

No. 713,494.

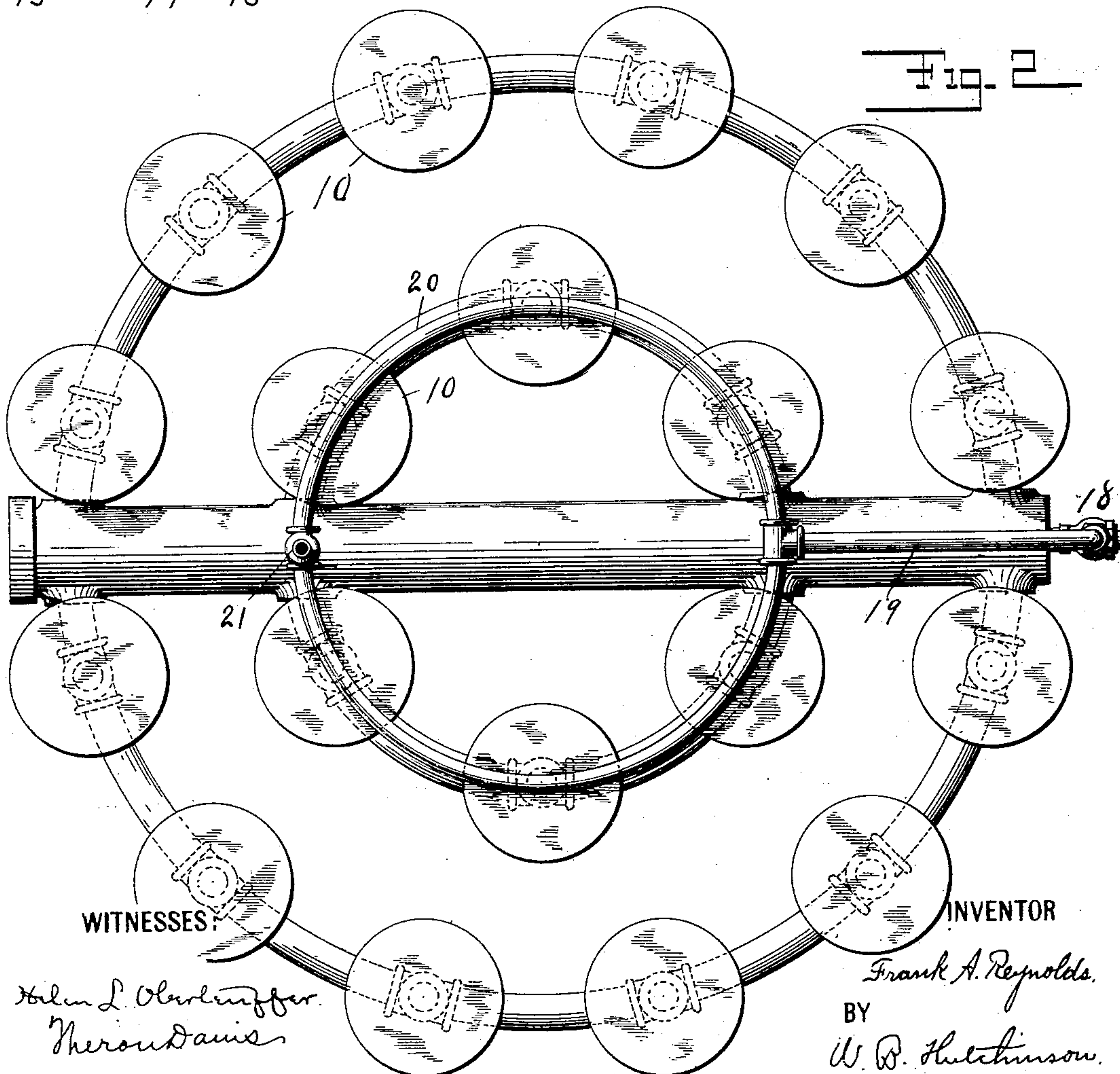
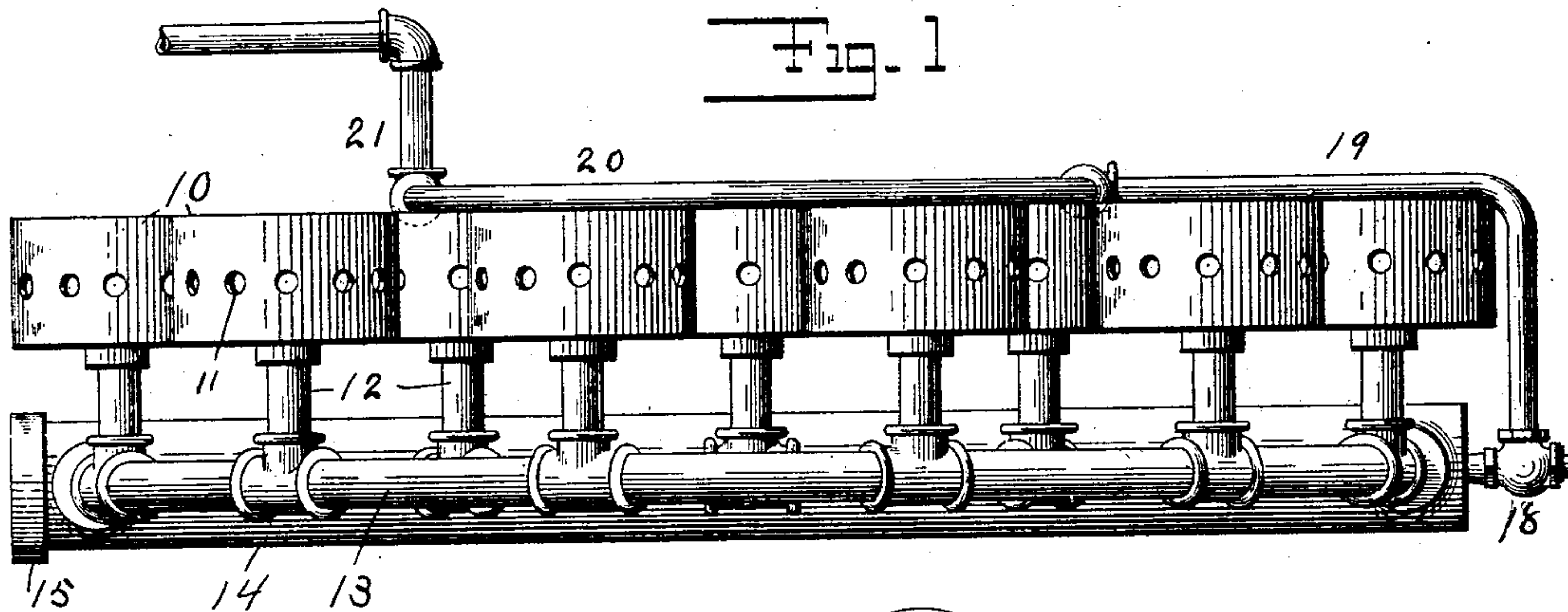
Patented Nov. 11, 1902.

