M. W. NEWTON.

THERAPEUTIC LAMP.

APPLICATION FILED MAY 29, 1908.

1,004,460. Patented Sept. 26, 1911.

4 SHEETS—SHEET 1.

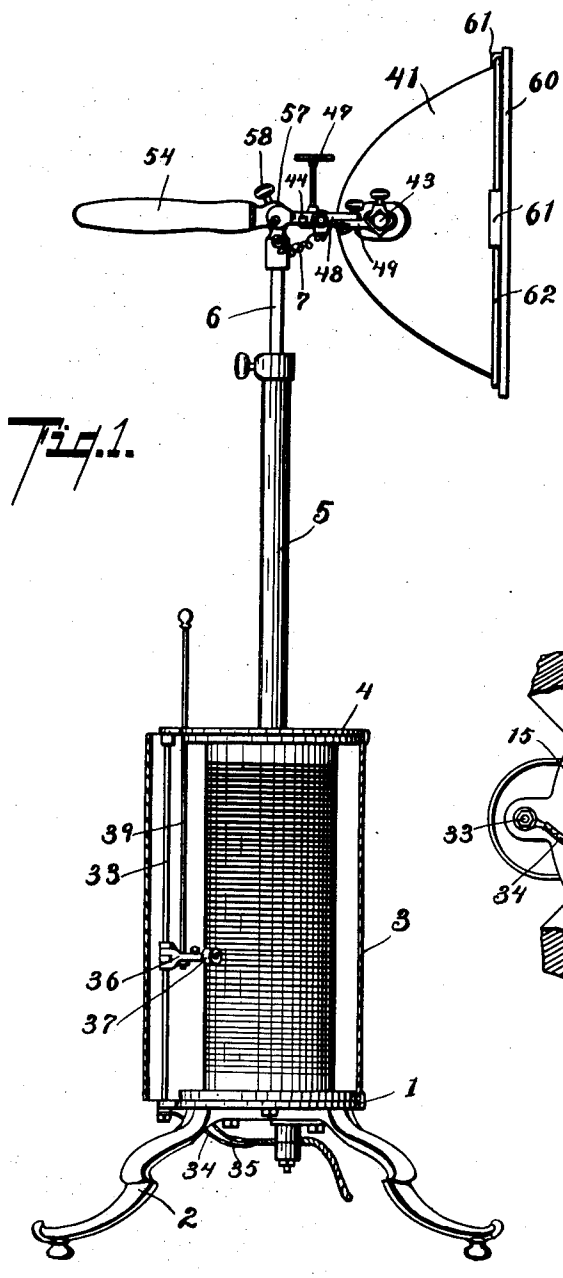

Fig. 1.

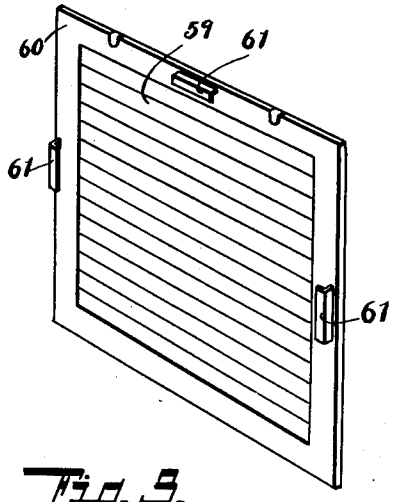

Fig. 3.

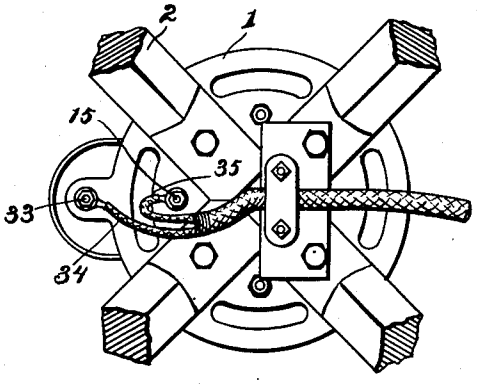

Fig. 2.

