No. 617,872. Patented Jan. 17, 1899.

W. BEST.

MINER'S SAFETY LAMP.

(Application filed Mar. 24, 1898.)

(No Model.)

FIG. 1.

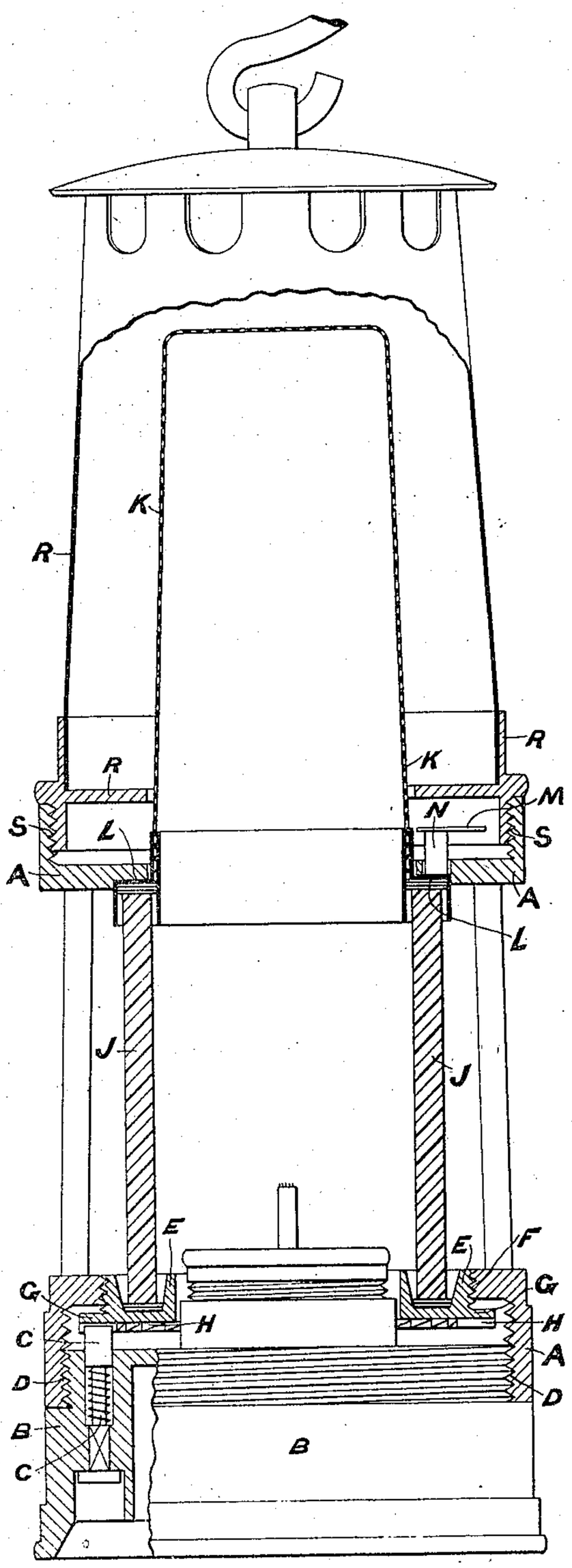


FIG. 2.

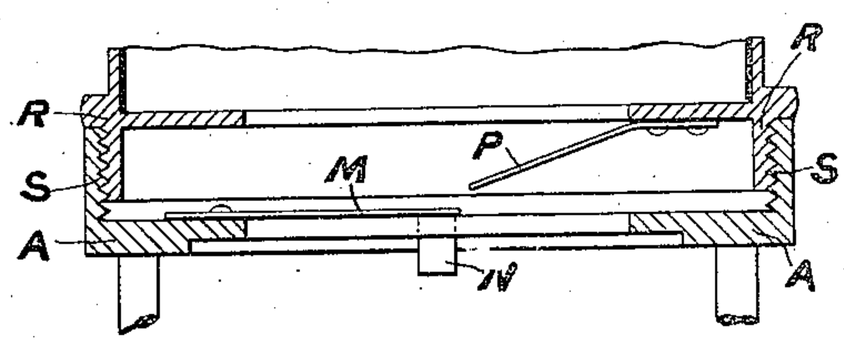


FIG. 3.

