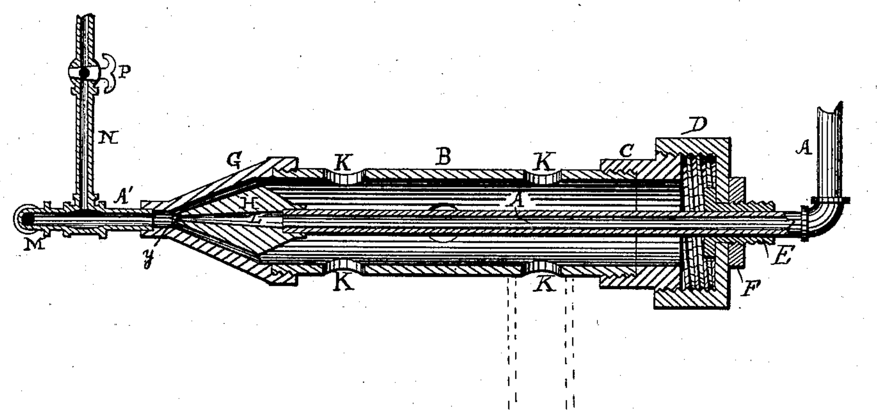
H. STACEY.

Nozzle for Hydrocarbon Furnaces.

No. 165,431. Patented July 13, 1875.



WITNESSES.

F. B. Townsend
John W. Cowan

INVENTOR.

Henry Stacey
Per. E. E. Brink Atty

UNITED STATES PATENT OFFICE.

HENRY STACEY, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN NOZZLES FOR HYDROCARBON FURNACES.

Specification forming part of Letters Patent No. **165,431**, dated July 13, 1875; application filed Fe' ruary 24, 1875.

To all whom it may concern:

Be it known that I, HENRY STACEY, of Indianapolis, county of Marion, State of Indiana, have invented an Improved Injector and mode of operating the same for introducing coal-tar or heavy oils into furnaces in the form of spray to cause combustion, of which the following is a specification:

My invention consists in a novel means of introducing coal-tar or heavy oils into furnaces in the form of spray, the tar or oils being introduced into a pipe attached directly in front of an injector, which is operated by steam or compressed air, whereby the oils are forced directly into the furnace in the form of spray to form combustion therein. This I accomplish by the combination and arrangement of the several parts of the injector and oil-supply pipe, of which the following is a description.

Figure 1 represents a sectional view of the injector, in which B represents the outside case, which is perforated with air-holes K, or there may be an air-pipe attached instead of having so many air-holes. C is a nipple screwed onto the rear end of the case B, and has a thread cut on the outside to receive the adjusting nut or cap D, which can revolve on the flanged nipple E between the flange and nut F. This arrangement of adjustment may be varied. The object is to adjust the nozzles G H so as to produce a larger or smaller space between them, and thus regulate the flow of air, and is accomplished by turning the nut or cap D so as to open or close the annular space between the nozzles H and G. A is the steam or compressed-air supply pipe, and enters the case B through the nipple E, and extends to the front end of the case B, where the nozzle H is screwed thereon.

The nozzle H is conical in form, and has a conical hole, L, which tapers from the end of the pipe A to a small hole, J, at the end. The outside of this nozzle conforms with the shape of the inside nozzle G, which is screwed onto the front end of the case B, and has the discharge-pipe A′ screwed into the small end immediately in front of the nozzle G; and entering the discharge-pipe A′ is the coal-tar or oil-supply pipe N, the supply of oils being properly gaged by a cock, P, placed above the entrance to the discharge-pipe A′. The oils thus supplied are forced into the furnace mixed with air and steam—or compressed air, if steam is not used—in the form of spray, and when ignited fills the furnace with a solid mass of flame.

What I claim as new, and wish to secure by Letters Patent, is—

The combination, in a nozzle for burning hydrocarbon-oils, of the perforated air-pipe B, steam-pipe A, conical nozzles H and G, whereby the quantity of air is controlled, with the oil-supply pipe N, in front of the combined air and steam-pipes, by which means the oil is introduced into the furnace in the form of spray, substantially as specified.

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

HENRY STACEY.

Witnesses:

CHARLES A. DEMENT,

AUG. F. COONS.