(No Model.)

# R. TELSCHOW.

## ILLUMINATING APPARATUS FOR DENTAL PURPOSES.

No. 274,671. Patented Mar. 27, 1883.

*Fig: 1.*

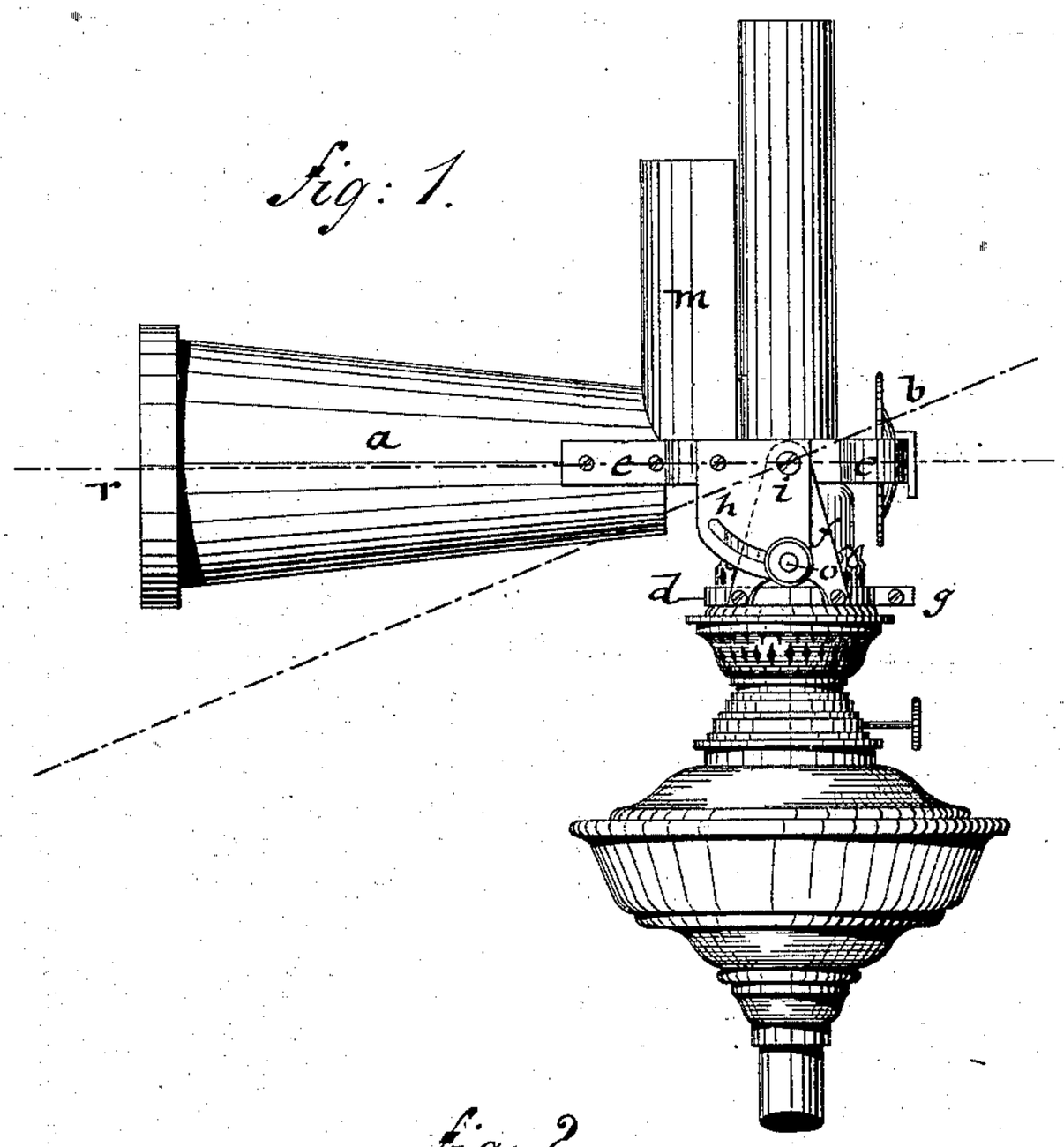



*Fig: 2.*

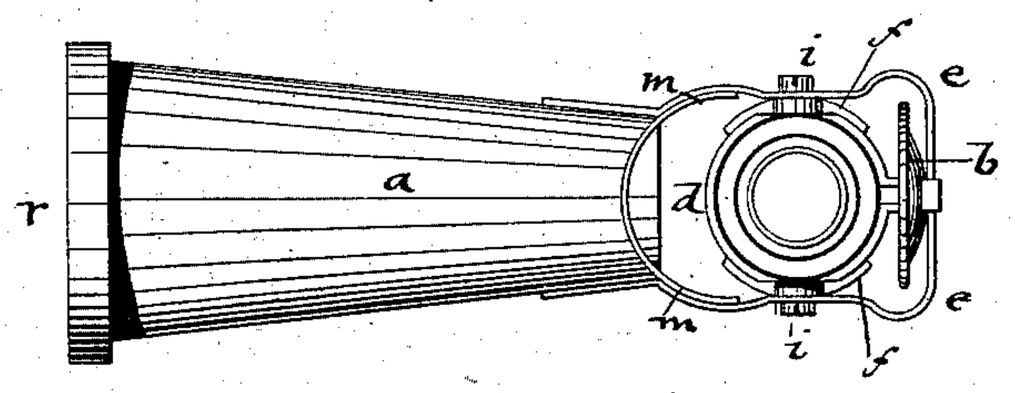
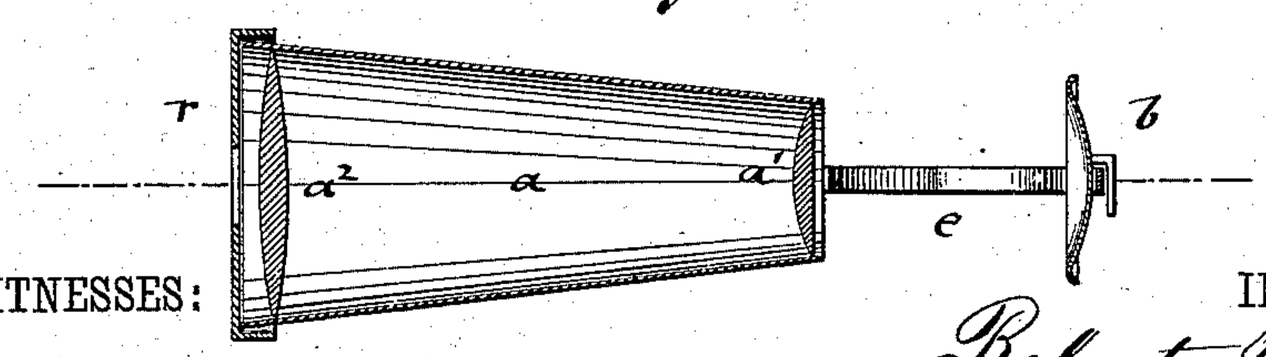



*Fig: 3.*

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## ILLUMINATING APPARATUS FOR DENTAL PURPOSES.

SPECIFICATION forming part of Letters Patent No. 274,671, dated March 27, 1883.

Application filed February 14, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT TELSCHOW, of the city of Berlin, Prussia, German Empire, have invented certain new and useful Improvements in Illuminating Apparatus for Dental Purposes, of which the following is a specification.

This invention relates to an improved illuminating device for dentists, which can be readily attached to any lamp without annoyance to the operator or patient, and which admits the light to be thrown to any desired point.

The invention consists of a tube provided with a biconvex lens at one end and a plano-convex lens at the opposite end, which tube is pivoted to standards of a circular frame that is applied to the lamp and horizontally adjustable thereon. A reflector is arranged in line with the axis of the tube at the opposite side of the lamp, and above the tube a shade.

In the accompanying drawings, Figure 1 represents a side elevation of a lamp with my improved illuminating device for dental purposes. Fig. 2 is a plan of the same, and Fig. 3 a vertical section of the tube and reflector.

Similar letters of reference indicate corresponding parts.

The illuminating device consists of a tube, *a*, which is provided at the inner end, near the lamp, with a plano-convex lens, *a'*, and at the outer with a biconvex lens, $a^2$. This tube is connected by a U-shaped horizontal frame, *e*, that extends around the chimney of the lamp, with upright standards *f* of a supporting-frame, *d*, of ring shape, that is tightly clamped by a set-screw, *g*, to the lamp-burner. The U-shaped supporting-frame *e* is pivoted at *i i* to the standards *f*, so that the tube *a* can be set adjusted to different inclinations to a horizontal line. A reflector, *b*, is secured to the U-shaped frame in line with the axis of the tube *a*, but at the