A. BURBANK.

Lamps.

No. 152,068. Patented June 16, 1874.

Fig. 1.

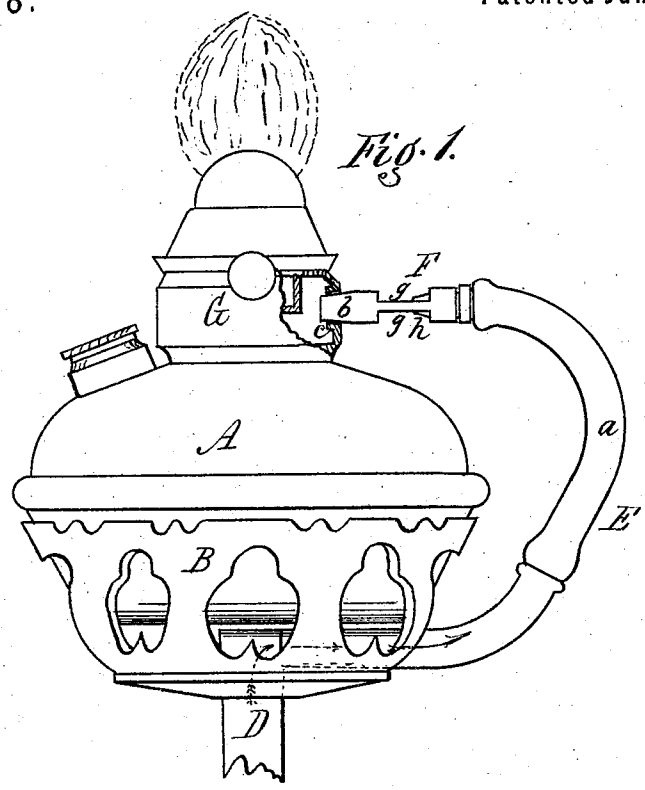


Fig. 2.

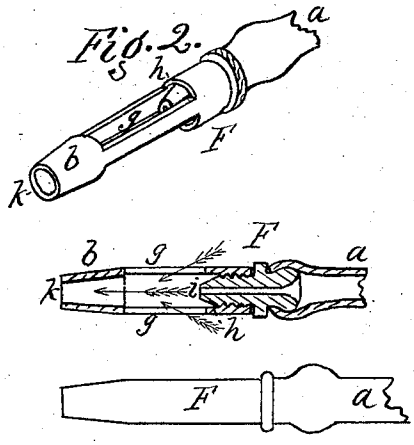
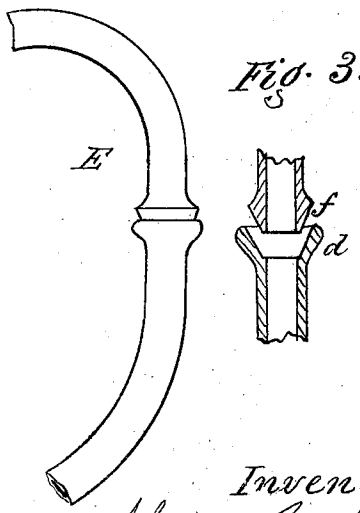


Fig. 3.



Witnesses.
E. B. Scott
Jacob Spahr

Inventor.
Abner Burbank,
by R. F. Osgood,
atty.

UNITED STATES PATENT OFFICE.

ABNER BURBANK, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO HENRY E. SHAFFER, OF SAME PLACE.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. **152,068**, dated June 16, 1874; application filed April 16, 1874.

To all whom it may concern:

Be it known that I, ABNER BURBANK, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Lamps; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

My improvement belongs to that class of lamps in which air is impelled, by some mechanical arrangement, through pipes to support the combustion.

The invention consists, first, in combining with the lamp a side pipe or connection extending from the main or induction pipe to the burner, and provided with a connecting and disconnecting joint; second, in the use of a nozzle at the upper end of the side pipe, of proper form for insertion in the burner.

In the drawings, Figure 1 is an elevation of a lamp, showing my improvement. Fig. 2 are three different views of the nozzle. Fig. 3 is a view showing a modification of the side tube.

