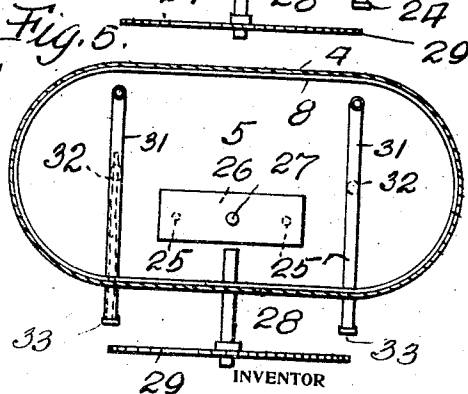
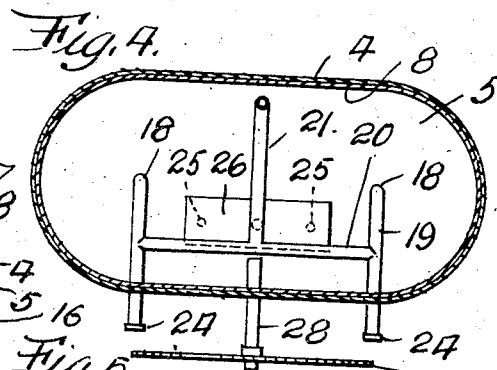
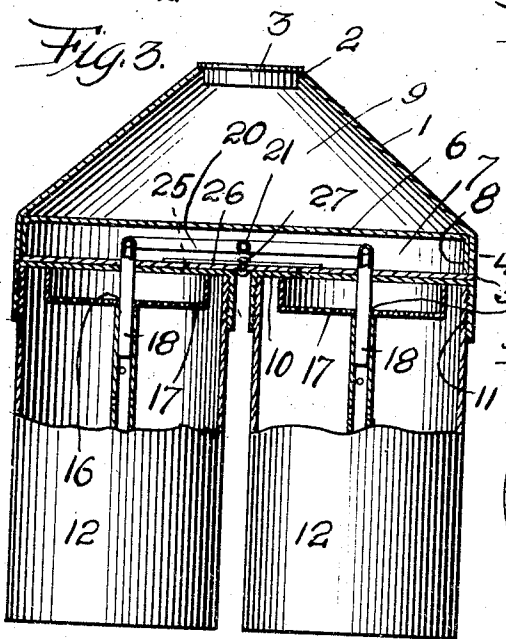
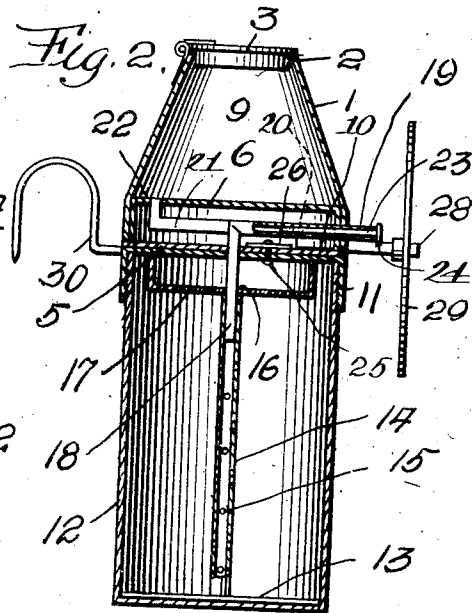
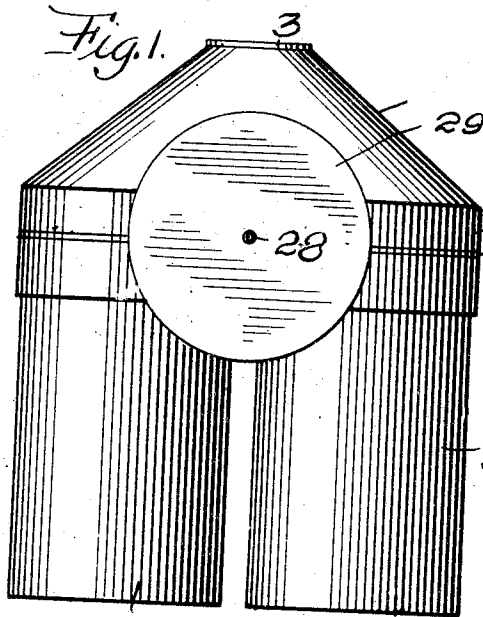


J. BERTHA.
MINER'S LAMP.
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1,021,568.

Patented Mar. 26, 1912.



