

No. 622,076.

Patented Mar. 28, 1899.

H. J. RICHARDS.

MINER'S LAMP.

(Application filed Mar. 8, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

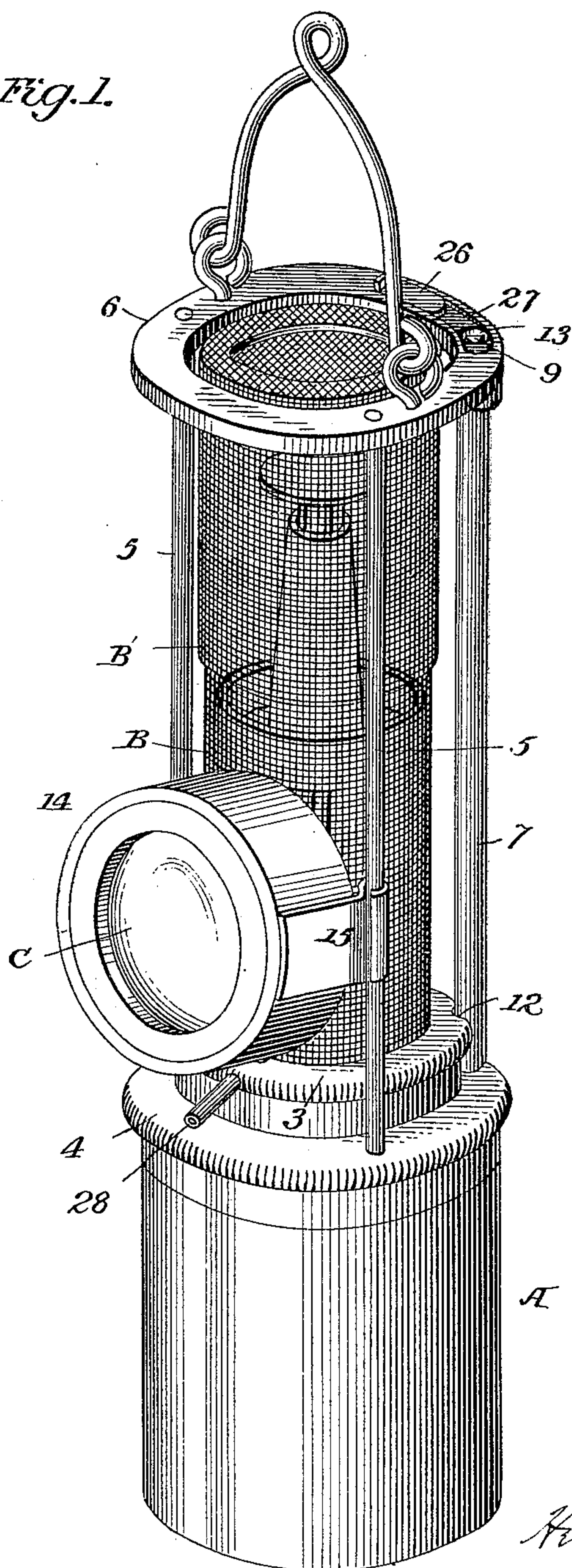
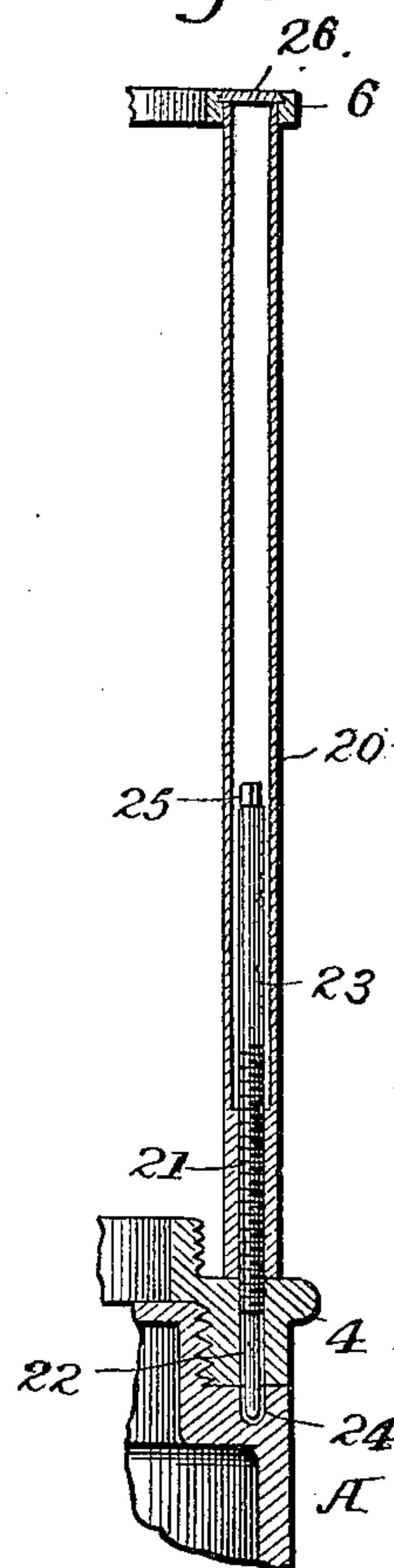