A is a lamp of ordinary construction, and B is a bracket which sustains it. D is the main induction air-pipe leading to the cellar or any other desired point. The air for supporting the combustion is forced through this pipe by any mechanical arrangement adapted to the purpose. These pipes may be laid through a house in the same manner that ordinary gas-pipes are, and the brackets B B may be connected with them at any desired point, either on the walls or from the ceiling. E is the side tube, which connects the induction-pipe D and burner G, and is the main feature of my invention. This tube passes outside the lamp-body, and has a connecting and disconnecting joint, by which means it can be attached to or detached from the lamp, so that the lamp may be removed for filling or cleaning, or other purposes, and replaced at pleasure. This tube may be made in a variety of ways. I prefer that shown in Fig. 1, in which a length of flexible pipe, *a*, is used, made of rubber or other material, having a nozzle, F, at the top, which is inserted loosely in a socket, *c*, of the burner, thereby forming the connecting and disconnecting joint before spoken of. In Fig. 3 is shown a stiff pipe having the joint in the center, consisting of a socket, *d*, and nipple *f*, which fit together when the lamp is in place. The two sections of the tube, in this case, are respectively attached to the lamp and the bracket, so that the two parts will separate easily at the joint. Other forms of the side tube may be used, the only condition being that the joint is employed for connecting and disconnecting the parts. The advantage of the side tube above described consists in the exceeding cheapness of the connection between the induction-pipe and the burner, the great facility with which the lamp can be applied or removed, and the avoidance of oil running into the air-pipe and obstructing it, which is so common in other lamps having an impelled current of air. In all other lamps of this kind, so far as I am aware, a tube has been made centrally up through the body of the lamp, to allow the air to pass to the flame, or else the lamp has set over a closed air-chamber, with stationary connections to the burner. Such devices require special and expensive construction of the lamp, and it is difficult to so form them that the air passage or joint remains tight at all times, and especially when the lamp is carelessly set in place. I obviate all these difficulties by the use of the side tube E, with a connecting and disconnecting joint—as I can use any ordinary lamp and bracket—and the connection is made without trouble or any considerable expense. An important feature is the prevention of oil running down into the induction-pipe D, which almost invariably occurs in the old form, as the induction-pipe opens directly up into an air-chamber below the lamp and receives all the drippings. In my case the top of the induction-pipe is closed, and no oil can pass round through the circuit of the side tube E. The nozzle may be made tubular, and of closed form, as shown at the bottom in Fig. 2, or it may be open, as shown at the top and in the middle in the same figure. In the latter case one or more openings, *g g*, are made in the sides in rear of the point *b*, as shown, and a secondary nozzle, *h*, is used, which is screwed or otherwise attached in the

rear end of the nozzle. This secondary nozzle has a fine opening, *i*, communicating with the pipe *a*, while the main point *b* has a large air-passage, *k*, opening into the burner. The air blowing through *i* in a fine jet carries with it by friction much of the outside air which enters through the openings *g g*, as indicated by the arrows, Fig. 2, and directs it into the passage *k*, whence it passes to the burner. So large is the volume of outside air carried to the flame by this means, that but a small amount of the induction air from the side tube is required, and therefore the power required to drive the apparatus will run much longer. The only requisite is to make the passage *i* small enough, so that considerable force of the impelling-jet is produced, the friction with the exterior air being sufficient to feed the combustion. This same nozzle may be used in what is known as the mechanical lamp, having an air-impelling apparatus in the base of the lamp itself. This apparatus might be made effective if the nozzle or end of the tube E were not inserted in the opening *c*, but remained a little distance therefrom. In that case, the outside air would be drawn in at the space between the end of the nozzle or tube and the socket *c*, and driven by the jet to the burner.

My invention, as above described, is very effective in operation, and produces a light equal to gas.

Having thus described my invention, I do not claim a lamp having an impelled current of air to support the combustion, nor do I claim a system of pipes for conveying an impelled current of air to lamps.

What I claim is—

1. The combination, with a lamp, A, and an induction air-pipe, D, of a side tube, E, which extends around outside the lamp, and conveys the air in an independent jet from the induction-pipe beyond the lamp, to a closed chamber beneath the blaze, so that said jet does not come in contact with the oil before reaching the blaze, as specified.

2. The combination, with a tube, E, which extends around the lamp, and with a closed chamber beneath the blaze, of a nozzle, F, which fits removably in a socket in the lamp-burner, for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ABNER BURBANK.

Witnesses:
R. F. OSGOOD,
H. E. SHAFFER.