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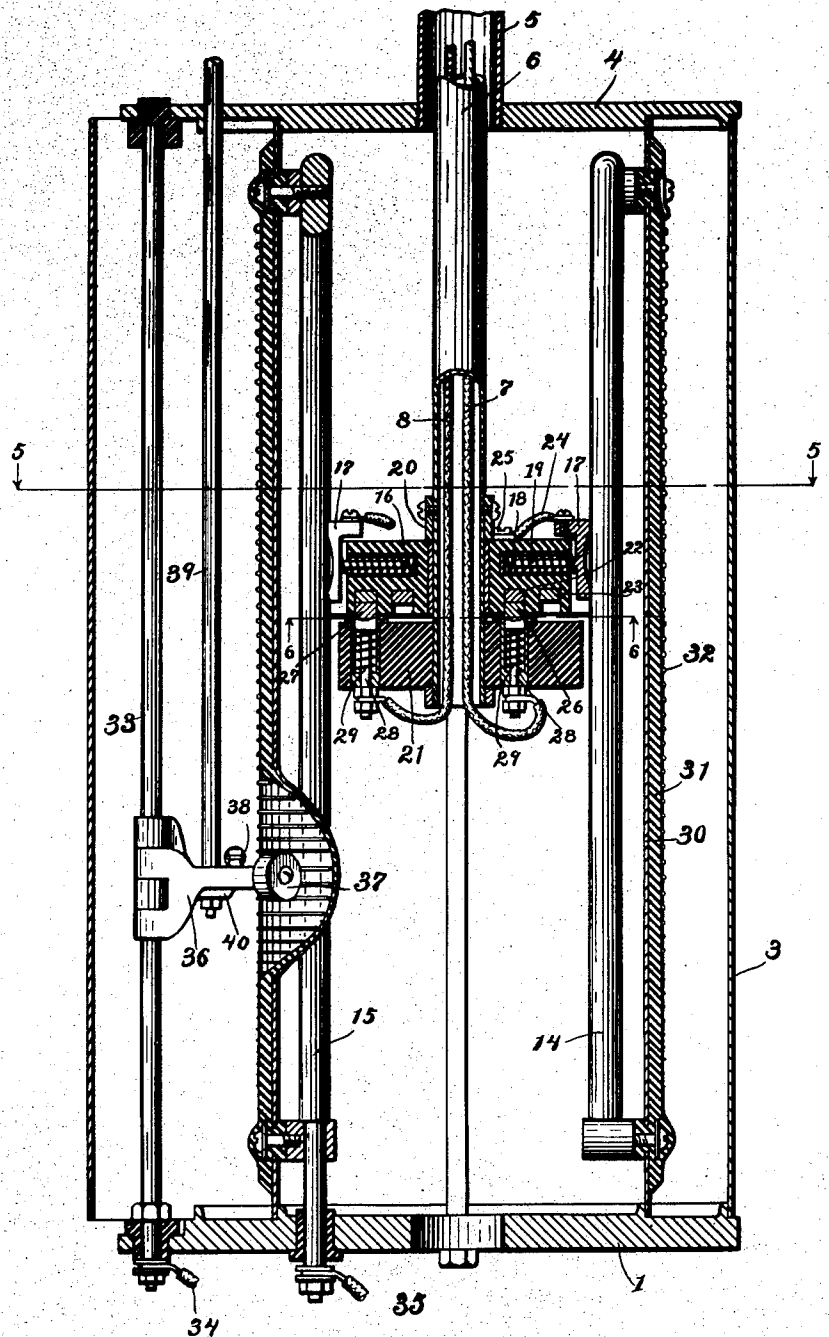

Fig. 4.

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4 SHEETS—SHEET 3.

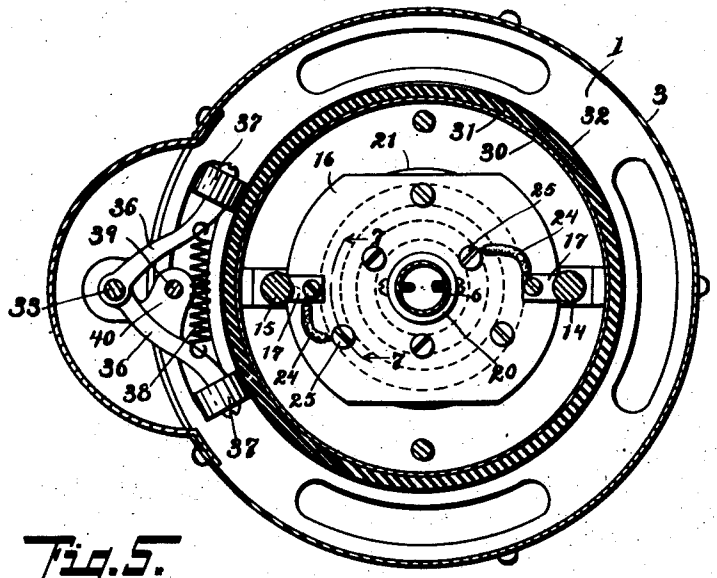

Fig. 5.

