

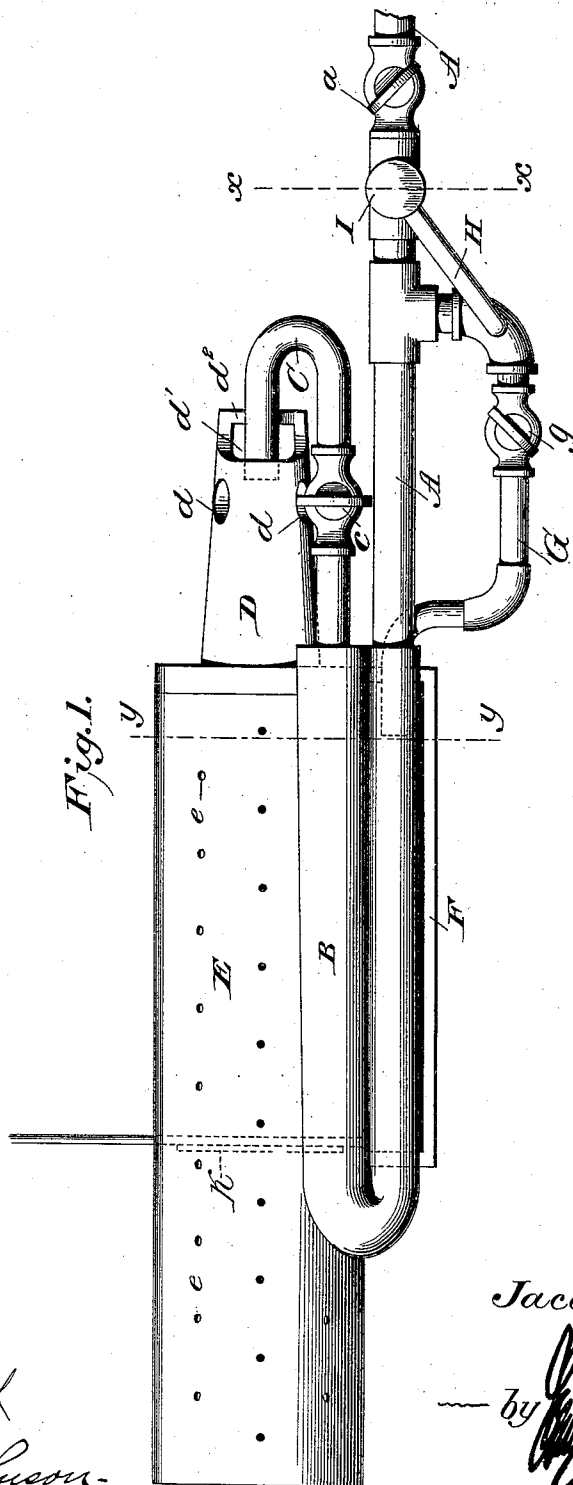
(No Model.)

2 Sheets—Sheet 1.

J. BARROW.
OIL BURNER.

No. 488,108.

Patented Dec. 13, 1892.



Witnesses

L. S. Elliott

E. M. Johnson

Jacob Barrow.

Inventor

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by  Attorney

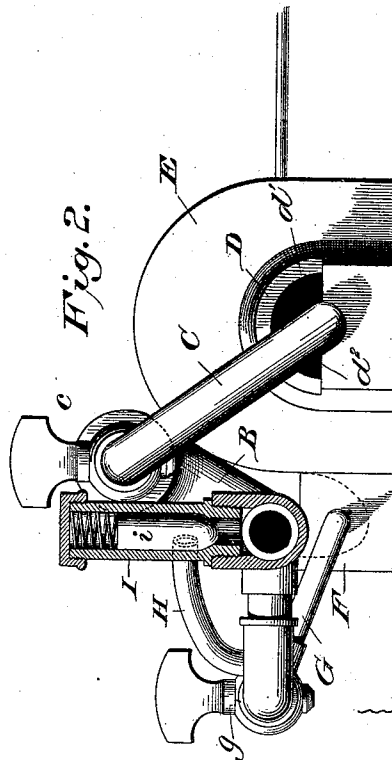
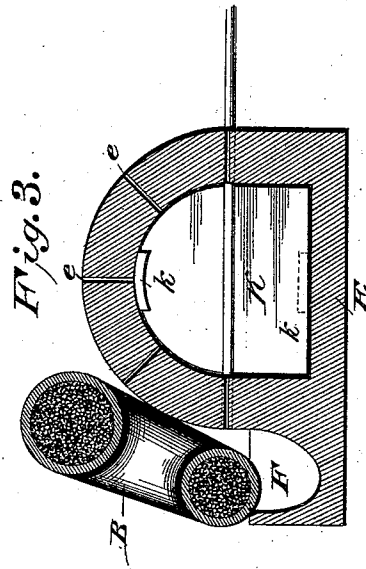
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UNITED STATES PATENT OFFICE.

JACOB BARROW, OF WINDFALL, ASSIGNOR TO JOHN S. MOORE, OF MUNCIE,
INDIANA.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 488,108, dated December 13, 1892.

Application filed March 24, 1892. Serial No. 426,283. (No model.)

To all whom it may concern:

Be it known that I, JACOB BARROW, a citizen of the United States of America, residing at Windfall, in the county of Tipton and State of Indiana, have invented certain new and useful Improvements in Oil-Burners; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in oil-burners.

