

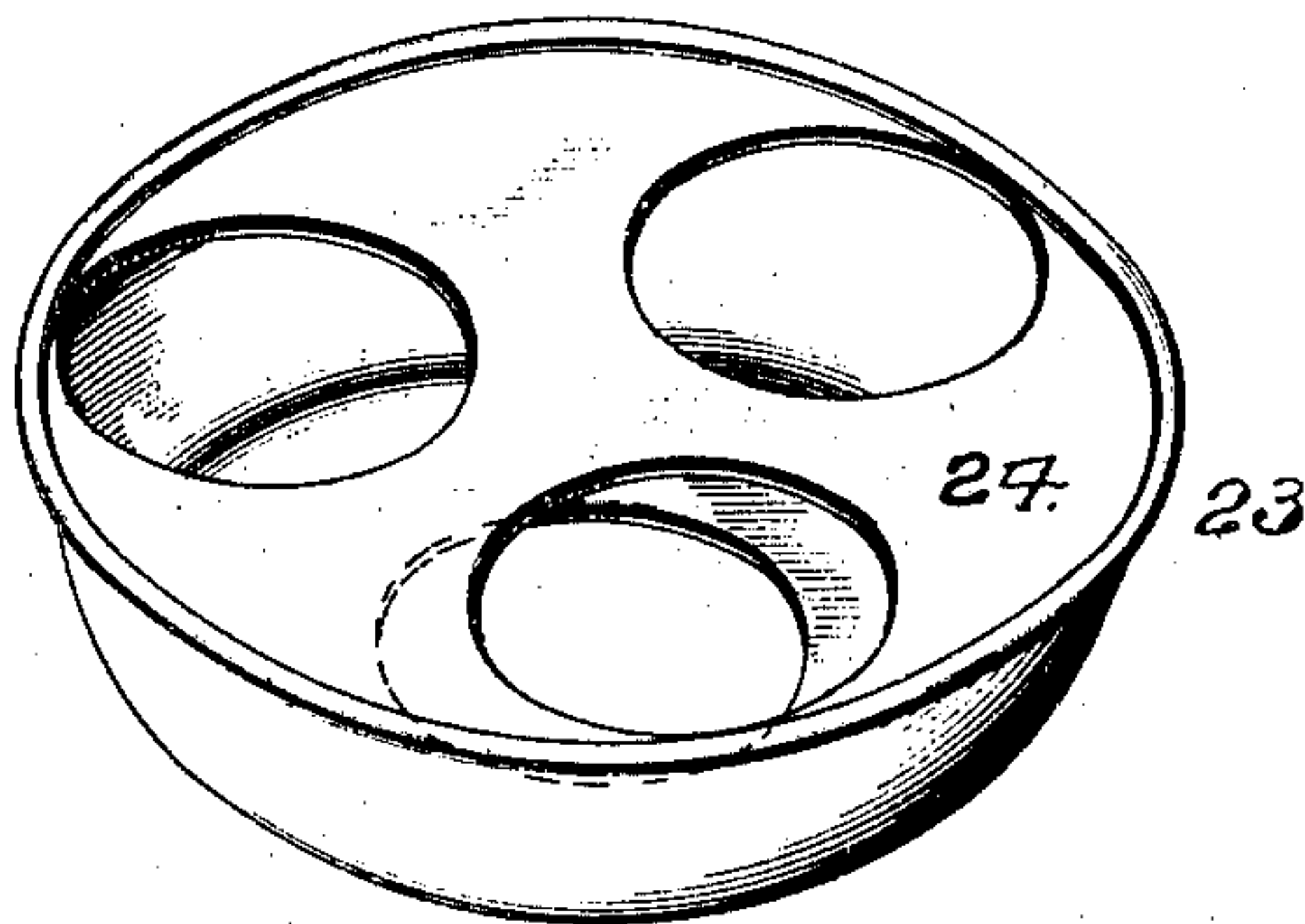
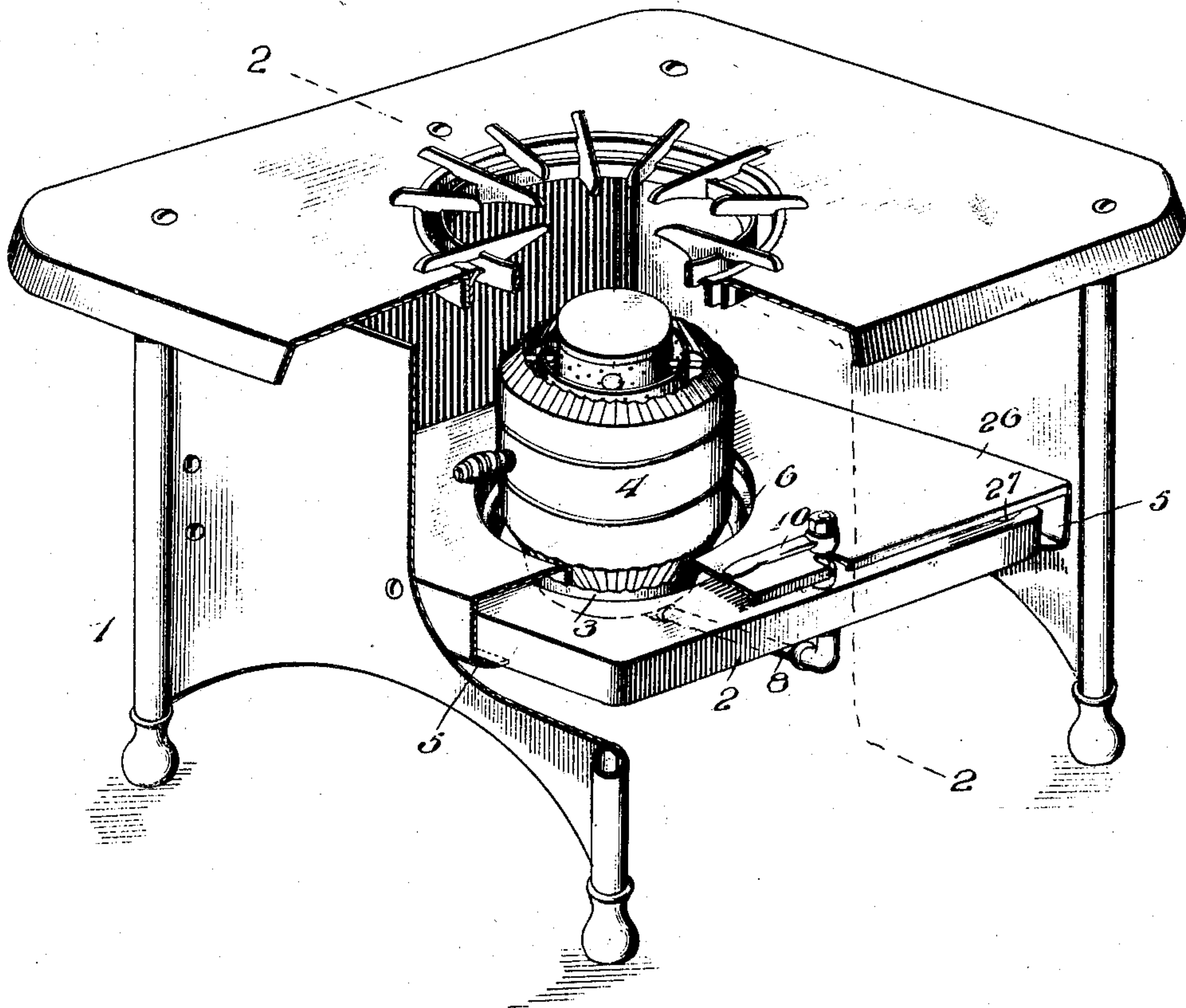
A. J. BLACKFORD.  
OIL BURNER.  
APPLICATION FILED DEC. 23, 1902.