WITNESSES

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JULIUS BERTHA, OF TYRE, PENNSYLVANIA.

MINER'S LAMP.

1,021,568.

Specification of Letters Patent.

Patented Mar. 26, 1912.

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To all whom it may concern:

Be it known that I, JULIUS BERTHA, a citizen of the United States of America, residing at Tyre, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Miners' Lamps, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to miners' lamps; and the primary object of my invention is to provide an acetylene gas lamp that will produce a bright flame or light and facilitate the work of miners.

Another object of this invention is to provide an acetylene gas lamp that can be safely worn upon a cap and easily maintained in an operable condition.

A further object of the invention is to provide a miner's acetylene gas lamp that is inexpensive to manufacture, durable and highly efficient for the purposes for which it is intended.

With the above and other objects in view the invention resides in the novel construction, combination and arrangement of parts to be hereinafter specifically described and then claimed.

Reference will now be had to the drawing, wherein there are illustrated the preferred embodiments of the invention, but it is to be understood that the structural elements are susceptible to such variations as fall within the scope of the appended claims.

In the drawings:—Figure 1 is a front elevation of the lamp. Fig. 2 is a vertical cross sectional view of the same. Fig. 3 is a front elevation of the lamp, partly broken away and partly in longitudinal section. Fig. 4 is a horizontal sectional view of the lamp, and Fig. 5 is a similar view of a modified form of lamp.

A lamp in accordance with this invention comprises a water receptacle, carbid receptacles, a controlling mechanism, a burner and other appurtenances of a lamp.

The water receptacle comprises a conical-shaped shell 1 having the top thereof provided with an opening 2 normally closed by a hinged lid or stopper 3. The lower edges of the shell 1 terminate in vertical walls 4 and secured to the lower edges of said walls is an oval bottom plate 5. Arranged within the shell 1 is a diaphragm or horizontal partition 6 providing a compartment 7 for the controlling mechanism of the lamp. The

partition 6 has vertical supporting walls 8 corresponding in depth to the walls 4 and the space above the partition 6 provides a water reservoir 9.

Soldered or otherwise connected to the bottom plate 5 are caps 10 that are interiorly screw threaded, as at 11 to receive the upper exteriorly screw threaded ends of cup-shaped or cylindrical carbid receptacles 12 adapted to contain calcium carbid. Arranged in each receptacle is a circular detachable bottom plate 13 having a central vertical tube 14 provided with perforations 15. The upper end of the tube terminates at an opening 16 in a perforated cup or screen 17 suitably connected to the inner sides of the caps 10. The perforated cups are of a less diameter than the carbid receptacles 12.

The controlling mechanism comprises pipes 18 that extend downwardly through the bottom plate 5, and the caps 10 into the upper ends of the tubes 14. The upper ends of the pipes are in communication with tubular valve bodies 19 that extend through the walls 8 and 4 at the front side of the lamp. The valve bodies 19 are connected by a longitudinal pipe 20 and said pipe, intermediate the ends thereof, is connected to a water pipe 21 that has the end thereof extending into an opening 22 provided therefor in the partition 6. In the valve bodies 19 are slidable valve stems 23 which in a closed position close the ends of the longitudinal pipe 20 and shut off communication between said pipe and the valve bodies 19. The valve stems 23 have heads 24 whereby said stems can be easily shifted.

The caps 10 and the bottom plate 5 are provided with small registering gas outlet openings 25 and these openings are normally closed by a mica flap valve 26 riveted or otherwise secured intermediate its ends, as at 27 to the bottom plate 5.

