

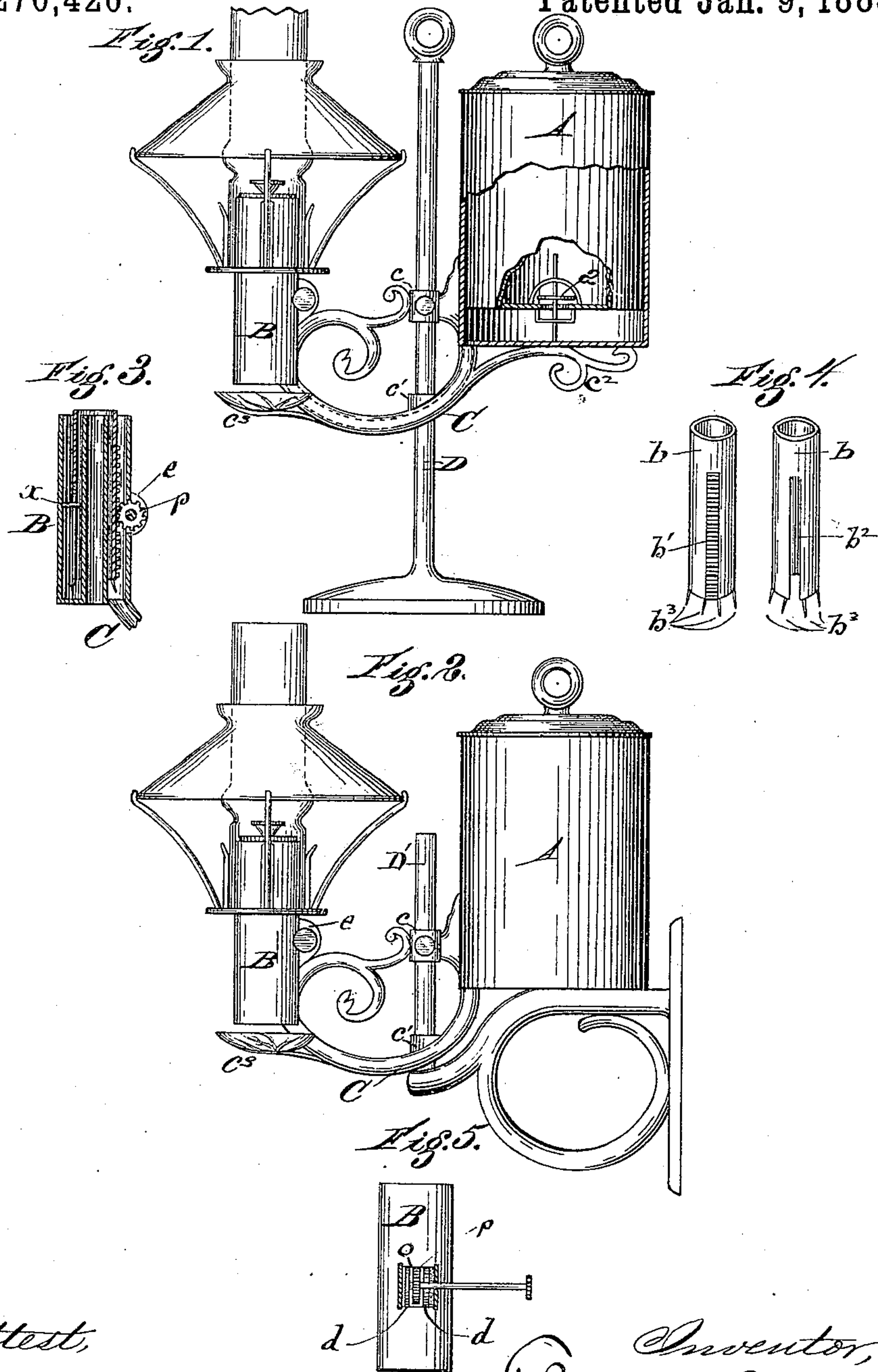
(No Model.)

T. W. GRAYDON.

LAMP.

No. 270,420.

