(No Model.)

L. L. MERRIFIELD.

APPARATUS FOR SPRAYING OIL OR OTHER LIQUIDS.

No. 514,952. Patented Feb. 20, 1894.

Fig. 1.

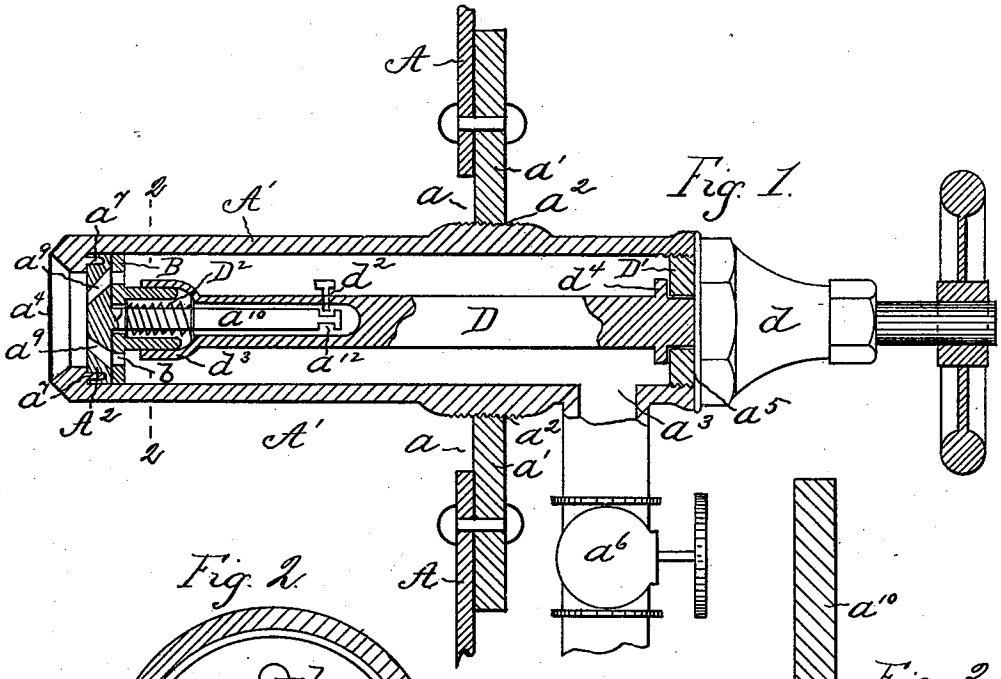


Fig. 2.

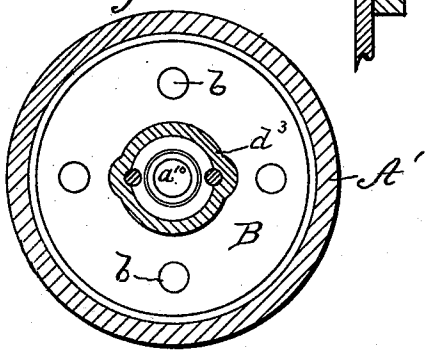


Fig. 3.

Fig. 4.

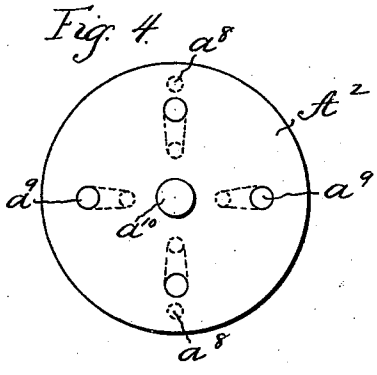


Fig. 5.

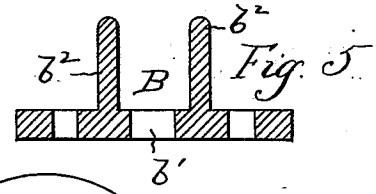
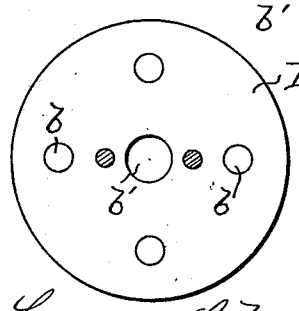


Fig. 6.



Witnesses
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APPARATUS FOR SPRAYING OIL OR OTHER LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 514,952, dated February 20, 1894.

Application filed July 26, 1893. Serial No. 481,499. (No model.)

To all whom it may concern:

Be it known that I, LEONARD LANCASTER MERRIFIELD, a citizen of the United States, residing at Franklin, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Spraying Oil or other Liquids; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to devices for spraying oil in a gas mixing or other kind of chamber.

