. Fig. 2 is a side elevational view of the same, showing the parts separated. Fig. 3 is a central longitudinal section of a modified form of construction, and Fig. 4 is a similar view of still another modification of my improved filter.

Similar characters of reference designate corresponding parts throughout the several views.

Referring to the drawings, and particularly

to Figs. 1 and 2 thereof, the reference character 1 designates one form or construction of my improved portable filter, wherein is preferably employed a bell-shaped upper portion or top 2, having sloping or inclined sides 3, provided with a central orifice or opening 4 and formed on or connected with said top 2. Around the opening 4 is a pipe or nozzle 5 of any suitable size or length adapted to receive one end of a flexible pipe or tubing 6, said tubing being retained upon the free end of said nozzle 5 preferably by friction; but any suitable connection may be employed.

Formed on or connected with the outer edge or periphery of the inclined sides 3 is an annular flange or rim 7. The rim or flange 7 may be of any desired width, and the slope or inclination of the sides 3 may be varied, so as to regulate the size of the chamber or space 8 inclosed thereby, without departing from the invention.

Removably secured within the rim or flange 7 is a perforated disk 9 of any suitable material, and, if preferred, wire-gauze may be employed, and this disk preferably rests against the inclined side 3 and is adapted to form a support or backing for the filtering material 10, adapted to be forced within the flange or rim 7 by the base 11, as clearly shown in Figs. 1 and 2 of the drawings.

The base 11 is preferably stamped or formed out of one piece of sheet material and is provided with perforations or openings 12, through which the liquid passes when the filter is in use, and the base is preferably provided with an annular flange 13, having an annular laterally-extending rim 14 to bear against the edge of the flange 7 and limit the passage of the base into the top 2 of the filter, as will be readily seen.

The specific form and construction of the parts above described may be varied in practice without departing from the scope of the invention, and any suitable material may be employed from which to construct the parts, and any suitable filtering material may be used.

The operation of my improved portable filter will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following description thereof: The filter is pref-



erably submerged in a body of liquid from which it is desired to drink, and the free end of the tubing 6 is introduced into the mouth of the user, and the liquid is drawn upwardly through the openings 12 in the base 11, the filtering material 10, and the perforated disk 9 into and through the nozzle 5 and tubing 6 to the mouth of the user by suction or the exhaustion of the breath of the user. The animalculæ, foreign matter, and other impurities in the liquid will be prevented from entering the mouth of the user by the perforated base 11, the disk 9, and filtering material 10, and the openings in the disk 11 are preferably made coarser than those in the base 9, as will be understood.

In Fig. 3 I have illustrated a modified form of construction of that heretofore described and shown, wherein a flexible tubing 15 is suitably connected to a nozzle 16, formed on or connected with a bell-shaped top or upper portion 17, preferably provided with an annular flange 18, in which may be formed a bayonet-slot 19 to receive the pin 20 in the base 21 to prevent the accidental disengagement of the top and base, and, if desired, a similar means may be employed in all of the constructions herein set forth, although I have only deemed it necessary to illustrate said means in connection with the construction illustrated in Fig. 3 of the drawings. Removably secured within the flange 18 is a ring or band 22, adapted to fit against the inclined sides of the top 17, as before described, and preferably against the lower edge of said ring bears a perforated disk 23; but, if desired, the disk 23 may be formed on or connected with the ring 22, so as to form one integral construction. Against the perforated disk 23 is located a washer or layer 24 of filtering material preferably of very fine quality or of very close texture, so that the most minute particles of foreign matter or impurities may be prevented from passing therethrough. Upon the washer 24 another perforated disk 25 is retained by means of a ring 26, or the ring 26 and disk 25 may be integral, and bearing against the edge of the ring 26 is a perforated disk 27, and between the latter and the perforated disk 28 is a washer or layer of filtering material 29, preferably coarser or of looser texture than the washer 24, being intended to retain the larger particles of foreign matter as first received into the filter. I preferably construct the perforated disks 28, 27, 25, and 23 of increasing fineness, or, in other words, the openings in the perforated disk 28 are preferably larger than those in the disk 27 and the openings in the disk 27 are preferably larger than those in the disk 23, which are preferably constructed smaller than the openings in any of the other disks. However, I do not confine myself to this feature of the diminishing size of the openings in the disks, and all the openings therein may be of the same size, if desired. The perforated bottom of the base 21 acts as a strainer

to keep the larger particles of foreign matter from entering the first chamber or compartment of the filter, and as the liquid enters each successive chamber or compartment more minute particles of foreign matter or impurities are removed therefrom by the different stages of the filtration until when the liquid enters the tubing 15 for use the same is free from all impurities. The operation of this construction will be readily understood from the foregoing description and further explanation will be unnecessary.

In Fig. 4 is illustrated still another form or construction of portable filter, wherein is employed a flexible tubing 30, adapted to be connected with a nozzle 31 upon a top 32, having an annular offset or shoulder 33, carrying an annular extension 34, provided with a perforated bottom 35, as shown. The remaining portion 38 is preferably provided with a nozzle 39, through which the liquid may be drawn into the filter or with which may be connected a pipe or tube, as desired, and within the annular flange of the portion 38 is preferably located a perforated disk 37, and between the latter and the perforated bottom 35 is secured a layer of filtering material 36, preferably larger in diameter than the bottom of the portion 34, so as to lap upon the sides of said bottom, as shown, to prevent the accidental disengagement of the parts 34 and 38 and at the same time to prevent the escape of liquid between the parts. The operation of this construction is the same as that heretofore described and shown.

I do not confine myself to the specific construction, combination, and arrangement of parts herein shown and described, and I reserve the right to make all such changes in and modifications of the same as come within the spirit and scope of my invention.

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

1. A portable filter provided with an upper portion carrying a retaining-flange, and provided with an attaching-nozzle, a perforated disk therein, a sheet of filtering material adjacent to said flange and a base having an engaging flange constructed to be forced within the first flange to retain said parts in engagement.

2. A portable filter provided with an upper portion carrying an engaging flange, and provided with an attaching-nozzle, a perforated disk therein, sheet filtering material adjacent to said disk and flange, and a base having an engaging flange, constructed to be forced within the first flange, and to be frictionally retained therein by the compression of said material.

3. A portable filter provided with an upper portion, carrying an engaging flange, and provided with an attaching-nozzle, a perforated disk therein, sheet filtering material adjacent to said disk and flange, and a base having an engaging flange, constructed to be



forced within the first flange, and to be frictionally retained therein by the compression of said material, said base having a rim, to limit the entrance thereof within the first flange.

5 4. A portable filter provided with a main portion, carrying a retaining-flange, reticulated material secured from lateral displacement by said flange, filtering material extending over the latter and the edges thereof bearing against said flange and a base provided

with a flange adapted to be forced into engagement with the first-mentioned flange against said filtering material.

In testimony whereof I have hereunto affixed my signature in presence of two witnesses. 15

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Witnesses:

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