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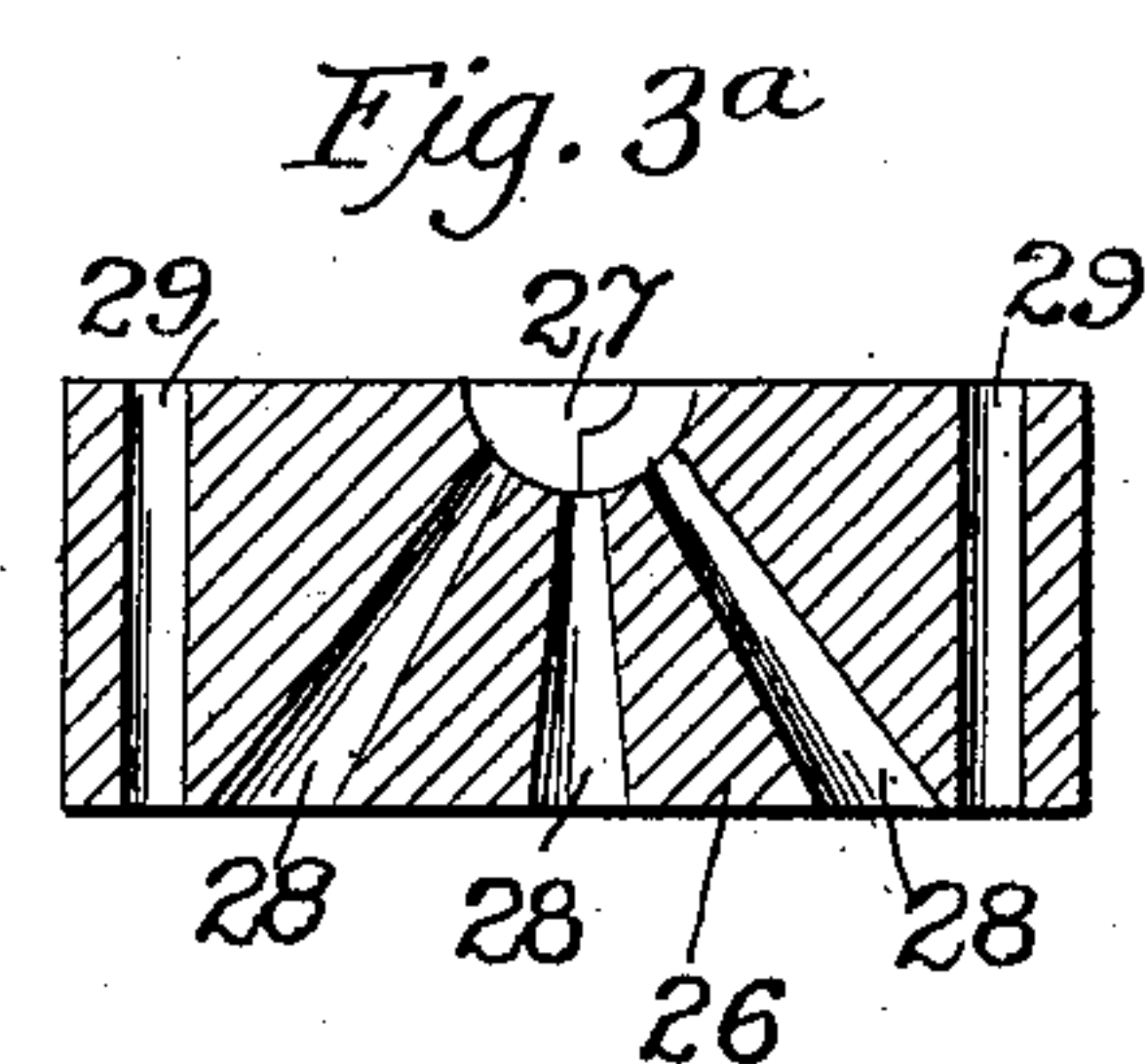
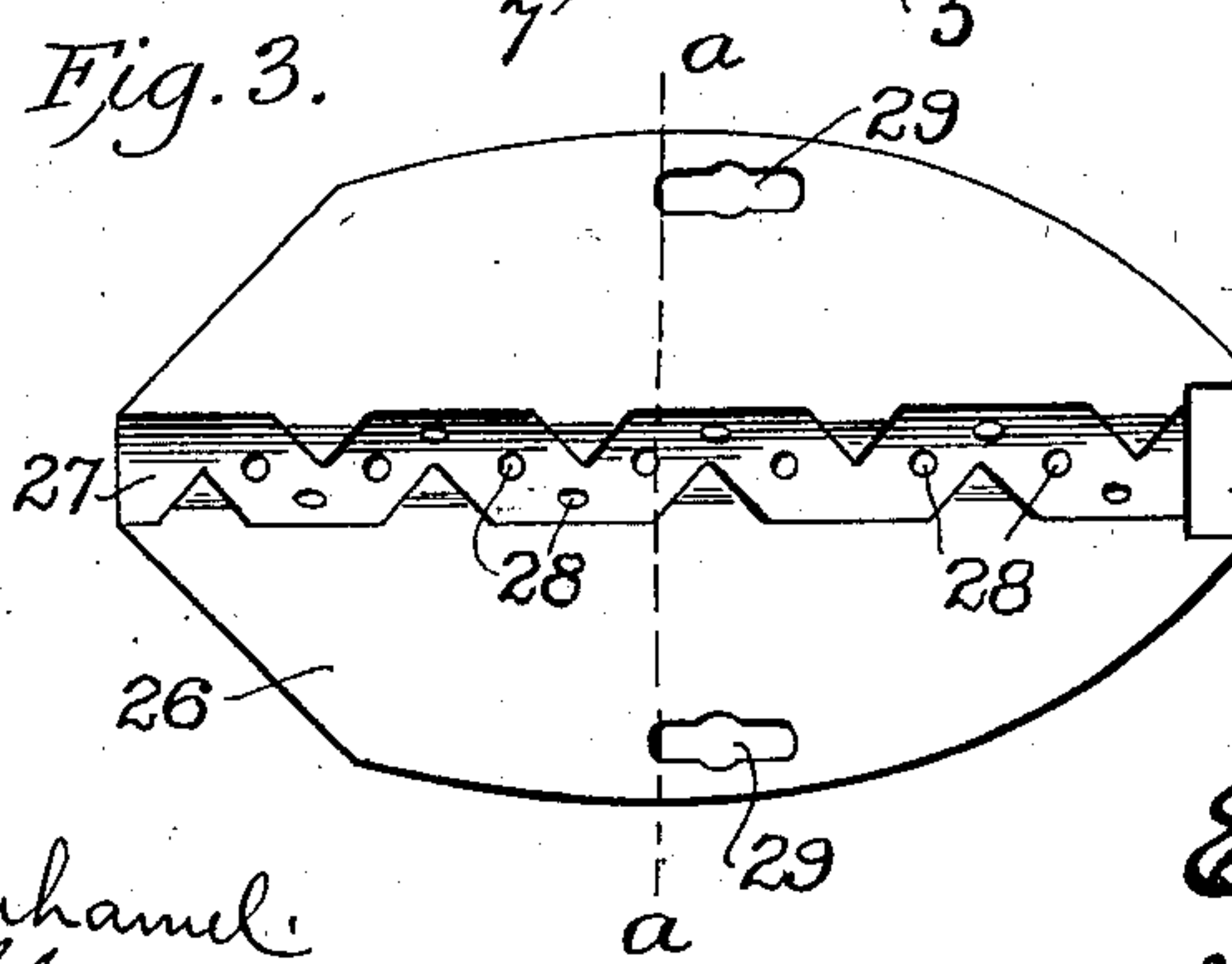
