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HYDROCARBON BURNER.

APPLICATION FILED JULY 6, 1906. RENEWED JAN. 18, 1908.

928,337.

Patented July 20, 1909.

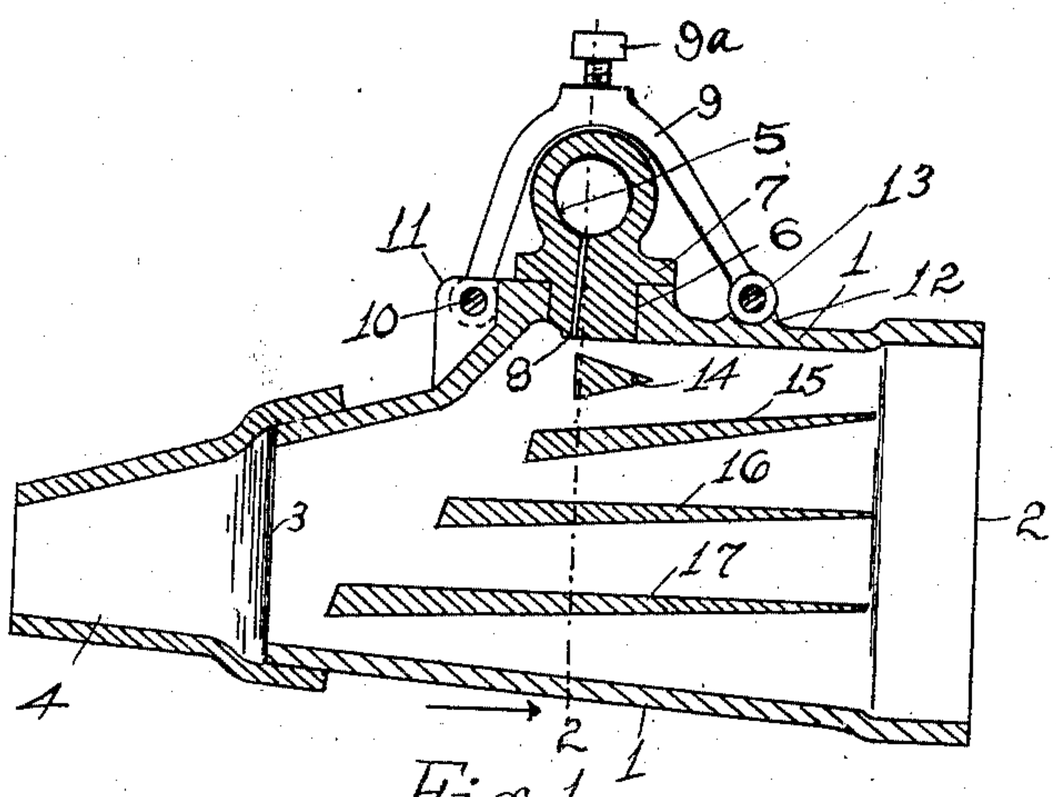

Fig 1

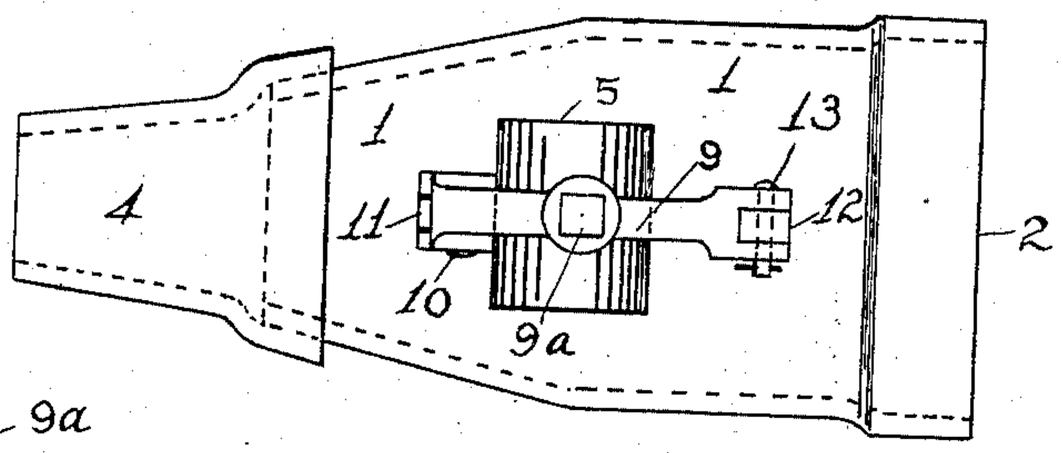

Fig 2

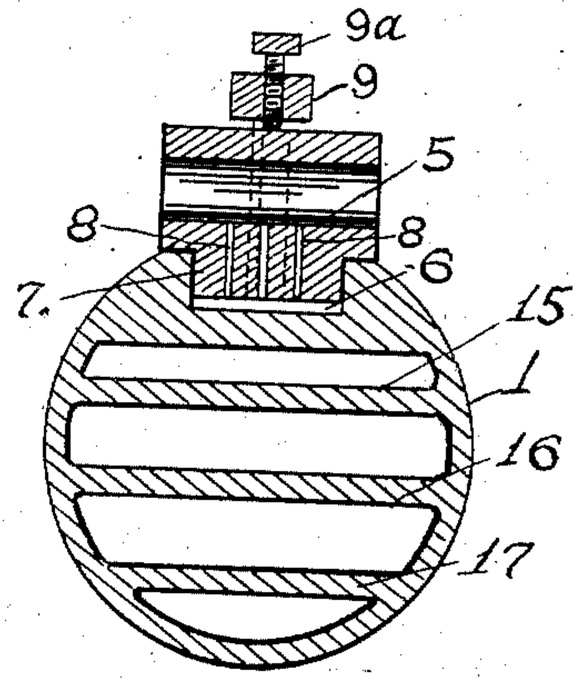

Fig 3

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UNITED STATES PATENT OFFICE.

