(No Model.)

H. KRETSCHMANN.

PETROLEUM BURNER.

No. 588,449. Patented Aug. 17, 1897.

Fig. 1.

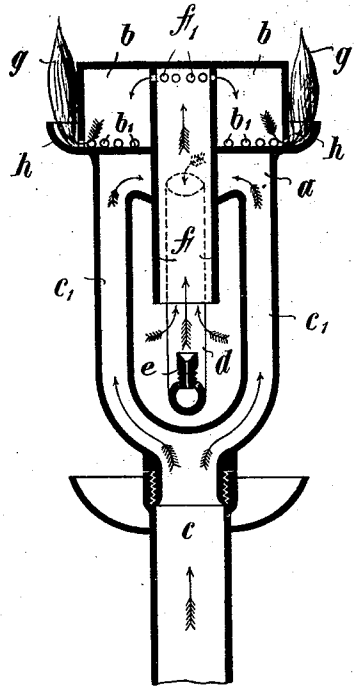


Fig. 2.

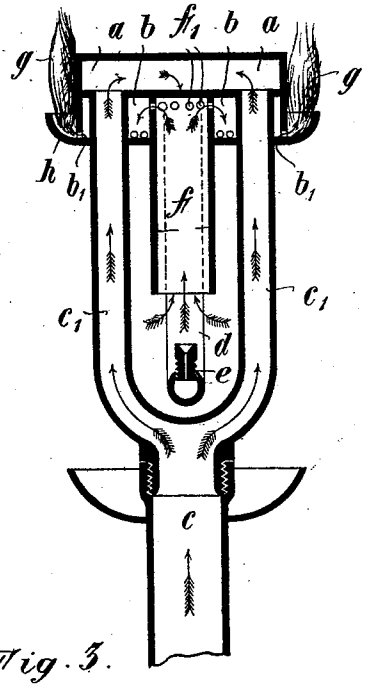
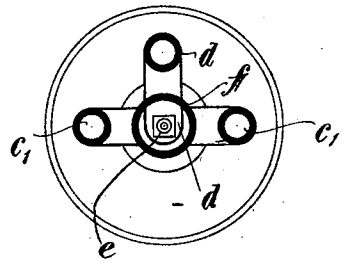


Fig. 3.



Witnesses,
Thos. A. Snow

Inventor.
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By James L. Norris.
Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HUGO KRETSCHMANN, OF BERLIN, GERMANY.

PETROLEUM-BURNER.

SPECIFICATION forming part of Letters Patent No. 588,449, dated August 17, 1897.

Application filed October 3, 1896. Serial No. 607,795. (No model.)

To all whom it may concern:

Be it known that I, HUGO KRETSCHMANN, a subject of the King of Prussia, German Emperor, and a resident of Berlin, Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Petroleum-Burners, of which the following is a specification.

This invention relates to an improved heating-burner comprising a vaporizing-chamber for converting the liquid fuel into vapor and a mixing and superheating chamber arranged either above or below the vaporizing-chamber and serving to form the mixture of vapor and air.

The heating-burner forming the subject of this invention is represented (by way of example) in the accompanying drawings, in which—

Figure 1 is a vertical section of the improved burner. Fig. 2 is a similar view of a modified form of burner, and Fig. 3 is a horizontal section thereof.

The said burner comprises a chamber *a* for vaporizing the fluid combustible, (or hydrocarbon,) such as petroleum, and another chamber *b*, which may be located either above the said chamber *a*, as shown in Fig. 1, or below such chamber, as shown in Fig. 2, and into which the vapor and air are conducted to be mixed and superheated therein. The combustible liquid rises through the branches *c'* of the feed or supply pipe *c* and enters the vaporizing-chamber *a*, where it is converted into vapor and whence in the form of vapor it descends through the pipe *d* into a central jet pipe or nozzle *e*, from which it issues in the condition of a vertical jet of vapor. This jet of vapor in its ascent meets and rushes into a vertical length of tube *f* and in so doing carries air along into the latter from the sides, as indicated by the arrows. The tube *f* through small lateral perforations, such as *f'*, communicates with the mixing and superheating chamber *b* at the top, the arrangement being the same whether such chamber is situate above, as in Fig. 1, or below, as in Fig. 2. In the former case, (Fig. 1,) however, the tube *f* extends right through the vaporizing-chamber *a*.

As the jet or current formed of the mixture of vapor and air comes up to the upper end of the tube *f*, impinges against the top wall or surface of the same, and passes into the chamber *b* through the small apertures *f'* a thorough mixture of the vapor and air takes place, which mixture is further assisted and brought to perfection by the gyratory currents occurring in the chamber *b*.

Near the bottom of the chamber *b* a series of perforations *b'* are provided all around the same for the mixture to pass off into the flame *g*, and in order to impart a practically upright direction to such flame a small guiding-cup *h* is arranged at the foot or base of the same, whereby the currents or jets of mixture as they become ignited are deflected upwardly. Inasmuch as the flame forms in the lower part of the chamber *b* it envelops such chamber from top to bottom and consequently heats it by direct contact. Where the arrangement is carried out in the form shown in Fig. 1, the vaporizing-chamber *a*, placed underneath, is heated by the heat transmitted through the bottom of the chamber *b*, and where the arrangement illustrated in Fig. 2 is adopted the flame surrounds both the mixing and vaporizing chambers, covering their outer surfaces throughout the entire height of each, so that in this case also the direct heating of the vaporizing-chamber is insured. The effect of interposing the mixing-chamber in the path of the combustible vapor is to regulate and temper the intensity of the currents, so that a uniform, steady, and silent flame is obtained.

What I claim is—

A vapor-burner consisting of a vertical supply-pipe divided into two branches at its upper end, a volatilizing-chamber and a mixing and superheating chamber arranged on the upper ends of said branches one directly above the other, the said branches communicating with the volatilizing-chamber, a downwardly-extending central tube provided at its upper end with perforations leading into the mixing and superheating chamber, a tube opening at its upper end into the volatilizing-chamber and its lower end communicating with a central jet-pipe discharging upward into the lower open end of the said central tube, a plurality of discharge-jets formed in the lower portion of the mixing and super-

heating chamber, and an upwardly-flaring cap arranged around the base of the mixing and superheating chamber and operating to deflect the flames upward around said mixing and superheating chamber, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 19th day of August, 1896.

HUGO KRETSCHMANN.

Witnesses:
A. LIEBER,
W. HAUPT.