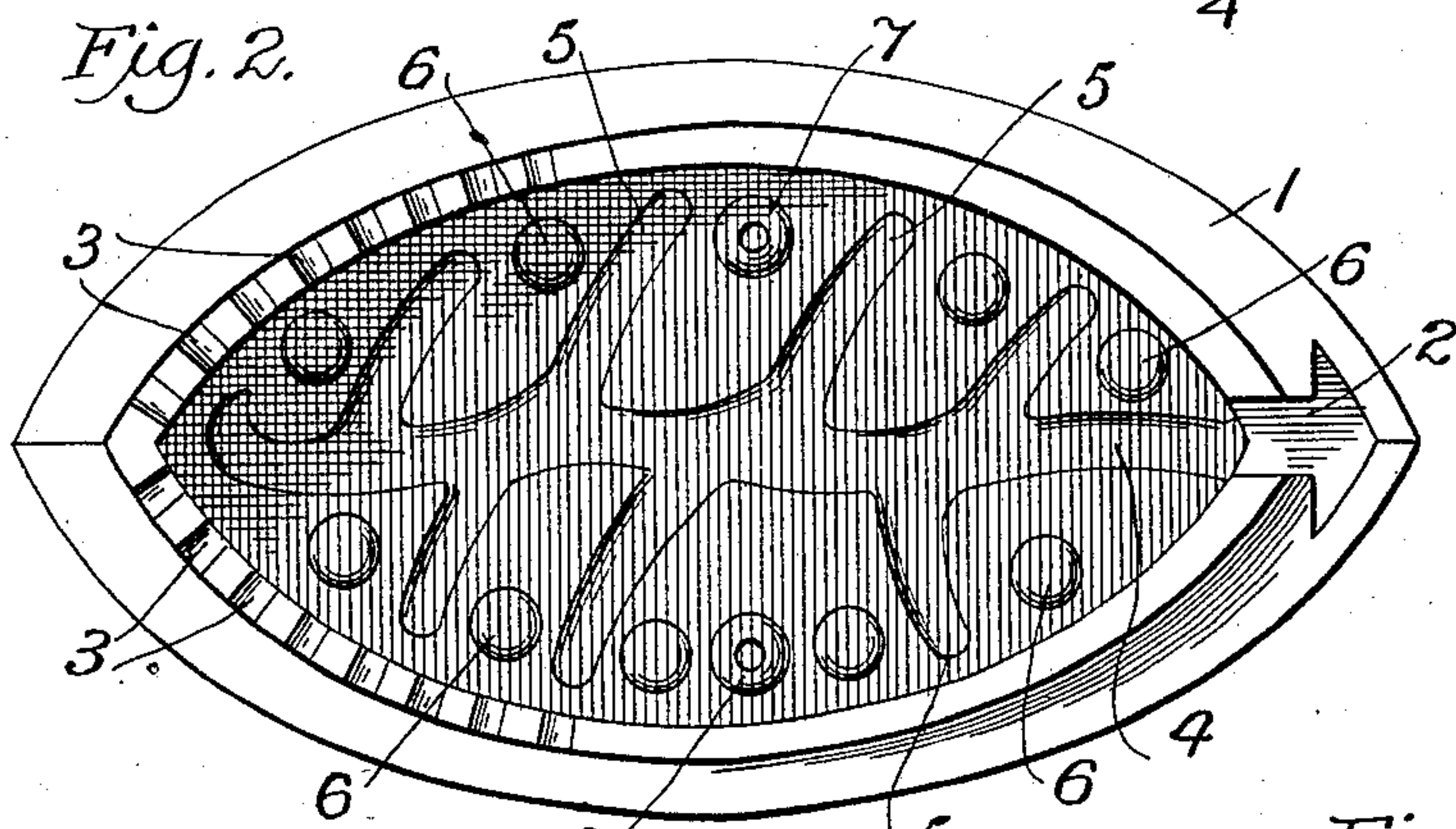