The burner comprises a tube 28 that extends through the walls 8 and 4 into the compartment 7. The outer end of the tube 28 supports a disk or circular reflector 29.

Suitably connected to the rear side of the lamp at a point diametrically opposite the burner is a hook 30 by which the lamp can be detachably connected to a cap.

It is a well known fact that acetylene gas used in lamps of this kind is generated by water dripping onto calcium carbid in properly controlled quantities. Assuming

that the reservoir 9 contains water and the receptacles 12 calcium carbid, it is only necessary for the miner to regulate the valve stems 23 to admit the proper quantity of water to the pipes 18. As the water passes into the tubes 14 and through the perforations 15 it contacts with the calcium carbid whereby acetylene gas is generated. The gas passes through the perforated cups 17 and after a sufficient quantity of gas has been generated it escapes through the openings 25 into the compartment 7 and then to the burner tube 28, at the outer end of which it can be ignited.

The perforated cups 17 prevent the openings 25 from being clogged by the carbid mixture and the perforations 15 insure the equal distribution of water in the carbid chamber.

I attach considerable importance to using separate carbid containers or receptacles in connection with the lamp. In the present type of acetylene gas lamp there is a single container for carbid and considerable trouble is now experienced, particularly among miners, on account of obtaining a poor light near the end of the supply of carbid. In other words, the chemical action is not sufficient near the end of the supply of calcium carbid to generate gas and produce a bright light. Many miners will not use the acetylene lamp on this account, and the majority that do use the lamp are provided with an oil lamp that they use while recharging the single carbid container or receptacle. It is the present practice when the light becomes poor to immediately recharge the lamp and considerable calcium carbid is wasted, as the miner generally dumps the solution on to the floor and recharges with a fresh supply of calcium carbid. By providing two cooperating carbid containers, I eliminate the waste of carbid and always provide a bright light that will facilitate the work of a miner. The miner, by regulating the valves, can utilize the gas from one of the containers until the light becomes poor, then the other container can be brought into action and the gas utilized to maintain a strong and powerful light. It is during this period of use that the container first used will be completely exhausted and then the container can be recharged while the other container is furnishing the light. It will therefore be noted that the lamp can be continuously used without any

interruption and without resorting to the use of an oil lamp to furnish light while the acetylene lamp is being recharged.

In Fig. 5 of the drawing there is illustrated a simplified form of lamp, wherein the valve bodies 31 are in direct communication with the reservoir 9 and in communication with down pipes 32 that extend into the tubes of the carbid receptacles. The communication between the valve bodies 31 and the down pipes 32 is controlled by valve stems 33 similar to the stems 23.

It is thought that the operation and utility of the lamp will be apparent without further description, and I reserve the right to make the lamp of various sizes and of various kinds of material.

What I claim is:—

1. In a miner's acetylene gas lamp, a liquid reservoir, carbid receptacles, a gas collecting chamber interposed between said reservoir and said receptacles and communicating with these latter, detachable perforated tubes arranged in said receptacles, valve bodies in communication with said tubes, a water pipe intercommunicating between said reservoir and carbid receptacles, a burner tube at the front side of said lamp and communicating with said gas collecting chamber, and means at the rear side of said lamp to facilitate attaching a lamp to a miner's cap.

2. A miner's acetylene gas lamp comprising a water reservoir having the base thereof provided with a controlling compartment, carbid receptacles detachably connected to the base of said reservoir and in communication with said controlling compartment, detachable perforated tubes arranged within the receptacles, perforated cups arranged within said receptacles for preventing the communication between said compartment and said receptacles from being clogged, water pipes intercommunicating between said reservoir and said tubes, a burner in communication with said controlling compartment and adapted to receive gas therefrom, and means for controlling the supply of water from said reservoir to said perforated tubes.

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

JULIUS BERTHA.

Witnesses:

MAX H. SROLOVITZ,
CHRISTINA T. HOOD.