opposite side of the lamp. The tube *a* is rigidly secured in position by means of a slotted arm, *h*, and set-screw *o*. (Shown in Fig. 1.) The tube *a* is furthermore provided with a shade, *m*, that is also secured to the frame *e*. As the flame is located intermediately between the reflector and the plano-convex lens of the tube *a*, the rays of light are thrown by the reflector through the lens *a'*, the flat side of which faces the flame, and then through the biconvex lens $a^2$, and from the same, in the form of a cone of light, to the point to be illuminated. As the reflector *b* and tube *a* are adjusted together, it is obvious that the light can be thrown on any desired point, so that adjoining points are not illuminated. The shade *m* serves to protect the operator and patient from the illuminating-rays of light emitted by the flame. If the light is to be concentrated, the end of the tube *a* is covered by a cap, *r*, having a central light-emitting aperture.

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

1. An illuminating apparatus for dental purposes, consisting of a tube having a biconvex and a plano-convex lens, a reflector arranged in line with the axis of the tube at the opposite side of the lamp, and means whereby the tube and reflector are secured for vertical and horizontal adjustment on the lamp, substantially as set forth.

2. An illuminating apparatus for dental purposes, consisting of a light-emitting tube, *a*, having lenses *a'* $a^2$, a pivoted frame, *e*, a reflector, *b*, arranged in line with the axis of the tube at the opposite end of the frame *e*, a shade, *m*, and means whereby the tube, shade, and reflector are secured in vertically and horizontally adjustable manner to the lamp, substantially as specified.

3. The combination of the tube *a*, having lenses *a'* $a^2$, pivoted connecting-frame *e*, reflector *b*, arranged in line with the axis of the tube *a* at the opposite side of the frame *e*, means for applying the tube and reflector for horizontal adjustment to the lamp, and means for adjusting the tube and reflector vertically to different inclinations, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT TELSCHOW.

Witnesses:

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GERARD W. VON NAWROCKI.