

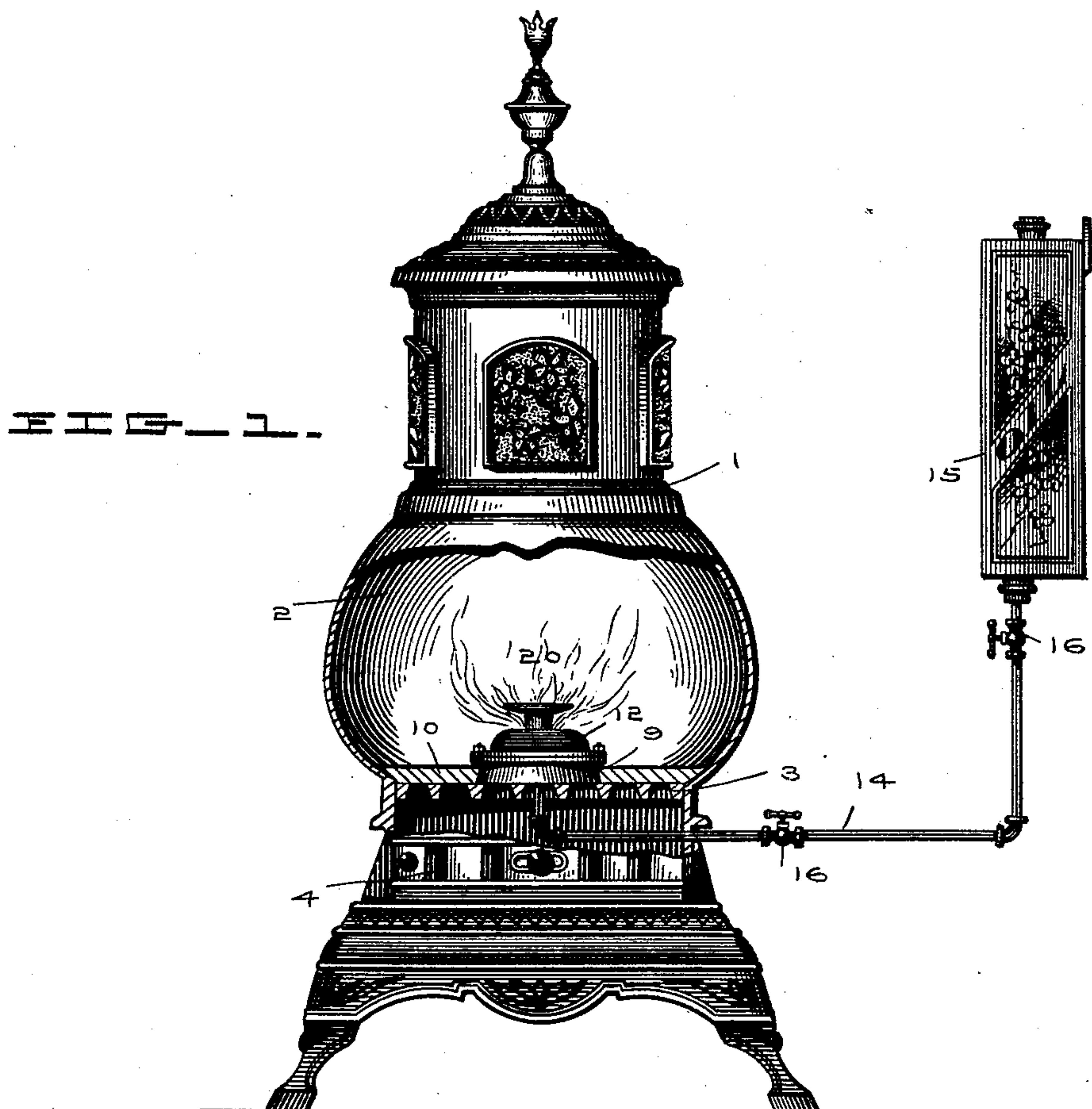
(No Model.)

3 Sheets—Sheet 1.

W. T. PUTNAM.  
OIL BURNER.

No. 500,350.

Patented June 27, 1893.



Witnesses

G. D. Neale  
P. C. Ruben

Inventor

William T. Putnam

By his Attorney

H. D. Neale

(No Model.)