The object of my invention is to more completely atomize the oil or other hydrocarbon fluid and to that end the invention consists of constructions and combinations substantially as hereinafter described in the specification and set forth in the claims, whereby the oil is injected into the chamber in jets which connect at a common point and acting upon one another break up into a fine spray. One means for accomplishing this result is shown in the accompanying drawings forming part of this specification and in which—

Figure 1 represents a longitudinal section with certain parts in elevation; Fig. 2 a cross section on line 2—2 Fig. 1; Fig. 3 a section of a jet plate; Fig. 4 a top plan of the same; Fig. 5 a sectional view of the regulating disk; and Fig. 6 a top plan of the same.

A represents part of a wall of a gas mixing chamber having an opening a over which is secured a heavy plate or flange a' provided with a screw threaded opening a^2. A' is a cylindrical casing provided with an inlet a^3 for the oil, an outlet a^4 for the oil and an opening a^5 at the opposite end for a purpose hereinafter set forth. The inlet a^3 is connected with a suitable oil supply source and is provided with a valve a^6 for regulating the supply of oil which is pumped into the casing and also to regulate the pressure in said casing. The outlet a^4 of the casing is provided with a jet plate A^2 held in place by nibs a^7 on the inner side of the casing and which enter recesses a^8 on the front side of the plate A^2. In this plate is formed a series of openings a^9, preferably conoidal in form with the base of the conoid on the inner side. The openings a^9 are formed on lines oblique to the axis of the plate and all are on the same angle and would if they were continued outside the plate focus in front of the plate. The object of so arranging the openings is to cause the jets of oil forced through said openings to meet at a common point and by reason of the pressure with which they are forced through said openings to act upon one another and form a spray that will be more diffused than would be the case if the different streams were to enter separately. In other words, the jets by meeting at the focal point strike against one another and break into a fine spray.

The pressure as before stated can be regulated by the valve a^6 which will control the pressure in the casing but I prefer to use a device for regulating the size of the openings a^9. One form of device is the disk B having openings b corresponding in number with the openings a^9 in plate A^2. If the full supply of oil be desired the openings b are made to register with openings a^9. The amount of oil passing through openings a^9 can be reduced or entirely shut off by shifting the disk B so that its solid face covers to a greater or less extent the entrance to the openings a^9. The means for shifting the disk is a spindle D secured to the disk in any desired way and projecting outside of the casing through opening a^5. This opening is closed by the screw cover D' having a central opening for the spindle D which is surrounded by the screwed packing box d to prevent the oil from escaping between the spindle and the cover. The lower end of the spindle is preferably hollow to receive a spindle a^{10} on the plate A^2. The upper end of the spindle a^{10} is provided with an annular recess a^{12} into which projects a set screw d^2 on the spindle D. The spindle a^{10} passes through an opening b' in disk B. A coiled spring D^2 is interposed between the cup shaped end d^3 of spindle D and the top of disk B and forces the plate A^2 against the flange forming the inlet a^4, the disk B against plate A^2, and the collar d^4 on spindle D against the under side of cover D'. The cup shaped end d^3 of

the spindle is provided with grooves d^3 for pins d^2 on disk B, and which connect the spindle and disk together in such manner that by turning the hand wheel on the spindle the disk is made to rotate to the same extent.

The outside of the casing A′ is provided with a screw threaded portion by which it is secured to the plate a' when inserted in the wall of the mixing chamber.

By securing the casing the jet forming and the jet regulating device together in the manner shown all expansion and contraction of the several parts are provided for no matter what the heat may be. Another advantage is the readiness with which the parts can be separated for the purpose of cleaning the casing. Both advantages are due to the same cause, to wit: the non use of rigid connections in the operative parts of the device. The operation is obvious and need not be further explained.

What I claim, and desire to secure by Letters Patent, is—

1. The combination of the casing, the jet plate covering the outlet end of the casing, the disk having openings corresponding to the openings in the jet plate a spindle for operating said disk, and a spring for holding the disk, plate and spindle in place, substantially as set forth.

2. The combination of the casing, a jet plate having a spindle, a disk having openings corresponding to the openings in the jet plate and provided with pins b^2, and a spindle for operating said disk connected with said pins, substantially as set forth.

3. The combination of the casing, a jet plate having a spindle, a disk having openings corresponding to the openings in the jet plate and provided with pins b^2, a spindle for operating said disk connected with said pins, and a spring for holding the parts in place, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LEONARD LANCASTER MERRIFIELD.

Witnesses:
WILLIAM JOHN CODE,
CHARLES BINKS.