Nov. 17, 1936. L. P. YOUNG 2,060,918

ELECTRIC APPLIANCE

Filed Jan. 17, 1936

Fig. 1

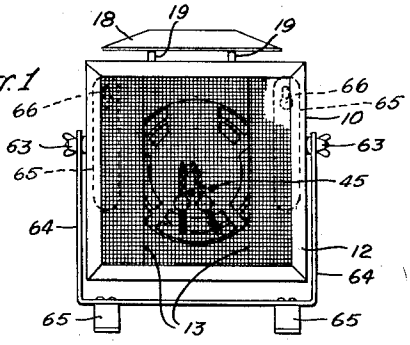


Fig. 2.

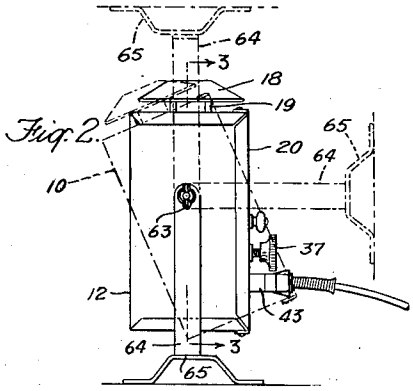


Fig. 3.

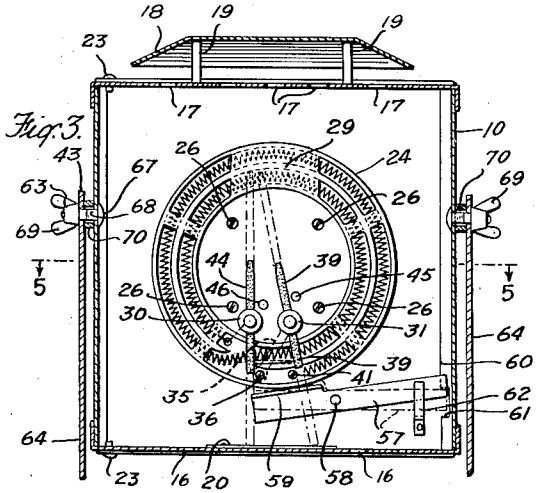


Fig. 4.

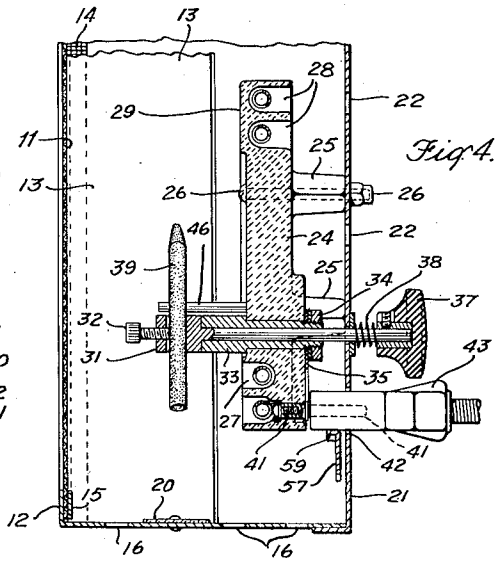


Fig. 5.

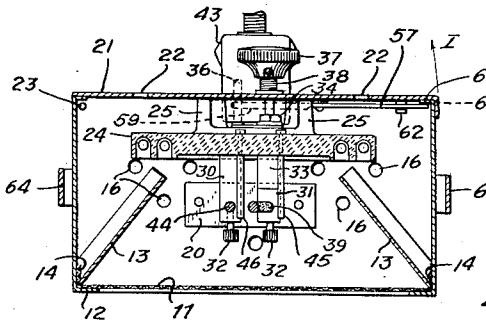
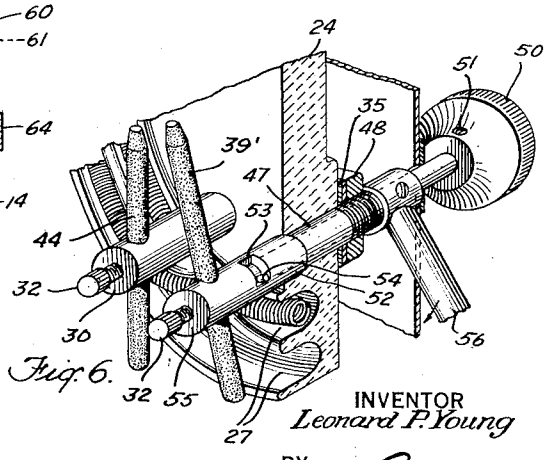


Fig. 6.



INVENTOR
Leonard P. Young

BY

ATTORNEY

Patented Nov. 17, 1936

2,060,918

UNITED STATES PATENT OFFICE

2,060,918

ELECTRIC APPLIANCE

Leonard P. Young, New York, N. Y.