F. A. REYNOLDS.  
HYDROCARBON BURNER.

(Application filed June 10, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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**No. 713,494.**

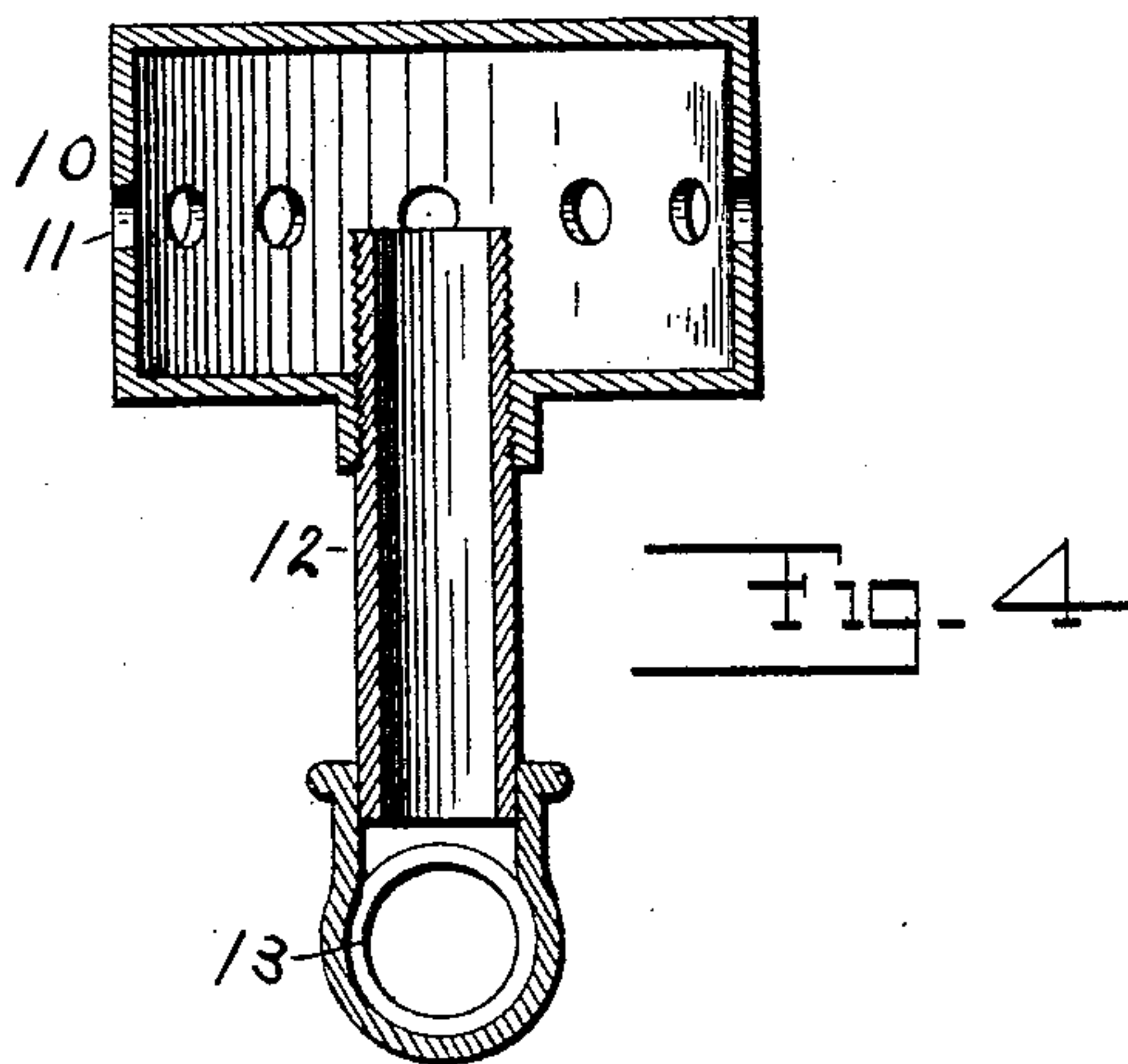
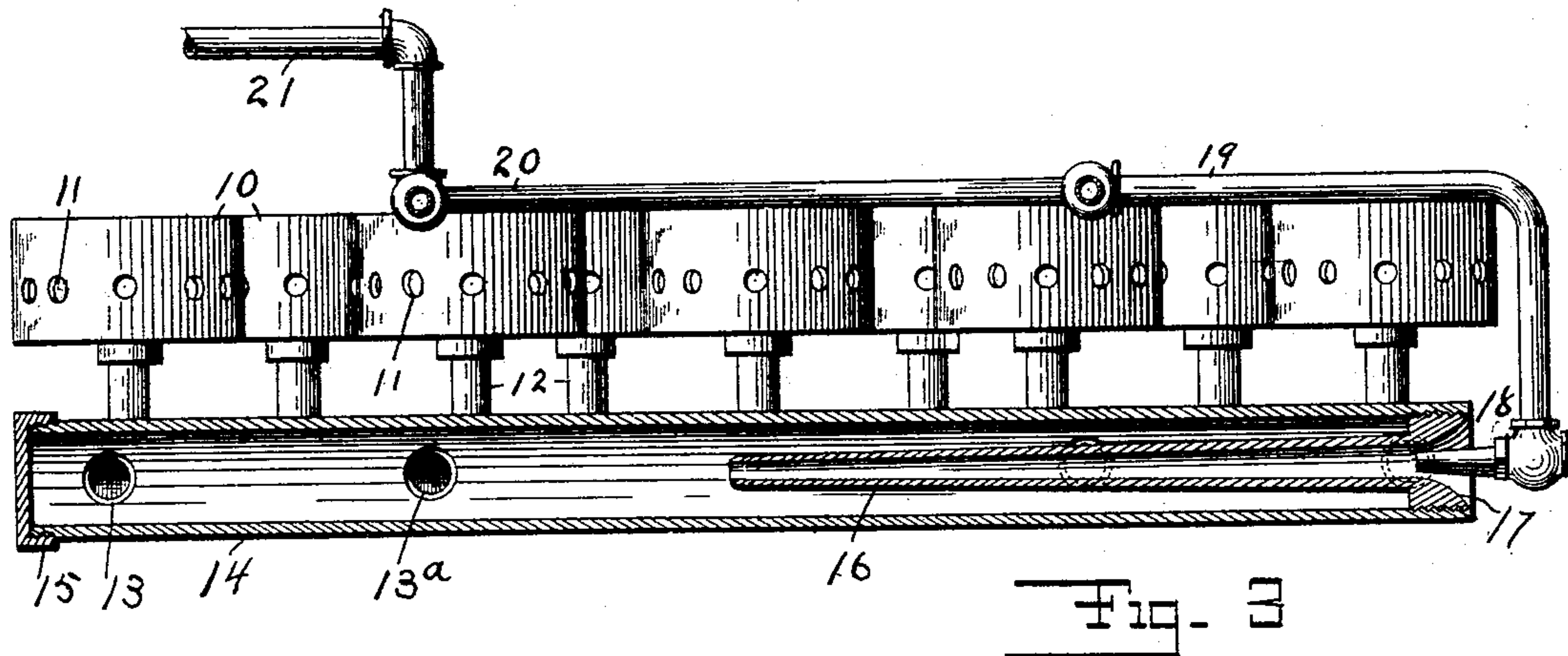
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**2 Sheets—Sheet 2.**





