(No Model.)

A. H. LUCAS.

ARC LAMP.

No. 432,949. Patented July 22, 1890.

FIG. 1.

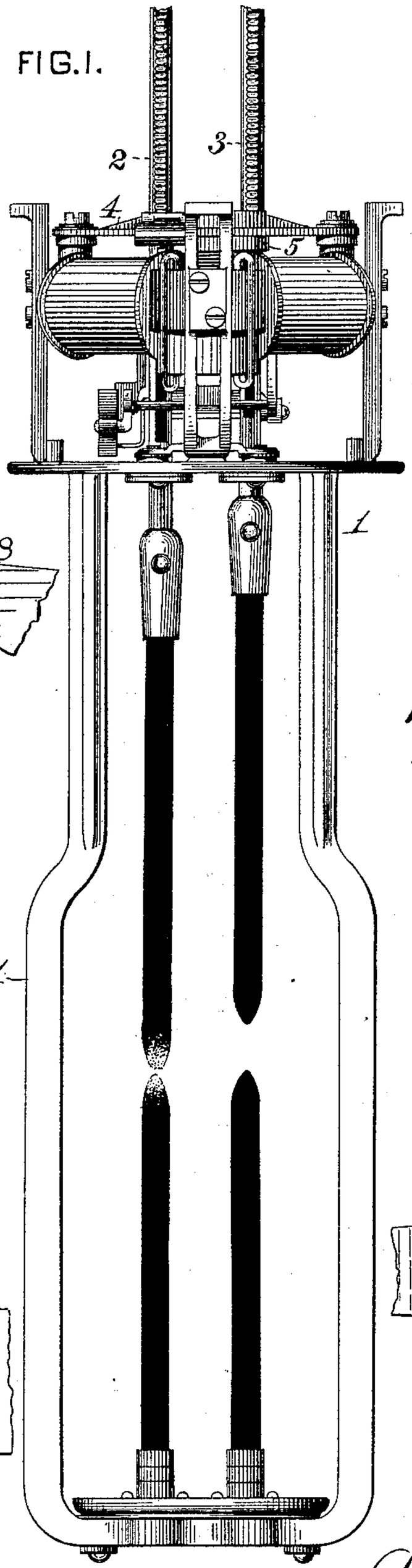

FIG. 2.

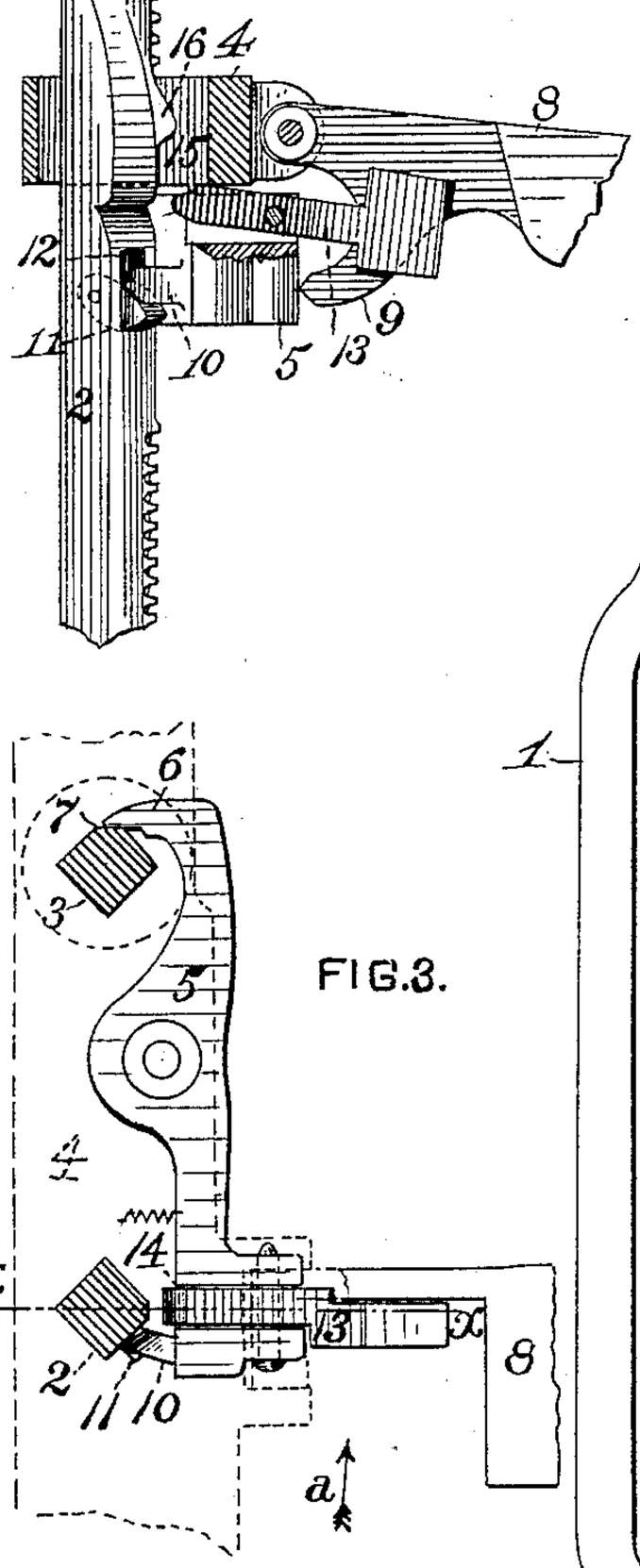

FIG. 4.

