No. 843,505. PATENTED FEB. 5, 1907.

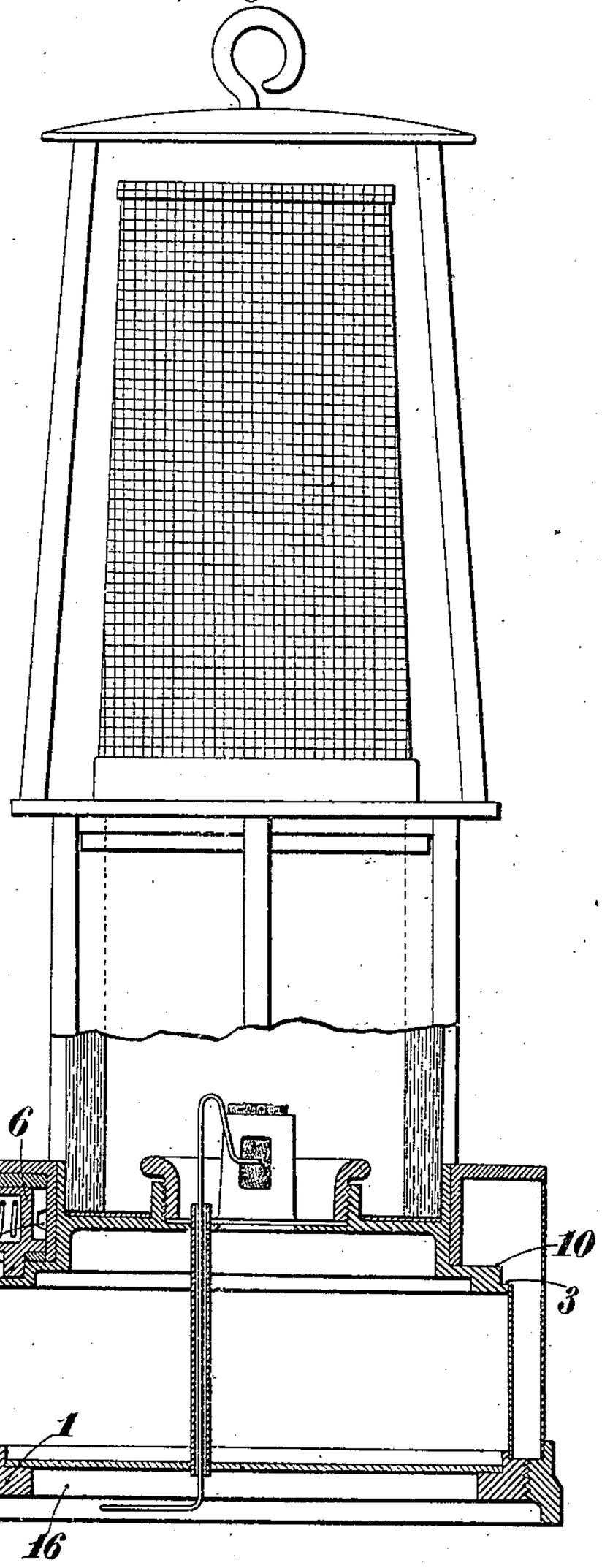
A. L. TOMBELAINE.

SAFETY CLOSING DEVICE FOR MINERS' LAMPS

APPLICATION FILED OCT. 9, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

W. B. Keeler

Chas. D. Kesler

Inventor

Alexander L. Tombelaine

By

James L. Norris

Atty.

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2 SHEETS—SHEET 2.

Fig. 3.

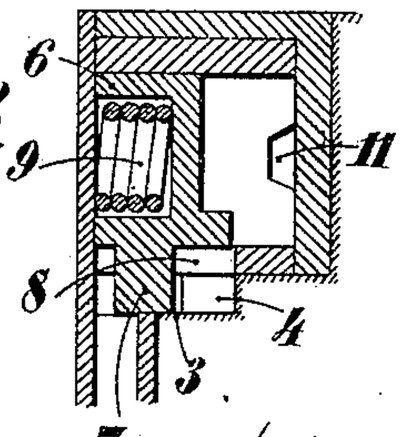


Fig. 2.

