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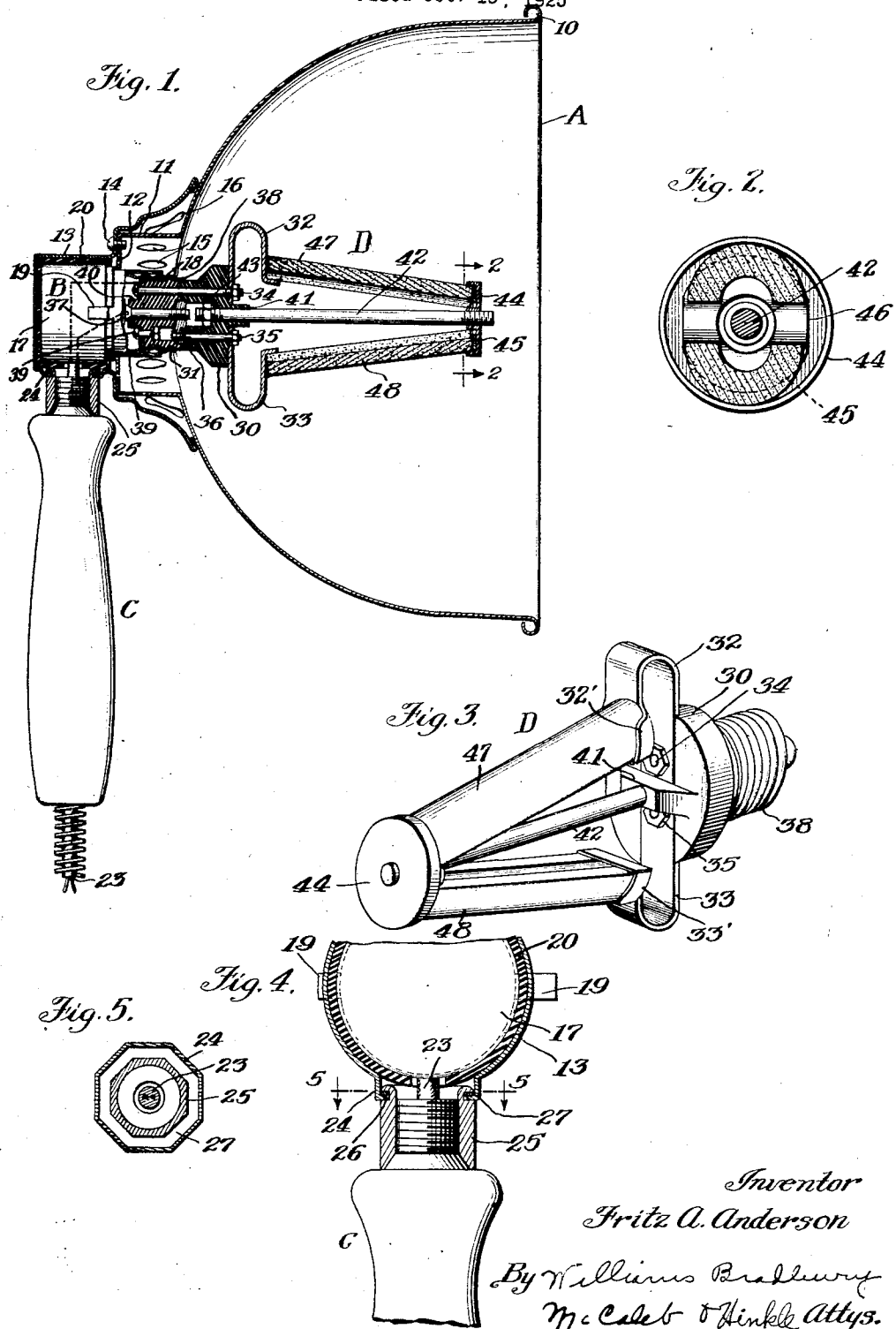
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THERAPEUTIC LAMP

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UNITED STATES PATENT OFFICE.

