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M. MALLORY

2,483,588

AIR CLEANER

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FIG. 1.

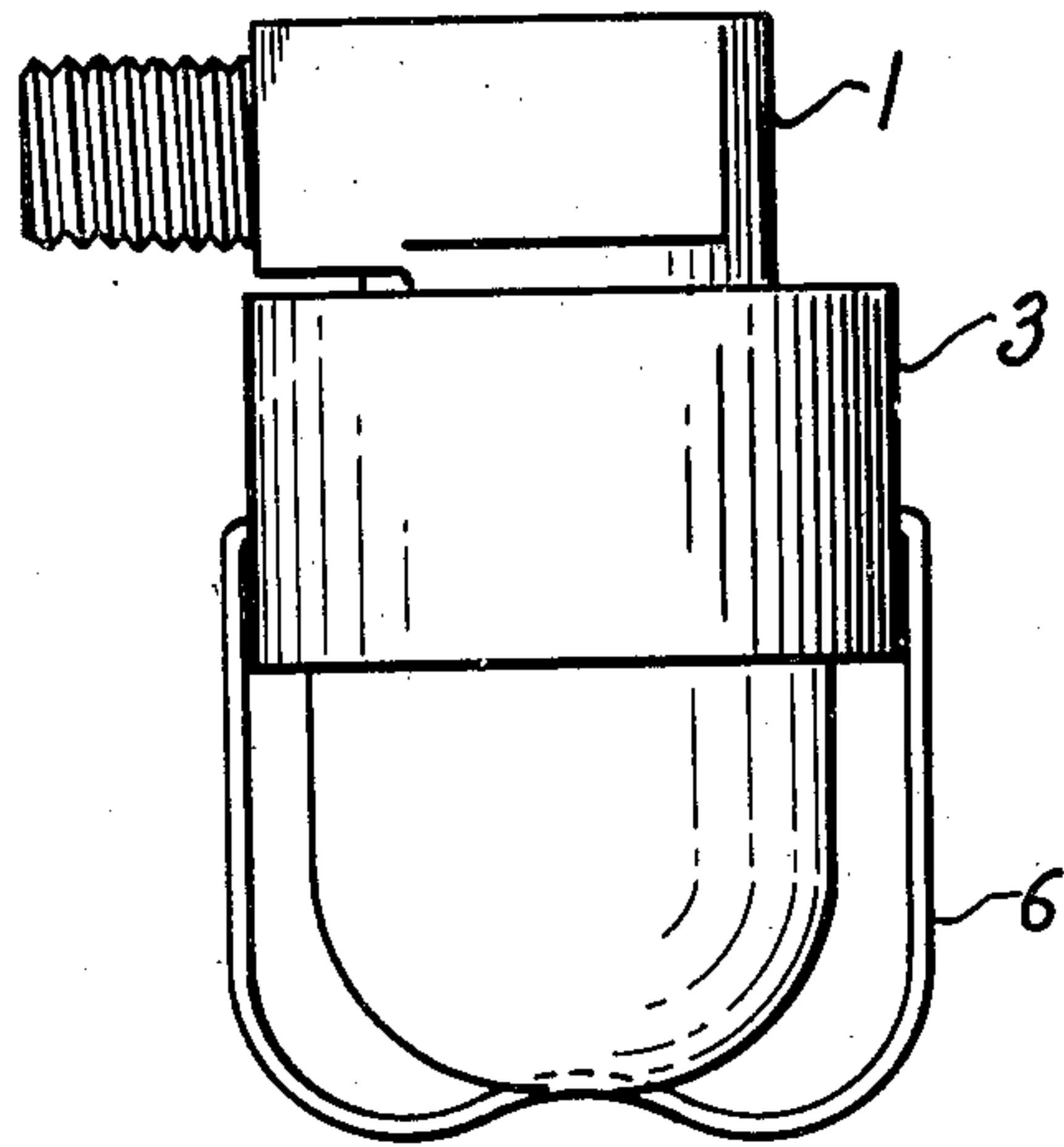


FIG. 2.