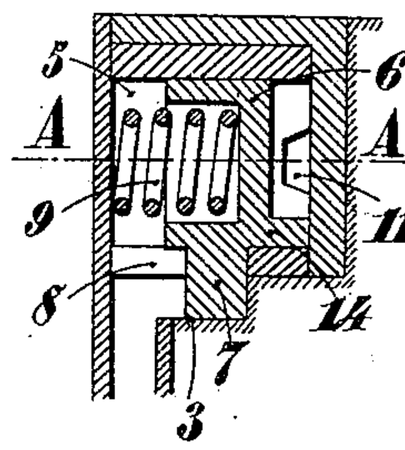


Fig. 5.

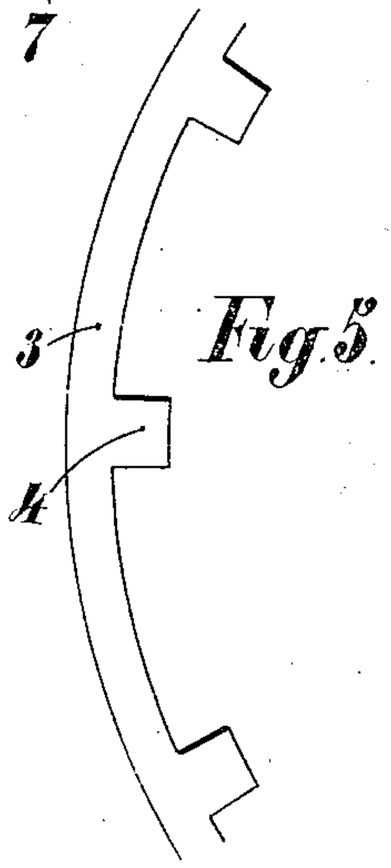


Fig. 4.

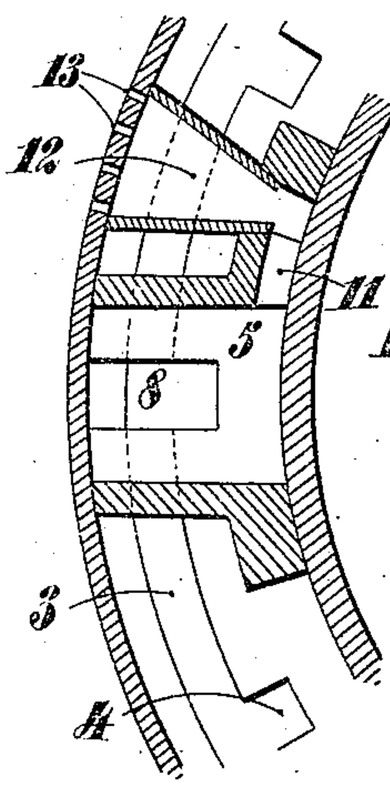


Fig. 6.