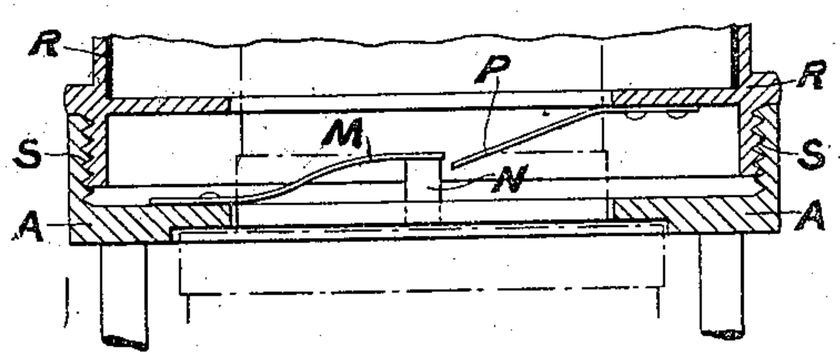


FIG. 4.

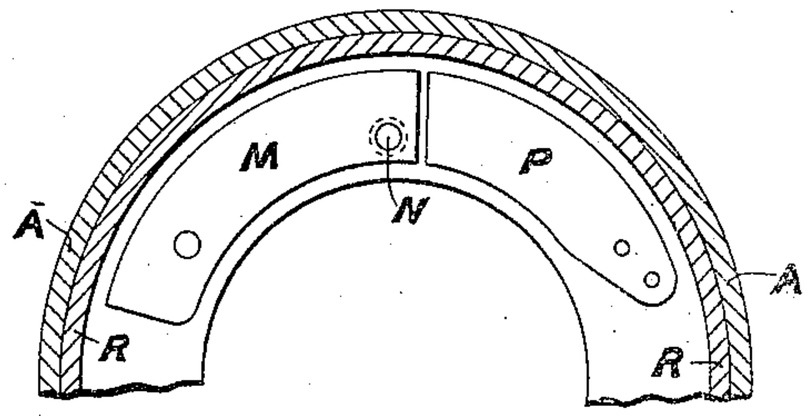
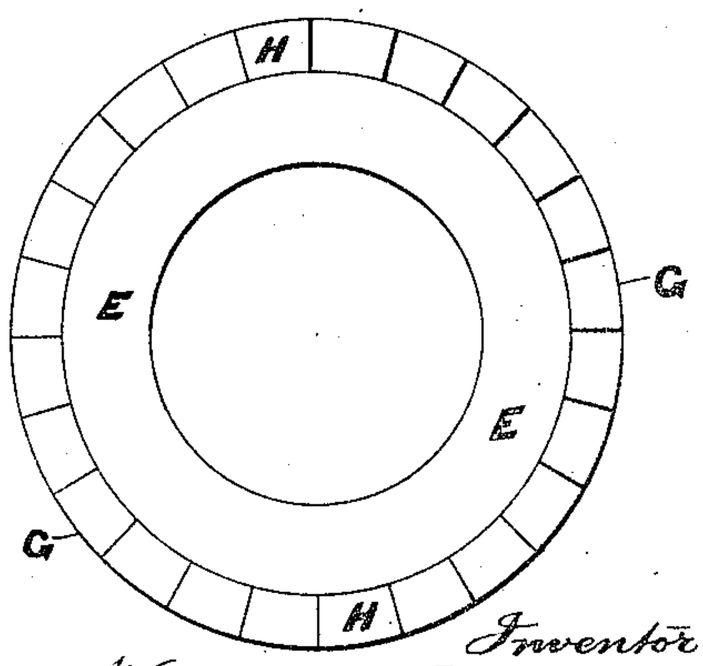


FIG. 5.



Witnesses
Chas. H. Smith
J. Stair.

Inventor
William Best
per L. W. Serrell & Son
Attys

UNITED STATES PATENT OFFICE.

WILLIAM BEST, OF MORLEY, ENGLAND, ASSIGNOR TO THE ACKROYD & BEST, LIMITED, OF SAME PLACE.

MINER'S SAFETY-LAMP.

SPECIFICATION forming part of Letters Patent No. 617,872, dated January 17, 1899.

Application filed March 24, 1898. Serial No. 674,990. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BEST, a subject of the Queen of Great Britain and Ireland, and a resident of Morley, near Leeds, in the county of York, England, have invented certain new and useful Improvement in Miners' Safety-Lamps, of which the following is a specification.

It is the custom for all miners' lamps to be delivered into the lamp-room for cleaning purposes after they have been employed in the mine; but when the lamp is again returned to the miner ready lighted and locked he has no guarantee that the lamp has been properly attended to. If the lamp-cleaner is negligent in his duty, he may simply remove the lamp-bottom and clean the interior of the lamp without taking out the gauze, or the lamp may be closed after cleaning without having a gauze in it at all. Faults of this description cannot be detected by the miner, and this negligence has often been the cause of disastrous explosions.

Now the object of this invention is to prevent explosions being caused in mines through the negligence of the lamp-cleaner or other person cleaning the lamps or through any attempt on the part of the miner to loose the glass, and with this object I construct a lamp as shown in the accompanying drawings, wherein—

Figure 1 is a sectional elevation of same, and Figs. 2, 3, 4, and 5 are detail views.

