

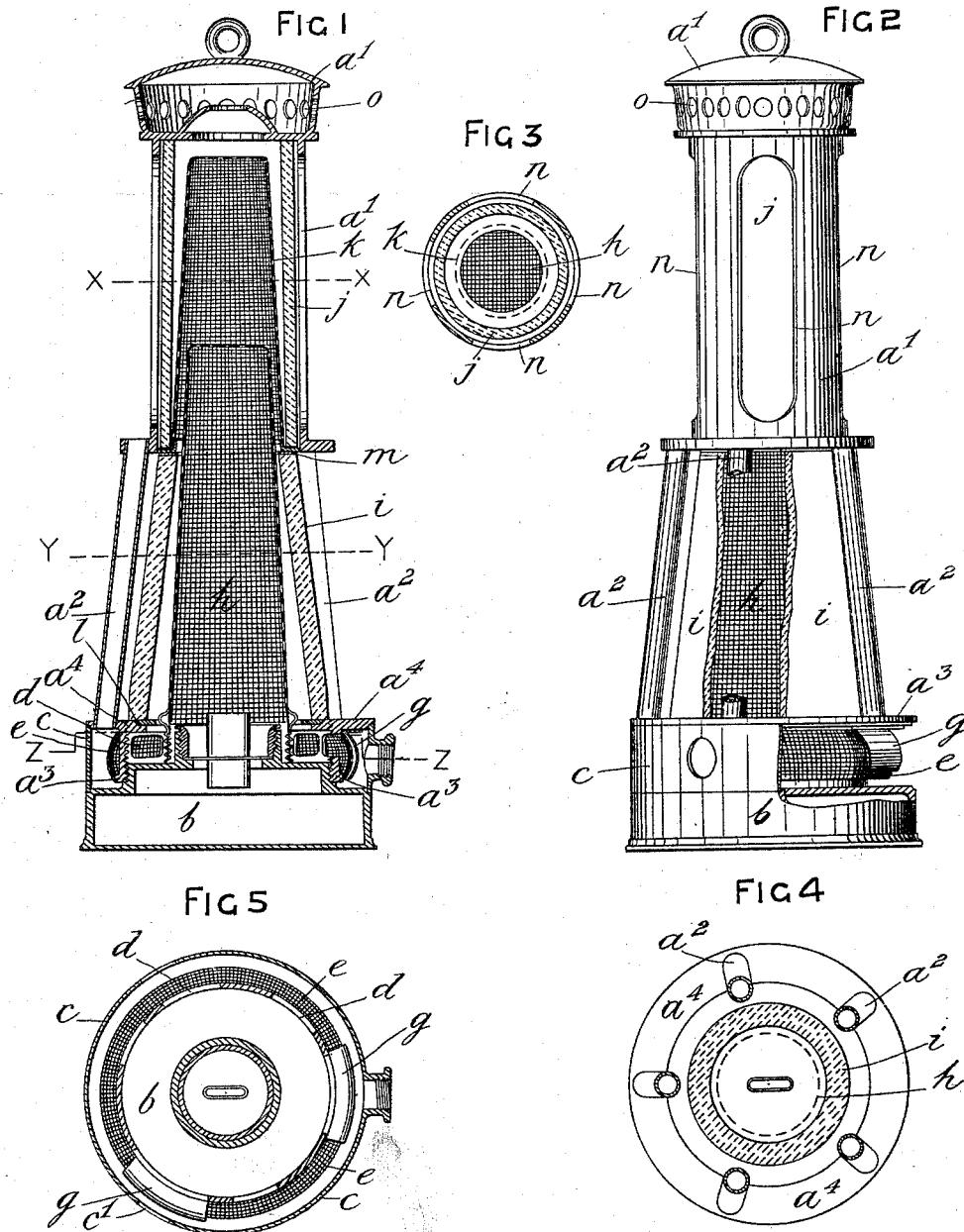
(No Model.)

3 Sheets—Sheet 1.

L. JENKINS.  
MINER'S SAFETY LAMP.

No. 526,711.

