

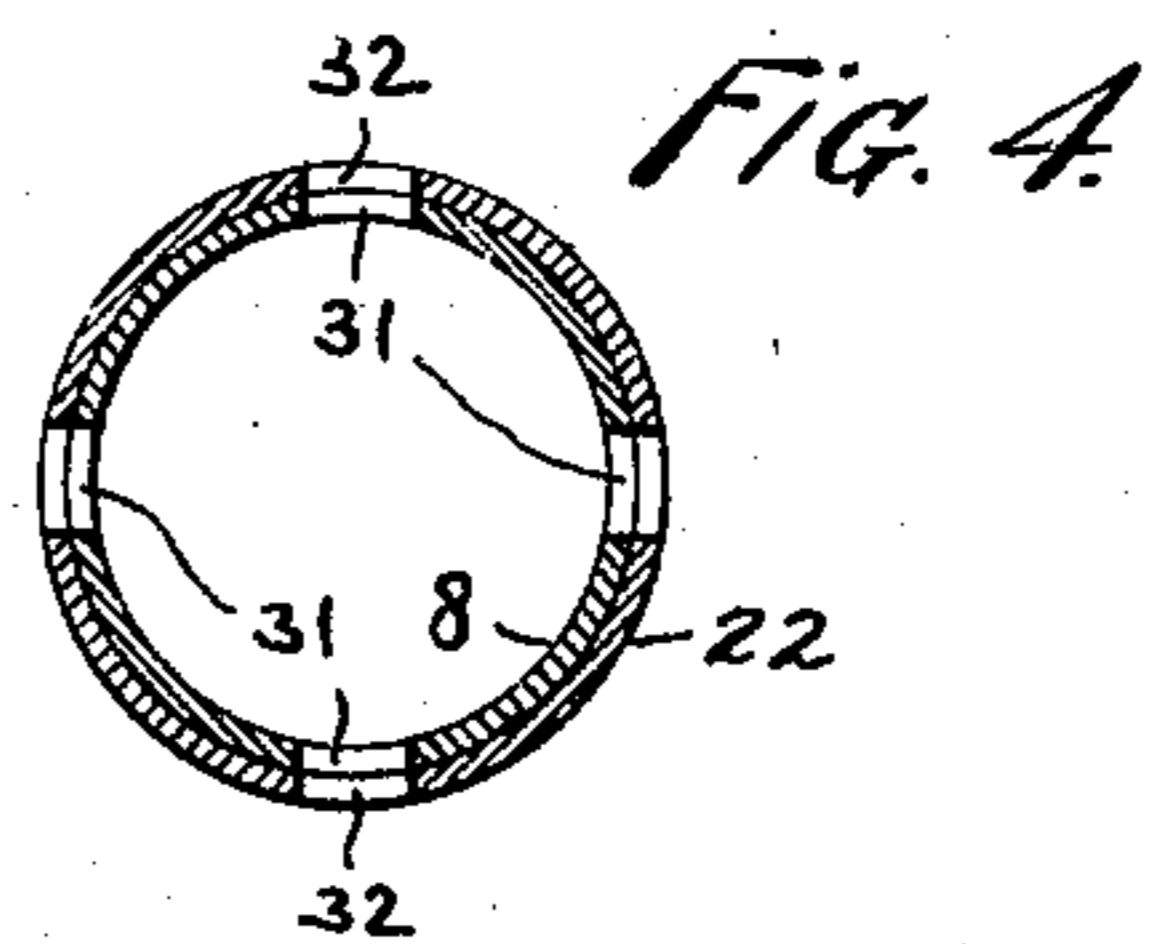
