

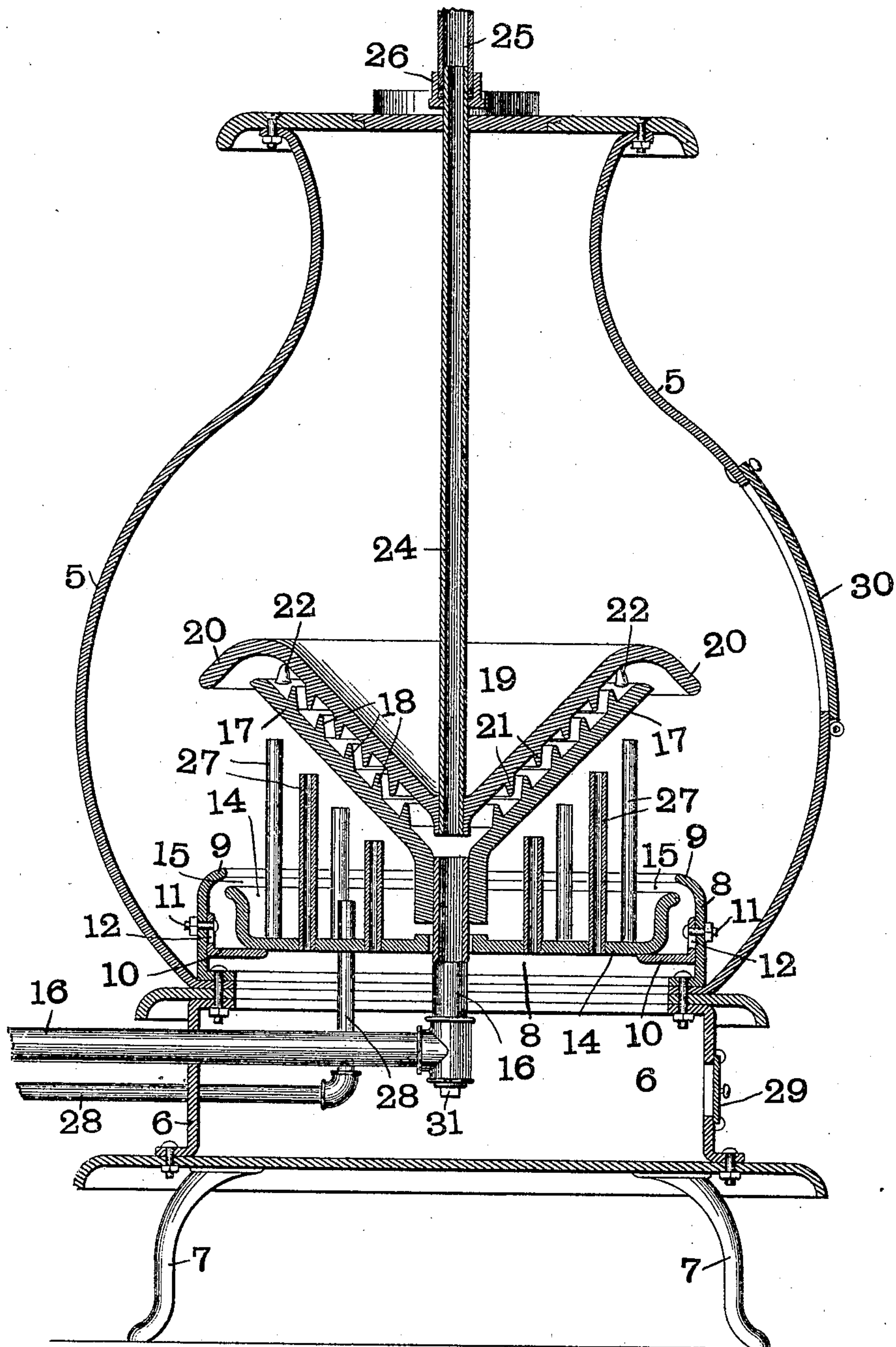
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F. L. MCGAHAN & E. G. FLAGER.

HYDROCARBON BURNER.

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Witnesses

W. A. Alexander

L. B. Beach.

Inventors

F. L. McGahan

E. G. Flager

By Attorneys

Lowles & Pyron

UNITED STATES PATENT OFFICE.