Application January 17, 1936, Serial No. 59,496

13 Claims. (Cl. 176—115)

This invention relates to electric appliances in general and particularly to what may be termed an electric lamp, commonly known as health-ray lamp.

The principal object of my invention is to produce an article of this kind, which is not only highly effective for its intended purpose, but also relatively inexpensive in construction, and wherein the so-called ultra-violet health-rays are augmented by infra-red rays, and whereby also an advantageous heat emission is assured.

Another of the objects of this invention is to provide a health-ray lamp of the character stated, with a suitable combination support and suspension means which enables the user to place and adjust the lamp to the best advantage either by supporting it on a stand, or suspending it from the wall or from the ceiling, in any of which supporting or suspending positions the lamp may be adjusted angularly relative to its suspension.

Another important feature of the present invention is the self-locking closure of the lamp, which is so constructed and designed as to prevent access to the interior of the lamp while current passes thereinto.

A further object of this invention, therefore, is to provide a safety closure for the lamp.

A still further object of my invention is to provide a combination resistance and electrode support, which is designed in one piece and which is so constructed and arranged that the heat of the arc between two electrodes cannot affect or deteriorate the resistance shunted in the electrode circuit, and which support is formed with integral spacers for attaching it.

Another object of my invention is to provide motion limiting or stop means for a movable electrode for preventing the electrodes from contacting when burned down to dangerous shortness, thus preventing damage to the electrode holders.

Another object of my invention is to provide below the electrodes a dielectric, heat-resisting shield for preventing short circuiting of the electrodes with the body of the lamp.

A further object of my invention is to provide a lamp of the kind stated, with a screen front and interior reflectors, by means of which latter the screen is held stretched and attached within the lamp casing.

A further object of my invention is to provide tension-controlled electrode adjusting means equipped either with or without automatically operable electrode separating means.

The foregoing and a great many other objects and advantages of the present invention will become more fully apparent from the ensuing description and the accompanying drawing, forming an important part of my disclosure, and in which

Fig. 1 is a front elevation of my device;

Fig. 2 is a side elevation thereof;

Fig. 3 is a partial cross-sectional view taken on line 3—3 of Fig. 2;

Fig. 4 is a partial cross-sectional detail view through the casing and showing the resistance and electrode support in cross-section;

Fig. 5 is a cross-sectional view taken on line 5—5 of Fig. 3; and

Fig. 6 is a fragmentary, cross-sectional detail view of the resistance and electrode support with a modified form of the electrode adjusting means.

Referring now specifically to the figures, numeral 10 denotes a casing, the front of which is provided with a screen 11, the vertical sides of which are held in their stretched position between the outer frame 12 and the exterior edges of reflectors 13, as shown at 14, the bottom and top edges of the screen being clamped between the horizontal portions of frame 12 and clamping blades 15. (See Fig. 4). Screen 11 serves for protecting the user against burns from sparks emanating from the electrodes, and prevents accidental contact with the heated interior of the lamp of inflammable articles, such as wind-blown curtains, etc.

The casing is provided with a plurality of ventilation holes 16 on the bottom, and a plurality of similar ventilation holes 17 on the top. Over the top ventilation holes, there extends a hood 18, supported by spacers 19. The aforesaid ventilation holes provide means for the escape of the heated air from within the casing in vertical direction. At the bottom of the casing there is provided an insulating, refractory shield 20, the purpose of which will be explained presently. The rear of the casing is equipped with a closure 21, having a plurality of ventilation holes 22, and which closure is hingedly associated at 23 with the rear of the casing, and swings out to its open position in the direction of arrow I. (See Fig. 5).

Secured to the closure is a combination resistance and electrode support 24, which is made of one piece of refractory and dielectric material, and from the body of which extend rearwardly spacers or legs 25, forming integral parts of the support. These legs are hollow for receiving attaching bolts 26, which are secured to the closure.

The body of the support is provided with substantially concentric depressions 27, the major portions of which are arranged in the front of the body while at the rear upper portions these depressions are open to the rear, as shown at 28 in Fig. 4. The front upper portion of the body forms a shield 29, (see Fig. 3) the purpose of which will be explained presently.

At the lower end of the support, there will be seen a stationary electrode holder 30, and a movable electrode holder 31, both of which are provided with electrode clamping screws 32. The

movable electrode holder, as shown in Fig. 4, consists of a stationary tubular member 33, which is held in place by means of nut 34, which latter clamps against the body of the support a busbar 35, which connects with one of the contacts 36 of the device. (See Fig. 3.) Holder 31 extends through tubular member 33, outwards through the closure wall, and is engaged by a knob 37, held under pressure by coil spring 38. This pressure spring permits the angular adjustment to any desired position of electrode holder 31, and thereby of the movable electrode 39, held in the holder.

