(No Model.)

F. B. MEYERS.

HYDROCARBON BURNER.

No. 455,634. Patented July 7, 1891.

Fig: 1.

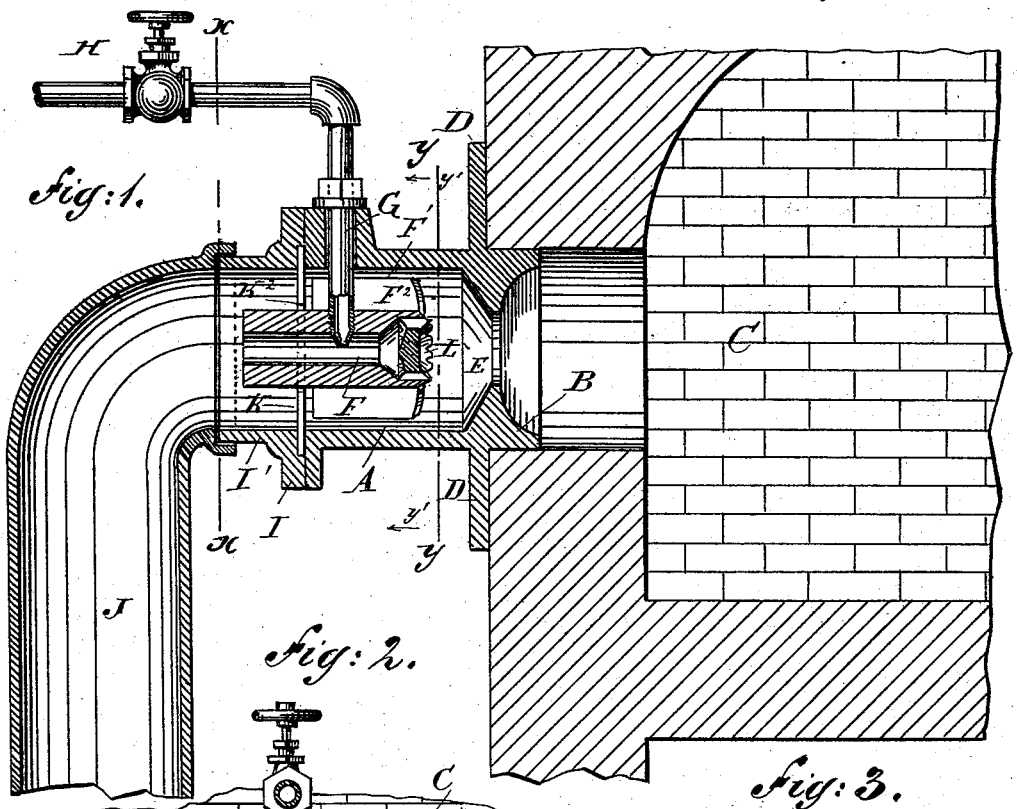


Fig: 2.

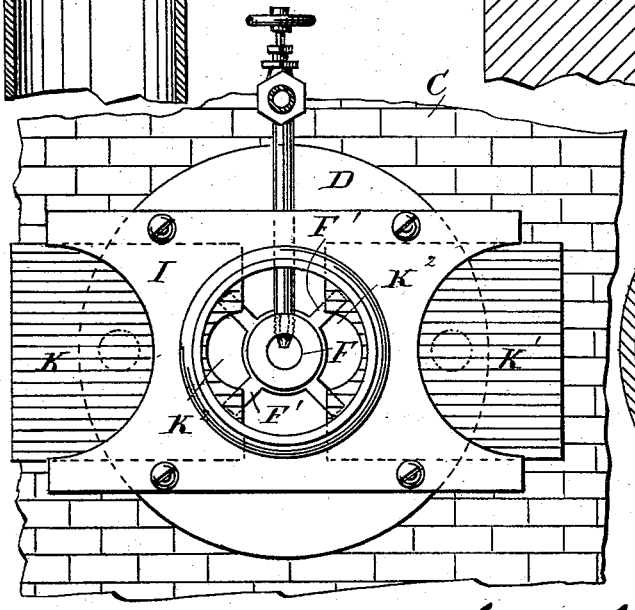


Fig: 3.

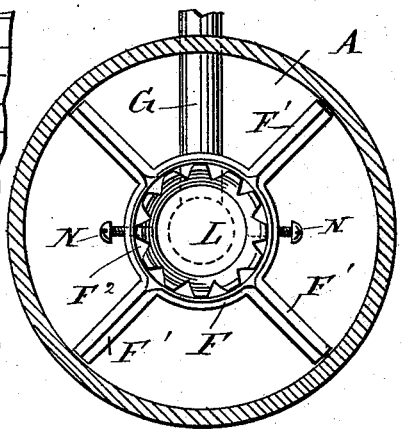


Fig: 5.

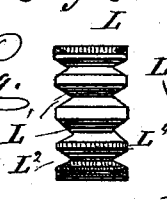


Fig: 4.

