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PATENTED APR. 16, 1907.

J. McCARRON & A. DUFFY, JR.

HYDROCARBON BURNER.

APPLICATION FILED OCT. 26, 1906.

FIG. 1.

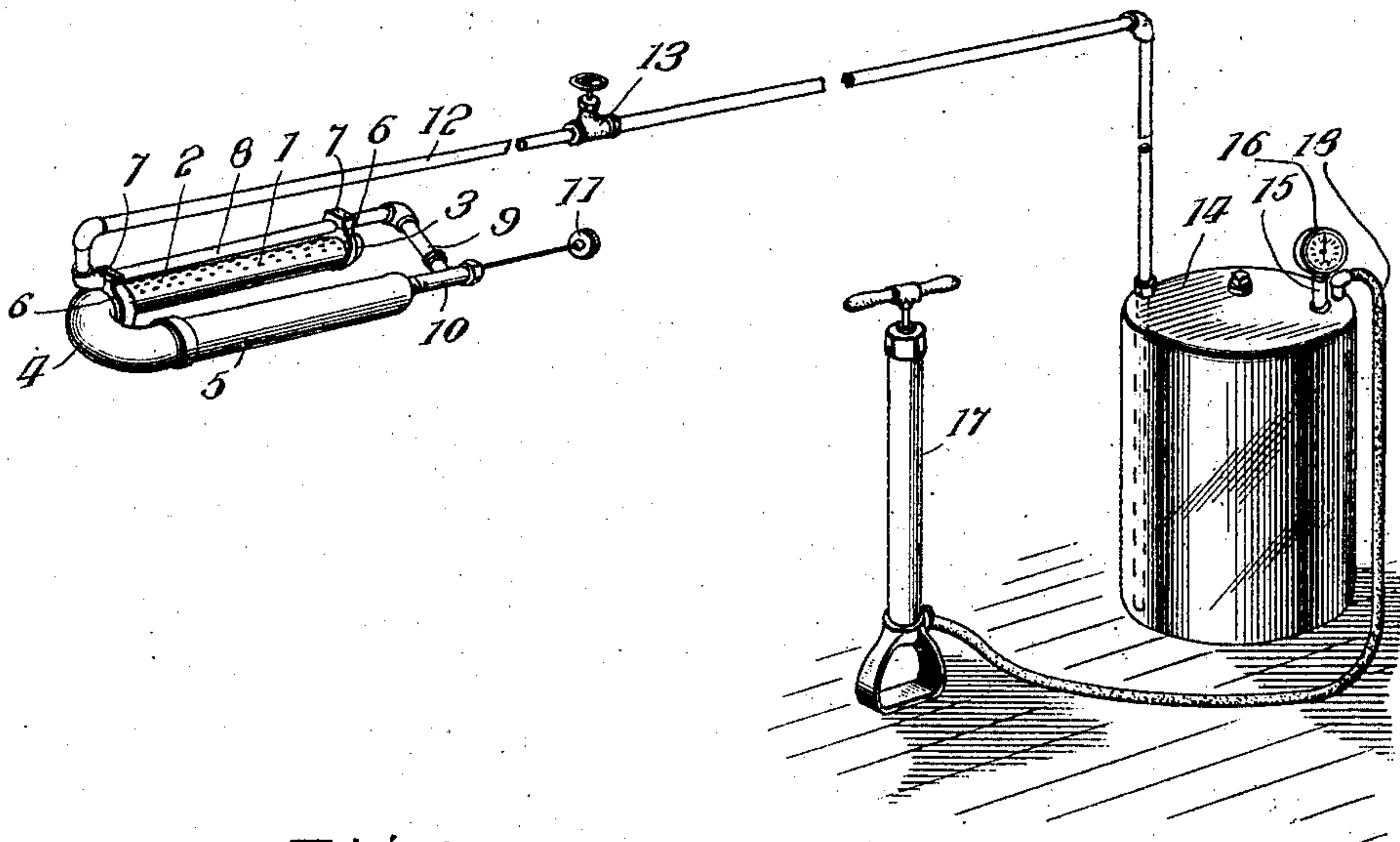


FIG. 2.