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FIG. 2.

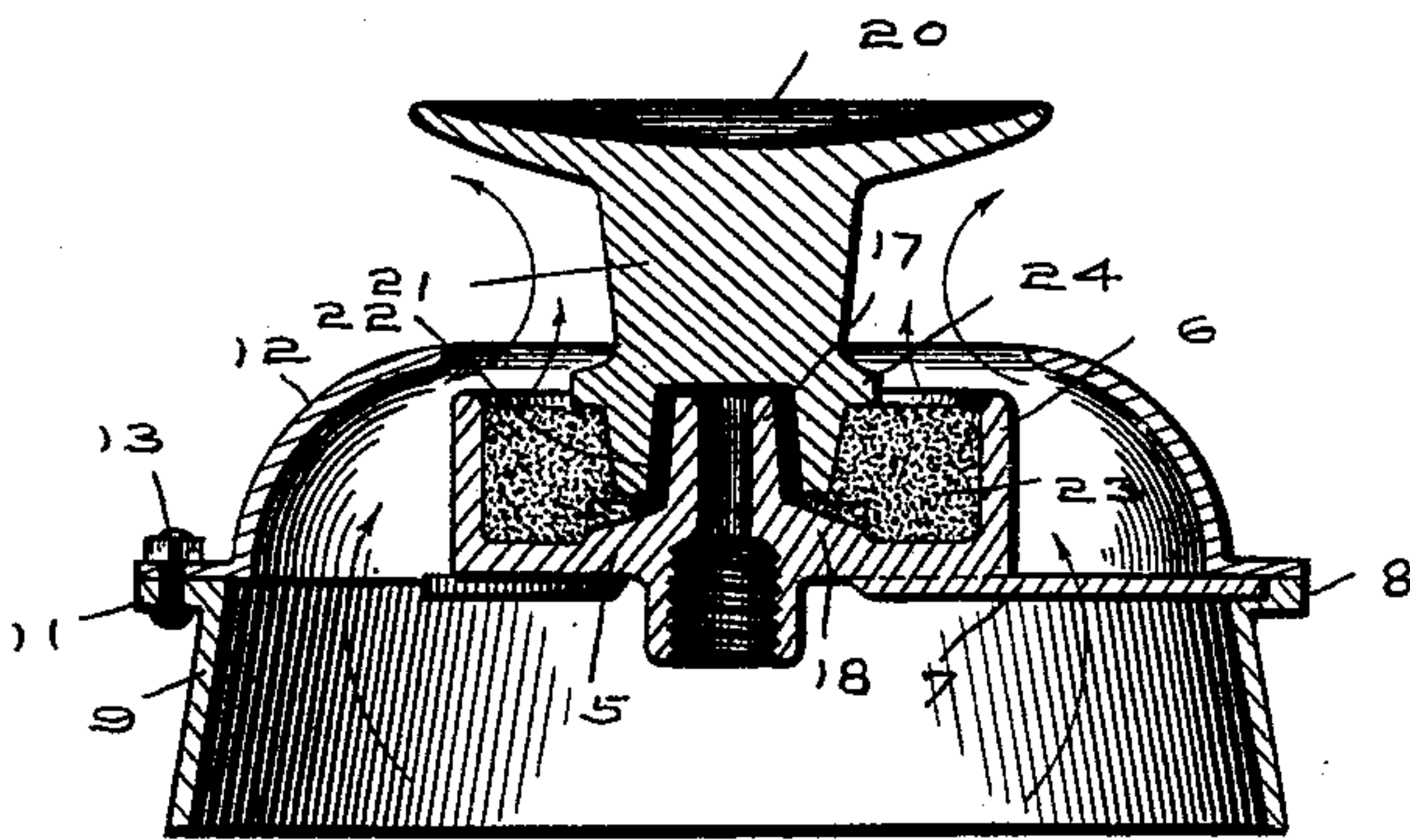


FIG. 3.