Patented Jan. 9, 1883.



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UNITED STATES PATENT OFFICE.

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LAMP.

SPECIFICATION forming part of Letters Patent No. 270,420, dated January 9, 1883.

Application filed November 9, 1882. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. GRAYDON, a citizen of the United States, residing at Cincinnati, Ohio, have invented new and useful Improvements in Lamps, of which the following is a specification.

My invention relates to that class of lamps for burning "carbon" or "coal" oils, usually known as "German student-lamps," its object being to improve the construction and efficiency and economize their cost of manufacture; and to this end it consists in the construction and provision of a frame connecting the oil-reservoir and wick-tube, in the construction and arrangement of the wick-holding devices and regulating mechanism, and other features, as more fully hereinafter described, and as illustrated in the drawings, in which—

Figure 1 is a side elevation of my improved lamp complete, with the oil-reservoir partly sectioned. Fig. 2 is a side elevation of the wall-bracket, showing the lamp in position thereon. Fig. 3 is an axial section of the wick-tube and wick-carrier with elevating devices in position. Fig. 4 exhibits front and rear elevations of the wick-carrier detached, showing the guide and rack, respectively; Fig. 5, a rear view of the wick-tube and wick-regulating mechanism.

Referring to the drawings, in which the parts described are indicated by letters of reference, A designates the oil-reservoir; B, the wick-tube, and C the oil-pipe, which in my improved lamp constitutes part of the frame connecting the two and supporting the lamp upon the standard, as more fully hereinafter described.

D is the standard by which the lamp is supported and carried from place to place.

The oil-reservoir A is of substantially the usual construction—that is, cylindrical, with a removable oil-cup perforated at the bottom, and provided with a stem-valve, *a*, covering the aperture and operating in the usual manner, to be opened by the insertion of the oil-cup, inverted, into the reservoir. It is a common practice in such lamps to connect the reservoir A and wick-tube B by a straight metal tube enlarged midway for the passage of the standard D through a suitably-formed collar. It is obvious that this construction, besides being objectionable in point of artistic design, also affords an insufficient lateral support to the

parts connected. For this objectionable construction I substitute a frame preferably in scroll form, (which forms the basis for suitable ornamentation,) of which the oil-tube C forms the lower curve, and continued above to connect with the collar *c*, forming the sliding bearing for the standard D, and thence beyond the same to connect with and give lateral support to the reservoir A. The pipe C is carried to one side of the standard D, and a strap or loop, *c'*, is soldered thereto to give an additional sliding bearing upon the standard. In rear of the standard an arm, *c²*, projects rearward beneath and as a support to the oil-reservoir, and in front of the standard the drip-cup *c³* is projected forward as an arm of the frame beneath the wick-tube. The collar *c* is provided with the usual set-screw for retaining the lamp at a desired elevation upon the standard.

As thus constructed it will be seen that the principal parts of the lamp are securely connected by a frame of sufficient depth to have a long bearing (or two bearings at a considerable distance apart) upon the standard, and also to afford secure lateral and vertical support to the wick-tube and oil-reservoir, all of which is accomplished without forming any greater or perhaps less of an obstruction to the downward-reflected rays of light than the ordinary construction. A further connection of the frame with the wick-tube will be referred to in connection with the wick-elevating devices.

The wick-tube *b* is annular, closed at the bottom, excepting at the connection with the tube C, and wholly open at the top, with a central opening extending vertically throughout. The wick is carried upon an open cylinder, *b*, of sheet metal, fitting around the inner cylindrical wall of the annular wick-tube. At one side of the wick-carrier is a line of cog-teeth, *b'*, constituting a rack for the elevation and depression of the carrier by direct application of a spur-pinion, *p*, mounted upon a shaft, *s*, provided with a thumb-wheel, as is usual. At the side of the wick-carrier *b* opposite the rack *b'* is a vertical slot, *b²*, which guides the carrier upon a pin, *x*, projecting radially from the inner wall of the annular wick-tube, and assists the proper adjustment of the carrier when placed in position after removal. At

the bottom of the carrier are soldered downwardly-projecting pins b^3 , upon which the wick is secured at the lower end.