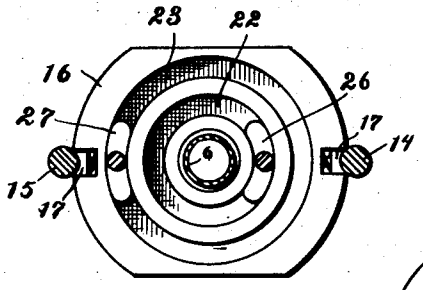

Fig. 6.

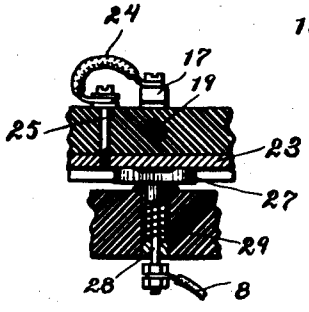

Fig. 7.

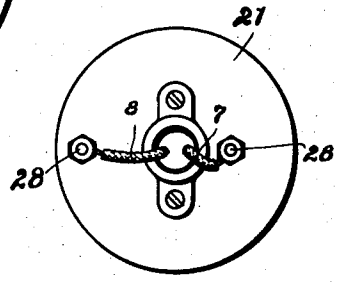

Fig. 8.

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4 SHEETS—SHEET 4.

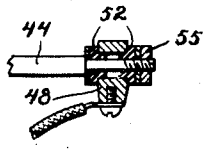

Fig. 11.

Fig. 9.

Fig. 12.

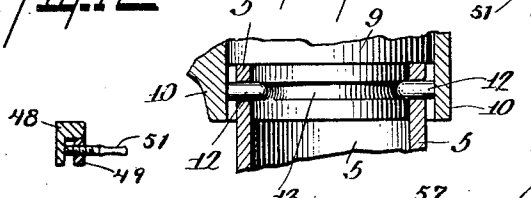

Fig. 15.

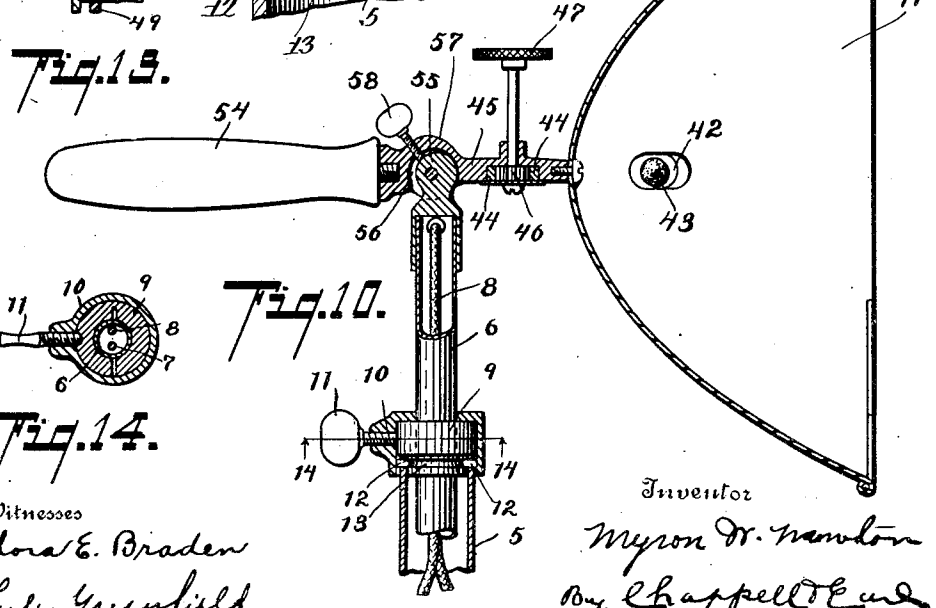

Fig. 13.

