

M. A. LYNCH.

Lamp-Lighting Apparatus.

No. 157,098.

Patented Nov. 24, 1874.

Fig. 1.

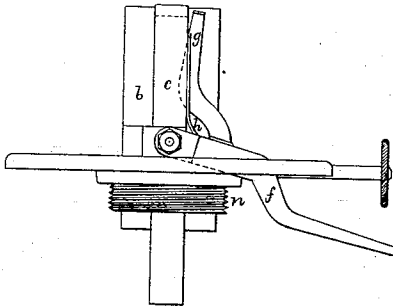


Fig. 4.

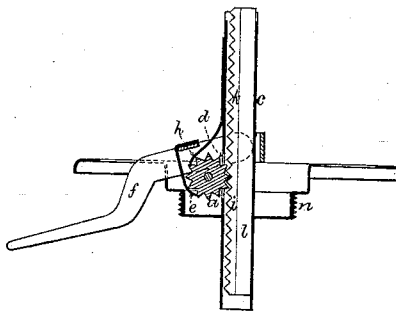


Fig. 2.

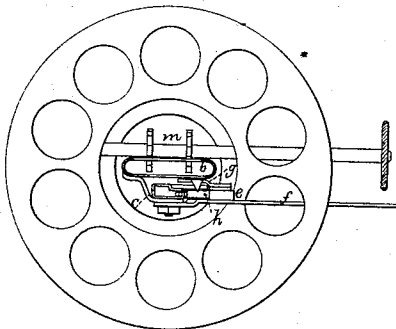


Fig. 3.

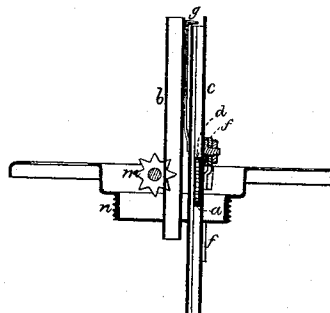


Fig. 5.

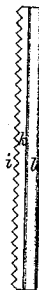


Fig. 6.



Witnesses.
S. W. Piper.
S. W. Miller.

Michael A. Lynch.
by his attorney.
R. W. Eddy.

UNITED STATES PATENT OFFICE.

MICHAEL A. LYNCH, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN LAMP-LIGHTING APPARATUS.

Specification forming part of Letters Patent No. **157,098**, dated November 24, 1874; application filed November 9, 1874.

To all whom it may concern:

Be it known that I, MICHAEL A. LYNCH, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Lighting Apparatus for Lamps; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a side elevation, Fig. 2 a top view, Fig. 3 a transverse section, of a kerosene-burner, wick-tube, and fuse-tube supplied with my improved lighting apparatus. Fig. 4 is a longitudinal section taken through the fuse-tube and the toothed-wheel fuse-elevator. Fig. 5 is a side elevation, and Fig. 6 a top view, of the fuse.

The lighting apparatus shown in such drawings is somewhat analogous to that represented and described in the United States Patent No. 126,640, granted to the assignees of William A. Leonard. Instead of elevating the fuse by a pivoted fuse-elevator or finger alone, such as used by said Leonard, I employ a star-pointed or toothed wheel, *a*, pivoted to an ear projecting from the side of the fuse-tube *c*, and extended into the said tube through an opening, *d*, in its edge; and with this gear or toothed wheel I employ a spring impelling-pawl, *e*, extended, as represented, from the lever *f*, which carries the striker or fuse-discharger *g*, arranged to project from it, as shown. From the edge of the fuse-tube I project upon the periphery of the toothed wheel a spring or retaining pawl, *h*, the same being to prevent back movement of the wheel, and, as a consequence, the dropping of the fuse downward in the fuse-tube. The said fuse (shown in side view in Fig. 5) I serrate on and along its edge next the wheel, or provide it with a row of teeth, as shown at *i*, to engage with the elevator or toothed wheel *a*. The fuse consists of a strip of pyroxyline, *k*, and a tongue or fillet, *l*, of friction-match composition arranged lengthwise upon it. On taking hold of the tail of the lever *f* and moving it downward the ratchet or gear will be partially revolved, and, acting upon the fuse, will elevate it a short distance, so as to cause it to project a like extent above the top of the fuse-tube. On next raising the lever the wheel

a will remain at rest, and will be held so by the retaining-pawl, and the discharger will be moved across and against the match composition of the fuse. In so doing it will cause ignition of the composition, whereby the fuse will be fired and will inflame the wick. The wick-elevator is shown at *m*, and the screw-cap of the burner at *n*, the cone and its foraminous base or supporter not being represented.

It has been found that a single-pointed fuse-elevator is uncertain in its action, or will slip on the fuse without elevating it; but the wheel-elevator, having teeth all around its circumference, always bears in contact with the fuse, and has only one rotary intermittent movement, whereas the pointed spring has to slide back on the fuse preparatory to being moved upward to advance the fuse. This sliding back of the elevator is apt to injure the fuse, so as to render it liable to remain at rest during the next upward movement of the lever. The advantage of the gear-wheel having teeth all around its circumference over a single-toothed wheel is, that the tooth of the latter is in contact with the fuse only while elevating it, but is out of contact therewith while the fuse is being ignited. Therefore, the single-tooth wheel will not operate to hold the fuse stationary, as does the gear *a*, which also performs the function of raising the fuse.

By having the teeth on the edge of the fuse, independently of the friction composition, the latter is not as liable to be ignited by the wheel or propeller of the fuse as it is when the friction composition is indented and works in contact with the propelling device. Furthermore, another advantage of the teeth bearing on the edge of the strip, and not in the fillet of match composition, is that it admits of the wheel and the operative lever being arranged to better advantage with the tube. I would also remark that, in my arrangement of parts, the retaining-pawl *h* does not press against the fuse to impede its upward motion, or force it against the elevator-wheel, so as to endanger the fuse being set on fire by the friction of the wheel or pawl. The pawl *h* acts directly and only against the wheel, which, with the pawl, sustains the fuse, the wheel being entirely insulated from the match composition of the fuse.

What, therefore, I claim in the lamp-lighting apparatus described is—

1. The fuse having its tooth or serrations arranged on its edge and independently of the fillet *l* of match composition, all being as specified.

2. The combination of fuse-tube *c*, the fuse elevating and supporting wheel *a*, the elastic retaining-pawl *d*, the impelling-pawl *e*, and the

lever *f*, constructed and arranged as set forth, for supporting and operating the fuse, having its serrations arranged on its edge, independently of the fillet or match composition, all substantially as specified.

MICHAEL A. LYNCH.

Witnesses:

R. H. EDDY,
J. R. SNOW.