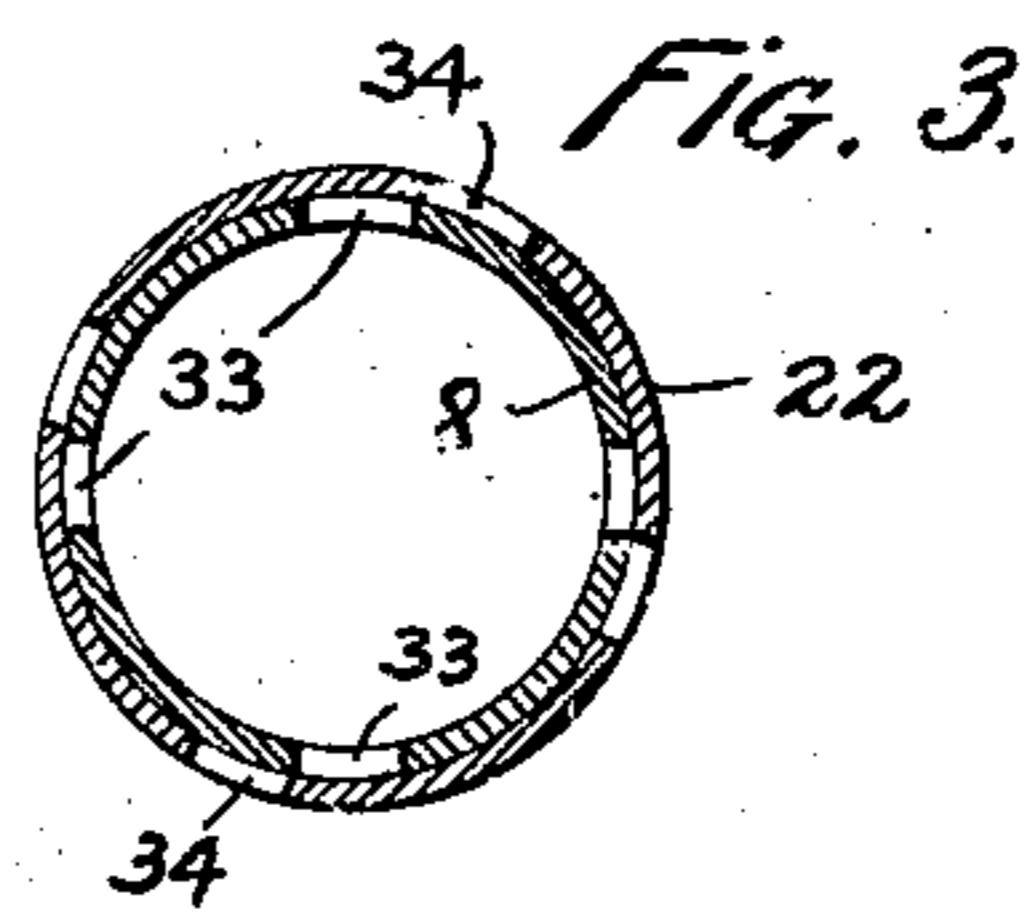
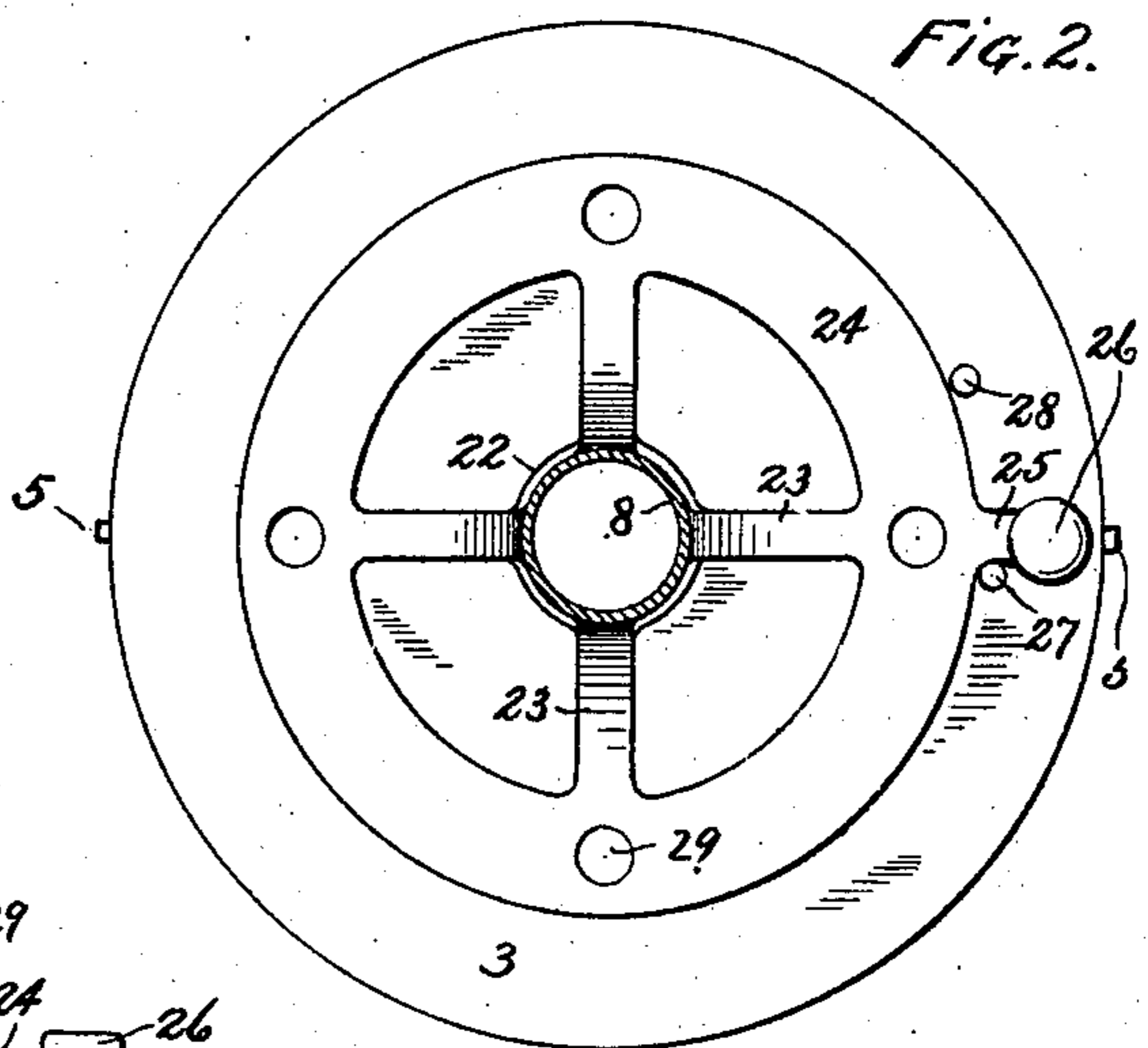
