

R. D. COCHRANE.
MINER'S LAMP.
APPLICATION FILED SEPT. 23, 1910.

Patented June 6, 1911.

994,123.

Fig 2

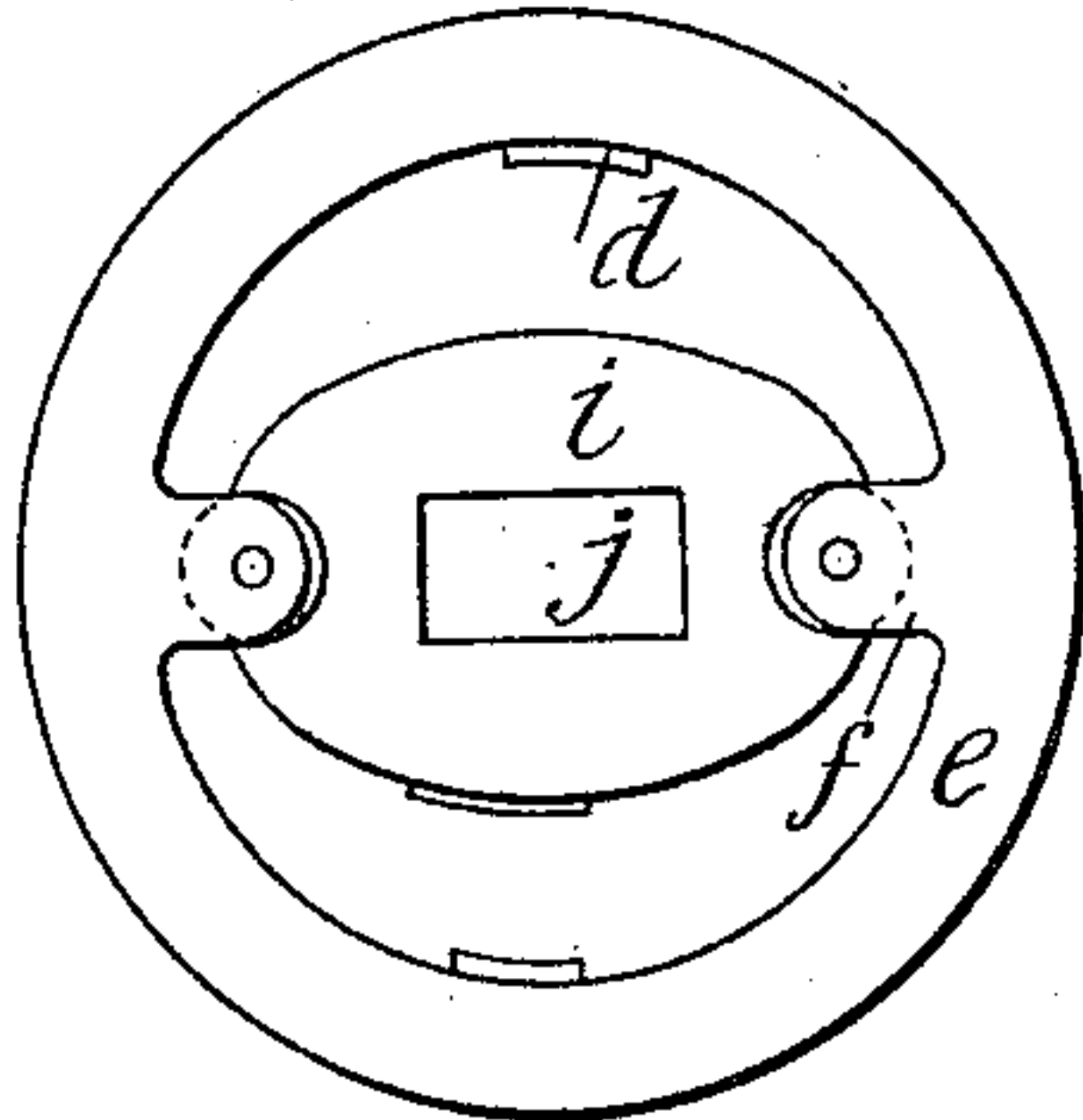