Fig. 10.

Fig. 14.

Witnesses

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UNITED STATES PATENT OFFICE.

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THERAPEUTIC LAMP.

1,004,460. Specification of Letters Patent. Patented Sept. 26, 1911.

Application filed May 29, 1908. Serial No. 435,658.

To all whom it may concern:

Be it known that I, MYRON W. NEWTON, a citizen of the United States, residing at the city of Battle Creek, county of Calhoun, State of Michigan, have invented certain new and useful Improvements in Therapeutic Lamps, of which the following is a specification.

This invention relates to improvements in therapeutic lamps.

The main objects of this invention are: First, to provide an improved therapeutic lamp which is completely adjustable for the application of the treatment. Second, to provide an improved therapeutic lamp which may be adjusted to produce the desired light rays. Third, to provide in a therapeutic lamp an adjustable resistance or rheostat.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which,

Figure 1 is a side elevation of a structure embodying the features of my invention, the resistance coil casing being shown in vertical section. Fig. 2 is an inverted view of a structure embodying the features of my invention with the legs broken away. Fig. 3 is a perspective view of the glass screen, such as a blue screen, or a red screen, which is adapted to be supported in front of or suspended upon the lamp. Fig. 4 is an enlarged detail vertical section through the resistance coil and adjusting mechanism thereof, portions being shown in full lines to better illustrate the form and relation of the parts. Fig. 5 is a horizontal section, taken on a line corresponding to line 5—5 of Fig. 4. Fig. 6 is a horizontal section, taken on a line corresponding to line 6—6 of Fig. 4, showing details of the contact device for the lamp post. Fig. 7 is an enlarged detail section taken on the curved line 7—7 of Fig. 5, showing details of the contact device for the lamp post. Fig. 8 is an inverted view of the block 21 of such contact. Fig. 9 is a plan view of the lamp proper, the reflector being shown in horizontal section. Fig. 10 is a detail view, partially in vertical section, the section being on a line corresponding to line 10—10 of Fig. 9. Fig. 11 is a detail section, taken on a line corresponding to line 11—11 of Fig. 9, showing details of the carbon support. Fig. 12 is a detail section, taken on a line corresponding to line 12—12 of Fig. 9, showing details of the adjustable carbon holder. Fig. 13 is a cross section taken on a line corresponding to line 13—13 of Fig. 12. Fig. 14 is a horizontal section taken on a line corresponding to line 14—14 of Fig. 10, showing details of the adjustable support for the lamp post. Fig. 15 is an enlarged detail view showing the mounting for the post 6.

In the drawing, the sectional views are taken looking in the direction of the little arrows at the ends of the section lines, and similar numerals of reference refer to similar parts throughout the several views.

Referring to the drawing, I provide a base 1 which is preferably supported by suitable legs, as 2. On this base is a cylindrical casing 3 having a top 4 on which the tubular lamp post standard 5 is mounted. The lamp post 6 is also made tubular to receive the circuit wires 7 and 8. The post is adjustably and revolubly mounted upon the standard 5, preferably by means of the split bushing 9,—see Figs. 10 and 14,—which is adjustably secured to the post by means of the sleeve 10 and thumb screw 11. The bushing 9 is revolubly secured to the standard 5 by means of the pins 12 arranged through the standard 5, to engage an annular groove 13 in the bushing so that the height of the post may be regulated by adjusting the same in the bushing, and, at the same time, it pivots freely in any adjusted position. The circuit wires 7 and 8 are electrically connected to the rheostat or resistance coil in a manner so that they may be adjusted throughout the scope of the device without in any way affecting the contact. This I preferably accomplish by arranging in the hollow resistance coil a pair of contact rods 14 and 15.