990,698.

Patented Apr. 25, 1911.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

*Chas. P. Wright, Jr.*

Fig. 6.

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Inventor

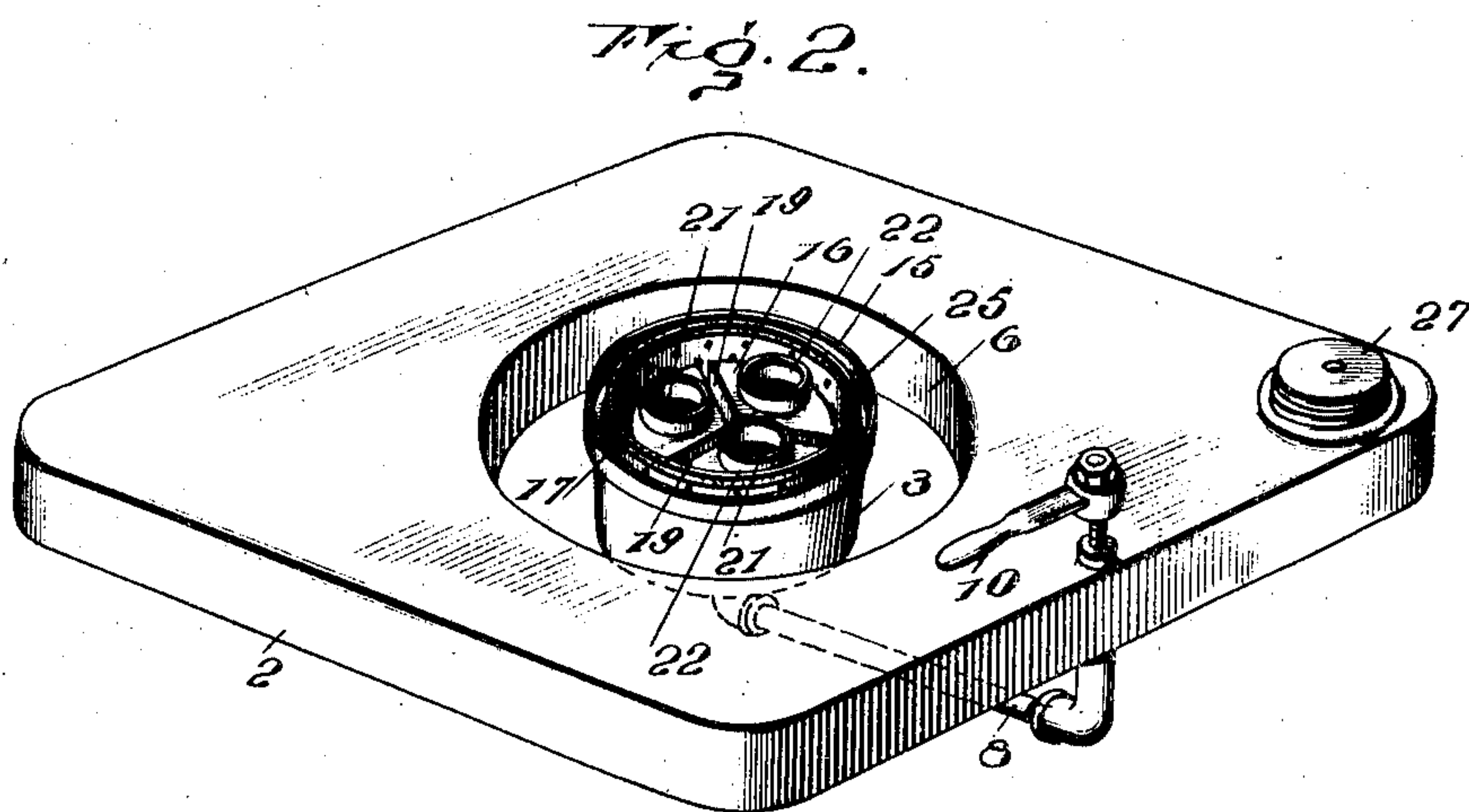
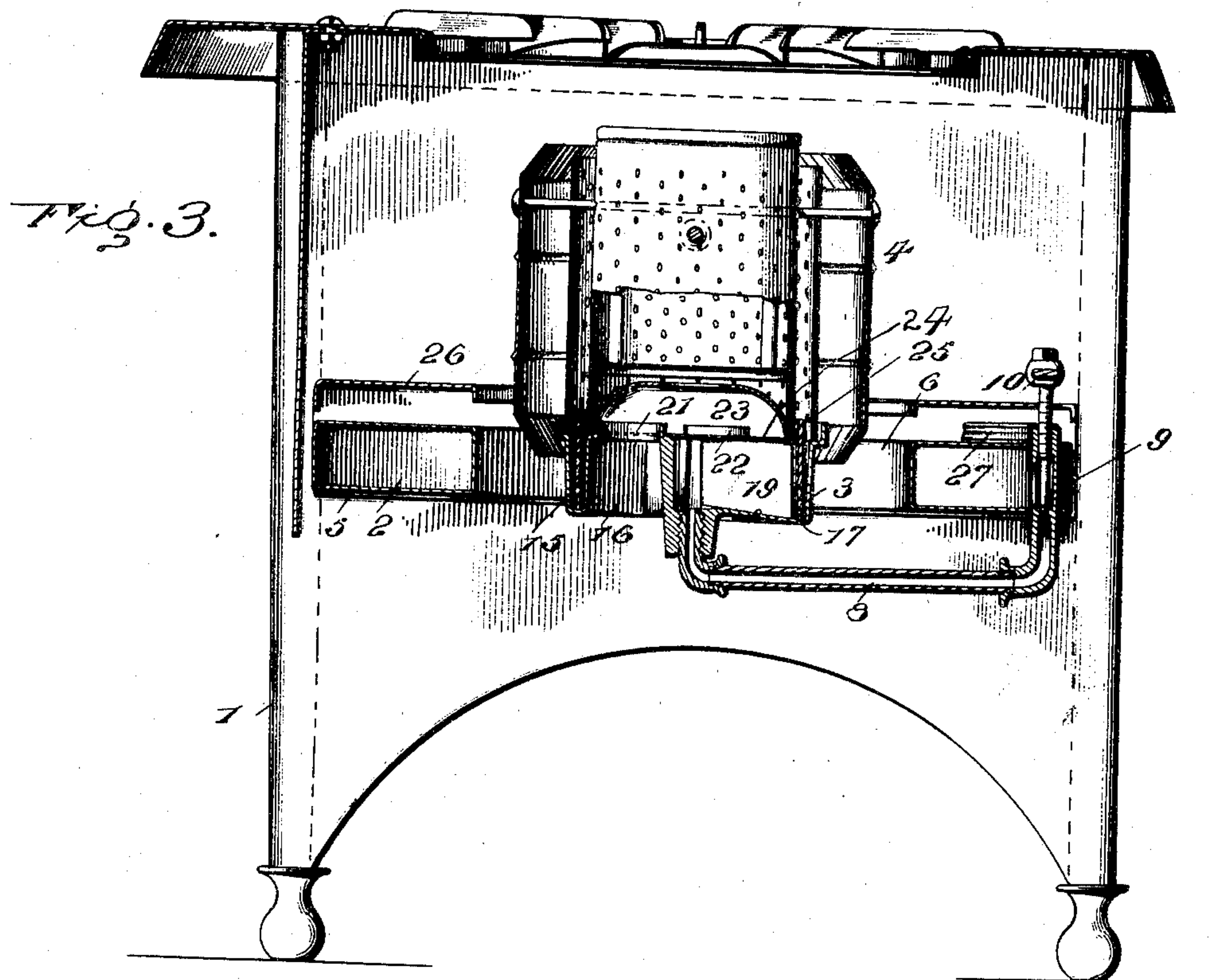
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3 SHEETS—SHEET 2.