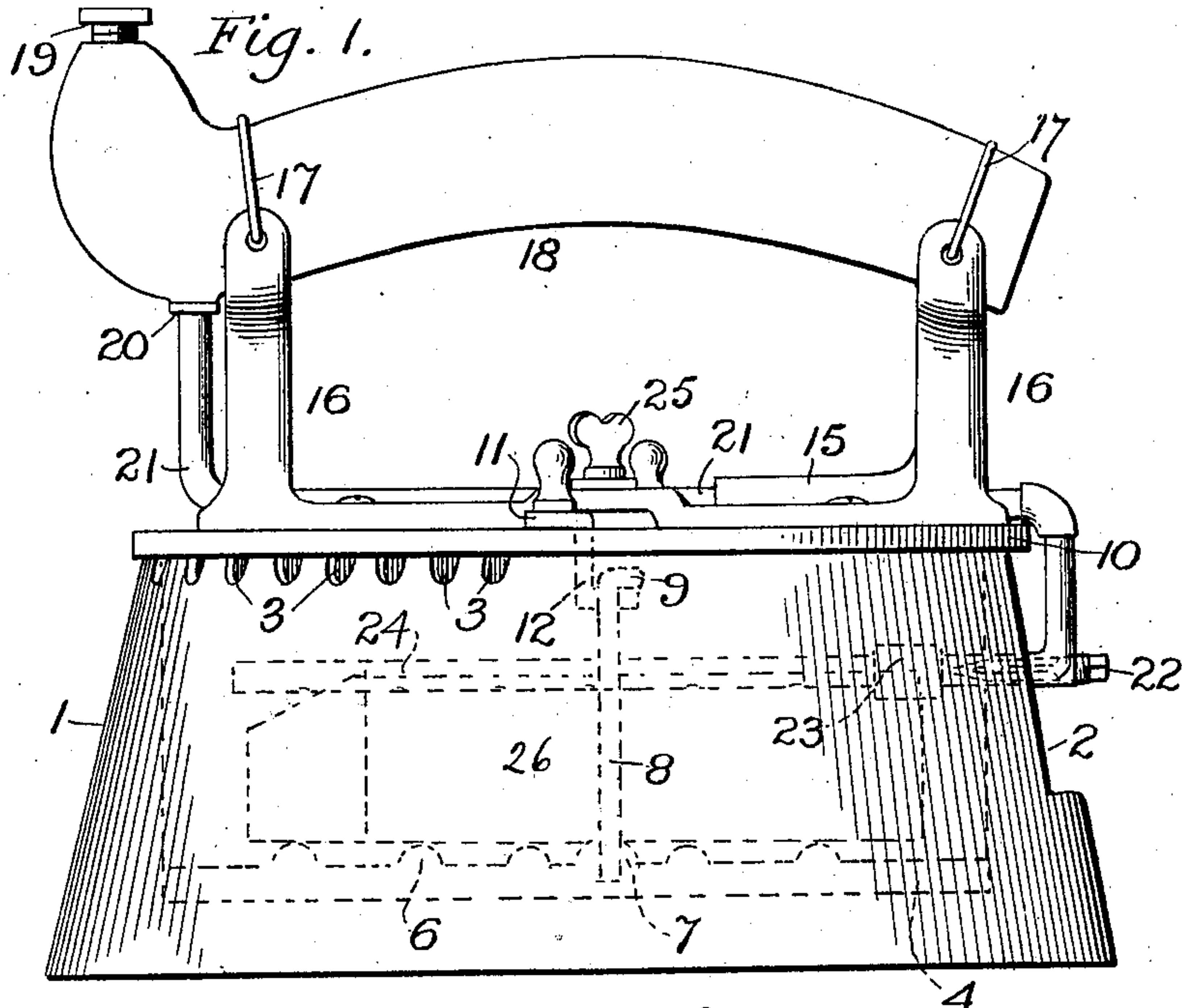
PATENTED FEB. 10, 1903.

