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JOSHUA KIDD, OF NEW YORK, N. Y.

IMPROVEMENT IN METHODS OF LIGHTING, HEATING, AND EXTINGUISHING FIRES.

Specification forming part of Letters Patent No. 122,895, dated January 23, 1872.

To all whom it may concern:

Be it known that I, JOSHUA KIDD, of the city, county, and State of New York, have invented an Improved Method of Lighting and Heating, and also for Extinguishing Fires; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

My improvements consist in forcing through pipes the partially-decomposed gases from burning vapors, also air heated to 300° and upwards of Fahrenheit's scale, by means of the escaping force of a jet of steam or hydrocarbon vapor, for the purpose of preventing condensation of said vapor or steam during its passage through pipes. Also, in burning the hydrocarbon mixture in a closed fire-box under a steam-boiler, and using the results of combustion, after being forced by a jet of steam through a pipe, for extinguishing fires.

In carrying out my invention I use an apparatus consisting of a vaporizer and a vapor jet, for which I have had a patent granted to me dated January 10, 1871, No. 110,857. I combine with this apparatus a pipe or other arrangement for heating the air. I first heat in a fire a pipe, coiled or otherwise. I attach one end of this pipe to the air-inlet *i*, shown in the aforesaid patent specification, so that atmospheric air is drawn through the heated pipe by the escaping force of a jet of vapor, shown at *F*.

It is the chief and essential feature of my invention that the air be heated to at least double the temperature of the boiling-point of the liquid, with the vapor of which liquid the air has to combine.

The air-heating pipes may be raised to a dull red heat, if desired. I sometimes dispense with the pipes for heating the air, and induce instead the flame of ignited hydrocarbon vapors into the pipe *i* by the escaping force of the vapor-jet *E*. By this method naphtha and benzine—hitherto of small commercial value—may be vaporized, and after being mixed with burning vapor or air, heated as above described, may be used for lighting purposes, and forced through pipes without fear of condensation.

Dead or exhaust steam may, in the same way, be superheated, and the mixture of heated air and dead steam forced through

pipes by the escaping force of a jet of live steam.

As the purposes of my invention may be accomplished in many different ways, I lay no claim to any special or improved apparatus, except a vaporizer with a vapor-jet for inducing a current of air, as described and set forth in the aforesaid patent specification, combined with a flame of burning vapor fixed at *i*, or an arrangement of pipes, fixed in a fire, for heating the air.

Steam or vapor may be generated in any common boiler or other convenient apparatus; but whatever form of vaporizer is used, it is essential to combine a jet for inducing heated air or gas into the vapor.

When my method of generating and mixing air with hydrocarbon vapor is used for extinguishing fires, I burn the mixture in a closed fire-box, and use the nitrogen and carbonic-acid gas, the results of the combustion, by forcing the same by means of a jet of steam into fires for extinguishing the same.

No drawing is required with this specification.

When a vapor flame is made to burn at inlet *i*, or any arrangement of pipes for heating air is combined with a vaporizer and air-inducing jet, shown in the drawings attached to the aforesaid patent specification, the apparatus for carrying out my invention is complete, and may be constructed by any skilled workman.

I claim as new—

1. The combination of air-pipes, heated by a fire, with a vaporizer and air-inducing jet, for the purposes set forth.

2. Heating atmospheric air from 300° Fahrenheit and upward, and combining the same with steam or vapor by induction.

3. I claim combining an adjusted proportion of atmospheric air with hydrocarbon vapors, and forcing the mixture through a red-hot pipe or retort, by the aid of an induced current caused by the escaping force of a jet of vapor.

4. The method set forth of using the results of combustion forced by a jet of steam for extinguishing fires.

JOSHUA KIDD.

Witnesses:

FERDINAND L. W. SERVEN,
JAMES KIDD.