The resistance wire placed into the grooves or depressions 27 and 28, connects at one end with the stationary electrode shown at 44, in Fig. 3, while the other end of the resistance wire terminates in contact means 41. Contactors 36 and 41 are fastened at the lower part of support 24, and are in the form of prongs which partially extend through an opening 42, especially provided in the closure (see Fig. 4) for accommodating a removable electric connector 43, by means of which, electric current is conveyed to the electrodes.

The stationary electrode 44, (see Fig. 3) is adjustable only in vertical direction, whereas the movable electrode 39 is required to be operated so as to first make contact with the stationary electrode, and then be moved away so that an arc is formed between the electrodes. When the electrodes are comparatively long, they will extend into the vicinity of shield 29, covering the portions of the resistance wire held in the upper groove portions 28. Shield 29 prevents the burning of the resistance wire by the arc produced between the two electrodes. Shield 20 prevents contact between the electrodes and the casing.

In order to prevent undue contact between the electrodes, or a short circuiting of the movable electrode with the stationary electrode holder, and furthermore for limiting the movement of the movable electrode during adjustment, there are provided electrode stops 45 and 46, as shown in the preferred forms in Figs. 1, 3, 4 and 5.

A modified construction of the movable electrode holder is illustrated in Fig. 6. The stationary electrode holder 30 is identical with the construction described previously. The movable electrode holder again consists of a stationary tubular member 47, held in place by means of nut 48. Passing through the tubular member is a shaft 49, the outer end of which is provided with an operating knob 50, secured at 51 to shaft 49. The enlarged piece 52 of stationary tubular member 47 is provided with a cutout 53, in which operates a pin 54, the movement of which and that of shaft 49 being limited by the walls of cutout 53. The enlarged portion of shaft 49, forming the actual electrode holder 55, abuts with the enlarged portion 52 of tubular stationary member 47.

I preferably equip this construction of the movable electrode holder with a weight-arm 56, secured by means of a set-screw to shaft 49, and which weight-arm is intended to automatically swing electrode 39' out of contact with stationary electrode 44.

Referring now again to Figs. 3, 4 and 5, and particularly to the closure of the casing, it will be seen that attached to the interior face of the closure is a locking arm 57, pivoted at 58, and provided with an engaging flange 59, adapted to be engaged by connector 43, when the latter is in engagement with the contacts 36 and 41, as shown in Figs. 3 and 4. It will be also observed that the rear flange 60 of the casing is pared out at 61, so that when locking arm 57 is in its normal non-engaged position and reposes in its rest 62, closure 21 can be readily opened and closed.

The position of locking arm 57, at which the closure can be operated, is shown in broken lines in Fig. 3, while its full line position indicates how the arm is swung upwards into locking engagement with side flange 60 of the casing. Since the portion of arm 57, provided with engaging flange 59, is shorter and lighter than its right-hand portion, arm 57 will normally assume the broken-line position. It will be clear, therefore, that while plug or contactor 43 engages contacts 41 and 46, locking arm 57 is held in its full-line position and prevents the opening of closure 21. When plug 43 is removed, locking arm 57 reverts to its normal unlocking position and permits door 21 to open.

Pivotally connected at 63 with the casing is a support or suspension frame 64, provided with attaching legs 65, which latter are preferably equipped with attaching holes 66, as seen in Fig. 1 in broken lines. Fig. 2 illustrates that the casing may be either supported, suspended from a wall or from the ceiling, and that it may be swung to any desired position after frame 64 is secured in place.

Pivotal connections 63 preferably consist of a bolt 67, having a square shank 68, terminating in a screw-end engaged by wing-nut 69. Between frame 64 and the casing, there is provided a spacer 70. By tightening wing-nuts 69, the casing may be held in any desired position relative to its frame 64.

The foregoing description pertains more or less to a health ray lamp, in which is provided a casing, which latter is to be kept in locked position while the lamp is energized or while current passes therethrough. It is obvious, however, that such arrangement is applicable to any other electric device dangerous to handling while being energized. I therefore shall not be limited to the application of such safety construction to health-ray lamps only.

By the same token, the combination resistance and electrode support may be separated from the health-ray lamp and used as an independent unit, and I therefore shall not be limited to the combination between a health-ray and such support.

The two modifications of the movable electrode supports are in themselves applicable to other than the device shown in the drawing.

In operation, the health ray lamp, above described, emits not only ultra-violet rays, but also infra-red rays, and incidentally, radiates beneficial heat towards the patient using my device. It is within the sense of this invention that the combined use of the heat produced by the resistance coil, necessary to be shunted into the circuit of the electrodes, performs, besides its primary function of resistance, that of heating and giving off infra-red rays.

