

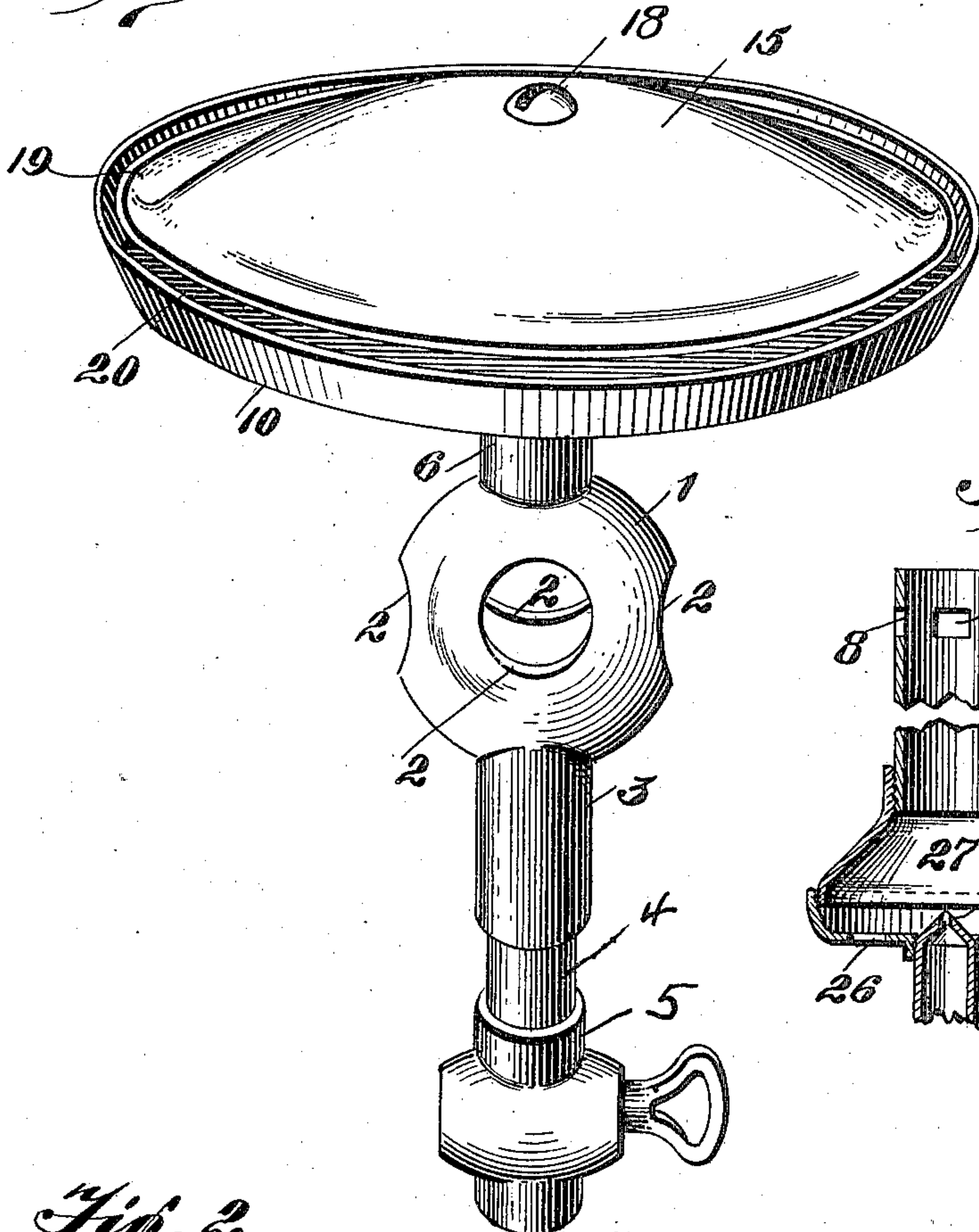
H. J. SOLLIDAY.  
GAS BURNER.  
APPLICATION FILED MAR. 28, 1910.

