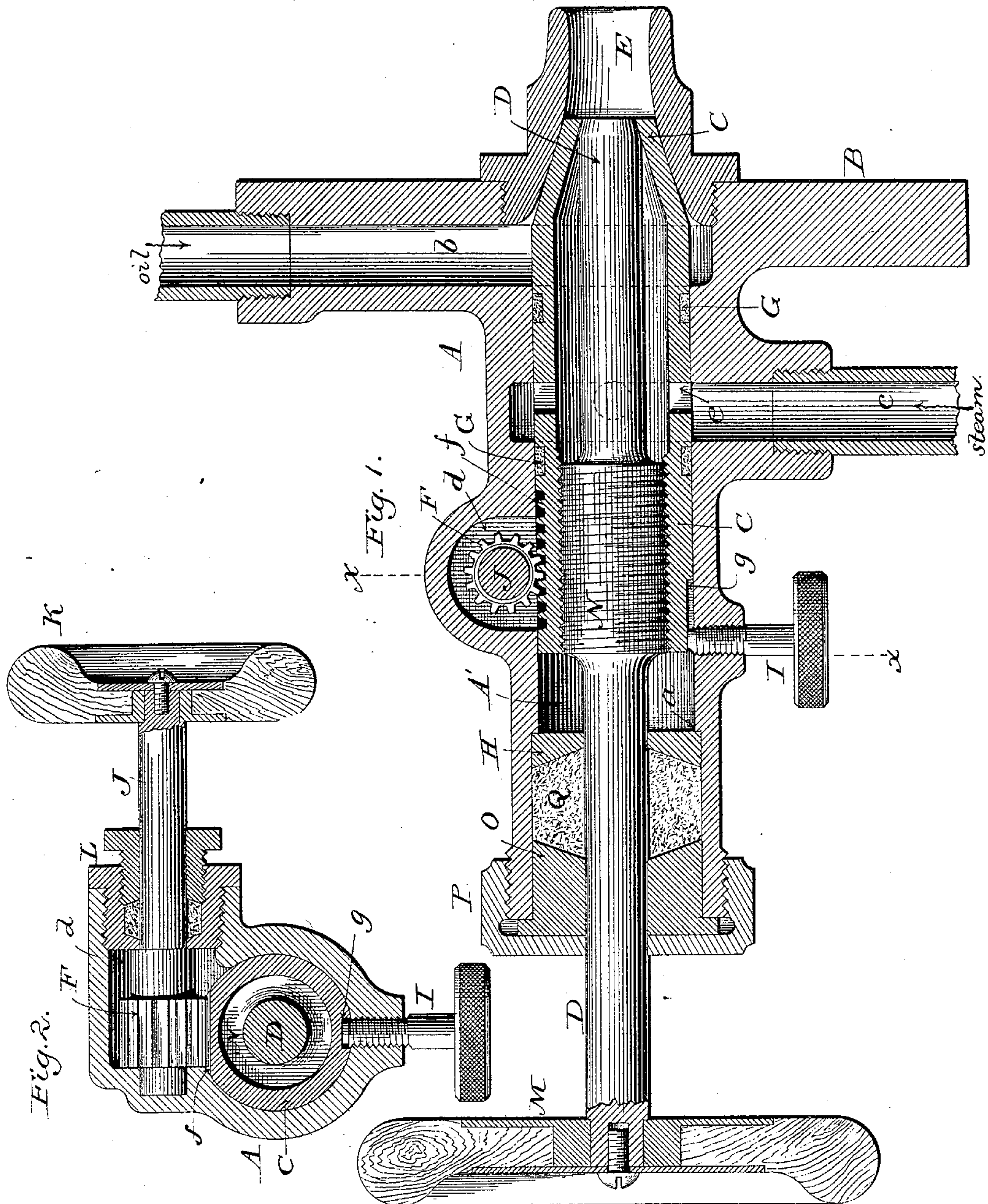


(No Model.)

W. B. WRIGHT.
INJECTOR BURNER.

No. 368,266.

Patented Aug. 16, 1887.



Witnesses:

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UNITED STATES PATENT OFFICE.

WALTER B. WRIGHT, OF CHICAGO, ILLINOIS, ASSIGNOR TO WILLIAMS & WRIGHT, OF TROY, NEW YORK.

INJECTOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 368,266, dated August 16, 1887.

Application filed December 27, 1886. Serial No. 222,657. (No model.)

To all whom it may concern:

Be it known that I, WALTER B. WRIGHT, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful
5 Improvements in Injector-Burners, of which the following is a specification.

My invention relates to that class of devices known as "injector-burners," which are used in connection with hydrocarbon-furnaces; and
10 it consists in various features and details, hereinafter more fully set forth and claimed.

In the accompanying drawings, Figure 1 is a longitudinal central sectional view of my improved injector-burner, and Fig. 2 a vertical
15 cross-sectional view of the same on the line *x x*.