On the lower end of the post, I pivotally mount a contact carrying member 16, which is formed of suitable insulating material

and arranged so that the post may be freely revolved therein. This contact carrying member is notched to engage the rods 14 and 15, as clearly appears in Fig. 6, and is provided with contact members 17 which bear against the rods. These contact members are held yieldingly against the rods by means of the coiled springs 18, which are seated in the member 10, pins 19 being provided for holding them in place. The contact carrying member 16 is held in place upon the post by means of the sleeve bushing 20. Below the member 16, and secured to the post to revolve therewith is a contact carrying member 21. In the under side of the member 16 are seated contact rings 22 and 23, respectively. The ring 22 is connected by the wire 24 and the pin 25 to the contact rod 14; whereas, the ring 23 is connected by a similar wire and pin to the contact rod 15,—see Fig. 7. Carried by the member 21 and adapted to contact with these rings 22 and 23, respectively, are contact blocks 26 and 27. These blocks are connected by the binding post 28 to the circuit wires 7 and 8 of the binding post. Springs 29 are arranged in the block 21 to hold these contact members yieldingly in position against the contact rings. To insure a perfect contact, the contact blocks 26 and 27 are cut away at a central point, as are also the contact blocks 17. With the parts thus arranged, the post may be adjusted up and down and revolved without breaking the circuit.

The resistance coil consists of a shell 30 having a layer of insulating material 31 thereon on which the coil wire 32 is wound. This coil is formed of wire of different gage, thereby securing a variation in resistance, the wire preferably being larger at the top of the coil than it is at the bottom, as clearly appears from Fig. 4. The contact rod 14 is connected at its upper end to the coil, being otherwise entirely insulated therefrom. The contact rod 15 is entirely insulated from the coil. Within the casing, I arrange a vertical rod 33, to which one of the circuit wires 34 is connected, the other circuit wire 35 being connected to the contact rod 15. On this rod 33 I mount an adjustable coil contact preferably consisting of a pair of arms 36—see Fig. 5—pivotally mounted on the rod 33 and having rollers 37 on their ends adapted to bear against the coil. These arms are held under spring tension by the coiled spring 38, by which they are connected. The coil contact is adjusted on the rod by means of the rod 39, which is secured to a lug 40 carried by one of the arms, the rod being arranged through the top of the coil casing, so that it may be readily moved up and down, thereby regulating the resistance.

The lamp proper consists of the body or reflector 41, which is preferably a parabolic reflector, having oppositely-arranged slots 42 in the sides thereof through which the carbons 43 are arranged. These carbons are carried by the racks 44 by means of adjustable holders consisting of the members 48 and 49, the members 48 being secured upon the ends of the racks and insulated therefrom—see Fig. 11,—and the members 49 being adjustably secured to the members 48, so that the inner ends of the carbons may be swung in the reflector to and from the end thereof. The holder members 49 are pivotally secured to the members 48 by means of the thumb screws 50, and thumb screws 51 are provided for adjusting the members 49 on the pivot screws 50, as will clearly appear from Figs. 9 and 12 and 13. By this arrangement, the points of the carbon can be adjusted, not only to regulate the length of the arc and to compensate for their consumption, but also to regulate their position within the reflector and thereby controlling the light rays,—that is, if violet rays are desired, the points of the carbons are adjusted to a certain point which produces and focuses these rays most effectively. The light reflected from the focus of the parabolic curve is projected directly forward from all parts of the reflector. In the normal operation of the lamp, the arc is in the focus of the reflector. If the light-giving point be brought nearer to the reflector, the reflected rays will be divergent, while, if the light-giving point be placed beyond the focus, the reflected rays will become convergent. The light reflected from points above or below the axis of the reflector are either convergent or divergent, but not parallel to the axis. Therefore, when the carbon points are drawn away from the axis and carried within the focal point, the light on the projected field from these points is removed from the center, while that on the central area of the projected field is covered by the actinic light generated by the arc or that portion which covers the axis. The result thus obtained is that the heat light, or light generated by the carbon points, is thrown to the outer portion of the field when the carbons are drawn nearer to the reflector and separated widely, while the entire central field is covered by purely chemical light generated by the arc itself. The advantages of this separation by reflection over that of glass or screen of any material is that every quality of light which is generated at the arc is thus reflected, while in screening the ultra-violet rays, even through quartz which offers the least resistance to them, are largely lost. The efficiency of light from the therapeutic standpoint depends largely on the percentage of violet and ultra-violet contained therein.

The carbon holders are insulated from the rack bars 44, as clearly appears in Fig. 11, preferably by means of the insulating washers 52 and the clamping nut 53, the circuit wire 7 being connected to one and the circuit wire 8 to the other.