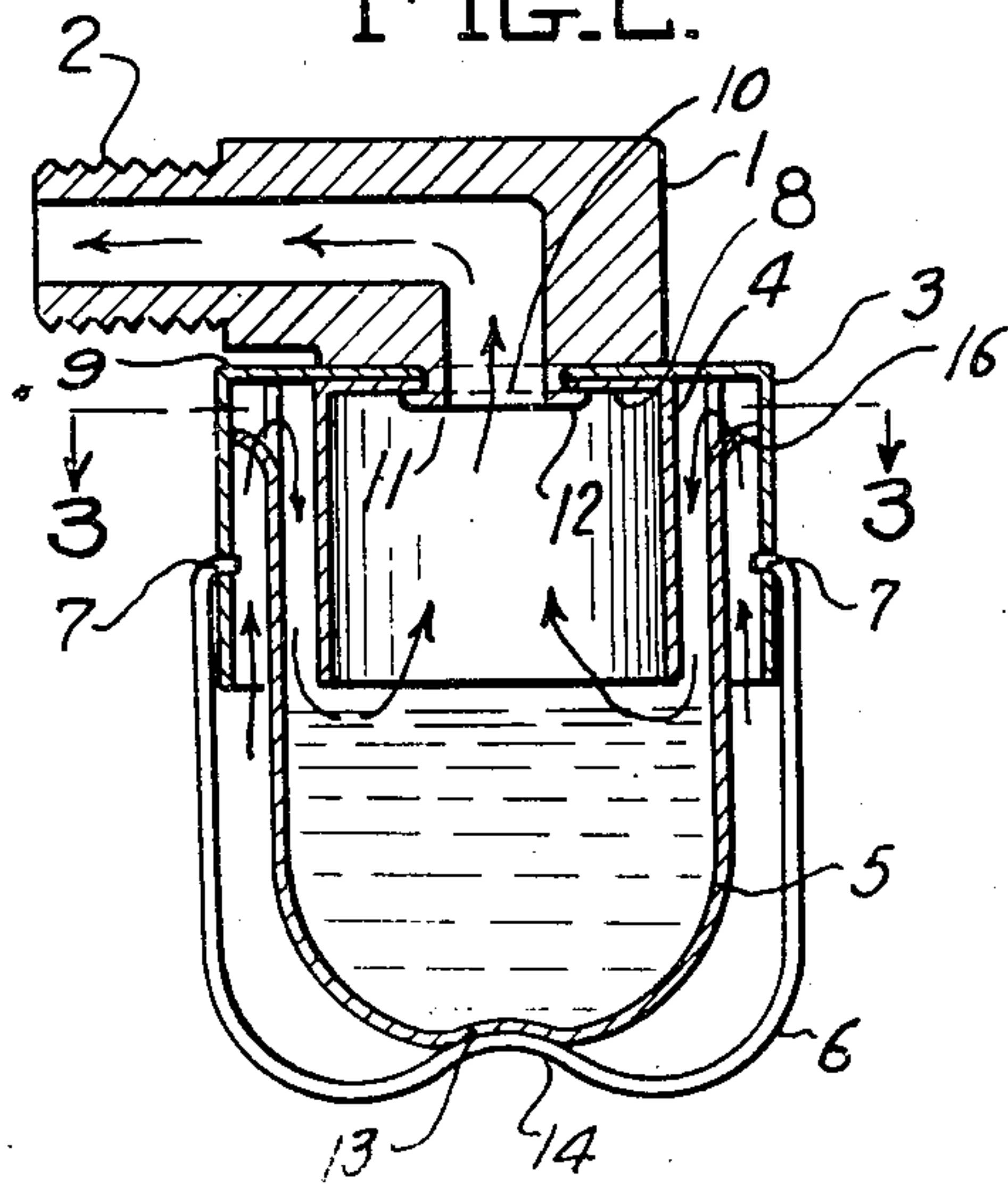
