

A. STOCKER.

Lamps.

No. 155,597.

Patented Oct. 6, 1874.

Fig. 1

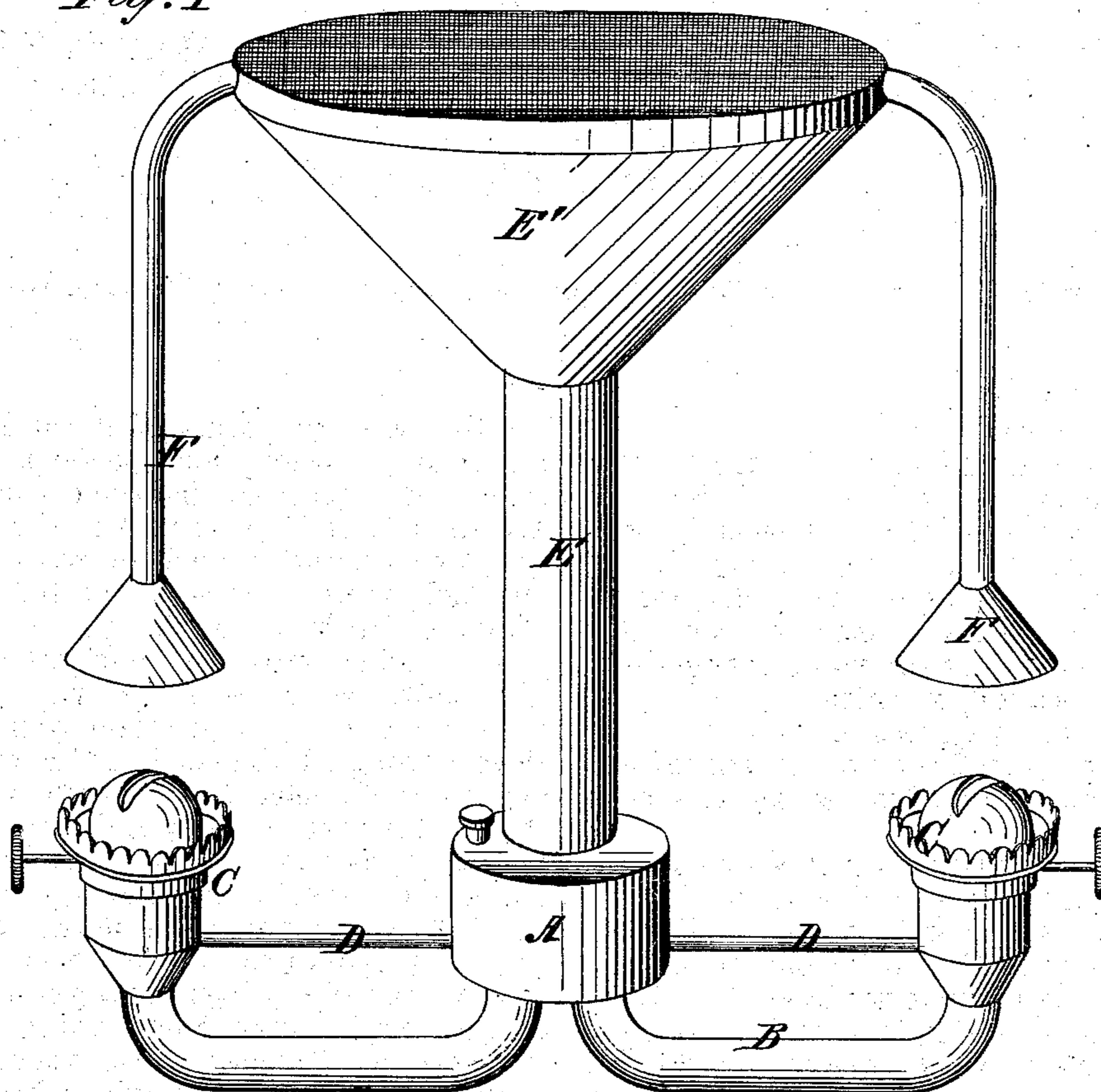
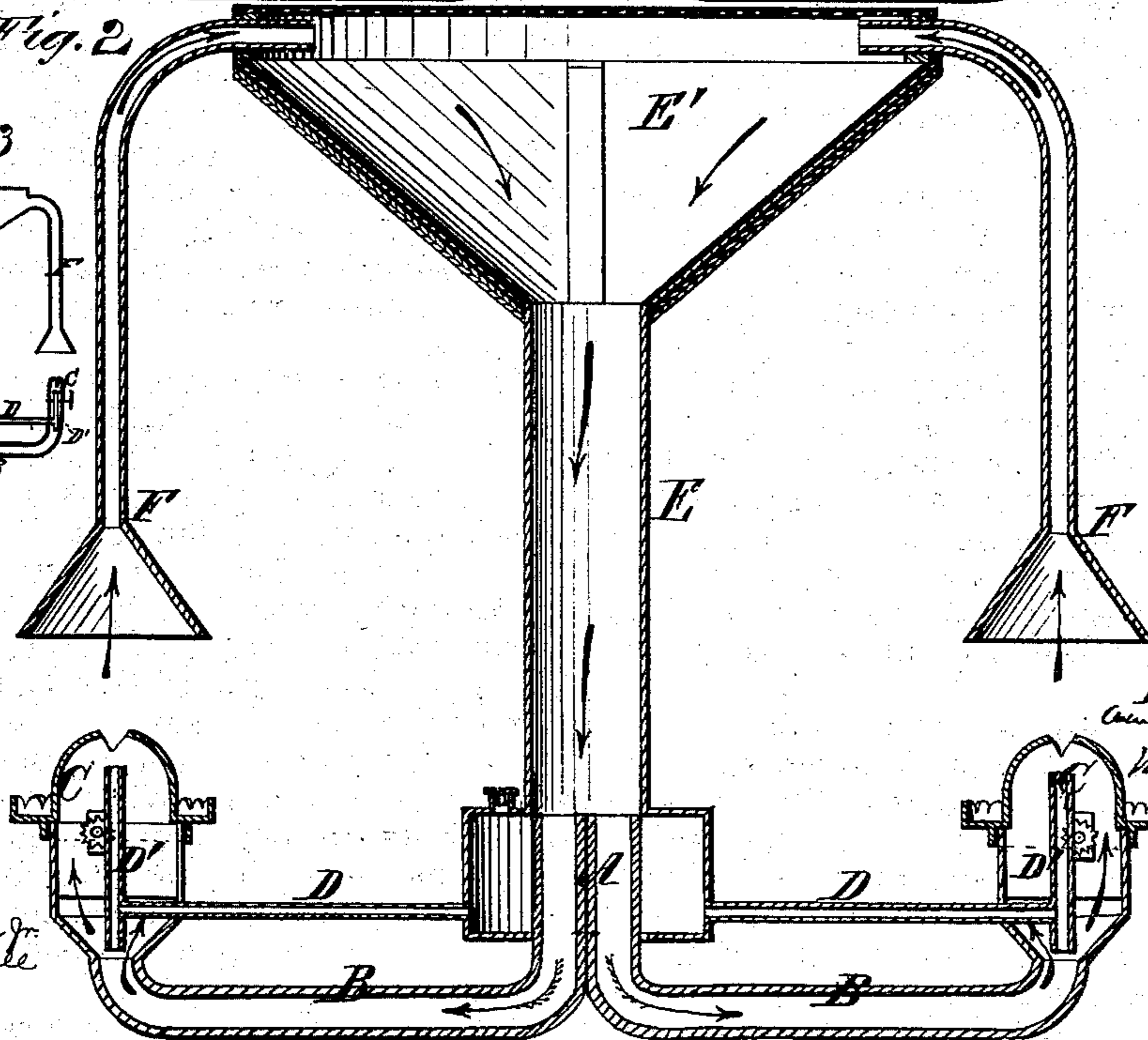
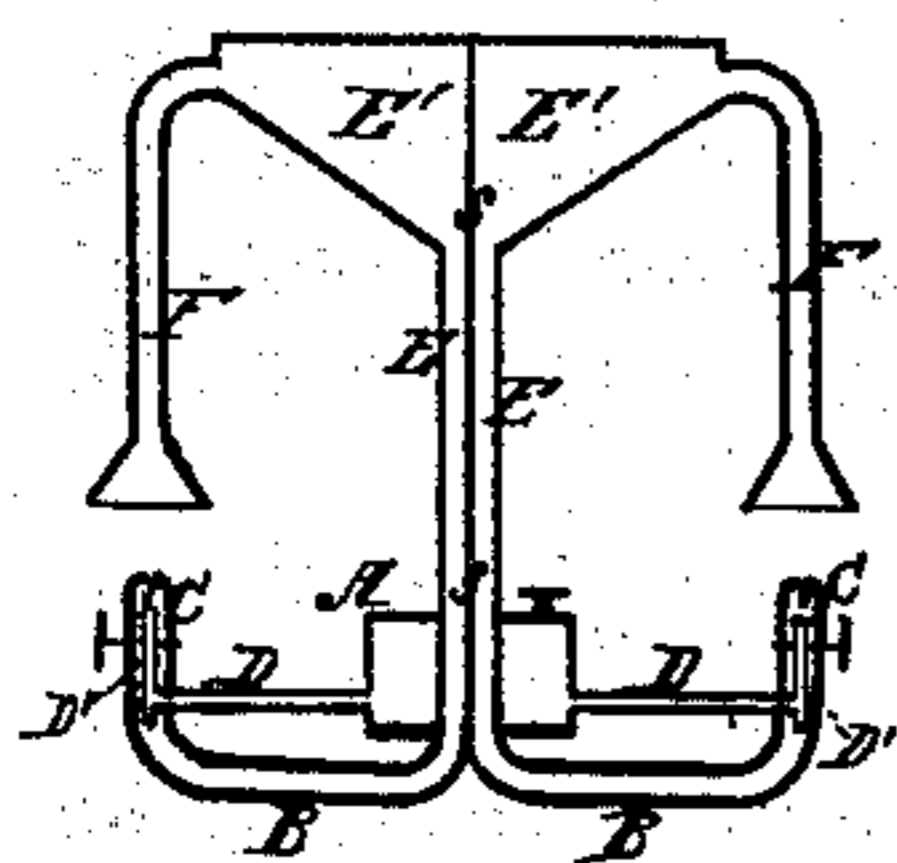


Fig. 2

Fig. 3



Witnesses.  
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Inventor.  
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# UNITED STATES PATENT OFFICE.