The arm by which the lamp is carried is provided with a handle 54, by means of which the lamp post may be swung or the lamp may be rocked upon the head 55 of the post, the arm being provided with a socket 56 adapted to receive the same. See Fig. 10. The pivot 57 for the lamp carrying arm is preferably arranged eccentrically of the head 55, so that the set screw 58, arranged through the arm, engages the head to limit the downward movement of the lamp, allowing it to be tilted upwardly and downwardly to a certain point, according to the adjustment of the set screw. By this means, I secure a lamp which is capable of very perfect manipulation, in the giving of a treatment; also, one which can be adjusted to secure the desired rays,—for example, the violet or ultra-violet rays, and one in which the resistance can be quickly and accurately adjusted. The structure is comparatively simple to manufacture, and is not likely to get out of repair in use.

For some purposes, it is desirable to use a glass screen and I so show such a screen in Fig. 3 in which the strips of glass 59 are arranged in a frame 60, the glass being in strips, so that it is not likely to be broken by the heat from the lamp. This frame is provided with inturned hooks 61 on the top and sides thereof, which are adapted to engage over the rim 62 on the lamp body or reflector. I thus secure and effectively support the screen upon the lamp.

I have illustrated and described my improved lamp in detail in the form preferred by me on account of its structural simplicity and economy and convenience in manipulation and adjustment. I am, however, aware that it is capable of considerable variation in structural details without departing from my invention, and I desire to be understood as claiming the same specifically, as illustrated as well as broadly.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a structure of the class described, the combination with a hollow resistance coil; a tubular standard; a lamp; a tubular lamp post arranged through said standard to project into said resistance coil; vertically-disposed rod-like resistance coil contact members; coacting contact members for said resistance coil carried by said post and arranged to be vertically adjusted therewith; circuit wires for said lamp arranged through said lamp post and connected to said contact members carried thereby; means for adjustably connecting said post to said standard whereby the same is revolubly supported in its adjusted position therein, consisting of a split bushing revolubly secured on said standard; a collar about said bushing; and a thumb screw carried thereby adapted to be adjusted to clamp said bushing to said post whereby said post is revolubly secured in its adjusted position.

2. In a structure of the class described, the combination with a hollow resistance coil; a tubular standard; a lamp; a tubular lamp post arranged through said standard to project into said resistance coil; vertically-disposed rod-like resistance coil contact members; coacting contact members for said resistance coil carried by said post and arranged to be vertically adjusted therewith; circuit wires for said lamp arranged through said lamp post and connected to said contact members carried thereby; and means for adjustably connecting said post to said standard.

3. In a structure of the class described, the combination with a resistance coil, of a tubular standard projecting upwardly therefrom; a lamp; a tubular lamp post arranged through said standard; means for adjustably securing said lamp post within said standard; circuit wires for said lamp arranged through said post; resistance coil contact members; and coacting contact members mounted on said standard circuit wire contact members carried by said lamp post, said contact members being arranged to permit said revoluble and vertical adjustment of said post.

4. In a structure of the class described, the combination with a resistance coil, of a lamp; a lamp post arranged to project into said resistance coil; means for supporting said lamp post to permit its vertical and revoluble adjustment; circuit wires for said lamp carried by said post; contact members for said circuit wires carried by said lamp post; and coacting resistance coil contact members, said circuit wire contact members being revolubly connected to said post and slidably engaged with said resistance contacts to permit vertical adjustment.

5. In a structure of the class described, the combination with a resistance coil, of a lamp; a lamp post arranged to project into said resistance coil; means for adjustably supporting said lamp post; circuit wires for said lamp carried by said post; contact members for said circuit wires carried by said post; and coacting resistance coil contact members, said contact members being arranged to permit revoluble adjustment of said post within said coil.

6. In a structure of the class described, the combination with a resistance coil, of a lamp; a lamp post arranged to project into said resistance coil; means for adjustably

supporting said lamp post; circuit wires for said lamp carried by said post; contact members for said circuit wires carried by said post; and coacting contact members connected to the resistance coil, said contact members being arranged to permit vertical adjustment of said post within said coil.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

MYRON W. NEWTON. [L. S.]

Witnesses:

L. G. GREENFIELD,

CLORA E. BRADEN.