

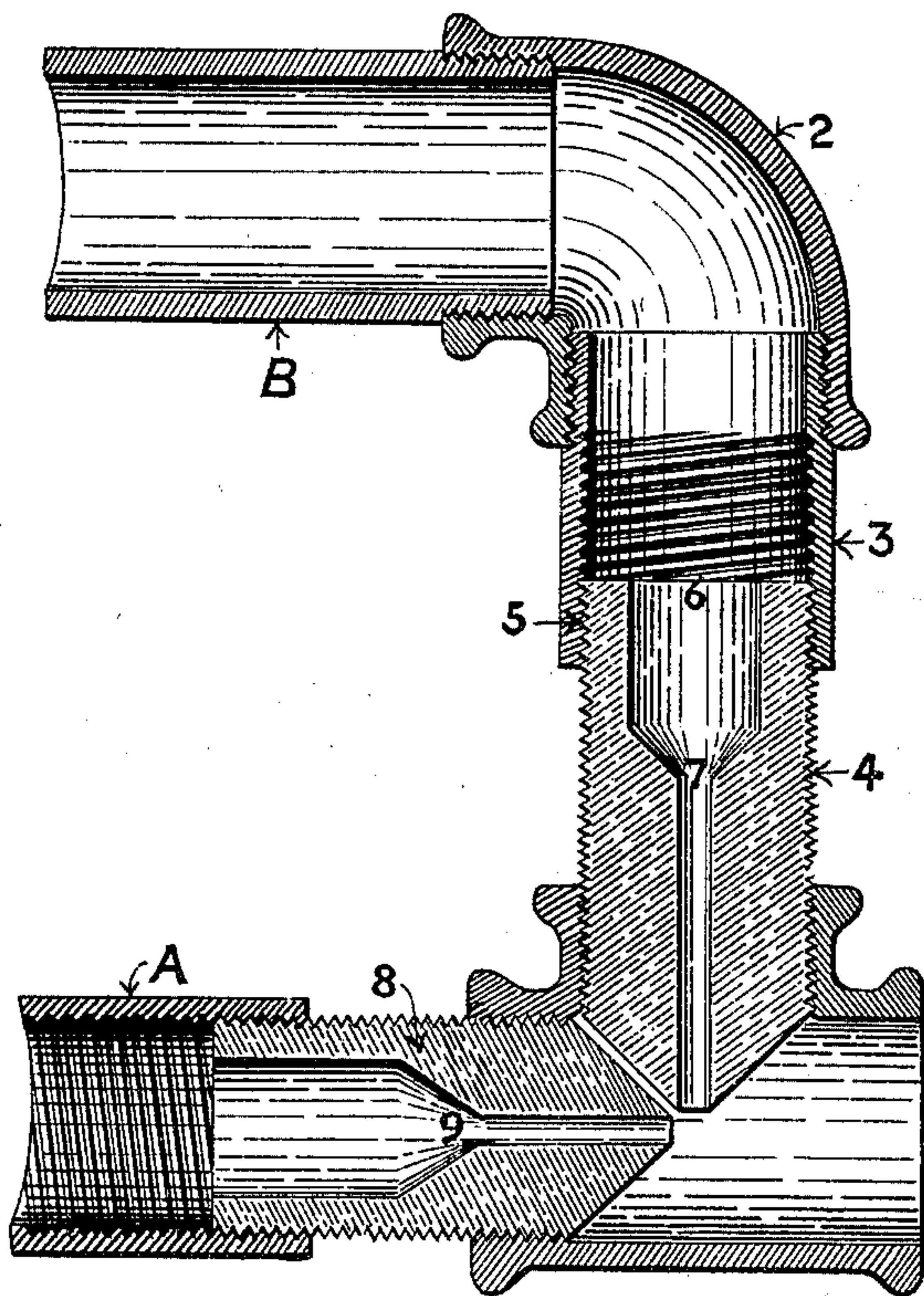
No. 719,345.

PATENTED JAN. 27, 1903.

L. H. LEWARS.  
OIL BURNER.

APPLICATION FILED JUNE 26, 1902.

NO MODEL.



Witnesses,  
*F. F. S. Kelsey*

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# UNITED STATES PATENT OFFICE.

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## OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 719,345, dated January 27, 1903.

Application filed June 26, 1902. Serial No. 113,256. (No model.)