Patented Oct. 2, 1894.



WITNESSES

*Charles Brown & Cokey*  
*Herbert Whitehouse*

INVENTOR

*Lewis Jenkins*

(No Model.)

3 Sheets—Sheet 2.

L. JENKINS.  
MINER'S SAFETY LAMP.

No. 526,711.

Patented Oct. 2, 1894.

FIG 6

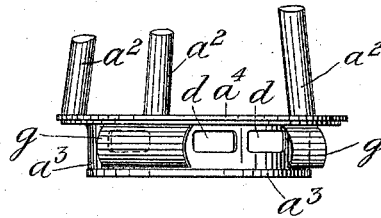


FIG 7



FIG 8

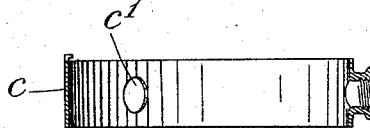
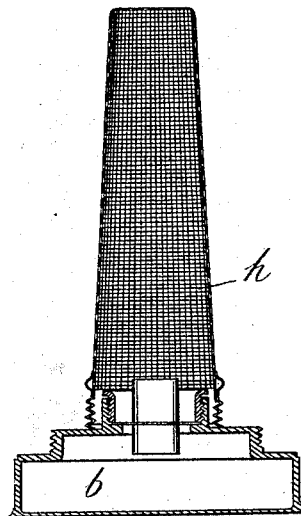


FIG 9



WITNESSES

*Charles Bismuth Kelley*  
*Herbert Whitehouse*

INVENTOR

*Lewis Jenkins*

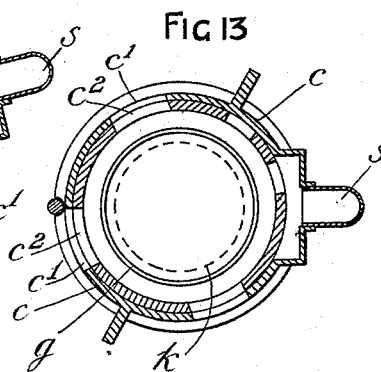
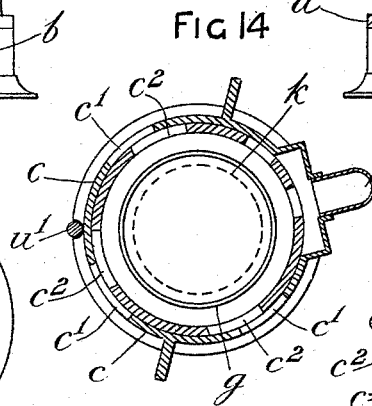
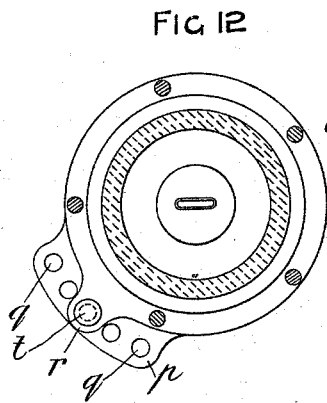
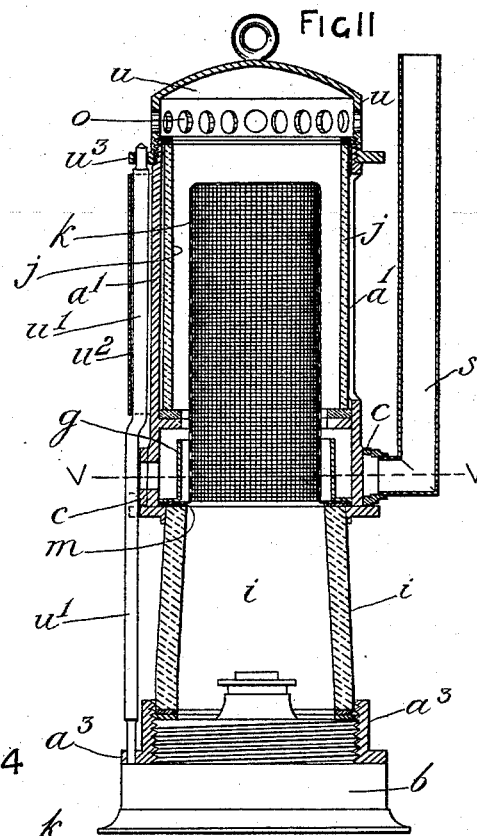
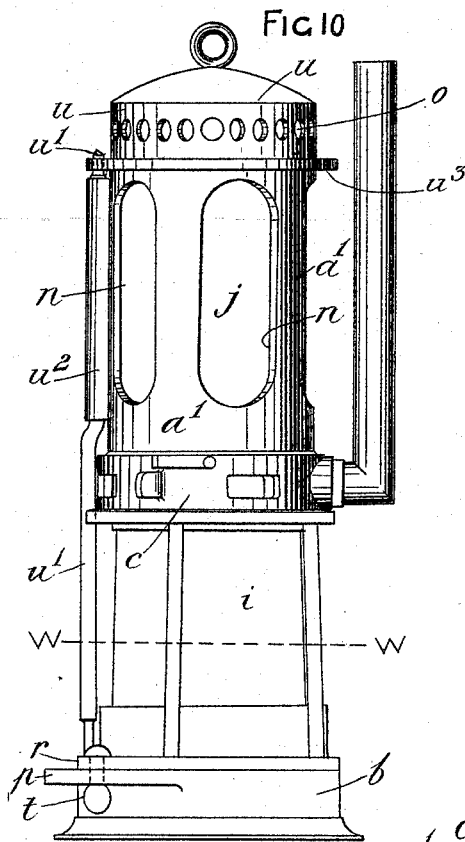
(No Model.)