# UNITED STATES PATENT OFFICE.

FRANK ARTHUR REYNOLDS, OF LEWISTON, MAINE, ASSIGNOR, BY MESNE ASSIGNMENTS, TO STANDARD POWER COMPANY, A CORPORATION OF NEW YORK.

## HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 713,494, dated November 11, 1902.

Application filed June 10, 1901. Serial No. 64,022. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK ARTHUR REYNOLDS, of Lewiston, Androscoggin county, Maine, have invented certain new and useful  
5 Improvements in Hydrocarbon-Burners, of which the following is a full, clear, and exact description.

My invention relates to improvements in hydrocarbon-burners, and is an improvement  
10 on the burner for which I obtained Letters Patent of the United States No. 673,964, dated May 14, 1901. In experimenting with the patented burner referred to I found that there was a little liability of the parts to clog and also  
15 that the parts might be arranged so as to be rather more accessible, so as to produce a still greater heat, and so that a more constant pressure at the individual burners might be obtained.

The object of my present invention is therefore to improve along lines mentioned and to produce a very simple burner which can scarcely clog in any event, which can be easily  
25 cleaned out, if desired, which is adapted to volatilize and practically gasify a fuel, and which for the reasons stated is adapted to afford substantially complete combustion and intense heat.

To these ends my invention consists of certain features of construction and combinations of parts which will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar figures of reference refer to  
35 similar parts throughout the several views.