*To all whom it may concern:*

Be it known that I, LINCOLN H. LEWARS, a citizen of the United States, residing in Goldengate, county of Alameda, State of California, have invented an Improvement in Oil-Burners; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in devices for burning hydrocarbon oils for use in furnaces of any description.

It consists of an essentially horizontal steam or air conducting pipe and an oil-conducting pipe with the discharge end approximately at right angles with the discharge end of the steam or air pipe. Within these two pipes are fixed nozzles having conical ends, which are brought together at right angles, so that the oil-delivery from the depending or vertical pipe is caught by the steam-discharge from the horizontal pipe and thoroughly atomized and blown into fine spray within the furnace, where it is to be ignited. The nozzles are screw-threaded or otherwise so fitted into the pipes as to be adjustable to or from the angle at which their axes meet.

Referring to the accompanying drawing for a more complete explanation of my invention, the figure is a sectional elevation of my burner.

It is the object of my invention to provide a burner of such character that the steam or air and oil are brought together at the instant of their delivery from their respective nozzles in such a manner that the oil is blown into a very fine spray at the point where it is to be ignited.

The steam or air is brought through a pipe, as A, from the boiler or other source of supply, and the oil is brought through a similar pipe B from the tank or reservoir in which it is contained. These pipes may be laid from any desired point and preferably adjacent to each other at same point near the burner and provided with controlling-cocks within easy reach of the operator. From this point the oil-pipe is connected by an elbow, as at 2, to a short vertical section 3, into which the discharge-nozzle 4 is fitted by means of screw-threads, as at 5, so that it can be moved backward or forward and adjusted with re-

lation to the pipe. The rear portion of the nozzle 4 has a central opening of considerable diameter, as at 6, and this converges and connects with the similar discharge-passage 7, which extends to the tip of the nozzle. The nozzle 8 is similarly fitted to screw into or out of the pipe A and has similar passages through it, as shown at 9.

10 is a T-coupling one passage of which extends through from side to side, and the blast-nozzle 8 is screw-threaded and fits into a corresponding screw-threaded part at one end of this passage and in line with the opposite or discharge end. The other passage in the leg of the coupling enters about midway of the first-named passage, with which it communicates, and is also screw-threaded to receive the tip of the nozzle 4. The discharge-passages of the nozzles 4 and 8 are thus adjustable with relation to each other within the coupling, by which they are also inclosed, so that the union of the oil and steam is practically effected before they leave the chamber formed by outer end of the passage in the T. The ends of the nozzles 4 and 8 are conical, being tapered preferably at about forty-five degrees, so that the tapered ends may be brought closely together and the axes of the discharge-openings of the nozzles will intersect each other at right angles.

The oil is delivered by gravitation or, if desired, by air or other pressure and passes out through passage 7, the steam or air passing through the passage 9, of which nozzle impinges against the oil at close range, and immediately discharges the oil in a direct line into the furnace and in a very fine spray, so that it can be instantly and completely ignited.

It will be seen that by reason of the nozzles 4 and 8 screwing into their respective pipes A and B or their equivalents the nozzles may be moved away from each other or either of them withdrawn in its line of discharge with relation to the other, and by this simple device I am enabled to very perfectly regulate the effective delivery of the oil.

One of the most important features in connection with my burner is the total absence of any sort of cylinder, chamber, or other surface in front of the point at which the oil

is atomized, which would only act to condense the spray once formed, thereby enabling me to burn the oil in the finest possible form of vapor or spray, thus giving a more perfect  
5 combustion and total absence of smoke or formation of carbon in fire box or furnace.

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

- 10 An improved oil-burner consisting of steam and oil supply pipes; a nozzle threaded to the steam-pipe and having a passage through it of two diameters joining each other by inclined walls, the smaller of said passages  
15 having parallel walls extending to the tip of the nozzle; an elbow connecting with the oil-supply pipe; a short section of pipe fitted to

the elbow; a nozzle adjustably fitted to the short section of pipe and having a passage through it of two diameters the smaller of 20 which has parallel walls extending to the tip of the nozzle, said nozzles arranged at right angles and with their axes intersecting; and a T-coupling having a passage through it of uniform diameter from end to end, one of said 25 nozzles adjustably fitted to one end of said coupling and the other nozzle adjustably fitted to the leg of the coupling.

In witness whereof I have hereunto set my hand.

LINCOLN H. LEWARS.

Witnesses:

S. H. NOURSE,

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