D. A. WILLIAMS.

LAMP.

APPLICATION FILED JULY 2, 1909.

1,002,890. Patented Sept. 12, 1911.

Fig. 3,

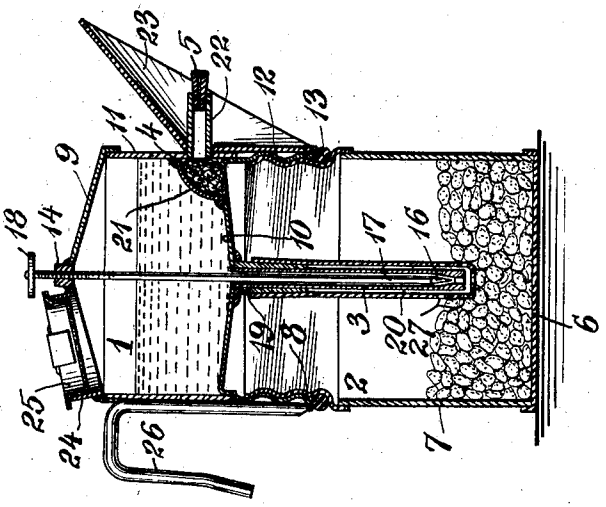


Fig. 2,

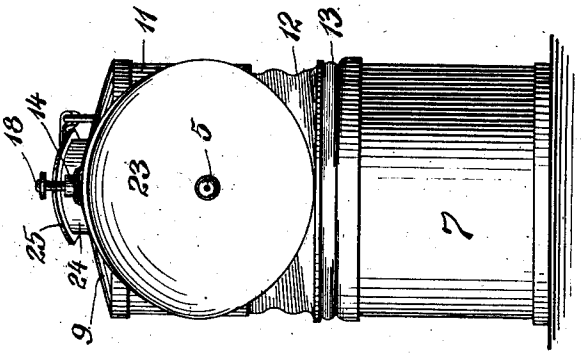
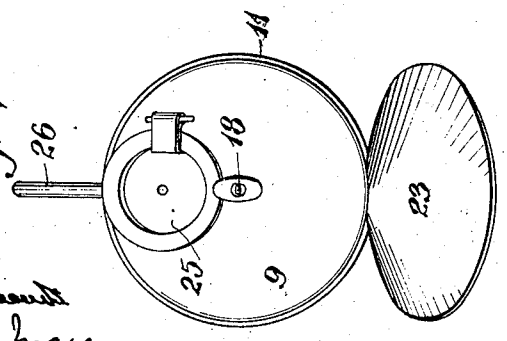


Fig. 1,



WITNESSES:

Henry Hooper.

INVENTOR

David A. Williams

BY

J. C. Edmunds

ATTORNEY

UNITED STATES PATENT OFFICE.

DAVID A. WILLIAMS, OF SCRANTON, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO DAVID R. JAMES, OF SCRANTON, PENNSYLVANIA.

LAMP.

1,002,890. Specification of Letters Patent. Patented Sept. 12, 1911.

Application filed July 2, 1909. Serial No. 505,563.

To all whom it may concern:

Be it known that I, DAVID A. WILLIAMS, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Lamps, of which the following is a specification.

This invention relates to lamps of the type adapted to burn acetylene gas and having a receptacle for the carbid, a water reservoir, and means for permitting the water to flow into the receptacle to generate therein the gas which is supplied to the burner. My invention is directed particularly to the provision of a lamp of this type adapted for use as a miner's lamp, but it may also be employed in bicycle lamps and lamps for other uses.

The primary object of my invention is to produce a lamp of this character which is far more simple in construction than those which have heretofore been proposed and which, because of its simplicity, can be manufactured at a greatly reduced cost and will not require frequent adjustment and repair as have the lamps of this type heretofore used. To this end, the lamp is made of a small number of parts, which can be readily manufactured and assembled at small cost and all the parts are so mounted that the jarring to which they are subjected in use will not disturb their positions so as to cause inefficient operation of the lamp.

I have illustrated the preferred embodiment of my invention in the accompanying drawings, in which—

Figure 1 is a top view of the lamp, Fig. 2 is a front view in elevation, and Fig. 3 is a central vertical section.

Referring to these drawings, the lamp consists of a water reservoir 1 and a carbid receptacle 2 detachably connected together, a water-tube 3 for conveying the water from the reservoir to the receptacle, a gas-purifier 4 and a burner 5 to which the gas passes from the carbid receptacle through the purifier. The reservoir and receptacle are made of sheet brass, the latter consisting of a circular base 6 and a strip 7 curved to a cylinder and secured to base 6 as by soldering it thereto. The upper edge of the side wall 7 of the receptacle is provided with a screw-thread as shown at 8. The water reservoir consists of top and bottom plates 9 and 10 respectively and a strip 11 curved to form a cylindrical side wall, these parts being united as shown to form a water-tight receptacle. The bottom plate 10 has a downwardly extending flange 12 at its outer edge and a thread is formed in this flange adapted to coact with the thread 8 of the carbid receptacle, whereby these two parts may be secured together in such a manner as to permit of readily detaching them to remove the slaked carbid and insert a new supply of unslaked carbid. Preferably a gasket 13 is employed at the base of the thread 8 with which the lower edge of the flange 12 coacts to make the carbid receptacle gas-tight. At the center of the top of the reservoir is an opening in which a plug 14 is secured by solder, this plug having a central threaded opening therethrough.