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THERAPEUTIC LAMP.

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My invention relates to therapeutic lamps.

It will be explained as embodied in a small portable or hand electric lamp although, of course, it is applicable to larger sizes of lamps. Even the smaller sizes, such as that chosen to illustrate the features of the invention, may be more or less permanently mounted on any desired and appropriate support.

One of the objects of the invention is to provide an improved therapeutic lamp.

Another object is to provide an improved light generating unit and reflector therefor.

Another object is to provide an improved lamp particularly adapted to produce visible and invisible radiant energy toward the red end of the solar spectrum.

Another object is to provide an improved light generating unit or cartridge for the conversion of electric energy into radiant energy.

Another object is to provide a unit or cartridge in which interference with radiation is reduced to a minimum.

Another object is to provide a unit or cartridge which may be readily repaired in case of accidental injury.

Another object is to provide a lamp which is efficient, durable, of pleasing appearance and readily used and manufactured.

Other objects and advantages will herein-after appear.

An embodiment of the invention is illustrated in the accompanying drawing, wherein—

Fig. 1 is a substantially axial section through the assembled lamp.

Fig. 2 is an enlarged section on the line 2—2 of Fig. 1.

Fig. 3 is a perspective of the light generating unit or cartridge removed from the reflector.

Fig. 4 is an enlarged section showing the method of attaching the handle to the reflector, and

Fig. 5 is a section on the line 5—5 of Fig. 4.

The lamp comprises, in general, a substantially parabolic reflector A, carrying an electric screw-plug receptacle B at its rear or closed end, a handle C attached to the receptacle housing and a light generating unit or cartridge D carried by the plug receptacle.

Reflector A is a substantially parabolic sheet metal shell having the rim of its outer

or open larger end rolled outwardly and backwardly to form a strengthening and finishing bead 10. The inner surface of the reflector is preferably polished to increase its reflecting properties and its outer surface may be painted or given any desired finish to improve its appearance. The smaller end of the reflector is formed into a cylindrical rearwardly projecting flange 11 whose rear edge is bent inwardly and then slightly back to form an annular ledge or shoulder 12. This ledge or shoulder forms a seat for the attachment of a housing 13 which supports the reflector shell and encloses and carries plug receptacle B. The rear end of housing 13 is closed to form a cup while its forward end is open and flared outwardly into substantial bell-shape to encompass a considerable portion of the rear of the reflector adjacent flange 11. A number of screws 14, passing loosely through holes in housing 13 and into aligned threaded holes in the reflector shoulder 12, serve to clamp the reflector shell and receptacle housing together. Because of its flare, the outer rim of housing 13 engages the reflector shell a considerable distance from its axis thereby adding to the strength, rigidity and appearance of the structure. Ventilating openings 15 in flange 11 of the reflector shell and ventilating openings 16 in the flaring rim of housing 13 serve to keep the lamp from becoming too hot.

Plug receptacle B fits and is secured within the cup-shaped rear end of housing 13. This receptacle is of the ordinary commercial type having a cylindrical base 17 of porcelain or other suitable insulating material and a metallic screw plug-receiving shell 18. At the bottom of shell 18 and insulated therefrom is the usual central or inner contact. Housing 13 is made of such depth that the rearwardly turned rim of flange 12 abuts against the outer end of the porcelain base 17 of the receptacle when the rear of the receptacle is against the back wall of the housing. Thus the plug receptacle is securely anchored to the reflector. The plug receptacle may be of the switchless type or, if desired, it may be of the ordinary switch type indicated in the drawings and operable to open and close the electric circuit by a pair of push buttons 19 projecting through suitable openings in opposite sides of housing 13. A fiber insulating sleeve 20

may be interposed between the receptacle and housing.

