

No. 632,822.

Patented Sept. 12, 1899.

J. M. O'CONNELL.

OIL BURNER.

(Application filed June 18, 1897.)

(No Model.)

2 Sheets—Sheet 1.

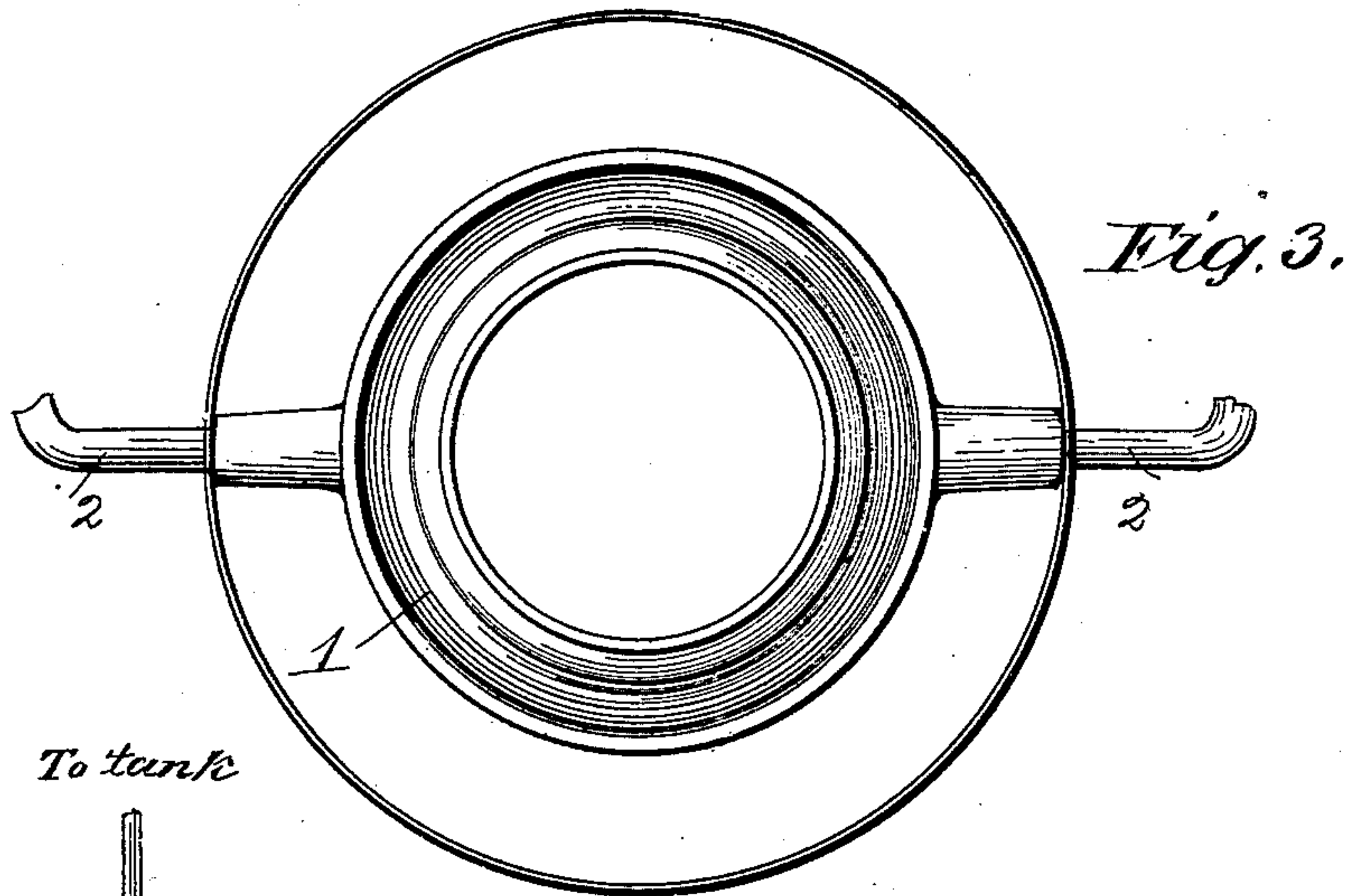


Fig. 3.