984,165.

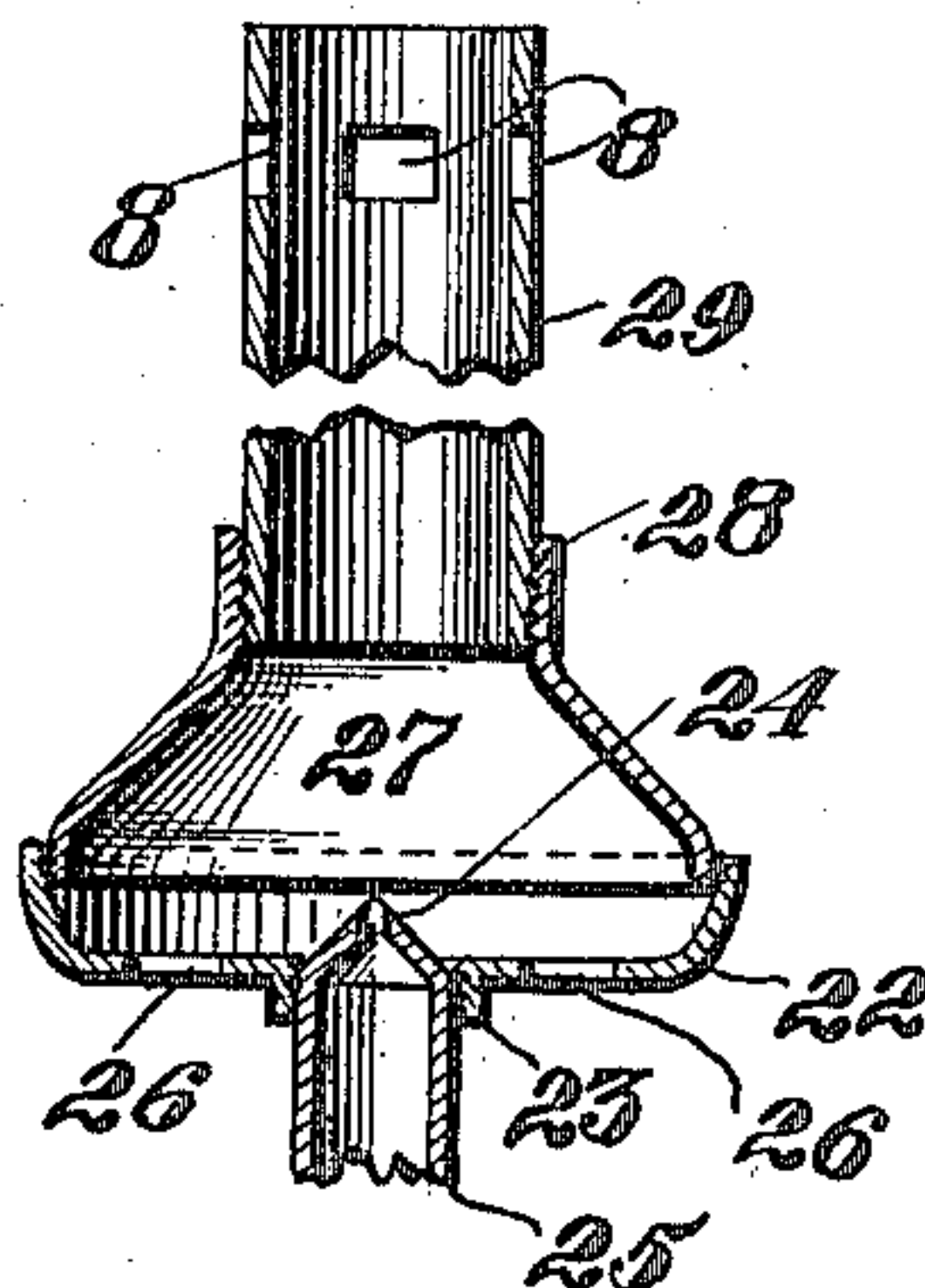
Patented Feb. 14, 1911.