In the bottom plate 10 of the water-reservoir is an opening and the upper end of a water-tube 3 is sealed into this opening. Tube 3 is open at its upper end within the water reservoir, so that the water may flow freely from the reservoir into the tube. At the lower end of the tube the opening therethrough is tapered, as at 16, forming a small outlet at the end. Within the tube is a valve-rod 17 having its upper end threaded to coact with the threads of the plug 14, and on the upper end of the rod 17 is a handle or finger-piece 18 by which the rod may be conveniently turned. The lower end of rod 17 is tapered to correspond with the taper in the lower end of the opening in tube 3.

To make the structure more rigid, I employ a piece 19 about the tube 3 directly below the bottom plate 10 of the reservoir, this being secured both to plate 10 and tube 3. This piece is preferably a sheet-metal strip wrapped around the tube and soldered to plate 10 and tube 3; it is preferably formed to provide a slightly tapered exterior surface so as to hold the solder within it and also to hold the water-distributer 20. This distributer is a tubular metallic member of slightly greater interior diameter than the exterior diameter of tube 3; it is closed at its lower end except that a small opening is provided through this end and similar openings 27 are provided through the distributer at different heights through which the water may pass to the carbid. In positioning the distributer, it is moved up over the tube 3 until its upper portion engages the tapered piece 19 and wedges thereon so as to hold

the distributer firmly; when in this position the lower end of the distributer is near the lower end of the tube.

The gas-purifier consists of cotton, 4, or other suitable material in a holder 21 fixed upon the interior walls of the water reservoir. The holder is formed of a sheet-metal plate by bending the plate to substantially the shape shown and securing this plate by solder to the wall 11 near the lower edge thereof. The entrance for the gas to the purifier is through an opening in the bottom plate 10 of the water reservoir and holder 21 of the purifier is soldered to bottom plate 10 about the opening in the latter to make the reservoir water-tight. The gas outlet is a tubular member 22 secured in an opening in the wall 11, and in this member is secured the burner 5. A reflector 23 is secured to the exterior of wall 11 around the burner.

In the top of the water reservoir is an opening in which is secured a jamb 24. A cap 25 is hinged to the top of the reservoir adjacent to this jamb and may be turned on its hinge to close the opening and wedge tightly therein. To the wall 7 at a point opposite the reflector is secured means for supporting the lamp, as the hook 26 shown when the lamp is used as a miner's lamp.

The reservoir 1 is partially filled with water through the opening therein and this water flows through the opening in tube 3 and the tube to the distributer and through the various openings in the distributer to the carbid in the receptacle 2. By turning the rod 17 by means of its handle 18, the tapered end thereof may be moved toward or away from the tapered wall of tube 3 so as to regulate the flow of the water. The water rises in the distributer so that it passes therethrough to the carbid at a plurality of points. The gas rising from the carbid passes over the wall of the holder 21 and is purified by the cotton 4 through which it passes in a downward direction to the burner.

It will be seen that the lamp thus made is of very simple construction and that the parts thereof are all so rigidly held that they will not be jarred out of position when the lamp is in use. Most of the parts are of sheet-metal, and for this reason particularly the lamp may be manufactured at very low cost.

One of the important advantages of the construction herein shown and described is due to the fact that when the lamp is carried in the hand by means of the hook 26, the gas will be properly fed to the burner. Though such miners' lamps as that here shown are usually worn affixed to the miner's cap, still the lamp is often carried for a considerable distance in the hand. When so carried, it is usually inclined at considerable of an angle, but even when so carried, the lamp here shown will give a steady light. The location of the purifier above the carbid receptacle a substantial distance, as here shown within the water-reservoir and communicating with the carbid receptacle through an opening in the bottom wall of the water-reservoir, has been found in practice to be a feature of substantial importance, since with this arrangement a much steadier light is obtained.

Having now described my invention, what I claim as new therein and desire to secure by Letters Patent is as follows:—

A lamp comprising a water reservoir, a carbid receptacle, a tubular member leading from the reservoir down into the receptacle and presenting a tapered exterior surface below the bottom of the reservoir, a valve for regulating the flow of water in said tubular member, a tubular distributer having openings therein at various levels, said distributer fitting over said tubular member and having its upper end engaging and wedging upon said tapered surface of the tubular member, a gas-purifier and a burner, substantially as set forth.

This specification signed and witnessed this 26th day of June, 1909.

DAVID A. WILLIAMS.

Witnesses:
LEWIS HARRIS,
WILLIAM JERVIS.