G. W. RUMRILL.

Devices for Burning Hydrocarbons.

No. 147,864. Patented Feb. 24, 1874.

Fig. 1

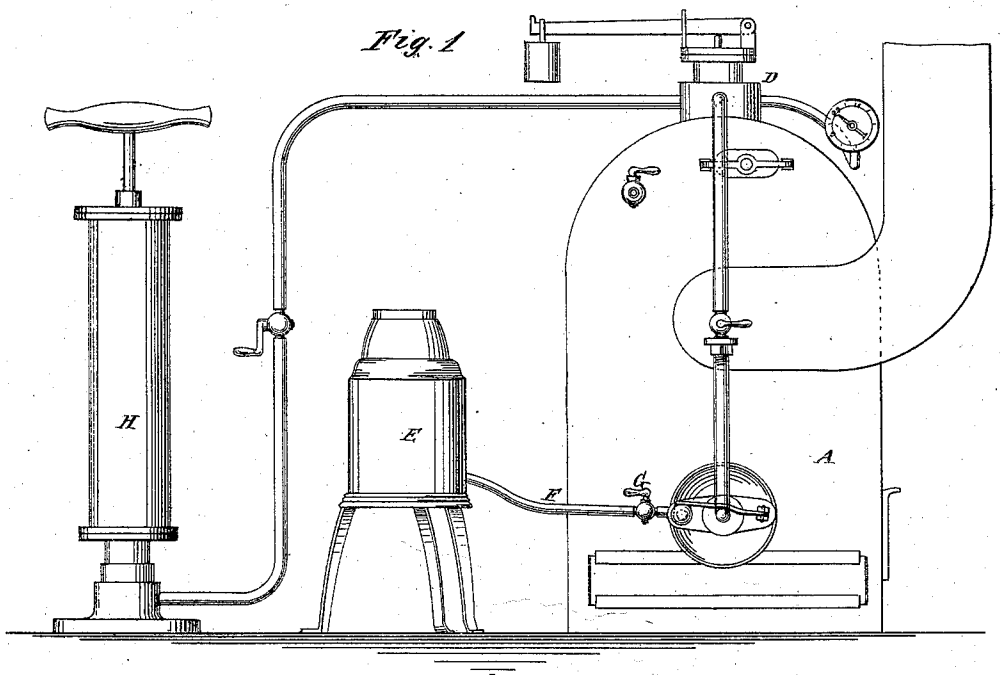
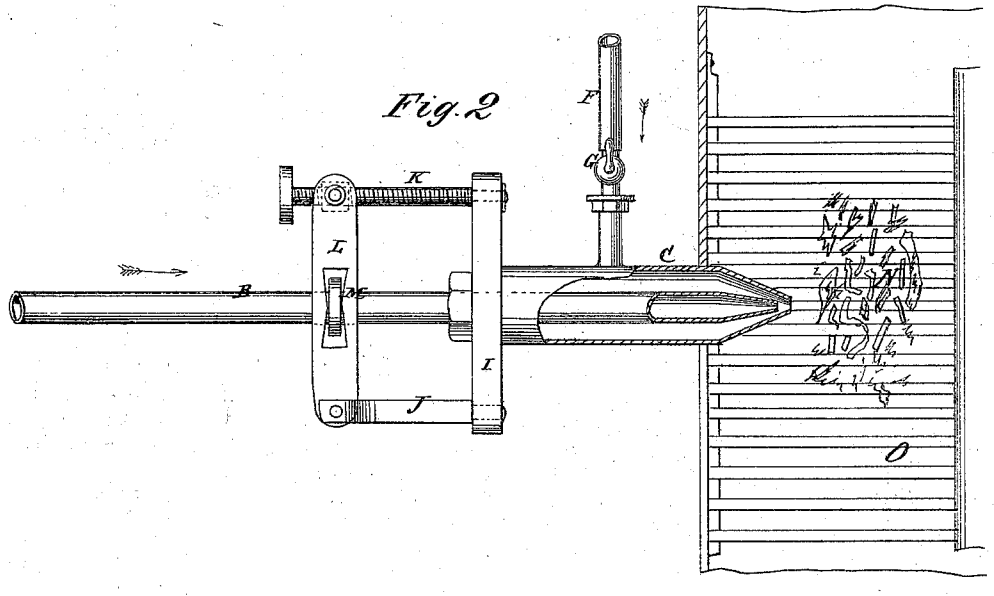


Fig. 2



WITNESSES:

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BY

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UNITED STATES PATENT OFFICE.

GEORGE W. RUMRILL, OF LIMA, PERU.

IMPROVEMENT IN DEVICES FOR BURNING HYDROCARBONS.

Specification forming part of Letters Patent No. **147,864**, dated February 24, 1874; application filed December 20, 1873.

To all whom it may concern:

Be it known that I, GEORGE W. RUMRILL, of Lima, Peru, have invented a new and useful Improvement in Devices for Burning Hydrocarbons, of which the following is a specification:

The first part of my invention consists of an air-blower, in combination with a boiler having the oil delivered into the furnace in spray by a steam-jet, to be used for producing a jet before steam is raised, the blower being connected with the boiler, or it may be to the steam-pipe leading to the injector. The second part of my invention consists of a novel and simple arrangement of apparatus for regulating the delivery of the oil into the furnace, and for shutting it off altogether and letting it on.

Figure 1 is a side elevation of a steam-generator with my improved apparatus applied. Fig. 2 is a horizontal section of a portion of the furnace and the injector, and a plan view of a portion of the latter.

Similar letters of reference indicate corresponding parts.

A represents the boiler; B, the steam-jet pipe of the injector; C, the oil-pipe surrounding the steam-pipe. The steam-pipe takes steam from the dome D of the boiler, and the oil-pipe is supplied from a tank, E, through a feed-pipe, F, having a regulating-cock, G, all being arranged for developing the oil in spray as it issues into the furnace from the nozzle of the injector formed by the pipes B and C; but as steam cannot be obtained from the boiler for use in the beginning, I propose to combine an air-blower, H, or any other suitable injector, for the purpose, in connection with the boiler or the jet-pipe, to produce an air-jet as a substitute for the steam until sufficient steam is raised in the boiler, the blower being worked by hand or any other competent means, thus enabling the fire to have the benefit of the jet from the moment of starting.

To regulate the discharge of oil from the injector, the steam-pipe B is made adjustable along the oil-pipe C, and connected to a cross-head, I, on it by bar J, adjusting-screw K, lever L, and collar M, so that by turning the screw the steam-pipe will be shifted forward and back to open or close the annular space between its nozzle and that of the oil-pipe. The escape of oil may be entirely cut off by forcing the nozzle B close against the other. N represents a pile of iron scrap on the fire-grate O in front of the injector, to receive the flame and heat, also for protecting the tube-sheet, and also for retaining heat for a considerable time after the jet has been shut off while stopping the engine to ignite it again.

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

1. The combination of an air-blower with the steam and oil jet apparatus of a boiler, to produce an air-jet before steam is raised, substantially as specified.

2. The combination and arrangement of the cross-head I, bar J, adjusting-screw K, lever L, and collar M with the oil-pipe C and steam-jet pipe B, for regulating the oil-jet, substantially as specified.

The above specification of my invention signed by me this 4th day of December, 1873.

GEO. W. RUMRILL.

Witnesses:

C. SEDGWICK,

T. B. MOSHER.