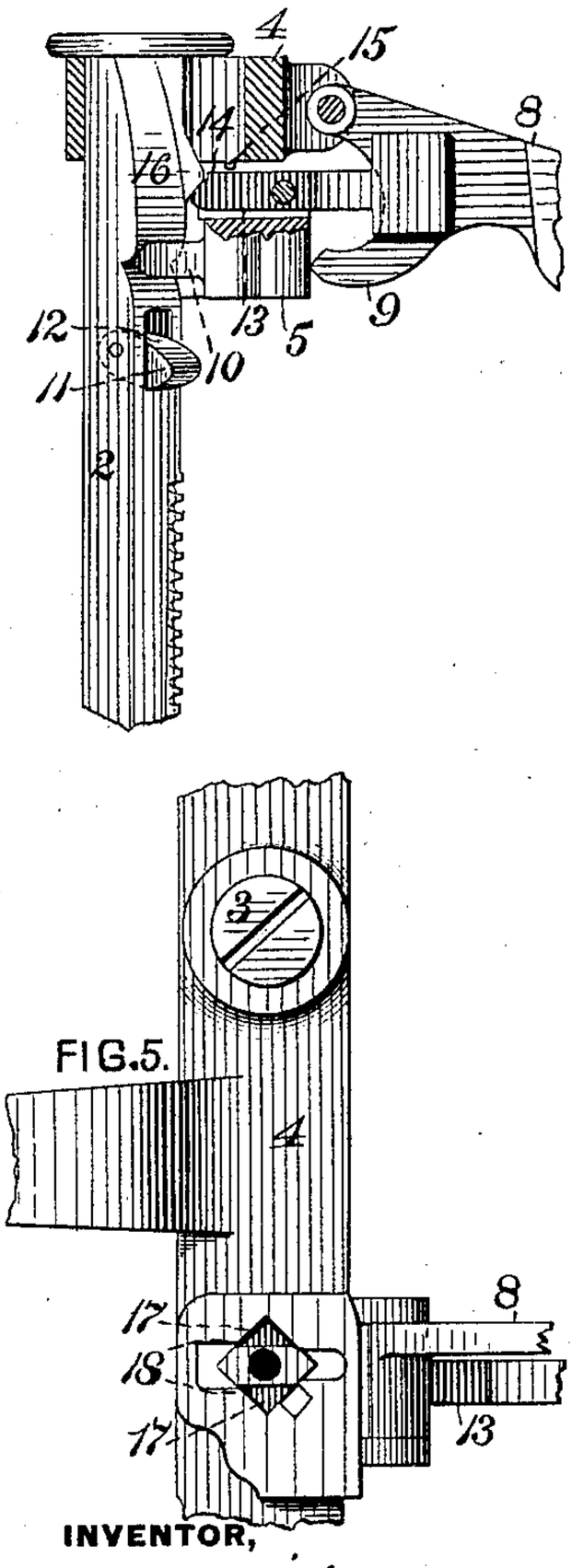

FIG. 3.

FIG. 5.

WITNESSES:

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F. E. Gaither.

INVENTOR,

Austin H. Lucas

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UNITED STATES PATENT OFFICE.

AUSTIN H. LUCAS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO ASAPH T. ROWAND, OF SAME PLACE.

ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 432,949, dated July 22, 1890.

Application filed May 1, 1890. Serial No. 350,199. (No model.)

To all whom it may concern:

Be it known that I, AUSTIN H. LUCAS, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Feed Mechanism for Arc Lamps, of which improvements the following is a specification.

The invention described herein relates to certain improvements in mechanism for controlling the feed of the carbons in double-carbon arc lamps. It is necessary in this class of lamps to provide automatic mechanism whereby the second movable carbon is held from movement while the first carbon is in operation, but will be brought into operation as soon as the first carbon is burned out. As heretofore constructed, this automatic mechanism is not sufficiently certain in its operation, and it frequently occurs that the second carbon is not brought into operation when the first carbon has burned out, and hence the lamp goes out, the current passing around the lamp.

This invention consists in a lock mechanism operated to lock the second carbon rod in an elevated position by the upward movement of the first carbon rod when trimming the lamp, and operated by the first carbon rod when it reaches the lower limit of its movement, to release the second carbon rod and permit of its being fed in the usual manner.