3 Sheets—Sheet 3.

L. JENKINS.  
MINER'S SAFETY LAMP.

No. 526,711.

Patented Oct. 2, 1894.



WITNESSES

Charles Barnhart Kelley  
Herbert Whitehouse.

INVENTOR

Lewis Jenkins

# UNITED STATES PATENT OFFICE.

LEWIS JENKINS, OF HANDSWORTH, ENGLAND.

## MINER'S SAFETY-LAMP.

SPECIFICATION forming part of Letters Patent No. 526,711, dated October 2, 1894.

Application filed July 11, 1893. Serial No. 480,116. (No model.) Patented in England July 24, 1889, No. 11,757, and in Belgium December 24, 1890, No. 93,214.

*To all whom it may concern:*

Be it known that I, LEWIS JENKINS, a subject of Her Majesty the Queen of Great Britain and Ireland, residing at Handsworth, in the county of Stafford, England, have invented certain new and useful Improvements in Miners' Safety-Lamps, of which the following is a specification.

The invention has been patented in England July 24, 1889, No. 11,757, and in Belgium December 24, 1890, No. 93,214.

This invention consists of the herein described improvements in miners' safety lamps and the objects of my invention are, first, to so construct the said lamps as to expose to view any gas which may be burning in the upper part as well as in the lower part of the lamp and that without any possibility of the gas being blown out; secondly, to enable the lamp to test the atmosphere for gas at any distance above the lamp; thirdly, to enable the lamp to be used either as an ordinary Davy lamp or as a "bonneted" Davy lamp; fourthly, to improve the means of admitting the air to the flame so as the better to prevent any possibility of explosions, and, fifthly, to provide improved means for locking the safety lamp to prevent the miner opening the same.