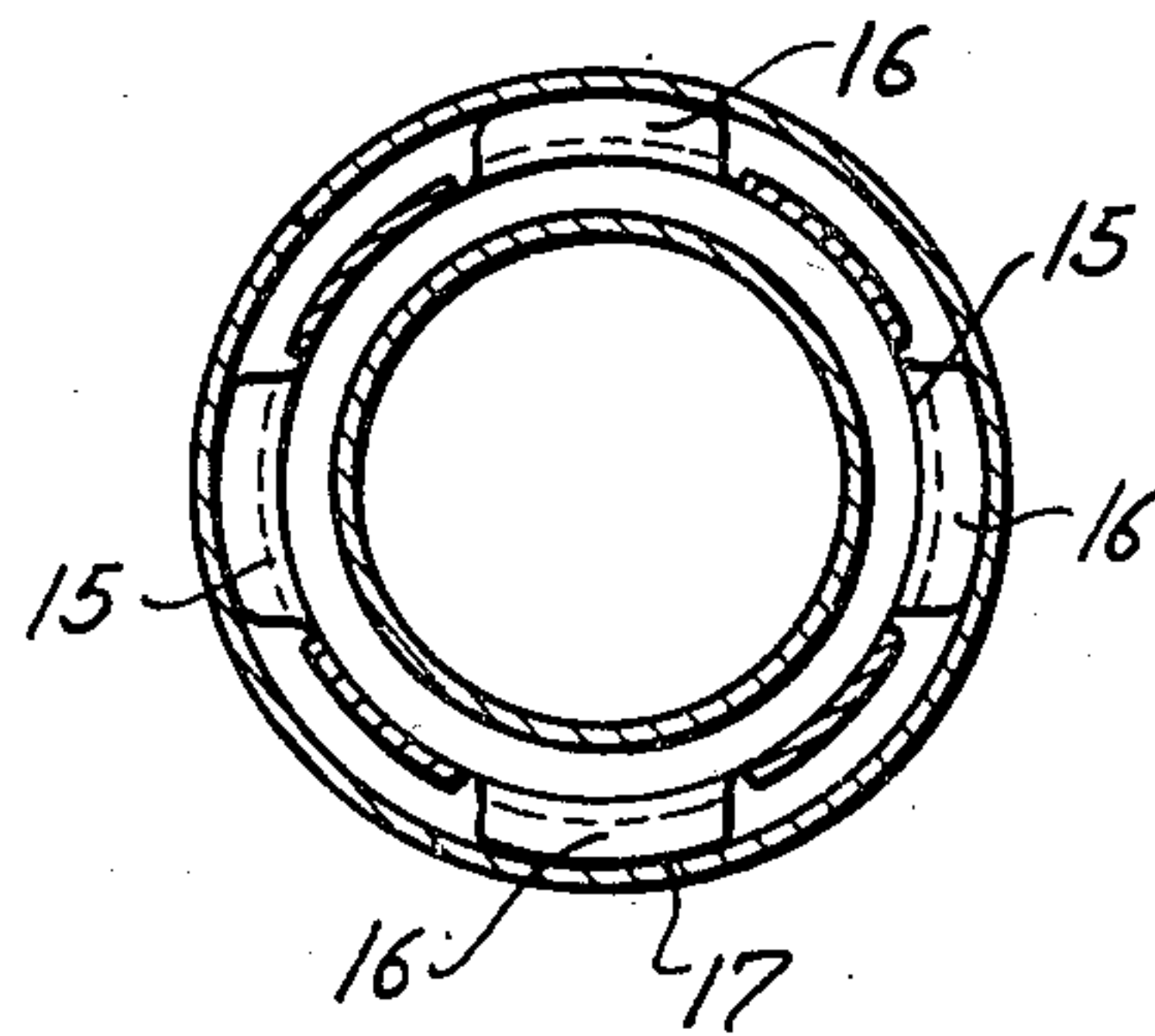


