No. 689,785. Patented Dec. 24, 1901.

A. BRAUN.

HYDROCARBON BURNER.

(Application filed Apr. 10, 1901.)

(No Model.)

Fig. 1.

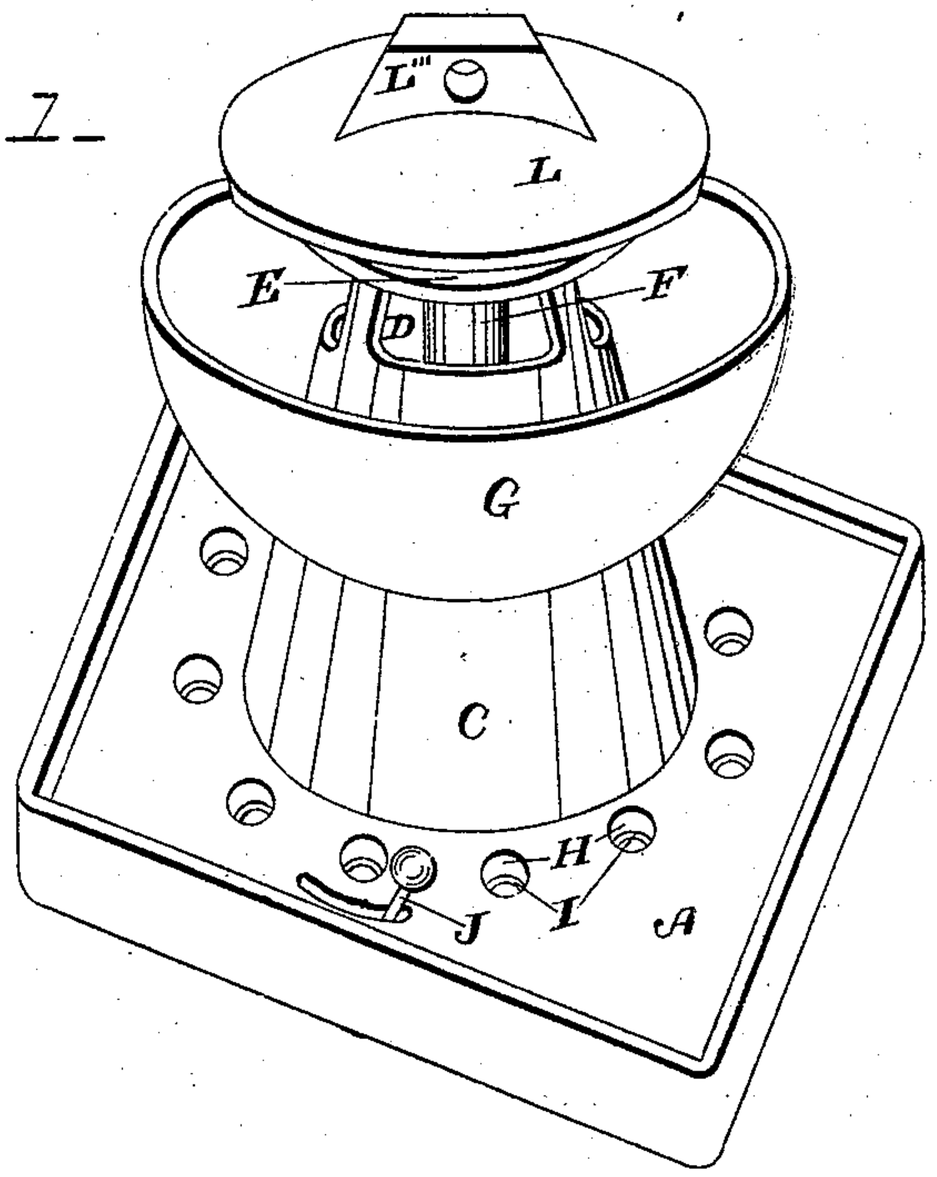
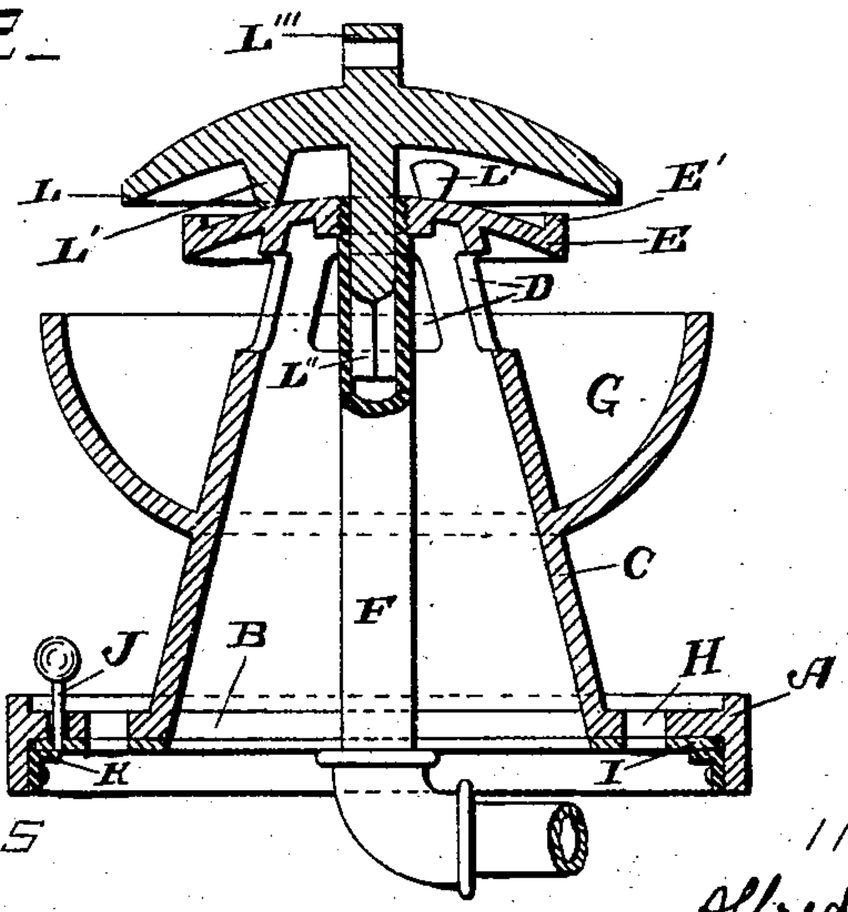


