(No Model.)

J. J. HALL.

MINERAL OIL BURNER.

No. 593,801. Patented Nov. 16, 1897.

Fig. 4.

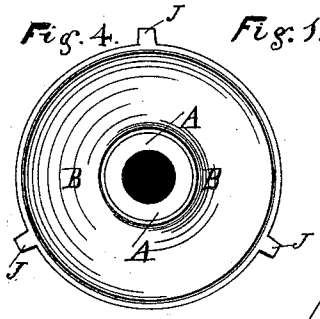


Fig. 1.

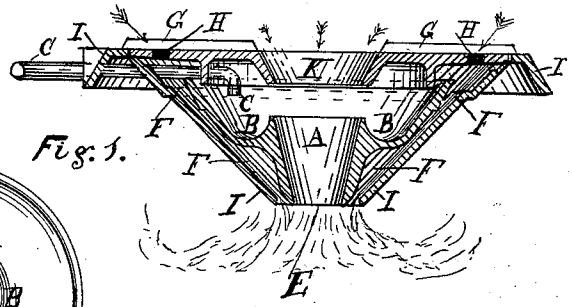
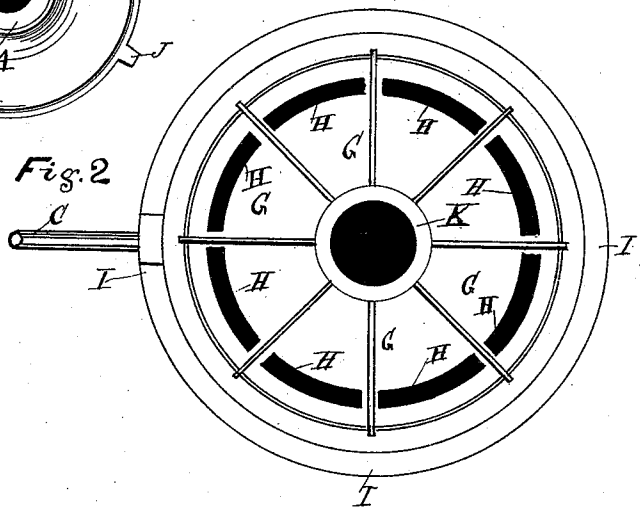


Fig. 2



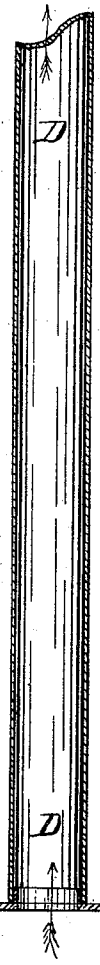
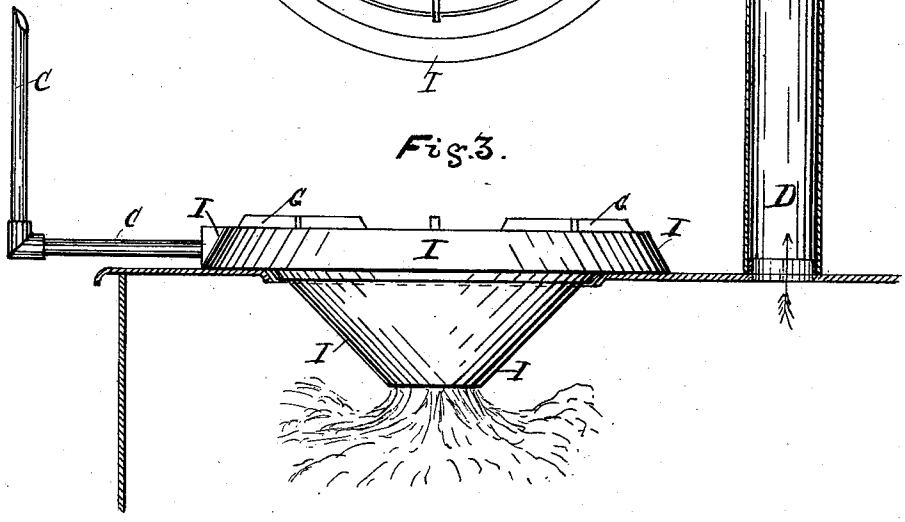


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOSEPH J. HALL, OF LOS ANGELES, CALIFORNIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO JAMES SMITH, OF PASADENA, CALIFORNIA.

