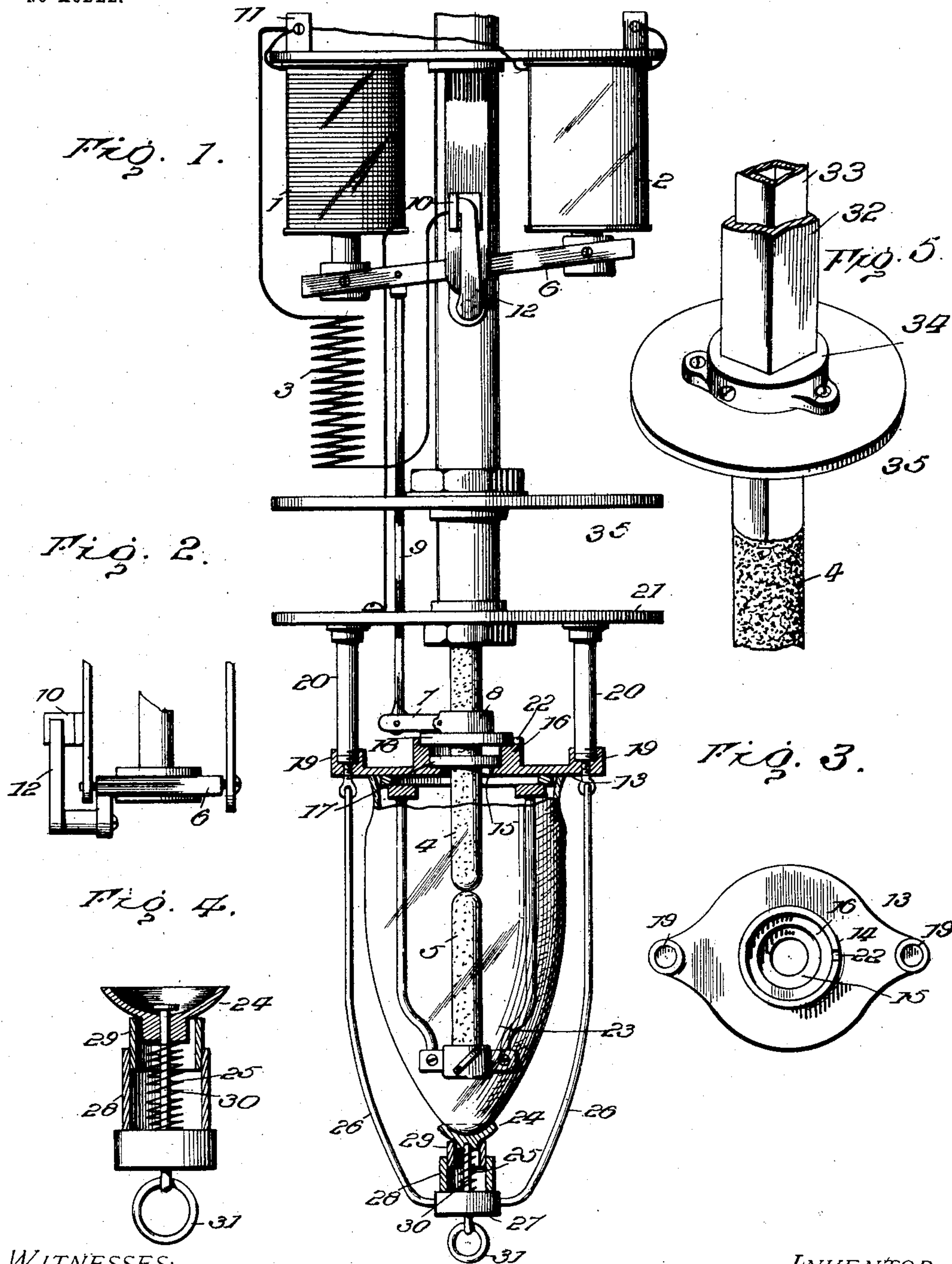


No. 741,255.

PATENTED OCT. 13, 1903.

G. M. LANE.
ELECTRIC ARC LAMP.
APPLICATION FILED NOV. 18, 1902.

NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE M. LANE, OF BROOKLYN, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO INTERSTATE ELECTRIC AND MANUFACTURING COMPANY, A CORPORATION OF NEW YORK.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 741,255, dated October 13, 1903.

Application filed November 18, 1902. Serial No. 131,900. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. LANE, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electric-Arc Lamps, of which the following is a specification.

This invention provides an automatic cut-out for electric-arc lamps of novel construction, a unique relief for any accumulation of gas within the globe inclosing the electrodes, and a globe-holder of peculiar formation, all as will be more fully set forth in the subjoined statement. The cut-out embodies an arm movable with the pivoted frame or lever controlled by the main and shunt magnets and adapted to cut the resistance out of circuit when the lamp is burning and to cut the resistance into circuit and the lamp out of circuit under abnormal conditions. The relief also forms a guide and an insulator for the upper electrode and normally closes the vent through which the gas escapes when an abnormal pressure within the globe is reached. The globe-holder admits of the globe being placed in position and quickly removed when required for cleaning, trimming the lamp, or other cause.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of an arc-lamp embodying the invention, the globe-holder and plate being in section. Fig. 2 is a detail view of the pivoted frame or lever carrying the contact-arm for cutting the lamp out of circuit under abnormal conditions. Fig. 3 is a top plan view of the plate. Fig. 4 is a detail section of the globe-holder. Fig. 5 is a detail perspective view of a modification.