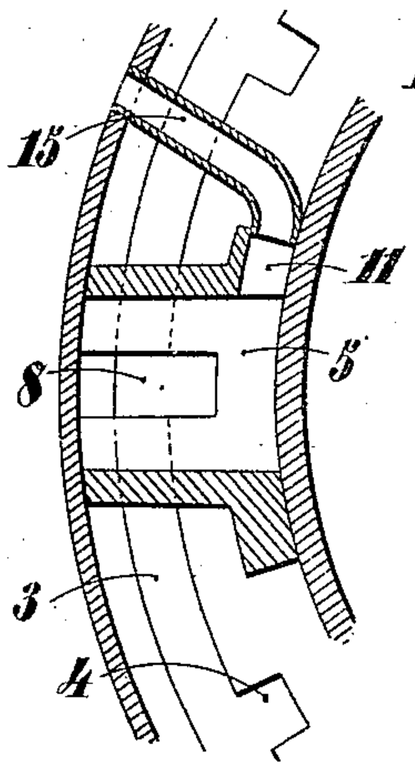
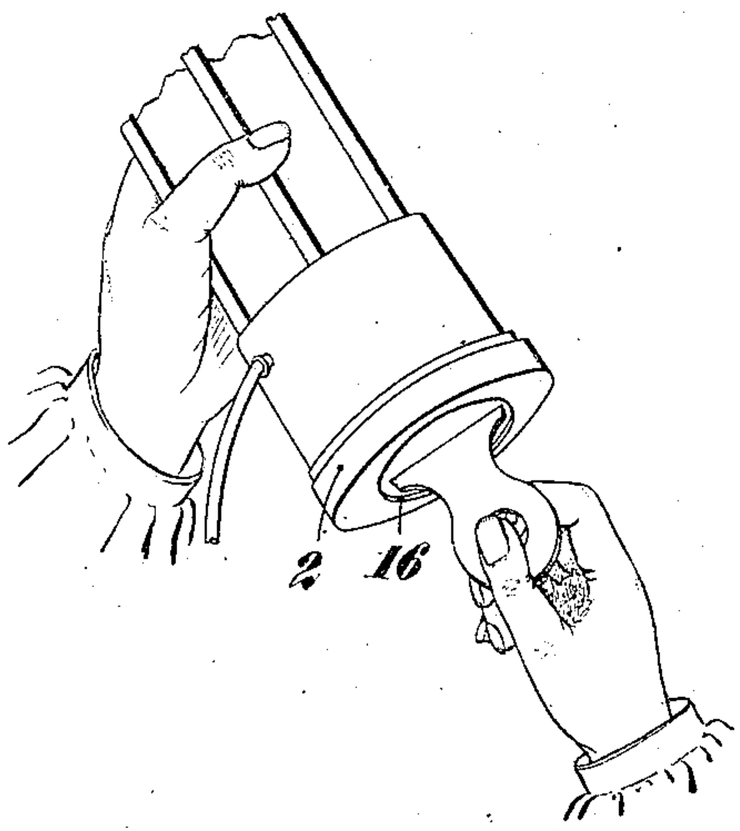


Fig. 7.



Witnesses:

C. D. Kesler

Inventor

Alexander L. Tombelaine

By James L. Norris

Atty.

UNITED STATES PATENT OFFICE.

ALEXANDRE LÉONARD TOMBELAINE, OF CHAPTELAT, FRANCE.

SAFETY CLOSING DEVICE FOR MINERS' LAMPS.

No. 843,505. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed October 9, 1905. Serial No. 282,079.

To all whom it may concern:

Be it known that I, ALEXANDRE LÉONARD TOMBELAINE, engineer, a citizen of the French Republic, residing at Chateau de la Guéronnière-Chaptelat, Haute-Vienne, France, have invented certain new and useful Improvements in Safety Closing Devices for Miners' Lamps, of which the following is a specification.

This invention has for its object a safety closing device for miners' lamps.

In this arrangement the closing and opening of the lamp can only be effected by means of a jet of compressed air.

The weight of this lamp is far less than that of magnetically-closed lamps, and its construction is simple and inexpensive.

In the accompanying drawings, Figure 1 is a section of a lamp provided with the device forming the object of the invention. Figs. 2 and 3 show a detail of the device, at a larger scale, in two positions. Fig. 4 is a section through line A A of Fig. 2. Fig. 5 is a partial view of the upper part of the reservoir of the lamp. Fig. 6 is a view similar to Fig. 4, showing a modification. Fig. 7 is a perspective view showing the manner of opening the lamp.