I obtain the objects of my invention as I will now describe by referring to the accompanying drawings on which the same letters of reference indicate the same or corresponding parts in all the figures, and of which—

Figure 1 represents in sectional elevation a miner's safety lamp constructed according to this invention; but this lamp does not embody all the features of my invention. Fig. 2 is an elevation of the said lamp partly in section. Fig. 3 is a sectional plan of the same on line X X of Fig. 1. Fig. 4 is a sectional plan of the same on line Y Y of Fig. 1. Fig. 5 is a sectional plan of the same on line Z Z of Fig. 1. Fig. 6 is an elevation of the lower part of the lamp frame. Fig. 7 is a separate view of the gauze ring which I employ therewith as hereinafter described. Fig. 8 shows the metal junk ring which surrounds the gauze ring represented by Fig. 7. Fig. 9 is a sectional elevation of the oil reservoir and burner of the said lamp separately provided with a wire

gauze barrel like an ordinary Davy lamp. Fig. 10 is a side elevation of another form of miner's safety lamp constructed according to this invention. Fig. 11 is a sectional elevation of the same. Fig. 12 is a sectional plan of the same on line W W of Fig. 10 and Figs. 13 and 14 are sectional plans of the same on line V V of Fig. 11.

The lamp frame consists of the upper part  $a'$  and a lower part  $a^3$  connected to the upper part by the tubes or rods  $a^2$ .

$b$  is the oil reservoir screwed or otherwise suitably connected to the lower part  $a^3$  of the lamp. The lower part  $a^3$  of the lamp is made in the form of a short cylinder with a flange  $a^4$  to which latter the tubes or rods  $a^2$  are fixed. The oil reservoir  $b$  is or may be provided with the usual wire gauze barrel  $h$  the base of which is screwed or otherwise detachably fixed to the oil reservoir  $b$  (see Figs. 1, 2 and 9) or, as shown in the lamp illustrated by Figs. 10 and 11, this wire gauze barrel  $h$  may, as in some other miners' safety lamps, be dispensed with. This wire gauze barrel when used is surrounded by the usual glass tube  $i$  on the top of which, according to one part of this invention, I provide a second glass tube  $j$  forming a glass bonnet containing the second wire gauze barrel  $k$ . The base of this barrel  $k$  is flanged and gripped between the ends of the glass bonnet  $j$  and glass tube  $i$ . (See Figs. 1 and 2 or see Fig. 11.) The flange is gripped between the top of the glass tube  $i$  and the under side of the top part  $a'$  of the lamp, a ring  $m$  of asbestos or other suitable packing being inserted to make the joint. The upper part  $a'$  of the lamp frame is made of metal and provided with sight holes  $n$  through which the glass bonnet  $j$  and barrel  $k$  are visible so that any gas burning in the upper part of the lamp body can be clearly seen, the glass bonnet  $j$  effectually preventing such gas from being blown out.

In order to admit the air to feed the flame and to test the atmosphere for gas above the lamp, I provide a movable junk ring  $c$  fitting between the lower part  $a^3$  of the lamp frame and the oil reservoir  $b$  (see Figs. 1, 2 and 8) or fitting upon the bottom of the upper part  $a'$  of the lamp as shown in Figs. 10 and 11 and in this junk ring there are air holes  $f$ .

The junk ring *c* can either be a fixture as in Figs. 1, 2 and 8 or it can be made to slide around the bottom of the upper part of the lamp *a'* as shown in Figs. 10, 11, 13 and 14.

5 In the upper part of the body whereon the junk ring *c* fits there are holes *c'* corresponding with the holes *c''* in the junk ring so that by turning the junk ring the holes *c'* can be either fully opened or closed or partly closed  
10 when testing for gas as hereinafter described. In order to break the currents of air passing into the lamp I provide a baffle *g* made either in the form of wings as shown in Figs. 1, 2 and 6 opposite each of the holes *c'* in the junk  
15 ring or as shown in Figs. 11, 13 and 14 this baffle *g* may be in the form of a complete ring opposite the air holes. The wire gauze belt *e* is provided in the lamp shown by Figs. 1, 2, 5 and 7 to prevent any back action of  
20 the flame.