The general structure of the lower part of the lamp is as follows: A is the lamp-frame, and B is the lamp-bottom or oil-container, which is provided with a spring-bolt C only capable of being withdrawn by means of a powerful magnet. The lamp-bottom B screws into the lamp-frame A by means of a right-hand screw-thread D. E is a ring for receiving the base of the glass J. This ring E screws into the lamp-frame by means of a left-hand thread F, and the base of the ring E is provided with a flange G, on the under side of which are situated rack-teeth H (see inverted plan view Fig. 5) for engaging with the locking-bolt C.

The particular arrangements of the upper part of the lamp characterizing the invention and whereby the screw of the outer cover or "bonnet" R may be fastened after the base of the lamp is locked and whereby the bonnet R cannot be unfastened until the base of the lamp is unlocked are as follows: The upper edge of the lamp-glass J bears against a shoulder L formed upon the lower edge of the gauze cover K. M is a spring which is attached to the lamp-frame A, and N is a stud which is attached to the end of the spring M and passes through a hole in the lamp-frame A. P is a spring which is fastened to the under side of the bonnet R, which latter is connected to the lamp-frame A by means of the screw-thread S.

When the ring E is screwed tightly home, the glass J holds the shoulder L of the gauze K firmly up against its seat in the lamp-frame A, the said shoulder in its turn holding up the stud N, as shown at Fig. 3 and plan view Fig. 4, and so keeping the spring M in a position to engage with the spring P, as seen at Fig. 3. The lamp-bottom B can now be screwed into position, the bolt C running around over the rack-teeth H until the said lamp-bottom B is screwed securely home. Any attempt to unscrew the lamp-bottom B without first withdrawing the bolt only tends to tighten the parts more firmly in position owing to the reverse direction of the screw-threads F and D. When the lamp is handed to the miner in this condition—viz., with the lamp-base locked, but with the bonnet R removed—the miner or inspector can only examine the gauze and they cannot tamper with the lamp. When the examination of the gauze K has been made, the bonnet R is screwed firmly home until the spring P takes behind the spring M, and the bonnet is thus firmly locked until the spring M resumes the position shown at Fig. 2, which cannot take place until the lamp is taken to pieces in the lamp-room.

Thus according to my invention the lamp-bonnet R may be screwed on and off from the lamp-frame, to which it can be locked by the spring-catch M, the said catch-spring M only being brought into action when the glass J and the gauze K are pressed firmly in position by means of the ring E. This enables the lamp to be handed to the miner with the gauze, glass, and glass-holding ring fastened in position and with the lamp-base already

locked, while the bonnet can be handed separately to the miner, or it can be screwed loosely on the frame, but not far enough for the spring-catch M to engage and lock the said bonnet R. The miner can thus take off the bonnet R and see that the gauze K is in position and clean, and the inspector can repeat the examination and then screw the bonnet up until the spring-lock P engages with the spring M in the lamp-frame, thus firmly locking the bonnet R, which cannot be again opened until the lamp-bottom B is unlocked in the lamp-room. The lamp-cleaner is obliged to remove the gauze K and glass J in order to remove the bonnet R, thus preventing the possibility of his simply cleaning the interior of the gauze K with a brush, so as to save himself the trouble of removing the glass-holding ring E. If the gauze is not properly cleaned or if it has been omitted, the neglect is at once detected by the miner or the inspector.

I am aware that a screw-off bonnet is not new and also that it is not new to have a screw-off bonnet that may be fastened by a lead plug or other separate lock. Neither is it new to employ a screw-off bonnet that may be fastened by a locking arrangement that locks the lamp-bottom at the same time; but it is entirely new to have a screw-off bonnet that may be fastened after the lamp is locked and that cannot be unfastened until the lamp itself is unlocked in the lamp-room.

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

1. In a miner's safety-lamp having a screw-off bonnet, a spring-catch for locking the bonnet, the said spring-catch being brought into an acting position on the closing of the lamp, substantially as set forth.

2. In a miner's safety-lamp having a screw-off bonnet, the spring-stop M brought into the acting position by the flange L of the gauze K on the raising of the glass J when locking the lamp, in combination with the spring-catch P on the bonnet R, substantially as set forth.

3. In a miner's safety-lamp having a screw-off bonnet, a spring-catch P situated on the under side of the bonnet R, in combination with a spring-stop M having a stud N the latter being actuated by the raising of the glass J on the lamp being closed, substantially as set forth.

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

WILLIAM BEST.

Witnesses:
GRIFFITH BREWER,
F. W. BARRACLOUGH.