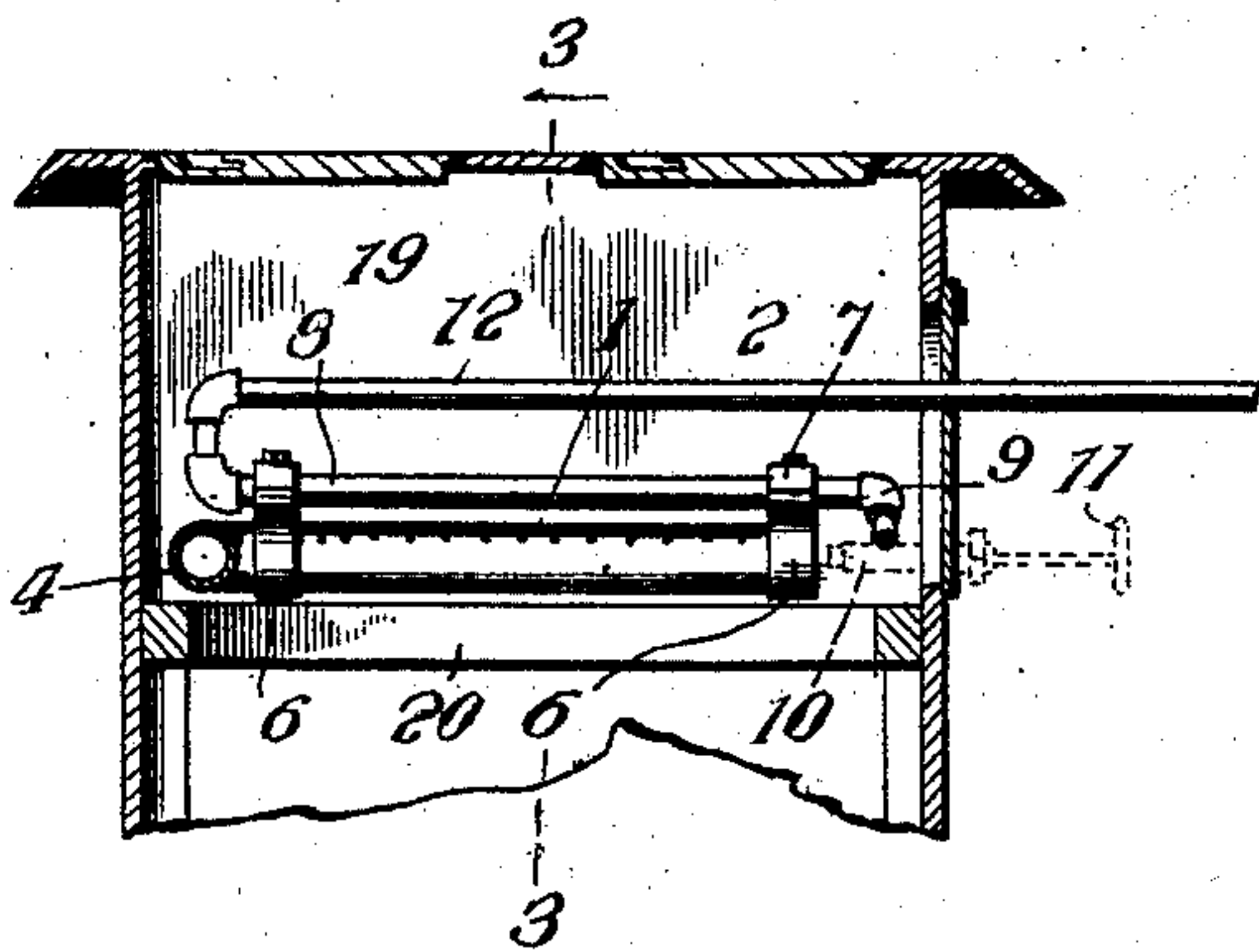
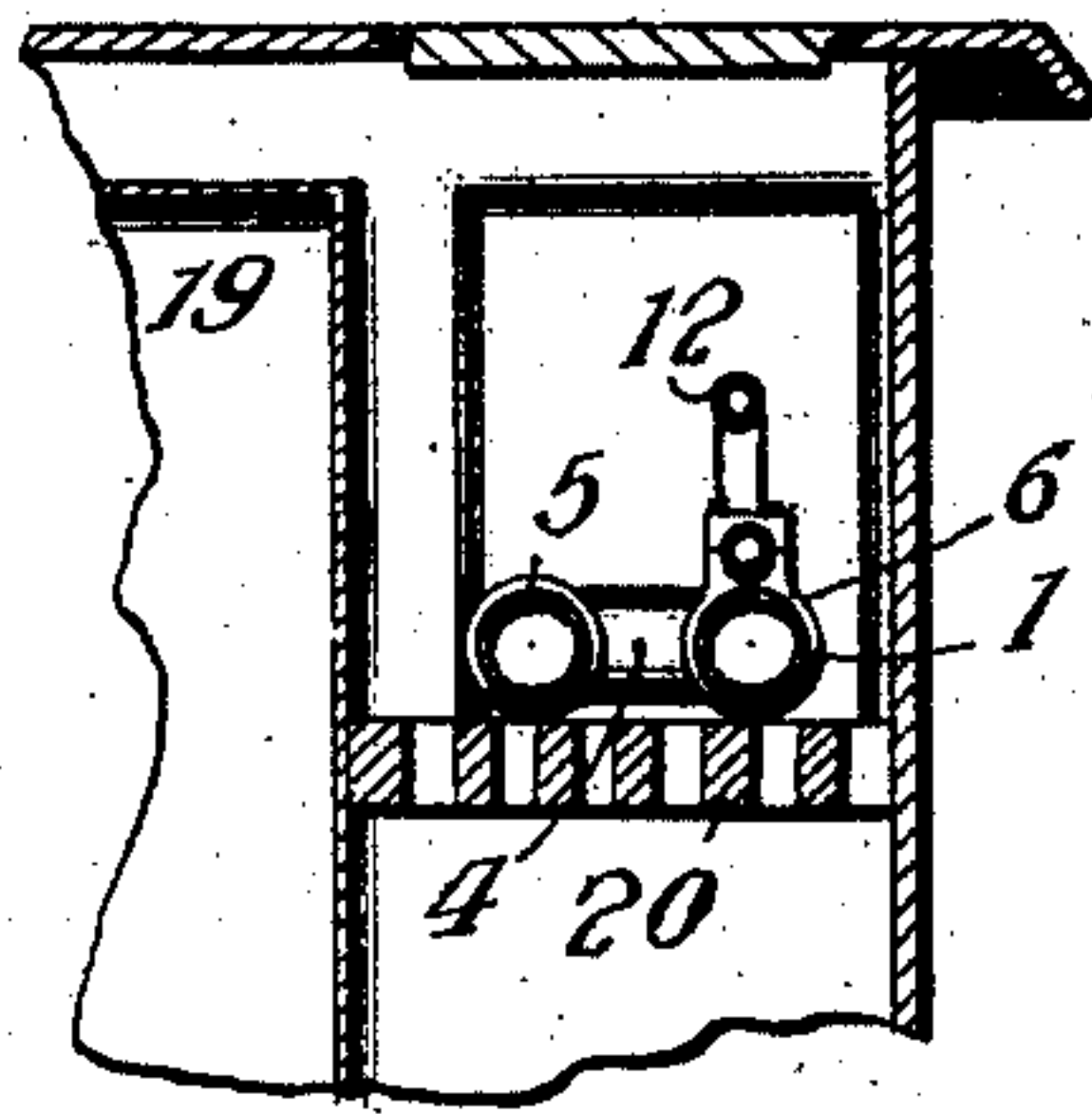