FRED L. MCGAHAN AND EDWARD G. FLAGER, OF ST. LOUIS, MISSOURI,
ASSIGNORS TO NATIONAL LIGHT, HEAT & POWER COMPANY, A COR-
PORATION OF MISSOURI.

HYDROCARBON-BURNER.

No. 824,432.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, FRED L. MCGAHAN and EDWARD G. FLAGER, citizens of the United States, residing at the city of St. Louis, in the State of Missouri, have invented a certain new and useful Hydrocarbon-Burner, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, forming part of this specification.

Our invention relates to burners for liquid hydrocarbon, such as crude petroleum, and more particularly to that class of burners used for heating.

The object of our invention is to simplify and improve such burners and also to provide means for supplying gas from such burners for lighting or other purposes.

Our invention consists in part in the combination, with a hollow burner increasing in size from bottom to top, of a cap in said burner and means for feeding liquid hydrocarbon between said burner and cap.

Our invention also consists in various other novel features and details of construction, all of which are described in the following specification and pointed out in the claims affixed hereto.

The accompanying drawing, which illustrates our burner applied to an ordinary heating-stove, is a vertical central section.

5 is the body of the stove, which is preferably made of sheet metal. The body 5 rests upon a base 6, corresponding to the ash-pan of an ordinary coal-stove. The base 6 is supported by legs 7. Secured in the lower part of the body 5 is an air-deflector 8, having an inturned top edge 9. This air-deflector 8 is preferably annular in form, but may be made of any suitable shape to fit the bottom of a stove.

10 represents brackets which are supported within the air-deflector 8 by means of bolts 11 passing through slots 12 in the said brackets. The height of the brackets can thus be adjusted. Resting on the brackets 10 is an oil pan 14, corresponding in shape to the air-deflector 8. The oil pan 14 is supported at a suitable height to leave a small opening 15 between its top edge and the inturned edge 9 of the said air-deflector 8. Passing through an opening in the bottom of the oil-pan 14 is

the upturned end of a supply-pipe 16. Secured to this upturned end of the supply-pipe is a burner 17, which is in the form of an inverted cone and has formed on its inner face annular projections 18.

19 is the cap, which fits within the burner 18 and is provided with a turned-over edge 20, which directs the gases from the burner downward. The cap 19 is provided on its outer surface with annular projections 21, which extend between the projections 18 of the burner 17. The cap 19 is held at a suitable distance from the burner 17 by means of lugs 22, formed on the top edge of the burner 17 and upon which the said cap 19 rests. Passing through the center of the cap 19 is a pipe 24, which is adapted to carry away a part of the gas from the burner to be used for lighting and other purposes. The pipe 24 passes through the top of the stove 5 and telescopes with a second pipe 25. The joint between the pipes 24 and 25 is preferably provided with a stuffing-box 26 so as to prevent the escape of gas at the joint.

Passing through the oil-pan 14 are a number of air-pipes 27, which terminate close to the lower side of the burner 17. The oil-pan 14 is also provided with a priming-pipe 28 for supplying the said pan with refined petroleum, gasolene or other easily-inflammable hydrocarbon for starting the burner.

Air is admitted to the base 6 by means of a sliding valve 29 of the usual form, and the body 5 is provided with a door 30 for giving access to the burner.

31 is a removable plug to permit the cleaning of the upturned end of the supply-pipe 16.

In the operation of our burner refined petroleum, gasolene, or other easily-inflammable oil is allowed to flow through the priming-pipe 28 into the oil-pan 14 and is there ignited, heating the burner 17. As soon as the burner 17 becomes sufficiently heated crude petroleum is fed between the burner and the cap 19 through the supply-pipe 16. The oil passes up between the burner 17 and the cap 19, and owing to the projections 18 and 21 the flow of the oil is retarded, so as to allow plenty of time to become completely gasified before leaving the said burner. The oil will at the same time rise in the pipe 24, and this pipe being subjected to the heat of the stove the oil in it will be gasified and will furnish