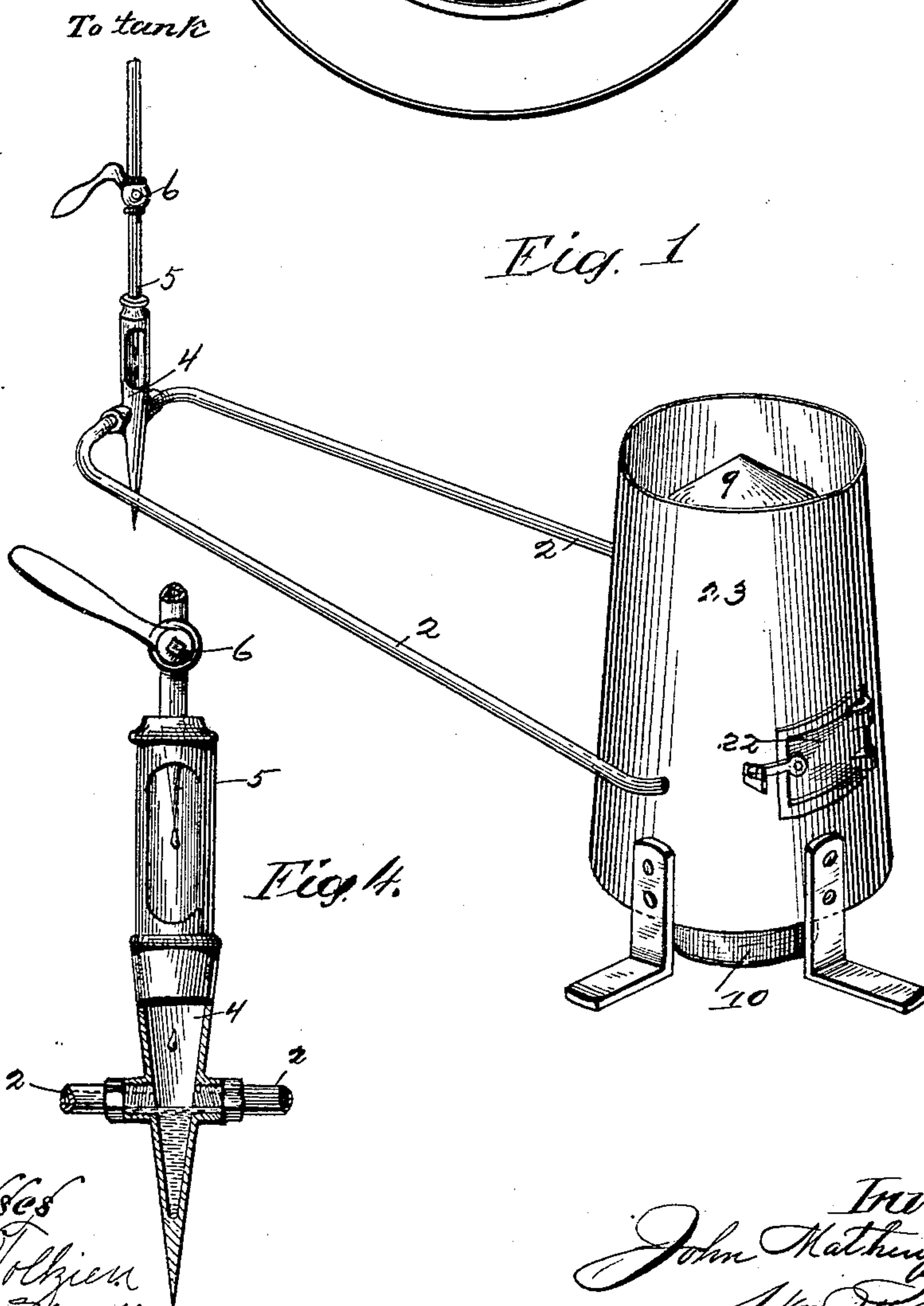


Fig. 1

Fig. 4.