Fig. 5.



Witnesses

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2 Sheets—Sheet 2.

Fig. 2.

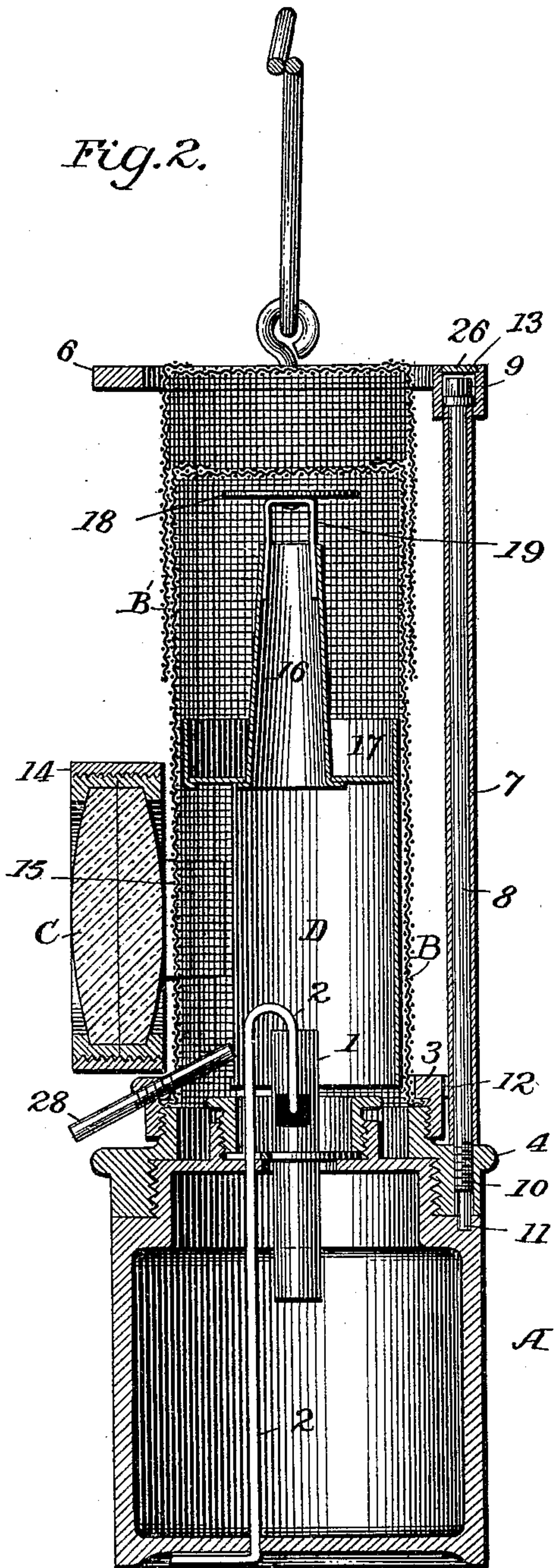


Fig. 3.

