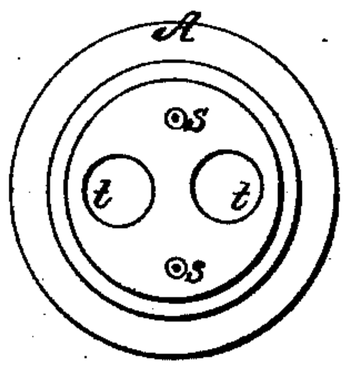
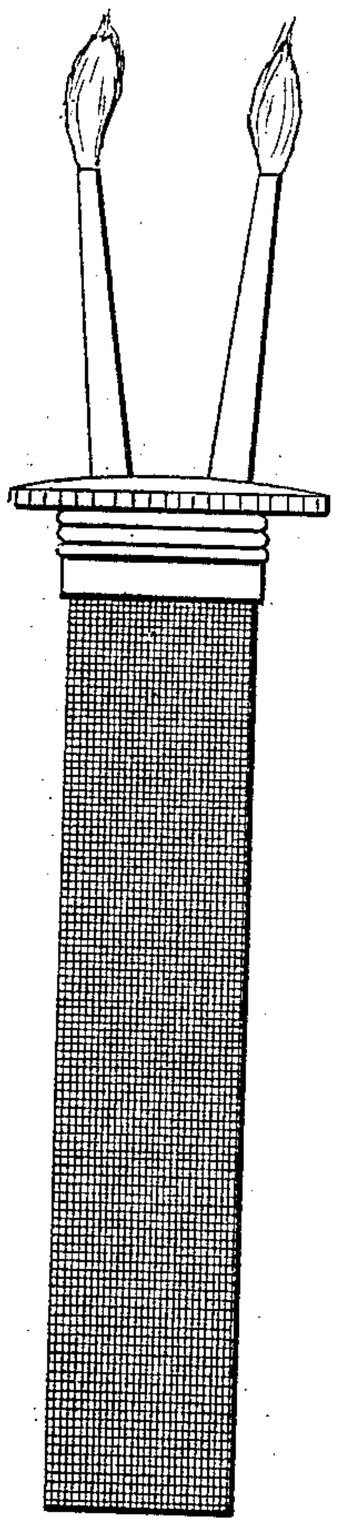
J. NEWELL.

Lamp Burner.

No. 10,099. Patented Oct. 4, 1853.





Witnesses:

John L. Hayes

M. C. Gaitonere

Inventor:

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UNITED STATES PATENT OFFICE.

JOHN NEWELL, OF BOSTON, MASSACHUSETTS.

CAMPHENE-LAMP.

Specification of Letters Patent No. 10,099, dated October 4, 1853.

To all whom it may concern:

Be it known that I, JOHN NEWELL, of Boston, in the Commonwealth of Massachusetts, have invented certain new and useful improvements in lamps constructed for burning camphene, burning fluids, &c., without danger of explosion, and also in cans, lamp-feeders, and other vessels for containing camphene, burning fluid, &c.; and I do hereby declare that the following is a full and exact description of my inventions and improvements.

I make use of a lamp of any form or size which may be made of glass, porcelain or metal. I put in a brass, copper or tinned iron tube or cylinder from the top of the lamp, and of a size filled to the orifice, reaching to within one eighth of an inch more or less of the inside bottom of the lamp. On the upper end of this tube, is cut a female screw, as in common lamps, to receive the male screw of the top, which contains the wick tube. I perforate the tube with numerous small holes of a diameter small enough to prevent the transmission of flame according to the principle of "Davy's safety lamp." On the bottom of this tube I solder or braze a piece of brass, copper or iron wire gauze to cover the entire bottom, the fineness of the gauze to be about sixteen hundred meshes to the square inch. On the inside of the flanch of the top of the lamp containing the wick tube, I cut a screw for the purpose of screwing on another tube as large as can be made and put in and not interfere with the inside of the other tube. This tube to go down the inside of the other to within an eighth of an inch of the bottom of the other tube; on the bottom of this tube, I likewise solder or braze a piece of wire gauze similar to the other before described. This tube, which is also perforated in a similar manner to the other, contains the wick or wicks and must be taken out when it is necessary to fill the lamp.

Instead of making the tubes of perforated brass or other metal, I more frequently construct both tubes of brass, copper or iron wire gauze like that above described. The lamp is constructed in this form for the purpose of preventing the communication of flame to the interior of the lamp upon the principle of Davy's safety lamps and for preventing explosions of the vapor formed within the lamp from camphene, burning fluid &c., but I do not claim any part of the above construction. The improvements which I have made are applicable to all lamps in which perforated metal and brass copper or iron wire gauze are used for the purpose of preventing explosions.

When a lamp constructed as above described having safety tubes of perforated brass, copper or tinned iron, or of brass, copper or iron wire gauze, which are the only materials which can be ordinarily used on account of the expense, is filled with camphene or burning fluid, the action of the fluid upon the metal and particularly upon brass or copper, in a short time produces a corrosion of the metal, which causes the interstices of the wire gauze or the perforations of the metal to be filled up, and thereby impedes the flow of the fluid to the wick. Moreover a portion of the metal thus corroded is dissolved and becomes united with the fluid. This in a few hours acts upon the wick and thus materially impedes the flow of the fluid and checks the combustion, so that a lamp thus constructed and without the application of my improvement in a short time becomes wholly useless. To obviate this difficulty, I cover all the metal on the inside of the lamp, with which the fluid comes in contact, including the perforated metal and wire gauze, with a thin coating of silver, which may be put on by the process of galvanizing or plating, and which adds but little to the expense of the lamp. The coating of silver upon the metal or wire gauze prevents all corrosion of the metal and removes all objections to the construction of the lamp as above described. I also cover with silver the wire gauze placed in cans and other vessels used for containing camphene, burning fluid, &c., for the purpose of preventing the admission of flame to the contents of the cans or vessels.

For the purpose of giving additional safety to lamps constructed mainly as above-described, or in which the perforated metal or wire gauze is used in the interior of the lamp for preventing explosions, I have invented an improvement which I claim as new, and which I will proceed to describe.

I perforate the cap of the lamp (A) through which the wick tubes pass with several holes (*s*, *s*,) as small at least as the interstices of the wire gauze above described, and so small as not to admit the communication of flame through them. I place these holes in the cap of the lamp

for the purpose of allowing the constant escape of the vapor formed within the lamp from the camphene, burning fluid, &c., which vapor has a pressure much above that of the atmosphere, and may be increased by heated surfaces. I thereby prevent all danger of the bursting of the lamp by the pressure of the vapor.

What I claim as my invention and improvement and desire to secure by Letters Patent is—

1. The silvering of the perforated metal or brass copper or iron wire gauze used in safety lamps and cans or other vessels designed to prevent explosions from the vapor of camphene, burning fluid, &c., the silvering being applied for the purpose of preventing the corrosion of the metal or wire gauze as described by the most economical process.

2. The combination of perforations as above described in the caps of lamps used for burning camphene, burning fluid, &c., so small as not to admit the communication of flame through them for the purpose of allowing the escape of the vapor formed within the lamp, from camphene, burning fluid, &c., and thereby preventing the bursting of the lamps by the pressure of the vapor.

I do not claim the use of any perforations in lamps for burning camphene burning fluid, &c., except such as are constructed so as to prevent the passage of flame on the principle of Sir Humphrey Davy's discovery relative to the passage of flame through perforated metal.

JOHN NEWELL.

Witnesses:
JOHN L. HAYES,
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