

No. 672,288.

Patented Apr. 16, 1901.

E. B. RAYMOND.  
HYDROCARBON BURNER.

(Application filed June 11, 1900.)

(No Model.)

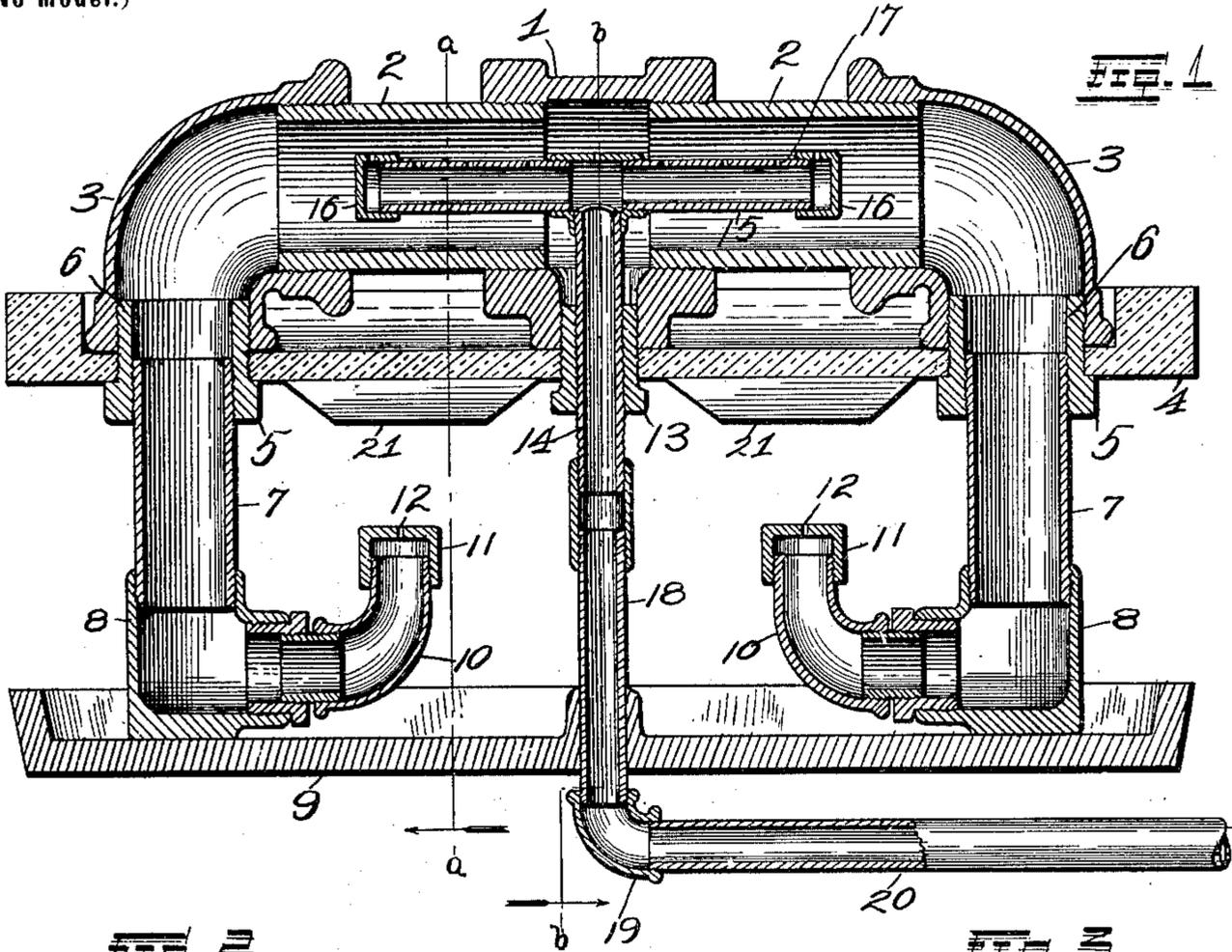


FIG. 1

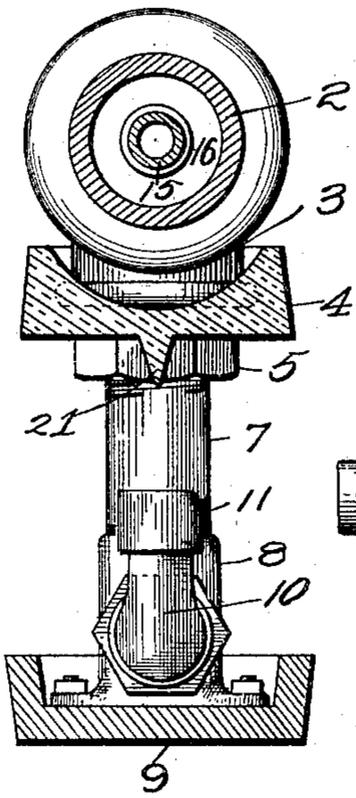


FIG. 2

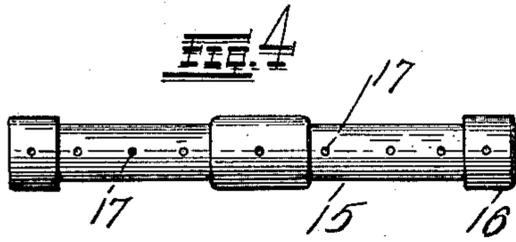


FIG. 3

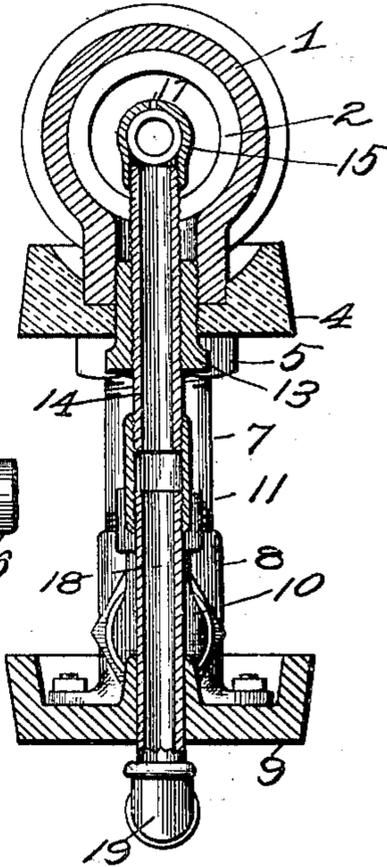


FIG. 4

Witnesses  
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# UNITED STATES PATENT OFFICE.

EMMET B. RAYMOND, OF ST. LOUIS, MISSOURI.

## HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 672,288, dated April 16, 1901.

Application filed June 11, 1900. Serial No. 19,930. (No model.)

*To all whom it may concern:*

Be it known that I, EMMET B. RAYMOND, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to hydrocarbon-burners; and it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

One object of this invention is to provide an improved oil burner and vaporizer having a means for restricting the passage of the oil from the supply-pipe to the vaporizing-chamber, whereby the vapor from the vaporizing-chamber will be supplied to the burner-exits in a steady and uniform stream.

Another object is to provide an improved means for preventing the formation of carbon in the heating-chamber of the burner.

In the drawings, Figure 1 is a longitudinal sectional view showing the arrangement of my improved burner. Fig. 2 is a cross-sectional view taken on the line *a a* of Fig. 1 and looking to the left, as indicated by the arrow. Fig. 3 is a vertical sectional view taken on the line *b b* of Fig. 1 and looking to the right, as indicated by the arrow. Fig. 4 is a view showing the upper side of the spraying-tube.

In carrying out this invention I provide a coupling 1, threaded into which are the short pieces of pipe 2, carried on the outer ends of which are the elbows 3.

4 indicates a shield or deflector which is carried above the nuts 5, integral with which are the exteriorly-threaded portions 6, which are threaded into the lower portions of the elbows 3, as shown in Fig. 1. Connected to the nuts 5 are the vertical pipes 7, which are supported by the castings 8, the said castings resting within the pan 9. Connected by suitable connections to the castings 8 are the upwardly-extending elbows 10, threaded upon the upper ends of which are the caps 11, the said caps being provided with apertures 12, through which the vaporized oil is passed before being ignited.

Threaded into the lower side of the coupling 1 is a sleeve 13, carried within which is a vertical tube 14, said tube projecting up-