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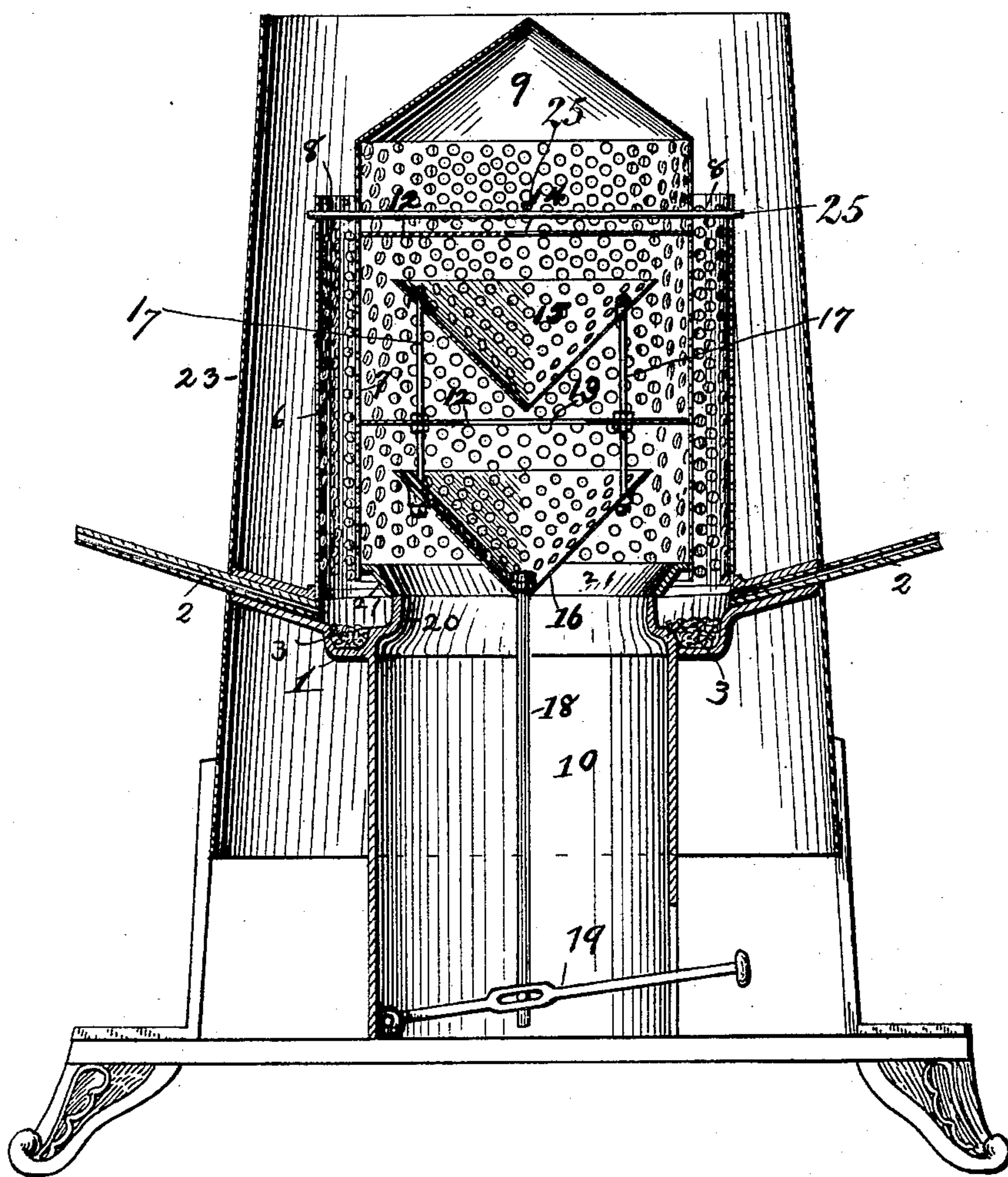
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2 Sheets—Sheet 2.

Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN MATHUE O'CONNELL, OF CLEVELAND, OHIO.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 632,822, dated September 12, 1899.

Application filed June 18, 1897. Serial No. 641,308. (No model.)

To all whom it may concern:

Be it known that I, JOHN MATHUE O'CONNELL, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Oil-Burners, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in refined-petroleum-fluid burners; and the object of the invention is to provide a wickless burner in which perfect commingling of the air with the products of combustion is obtained and therefore perfect combustion without disagreeable odor.

My invention consists in the combination, with draft, commingling, and combustion chambers, of an annular combustion or firing pan, with means for feeding the oil to the pipe, and in the construction and arrangement of the various details, as hereinafter described, shown in the accompanying drawings, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of my invention. Fig. 2 is a vertical central section of the burner. Fig. 3 is a plan view of the annular combustion-pan; and Fig. 4 is a detail, partially in section, of the oil-feeding device.