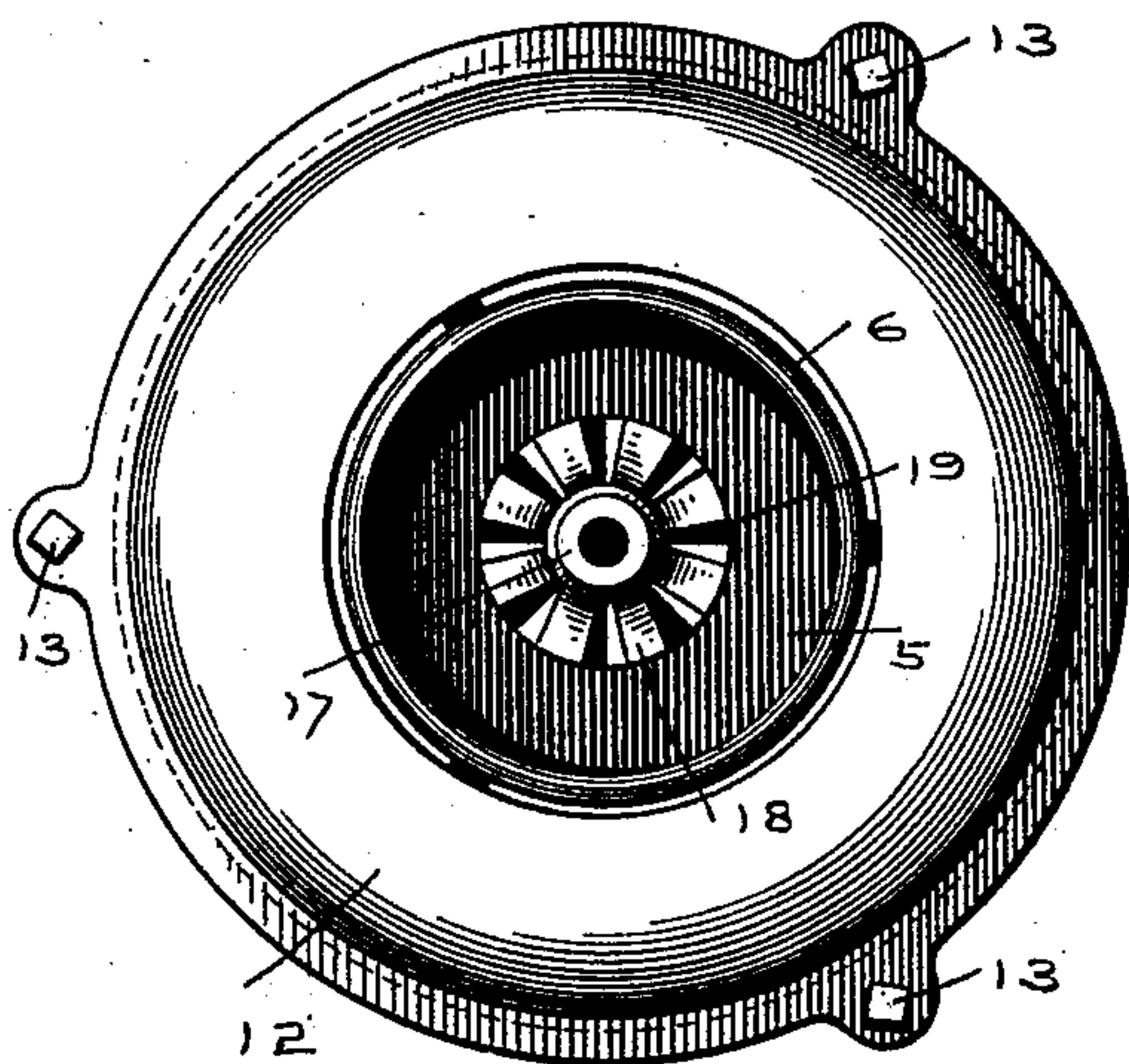
