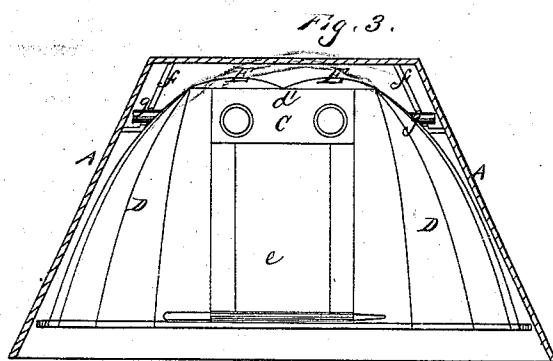
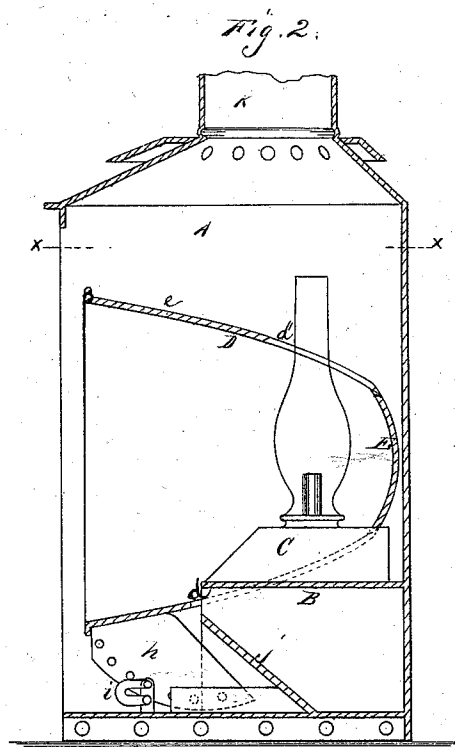
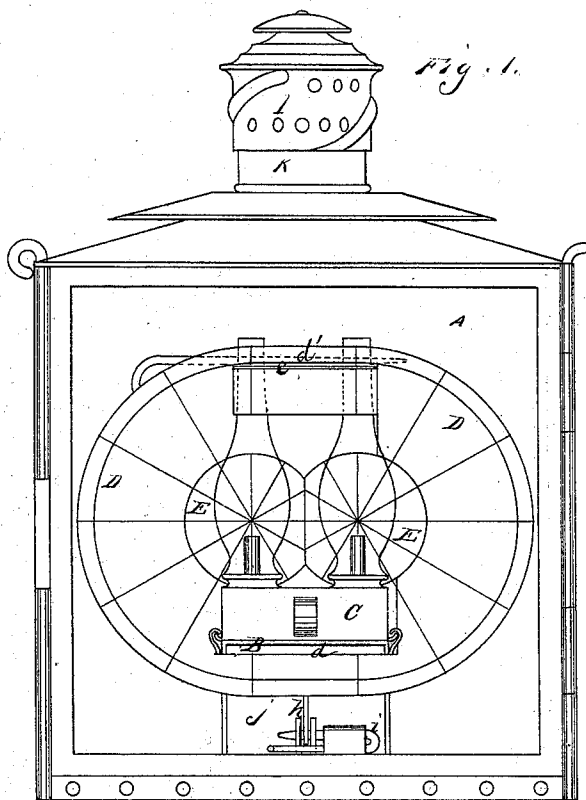


E. BOESCH.
Reflecting-Lamps.

No. 149,712.

Patented April 14, 1874.



Witnesses.
John L. Boone
O. M. Richardson

Emil Boesch
per Sewey &
Atty.

UNITED STATES PATENT OFFICE.

EMIL BOESCH, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN REFLECTING-LAMPS.

Specification forming part of Letters Patent No. **149,712**, dated April 14, 1874; application filed February 14, 1873.

To all whom it may concern:

Be it known that I, EMIL BOESCH, of San Francisco city and county, State of California, have invented an Improved Reflecting-Lantern; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

This improved lamp or lantern I shall call the long-range duplicate reflector, its object being to provide a light of more than usual intensity, by which mills, mines, and like places can be properly lighted.

In mining and many other kinds of night-work it is necessary to direct a strong light upon a particular spot where the work is being carried on, and in hydraulic mining especially it is necessary to keep the lamp or lantern at a considerable distance from this point, so as to protect it from the sliding or caving of the bank. This lantern is intended to supply this want; and in order to obtain the desired volume of light, my lantern is provided with twin lamps, and the reflector is provided with twin focal reflectors, so that a strong concentrated light will result. The intensity of the light may be increased by adding other lamps and corresponding focal reflectors, as many as may be required.