Witnesses

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**990,698.**

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3 SHEETS—SHEET 3.

Fig. 4.

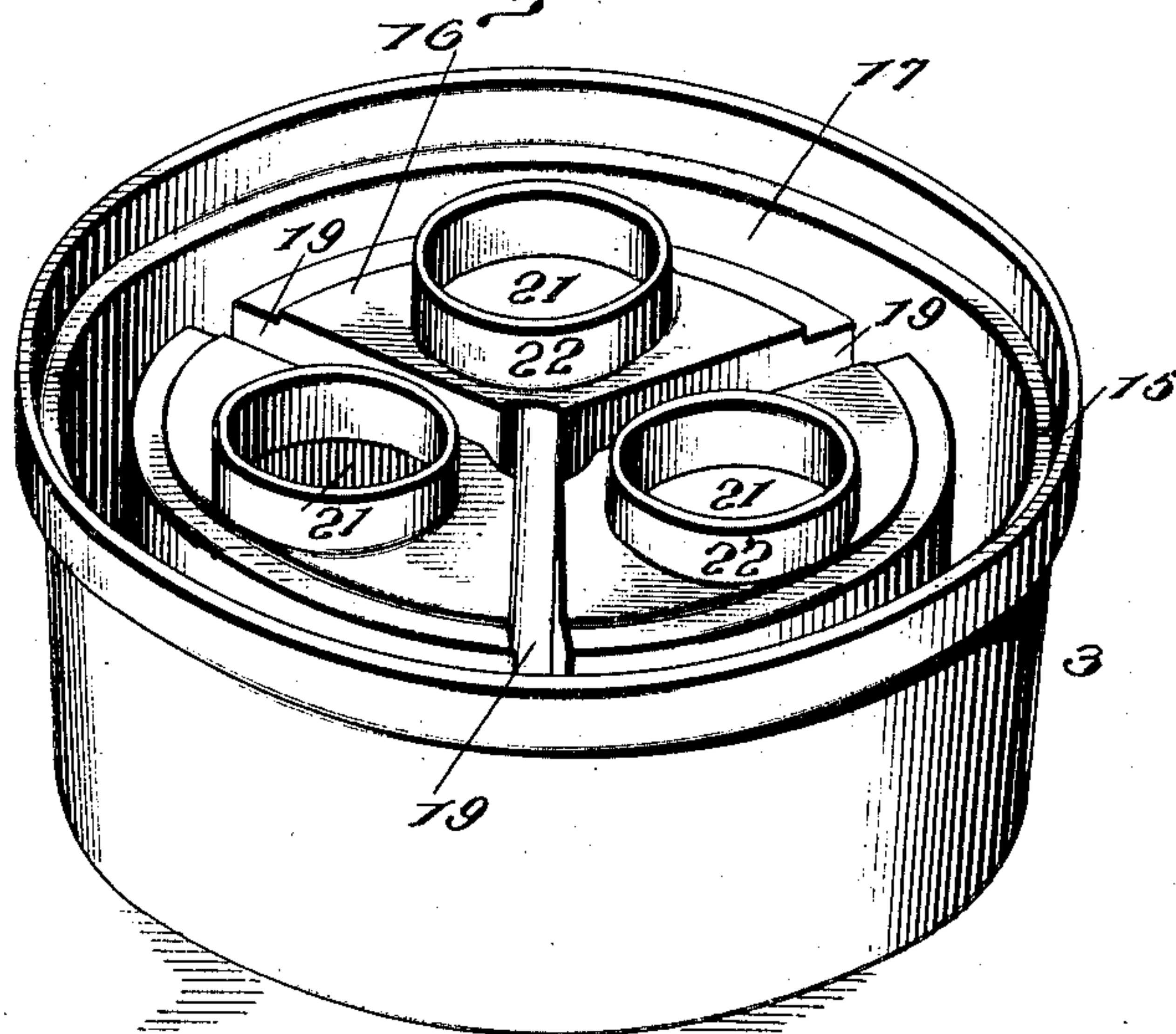


Fig. 5.

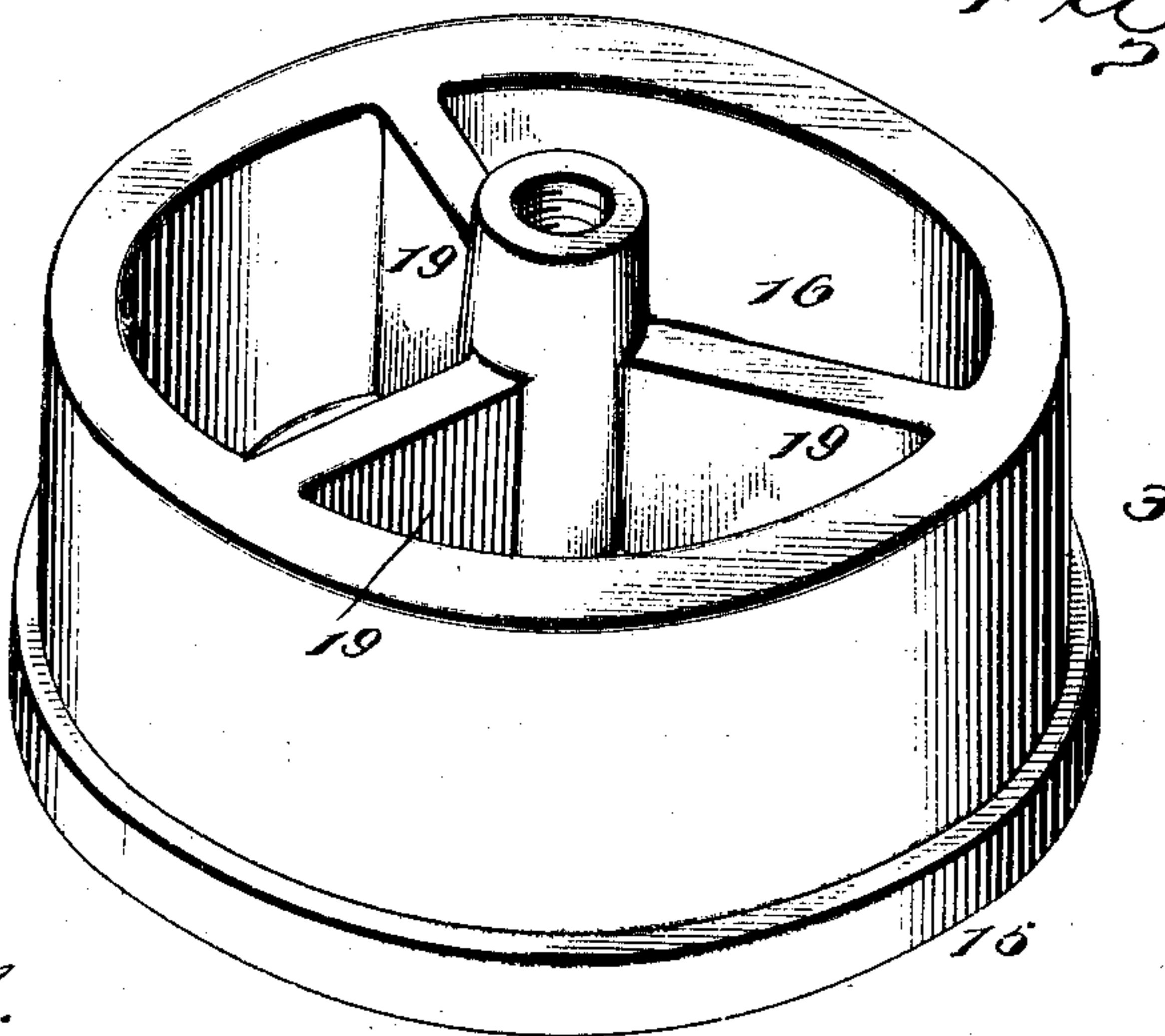
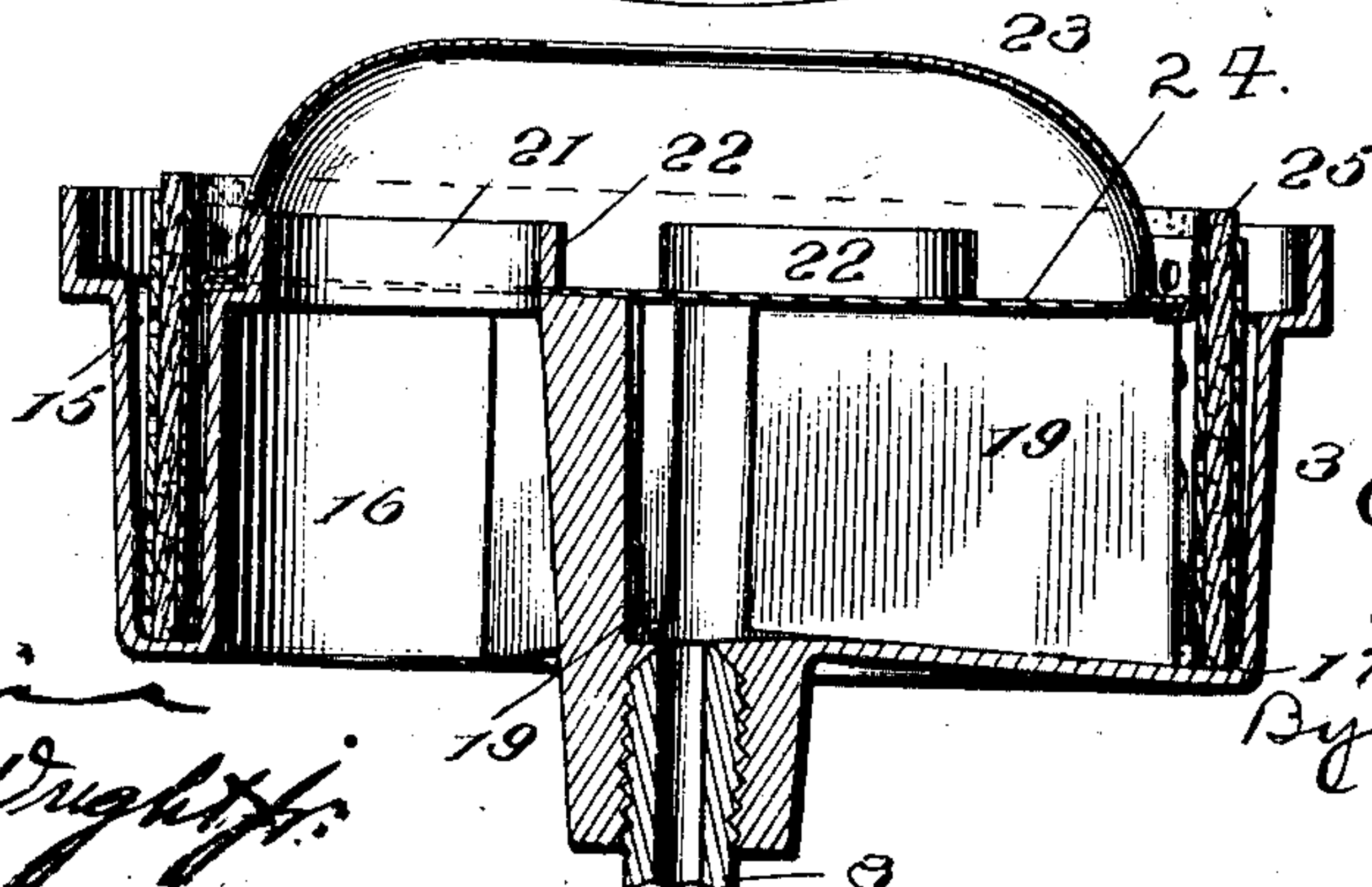