In the views, 1 is the combustion-ring or firing-pan, shaped as a shallow trough and into which the oil is fed upon opposite sides through the double feed-pipe 2. To distribute the oil evenly and serve to retain it by capillary attraction upon the ring, grains of some refractory material 3—such as sand, ashes, or marble dust—are strewn upon the ring to absorb the oil as it flows from the pipes.

In order to regulate the flow of the fluid into the double pipe, the extremities are inserted upon a common horizontal line in the overflow-chamber 4, into the upper extremity of which extends the drip-pipe 5, controlled by the valve 6. It will be seen that as the oil drops from the drip-pipe 5 it will fill the conically-shaped overflow-chamber 4 until the level of the double feed-pipe is obtained, when it will flow into the pipe branches

equally on either side, and thus insure perfect distribution over the pan. It is essential, however, that the pan should be perfectly horizontal to produce this effect.

The other portions of the burner are seen to be the outer perforated cylinder 6 and the inner perforated cylinder 7, inclosing an annular space 8 between them directly over the burner-ring. The top of the inner perforated cylinder is closed by the cap 9, and the cylindrical air-duct 10 leads centrally into the lower extremity through the burner-ring. This duct is somewhat contracted at the upper extremity at 20 to give space for the expansion of the products of combustion from the burner, and the deflecting-ring 21 completes the passage between the duct 10 and the inner perforated cylinder. The inner perforated cylinder is divided into three chambers by the partition-walls 12, which are centrally pierced, the lower one by the large central opening 13 and the upper one by the smaller opening 14. Inverted cones 15 and 16, also perforated, are supported underneath these openings, the upper one by slender rods 17, passing through the lower cone and secured to the cone, which is in turn supported upon the rod 18 upon the hand-lever 19, by means of which the cone can be raised until it lifts the entire inner and outer cylinders in order to give free access to the burner-ring when the oil is to be lighted. This is accomplished by adding a simple form of connection between the cylinders, so that they will move together. In Fig. 2 cross-wires 25 are shown as employed for this purpose.

The operation of the device is as follows: As soon as sufficient oil has been admitted to the burner-ring and evenly distributed thereon the oil is lighted through the door 22 after pressing upon the lever to raise the cylinders and give access to the burner.

The outer hood 23 serves to inclose all parts and protect them from irregular drafts and to retain and intensify the heat of the inflowing current of air to the cylinder.

The advantages of the device are very great. Among them will be found the equal distribution of the oil to the burner, while the arrangement of the draft and the succession of

commingling-chambers insures the generation of rarefied gases and their complete combustion in an odorless blue flame.

I claim—

5 1. In a burner for refined petroleum fluids or their products, the combination of outer and inner perforated cylinders, forming an annular chamber between them, an annular firing-pan forming the bottom of said cham-
10 ber, a deflecting-ring on the inner edge of said pan, with partitions in the inner cylinder separating the same into chambers, inverted perforated cones in said chambers placed underneath said openings, and a cap
15 for the inner cylinder, substantially as and for the purpose set forth.

2. In a burner for refined petroleum and its products, the combination with inner and outer perforated cylinders, forming an annu-
20 lar chamber between them, of an annular firing-pan below said annular chamber, a central air-duct leading from below through the firing-pan and narrowed at the upper extremity, a deflecting-ring about the inner
25 edge of the pan, chambers formed within the inner perforated cylinder and separated by horizontal partitions provided with central

openings, and inverted and perforated cones, in said chambers, substantially as and for the purpose described.

3. In a burner for refined petroleum and its products, the combination with inner and outer perforated cylinders, forming an annular chamber between them, the said inner cylinder being provided with transverse par-
35 titions having central openings, inverted perforated cones beneath said openings, and a cap closing the top thereof, of an annular firing-pan beneath said annular chamber, centrally placed under the inner cylinder, an
40 air-duct narrowed at its upper extremity and centrally placed beneath the central perforated cylinder, and a deflecting-ring completing the passage from said duct to the inner cylinder and an outer hood about the
45 burner, substantially as and for the purpose described.

In testimony whereof I hereunto set my hand at Cleveland, Ohio, A. D. 1897.

JOHN MATHUE O'CONNELL.

Witnesses:

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WM. GIBSON.