The wick used may be either a continuous cylindrical wick split in an axial flame a sufficient distance upward from the bottom to straddle the slot b^2 at one side and the rack b' at the other, or two flat wicks placed edge to edge around the carrier and secured thereto by threads placed around the same above the rack and slot. In either case the wick is secured by the pins b^3 at the lower ends by drawing it upward over and upon the pins.

The pinion-shaft is mounted in two pillow-blocks or abutments, d , soldered or otherwise secured exteriorly to the wick-tube at the sides of a suitable opening, o . The pinion p is secured to the shaft between the abutments, and operates upon the rack of the carrier through the opening of the wick-tube. A tight casing, e , is then soldered or secured upon the wick-tube covering the shaft-bearings and pinion, with the shaft projecting through the same at one side, between which side and the adjacent shaft-abutment, and embracing the shaft, is placed a washer, w , of leather or other suitable material to constitute a packing against possible leakage. The casing e thus described, when soldered to its position, fills in the angle between the upper curved portion of the connecting-frame and the wick-tube B, and thus practically constitutes part of the frame and extends the rigid connection of the wick-tube therewith through a considerable part of its length, and assists the strength and security of the connection between the oil-reservoir and wick-tube.

The entire frame connecting the oil-reservoir and wick-tube may be cast as one piece, leaving the oil-pipe C and pinion-casing e to be afterward attached thereto or inserted therein; or it may include these parts as well; or the frame may be made up of various parts, according to convenience, and afterward soldered or otherwise secured together and to the reservoir and wick-tube, constituting, when so attached, a substantially-continuous supporting-frame, as described.

The standard D is of the usual construction, being preferably a metal rod secured in a solid or weighted base, by which the entire lamp is supported. The lamp may, however, be removed from the portable standard and mounted upon the wall-bracket shown in Fig. 2, with standard D'.

I am aware that the application of a rack and pinion, broadly, is not new in Argand lamps; but the application usually involves a tongue-rack depending from the wick-carrier, which, besides being generally defective in op-

eration, also (as in the case of the spiral-screw elevator) involves an extension of the wick-tube downward or the construction of a separate chamber, all of which is expensive and troublesome to make or use. By the direct application of these devices in the manner herein described and shown, I obtain a more accurate adjustment of the wick, besides a much simpler and less expensive construction of the parts, which are also far less likely to get out of order in use.

I claim as new and desire to secure by Letters Patent--

1. In a student-lamp of the character described, a frame connecting the oil-reservoir and wick-tube, having an extension vertically to give a long bearing upon the supporting-standard and side and bottom bearings upon the wick-tube and oil-reservoir, substantially as specified.

2. In a student-lamp of the kind described, the tube C as part of the frame connecting the reservoir and oil-tube, provided with extensions c c^2 c^3 , substantially as and for the purpose specified.

3. In combination with the annular wick-tube of an Argand lamp-burner, a cylindrical wick-carrier carrying a wick secured exteriorly thereto, adapted to embrace and be guided upon the inner shell of the wick-tube, and provided with a rack secured directly to said carrier, and arranged to be operated vertically by a pinion operating through the outer wall of the wick-tube, as set forth.

4. In combination with the annular wick-tube B, the open cylinder b , fitting upon the inner shell of the wick-tube, provided with a rack, b' , for the operation of the elevating-pinion, and a vertical slot, b^2 , for guiding upon a pin projecting radially from the inner shell of the wick-tube, and adapted to carry a circular wick secured upon said carrier exteriorly, substantially as set forth.

5. In an Argand lamp-burner, a cylindrical wick-carrier provided with pins or pointed extensions of its lower edge, approximately parallel to its axis for holding the wick, substantially as set forth.

6. The casing e covering the pinion p and its bearings, and arranged as part of the supporting-frame to give additional lateral support to the wick-tube B, substantially as set forth.

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

THOMAS W. GRAYDON.

Witnesses:

L. M. HOSEA,
CHAS. LEIMANN.