Fig. 7.



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# UNITED STATES PATENT OFFICE.

ATWELL J. BLACKFORD, OF CLEVELAND, OHIO, ASSIGNOR TO AMERICAN STOVE COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

## OIL-BURNER.

990,698.

Specification of Letters Patent. Patented Apr. 25, 1911.

Application filed December 23, 1902. Serial No. 136,355.

*To all whom it may concern:*

Be it known that I, ATWELL J. BLACKFORD, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Oil-Burners, of which the following is a specification.

My invention relates to improvements in oil burners, the construction and object of which will be fully described hereinafter.

In the accompanying drawings, Figure 1, is a perspective view of an oil burner stove which embodies my invention, a part of the supporting frame being broken away. Fig. 2, is a detached perspective view of the connected burner and reservoir. Fig. 3, is a vertical transverse sectional view taken on the line 2—2 of Fig. 1 and through the controlling valve. Fig. 4, is a detached perspective view of the oil trough or cup. Fig. 5, is a detached inverted view of the oil trough or cup. Fig. 6, is a detached inverted perspective view of the combined trough, cap and air-deflector. Fig. 7, is an enlarged transverse sectional view through the trough showing the combined cap and air-deflector in position thereon.

Referring now to the drawings, in which 1 indicates the supporting frame, 2 the reservoir, 3 the oil trough or cup and 4 the combustion chamber or section.

One feature of my present invention pertains to connecting the burners and the reservoir and having them movable independently of the supporting frame, whereby they can be readily removed therefrom and placed in position therein. The form of burner here shown is what is known in the trade as a wickless blue flame burner.

Another feature of my present invention pertains to the construction and relative arrangement of the burner and the reservoir. As here shown, the reservoir is horizontal and is situated in practically the same plane as the plane of the burner or trough. Furthermore, the reservoir is here shown as embracing the burner or trough, though so far as the broad relative arrangement of the burner and the reservoir are concerned, this specific construction may be varied as will be readily understood by those skilled in the art. The reservoir is suitably supported by the supporting frame 1, and the specific means here shown consists in providing a supporting rail or shoulder 5 upon which

the reservoir rests and which permits the reservoir to be drawn in and out in respect to the supporting frame as a drawer. Where the reservoir entirely surrounds the trough or burner as here shown, the reservoir is provided with an opening of a sufficient diameter or size to leave a suitable air-space between the burner and the reservoir, as illustrated for instance at 6.

A feed-pipe 8 extends from the reservoir to the burner, and as here shown, this feed-pipe is essentially U-shaped in side elevation. The feed of the oil from the reservoir to the burner is regulated through the medium of a suitable valve 9 which as here shown, is of the needle type, and has a controlling handle 10 connected therewith.

Another feature of my present invention consists in the relative arrangement and location of a trough or wickless burner in respect to a horizontal reservoir, whether that reservoir embraces the trough or not as herein shown. In this event it will be noted that the trough is made deeper than the reservoir, whereby it is not possible to flood the trough even with the valve wide open, and irrespective of the fact whether the burner is lighted or extinguished. The arrangement of a trough of greater depth than the depth of the reservoir provides absolutely against any accident because of the flooding of the trough as will be readily understood. Preferably the bottom of the trough extends slightly below the bottom of the reservoir, whereby there is maintained in the trough a sufficient depth of oil to maintain a normal flame when there is but little oil in the reservoir, and indeed if the reservoir is entirely empty, so long as there is oil in the feed pipe at a sufficient depth to supply the oil to the trough.

Any desired form of trough may be provided which is adapted to cooperate with the reservoir, but the specific form here shown forms another feature of my present invention. As here shown, the trough is detachable from the adjacent end of the feed pipe and is screwed thereto, whereby it can be readily detached for the purpose of cleaning it. The trough as before mentioned, is preferably of a depth at least equal to or greater than the depth of the horizontal reservoir, and it consists of an outer wall 15 and an interior projecting portion 16 separated from the inner side of the said outer wall



sufficiently to form an oil containing space or portion 17. The central projection 16 is provided with an upper horizontal portion, as shown in Fig. 4, and with an oil feeding channel or channels 19 which establish communication between the end of the feed-pipe and the oil containing portion or channel. As here shown, these channels extend upward throughout the entire height of the central projection 16 though this may be varied without departing from the spirit and scope of my invention. When the channels are formed as here shown, from the top to the bottom of the central projection 16, it forms the said central projection into a plurality of projections as here shown. Preferably the central projection or the plurality of projections, as the case may be, are hollow at their under sides, for the purpose of removing surplus metal and thus avoiding the overheating of the trough. The upper end of the central projection is provided with air passages 21, and these air passages are provided with surrounding flanges 22 which provide interlocking members between the central projection and the combined cap and air deflector 23. When the combined cap and air deflector is in position, the lower wall 24 of the cap forms a cover for the oil channels, as well as a part of the air deflector. The form of air-deflector here shown is found to be very effective in cooling the center of the trough, and also in keeping the lower portion of the combustion chamber cool. A suitable lighting member consisting of non-combustible material is provided, and this igniting member 25 is seated in the oil-containing portion of the trough.