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HYDROCARBON-BURNER.

No. 928,337. Specification of Letters Patent. Patented July 20, 1909.

Application filed July 6, 1906, Serial No. 324,973. Renewed January 18, 1908. Serial No. 411,499.

To all whom it may concern:

Be it known that I, WILLIAM SCRIMGEOUR, Jr., a citizen of the United States, residing at Portsmouth, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

This invention relates to hydrocarbon burners, the object of the invention being the provision of a burner capable of efficient operation under low pressure of air, a suitable air pressure being approximately five ounces per square inch.

A preferred form of burner constructed in accordance with my invention comprises a casing having an oil inlet in its upper portion, and a plurality of plates or bridges disposed beneath the inlet and in the path of the oil in such manner as to subject the oil to a plurality of air currents and to secure great heating capacity and a high efficiency of vaporization.

For a full understanding of my invention reference is made to the accompanying drawing, wherein:

Figure 1 is a central longitudinal section of a preferred form of burner embodying the invention; Fig. 2 is a plan view of the same; and Fig. 3 is a transverse section on line 2 of Fig. 1, viewed in the direction indicated by the arrow.

Referring to the drawings, 1 represents the burner casing or shell and 2 the air-inlet which in operation is connected to a suitable source of supply of air under comparatively low pressure.

3 represents the relatively contracted outlet for the combustible mixture of air and fuel.

4 is a nozzle serving to further contract the vapor outlet and illustrated as separable from the casing 1.

5 represents a tubular oil conduit extending transversely across the casing and adapted for connection from either end to a source of oil supply; the opposite end being closed by a plug which is readily removable for cleaning purposes. The oil conduit 5 communicates with the upper portion of the interior of the casing through ports 8 extending through a plug 7 adapted for insertion in an aperture 6 in the top of the casing. In order that the plug 7 carrying the oil conduit and ports may be readily removable to afford access to the ports I prefer to secure the same by means of a strap or yoke 9 secured by pins 10, 13 to lugs 11, 12 formed integral with the casing 1; 9^a is a screw or equivalent device for securing the plug 7.

Below the ports 8 and preferably slightly in the rear of the same as shown in Fig. 1 is a wedge-shaped bridge member 14 disposed with its broad face in proximity to or contact with the descending oil and with its thin edge presented to the air-inlet, the form of the member 14 and of the adjacent parts being such that the air passing above the wedge 14 is directed forward and upward at progressively increasing velocity into close proximity to the oil port 8. Below the wedge 14 are spaced bridge-members 15, 16, 17 formed integral with the casing and extending longitudinally thereof. As shown these may taper rearwardly, presenting their thin edges to the air-inlet, and may preferably be beveled on their forward faces as illustrated. Each bridge-member projects beyond the one immediately above as clearly shown in Fig. 1 in order that any unvaporized oil may be intercepted by successive heated surfaces before reaching the bottom of the casing.

As shown in Fig. 1 the upper plane surfaces of the bridge-pieces 16 and 17 are substantially horizontal, the corresponding surface of the piece 15 inclining forwardly and downwardly. The disposition of the bridge-members 14, 15, 16, 17 is such as to provide between them, and between the members 14 and 17 and the upper and lower walls of the casing respectively, air passages each of which converges in the direction of the air current. This construction is essential to the highest economy of operation in a burner using air at low pressure, as it insures that the velocity of the air current shall attain a maximum at the precise point or points where it is required to impinge upon and atomize the oil, that is to say adjacent the oil ports 8 and beneath the forward lip of each bridge-member. The beveled forward edges of the several bridge-members present a thin edge to the air at its point of release and thereby increase its atomizing effect.

I claim:

1. A hydrocarbon burner comprising a casing having an air-inlet and a vapor-outlet, a wedge-shaped member in the upper

portion of said casing having its edge directed toward the air-inlet, and means opening into the casing above said wedge-shaped member for delivering oil into the casing.

2. A hydrocarbon burner comprising a casing having an air-inlet and a vapor-outlet, transverse bridges having plane upper surfaces extending across said casing and providing a plurality of air-passages each converging uniformly toward said vapor-outlet, and means for introducing oil into the casing above the upper bridge.

3. A hydrocarbon burner comprising a casing having an air-inlet and a vapor-outlet, transverse bridges extending across said casing and providing a plurality of air-passages each converging toward said vapor-outlet, said bridges tapering toward said air-inlet, and means for introducing oil into the casing above said bridges.

4. A hydrocarbon burner comprising a casing having an air-inlet and a vapor-outlet, a wedge-shaped member in the upper portion of said casing, a series of wedge-shaped plates of varying lengths disposed beneath said wedge-shaped member, the edges of said plates forming steps for the flow of oil thereupon, and means for introducing oil into the casing above said wedge-shaped member.

5. A hydrocarbon burner comprising a casing having an air-inlet and a vapor-outlet, transverse bridges extending across said oil ports communicating therewith, and with the interior of the casing, a wedge-shaped bridge-member opposite said oil ports, and a plurality of wedge-shaped plates below said bridge-member.

6. A hydrocarbon burner comprising a casing having an air-inlet and a vapor-outlet, transverse bridges extending across said casing and providing a plurality of air-passages each converging toward said vapor-outlet, said bridges tapering toward said air-inlet and beveled at their thicker ends, and means for introducing oil into the casing above said bridges.

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