In the accompanying drawings, forming a part of this specification, Figure 1 is a view in elevation of an arc lamp having my improvement applied thereto. Fig. 2 is a detail section, taken on the line *x x*, Fig. 3, looking in the direction indicated by the arrow *a*, showing the second carbon rod elevated and the first carbon rod about to be raised, so as to operate the lock mechanism. Fig. 3 is a top plan view of the parts, except the cross-bar shown in Fig. 2. Fig. 4 is a view similar to Fig. 2, showing the position of the parts when the first carbon rod has reached the lower limit of its movement and operated the lock mechanism to release the second carbon rod; and Fig. 5 is a top plan view of the cross-bar.

The lamp is constructed as regards the frame 1, the carbon rods 2 and 3, and the electrically-controlled mechanism for feeding the rods in the usual or any suitable manner. The upper guides for the rods 2 and 3 are formed by suitably-shaped openings in a cross-bar 4, attached to the frame of the lamp, and to the under side of said bar and at a point about midway between the bars 2 and 3 is pivoted the locking-lever 5. One end of this lever is provided with a toe or projection 6, adapted to engage a notch 7, formed in the rod 3 at such a point as will hold said rod at the upper limit of its movement, as shown in Fig. 5. The opposite end of the lever projects a little beyond the rod 2, and is normally pressed toward said rod by a weight 8, pivotally connected to the cross-bar 4 and provided with a lug or projection 9, bearing against the lever, as shown in Fig. 2. The lever 5 is provided on the face adjacent to the rod 2 with a lug 10, lying in the path of movement of the pawl 11, pivoted within a recess 12, formed in the rod 2 near its upper end. The pawl is so arranged that when the rod 2 is moved up it will engage the lug 10 and force the opposite end of the lever toward the rod, thereby causing the toe 6 to enter the notch 7 in said rod. When the rod 2 is fed down, the pawl 11 will be turned up into its recess without in any way shifting the lever. In order to hold the lever in the position to which it is shifted by the pawl 11—*i. e.*, with the toe 6 in engagement with the notch 7—a catch or trip 13 is pivoted to the lever 5, as shown in Figs. 2 and 3. The outer end of this trip is weighted, so as to cause a shoulder 14 on its inner end to engage a lug or projection 15 on the under side of the cross-bar, when the lever is shifted in the manner stated by the pawl 11.

It will be observed that the movement of the lever 5 and the setting of the trip 13 is effected during the upward movement of the rod, necessary in trimming the lamp for the insertion of new carbons. The lever is held in such shifted position during the normal downward feed of the rod by the trip 13; but just as the rod 2 reaches the limit of its downward movement a projection 16 on the rod 2 hits against the inner end of the trip and

moves it out of engagement with the stationary lug 15, as shown in Fig. 4. The lever is now free to move, and by the action of the weight 8 or the spring 8ª the lever is so shifted as to disengage the toe 6 from engagement with the rod 3, which will then commence its downward movement.

As shown in Fig. 5, notches 17 are cut in opposite sides of the rod 2 near its upper end, and shoulders 18 are formed on the cross-bar by cutting away one side of the guide-opening for the bar 2 in the cross-bar. After the release of the lever 5, as above described, the weight 8 will not only shift the lever, as stated, but through the medium of the lever will shift the upper end of the rod 2 to one side, thereby causing the notches 17 to engage the shoulders 18. The toe 6 on one end of the lever and the lug 10 on the opposite end are so proportioned and arranged that the toe 6 cannot be disengaged from the notch 8 in the rod 3 until the upper end of the rod 2 is shifted laterally, causing the notches 17 and shoulders 18 to interlock, and, vice versa, the upper end of the rod 2 cannot be moved laterally to disengage the notches 17 and shoulders 18 until the rod 3 is raised, so as to bring the notch 7 in line with the toe 6. This construction insures the locking of the rod 3 in a raised position before the rod 2 can be raised for the insertion of a new carbon.

If desired, the trip 13 can be omitted, in which case the lug 10 is made sufficiently long to bear against one face of the rod 2, thereby holding the toe 6 in the notch 7, and the face of the rod against which the lug bears is notched or cut away, as at 19, to permit of the inward movement of the lug and end of the lever when the rod 2 reaches the lower limit of its movement for the purpose of unlocking the rod 3.

I claim herein as my invention—

In a double-carbon lamp, the combination of two movable carbon-carrying rods 2 and 3, the upper end of the rod 2 being laterally movable when at the lower limit of its movement, a lever provided with a toe adapted to engage a notch in the rod 3 when at the upper limit of its movement, the opposite end of the lever being yieldingly pressed toward the rod 2, a trip or latch arranged to hold the lever in engagement with the rod 3, a pawl for shifting the lever into engagement with the rod 3 and simultaneously setting the trip, and a projection on the rod 2 for releasing the trip, substantially as set forth.

In testimony whereof I have hereunto set my hand.

AUSTIN H. LUCAS.

Witnesses:
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DARWIN S. WOLCOTT.