A indicates the shell or casing, which is bored out hollow from end to end, the internal chamber, A', thus formed being enlarged
20 at one end, thereby forming a shoulder, *a*, as shown in Fig. 1. At the inner end of the casing the latter is provided with a flange, B, by which to secure the device to a retort. Suitable oil and steam passages, *b* and *c*, are also
25 formed in the shell, both of which communicate with the internal chamber of the latter. A chamber, *d*, is also formed in the shell A, as shown in Figs. 1 and 2, to one side of and communicating with the internal chamber, A'.

30 The shell or casing A, with its passages *b* and *c*, chambers A' and *d*, and flange B, may be easily cast in one piece of metal.

In one end of the chamber A is screwed a nozzle, E, which is adapted to project a slight
35 distance into the end of the retort, and which, as shown in Fig. 1, is provided with a conical or a tapering discharge-orifice.

The interior face of the chamber A' is dressed or finished to receive the hollow sliding valve
40 C, which has a tapering nose to fit into the correspondingly-tapering nozzle E, the valve C being provided with openings *e*, registering with steam-passage *c*, to permit steam to enter into the interior of said valve, as clearly shown
45 in Fig. 1. The valve C is provided, also, with external grooves, in which packing-rings G are inserted, the rings G being on both sides of the steam-passage *c*, in order to prevent the steam from escaping around the exterior of
50 the valve.

At the rear end the valve C is threaded internally, and upon its upper and lower faces are formed, respectively, a rack, *f*, and a longitudinal slot, *g*, as shown in Figs. 1 and 2, the slot being adapted to receive a screw, I, passing
55 through the shell or casing, while the rack receives a pinion, F, mounted within the chamber *d*. The pinion F is formed upon or secured to a shaft, J, one end of which is seated in the wall of chamber *d*, while the other end
60 projects outwardly through the side of the casing at right angles to the valve C, as shown in Fig. 2, where it is provided with a hand-wheel, K. A packing box or gland, L, is applied to the shaft or stem J, in order to make
65 a tight joint and prevent the escape of steam.

By rotating or turning the shaft J in either direction the valve C will be moved lengthwise in the chamber A', the valve being guided
70 in its movement by the screw I, working in the slot *g*, and by such movement varying the amount of oil discharged through the nozzle E by entering to a greater or less extent into said nozzle.

D indicates a valve-stem provided at one
75 end with a tapering point to fit the tapering end of valve C, at the other end with a hand-wheel, M, and at a point between its ends with a hub or enlargement, N, which is threaded, as shown in Fig. 1, to engage with the thread
80 formed upon the interior of the valve C. From this construction it follows that by turning the stem D in one or the other direction the amount of steam discharged from the valve C may be regulated and controlled as desired, the screw
85 I preventing the valve C from being turned with the valve-stem. It will also be observed that the screw I may be made to bind the valve C so tightly as to prevent the latter from being moved longitudinally in either direction
90 by the pressure of the steam.

A plate or disk, H, is placed within the chamber A' and rests upon the shoulder *a*, as shown in Fig. 1, the plate or disk encircling the stem D and forming with the gland O and
95 cap P and intermediate packing, Q, a tight joint that effectually prevents the escape of steam at that point.

It will be observed that the valve C and valve-stem D each close their respective open- 100

ings without any possibility of interfering with each other, and this is a feature of considerable importance when the relative supply of steam and oil is a matter of consequence.

Having thus described my invention, what I claim is—

1. In an injector-burner, the combination, with a shell or casing provided with a discharge-nozzle and steam and oil inlets, of the sliding hollow valve C, the rotatable valve-stem D carried thereby, and the set-screw I, arranged, substantially as shown, to guide the valve C in its movements, prevent its rotation, and lock it in position when desired.

2. In an injector-burner, the combination, with shell A, provided with oil and steam passages *b* and *c*, discharge-nozzle E, and a chamber, *d*, of a hollow valve, C, provided with a rack and a slot on its exterior, a pinion, F, mounted in chamber *d* and meshing with the rack, a screw, I, passing through the shell and

working in slot *g*, and a valve-stem, D, adjustable lengthwise within the valve C.

3. In an injector-burner constructed substantially as shown and described, the combination, with the hollow valve C, provided with an internal screw-thread, of a valve-stem journaled therein, a pinion for regulating the valve, and a set-screw adapted to bear against the valve, as and for the purpose set forth.

4. In an injector-burner, the combination, with shell A, having passages *b c*, nozzle E, and chambers A' and *d*, of a hollow valve, E, provided with rack *f*, slot *g*, openings *e*, and an internal screw-thread, a valve-stem, D, screwing into valve C, set-screw I, working in slot *g*, a pinion, F, engaging with rack *f*, and packing boxes or glands L O, all substantially as shown and described.

WALTER B. WRIGHT.

Witnesses:

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