(No Model.) 2 Sheets—Sheet 1.

C. A. PFLUGER.

HANGER FOR ELECTRIC ARC LAMPS.

No. 479,017. Patented July 19, 1892.

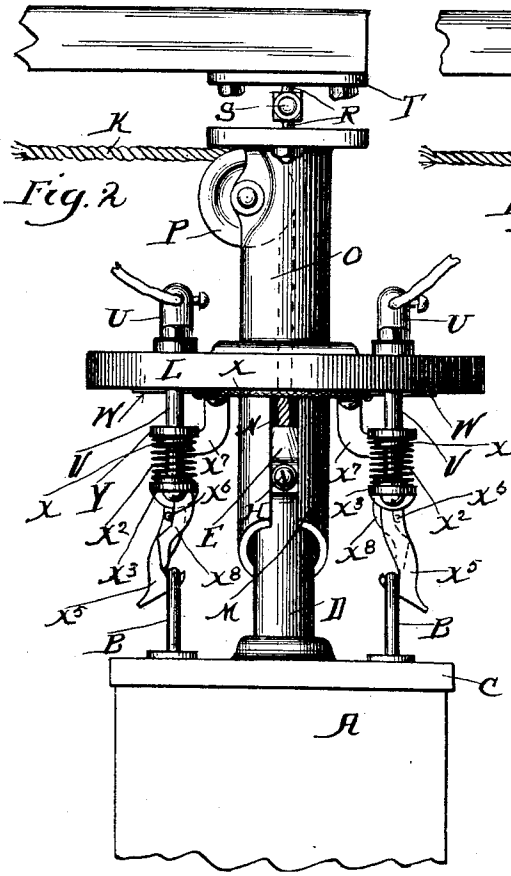

Fig. 2.

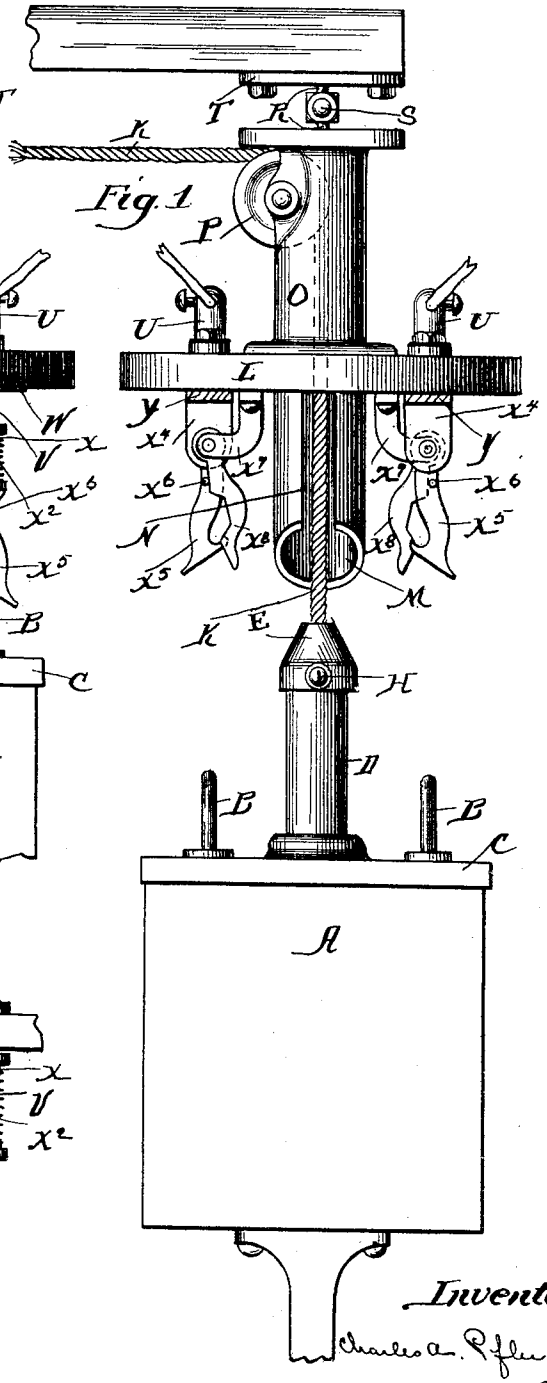

Fig. 1.

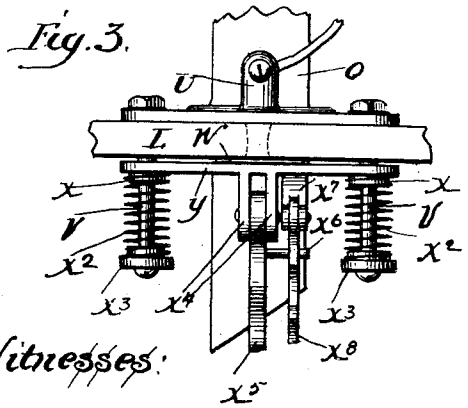

Fig. 3.

Witnesses:

Celeste C. Chapman.