In a lamp having this locking device the receptacle 1, which constitutes the reservoir of the lamp, is screwed within the body 2, which completely closes it, and owing to which a miner who without authority endeavors to open his lamp has hardly any hold upon the receptacle for the purpose of unscrewing it.

At its upper part the receptacle is provided with an annular groove 3, in which are formed a number of notches 4. Within the upper body of the lamp is arranged a small cylinder 5, extending at right angles with respect to the body of the lamp, and in which a piston 6 is capable of displacement. This piston carries on its under side a depending projection 7, passing through a recess 8, formed in the cylinder-wall. A spring 9 constantly tends to separate the piston from the wall and to return it to its outward position, as shown on Fig. 2. When the piston is in the inward position, in which the spring is compressed, as shown in Fig. 3, the receptacle of the lamp may be screwed home, which would otherwise be impossible. When once the receptacle has been screwed home, the spring 9 is permitted to extend. The piston tends to assume the outward position and bears against the flange 10, formed by the groove in the base. If the receptacle is now unscrewed, the projection 7 on the piston coming opposite a recess 4 in the annular groove 3, the spring 9, fully extending, will engage the said projection 7 in this notch 4 and will lock it, making it impossible for unauthorized persons to unscrew the lamp. In order to control the movements of the piston, the cylinder communicates at its rear part, by means of a small passage 11, with a chamber 12, communicating with the exterior through holes 13.

In order to compress the spring 9, the holes 13 are arranged in front of a conduit conducting compressed air. The compressed air enters by the chamber 12 and the conduit 11 at the rear of the cylinder 5 and forces the piston 6 into the position in which the spring is compressed, Fig. 3. It is then possible to screw home the receptacle of the lamp. As soon as this operation is finished the lamp is removed, and the piston, free from the air-pressure, tends to assume the outward position, in which the spring is extended, Fig. 2, thus making it impossible to unscrew the base without again bringing the holes 13, communicating with the exterior, in front of the jet of compressed air.

A sufficient number of the notches 4 may be made to permit of effecting the screwing home readily, so that after the jet of compressed air is cut off at the lamp department it is only necessary to screw up a little more in order that the projection 7 on the piston may fall into one of the notches 4. In point of fact it is always preferable that the locking should be effected in tightening rather than in loosening.

The piston carries at its rear a small projection 14, which, whatever the position of the piston, prevents the compressed air entering the cylinder 5, escaping by way of the recess 8 in the wall of said cylinder.

Instead of adopting the pattern described above there might be substituted for the air-chamber 12 a tube 15, connecting with the conduit 11.

In the bottom of the lamp-receptacle 1 is formed a recess 16, of elliptical form, in which a special key is engaged for screwing or unscrewing, as is shown in Fig. 7.

Having thus described and ascertained the nature of my invention and in what manner the same may be performed, I declare that what I claim, is—

1. A safety closing device for miners' lamps comprising the combination with the body of the lamp and a receptacle constituting a reservoir extending in the lamp-body and provided with notches at the upper part thereof, of a casing secured to and extending at right angles with respect to the body of the lamp, a fluid-operated piston arranged within the cylinder and having a depending projection adapted to engage in the notches of the receptacle, a spring acting on the piston for causing the projection thereof to engage in said notches, and means for separating the said projection from the notches of the base.

2. A safety closing device for miners' lamps comprising the combination with the lamp-body having the chamber communicating with a motive-fluid supply, and a receptacle constituting a reservoir adapted to be detachably secured in said body and provided with notches, of a cylinder arranged within the body of the lamp, extending at right angles with respect thereto and communicating with the chamber of the lamp-body, a piston arranged within said cylinder and having a depending projection adapted to engage in the notches of the receptacle, a spring acting on the piston for causing the projection thereof to engage in the notches of the receptacle.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALEXANDRE LÉONARD TOMBELAINE.

Witnesses:

L. MOUNIER, (LOUIS JEAN,)

E. MORGAV, (EMILE.)