E. J. HANSEN.  
SAD IRON.

APPLICATION FILED JULY 1, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 4.

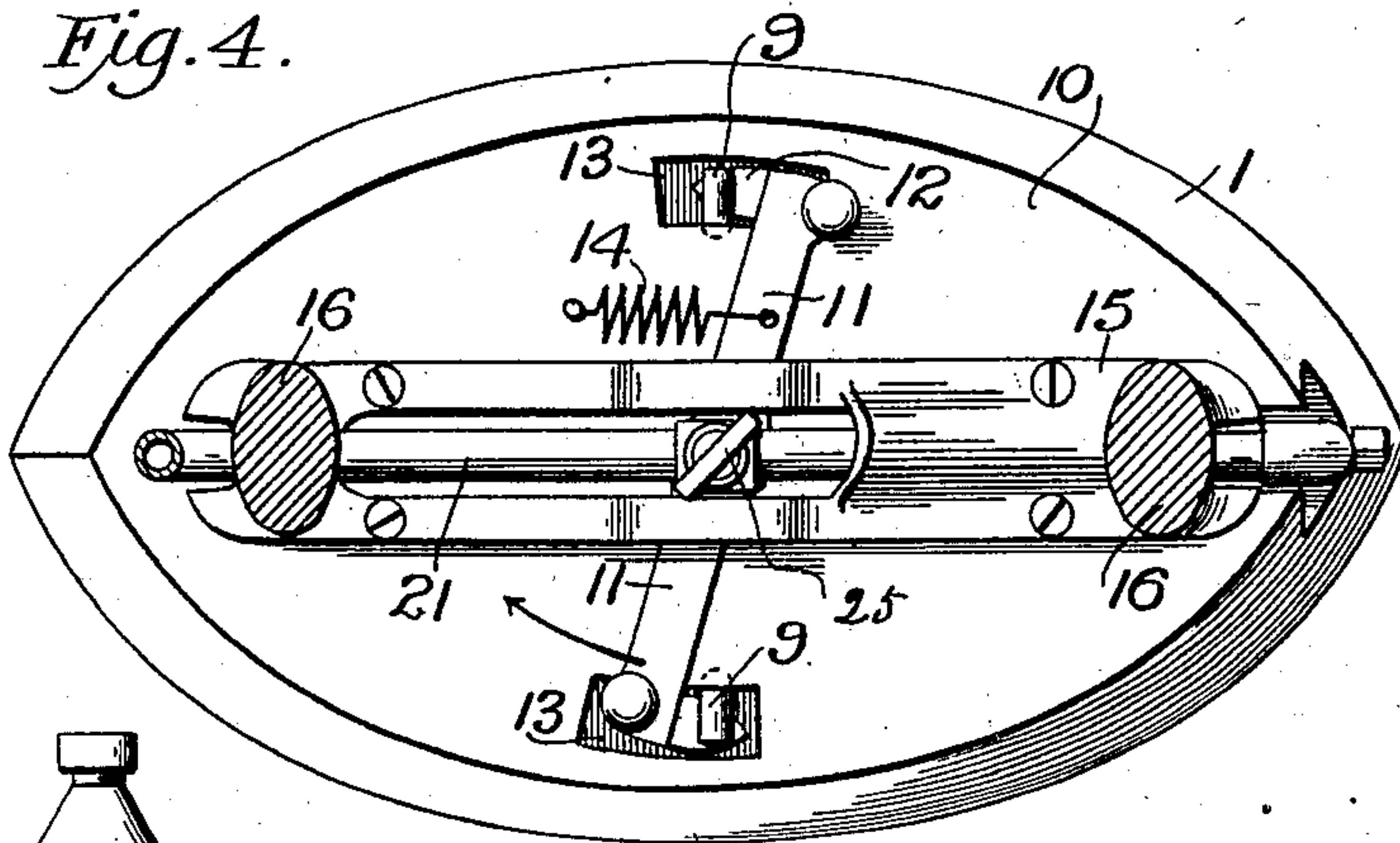


Fig. 5.