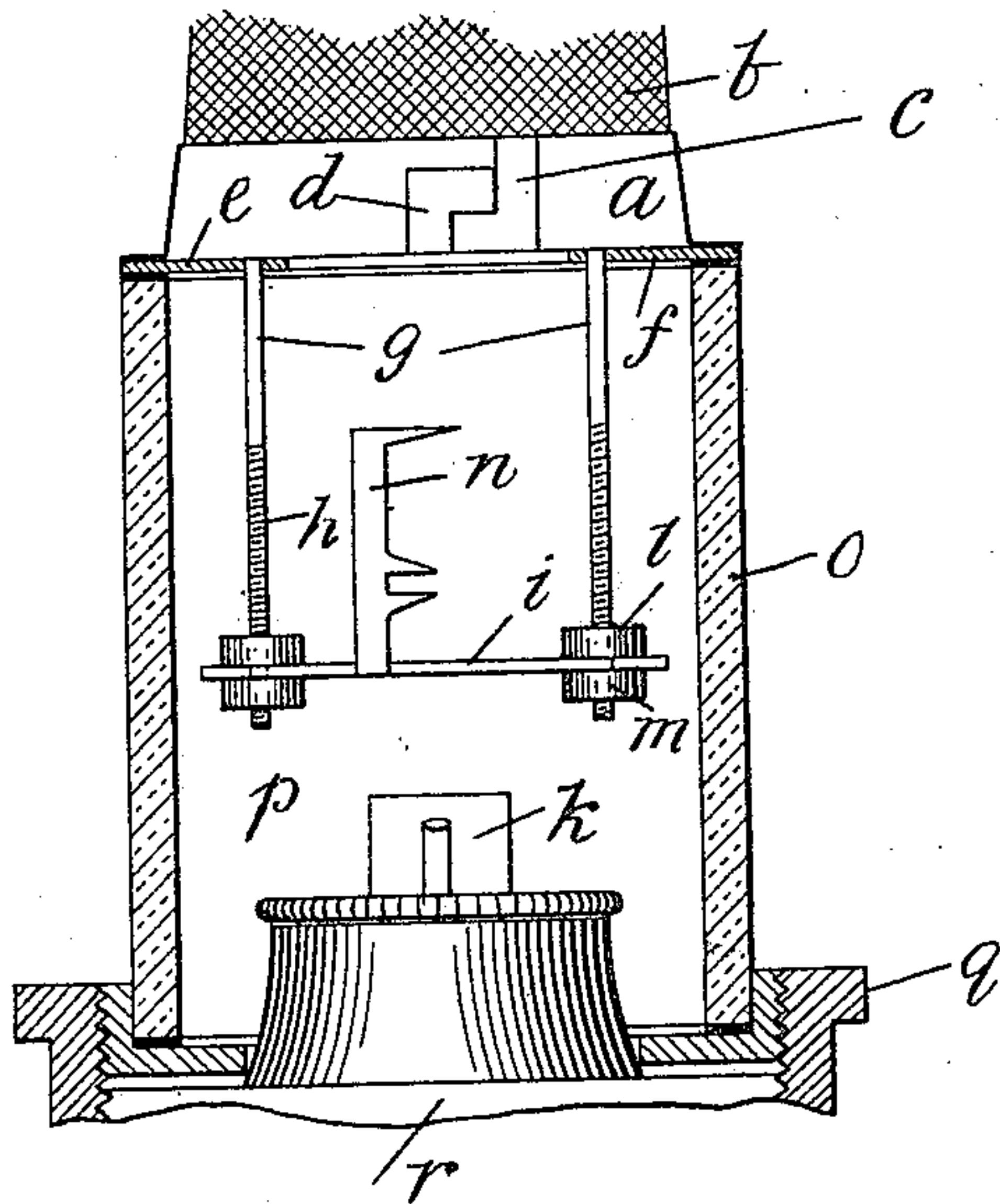


Fig 1



Witnesses:-
H. Drummond,

A. A. Thompson

Inventor.
Ralph Dixon Cochrane

UNITED STATES PATENT OFFICE.

