

L. KLUN.
MINER'S LAMP.

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953,093.

Patented Mar. 29, 1910.

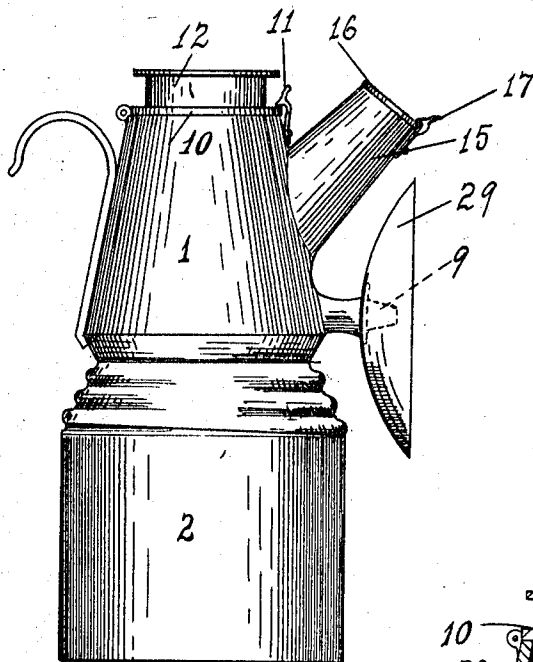


Fig. 1.

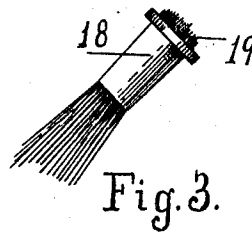


Fig. 3.

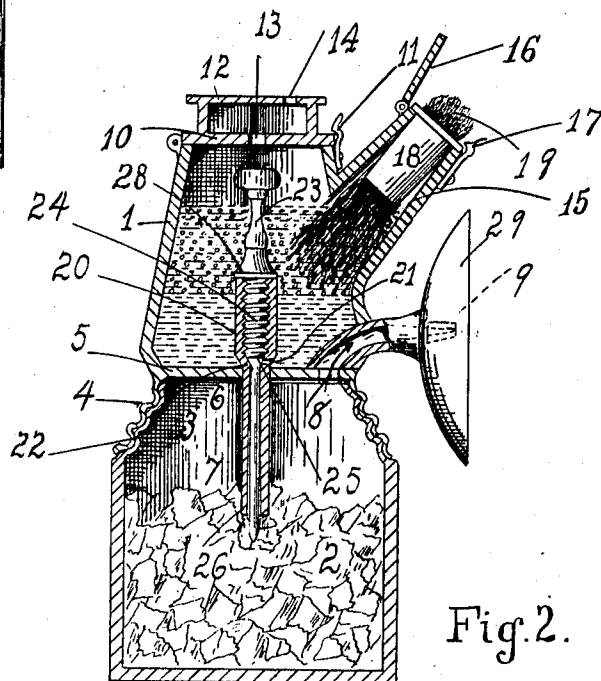


Fig. 2.

Witnesses,
J. P. Richards
W. H. Watson

Inventor
By LOUIS KLUN,
Atty. N. Du Bois.

UNITED STATES PATENT OFFICE.

LOUIS KLUN, OF SPAULDING, ILLINOIS.

MINER'S LAMP.

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To all whom it may concern:

Be it known that I, LOUIS KLUN, a subject of the Emperor of Austria-Hungary, and resident of Spaulding, in the county of Sangamon and State of Illinois, have invented a new and useful Miner's Lamp, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it appertains to make and use my said invention.

The purpose of this invention is to provide a miner's lamp adapted to burn oil and adapted to burn at the same time, or independently, as may be desired, gas generated within the lamp.

With these ends in view, my invention consists in the novel features of construction and combinations of parts shown in the annexed drawing, to which reference is hereby made, and hereinafter particularly described and finally recited in the claims.

In the drawing similar reference numerals designate like parts in the several views.

Figure 1 is a side elevation of the lamp, as it appears when the wick holder is detached; Fig. 2 is a vertical axial section through the lamp showing the wick holder in position in the wick tube, and Fig. 3 is a side elevation of the wick holder detached. The lamp comprises a water and oil reservoir 1 and a carbide box 2. The box 2 has a screw threaded member 3 screwing into the screw threaded member 4 of the reservoir 1. The reservoir 1 has a diaphragm 5 provided with a central hole 6 accommodating a vertical tube 7 fixed in the hole; and a hole 8 communicating between the interior of the box 2 and the gas burner 9. A cover 10 is hinged on and closes the upper end of the reservoir and may be raised to afford access to the interior of the reservoir. A suitable spring catch 11 secures the cover in its closed position. On top of the cover 10 is a blow-off box 12 communicating with the interior of the reservoir through an opening 13 and provided with an air vent 14. The box 12 serves to prevent water escaping from the reservoir, and dropping onto the user. In case of excessive gas pressure within the reservoir which would blow out water through the top thereof, the lifted water will pass through the opening 13 into the box 12 and the top of the box above the opening will prevent the water from escaping from

the box and the vent 14 will permit the gas to escape.