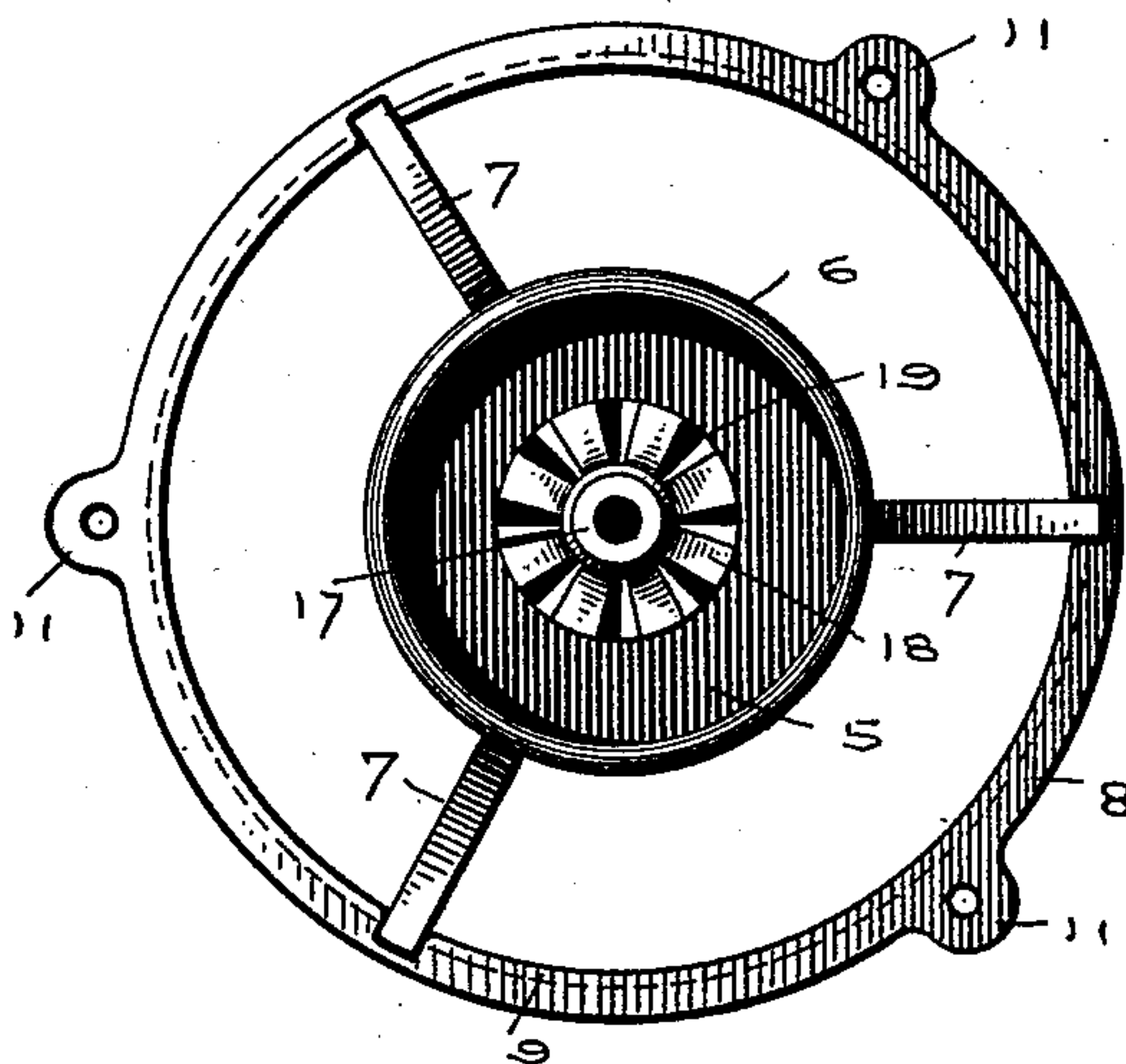


