W. ROBERTS.
Miner's Lamp.

No. 209,082. Patented Oct. 15, 1878.

Fig. 1

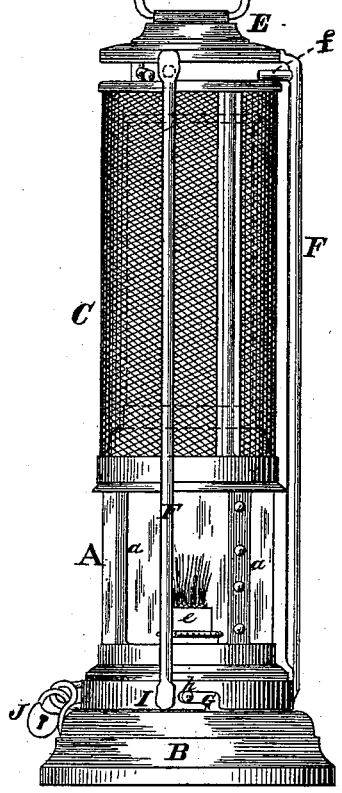
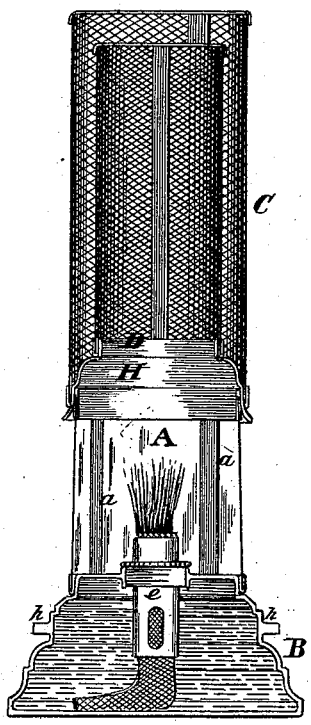


Figure 2



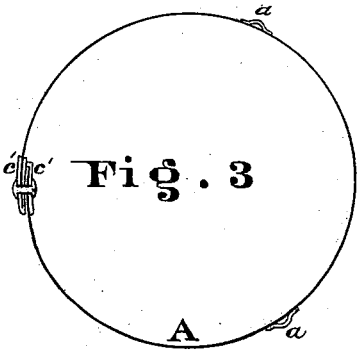


Fig. 3

Fig. 4

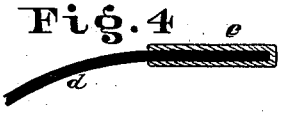


Fig. 5

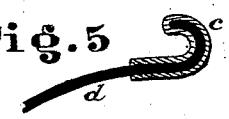


Fig. 6

Attest
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William Roberts
Inventor
by
Henry Millward
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM ROBERTS, OF CINCINNATI, OHIO.

IMPROVEMENT IN MINERS' LAMPS.

Specification forming part of Letters Patent No. **209,082**, dated October 15, 1878; application filed April 16, 1878.

To all whom it may concern:

Be it known that I, WILLIAM ROBERTS, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Miners' Safety-Lamps, of which the following is a specification:

My invention relates to safty-lamps such as are used for mining purposes; and consists in combinations of parts, fully hereinafter described. A preliminary description is therefore deemed unnecessary.

In the accompanying drawings, Figure 1 is a vertical elevation of a lamp embodying my invention. Fig. 2 is a partial vertical section of the same with the locking and transporting devices removed. Fig. 3 is a sectional plan view through the mica or light-transmitting portion of the lamp, illustrating the manner of uniting the two ends of the same; and Figs. 4, 5, and 6 are enlarged sectional views illustrative of my mode of uniting the ends of the gauze chimneys.

Letters of like character represent corresponding parts in each of the figures.

The lamp as improved by me has an oil-reservoir, B, which also acts as a base for the lamp, the usual burner and wick-supporter *e*, the mica flame-protecting and light-transmitting chamber A, which obviates the danger likely to occur from glass chambers by cracking when exposed to varying temperatures, or when water is accidentally brought in contact therewith, the double wire-gauze chimneys D and C, of unequal diameters, arranged to form an air-chamber between them, and the locking and transporting devices E, F, G, *h*, I, and J.

The chamber A is constructed of mica, united at its ends by U-shaped metal sheets *c' c'*, Fig. 3, or, as more clearly shown in Fig. 4, part *c*, tightly secured and bent to form a lap-joint, which is firmly united with rivets. This chamber A terminates at its top in and is secured to an annular metal shell or cap, H, which decreases in diameter upward, and mounted upon this shell H are the interior and exterior gauze chimneys, C and D, with an air-chamber between them, that serves to assist in extinguishing the light from the burner when gases are fed from the outside of the chimneys.

The reservoir B, mica chamber A, with its cap H, and chimneys C and D, are firmly held together by wire rods F F, depending from the handle-shield E, the said rods being united at their ends by ring I, supplied with the L-shaped apertures G, which lock on projections *h h*, formed upon reservoir B, and the ring I and reservoir B are each provided with a loop, which come together and form a hasp for the lock J.

The rods F have projecting pieces *f* near their top, which serve to hold the different parts of the lamp together without the necessity for the shield E or rods F coming in contact with the outer chimney.

The sheets of wire-gauze of which the chimneys C and D are formed have their respective edges joined together, in the manner shown on an enlarged scale at Fig. 6, and, when properly made and pressed, form a strong and compact joint.

A thin metal sheet, *c*, is bent around each end edge of the gauze *d*, then bent, as shown at Fig. 5, united, as shown at Fig. 6, and finally pressed tightly together into a compact shape.

Mica has been used for the flame-chamber of a lamp, and such a chamber has been surrounded by two separated diaphragms of wire-gauze, and I do not claim such devices.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a safety-lamp, the combination of the transparent shell A, surrounding the flame and provided with the cap or shell H, and the wire-gauze chimneys C D, mounted upon said cap or shell, and arranged one within the other, so as to form an annular space or chamber between them, substantially as described, and for the purpose set forth.

2. The shield E, projections *f*, rods F, ring I, aperture G, studs *h*, reservoir B, and chimneys C and D, as and for the purpose specified.

3. The method of fastening together the edges of the wire-gauze chimneys, substantially as described, the same consisting in bending double over said edges the thin metal plates *c*, and then bending said plates and edges in hooked form, engaging and pressing them flat together.

In testimony whereof I have hereunto set my hand this 29th day of January, 1878.

WILLIAM ROBERTS.

Witnesses:

HENRY MILLWARD,

EUGENE W. LIPPERT.