RALPH DIXON COCHRANE, OF NORBURY, ENGLAND.

MINER'S LAMP.

994,123.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed September 23, 1910. Serial No. 583,428.

To all whom it may concern:

Be it known that I, RALPH DIXON COCHRANE, a subject of the King of the United Kingdom of Great Britain and Ireland, residing at 18 Pollards Hill north, Norbury, in the county of Surrey, England, 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 consists in certain improvements in miners' safety lamps, the object being to render such lamps usable for testing the atmosphere of the mine for the presence of gas without interfering with the lighting capacity of the lamp for ordinary mining purposes and without the usual necessity to reduce the flame to the merest glimmer before a test can be made.

In carrying my invention into effect I proceed substantially as follows, making reference to the accompanying drawings wherein—

Figure 1 is a sectional side view of so much of a miner's lamp as shows my invention, Fig. 2 being a plan of my new attachment.

For the purpose of explanation I shall assume that the invention is applied to a lamp having an inner and outer gauze covered by a bonnet, but the invention is applicable to any other kind of lamp by suitable modification.

To the inside of the band *a* which clips the bottom edge of the inner gauze *b*, are attached, diametrically opposite to one another, the L shaped locking pieces *c* with which engage bayonet-joint-like similar locking pieces *d*, upstanding in the opposite direction from a ring *e*, having the instanding ears *f* to which are attached the upper ends of the depending rods *g*, screw threaded as at *h*, and having free ends passed through a diaphragm *i*, having a central opening *j*, somewhat larger than the size of the wick-tube *k*, of the lamp, so as to surround the flame.

Top and bottom nuts *l* and *m* are provided on the ends of the rods *g*, to enable the position of the diaphragm *i* to be adjusted

to its best position, relatively to the wick-tube. Upstanding from one side of the diaphragm *i*, I provide a scale *n* for a purpose to be presently explained.

In the drawing *o* is the glass surrounding the wick chamber *p*, and *q* is the upper part of the ring into which screws the oil container *r*.

In use, the lamp is trimmed so that the lighting flame for ordinary miners' use is level with the diaphragm *i*, and when the top of the flame has settled in this normal position if the lamp be taken into a gas laden atmosphere, the top of the flame will pass through the opening *j*, and appear above it as a lurid spire, of a height corresponding to the percentage of gas present, and the percentage is gaged by the scale *n*.

As is well known the usual mode of testing with a miner's lamp involves the reduction of the flame to the minimum to enable the cap, which is indicative of the presence of gas, to be seen at all. The lamp is thus not only useless for lighting purposes, but is liable to be very easily put out and to thus leave the user in absolute darkness, with no means of finding his way onward or backward. With a lamp fitted with my attachment it remains always with a useful working flame, with no more risk of extinguishing than an ordinary lamp; the diaphragm serves not only to provide for obtaining a standard flame, but also as a datum from which the percentage of gas can be ascertained by inspection of the height of the lurid spire which appears and can be readily seen above the diaphragm when gas is present.

What I claim as my invention and desire to secure by Letters Patent is:—

1. For use with a miner's lamp for testing and lighting purposes, a ring detachably attachable to the bottom of the gauze of the lamp: means for suspending below the ring an apertured diaphragm, and means for adjusting the said diaphragm at a determined height above the top of the flame.

2. The combination with a miner's lamp of a ring attachable by a bayonet-joint to the bottom band of the gauze of the lamp:

rods depending from the said ring: an ap-
ertured diaphragm carried on the free ends
of the said rods: and means for adjusting
the position of the diaphragm on the said
5 rods relatively to the flame of the lamp, sub-
stantially as hereinbefore described.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

RALPH DIXON COCHRANE.

Witnesses:

T. W. THOMPSON,

T. ARMSTRONG.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