FIG. 4.



Witnesses

*H. D. Neely*  
*O. C. Putnam*

Inventor

*William T. Putnam*

By his Attorney

*H. D. Neely*

(No Model.)

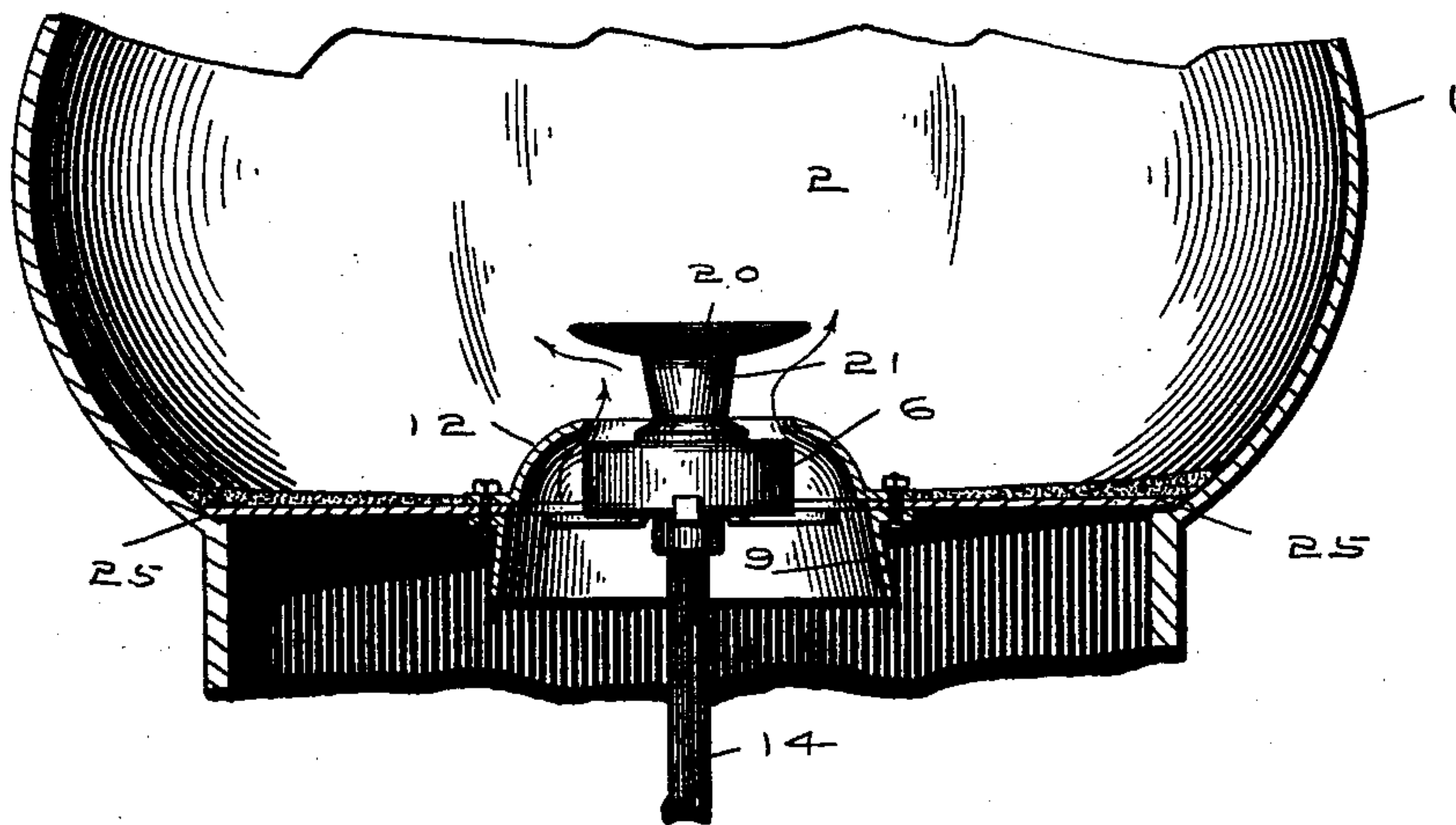
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FIG. 5.



Witnesses

*George D. Keely*  
*Edward C. Cooper*

Inventor

*William T. Putnam*

By Attorney

*J. D. Neely*



# UNITED STATES PATENT OFFICE.

WILLIAM T. PUTNAM, OF BRIGHTWOOD, INDIANA.

## OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 500,350, dated June 27, 1893.

Application filed December 22, 1892. Serial No. 456,106. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM T. PUTNAM, a citizen of the United States, residing at Brightwood, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Oil-Burners; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to new and useful improvements in the construction and operation of oil burners as will be hereinafter fully described, and more particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a view partly in section of a stove showing my improved burner in place and connected with an oil supply. Fig. 2 is an enlarged central section through the burner, its air shaft or shell and deflector. Fig. 3 is a top plan view of the same, the deflector and burner filling removed. Fig. 4 is a top plan view of the burner and the lower part of the air shaft upon which it rests, the filling of the burner being removed. Fig. 5 is a view showing a modified form of filling around the burner, and one which supports the burner when the grate is not used.