Another feature of my present invention consists in so constructing the parts that it is necessary to move the reservoir in relation to the supporting frame, in order to obtain access to the filling orifice of the reservoir. Furthermore, the parts are so constructed that some movable portion of the burner or its connected parts, will be above some part of the supporting frame while the burner is in operation, thus necessitating the movement of the movable portion of the burner or its connected parts, before the reservoir can be moved sufficiently to permit access to its filling orifice. There are many ways in which this feature of my invention may be accomplished, and the means here shown consists in providing a member or shelf 26 above the reservoir, and which extends over the filling orifice 27 thereunder. Should the reservoir be moved outward for the purpose of filling while the burner is in operation, and hence while the combustion section is in position, the combustion section will engage the shelf (as will be understood) and prevent the withdrawal of the reservoir sufficiently to obtain access to the filling orifice. Hence it is necessary to remove the combus-

tion section, and in the nature of things, before this can be done, it is necessary to close the valve which causes the burner to be extinguished. By having the movable portion of the burner above a plane with the supporting frame, it becomes necessary to extinguish the burner before access can be had to the filling orifice of the reservoir.

It will be observed that the shelf 26 forms a cover for the filling orifice, and broadly considered is a member which interferes with access to the said filling orifice, until there is a relative movement of the reservoir and the interfering member or shelf. The broad idea being here disclosed, persons skilled in the art will be able to readily devise the specific means of accomplishing this end, and I do not therefore limit myself to the manner here shown of requiring the operation of some movable part of the burner or its connections which results in the extinguishment of the flame, before the reservoir can be filled.

While I have here shown and described my improvement as adapted for use in connection with a single burner, I wish it to be understood that it is also intended to be used in connection with two or more burners without affecting the spirit or scope of my invention.

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

1. In a burner, the combination with a supporting frame, of a broad flat tank, horizontally and edge-wise removably supported by the frame, a burner trough supported by the tank and adapted to be removed with the tank and the upper end of the trough being in a horizontal plane slightly above the upper end of the tank, substantially as described.

2. In a burner, the combination with a supporting frame, of a horizontally arranged reservoir horizontally movable in respect to said supporting frame, a burner trough, a movable member supported by the burner trough, the reservoir having a filling orifice located at a point outside of the burner trough, the supporting frame having a shelf projecting over the filling orifice when the burner trough is in operative position, but clear of the filling orifice when the burner trough is moved outward, the movable member of the burner trough extending above the shelf when the burner trough is in operative position, thus requiring the removal of a portion of the burner and necessarily the extinguishing of the flame before the burner trough can be drawn outward, and permitting the filling of the reservoir without entirely removing it from the supporting frame.

3. The combination of a burner frame, a burner trough and reservoir movable to-



gether in relation to the frame, the reservoir having a filling orifice located at a point outside of the burner trough, the burner trough having a removable combustion section, the frame having a member adapted to interfere with the combustion section when the burner trough is in operation and moved outward, said member also projecting over the filling orifice when the burner trough is in operative position but clear of the filling orifice when the burner trough is moved outward.

4. In a burner, the combination with a supporting frame, of a horizontally arranged reservoir movably supported within the frame, a shelf covering the reservoir, a burner-trough supported and carried by the reservoir, the reservoir having a filling orifice below the shelf, and a movable portion of the burner-trough extending through the shelf, whereby the said movable portion must be removed and necessarily the flame must be extinguished before the reservoir and burner-trough can be drawn outwardly to expose the filling orifice.

5. An oil burner including a trough having an oil channel formed by an annular outer surrounding vertical wall and an inner concentrically arranged portion forming the inner wall and having a horizontal portion with vertically-arranged air passages and vertically-arranged oil passages between the air passages, an oil inlet for said oil channel, a cap carried by the upper end of said trough and covering the top of the oil passages and having openings communicating with the air passages, and combustion tubes seated above and forming a continuation of the said oil channel walls.

6. In an oil burner, the combination with a supporting frame, of a horizontal broad flat reservoir slidably mounted in said frame, and having a central enlarged opening

through the same, a pipe in communication with the said reservoir and extending inwardly below said central opening, and an oil holding trough supported and fed with oil by said pipe.

7. In an oil burner, the combination with a supporting frame, of a horizontal broad flat reservoir slidably mounted in said frame and having a central enlarged opening there-through, a pipe in communication with the bottom of the reservoir and extending inwardly below said central opening, and an oil holding trough supported within said central opening of the reservoir, with a space between the two and supported and fed with oil by said pipe, the upper and lower ends of said trough being above and below the upper and lower face of the reservoir, for the purpose described.

8. In a burner, the combination with a supporting frame, of a broad, flat, horizontal tank slidably supported by the frame, and adapted to be removed therefrom, a burner trough supported by the tank and adapted to be removed with the tank and the upper end of the trough being in a horizontal plane slightly above the upper end of the tank, substantially as described.

9. In a burner, the combination with a supporting frame, of a broad, flat, horizontal tank slidably mounted in the frame, a burner trough supported by the tank and the upper end of the trough being slightly above the upper end of the tank, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ATWELL J. BLACKFORD.

Witnesses:

HUGH J. McBRIDE,  
JOHN G. WAY.