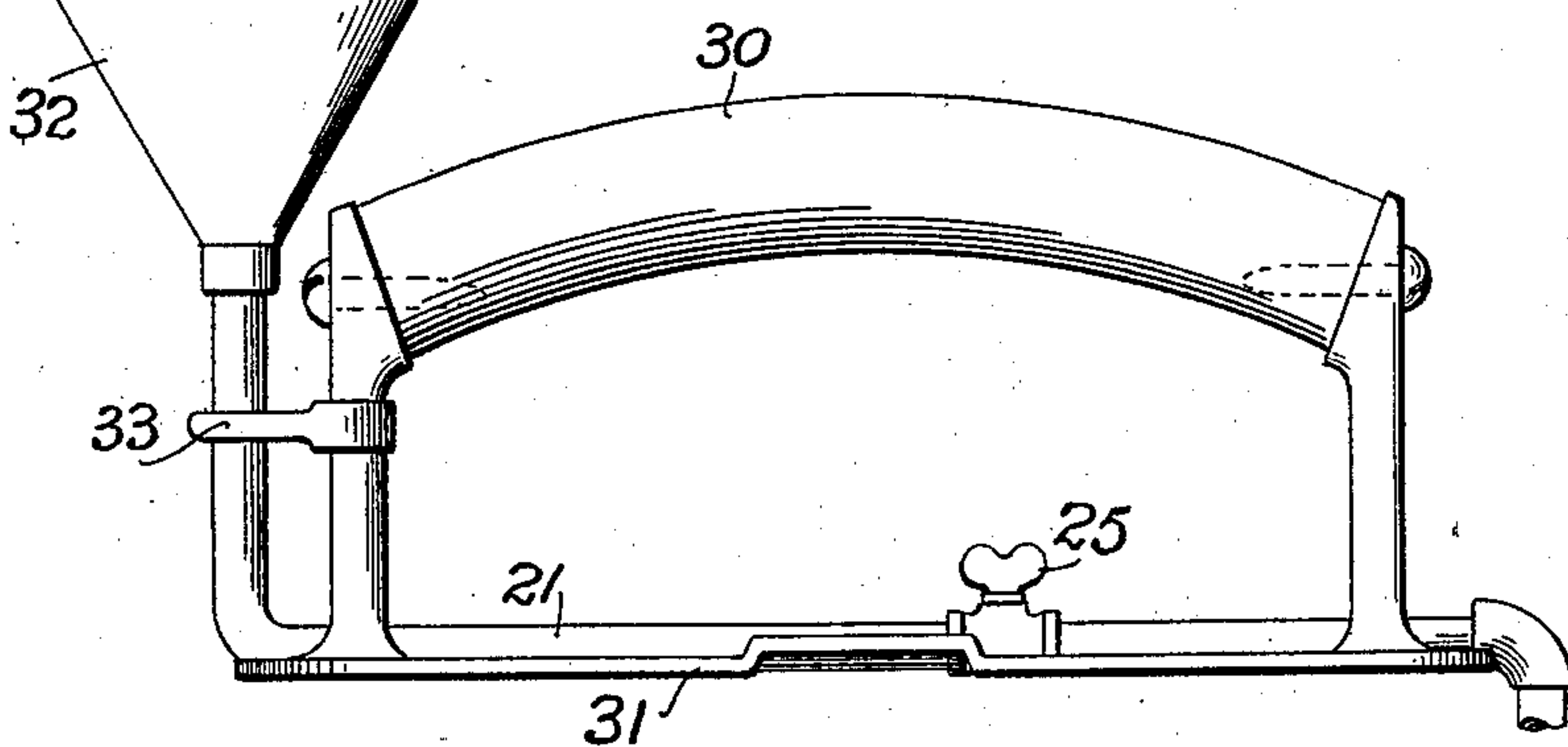
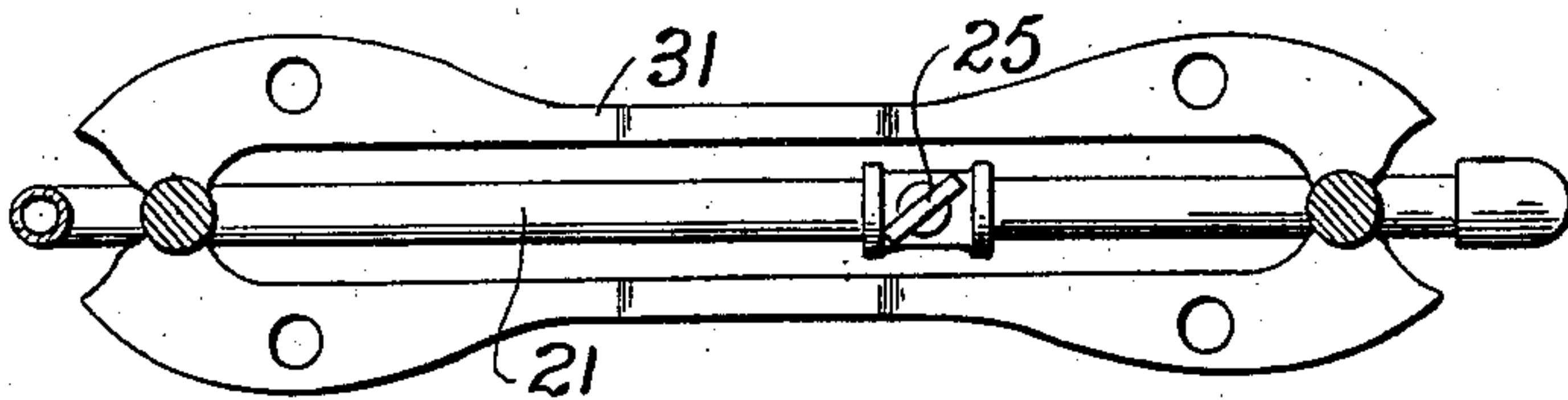