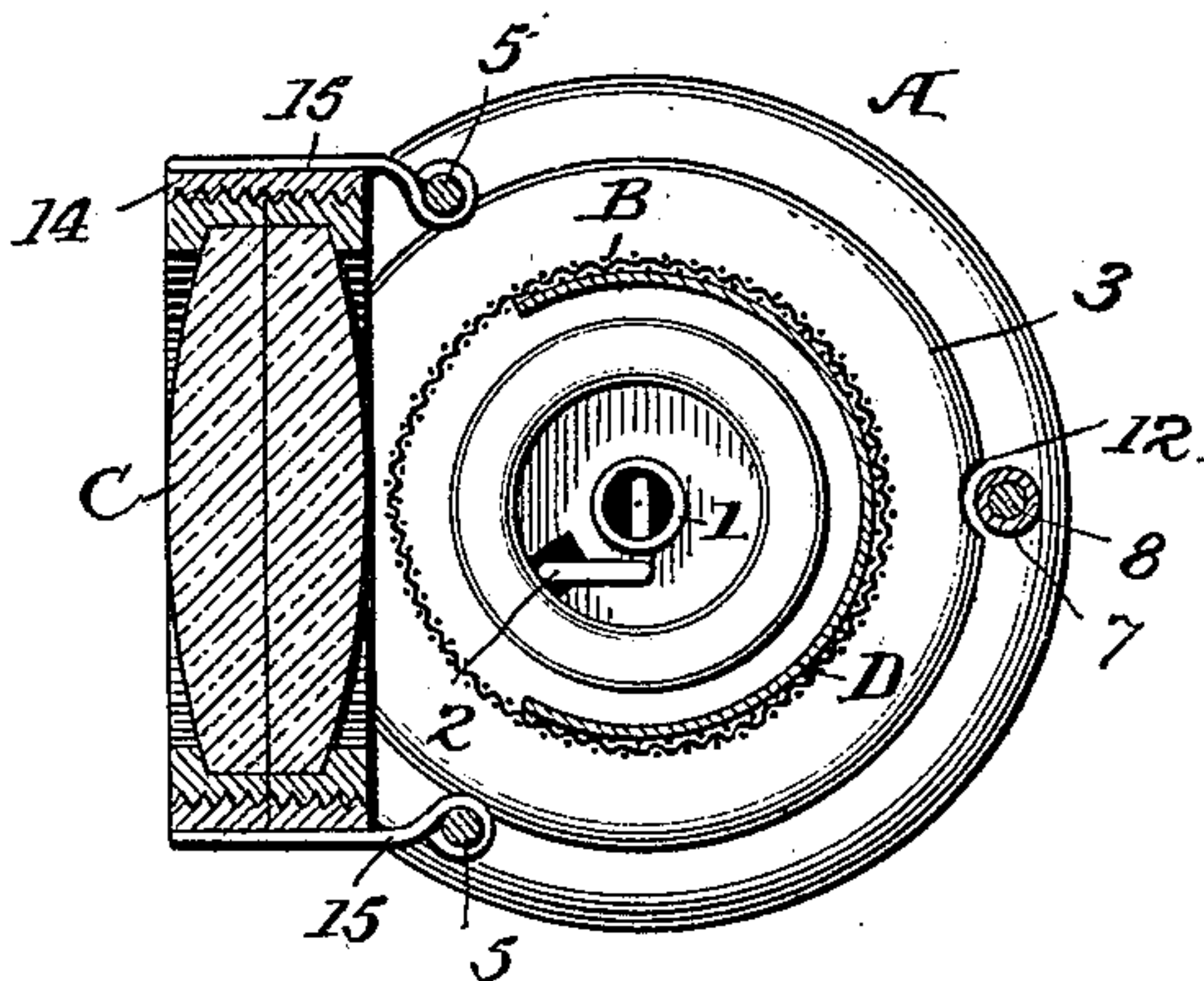
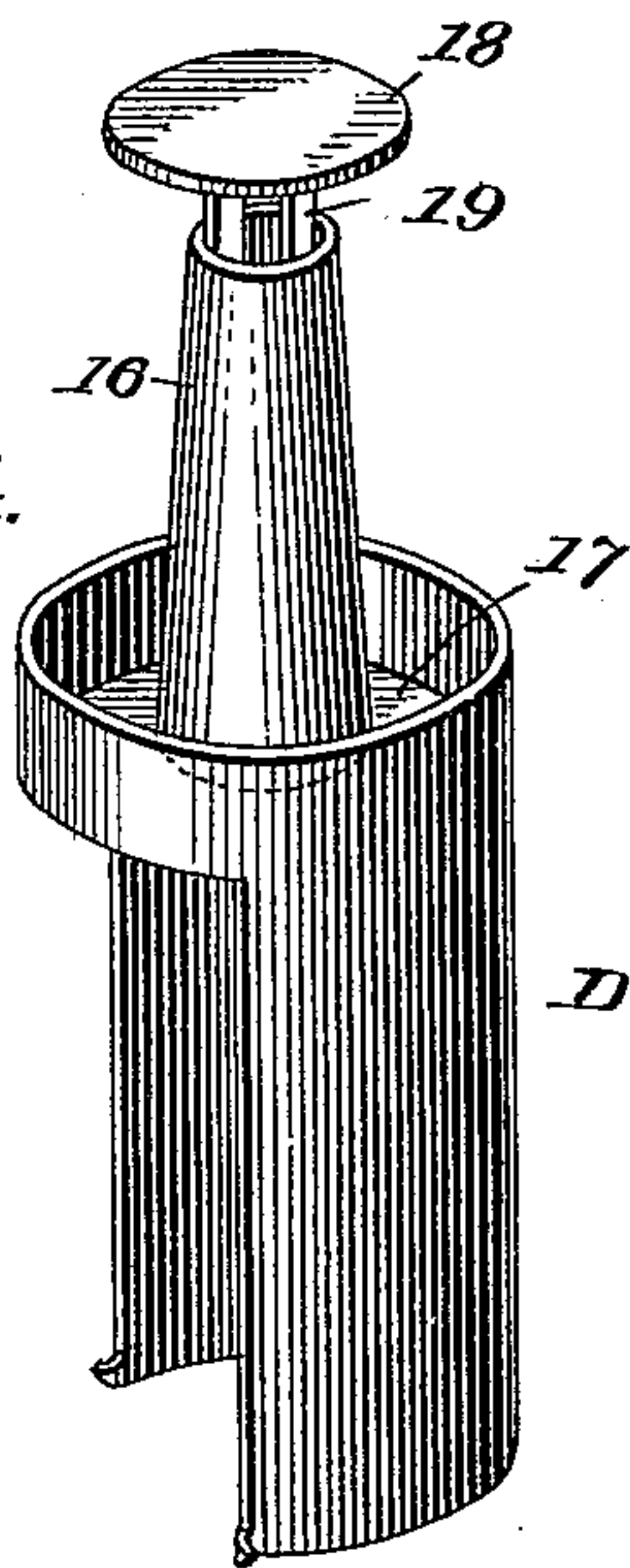