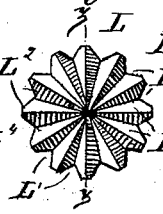
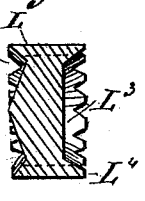


Fig: 6.



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HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 455,634, dated July 7, 1891.

Application filed December 4, 1890. Serial No. 373,578. (No model.)

To all whom it may concern:

Be it known that I, FRANK. B. MEYERS, of Fort Plain, in the county of Montgomery and State of New York, have invented a new and Improved Hydrocarbon-Burner, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved hydrocarbon-burner which is simple and durable in construction, completely atomizes the oil, and permits of directing the flame from the center to one side to distribute the heat uniformly within the furnace.

The invention consists of certain parts and details and combinations of the same, as will be described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement as applied. Fig. 2 is a transverse section of the same on the line *x x* of Fig. 1. Fig. 3 is an enlarged transverse section of the improvement on the line *y y* of Fig. 1, looking in the direction of the arrows *y'*. Fig. 4 is a rear face view of the atomizing-disk. Fig. 5 is a side elevation of the same, and Fig. 6 is a sectional side elevation of the same on the line *z z* of Fig. 4.

The improved hydrocarbon-burner is provided with a casing A, preferably of cylindrical form, provided with a mouth B, passing into the usual opening leading into the interior of the furnace C, on which the hydrocarbon-burner is to be applied. The casing A is provided with suitable flange D, adapted to abut against the wall of the furnace, and also adapted to be secured thereto by suitable screws or bolts. The mouth B is provided with a contracted neck E, the inside of which is conical while the outer part is concaved, as is plainly illustrated in Fig. 1.

Within the casing A, in the rear of the contracted neck E, is arranged concentrically a pipe F, considerably smaller in diameter than the casing A, but supported therein by suitable spider-legs F' resting against the inside of the casing. Into this pipe F leads the oil-pipe G, passing through the top of the casing and connected with a suitable source of oil-supply, the amount permitted to flow into the pipe F being regulated by a valve H.

To the outer end of the casing A is secured a transversely-extending plate I, having an annular flange I', on which is fitted the air-pipe J, connected with a suitable source of air-supply, usually a blower, which furnishes the necessary amount of air to atomize the oil. In the plate I is arranged a valve for regulating the amount of air adapted to pass to the casing, the said valve being preferably made of two plates K and K', fitted to slide transversely, and each provided in its inner edge with a semicircular opening K^2, adapted to pass around the pipe F, so that when the two plates K and K' are moved to their innermost positions no air can pass directly from the pipe J into the casing A. If desired, only one of the plates K or K' may be opened, so that the air enters at one side of the casing A and passes through the contracted neck E to the opposite side of the furnace C. When both plates K and K' are opened the same distance, the flame passes to the center of the furnace.

Part of the air coming in through the pipe J passes through the concentric pipe F, which holds in the large opening at its front end the atomizing-disk L. The disk L is preferably of the construction shown, and is provided in its rim with notches L', extending longitudinally and leading to the back of the disk in which grooves L^2 extend to the center of the disk, so as to form a point thereon. The front of the disk is countersunk to form an annular recess L^3 and an annular flange L^4, the inside of which is slightly tapering, and into which open the longitudinally-extending grooves L', formed in the periphery of the disk. The disk L is preferably held in place in the pipe F by set-screws N or other suitable means.

The operation is as follows: When the hydrocarbon-burner is applied to the furnace C, as shown in the drawings, and the valve-plates K and K' are opened, then the air passing through the pipe J can pass partly into the casing A and partly through the pipe F, so that the oil coming in at the pipe G is

taken up by the air thrown against the back of the disk L, on which it is divided, to flow through the grooves or channels L^2 into the grooves L′ in the rim of the disk, and then along the said grooves to the front of the disk, to drop into the recess L^3, if not already atomized. The oil from the recess L^3 is taken up by the air passing around the pipe F in the casing A, so that all the oil is atomized and thoroughly mixed with the air before it passes through the contracted neck E into the furnace C. The mixture is lighted at the mouth B, so that the flame shoots into the furnace C centrally unless one of the plates K or K′ is moved farther in or out than the other plate, so as to shift the flame in the furnace from one side to the other, as previously mentioned.

It is understood that the numerous recesses in the atomizing-disk L readily divide the oil, so that it can be more easily acted on and atomized by the air passing both through the pipe F and around the same, as before mentioned.

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

In a hydrocarbon-burner, the combination, with a casing connected with an air-supply, of a pipe held centrally in the said casing, an oil-pipe discharging into the said central pipe, an atomizing-disk, substantially as described, held on the inner end of the said central pipe, and a valve formed of two plates having semicircular openings at their inner edges and fitted to slide transversely to regulate the admission of air to the said casing without shutting off the air-supply to the said central pipe, as set forth.

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