Fig. 6.



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# UNITED STATES PATENT OFFICE.

EBBE J. HANSEN, OF EXIRA, IOWA.

## SAD-IRON.

SPECIFICATION forming part of Letters Patent No. 720,518, dated February 10, 1903.

Application filed July 1, 1901. Serial No. 66,720. (No model.)

*To all whom it may concern:*

Be it known that I, EBBE J. HANSEN, a citizen of the United States, residing at Exira, in the county of Audubon and State of Iowa, have  
5 invented certain new and useful Improvements in Sad-Irons; 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 apper-  
10 tains to make and use the same.

My invention relates to sad-irons; and it consists in certain additions and improvements in construction which enable me to burn coal-oil or other oils in common use  
15 to heat the same and safely carry in reservoirs conveniently attached to the iron a supply of oil.

With this object in view I make this sad-iron in several parts, which will be herein-  
20 after more fully described, and so construct them that they may be readily put together or detached for cleaning, which is a very necessary feature when oil is used.

Another object of this invention is the deflection of the flame to the bottom of the iron and the reduction to a minimum of the heat communicated to the handle and upper portion of the iron while the iron is being used.

In the drawings which accompany this  
30 specification, Figure 1 is a side elevation of my improved sad-iron. Fig. 2 is a plan view of the body of the iron. Fig. 3 is a plan view of the deflector. Fig. 3<sup>a</sup> is a sectional view of the deflector through the line *a a*, Fig. 3. Fig. 4 is a plan view of the iron without the reservoir. Fig. 5 is a side elevation of a  
35 modification, and Fig. 6 is a sectional plan of same.

The iron proper is a somewhat oval box 1,  
40 having at one end a vertical slot 2 for the admission of the oil-pipe to its interior. At the other end along the upper edge is a series of depressions 3 3, which permit the egress of heated air. These openings at each end per-  
45 mit of a thorough circulation of air and insure a supply of oxygen for the flame. The bottom of the interior of the iron 1 has a depression or groove 4 running nearly its entire length, and from the main groove 4 run  
50 short lateral grooves 5. At certain points along the bottom of the iron are cast spurs or

projections 6. The object of these grooves and spurs is to increase the heating-surface, it being well known that a pointed object is more readily heated than a flat surface. The  
55 flames when forced down on the bottom of the iron, as hereinafter described, will be diffused through the grooves around the spurs and the iron will receive the maximum amount of heat. The two central spurs 7 7  
60 are bored out and tapped for the admission of threaded vertical rods 8, having hooked ends 9.

The lid 10 is the shape of the iron proper and is locked to it by means of the latch 11, 65 pivoted at the center of the lid and having depressed hooks 12 12, which pass down through segmental slots 13 in the lid and engage the hooks 9 of the rods 8. The latch is held in constant engagement by the spring 14 until  
70 it is necessary to separate the parts, when the latch is thrown in the direction of the arrow in Fig. 4 and the hooks 9 and 12 disengaged. Attached to the lid is a frame 15, having at each end an upright 16, provided at its ex-  
75 tremity with a wire loop 17 and forked for the reception of a handle 18, as shown in Fig. 1. This handle 18 is made of sheet or cast metal and serves as a reservoir for the coal-oil or other oils commonly employed for  
80 heating the iron. It is provided at one end with a screw-cap 19 for filling and an outlet 20, to which is attached a pipe 21. The pipe 21 descends to the upper surface of the lid and runs through openings in the uprights  
85 16 and a slot in the frame 15 to the other end of the lid, where it takes a short vertical turn and is supplied with a needle-valve 22, a small vaporizing-chamber 23, and terminates in a perforated horizontal section 24, parallel with  
90 the main section 21. The pipe 21 is provided with a small cock 25 to regulate or cut off the supply of oil.