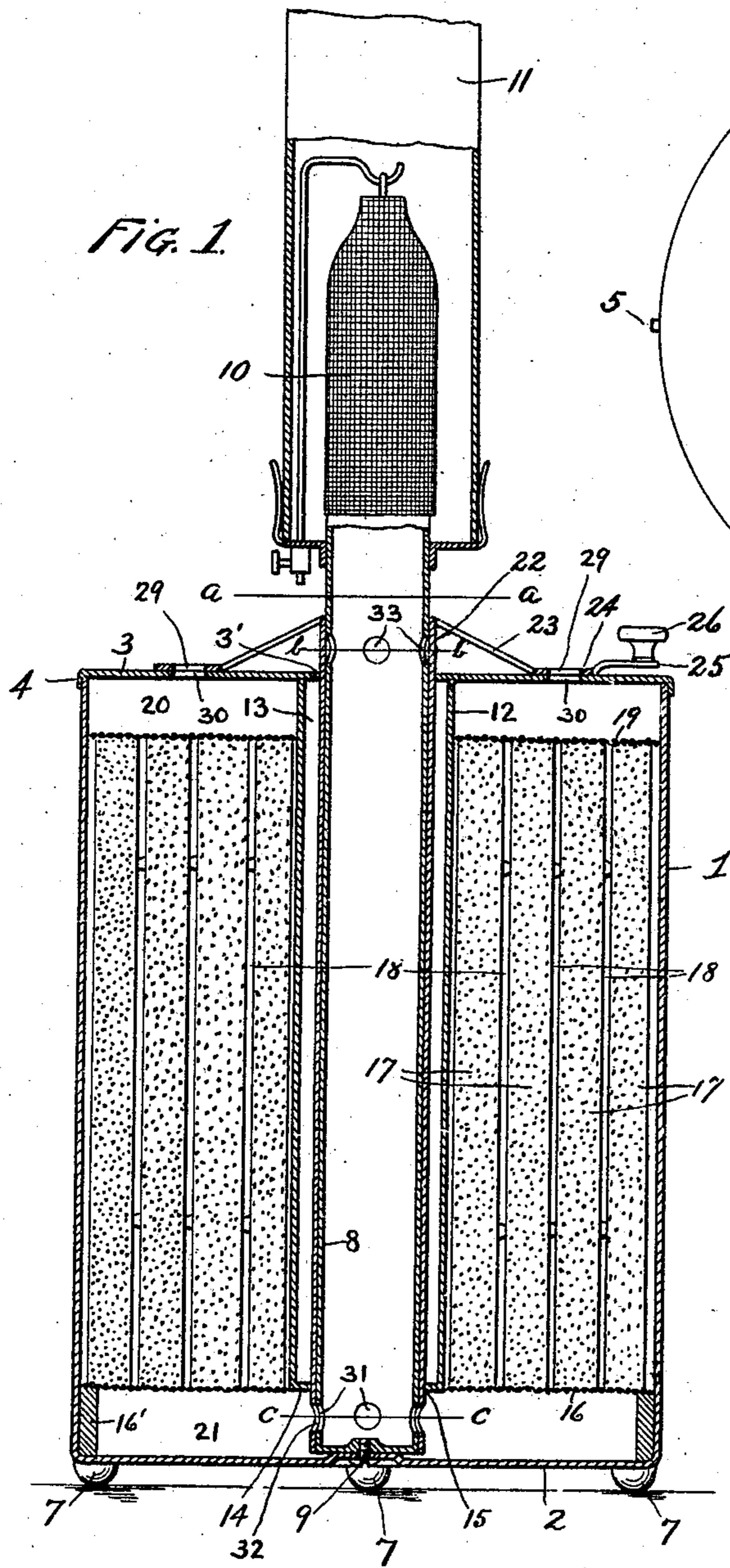
No. 846,852.