FIG. 3.



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UNITED STATES PATENT OFFICE

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AIR CLEANER

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3 Claims. (Cl. 261—119)

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This invention relates to an air cleaner and more particularly to an air cleaner of the oil bath type.

It is an object of this invention to produce an air cleaner which is very simple, inexpensive, and easy to assemble.

My air cleaner is particularly adapted for filtering air preparatory to admission into the housing of the distributor for an internal combustion engine for purposes of ventilating the same.

In the drawing:

Fig. 1 is an elevation of my oil filter.

Fig. 2 is a vertical section through the same.

Fig. 3 is a section along the line 3—3 of Fig. 1.

The elements of my air cleaner are designated as follows: outlet fitting 1 having an externally threaded end 2, external cup 3, internal cup 4, oil bath reservoir 5, bail 6 having inturnd ends 7 pivoted in openings in the side wall of cup 3.

Cups 3 and 4 are inverted and cup 4 nested within cup 3 so that the bottom 8 of cup 4 contacts the bottom 9 of cup 3. Cups 3 and 4 have substantially the same length or depth but cup 4 has a shorter diameter than that of cup 3. The bottoms 8 and 9 are each provided with a central opening 10 through which a tubular projection 11 on fitting 1 is passed and spun over as at 12 to secure cup 4 within cup 3. Cup 4, of course, will be centered within cup 3 to provide an air space between the side walls of the cups. Fitting 1 will be made from any suitable metal such as brass.

Reservoir 5 takes the form of a metal cup having a depression 13 which interengages a hump 14 in bail 6 to lock cup 5 in assembled relation with cups 3 and 4.

Cup 5 is provided with a plurality of circumferentially spaced notches 15 formed by slitting the upper edge of cup 5 and turning outwardly lips 16. The outer ends 17 of lips 16 engage the inside face of the side wall of cup 3 to locate and center the side wall of cup 5 between the side walls of cups 3 and 4.

Cup 5 is partially filled with oil to the level shown in Fig. 2, which is slightly below the lower end of cup 4. The path of the air is indicated by the arrows, namely, the air travels upwardly between the side wall of cup 3 and cup 5, then passes through slots 15 and downwardly between the inside of cup 5 and the outside of cup 4 and then strikes the top of the oil bath and then turns upwardly through the inside of cup 4 through opening 10 and thence through the passageway in fitting 1. Since bail 6 is made of spring wire, cup 5 can be readily removed for cleaning by simply

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pivoting bail 6 outwardly disengaging hump 15 from socket 13.

I claim:

1. In an air cleaner inverted large and small cups positioned one within the other so that the side wall of the small cup is maintained at a fixed spaced distance from the wall of the large cup, an outlet through the bottoms of the small and large cups and communicating with a passage of an outlet fitting, and an oil bath reservoir comprising a third cup substantially longer than the inverted cups having a side wall extending within the space between the walls of the two inverted cups, the rim of said third cup being slitted around its periphery, some of the slitted portions being bent away from the plane of the side wall of the third cup to form fingers which extend laterally of the side wall thereof and contact the wall of one of said inverted cups at a plurality of peripherally spaced points and thereby maintain said third cup in spaced relation between the walls of said other two cups, the unbent portions of said rim between said slits contacting the bottom of said large inverted cup and the said bent portions serving as fluid passages between the space defined by the walls of the outer and third cups and the space defined by the walls of said third and inner cups.

2. The combination as set forth in claim 1 wherein the outlet opening in the bottom wall of the large cup is in juxtaposition with the outlet opening in the bottom wall of the small cup, said outlet fitting having a portion engaged with the edges of said outlet openings to support said cups, said fitting having a passage therethrough communicating with the small cup.

3. In an air cleaner inverted large and small cups of U-shaped cross section, said cups each having a bottom wall and a side wall and being positioned with the side wall of the small cup spaced from the side wall of the large cup and with the bottom wall of the small cup seated against the bottom wall of the large cup, the bottom wall of the large cup having an outlet opening therein in juxtaposition with an outlet opening in the bottom wall of the small cup, an outlet fitting having a portion engaged with the edge of said outlet openings to support said cups, said fitting having a passage therein communicating with said small cup, an oil bath reservoir comprising a third cup substantially longer than the two inverted cups positioned upright with its side wall spaced between the side walls of the other two cups and extending to the bottom wall of the large cup, the side wall of the upright cup

having openings therein adjacent the upper edge thereof through which fluid can pass in a circuitous path from the large cup to the small cup and out through said outlet fitting and a ball pivoted on the outer inverted cup and adapted to yieldably engage the bottom of the upright cup for locking the same in position.

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