While I have shown and described specific structures of my invention, be it understood that changes and improvements may be incorporated therein, and that I shall not be restricted to the various details shown, since it is obvious that during the course of manufacture, such changes and improvements will become necessary, and I therefore reserve for myself the right to make such alterations, required during production, without departing from the broad scope of my invention, as set forth in the annexed claims.

I claim:

1. In an electric device of the class described,

a casing having a closure, combination casing supporting and suspension means adjustably associated with said casing, a combination resistance and electrode support within the casing, electric contacts extending through the casing closure, electric connector means removably engageable with said contacts, locking means at the interior of said closure and operative to its closure locking position by said connector, when the latter is in engagement with said contacts.

2. In an electric device, as in claim 1, said casing having a screen front and shielded venting means for providing passage of heated air through the top of the casing.

3. In an electric device, as set forth in claim 1, said combined resistance and electrode support being attached to and supported by said closure.

4. In an electric device, as set forth in claim 1, said combination resistance and electrode support comprising a one-piece dielectric, refractory body having integral spacers in engagement with and secured to said closure, a plurality of channels provided in said body, an electric resistance element in said channels, a shield formed from the material of said support over a portion of said resistance element, stationary and movable electrode holders, extending from said support, and means for limiting the movement of the latter holder associated therewith.

5. A health-ray lamp, comprising in combination, a casing, suspension means therefor provided with means for fixing the casing at any desired position, reflectors within said casing, a screen front, held by said reflectors, ventilation means arranged with said casing for providing air circulation, a closure for said casing, a combined resistance and electrode support, made of one piece, spaced from and associated with said closure, said support having channels for accommodating resistance wires, a resistance wire in said channels, a shield for a portion of the resistance wires forming part of the support, stationary and movable electrode holders extending from the support into the casing, stationary and movable electrodes in said respective holders, means for limiting the movements of the movable electrode, electric contacts extending rearwardly from said support and forming termini for one electrode and one end of the resistance wire, a connector removably associable with said contacts and adapted to project through said closure, locking means for the latter, operable to closure locking position by the insertion of the connector, when the latter engages said contacts.

6. A health-ray lamp, as set forth in claim 5, wherein said electrode movement limiting means extend from said support into the path of operation of the movable electrode for preventing contact between the latter and the stationary electrode holder.

7. A health-ray lamp, as set forth in claim 5, wherein said movable electrode holder is provided with pressure means for facilitating the angular adjustment and for holding the movable electrode at any desired position relative to the stationary electrode.

8. A health-ray lamp, as set forth in claim 5, wherein said movable electrode holder is not under spring tension, but is provided with a weight arm and holder movement limiting means, whereby the holder automatically assumes a position at which the movable electrode swings out of contact with the stationary electrode, when the holder, after being operated, becomes released.

9. A combination one-piece resistance and electrode support provided with integral spacer-legs, a plurality of substantially concentric resistance wire receiving channels formed in said support, a resistance element in said channels, said channels being open partially at one face and partially at the opposite face of the body of the support, the bottom of the channel portion, open at the opposite face, forming a shield area for the resistance wire part beneath that area, stationary and movable electrode holders, in series with said resistance element, associated with said support and extending from that one face thereof, and contact means (for one of the electrode holders and one end of the resistance wire) associated with and extending from the opposite face of the support.

10. A resistance and electrode support, as set forth in claim 9, said movable electrode holder comprising a tubular stationary member fixedly associated with said support, a movable member operatively lodged within said tubular member, and means in cooperation with said movable member for limiting the movement of the latter.

11. A resistance and electrode support, as set forth in claim 9, said movable electrode holder comprising a stationary tubular member fixedly associated with said support, a pressure-controlled movable member operatively lodged within said tubular member and holding an electrode, and movement control means extending from said support into the path of operation of the electrode held by said movable member.

12. A resistance and electrode support, as set forth in claim 9, said movable electrode holder comprising a tubular stationary member fixedly associated with said support, a weight-controlled movable member operatively lodged within said tubular member, said tubular and said movable members provided with cooperating movement-limiting means for said movable member, the latter automatically assuming, after being operated and released, a position at which its electrode separates from the electrode of the stationary electrode holder, after the arc-forming contact was made between the electrodes, by the operation of the movable electrode holder.

13. In an electric lamp, a casing provided with ventilation means and a screened front, suspension means for the casing, pivotally and adjustably connected therewith, for facilitating any desired positioning of the casing relative to said suspension means, a resistance mounting within said casing, electrode holders associated with said mounting, one of said holders being adjustable, a closure for said casing, electric contact means extending through said closure, an electric connector removably associable with said contact means, closure locking means operatively mounted at the interior of said closure and adapted to be actuated to locking position when said electric contacts are engaged by said connector.

LEONARD P. YOUNG.