2 SHEETS-SHEET 1.

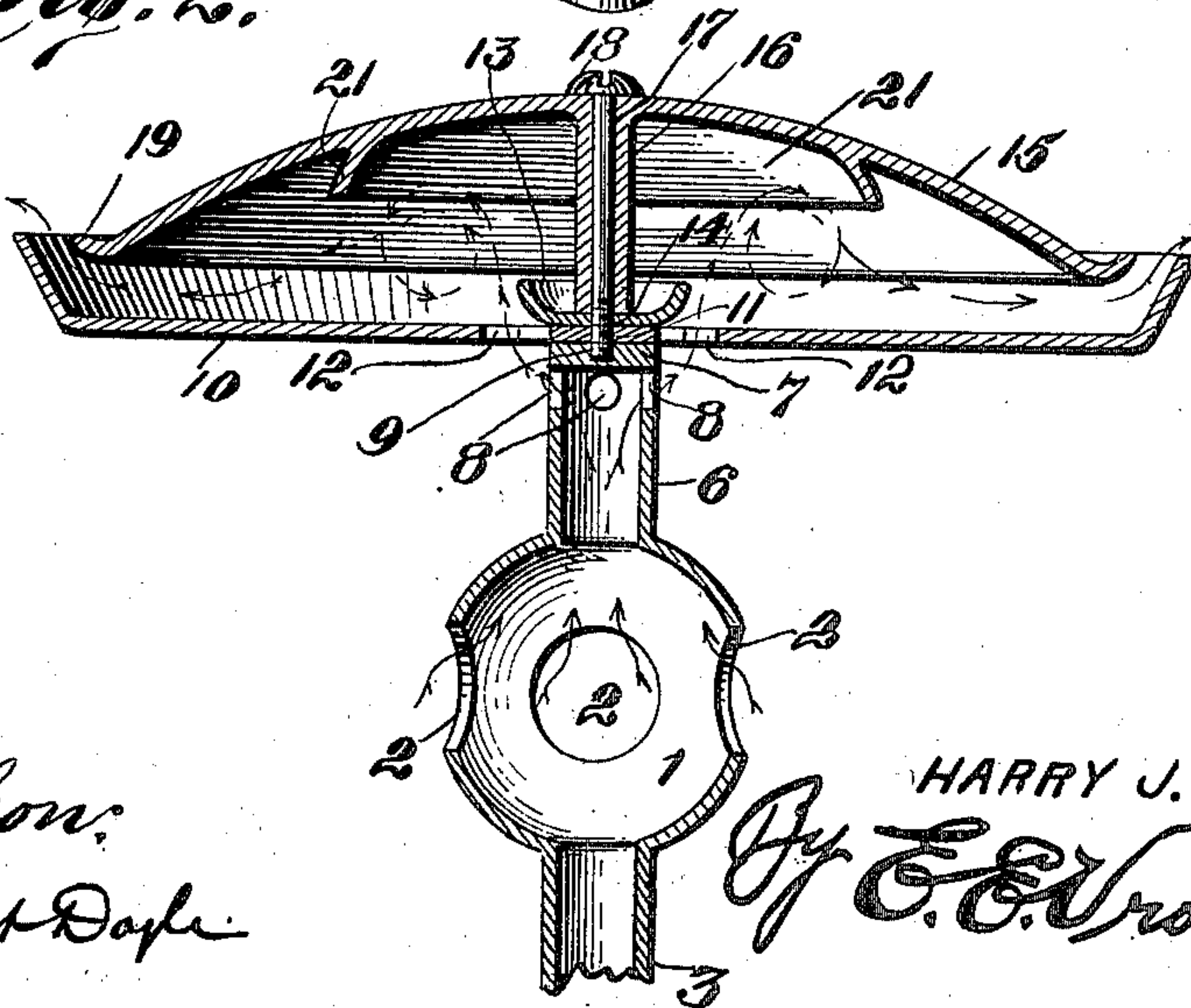
*Fig. 1.*



*Fig. 5.*



*Fig. 2.*