PATENTED MAR. 12, 1907.

G. H. HOLGATE.  
CARBURETER.

APPLICATION FILED MAY 8, 1906.

2 SHEETS—SHEET 1.



WITNESSES:

*E. Jas. Webster*  
*Wesley Bauck*

INVENTOR

*George H. Holgate*  
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No. 846,852.

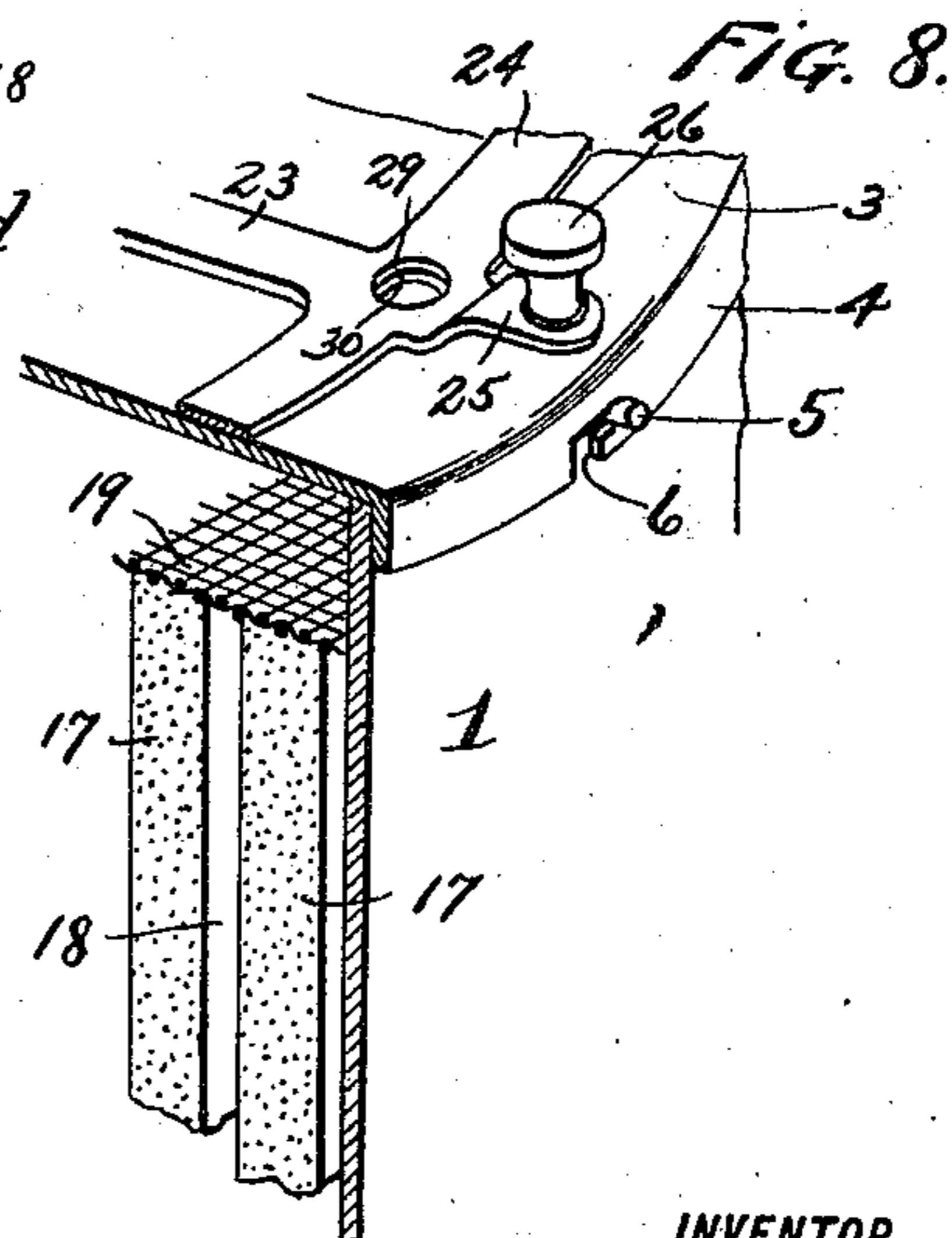
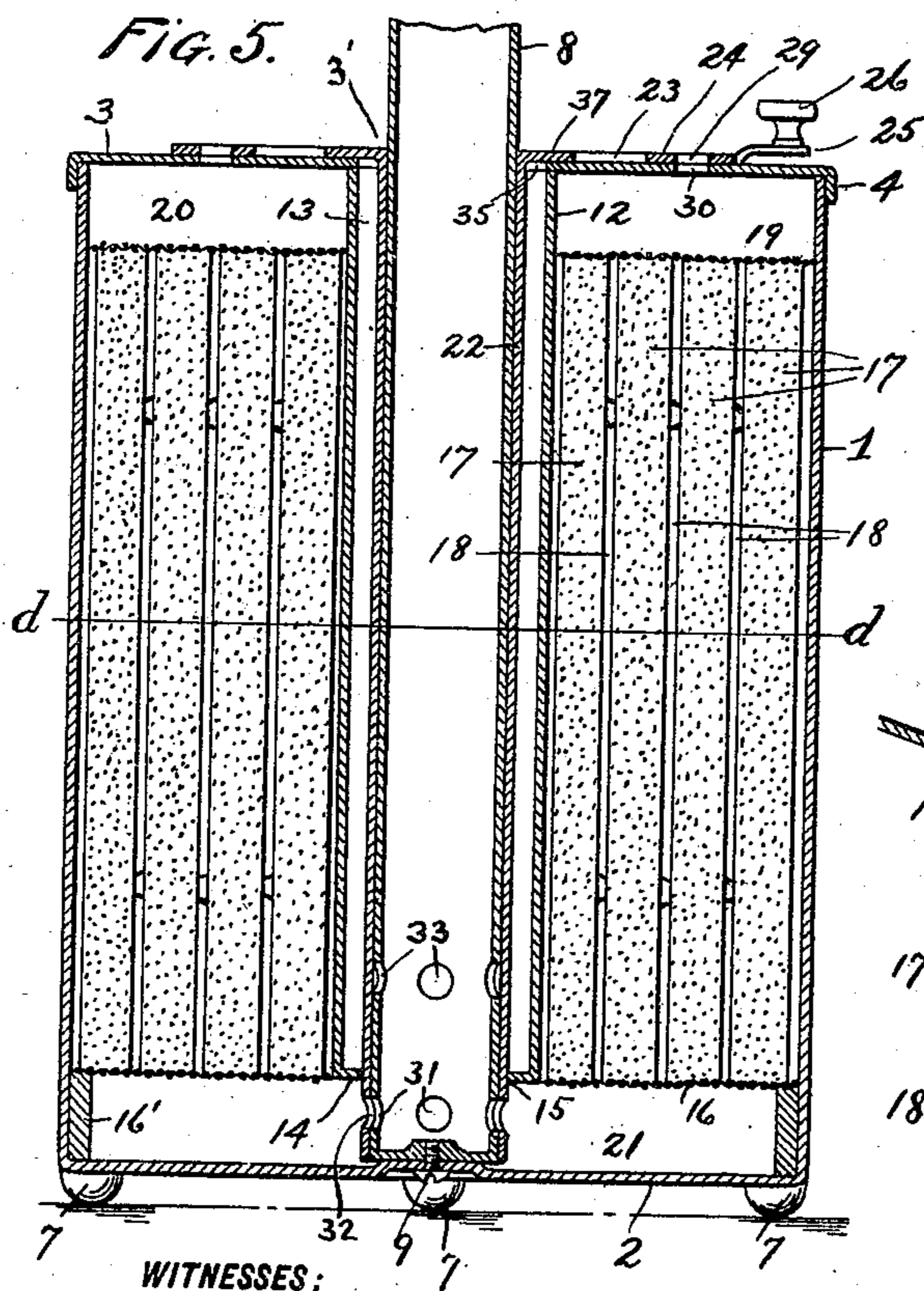