The object of the invention is to provide a cheap, simple, and effective device for generating gas from crude oil, mixing said gas with air in a burner, and utilizing the gas mixed with air as fuel for heating or other purposes, so as to obviate the formation of soot.

By means of my improved device the oil is heated so as to convert the same into an inflammable vapor or gas and is mixed with air within a burner and passes through apertures in said burner and is ignited without the same; and the invention consists in the construction and combination of the parts, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of a gas generator and burner constructed in accordance with my invention. Fig. 2 is a sectional view taken through the line *x x* of Fig. 1. Fig. 3 is a sectional view through the line *y y* of Fig. 1.

A designates a pipe which is connected with an oil-tank and is provided with a suitable cut-off valve *a*. This pipe continues from the oil-tank and leads into one end of a gas-generator B, said gas-generator consisting of a bent or U-shaped tube which is smaller in cross-section at the inlet end than at the outlet end. This generator is provided with end heads, with which the pipe A from the oil tank or receptacle engages, while the opposite end is engaged by a pipe C, which leads from the larger end of the generator to the mixer D. The gas-generator B is filled or packed with small pieces of hard-burned fire-clay or

other suitable absorbent fire-resisting material. The mixer D may be made of metal or fire-clay and is provided with side apertures *d d* and a partially-open end *d'*, into which one end of the pipe C passes, said pipe preferably resting upon the ledge or raised wall *d'*, which will prevent any oil passing out of the end of the mixer.

E designates the burner, which may be made of fire-clay, cast metal, or other suitable material, and it has an arched or rounded upper portion with perforations *e e*, through which the gas passes and is ignited. This burner is provided on one side beneath the gas-generator B with a trough or receptacle F, which may be suitably attached to the burner or formed integral therewith, the same being adapted to receive a small quantity of oil which can be ignited for heating the gas-generator B, so as to convert the oil fed therein into a combustible gas. The supply of oil to the gas-generator is regulated by the valve *a*.

To the pipe A is connected a pipe G, having a valve or cock *g*, by means of which oil can be fed into the trough F when desired, and the pipe C, which leads from the large end of the generator into the mixer, has a valve *c*, by which the supply of gas can be cut off when desired.

H designates a branch pipe which leads into the pipe G on one side of the cock *g*, while the other end connects with a safety-valve I, said safety-valve consisting of a joint or section carried by the pipe A and apertured for connecting the pipe H thereto, the movable cut-off *i* thereof being spring-actuated in one direction to normally hold it upon its seat. This safety-valve comes into play when it is desired to cut off the supply of gas from the burner by turning the plug *c*, and when said plug is turned the gas which may be generated in the generator B and is forced back will lift the plug *i* and permit the same to escape through the pipe which leads into the basin or trough F.

In gas-burners of this class great difficulty has been heretofore experienced in regulating the proper quantity that the burner will consume without causing soot, as a burner which is adapted to consume the full supply of gas will not properly consume a small quantity,

and to overcome this difficulty I provide a burner with a damper K, so that the size of the burner can be diminished when it is desired to have a low fire, and for this purpose the burner is provided on its interior with ledges *k k*, against which the damper will abut when turned. When the damper is turned to reduce the size of the burner, the plugs or stop-cocks can be turned to give the proper supply of oil thereto.

The device hereinbefore described is adapted to be set in an ordinary heating or cooking stove, and, if desired, may be placed on the grate thereof.

15 A tapered gas-generator, as herein shown, will give better results than one of the same diameter throughout, as it gives room for the gas to expand as it travels toward the mixer.

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

1. The combination, in a device for burning gas generated from oil, of a burner and a gas-generator made of a single piece which is tapered longitudinally and bent upon itself, said generator being connected at one end to the burner and at the other end with an oil-supply pipe, substantially as shown, and for the purpose set forth.

30 2. In a device for generating gas from oil and burning the same, a burner E, having apertures *e* and a trough F, a mixer D, attached to one end of the burner, said mixer having apertures *d* and *d'*, a pipe C, entering the mixer at one end and connected to the generator at the other end, a generator B, located above the trough F and connected to an oil-

supply pipe, and a branch pipe leading from said oil-supply pipe to the trough F, substantially as shown, and for the purpose set forth. 40

3. In a device for generating gas from oil and burning the same, the combination of a burner, a mixer and generator, an oil-supply pipe leading to the generator, having a branch supply-pipe G, a pipe H, leading from the branch pipe G to a safety-valve I, and a cut-off cock *c*, located between the mixer and generator, substantially as shown, and for the purpose set forth. 45

4. In a device for burning gas generated from oil, an oil-supply pipe having a cock *a* and pressure-actuated valve I, a branch pipe G, which leads into a trough beneath the gas-generator, said pipe having a cock *g*, and a pipe C, leading from the generator to the burner, said pipe having a cock *c* between the generator and burner, substantially as shown, and for the purpose set forth. 55

5. As an improved article of manufacture, a gas-burner for heating purposes, consisting of a body portion having a flat base and a curved or semicircular upper portion with apertures *e e* and a turning damper or dampers K, located within the burner and provided with means for turning said dampers, which extends beyond the burner, substantially as shown. 65

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

JACOB BARROW.

Witnesses:

HIRAM MESSERSMITH,
EZRA MILLIKEN.