Corresponding and like parts are referred

to in the following description and indicated in all the views of the drawings by the same reference characters.

The lamp may be of any type of construction and comprises the main magnet 1, shunt-magnet 2, resistance 3, electrodes 4 and 5, pivoted frame or lever 6, and feed mechanism for the upper electrode comprising a clutch 7, pivoted to a collar 8 and connected to the lever or frame 6 by means of a rod 9, the several parts being of well-known construction and arrangement and adapted to operate in the accustomed manner.

The resistance 3 may be a rheostat or contrivance of any kind for interposing a resistance in the circuit about equal to that of the lamp when in working condition, and one terminal is electrically connected with the contact 10 and the other terminal with the binding-post 11, with which a terminal of the wires of the electromagnets 1 and 2 are connected. The arm 12 is connected with the pivoted frame or vibrating lever 6 in any substantial way, so as to move therewith, and when the lamp is trimmed the arm 12 is in electrical connection with the contact 10, as shown most clearly in Fig. 1. Upon passage of the current through the main magnet 1, its armature is attracted and moves the lever or frame 6, so as to effect separation of the electrodes 4 and 5, whereby the arc is established. As the arc lengthens, the resistance to the passage of the current through the magnet 1 increases until it exceeds the resistance of the shunt-magnet 2, when the opposite end of the lever or frame 6 will be attracted and permit the electrode 4 to descend, so as to shorten the arc. Under normal conditions the contacts 10 and 12 are kept separated; but should the lamp burn out or otherwise become inoperative the shunt-magnet 2 will attract its armature or core and cause the arm 12 to make electrical connection with the contact 10, thereby cutting the lamp out of circuit by causing the current to pass through the resistance 3, as will be readily appreciated.

The plate 13 is centrally apertured and provided with a rim 14 in line with and surrounding the central opening, said rim hav-

ing inner shoulders 15 and 16 for supporting rings 17 and 18, of porcelain or other insulating material. The rings 17 and 18 have openings of a size to admit of the electrode 4 passing snugly therethrough without binding and serve to guide said electrode in its vertical movements, the upper ring 18 also constituting a stop to limit the downward movement of the clutch device 7 and 8. The plate 13 is elongated or formed with opposite extensions having sockets 19 to receive the lower ends of posts 20, pendent from the lower head 21 of the frame supporting the operating parts. The ring 17 also forms a valve and normally closes a vent 22, through which any gas accumulating within the globe 23 is adapted to escape. The vent 22 is formed in the part of the rim 14 formed between the shoulders 15 and 16. When the pressure within the globe 23 exceeds the atmospheric pressure, the ring 17 is moved upward, so as to uncover the vent 22 and permit the gas to escape without causing injury or in any manner detracting from the efficiency of the lamp.

The globe-holder consists of a cup 24, yieldingly supported by means of a spring 25, whose tension is sufficient to support the globe and hold it firm against the under side of the plate 13. Rods 26 are connected at their upper ends with the posts 20 and are connected at their lower ends with a ring 27, said rods and ring constituting a frame for supporting the globe-holder. A tube 28 projects upward from the ring 27 and receives a corresponding tube 29, pendent from the cup 24, the two tubes 28 and 29 telescoping and forming a housing for the spring 25 and the stem 30, which passes loosely through the ring 27 and is provided at its lower end with a finger-piece 31. The upper end of the stem 30 is connected with a cup 24, and when said stem is pulled upon the spring 25 is compressed and the cup 24 lowered to

admit of placing the globe 23 in position or removing it from the lamp, as may be required.

In the construction shown in Fig. 5 the tube 32, connecting the plates, is made angular in cross-section, being preferably of square form, and the holder 33 for the upper carbon is of corresponding shape, so as to fit within the tube 32, thereby preventing any rotation which is objectionable in arc-lamps. The collar 34 has basal extensions, which are secured by suitable fastenings, as machine-screws, to the plates 35, said collar being likewise secured to the tube 32.

Having thus described the invention, what is claimed as new is—

1. In an electric-arc lamp, and in combination with the globe inclosing the electrodes, and a plate closing the open end of the globe and having an opening and a rim in line with and surrounding said opening and provided with inner shoulders, the part between the shoulders having a vent, rings seated upon the inner shoulders of the rim and snugly receiving the movable electrode, the lowermost ring normally closing the aforementioned vent and the upper ring forming a stop for the clutch mechanism, substantially as set forth.

2. In an electric-arc lamp, and in combination with the globe, a holder therefor comprising a cup, telescoping tubes, a spring housed by and interposed between said tubes, and a stem connected with the cup and projected through and beyond the tubes and adapted to be pulled upon for compressing the spring, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE M. LANE. [L. S.]

Witnesses:

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