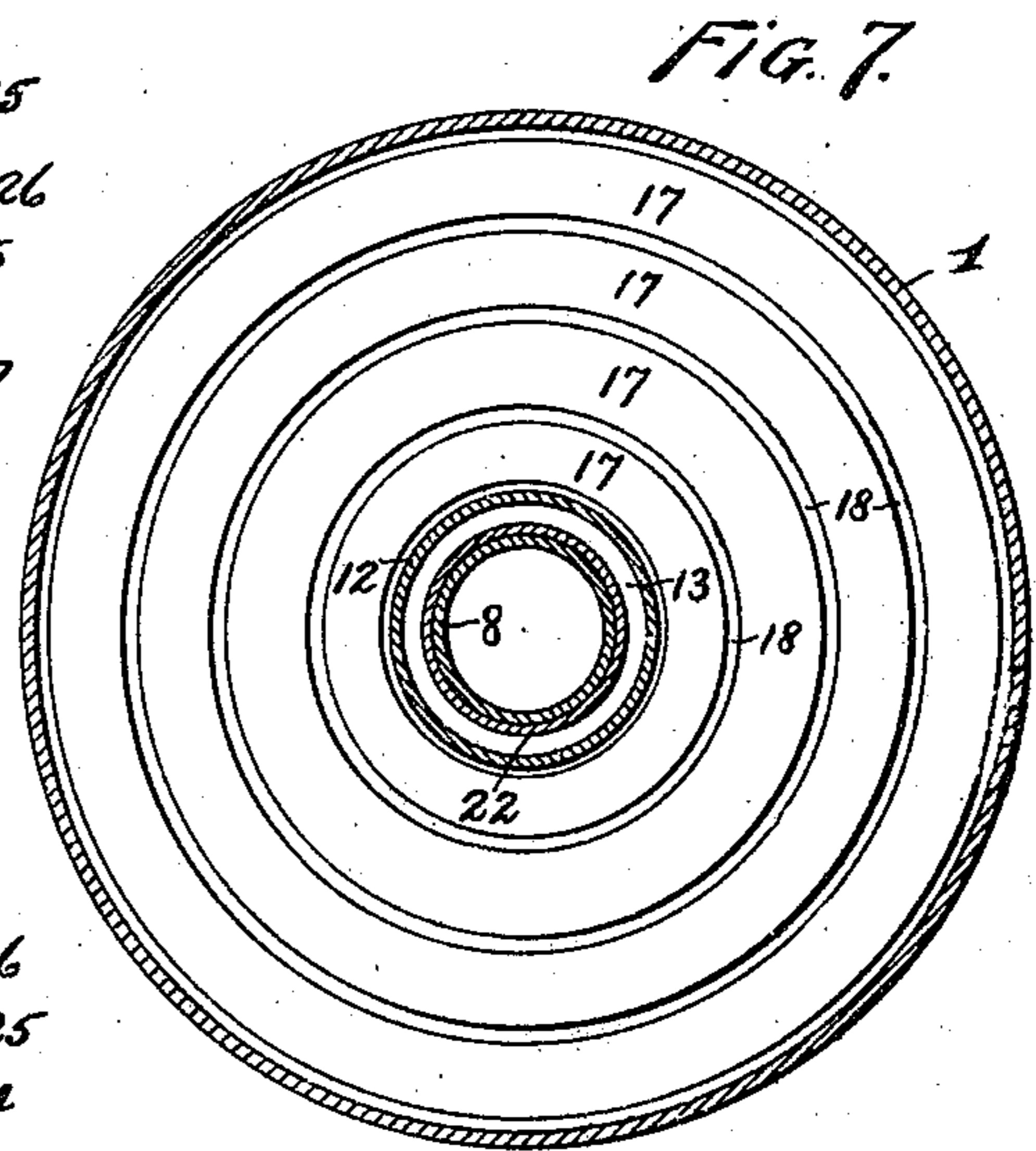
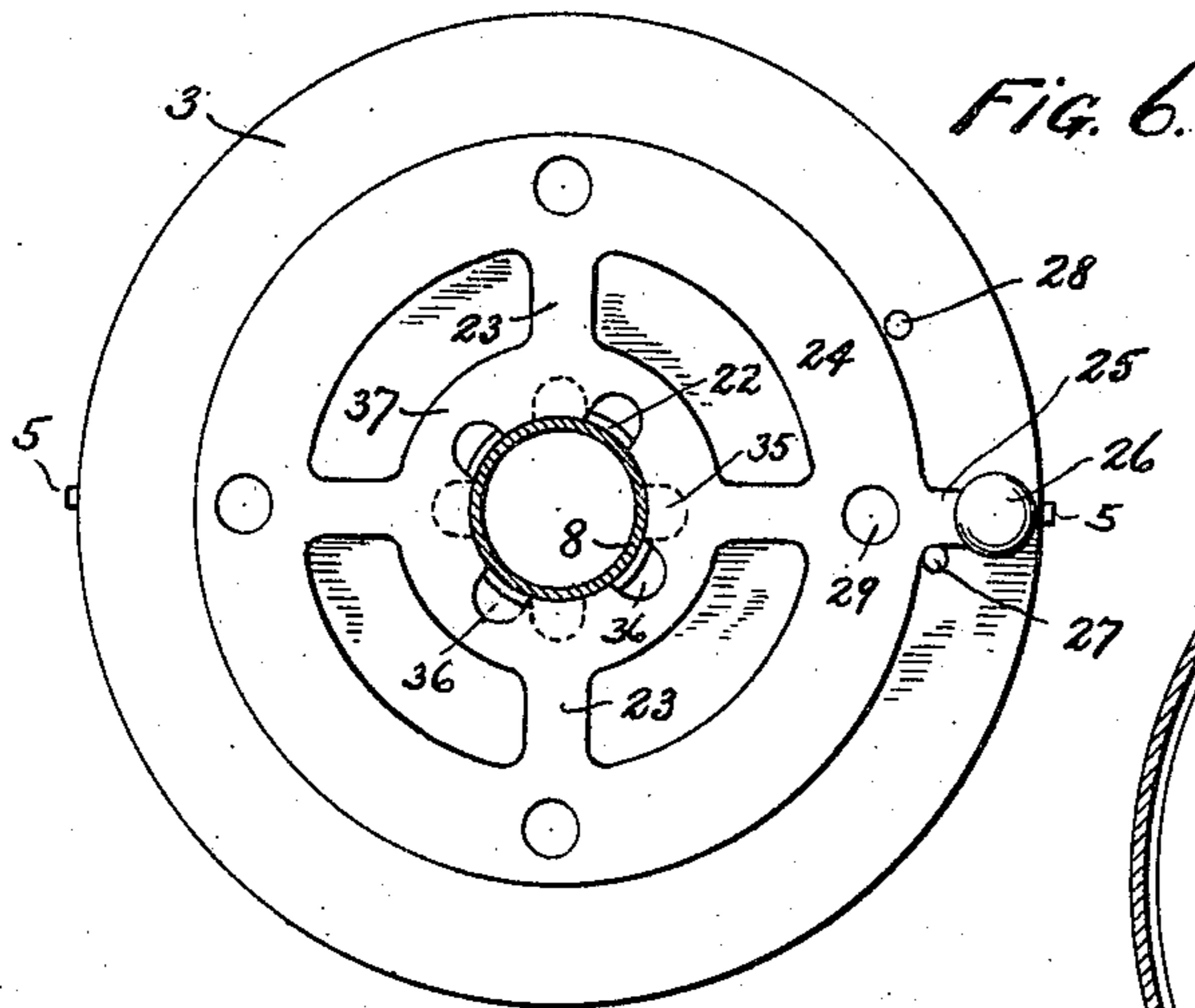
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APPLICATION FILED MAY 8, 1906.