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

ALFRED BRAUN, OF LOS ANGELES, CALIFORNIA.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 689,785, dated December 24, 1901.

Application filed April 10, 1901. Serial No. 55,246. (No model.)

To all whom it may concern:

Be it known that I, ALFRED BRAUN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

My invention relates to burners for burning light-grade distillate from crude petroleum and light-grade hydrocarbon oils without the use of steam; and the object thereof is to produce a burner for that purpose of simple construction and which will not easily get out of order. I accomplish this object by the burner described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my burner. Fig. 2 is a central vertical section thereof.

In the drawings, A is the base-plate of my burner, which is provided with a central draft-opening B. Surrounding the central draft-opening and rigidly affixed to the base-plate is the draft-tube C, preferably the shape of a truncated cone, which in the top portion thereof is provided with a plurality of inlet-ports D, through which air passes into the fire-box. The draft-tube is closed at the top by a projecting cover E, rigidly affixed thereto, to which is centrally attached feed-pipe F, connected to a liquid-fuel supply, (not shown,) through which the fuel is fed into the burner by gravity, the usual regulating-cock being provided to control the quantity thereof upon the top of the draft-tube cover. The cover is preferably circular and slightly convex on its upper surface and has an upwardly-extending flange E′ around the edge thereof to form a very shallow basin around the outer edge to retain the residuum of the liquid fuel thereon when the burner is in operation, as hereinafter explained. Rigidly affixed to the draft-tube and extending nearly to the top thereof is the bowl-shaped flange G, which forms, with the tube, a vessel for holding liquid fuel when starting the burner, which I call the "starting-cup." In the base exterior the draft-tube are a plurality of apertures H for the admission of air into the fire-box, the size of which is controlled by the rotating damper I, having handle J projecting through a slot in the base-plate to operate it. The damper is held in place by lugs K, affixed to the base. Resting upon the draft-tube cover, supported by its legs L′, is deflecting-plate L, provided with a central square pin L″, which projects into the supply-pipe and at the top divides the interior thereof into four semicircular channels for the passage of the fuel and when properly heated turns the liquid fuel into vapor before it issues from the supply-pipe. The deflecting-plate is also provided with a handle L‴ for convenience in handling it and projects beyond the draft-tube cover.

In the practice of my invention I cast from iron the base-plate, draft-tube, cover therefor, and the flange G integral with each other and the deflecting-plate, legs, handle, and central pin integral with each other.

In the operation of my burner the base is placed on the bottom of the fire-box, being suitably supported, and all the bottom thereof is covered by an imperforate covering, except that portion thereof which is covered by the base-plate. A suitable quantity of liquid fuel is permitted to flow into the starting-cup when it is lighted. As it burns the flame heats the deflecting-plate and the central pin thereof, so that when the fuel is almost all burned out of the starting-cup and a constant supply is allowed to flow into the burner it is turned into vapor before it reaches the outer edge of the draft-tube cover. This vapor, uniting with the air passing up through the draft-tube, burns and produces a clear steady flame without smoke. By this construction the vapor acts on the injector principle to draw the air up through the draft-tube, and thereby supply the air necessary for perfect combustion. As the deflecting-plate is removable from the other part, it can be made of a larger or smaller diameter, and thereby cause the production of a broader or narrower flame without changing the other parts of the burner. In burning distillate a small amount of residuum is deposited on the draft-tube cover, which can easily be removed when the deflecting-plate is off. The passage of air through the draft-tube keeps the parts from overheating.

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

1. The herein-described hydrocarbon-burner, comprising a base-plate having a central aperture therein; a draft-tube affixed to said base-plate, surrounding said aperture and having a cover, and apertures in the sides of the tube at the top thereof below the cover; a feed-pipe affixed to the center of the draft-tube cover, adapted to discharge fuel on the top thereof; and a deflecting-plate, having legs adapted to rest upon the draft-tube cover, and a central pin adapted to project into the fuel-supply pipe.

2. The herein-described hydrocarbon-burner, comprising a base-plate, having a plurality of apertures therein; a central draft-tube affixed thereto, surrounding one of said apertures, the remainder of said apertures being exterior said tube; a damper movably attached to said base-plate, adapted to control the size of the apertures exterior the tube; apertures in the sides of said tube at the top thereof; a projecting cover on said tube; a feed-pipe centrally affixed to said cover, adapted to discharge fuel on the top thereof; a starting-cup affixed to the exterior of the draft-tube; a deflecting-plate projecting beyond the cover of the draft-tube, and having legs adapted to rest thereon and support said plate elevated above said cover, and also having a square central pin, adapted to project into the fuel-pipe and divide it in the top portion thereof into four equal semicircular channels.

3. In a hydrocarbon-burner in which the liquid fuel may be discharged through an upwardly-projecting supply-pipe upon the center of a circular distributing-plate affixed to the top of said supply-pipe; a deflecting-cover therefor, having a central pin, adapted to project into the supply-pipe; and legs adapted to rest upon and hold it elevated a short distance above such plate.

In witness that I claim the foregoing I have hereunto subscribed my name this 2d day of April, 1901.

ALFRED BRAUN.

Witnesses:
G. E. HARPHAM,
MATTIE MCGINNIS.