The third separable part of my improved sad-iron is the deflector 26. This deflector 95 is a little smaller than the space within the iron 1 and is beveled at its forward end to provide more space on that end of the interior of the iron to accommodate the heated air prior to its egress through the openings 3. 100  
Along the upper surface is a groove 27 for the reception of the perforated section 24 of the



oil-pipe 21. This groove is further cut out to form a zigzag channel from which funnel-shaped perforations 28 run to the bottom of the deflector. Each side of the deflector is provided with a vertical slot 29, through which pass the vertical rods 8, and a small section is cut away at the rear end to accommodate the vaporizing-chamber 23. It will be seen that the deflector being held away from the bottom by the spurs 6 leaves abundant room for the passage of the flame around the spurs and through the grooves 4 and 5.

The operation of the various parts above described is as follows: The reservoir or handle 18 being filled with coal-oil or other oils in common use, the cock 25 is opened to admit the desired amount to the vaporizer through the valve 22. The oil in section 24 is then lighted, the lid placed on the iron, and the latch 11 engaging the hooks of rods 8. The oil in the upper part of the pipe is soon converted into vapor, which flows out of the perforations on the lower side of the section 24 and burns. The flame is forced down through the perforations 28 in the deflector and strikes the irregular surface of the bottom of the interior of the iron.

To take the device apart, the latch is thrown out of engagement and the top taken off, disengaging the rods 8 from the screw-threaded openings in the spurs 7 7. The deflector can then be taken out and the soot removed or any repairs be made which may be found necessary.

The oil-pipe 21 is made rigid by being clamped to the lid by the rear part of the frame 15, which covers the pipe and is screwed down to the lid.

The latch 11 may be provided, as shown, with knobs for easy manipulation.

In Figs. 5 and 6 are shown a modification of this invention, in which I use a wooden or solid-metal handle 30, attached to uprights of the frame 31 by means of screws. A reservoir 32, of any desired form, is attached to the upper end of the oil-pipe, which is secured to the frame 31 by means of a bracket 33. This reservoir is also provided with a cap.

It is obvious that various modifications in construction may suggest themselves with-

out departing from the invention herein described and shown.

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

1. The grooved, perforated, spurred body portion, the lid, the handle secured to the lid, the removable, perforated deflector having funnel-shaped perforations therein, locking devices for securing said parts together, and means for heating the body portion of the iron.

2. The grooved, perforated, spurred body portion, the lid carrying the reservoir-handle and frame thereon, the perforated deflector having the zigzag groove and perforations therein, spring locking devices, and means for heating the interior body portion of the iron.

3. The grooved, perforated, spurred body portion, provided with openings at each end thereof, the lid carrying the frame and reservoir-handle thereon, the removable, perforated deflector, having a zigzag groove and funnel-shaped perforations therein, devices for locking the said parts of the iron together, the vaporizing-chamber, the burner, and means for conveying the oil from the reservoir-handle to the burner.

4. The grooved, perforated and spurred body portion, the removable lid carrying the frame and reservoir-handle, the removable, beveled ended deflector, provided with a perforated zigzag groove, and downwardly-extending funnel-shaped perforations therein, locking devices for securing the said parts of the iron together, the vaporizing-chamber, the needle-valve, the perforated burner, and means for conveying the fluid from the reservoir-handle to the interior body portion of the iron, and the regulating-valve for controlling the flow of the fluid to the body of the iron.

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

EBBE J. HANSEN.

Witnesses:

L. D. NELLIS,  
W. E. WISSLER.