wardly within the coupling 1 and carrying upon its upper end the horizontal spraying-tubes 15. The said spraying-tubes 15 are provided on their ends with the detachable caps 16, and through the upper sides of the caps 16 and the tubes 15 at suitable intervals are perforations 17, through which the oil is sprayed before being vaporized.

Connected to the vertical tube 14 is a similar tube 18, which, as shown, projects downwardly through the bottom of the pan 9 and carries on its lower end an elbow 19, connected to which is a horizontal supply-pipe 20.

Formed integral with the lower side of the shield 4 is a pair of deflectors 21, the purpose of which is to divide the flames, thereby causing a portion of the flames to pass upwardly on each side of the short pipes 2, which constitute the heating-chambers. The deflectors 21 also serve to prevent the roaring noise which would occur were the flames allowed to strike directly against the flat under surface of the shield 4.

In operation the oil is supplied to the vaporizing-chamber through the pipe 20, passing upwardly through the pipes 18 and 14 into the horizontal spraying-tubes 15, from which it passes through the apertures 17 into the short pipes 2, which, as before mentioned, constitute the vaporizing-chamber. The short pipes 2, having been previously heated, vaporize the oil, after which it passes downwardly through the elbows 3 into the pipes 7 and upwardly into the elbows 10 and outwardly through the exit-apertures 12. The vaporized oil is then ignited at each of the caps 11, and the flame, as before mentioned, strikes against the under side of the deflector 4 and is divided by means of the portions 21, a part of the flame passing upwardly on each side of the pipes 2. By this means an even temperature is maintained on both sides of the vaporizing-chamber, and unpleasant noises usually incident to the operation of devices of this kind are obviated, and the formation of carbon within the vaporizing-chamber does not occur, for the reason that the heat which reaches said vaporizing-chamber is radiated and is not direct.

I claim—

A hydrocarbon-burner, comprising a pan, a pair of vertical pipes resting in said pan, a

vaporizing-chamber supported by the upper  
ends of said pipes, a supply-pipe extending  
vertically into said vaporizing-chamber and  
terminating near the center thereof, a small  
5 spraying-tube carried by said supply-pipe  
and extending both ways within the said  
vaporizing-chamber toward the said vertical  
pipes, and elbows leading from the lower ends  
of said vertical pipes for passing the flame

underneath the vaporizing-chamber, substan- 10  
tially as specified.

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

EMMET B. RAYMOND.

Witnesses:

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