Witnesses  
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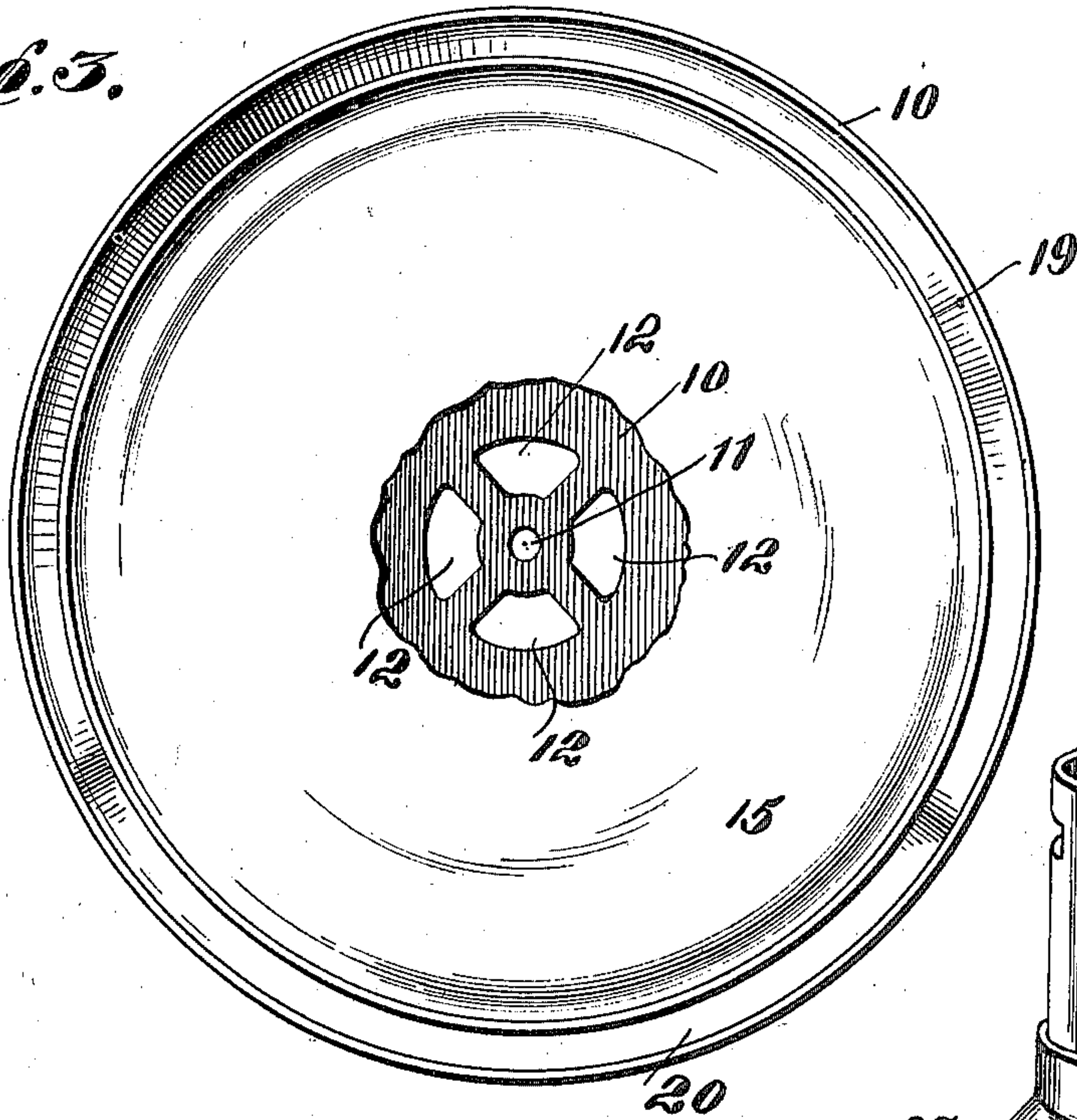