Fig. 4.



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# UNITED STATES PATENT OFFICE.

HENRY J. RICHARDS, OF WILKES-BARRÉ, PENNSYLVANIA, ASSIGNOR OF  
ONE-HALF TO JOHN F. SHEA, OF SAME PLACE.

## MINER'S LAMP.

SPECIFICATION forming part of Letters Patent No. 622,076, dated March 28, 1899.

Application filed March 8, 1898. Serial No. 673,031. (No model.)

*To all whom it may concern.*

Be it known that I, HENRY J. RICHARDS, a citizen of the United States, residing at Wilkes-Barré, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Miners' Lamps, of which the following is a specification.

My invention consists in certain improvements in miners' lamps, which are hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved lamp. Fig. 2 is a vertical sectional view taken through the axis of the lens. Fig. 3 is a horizontal sectional view taken through the axis of the lens. Fig. 4 is a view of the reflector and hood detached, and Fig. 5 is a view of a modified form of locking device.

Referring to the drawings, A indicates the oil-chamber, and B the gauze tube, said tube being provided with a gauze cap B' at the top. Connected with the oil-cup are the usual wick-tube 1 and the wick-raiser 2. At its lower end the gauze tube is connected to a ring 3, which ring is connected by a threaded joint with a larger ring 4, which screws onto the oil-cup. Surrounding and protecting the gauze tube is a frame consisting, as shown, of a pair of bars 5, fastened to the ring 4 at their lower ends and also rigidly fastened at their upper ends to a ring 6, substantially as high as the top of the gauze tube. The third bar 7 is used to connect the rings 4 and 6 and also constructed to form a locking device, whereby all the parts of the lamp are locked to the oil-cup and tampering with the flame in the absence of the key is rendered impossible. As shown in Figs. 1 and 2, the locking device consists of the tube 7, extending between the rings 4 and 6, and a rod 8, having a head 9, constructed to be turned by a key, and a threaded portion 10, fitting a threaded opening in the ring 4. The rod 8 also has a projecting end 11, extending beyond the threaded portion and into a recess in the oil-cup A, Fig. 2.