MINERAL-OIL BURNER.

SPECIFICATION forming part of Letters Patent No. 593,801, dated November 16, 1897.

Application filed April 14, 1896. Serial No. 587,470. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH J. HALL, a citizen of the United States, residing at the city of Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Burners for Burning Mineral Oils, of which the following is a full, clear, and exact description or specification, reference being had to the annexed sheet of drawings, and to the letters marked thereon.

The object of my invention is to burn oils of the class known as "mineral" oils economically and without the production of smoke. According to my invention I carry out this object by an apparatus whereinto the oil is caused to drop in a regulated quantity into a hollow or gutter around the upper part of a mixing-chamber. The mixing-chamber is suspended in a frame and depends for a sufficient distance down into the fire-box of a stove, fire-grate, or other heating apparatus whereto my invention is applied. The draft through the chimney or flue of the stove or other appliance or apparatus causes air at all times to be drawn from the outer atmosphere down through an opening in a lid into the mixing-chamber, wherein this air mixes with the vapor from the oil in the gutter in its descent through the mixing-chamber, while another part of the air passing through openings in the lid descends through the conical annular space surrounding the mixing-chamber, but does not burn until it issues from the bottom of the conical space, where it meets the outside of the flame produced by the vapors from the oil and air descending through the mixing-chamber, thus producing intense heat at the point where the air issuing from the surrounding conical space meets it, so that the full heat due to the combustion is developed in the fire-box of the stove, fire-grate, or other heating apparatus whereto my invention is applied.

On the annexed sheet of drawings, Figure 1 is a vertical section of my improved mineral-oil burner, showing all the parts as they are situated in relation to each other when in action. Fig. 2 is a plan of the same. Fig. 3 is an elevation showing my apparatus applied to a heating-stove and in action. Fig. 4 is a plan of the gutter and mixing-chamber and the lugs whereby the gutter and mixing-chamber are suspended in the frame, which rests upon the top plate of the stove, fire-grate, or other heating appliances.

In the figures the mixing-chamber is marked A and may be of conical form, as shown. The upper part of the mixing-chamber is formed with a gutter B, and it is suspended in the conical frame I by means of the lugs J, which rest upon the inner part of the frame I. The oil discharge or feed pipe C drops the oil into the gutter B. As the several parts constituting the burner are situated within the fire-box of the stove or other heating appliance, all parts thereof become hot, and the oil as it drops from the pipe C into the gutter B becomes immediately vaporized or converted into gas, while the suction or draft produced by the chimney D, Fig. 3, of the stove or other heating apparatus causes some of the air and the vapor from the oil to be continuously pulled down through the central opening K in the lid G into the mixing-chamber A, as indicated by arrows in Figs. 1 and 2, thereby forming a highly-combustible mixture, which on arriving at the discharge-orifice E meets with the other parts of the hot air descending through the openings H in the lid G and thence down through the conical space F, so that these burn and develop intense heat within the fire-box of the said stove or other heating appliance. As it is desirable that the quantity of oil used should be under control and exactly regulated, a regulator or valve (not shown in the drawings) is placed in the pipe between the oil and the burner, while the quantity of oil may be further adjusted from time to time, as required, by means of a needle-regulator, as is well understood.

Having now described the nature of my said invention and the best system, mode, or manner I am at present acquainted with for carrying the same into practical effect, I desire to observe, in conclusion, that what I consider to be novel and original, and therefore claim as the invention to be secured to me by Letters Patent, is as follows:

A downward-acting burner for burning mineral oils consisting of the mixing-chamber the outer conical chamber surrounding the

mixing-chamber, the outer conical chamber and mixing-chamber forming an air-heating space between them, the mixing-chamber formed with the vapor-generator adapted to discharge into said chamber at its top in which the oil to be burned is received and vaporized before passing down into the mixing-chamber, the lid with openings for admitting the supply of air to the mixing-chamber and to the air-heating chamber, all operating together in the manner and for the purposes substantially as set forth.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

JOSEPH J. HALL.

Witnesses:
NEAL D. BARKER,
ST. JOHN DAY.