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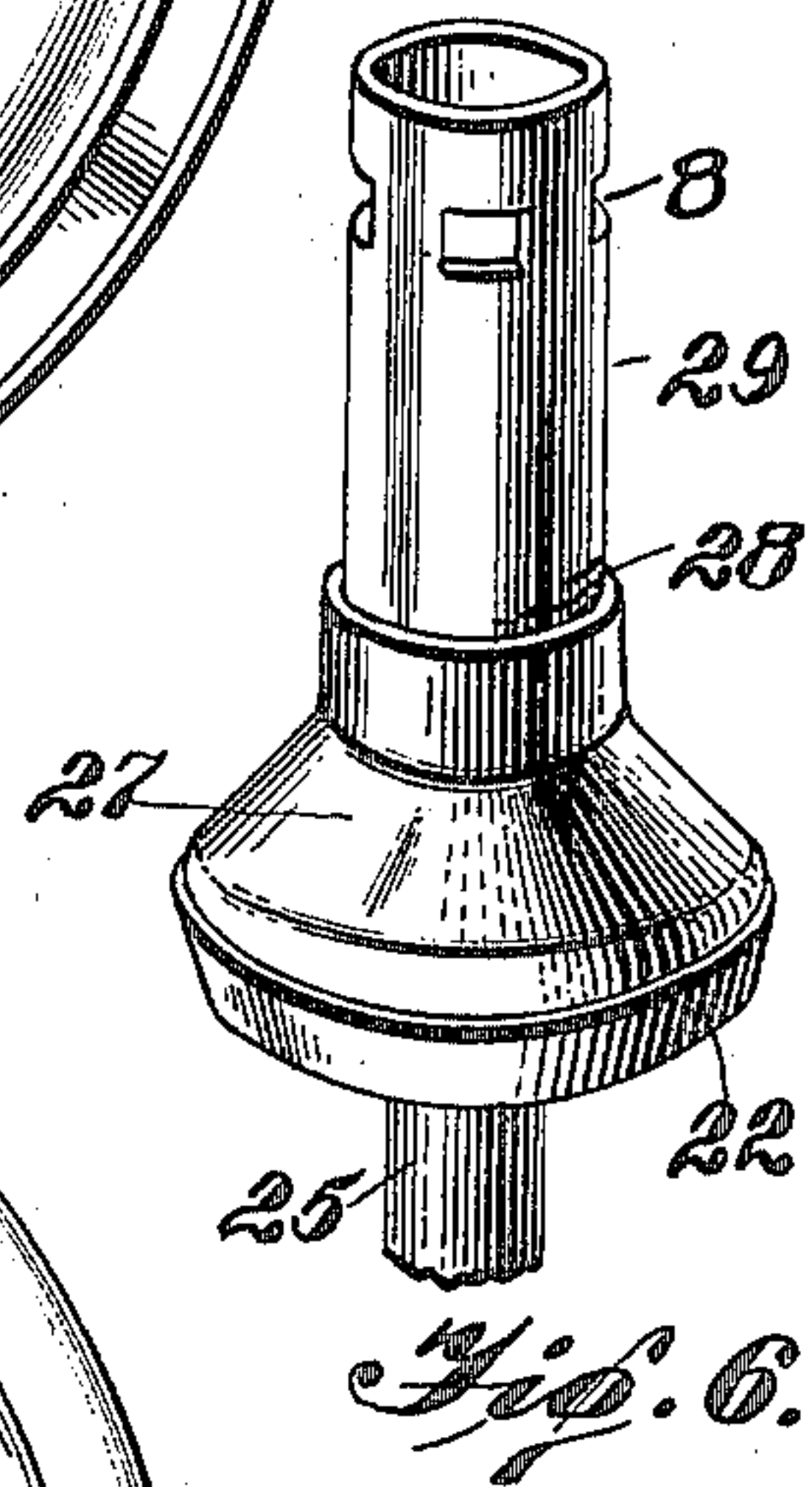