FIG. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

JAMES McCARRON AND ANDREW DUFFY, JR., OF OSBORNE, KANSAS.

## HYDROCARBON-BURNER.

No. 850,440.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed October 26, 1906. Serial No. 340,711.

*To all whom it may concern:*

Be it known that we, JAMES McCARRON and ANDREW DUFFY, Jr., citizens of the United States, residing at Osborne, in the county of Osborne and State of Kansas, have invented certain new and useful Improvements in Hydrocarbon-Burners; and we 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.

Our invention relates to hydrocarbon-burners, and has for its object to provide a device for consuming crude oil which shall be simple in construction, easily operated, safe in the use thereof, and which shall possess superior advantages in the point of efficiency and general utility.

With these ends in view our invention consists in certain constructions, combinations, and arrangements of parts, the preferred form of which will be first described in connection with the accompanying drawings and then the invention particularly pointed out in the appended claims.

Referring to the drawings, wherein we show the preferred form of our invention and wherein the same part is designated by the same reference-numeral wherever it occurs, Figure 1 is a diagrammatic perspective view of our invention. Fig. 2 is a longitudinal section through the fire-box of a stove, showing our invention as applied thereto. Fig. 3 is a section taken on line 3-3 of Fig. 2 looking in the direction indicated by the arrow.