When the lamp is lighted the air to feed the flame passes through the holes *c'* and through the wire bonnet *k* or *h* and the flame and the products of combustion pass up and  
25 out through the usual holes *o* in the top of the lamp body. In the lamp shown by Figs. 1 and 2 where the top part *a'* of the lamp is secured to the bottom part *a''* by tubes *a''* the air to feed the flame passes down the tubes  
30 *a''* as well as through the holes *c'* but if the latter are closed by the miner's thumb and finger or by other means then the air or any gas which may be fixed with the air only passes down the tubes *a''* thus enabling the atmos-  
35 phere to be tested for gas anywhere on a level with the bottom of the upper part *a'* of the lamp. If it is desired to test for gas the atmosphere in the roof above the top of the lamp this can readily be done by screwing or  
40 otherwise attaching the vertical elbow pipe *s* to the socket *c''* which I provide on the junk ring *c*. Then by closing or partly closing the air holes *c'* in the junk ring the air (and gas if there is any) above the lamp then  
45 passes down this tube *s* to the flame and if there is any gas it will be seen burning in the upper wire gauze bonnet *k*.

When the oil reservoir *b* with its barrel *h* are removed from the frame of the lamp as shown in Fig. 9 they form the ordinary Davy  
50 lamp and when inserted in the frame and glass tube and bonnet as shown in Figs. 1 and 2 the whole forms a "bonneted" Davy lamp.

55 In order to enable the manager or other authorized person to lock the safety lamp and prevent the oil reservoir being removed by the miner to expose the flame I provide as shown in Figs. 10 and 12 a small flange *p*  
60 which is fixed to the side of the oil reservoir and in which are holes *q* corresponding with the hole in the snug *r* which is formed with the lower part of the lamp body into which the oil reservoir *b* is screwed. A lead or  
65 other soft metal rivet *t* is inserted through the snug *r* and flange *q* as shown in Fig. 10

and then the end of this rivet is closed and enlarged by means of a pair of pliers which impress a letter or other private mark upon the rivet and prevent its being removed with-  
70 out destroying the rivet. If the rivet *t* is not intact when the lamp is delivered up by the miner then the manager or other authorized person knows that the lamp has been tampered with. To remove the rivet to open the  
75 lamp it is only necessary to cut off the part of the rivet which has been squeezed by the pliers. In the safety lamp shown by Figs. 10, 11, 12, 13 and 14 where the top cap *u* is made removable from the upper part *a'* of the lamp  
80 so as the better to permit of the removal of the glass tube *j* this cap *u* is locked by means of the sliding bolt *u'* which fits in a tube *u''* fixed to the upper part *a'* of the lamp and the top of this part *u'* engages in a hole in the  
85 flange *u''* of the top part *u* the bottom part of the said bolt fitting in a hole in the flange at the bottom part *a''* of the lamp (see Fig. 11) so that when the oil reservoir *b* is screwed into the bottom part *a''* of the lamp as shown  
90 in Fig. 11 the bolt *u'* is by the oil reservoir *b* forced upwardly and locks the cap *u* of the lamp by taking into the hole in the flange *u''* as shown in Fig. 11.

The transparent bonnets *i* and *j* instead of  
95 being made of glass may be made of talc, mica, or other transparent substance.

I wish it to be understood that I do not make any general claim to the tube *a''* for supplying air to the flame from the upper part  
100 of the lamp as I am aware that such tubes have been used prior to my invention, and that I do not limit myself to the precise details hereinbefore described and illustrated by the accompanying drawings; but  
105

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

1. A miner's safety lamp consisting of a tubular lower part *a''*, a glass tube supported thereby, an oil reservoir removably secured  
110 to said part *a''* and a gauze barrel secured to said oil reservoir and removably therewith, substantially as described.

2. A miner's safety lamp, consisting of an oil reservoir and burner, a glass tube *i*, a second glass tube above the first, a wire gauze barrel within the same and a frame encircling said upper glass having openings to show the light, substantially as described.

3. In a miner's safety lamp and in combination with the frame thereof, the glass tube *i* the transparent bonnet *j* the wire gauze barrel *k* and perforations *c'* in the lamp frame at the base of the gauze barrel *k* substantially as set forth and illustrated by the accompanying drawings.  
125

In testimony whereof I have signed in the presence of the two subscribing witnesses.

LEWIS JENKINS.

Witnesses:

CHARLES BOSWORTH KETLEY,  
HERBERT WHITEHOUSE.