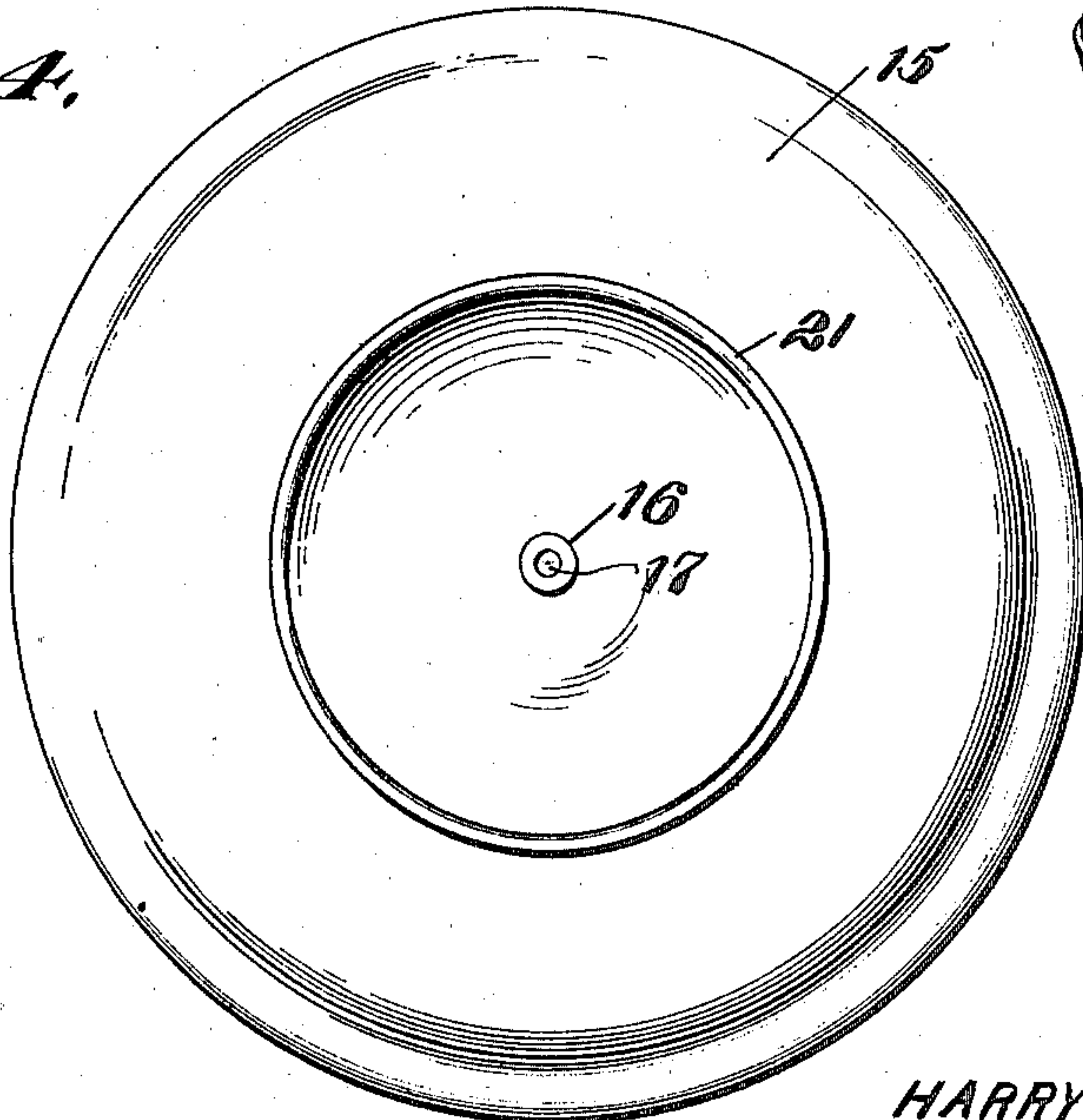
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2 SHEETS—SHEET 2.