In detail, 1 represents a stove of any ordinary form or construction; 2 the fire pot, 3 the grate, and 4 the draft opening below the same.

5 is the burner proper, which is circular in form, and has a flange 6 around its outer edge, arms or lugs 7 being formed on its under side, the outer ends of these fitting in recesses formed in the flange 8 around the top of the lower part 9 of the burner air shaft or shell which rests on the stove grate, as shown in Fig. 1, the grate surrounding such air shaft being covered with suitable material 10 to prevent any air from passing up through the grate outside the air shaft.

In the modification shown in Fig. 5, and which is preferable for several reasons, the grate is shown removed, and a sheet metal plate 25 with an opening therein the size of

the air shaft or shell 9 is held firmly between the flanges of the two parts 9 and 12 of such air shaft, the outside of the metal plate 25 being cut to fit the inside of the stove walls, and is supported from such walls, and in turn supports the burner. A covering of five parts fire-clay, two parts of salt, and three parts wood ashes, which are mixed with water into a paste or plaster, may then be spread over the plate 25, filling all openings, and, when dry, being nearly as hard as the metal itself, prevents any air from passing up outside of the air shaft of the burner, and binds the plate 25 firmly in the stove.

11 are projecting lugs formed on the flange 8 of the air shaft or shell, and a similar flange and lugs are formed on the upper part of the shell 12, the two parts being adapted to fit together and are secured by bolts 13, thus making the two parts practically one, and serving at the same time to hold the burner 5 exactly in the center of its air shaft, the open top of such shaft 12 being contracted to about the same diameter of the burner, while, being a little higher, an open space is formed between the edges of the two through which air from below passes and is directed inward by the contracted top of the shaft 12.

The burner 5 has a pipe 14 centrally attached in its under side, this pipe leading to a point outside the stove, where, at a suitable distance, it is connected with an oil tank 15, the pipe 14 having valves 16 therein for regulating the flow of oil into the burner.

17 is an extension or projection in the center of the burner and in its top is an opening up through which oil from the pipe 14 flows, 18 being a re-enforcement around the base of the projection 17 having grooves or gutters 19 therein, shown in Figs. 3 and 4.

20 is a deflector with a central base 21 having an opening 22 therein of larger size than the burner projection 17, and fits over it loosely, a space being left between the two for the free flow of oil.

23 is a filling of any suitable mineral substance, of which I have found sand to be preferable, this being placed loosely in the burner, and a rib 24 around the base of the deflector rests on the top of the sand so as to hold the deflector off of the vertical projection 17 through which the oil flows. While crude



petroleum or oil may be used in this burner, there are several grades of partly refined oils which are especially adapted for this use, and which I prefer.

5 In operation, the oil is fed from the tank 15, and on the opening of the valves 16 flows through the pipe 14 and up into the burner, overflowing the top of the projection 17, and  
10 down between this and the deflector base, where it filters up through the sand 23, and may then be lighted. The sand has a tendency to clear the oil, breaking it up, and after the first time it is easily lighted. The flame passing upward is deflected or thrown  
15 outward by the deflector 20. Before this, though, the air current or draft from below the grate passing up around the burner is directed inward by the contracted overhanging top 12 of the air shaft or shell in a thin sheet, tending to throw the flame against the de-  
20 flector base, and thus mixing perfectly with it before it is thrown out by the deflector, perfect combustion thus being obtained, and the fire is found to leave no soot or carbon  
25 deposits in the stove, the only deposit or impurity being a light mossy one which is left on top of the sand in the burner, and which assists in lighting the burner after it is formed. The oil by its passage through the  
30 projection 17, and then down between it and the deflector base 21 to the bottom of the sand, is thereby held in the burner a short time before it reaches the sand and is lighted, becomes partly heated, and when it reaches  
35 the top of the sand, the flame is practically a gaseous one, instead of being the oil itself, and to this is partly due the perfect combustion.