In assembling the parts the tube 7 is placed between the rings 4 and 6 and the rod 8 passed down through the rings and the tube, its lower end screwing into the ring 4 and ex-

tending into the recess of the oil-cup after the rings 3 and 4 are screwed tightly into place, all as shown in Fig. 2. The tube 7 engages a notch 12 in the ring 3, thus preventing said ring from turning. The head 9 fits into a socket 13 in the ring 6. It will be evident that when the parts are assembled and locked, as above described, it will be impossible to remove the gauze tube which is clamped between the rings 3 and 4 and also impossible to detach the oil-cup from ring 4, for the reason that the rings 3 and 4 are prevented from turning relatively to the oil-cup.

A lens C is mounted in a suitable frame 14, which is carried by arms 15, sliding on the rods 5. The lens is vertically adjustable, so that it can be adjusted to the flame of the lamp or raised away from the flame. When it is desired to concentrate the light in any particular direction, the lens is used to direct the light. When it is desired to disperse the light over a greater area, the lens may be raised above the flame. Any suitable form of lens may be used. It should be noted that the lens is entirely outside of the wire tube and breakage of the lens will not admit gas to the flame.

I also provide a reflector D, preferably in the form of a semicylinder, located within the gauze tube and having its open side directed toward the lens, as shown in Figs. 2 and 3. This reflector may be constructed of tin, brass, mica, or other suitable material. Above the reflector is a chimney 16, having a lower flange 17, which forms a top to the reflector. Above the chimney is a plate 18, adapted to disperse the current of heated gas from the flame and prevent it from burning out the top of the gauze tube. The chimney creates a draft, which brings oxygen to the flame and also carries off any smoke and prevents it from smutting the reflector. As shown, the plate 18 is circular and is supported on suitable legs 19.

As shown in Fig. 5, the modified locking device consists of a tube 20, which may be rigidly connected to the ring 6. The lower end of the tube is internally threaded at 21, and the ring 4 has a corresponding threaded opening 22. The lock consists of a threaded rod 23, which screws into the threaded open-



ings 21 and 22, connecting the parts 4 and 20 rigidly together. The lower end of the rod 23 fits a socket 24 in the cup A, while the upper end 25 is of square or other polygonal section adapted to be engaged by a key. The rod 23 is much shorter than the tube 20, and hence the lock cannot be opened except by a long-stemmed key. To further protect the lock and prevent dirt from getting into the tube 20, a suitable cover is provided for the upper end of the tube. This cover may be of any suitable form. A curved plate 26, sliding in a suitable undercut groove 27, may be used for the purpose, as shown in Figs. 1 and 6.

In Figs. 1 and 2 I have shown an igniter 28 inserted in the ring 3. This is preferable to the usual igniter extending up through the oil-cup, as it is not likely to come in contact with the oil.

What I claim is—

1. In a safety-lamp, the combination with the oil-cup and the gauze tube, of the ring 3 to which the tube is connected, said ring being provided with a notch 12, the ring 4 between the ring 3 and the oil-cup, the tube engaging the notch 12 and resting on the ring 4 and the locking-rod within the tube, said rod having a threaded portion engaging

the ring 4 and an extension engaging a socket in the oil-cup, substantially as described.

2. In a safety-lamp, the combination with the oil-cup and gauze tube, of the rings 4 and 6, the intermediate tube and the rod within the tube having a threaded connection with the ring 4, the upper end of said rod being wholly within the tube and adapted to be engaged by a key, substantially as described.

3. In a safety-lamp, the combination with the oil-cup and the gauze tube, of the rings 4 and 6, the intermediate tube, and the rod within the tube having a threaded connection with the tube and with the ring 4 and engaging a socket in the oil-cup, substantially as described.

4. In a safety-lamp, the combination of the oil-cup and the gauze tube, of a reflector within the tube, a chimney supported on the reflector, and a plate over the chimney adapted to disperse the heated products of combustion, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY J. RICHARDS.

Witnesses:

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N. R. JORDAN.