gas which will pass off through the pipe 25 for use in lighting or other purposes. The gas on leaving the burner 17 is deflected downwardly by means of the upturned edge 20 of the cap 19, and thus the burner is kept sufficiently heated by the combustion of the gas. Air is supplied for combustion both through the air-pipes 27 and through the opening 15 between the upper edge 9 of the air-deflector 8 and the upper edge of the oil-pan 14. This space can be varied by means of the adjustable brackets 10, so as to supply the requisite amount of air. By telescoping the pipe 24 into the pipe 25 the cap 19 can be raised from the burner, thus allowing the burner to be cleaned should any sediment collect in same. This result is also facilitated by means of the removable plug 31. The manner of yieldingly mounting the cap 19 also acts as a safety-valve, allowing the cap to be raised from the burner in case gas should be generated between the cap and the burner more rapidly than it can escape around the edge of the cap.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with a hollow burner, of a cap for said burner, means for feeding liquid hydrocarbon between said cap and burner, means for retarding the flow of fuel between said cap and burner, means for deflecting the flame from said burner downwardly around the sides thereof, and an outlet-pipe leading from the space between said cap and burner for the passage of gas.

2. The combination with a hollow burner, of a cap for said burner, means for feeding liquid hydrocarbon between said cap and burner, means for retarding the flow of fuel between said cap and burner, means for deflecting the flame from said burner downwardly around the sides thereof, and an outlet-pipe carrying said cap and forming a passage for gas from said burner.

3. The combination with a hollow burner in the form of an inverted cone, of a cap projecting into said burner, means for feeding liquid hydrocarbon between said cap and burner, means for retarding the flow of fuel between said cap and burner, means for heating the lower face of said burner, and an outlet-pipe leading from the space between said cap and burner for the passage of gas.

4. The combination with a hollow burner in the form of an inverted cone, of a cap projecting into said burner, means for feeding liquid hydrocarbon between said cap and burner, means for retarding the flow of fuel between said cap and burner, means for heating the lower face of said burner, and an outlet-pipe carrying said cap and forming a passage for gas from said burner.

5. The combination with a hollow burner, of a cap on said burner, a slidingly-mounted

pipe carrying said cap, and means for feeding liquid hydrocarbon between said cap and burner.

6. The combination with a hollow burner, of a cap in said burner, projections on the inner face of said burner, and projections on the outer face of said cap extending between the projections on said burner.

7. The combination with a hollow burner, of a cap in said burner, annular projections on the inner face of said burner, annular projections on the outer face of said cap extending between the projections on said burner, and means for feeding liquid hydrocarbon between said cap and burner.

8. The combination with a hollow burner, of a cap in said burner, said cap being provided with an overturned flange for deflecting the gases downwardly at all sides of said burner, means for feeding liquid hydrocarbon between said cap and burner, an oil-pan below said burner, and air-tubes leading through said oil-pan.

9. The combination with a hollow burner, of a cap in said burner, means for feeding liquid hydrocarbon between said cap and burner, an air-deflector below said burner, an oil-pan within said air-deflector, and means for adjusting the height of said oil-pan relative to said burner.

10. The combination with a hollow burner, of a cap on said burner, means for feeding oil between said burner and cap, an air-deflector below said burner, adjustable brackets carried by said air-deflector, and an oil-pan carried on said adjustable brackets.

11. The combination with a hollow burner in the form of an inverted cone, of a cap in said burner, means for feeding liquid hydrocarbon between said cap and burner, an oil-pan below said burner, air-pipes of varying length passing through said oil-pan and terminating adjacent to said burner, and an air-deflector surrounding said burner.

12. The combination with a hollow burner, of a cap in said burner, projections on the inner face of said burner, projections on the outer face of said cap extending between the projections on said burner, an outwardly-extending air-deflector carried by said cap, means for feeding liquid hydrocarbon between said cap and burner, an oil-pan below said burner and provided with air-passages, an air-deflector surrounding said oil-pan, and means for adjusting the distance between said burner and oil-pan.

In testimony whereof we have hereunto set our hands and affixed our seals in the presence of the two subscribing witnesses.

FRED L. MCGAHAN. [L. S.]
EDWARD G. FLAGER. [L. S.]

Witnesses:

WM. T. JONES,
A. C. FOWLER.