AMOS STOCKER, OF WATERTOWN, ASSIGNOR OF ONE-HALF HIS RIGHT TO  
CHARLES D. HOUGHTON, OF ELLISBURG, NEW YORK.

## IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. **155,597**, dated October 6, 1874; application filed  
July 23, 1874.

*To all whom it may concern:*

Be it known that I, AMOS STOCKER, of Watertown, county of Jefferson and State of New York, have invented a new and useful Improvement in Lamps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of my improved lamp. Fig. 2 is a vertical central section of the same. Fig. 3 is a section of a modified form of lamp.

The object of my invention is to keep the oil reservoir of a lamp cool, and thereby prevent explosions, and at the same time keep up a constant supply of air to the burner or burners of a lamp, all around the base of the flame.

My invention relates to that description of lamp or lantern which supplies the burning flame with air, for supporting combustion, by means of a circulation channel or channels, which take in the air above the flame, conduct it downward, and around to the base of the flame.

The nature of my invention consists in the combination, with the air-conducting channel or channels of such a lamp, of an enlarged intermediate chamber constructed of materials which will insure the separation and escape of the lightest and hottest gases from the heavier ones, and thereby effect the rapid cooling of the air which is within the chamber, and insure the descent and passage of the heavier and cooler gases to the base of the flame in a very perfect and useful manner.

To enable others skilled in the art to make and use my invention, I will proceed to describe it.

A is the oil-reservoir of the lamp; B B, tubular brackets branching from the reservoir, and having ordinary burners C C upon their outer ends; D D, oil-feed tubes connecting the reservoir with the wick-tubes D'. E is a tubular column rising from the top of the lamp, and being in communication with it. E' is the air-cooler, made in form of an inverted hollow cone, or of any other desired form, and arranged upon the top of the column, and F F

are the air-ducts leading into the cooler, being made of metal, and pendent from the same. The mouths of these ducts are conical, and spread over the burners of the lamp, occupying a position some distance—say, about one inch, more or less—above the same, as shown. The frame of the cooler I make of wood or other suitable material, which I cover with cloth sized with glue or paste, after which I apply a coating of plaster-of-paris on both sides of the cloth that incloses the under part and sides of cooler, and to both surfaces of the top or cover I apply a coating of black lead as a radiator of heat. I intend also to use this invention for street-lamps.

The foundation or frame of the cooler consists of a cylindrical wooden hoop, and narrow inclined ribs. Over the top or upper edge of the hoop, a very finely-woven fabric is stretched and fastened, and on the under side, against the wooden strips which form a skeleton funnel, closely-woven cloth is also stretched and secured in position. The cloth which forms the bottom of the chamber is coated inside and out with a non-conducting substance, such as plaster-of-paris, or other suitable material, so as to perfectly close the pores of the cloth, and thus prevent air passing into or out of the chamber from below the hoop through the pores.

The cloth which forms the top of the chamber is washed over, inside and out, with a thin sizing of glue or with lamp-black, so as to reduce the size of its pores to a degree almost infinitesimal in fineness.

I do not confine my invention to any particular kind of fabric, nor to the particular materials used for coating the fabric, so long as the upper part or top of the chamber will allow the very light gases to pass off, and direct the heavier and cooler gases downward, and the lower portion shall prevent the escape through its sides of these heavier gases.

In constructing lamps, the chamber E' may be flat on top and bottom, and one funnel-mouthed induction-pipe and one eduction-pipe may be used.

When two induction and two eduction pipes, as shown in the drawings, are used, it is pref-

erable to make the chamber with a partition, as in Fig. 3, so that the air of one pipe or channel may be separated from the air of the other.

The lamp being lighted the hot air and gases above the flame of the burners enter the funnel-mouthed ducts, and pass into the cooler. Here they expand rapidly by reason of the enlargement of the passage through which they flow. The hottest and lightest gases pass off through the very fine passages of the top cloth of the chamber, and their absorption or escape is hastened (it is thought) by the plum-bago or black-lead coating on the surface of this cloth, and while this is taking place the heavier gases are deflected downward, and by their gravity and the force of other inflowing currents of air, and the vacuum which the flame tends to create in the air-channels, are caused to descend in a comparatively cool

state, and pass to the wick-tubes, and do their work of promoting combustion.

By this invention a very brilliant flame is secured, and a larger amount of light from a given consumption of fuel produced.

What I claim as my invention is—

In combination with a lamp, substantially as described, the air-cooler E' for enlarging the air-channel E between the funnel-mouthed induction-pipe F and the eduction-pipe B, said cooler being made with a top which is finely porous, and with a body or bottom which is non-conducting, all substantially as and for the purpose set forth.

AMOS STOCKER.

Witnesses:

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