W. L. IMLAY.

HYDRO-CARBON BURNER.

No. 191,969. Patented June 12, 1877.

Fig. 1.

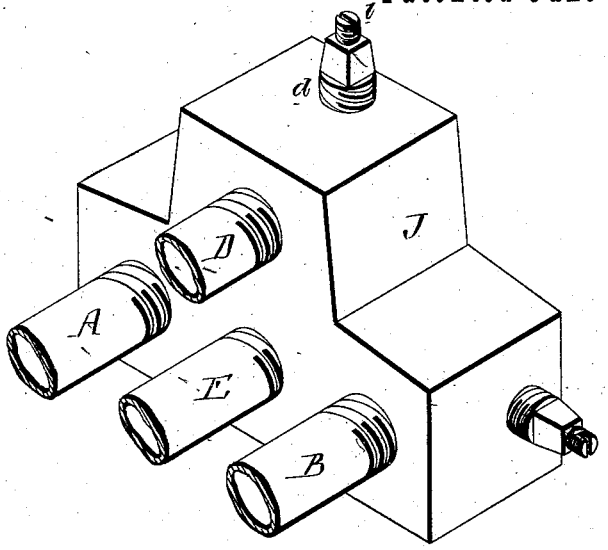



Fig. 2.

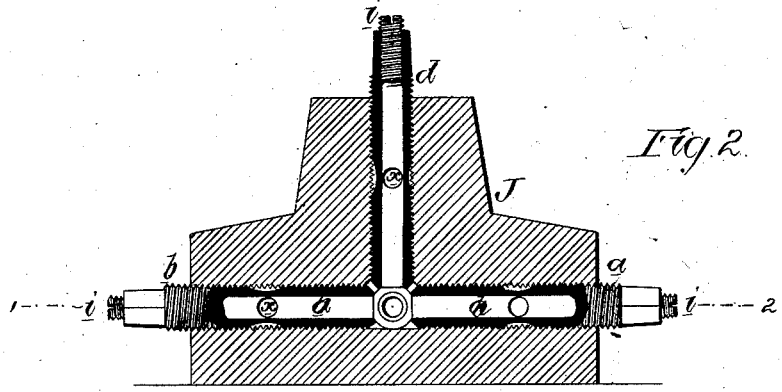



Fig. 3.

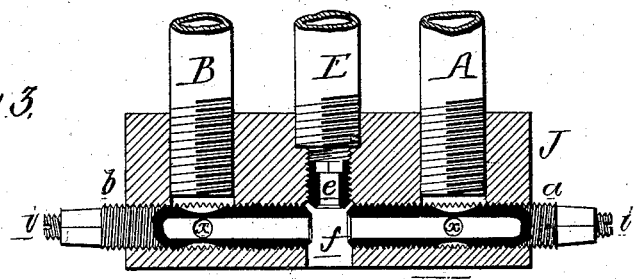
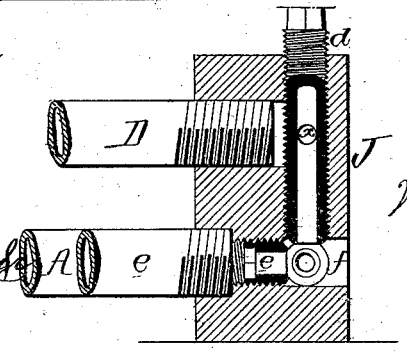



Fig. 4.




Witnesses
Henry Howson Jr.
Harry Smith

Inventor
William L. Imlay
by his Attorneys
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# UNITED STATES PATENT OFFICE.

WILLIAM L. IMLAY, OF CAMDEN, ASSIGNOR TO DILLWYN SMITH, OF BURLINGTON, NEW JERSEY.

## IMPROVEMENT IN HYDROCARBON-BURNERS.

Specification forming part of Letters Patent No. **191,969**, dated June 12, 1877; application filed May 9, 1877.

*To all whom it may concern:*

Be it known that I, WILLIAM L. IMLAY, of Camden, New Jersey, have invented an Improved Hydrocarbon-Burner, of which the following is a specification:

The object of my invention is to construct a simple, cheap, and efficient hydrocarbon-burner for furnaces, an object which I attain in the following manner, reference being had to the accompanying drawing, in which—

Figure 1 is a perspective view of my improved burner; Fig. 2, a transverse section of the same; Fig. 3, a sectional plan on the line 1 2; and Fig. 4, a longitudinal section.

J is a metal block in which are formed four passages, provided with tubular threaded stems *a*, *b*, *d*, and *e*, these passages communicating, respectively, with four pipes, A, B, D, and E, and all communicating with a central opening, *f*, formed in the front edge of the block J.

The pipes A and B communicate with reservoirs of any suitable hydrocarbon, the pipe D with a reservoir of water, and the pipe E with a reservoir containing steam or air under pressure.

Each of the tubular stems has an opening, *x*, which serves to establish communication between the interior of the stem and the pipe with which said stem corresponds, so that when the apparatus is in operation oil, water, and steam, or air under pressure, are delivered into the central opening *f*, where they are mixed, and from which they are discharged in a stream, which, when ignited, burns with intense heat.

The relative position of the ends of the stems may be varied to suit different requirements by merely turning them in one direction or the other, in order to move them forward or backward.

The central opening in each stem extends entirely through the same, and in the stems *a*, *b*, and *d* is closed at the outer end by a screw-plug, *i*, by removing which access may be had to the opening for cleansing or other purposes. The central opening in the stem *e* is enlarged at the rear end, so as to form a square or angular recess for the reception of a suitable instrument with which to turn the stem.

I have shown two oil-pipes, in combination with one water-pipe and one steam or air pipe, and I prefer this arrangement for general purposes; but the precise combination is not essential, as the number and arrangement of the pipes may be varied to suit special requirements.

I claim as my invention—

1. In a hydrocarbon-burner, the combination of the block J and its passages with tubular stems adjustable from and toward a central discharge-opening, as set forth.

2. The combination of the block J with the tubular stems, having longitudinal openings, and plugs *i* closing the outer ends of said openings, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM L. IMLAY.

Witnesses:

HENRY HOWSON, Jr.,

HARRY SMITH.