The reservoir 1 has an inclined wick tube 15 such as is commonly used. A hinged cover 16 is adapted to close the upper end of the wick tube and when closed is secured by a spring-catch 17. A wick holder 18 is adapted to fit in the tube 15, and carries a wick 19 which extends downward into the reservoir 1 when the wick holder is in place in the tube.

The tube 7 has an enlarged cylindrical internally screw-threaded part 20, an opening or openings 21 admitting water from the reservoir into the tube, and a tapered valve seat 22. The feed controller, for controlling or entirely shutting off the water supply within the tube 7 comprises a handle 23 for turning the controller; a screw-threaded part 24 screwing into the part 20; a tapered valve 25 adapted to fit on the seat 22; and a needle 26 fitting loosely in and extending downwardly through the lower part of the tube 7. A compressible washer 28 between the handle 23 and the part 20, serves to make a water tight connection between the handle 23 and the part 20 when the valve is completely closed. A burner 9 is central to a reflector 29 of usual construction connected in any suitable manner with the reservoir 1.

It is a fact well known to experienced miners that in a good atmosphere free from black damp, an oil light will burn brightly, but in the presence of black damp in small quantities, the light will burn dimly and smoke, and if there is very much black damp the light will go out; on the other hand an acetylene light will shine brightly in the presence of black damp. It will be seen therefore, that the action of the oil light immediately apprises the user of the lamp of the condition of the air and he is able to avoid proceeding in an atmosphere dangerously contaminated with black damp; but if he has the acetylene light, he will have no such warning of the condition as to the air and may unwittingly enter an atmosphere dangerously contaminated with the black damp. It is therefore of great practical advantage to the miner to have a lamp adapted to produce both kinds of light, in order that he may when proceeding in an untried atmosphere, determine the condition of the air as he proceeds

and if he finds it dangerous may not go too far; and when he reaches the location of his work he may after the air has been tested as described, use the bright acetylene light to facilitate the prosecution of his work.

It is well known that the acetylene gas used in the lamps of this kind is generated by water dripping onto calcium carbide in properly controlled quantities. It is also well known that oil is lighter than water, and if both oil and water are contained in the same vessel, the water will occupy the lower part of the vessel and the oil will float on the water. I utilize this principle in the construction and operation of the lamp, as will now be described.

For convenience of description that part of the reservoir 1 which is below the lower end of the wick tube 15 will be called water space, and that part which is above the lower end of the wick tube will be designated oil space.

In case it is desired to use both oil and water; calcium carbide in suitable quantity will be placed in the box 2 and the box will be screwed onto the reservoir 1; water will then be poured into the reservoir until it reaches the level of the lower end of the wick tube; oil will then be poured into the reservoir on top of the water until it attains a level a little above the opening of the lower end of the wick tube; the wick having been previously placed in the holder 18, the holder will be inserted in the wick tube 15 and the lower end of the wick will be immersed in the oil and the outer end of the wick will then be trimmed and lighted in the usual manner. In proceeding underground to his work, the miner will use the oil burner and when he arrives at his place of work, if the atmosphere is satisfactory, he may extinguish the oil burner and ignite and use the gas burner; or if conditions are unfavorable to the use of the gas light, he

may continue to use the oil light. If the conditions are such that the miner uses the gas light he will control that light by turning the handle 23 to adjust the valve 25 to control the flow of water through the port 21 onto the dropping needle 26.

If oil alone is used, the handle 23 will be turned to completely close the valve 25 and in that case the lower end of the handle bearing on the washer 28 will compress the washer and tightly close the upper end of the part 20; the reservoir will be supplied with oil and the oil burner will be used in the manner already described.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a miner's lamp, the combination of a reservoir adapted to contain oil and water, a carbide box connected with said reservoir, a controller adapted to drip water in controllable quantities within the interior of said carbide box, a wick tube communicating with said reservoir, a wick in said wick tube in contact with the oil in said reservoir, and a gas burner communicating with the interior of said carbide box.

2. In a miner's lamp the combination of a carbide box, a reservoir, a tube intercommunicating between said reservoir and carbide box, a controller adjustable to control the opening and closing of said tube, a wick tube communicating with said reservoir, a cover connected with said wick tube, a catch for securing said cover, a cover connected with said reservoir and a catch adapted to secure said last named cover.

In witness whereof, I have hereunto signed my name at Riverton, Ills., this 10th day of August, 1909.

LOUIS KLUN.

Witnesses:

CHAS. CARTER,
GEO. BIGELOW.