Instead of constructing the focal reflectors separate from the main reflector, so that they can be adjusted independently, as shown in my former patent, No. 142,433, dated October 22, 1872, I secure the focal reflectors to the main reflector, and mount the main reflector on trunnions, so that the whole reflecting apparatus may be directed as required, and thus carry the body of light to any point where it may be required.

Besides the above advantages, my invention represents other improvements of value.

In order to explain my invention so that others may be able to understand its construction and arrangement, reference is had to the following description and accompanying drawings, in which—

Figure 1 is a front view of my lantern. Fig. 2 is a sectional elevation. Fig. 3 is a plan view

looking downward, with the top of the case cut away on the line *xx* of Fig. 2.

A represents the body or case of my lamp or lantern. This case I make of a V shape, so that when the reflector is in place no space will be left between it and the sides of the lamp, thus compelling the air which is admitted into the lamp at the bottom of the case to pass up through the reflector in order to pass out. In the rear portion of the bottom of the case I construct a lamp-stand, B, upon which the oil-vessel C and its lamps can be placed after the reflector has been put in position. The reflector D is made in any convenient form, being gradually drawn in toward the rear end by the parabolic curve given to its sides. E E are the twin focal reflectors, which are secured in the bottom or apex of the main reflector, so as to provide a separate focus for each lamp employed; or the reflector may be formed in such a manner as to provide the desired number of focuses without using additional or focal reflectors. An opening, *d*, is made in the lower part of the reflector D, wide enough to admit the lamp-stand B, and another opening, *d'*, is made in the roof of the reflector, through which the chimneys of the lamps pass. A lid or cover, *e*, is hinged to the outside upper rim of the reflector D, so that when it is down it will cover the upper opening, *d'*. The lower side of this cover has a reflecting-surface, so that the entire upper portion of the reflector will be utilized, while the lamp-chimneys can be inserted by simply raising the lid until they have been placed, when the lid will be dropped so as to cover the opening. A plate, *f*, is secured to each side of the case at the proper height, and on its rear portion, in which trunnion-bearings are provided. The reflector D has a trunnion, *g*, on each side, so that it can be suspended from the plates *f*, and when thus suspended the lamp-stand B will project through the opening in the lower part of the reflector. A quadrant-plate, *h*, is secured to the under side of the reflector, in the circular edge of which a series of holes is made. This plate moves between two vertical plates below the lamp-stand, and when the reflector is adjusted to the desired angle a pin, *i*, is passed through one of the holes in the quadrant, so as to hold the reflector in place. Holes

are made in the bottom of the lamp-case and below the door at the front, through which air is admitted to supply the flame; and in order to direct the air which enters below the lamp-stand up through the opening in the lower part of the reflector, I secure a plate, *j*, at an angle in the lower part of the lamp-stand, so that it will prevent the air from passing out in front of the reflector. The air which thus enters the reflector will, when heated, pass up through the opening in the upper part of it, and thence through the chimney to the outer air, and as the supply will be constant the interior of the lamp cannot become overheated. I have also discovered that by corrugating, or rather making radial grooves in, a focal reflector, as shown, the light which it reflects will be much subdued, so that the eyes will not be strained by looking at it, while at the same time the grooves do not impair the reflecting powers of the reflector, thus obviating one objection to the use of these reflectors. The roof of the lamp is made in two parts, one above another, so as to provide a space for the heated air to pass out. The chimney or dome *K* has a cap, *l*, which slips down over it, being locked by a pin on the dome moving in a spiral groove in the cap, so that a twisting motion is required to turn the cap down. Holes are made in the sides of the cap, through which

the smoke passes to the outer air. By raising or lowering this cap, the draft through the lamp can be regulated, as required.

By this construction I provide a lamp of great power, and one which is especially adapted for the purposes mentioned.

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

1. The reflector *D*, having the openings *d d'*, the upper opening, *d'*, being provided with a hinged sectional cover, *e*, which forms a part of the reflecting-surface when closed, substantially as above described.

2. The vertically-adjustable reflector *D*, with its trunnions *g* supporting side plates *f*, and having the quadrant attachment *h* and pin *i*, by which the reflector can be shifted and fixed in the desired position for directing the light, substantially as specified.

3. The lamp-stand *B*, open in front and having the inclined plate *j*, in combination with a lamp-case having holes in its bottom, for the purpose described.

In witness whereof I hereunto set my hand and seal.

EMIL BOESCH. [L. S.]

Witnesses:

JOHN L. BOONE,

C. M. RICHARDSON.