1 designates a pipe of suitable length, which is provided on its upper side with a series of perforations 2.

3 designates a cap by means of which one end of the pipe 1 is closed.

4 designates the elbow, one side of which is connected to the open end of the pipe 1, the other side of which has connected to it a pipe 5, which preferably and as shown is of the same size as the pipe 1 and lies parallel to it. The pipe 5 is, however, provided with no perforations, and its end opposite that which is connected to the elbow 4 is open. These two pipes, with the elbow, form a substantially U-shaped pipe.

6 designates a pair of straps, one of which is secured to each end of the pipe 1. These

straps are provided with ears 7, through which pass a pipe 8, whereby the pipe 8 is supported over the pipe 1 and spaced a short distance therefrom. One end of the pipe 8 is connected by a pipe 9 to an ordinary needle-valve 10, provided with a valve-stem 11. The delivery end of the needle-valve projects into the open end of the pipe 5. Connected to the other end of the pipe 8 is a pipe 12, which is provided with a valve 13 and which extends into a tank 14 for the fuel. This pipe preferably and as shown extends, preferably, to substantially the bottom of the tank. The tank 14 is provided with an air-pipe 15, preferably having a gage 16, and to the pipe 15 is connected an air-pump 17. 18 is a valve to control the air from the air-pump 17.

19 designates the fire-box of a stove or other heating device, and 20 is the ordinary grate thereof. It will be seen from Figs. 2 and 3 that the pipes 1 and 5 rest on the grate-bar and that the needle-valve 10 extends through the side wall of the fire-box.

In the operation of our device the tank 14 is filled with fuel, preferably crude oil, and preferably the tank is not filled quite full. The valve 18 is then opened, and by means of the pump 17 air is pumped into the tank on top of the fuel until a suitable pressure is obtained therein, which is indicated by means of the gage 16. The valve 18 is then closed, the valve 13 being closed during this operation. A small wood fire is built beneath the pipes 8 and 12. This is allowed to burn until the pipes become hot. The valve 13 is then opened and the air-pressure forces the hydrocarbon through the pipes 12 and 8 and, as the needle-valve 10 is opened, through the end of the needle-valve. As the pipes 8 and 12 are hot, the hydrocarbon oil passing through these pipes becomes vaporized and is delivered from the needle-valve into the pipe 5 as a gas. The gas passes through openings 2 in the pipe 1 and burns. As the pipe 8 is located just over the openings in the pipe 1, this causes the pipe 8 to keep hot and continue vaporizing the fuel. The fire can be readily regulated by means of the needle-valve 10.

While we have described what we believe to be the preferred form of our invention, we desire to have it understood that many changes may be made in the form, construc-



tion, and arrangement of parts without departing from the spirit of our invention.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a hydrocarbon-burner, the combination with a U-shaped pipe, one of the arms of the U being provided with perforations on its side at right angles to the plane of the U, the other arm of the U being imperforated, of a fuel-conducting pipe mounted on top of the perforated arm of the U and passing over the perforated portion and terminating in front of the end of the imperforated section of the U.

2. In a hydrocarbon-burner, the combination with a U-shaped pipe having one of its arms perforated on the side at right angles to the plane of the U, said perforated arm having its end closed, the other arm of the U being imperforate with its end opened, of a pipe for supplying fuel located over the perforations of the perforated arm and terminating in front of the opening of the other arm, a tank connected to said pipe, means for forcing air into the tank, whereby the fuel will be caused to flow through the pipe and into the open end of the U and a valve located in the

end of the pipe adjacent the U and adapted to regulate the supply of fuel into the U.

3. In a hydrocarbon-burner, the combination with an imperforated pipe, a perforated pipe parallel thereto, said pipes being connected together at one end, whereby a U-shaped construction is formed, the front end of the imperforated pipe being opened and the corresponding end of the perforated pipe being closed, the perforations in the perforated pipe being located at right angles to the plane of the U, a pipe for supplying fuel supported on the perforated pipe and extending parallel thereto and over the perforations, said fuel-conducting pipe terminating in front of the open end of the imperforated pipe, said parts being so constructed as to be adapted to be entirely inclosed within the fire-pot of the stove with the U lying flat upon the supporting-surface therein.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES McCARRON.

ANDREW DUFFY, JR.

Witnesses:

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L. J. CONGER.