*Fig. 3.*



*Fig. 4.*



*Fig. 6.*

Witnesses

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# UNITED STATES PATENT OFFICE.

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## GAS-BURNER.

984,165.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed March 28, 1910. Serial No. 551,867.

*To all whom it may concern:*

Be it known that I, HARRY J. SOLLIDAY, a citizen of the United States of America, residing at Oklahoma city, in the county of Oklahoma and State of Oklahoma, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to gas burners for use in connection with natural gas and adapted for heating or cooking purposes, and the principal object of the same is to provide means whereby a large proportion  
15 of air is consumed with a resultant decrease in the amount of gas used.

In carrying out the object of the invention generally stated above it will be understood, of course, that the essential features  
20 thereof are necessarily susceptible of changes in details and structural arrangements, one preferred and practical embodiment of which is shown in the accompanying drawings, wherein:—

25 Figure 1 is a perspective view of the improved burner. Fig. 2 is a central vertical sectional view thereof. Fig. 3 is a top plan view, broken away to expose the means for admitting fuel to the burner. Fig. 4 is a bottom  
30 plan view of the spreader cap of the burner. Fig. 5 is a fragmentary vertical sectional view showing a modified mixing chamber and supply pipe. Fig. 6 is a detail perspective view of the modified structure shown in Fig. 5.

Referring to said accompanying drawing by numerals, 1 designates a mixing chamber which, in the preferred form of the invention, is spherical and provided with enlarged air inlet openings 2 which are arranged in radiating relation. Said chamber is provided with a supply pipe 3 that communicates with a pipe extension 4 of a valve controlled pipe 5 that extends from a source  
45 of gas supply, not shown. Chamber 1 is provided with an outlet pipe 6 whose upper end is closed by a plug or plate 7, and adjacent said plug or plate, pipe 6 is provided with discharge openings 8. Plate 7 has a  
50 central opening 9 formed in its upper surface.

A burner pan 10 is seated on the closed end of pipe 6, said pan being preferably circular and provided with a central opening 11 that registers with the opening 9 of

plate 7 and is also provided with inlet openings 12 that surround the said central opening 11. A deflecting plate 13 is seated in the central portion of pan 10 and has an opening 14 that registers with the opening  
60 11. Said plate is dished and projects over openings 12 to deflect the fuel entering the same. A spreader cap plate 15, in the form of a circular inverted dish is fitted over said pan 10, said cap being provided with a  
65 centrally located pendent lug 16 through which a longitudinal opening 17 is formed. Said lug has its lower end resting on deflecting plate 13 with its opening 17 in alinement with the opening through said  
70 plate, and a locking bolt 18 extends through said spreader cap, lug, plate, pan, and engages the opening 9 of plate 7 to hold the parts of the burner in rigid but separable  
75 relation.

Spreader cap 15 has its periphery inclosed by the pan 10, said periphery being upturned as indicated at 19 so that a narrow passage 20 is provided between said periphery and the surrounding wall of the pan.  
80 On its under surface, cap 15 is provided with an annular pendent deflecting flange 21 that surrounds lug 16, said flange being preferably concaved.