2 SHEETS—SHEET 2.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE H. HOLGATE, OF PHILADELPHIA, PENNSYLVANIA.

## CARBURETER.

No. 846,852.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed May 8, 1906. Serial No. 315,776.

*To all whom it may concern:*

Be it known that I, GEORGE H. HOLGATE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Carbureters, of which the following is a specification.

My invention relates to a new and useful improvement in carbureters, and particularly to that class designed to be used in connection with portable lamps or other apparatus adapted to utilize a hydrocarbon vapor for heating or lighting purposes.

The object of this invention is primarily to provide an apparatus of this character in a compact form and at the same time have the rigid and movable parts so arranged with reference to each other as to be easily separated and taken apart and assembled when it is necessary to recharge the apparatus.

A further object of the invention is to provide means for manually controlling the air-supply to the hydrocarbon and to the hydrocarbon vapor, whereby the proportions of air and vapor may be varied to suit the amount of heat or light desired.

The invention therefore consists in the parts and combination of parts shown in the drawings, described in the specification, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a longitudinal vertical sectional view of my apparatus, showing its application as a lamp. Fig. 2 is a transverse sectional view taken on the line *a a* of Fig. 1, illustrating more particularly the means for controlling the air-supply to the hydrocarbon and the hydrocarbon vapor. Fig. 3 is a sectional view of the tubes, taken on line *b b* of Fig. 1, illustrating more particularly the openings for controlling the supply of air to the hydrocarbon vapor; and Fig. 4 is a similar view taken on line *c c* of Fig. 1, illustrating the openings for controlling the supply of hydrocarbon vapor. Fig. 5 is a view similar to Fig. 1, illustrating a modified form of apparatus. Fig. 6 is a plan view of the apparatus shown in Fig. 5. Fig. 7 is a transverse section taken on line *d d*, Fig. 5; and Fig. 8 is a partial perspective view showing details of construction.

In many respects this invention is similar to my former patent, No. 813,796, dated February 27, 1906, but contains several improvements supplementing thereto, which I desire to claim herein.

Referring to the drawings, the numeral 1

represents the case or receptacle, preferably circular in cross-section, as shown, having an integral bottom 2 and a removable top or cover 3. The cover is provided with a central opening 3', an annular flange 4, closely fitting over the upper edge of the case, to which it is removably secured by pins 5, which when the cover is fitted on the case and revolved enter the slots 6 and secure the cover to the case. While I have found this arrangement of "bayonet-joint" to be very efficient in securing the cover to the case, I may employ other readily-operated devices to accomplish this and without departing from the spirit of my invention. The case is of a size and shape to be positioned within a font or urn to form an ornamental covering, the case resting therein, or the case may be provided with feet 7 and in itself form a lamp-body of inexpensive construction.

Arranged within the case is a tube 8, closed at its lower end and secured to the bottom 2 by a screw 9, by which the tube is held stationary with reference to the case, the upper end of the tube extending above the top of the case, and where the carbureter is to be used as a lamp a mantle 10 is suspended over the upper end of the tube, and a chimney 11 surrounds the mantle in the well-known manner. Also arranged within the case and concentric to the tube 8 is a tube 12 of greater diameter than the tube 8, forming a space 13 between the two for a purpose to be hereinafter described. The upper end of tube 12 extends to a point coincident with the under surface of the cover, forming a seal between the two, the lower end being provided with a partial bottom 14, having an opening 15 slightly larger than the diameter of the exterior surface of the tube 8. Carried by the tube 12 is a screen 16, the outer edge resting upon supports 16'. Resting upon the bottom of the case and carried by the screen 16 are a series of annular members 17, composed of highly-absorbent material adapted to be saturated with volatile hydrocarbon, said members nesting together, but having provision for maintaining air-spaces 18 between each other to provide for a free circulation of air between the members. Resting upon the absorbent material is a screen 19, which not only maintains an air-space 20 between the screen and the cover similar to the air-space 21 between the screen 16 and the bottom 2, but positions the upper

end of tube 12 concentric to the case and the tube 8.

Surrounding the tube 8 and snugly fitting the latter is a tube 22, the lower end extending to substantially the lower end of tube 8 and the upper end extending through and slightly above the top of the cover 3, as shown, and carried by the tube 22 are radial arms 23, which connect the tube and a concentric rim or plate 24, which closely fits the top 3. One of the arms 23 is extended beyond the plate 24, as at 25, and carries upon its outer end a handle 26, by which means the plate, and consequently the tube 22, is revolved, pins 27 and 28, carried by the top 3, limiting the revolution of these parts for a purpose to be presently explained. Tube 22 is of an exterior diameter equal to the diameter of the orifices 3' and 15 in the top 3 and bottom 14 of tube 12, respectively, the inner surface of material forming these orifices impinging upon the tube 22 sufficiently to form a closure at these joints and to prevent the entrance or escape of air or vapor.