Figure 1 is a side elevation of my improved burner. Fig. 2 is a plan view thereof. Fig. 3 is a cross-section of the burner, taken longitudinally of the reservoir; and Fig. 4 is a detail sectional view of one of the turrets.  
40

This invention, like the former one referred to, has a series of turrets 10, which are preferably of a generally cylindrical shape and  
45 which are provided with bottom inlets, as shown in Fig. 4 and explained below, and with side ports or openings 11, through which the gas passes as it is burned; but these ports may be made in any desired part of the tur-

ret. Each individual turret 10 is supported 50 on a feed-pipe 12, which extends well up into a turret, and the feed-pipes are supplied from the pipes 13 and 13<sup>a</sup>, these pipes being concentrically arranged, as shown best in Fig. 2, and opening from the central reservoir 14. 55 It will be seen that this arrangement provides a double series of turrets 10, which are arranged in concentric rows, and I find that this arrangement greatly increases the heating capacity of the burner, and it will be 60 noticed that the structure is extremely simple, as the reservoir 14 may be merely a pipe and the pipes 13 and 13<sup>a</sup> may be ordinary tubes or may be castings. By reference to my former patent it will be seen that the differ- 65 ence in supplying the turrets in the two inventions lies chiefly in the fact that the feed-pipe 12 has no restricted opening in the present case and no air-inlet, as I get better results by having the admixture of gas and 70 oil-vapor before the fuel gets to the turrets. The present arrangement is also advantageous, too, because there is little liability of its getting clogged.

The pipes 13 and 13<sup>a</sup> may be castings, if 75 preferred, and they are arranged concentrically, the pipes connecting with a central reservoir 14, which is preferably tubular, and this reservoir is of relatively large area, being larger in area than the combined pipes 80 13 and 13<sup>a</sup>, so that it forms a reservoir for the gaseous fuel, from which the said fuel may flow to the pipes 13 and 13<sup>a</sup> and so to the turrets 10, this arrangement making a relatively constant pressure at several turrets. In the 85 drawings I have shown the pipes 13 and 13<sup>a</sup> coupled directly to the reservoir 14; but obviously any suitable connection can be made; but the form illustrated is preferred, because it will be noticed that this brings practically 90 the burner structure into an exceedingly compact shape.

The reservoir 14 has a removable cap 15 at one end, and at the opposite end it is provided with a nozzle 16, which extends well 95 into it and which is preferably screwed to the end of the reservoir, as shown at 17 in Fig. 3. This nozzle serves as an inlet for



both the volatilized oil or other fluid and the air, and to this end the nozzle has a relatively large mouth, through which the air may pass and which receives the jet-pipe of the valve 18, which may be of any appropriate kind—as, for instance, that shown in my former patent. The valve 18 may be controlled by any suitable device, such as the well-known diaphragm-regulator generally used for this purpose, and this is not shown, because any well-known contrivance for the purpose can be used. The volatilized fuel passes to the valve 18 through a pipe 19, which connects with a coil 20, and the latter is supplied from the main source of supply through a pipe 21 and lies on the tops of the inner group of turrets 10, as shown clearly in Fig. 2. This is substantially the arrangement illustrated in my former patent; but as the heat is greater the fuel is more thoroughly volatilized by the new arrangement. It will be seen from the foregoing description that the structure which I have shown is extremely cheap and simple, that provision is made for charging the reservoir 14 with a mingled hydrocarbon and air, and that by reason of the central arrangement and connection between the reservoir and the turrets a good pressure and thorough mixture of gases is maintained. It will be further noticed that while the structure which I have shown has very little tendency to become clogged, if it does become dirty it will be in the reservoir, and the ends of this can be readily removed, so that the reservoir can be cleaned.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. A burner of the kind described, comprising a main tube extending transversely across the burner, the tube being closed at one end and having an inwardly-discharging nozzle at the other end, a series of concentric pipes connecting at both ends with the main tube, the pipes and tube being arranged essentially on the same plane, ported turrets separated above the concentric pipes, feed-pipes discharging from the concentric pipes into the turrets, and a fuel-supply pipe arranged to discharge into the open end of the nozzle in the main tube.

2. A burner of the kind described, comprising a main tube extending transversely across the burner, the tube being closed at one end and having an inwardly-discharging nozzle at the other end, a series of concentric pipes connecting at both ends with the main tube, the pipes and tube being arranged on essentially the same plane, ported turrets supported above the concentric pipes, feed-pipes discharging from the concentric pipes into the turrets, and a fuel-supply pipe coiled above the turrets and arranged to discharge into the open end of the nozzle in the main tube.

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

FRANK ARTHUR REYNOLDS.

Witnesses:

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FANNIE V. SAUNDERS.