40 The sand used in the burner does not suffer from use, as the oil loosens it up whenever it is turned on, but it may be removed and clean sand put in its place at any time. The use of sand as a burner filling also prevents the fire from sputtering should there be water  
45 in the oil, as the water, being heavier, will stay in the bottom of the burner and escape from it in the form of steam when heated.

It will be seen from the foregoing that the burner, while simple in construction, and its  
50 parts few in number, is effective in operation, producing a fire that is clean and bright, with an economical use of oil.

My burner is not limited to use in heating stoves, but may be used in any class, or in  
55 furnaces, and while the parts may be modified to suit the different uses, the principle will remain the same, and while sand has heretofore given the best results as a burner filling, asbestos or other mineral products  
60 might be used.

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

65 1. An oil burner centrally connected with an oil supply, and having a loose filling of a mineral substance, a central extension in such

burner which the oil overflows, and a deflector supported above the burner, its base loosely covering and overhanging the oil opening, 70 substantially as set forth.

2. An oil burner with a central hollow extension connected below with an oil supply, a deflector supported above such burner, its base loosely covering and overhanging the 75 oil opening, such burner having a flanged edge with a loose filling of a mineral substance, such filling extending higher than the bottom of the deflector base, whereby the oil will be fed up from the bottom of such burner 80 filling, substantially as set forth.

3. An oil burner having a central hollow projection connected below with an oil supply, a re-enforcement surrounding such projection with radiating grooves therein, a de- 85 flector supported above the burner, its base loosely covering and overhanging the oil opening, the burner having a loose filling of a mineral substance which extends to a point above the edge of the deflector base, substan- 90 tially as set forth.

4. An oil burner centrally supported within a surrounding air shaft, such shaft formed in two parts, the upper having an open contracted top above the top of the burner, the 95 two parts of such shaft bolted together and projections on the burner secured between such parts, such burner having a loose filling of a mineral substance through which the oil passes before it is burned, substantially as 100 set forth.

5. An oil burner centrally supported within a surrounding air shaft, such shaft having an open contracted top leaving a narrow space between the edge of the burner and the top 105 of the shaft, such burner filled with a granulated mineral substance and connected with an oil supply, a deflector above which is centrally supported from such burner and over the oil opening, substantially as set forth. 110

6. An oil burner having a surrounding flange and a central hollow projection adapted to be connected from below with an oil supply, a deflector above the burner, its base loosely covering and overhanging the oil open- 115 ing, such burner having a filling of granulated mineral substance, in combination with a circular inclosing air shaft having a contracted top, substantially as set forth.

7. An oil burner having a surrounding 120 flange and a hollow central projection with an oil opening therein, and connected below with an oil supply, a flaring deflector supported above the burner, its base loosely covering and overhanging the oil opening, a re- 125 enforcement surrounding the central projection of the burner, with radiating grooves therein, such burner filled loosely with a mineral substance, and centrally supported within an inclosing air shaft, substantially as set 130 forth.

8. An oil burner having a surrounding flange and a hollow central projection, an oil supply adapted to be connected from below,



a deflector supported above such burner, its base loosely covering and overhanging the oil opening, a loose filling of mineral substance within such burner, a surrounding air shaft in which the burner is supported, such shaft being formed in two parts, and having an open contracted top, such burner and air shaft adapted to be centrally supported within a stove, substantially as set forth.

9. In an oil burner, an air shaft formed in two parts and adapted to be secured together, a metallic filling fitting the walls of the stove, its inner edges clamped between the two parts of the air shaft, whereby such air shaft is supported, substantially as set forth.

10. In an oil burner, an air shaft formed in two parts and adapted to be secured together, a metallic filling fitting the walls of the stove,

its inner edges clamped between the flanged edges of the two parts of the air shaft, and a plastic covering over such filling for closing any openings, substantially as set forth.

11. In an oil burner, an air shaft formed in two parts and adapted to be secured together, a burner supported within such shaft, a metallic plate filling the stove outside of such air shaft, the inner edges of such filling and projections on such burner adapted to be clamped between the two parts of the air shaft, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM T. PUTNAM.

Witnesses:

H. D. NEALY,  
L. E. PUTNAM.