Arranged in the plate 24 and the cover 3 are holes 29 and 30, respectively positioned so as to coincide, as shown in Fig. 1, when the handle 26 is moved over, so that the extension 25 of arm 23 coincides with pin 27, thus allowing a maximum supply of air to enter space 20 and to circulate through and to be impregnated by the volatile hydrocarbon and to pass into chamber 21 in the form of a hydrocarbon vapor. The lower ends of the tubes 8 and 22, disposed within the space 21, are provided with port-openings 31 and 32, respectively, also positioned to coincide when the handle 26 is moved over in the position shown in Fig. 2, whereby the hydrocarbon vapor from chamber 21 has free access to the interior of tube 8, when it is raised direct to the burner by the heat of combustion at the mantle, thus inducing a continuous circulation of air through the openings 29 and 30 into the space 20 through the saturated members 17, when the air is impregnated with the volatile hydrocarbon and enters chamber 21 in the form of a combustible vapor through openings 32 and 31 into the tube 8 and to the mantle. Consequently after ignition the combustion of the gas will itself induce the necessary current of air to form the vapor to support continuous combustion.

In order to regulate the flame, it is necessary to incorporate oxygen with the hydrocarbon vapor, and I accomplish this purpose by providing openings 33 and 34 in the tubes 8 and 22, which are positioned so as to be entirely out of coincidence when the handle 26 is moved into the position shown in Fig. 2. Thus I am enabled to secure a full supply of vapor without intermixture with air, if desired.

Pins 27 and 28 are, however, positioned

with reference to the several openings so that when the handle 26 is moved toward pin 28 from the position shown in Fig. 2 openings 29 and 30 and openings 31 and 32 gradually close, while openings 33 and 34 gradually open, changing the proportions of vapor and air. The arm 25 contacts with pin 28 when the openings 29 and 30 and openings 31 and 32 are closed, and openings 33 and 34 coincide, and the supply of vapor is cut off, and combustion ceases.

In Figs. 5 and 6 I have shown a modification in which the openings 33 and 34 are located slightly above the bottom 14 of tube 12 and the air passed through the space 13, formed between the tubes 12 and 22, and in addition to these openings, if desired, I may arrange openings 35 and 36 in the cover and in a plate 37, carried by the tube 22, the openings 33 and 34 and 35 and 36, respectively, being in vertical alinement, so as to open and close simultaneously, the operation of this construction being the same as that heretofore described. To recharge the apparatus, it is only necessary to remove the burner, lift out the tube 22, and unfasten and remove the cover, when the absorbent members 17 may be saturated with hydrocarbon.

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

1. A carbureter comprising a case, a cover therefor, absorbent material contained within said case, a tube closed at the lower end and open at the upper end, arranged concentrically within the case, and means for securing the lower end of said tube to the bottom of the case whereby said tube is stationary with reference to the case, a tube open at each end, closely fitting said stationary tube, revoluble thereon, a plate resting upon the cover attached to and carried by said revoluble tube, means for imparting a partial revolution thereto, a stationary tube concentric to the said revoluble tube, of a larger diameter, forming an air-space between the two, an inwardly-turned flange at the bottom of said tube, having the edge thereof bearing against the revoluble tube, and openings in the cover and the plate resting thereon, and in the inner stationary tube and the revoluble tube, located below the absorbent material, adapted to be opened or closed simultaneously by the revolution of the movable tube, openings in the inner stationary tube and the revoluble tube located above the bottom of the outer stationary tube, adapted to be opened or closed by imparting revolution to the revoluble tube, said openings being arranged in different register with the first-named openings and adapted to open when the first-named openings are being closed and closed when the first-named openings are opened.

2. A carbureter consisting of a receptacle,

absorbent material so arranged as to leave a  
space below the same, within the receptacle,  
a stationary tube extending downward  
through the center of the receptacle, open at  
5 its upper end, means for holding this tube  
stationary, a revoluble tube fitted around  
the stationary tube and adapted to revolve  
around the same, ports formed through the  
walls of both tubes within the space below  
10 the absorbent material, ports formed through  
the walls of both tubes above the receptacle  
and the first-mentioned ports, both sets of  
ports adapted to be opened and closed by  
imparting revolution to the revoluble tube,

openings formed through the receptacle, a 15  
valve connected with the revoluble tube for  
opening and closing these port-openings, and  
means arranged at the upper end of the cen-  
tral tube for inducing an upward flow of the  
mixed air and gas therethrough. 20.

In testimony whereof I have signed my  
name to this specification in the presence of  
two subscribing witnesses.

GEORGE H. HOLGATE.

Witnesses:

LOTTIE NUSBAUM,  
WARREN E. WILLIS.