Harnet M. Day.

Inventor:

Charles A. Pfluger.

by Francis N. Parker,

Attorney

(No Model.) 2 Sheets—Sheet 2.

C. A. PFLUGER.

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Fig. 4.

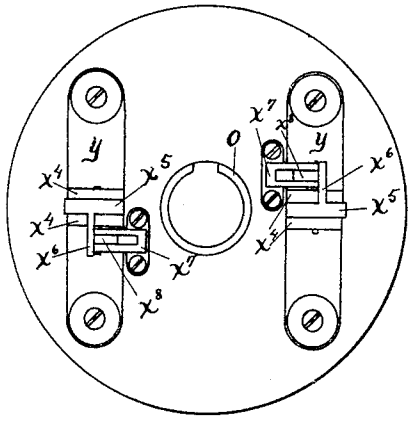


Fig. 5.

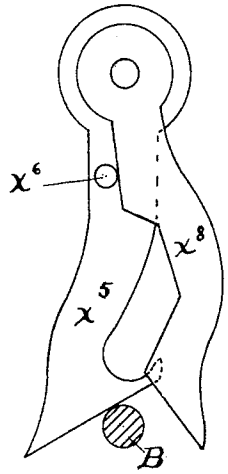


Fig. 6.

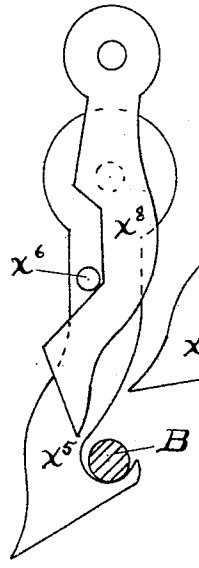
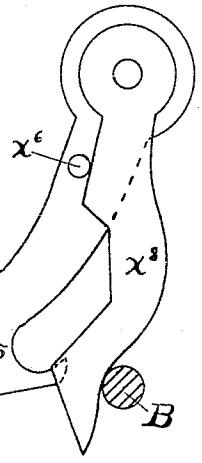


Fig. 7.



Witnesses.

Celeste P. Chapman.

Mary McKeehan.

Inventor.

Charles A. Pfluger.

by Bakewell & Parker,

Attorney.

UNITED STATES PATENT OFFICE.

CHARLES A. PFLUGER, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO THE STANDARD ELECTRIC COMPANY, OF ILLINOIS.

HANGER FOR ELECTRIC-ARC LAMPS.

SPECIFICATION forming part of Letters Patent No. 479,017, dated July 19, 1892.

Application filed January 23, 1891. Serial No. 378,807. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. PFLUGER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Arc-Lamp Hangers, of which the following is a full, clear, and exact specification.

My invention relates to hangers for arc lamps, and has for its object to provide means whereby an arc lamp may be conveniently raised and lowered from its position for the purpose of refilling, trimming, and otherwise preparing the lamp. It is illustrated in the accompanying drawings, wherein—

Figure 1 is a side view of the apparatus, showing the lamp drawn down in position for refilling. Fig. 2 is a similar view with lamp in the position for burning. Fig. 3 is an edge view of one cam, one hook, and one set of springs in released position. Fig. 4 is a view, looking at the mechanism from beneath. Figs. 5, 6, and 7 are detail enlarged views of the hook and cam, showing the parts in their several successive relations to each other.

Like parts are indicated by the same letters in all the figures.

A is an arc lamp having upon its upper plate the connection hangers or loops B B, through which the current is suitably led into the lamp. These are secured to the upper plate C of the lamp, through the center of which projects the central tube D, on the upper end of which is secured the hollow perforated cone E, from which projects the removably-secured pin H and within which lies the knot J on the rope K, which passes out through the upper end of the cone.

L is a plate, from the center of which depends the tube M, having the slot N in one side to receive the pin on the cone and cam-shaped at its lower end to guide the pin to the slot. This tube terminates above its plate in the enlarged portion O, which contains a pulley P, and which is secured by means of the eyes R R and the pin S to the fixed plate T, from which the whole lamp is suspended. The rope passes through the tube on the upper plate and over the pulley and out down to the point where it can be manipulated by the operator. On the upper part of the plate are secured the binding-posts U U, connected each on the under side of the plate with pins V V. Between each pair of these pins lie on the lower part of the plate the contact-plates W W, connected by the conductor X.

Y Y are movable plates placed in position on and so as when elevated to engage the contact-plates W W, and they are perforated at their extremities and provided each with a cylindrical stop X' X', which rests upon the depending pins, and are surrounded by springs X^2 X^2, which bear at their lower extremities upon the plates X^3 X^3 on the end of the pins and against the removable plates themselves. On each of the removable plates are depending lugs X^4 X^4, to which are pivoted the hooks X^5 X^5, each of which is provided with a pin X^6. X^7 is a hanger on the lower part of the plate, provided with a cam X^8, shaped substantially as shown. The two movable plates and their associated parts are duplicates of each other, but reversed in position.