In Fig. 2 arrows have been used to indicate the course of the air entering the mixing chamber and the course of the fuel from the mixing chamber to the burner pan. Referring thereto it will be seen that the fuel entering the mixing chamber through pipe  
90 3 mingles with the large volume of air entering said chamber through inlets 2, and the mixed air and gas flows through outlet pipe 6 and escapes therefrom through openings 8 and enters pan 10 through openings 12. The  
95 fuel entering openings 12 obviously mixes with additional air in its travel from openings 8 to openings 12 so that when it enters pan 10 a large portion of the same is air. After passing through openings 12, the fuel  
100 is deflected from the center of pan 10 by plate 13 and strikes against flange 21 and is deflected and caused to whirl thereby, as indicated by arrows, and escapes through passage 20, at which point the fuel is ignited.  
105

It will be obvious from the foregoing that a large amount of air is incorporated with the gas during its passage from the mixing chamber 1 to the pan 10, and the air and gas are thoroughly mixed during said passage so  
110



that a thorough combustion of the fuel is assured. It will also be obvious that by releasing bolt 18, the parts of the burner may be readily separated which facilitates cleaning of the same.

In Figs. 5 and 6 a modification of the mixing chamber and its supply pipe is proposed. In this form of the invention the mixing chamber is in two sections, the lower section 22 being cup-shaped and provided with a central opening 23 in its bottom through which the pointed discharge end 24 of the supply pipe 25 projects. The bottom of said section is also provided with air openings 26 which surround the central openings 23. The upper section 27 is cone-shaped and detachably engages the inner surface of section 22. The discharge neck 28 of section 27 detachably engages outlet pipe 29. In all other respects this form of the invention is similar to the preferred form. As will be understood, the modified form of the invention provides means whereby the mixing chamber may be readily separated when necessary or desirable and also means whereby the discharge from supply pipe 25 is reduced to the minimum.

What I claim as my invention is:—

1. A burner comprising a mixing chamber provided with a plurality of air inlets, means for supplying fuel thereto, a discharge pipe for said chamber provided with a plurality of outlets, a burner pan seated on said discharge pipe and provided with inlet openings receiving fuel from the outlets of said discharge pipe, a spreader cap for said pan provided with fuel deflecting means, and means for fastening said cap and pan to said discharge pipe.

2. A burner comprising a mixing chamber provided with air supplying means, means for supplying fuel to said chamber, a discharge pipe for said chamber provided with lateral outlets in the outer end thereof, a pan seated on the outer end of said pipe and provided with inlet openings for receiving the fuel from said outlets, a spreader cap

provided with a central pendent lug that spaces said cap from said pan, and fastening means passing through said lug and pan and engaging the discharge pipe.

3. A burner comprising a discharge pipe provided with a closed end and with a plurality of discharge outlets, a pan seated on the closed end of said pipe and provided with openings receiving the fuel from the discharge outlets of said pipe, a plate in said pan for deflecting the fuel entering the pan, a spreader cap for said pan provided with means for imparting a whirling movement to the fuel therein, means for spacing said cap from said pan, and means for fastening said cap, plate and pan to the closed end of said discharge pipe.

4. A burner comprising a mixing chamber, a discharge pipe therefor, a pan seated on said pipe and receiving fuel therefrom, a spreader cap having a centrally located pendent lug, and fastening means passing through said cap, lug, and pan and detachably engaging said discharge pipe.

5. A burner comprising a mixing chamber, a discharge pipe therefor, a pan receiving fuel from said pipe, and a spreader cap spaced from said pan and provided with an annular concaved flange for agitating the fuel entering the pan.

6. A burner comprising a fuel mixing chamber, a discharge pipe therefor, a pan seated on said pipe and receiving fuel therefrom, means in said pan for deflecting the fuel entering the same, and a spreader cap spaced from said pan and provided with fuel agitating means, said cap being provided with an upturned periphery that is surrounded in spaced relation by the outer portion of said pan.

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

HARRY J. SOLLIDAY.

Witnesses:

ST. ELMO HOLMES,  
D. M. THOMP.