The various parts of the hanger, as hereinbefore described, could be greatly altered without departing from the spirit of my invention.

Portions of the device could obviously be replaced by other parts and yet the essential features, or some of them, remain. I do not wish to be limited specifically to the construction shown.

The use and operation of my device are as follows: Assuming that the lamp is in the lowered position indicated in the figure, it being supported upon the rope and being in the hands of the operator for refilling or trimming and the like, and assuming that the operator desires to restore it to the circuit, I shall proceed with the description of the operation. It should first be observed that in this position the main circuit is undisturbed, for there is an electrical circuit from one binding-post to its associated depending pins and the plate, which is removable upon the pins, thence to one of the contact-plates, thence to the wire V to the other contact-plate W, thence to the movable plate or to the pins, and back to the opposite binding-post. It will also be observed that the hanging hook and cam upon each side of the lamp are in such positions

that as the lamp is raised its suspending loop passes in each instance between the hook and cam. The cam is held slightly out of its normal position by reason of the engagement of its upper enlarged portion with the pin, which projects from the hook X^5 when the two suspending-loops have been forced up by pulling upon the rope, each between its respective cam and hook. The lamp is then lowered, whereupon each hook engages its loop, and when the rope is released the weight of the lamp draws the hook down against the spiral springs about the pins until the stops upon the movable plates engage the plates on the end of the pins. This position, however, frees the cam from the pin on the hook and permits the cam to fall over into its normal position, which brings its point on the opposite side of its suspending-loop, and in this position the lamp hangs during its operation. It will be observed that as the lamp is thus raised and its suspending-loops are in contact with the hooks the circuit is closed through the lamp, and when the lamp is released, so as to draw down the hooks, the circuit through the wire V is broken, and the entire current diverged through the lamp. This results from the fact that the movable plates are disengaged from the fixed contact-plates. The rising lamp is always properly centered and brought into engagement in a proper manner with the hooks by reason of the engagement of the pin on the cone with the slot in the tube. The cam-shaped lower end of the tube directs the pin to its slot, while the conical end properly centers the upper part of the lamp with the hanger. If now it be desired to lower the lamp, it is necessary first by drawing upon the rope to pull the lamp up to the highest possible point. By so doing the suspending-loop is made to engage the hanging cam on the opposite side of the pin on the hook, and also to disengage itself from such hook. As the lamp rises, and is thus disengaged from the hook, the spiral springs expand and by the engagement of the pin with the cam force the hook outwardly and away from the line of descent of its suspending-loop. If now the lamp be lowered, it will pass out of reach of the hook, whereupon the hook and cam will return to their normal positions, as at the start. When the lamp has been detached from the hanger, the springs will elevate the hooks X^5 X^5 until they lie in the position indicated in Fig. 5 with reference to the cam X^8. The pin X^6, being above the depression in the cam, forces the cam outwardly until a V-shaped "guide" (so to speak) is made between the lower ends of the hook X^5 and cam X^8, whereby the lamp-loops B B are guided into their proper position. By elevating the lamp it is clear that it will force its way between the two, pass up between them, and then, if lowered, will settle into the hook of the part X^5, and when further released will draw the said hook down until the parts assume the position indicated in Fig. 6, where the lamp will remain, being thus suspended and in circuit. In this situation the pin X^6 lies in the depression of the cam X^8, so that by gravity the latter cam falls down into a position where its point is at the left of the loop B, as indicated in Fig. 6. When now the lamp is to be lowered, it is first raised, and as it is raised, its weight being taken off of the hook X^5, the latter is raised by its spring and forced into the position indicated in Fig. 7 by the engagement of the pin X^6 with the upper portion of the cam. The cam serves as a fulcrum or cam to drive the hook into this position, for the reason that it is rigidly retained in the same position, as indicated in Fig. 6, by the engagement of the loop with the back of such cam, as shown in Fig. 7. Clearly the lamp may now be lowered, when the parts will fall by gravity into the position indicated in Fig. 5, when the cycle of operation may begin again.

I claim—

1. In a hanger for an electric-arc lamp, the combination of two depending circuit-closing hooks with a circuit-closing loop on the lamp, adapted to engage the hooks, and cams which normally hang when the lamp is in position upon the same side of the loop as the hook and on the opposite side thereof when the lamp is lowered.

2. In a hanger for an electric-arc lamp, the combination of a movable portion carrying a hook adapted by the movement of such portion to be cut in or out of the main circuit with a suspending-loop on the lamp, adapted to engage the hook and a cam, whereby the two are disengaged when the lamp is to be lowered, same cam fixed in position, and a pin on the hanger to be engaged by said cam.

3. In a hanger for an electric-arc lamp, the combination of two depending circuit-closing hooks with a circuit-closing loop on the lamp, adapted to engage the hooks and cams, consisting of a part which covers the hook when disengaged from above, but serves as a guide to it from below.

CHARLES A. PFLUGER.

Witnesses:
CELESTE P. CHAPMAN,
HARRIET M. DAY.