Handle C may be made of wood or other suitable material. It has a bore there-
 5 through for the passage of the current supply cord 23. In order to attach the handle to the reflector a small boss or projecting
 10 flange 24 is struck out from the body of the housing at substantially a right angle to the axis of the lamp and an internally threaded
 15 nipple 25 is anchored to this boss in the following manner. The inner end of nipple 25 is of reduced size and octagonal shape. The outer edge of boss 24, which also is of
 20 octagonal shape, is flanged inwardly to form an octagonal lip 26 which fits about the reduced and similarly shaped end of nipple 25. An octagonal washer 27 is placed upon
 25 the inner side of lip 26 and then the end of nipple 25 is upset or riveted over upon the washer as shown most clearly in Fig. 4. This construction is rigid and strong and the turning of the nipple is prevented. The end of handle C may be threaded to fit the internal threads of nipple 25 or it may be provided with a threaded ferrule to effect the union.

The light generating cartridge or unit D is adapted to be held in position by the plug
 30 receptacle. It has a base composed of two complementary substantially cylindrical sections 30 and 31 formed of porcelain or other suitable insulating material. The forward
 35 or outer section 30 has an enlarged head which is provided with a pair of grooves in its face to form seats for receiving the in-turned rear ends of two spring current-carrying clips 32 and 33. The outer or free
 40 ends of clips 32 and 33 are formed into sockets 32' and 33' for receiving the ends of the light generating elements to be hereinafter described. The major portion of each spring clip is formed from a nickel copper alloy such as "Monel" metal which retains
 45 its temper well under heat and thus maintains its resiliency. The surface of the "Monel" metal, however, oxidizes rather readily under the influence of heat and so, in order to insure good electrical contact
 50 with the light generating elements a part or all of the socket or contact portions of the clips are made from a chromium steel alloy such as "Ascology" metal. The two
 55 metals may be joined together by riveting or other suitable means. Clip 32 is anchored to the face of base section 30 by a bolt 34 which extends entirely through base section 31 and thus serves also to assist in clamping the two base sections together. Clip 33 is
 60 secured to the face of base section 30 by a bolt 35 which threads into and is riveted upon a metallic anchoring and current carrying block 36. Block 36 lies in a cavity in the base formed by two complementary recesses
 65 in the base sections and is thereby prevented

from turning. A screw 37, which forms the central or inner contact of the cartridge screw plug, also threads into block 36. Thus the spring clip, attaching bolt 35 and the inner contact forming screw 37 assist in
 70 holding the two base sections together. The outer plug contact comprises a metal cup shaped shell 38 which surrounds the plug base section 31 and is provided with thread formation to register with the thread of re-
 75 ceptacle shell 18. Bolt 34 and a small bolt 39 serve to hold this outer plug contact shell in place on the base. The bottom of shell 38 has a centrally disposed opening through which extends a lug 40 projecting from base
 80 section 31. Contact screw 37 passes through this lug 40 and the head of the screw lies exposed on its rear surface so as to be advanced in a position to engage the central or inner
 85 contact of the receptacle when the cartridge plug is screwed therein.

Projecting from the front face of base section 30 and lying between the grooves which form the seats for spring clips 32 and 33 is a projecting lug 41. This lug 41 serves
 90 to assist in holding the spring clips in proper position and to insure that they are insulated from each other. It also serves to steady a post 42 which extends through base section 30 and is securely clamped in position by a
 95 nut 43. Post 42 is thoroughly insulated from clips 32 and 33 as it is not intended to carry current. The outer end of post 42 is threaded to receive a cup shaped nut 44. Lying within and against the top of nut 44
 100 is a washer 45 which is formed with a transverse bump or ridge 46. Nut 44 and washer 45 form a supporting and current-carrying yoke for the outer ends of the light producing elements hereinafter described.

The light generating elements 47 and 48 which transform the electric energy into radiant energy extend and are held between spring clips 32 and 33 respectively and the cap washer 45 at the forward end of post 42.
 110 Each element consists of a semi-tubular stick of non-metallic current conducting material which is brought to a greater or less degree of luminescence upon the passage of electric current therethrough. Various substances, such as carbon or composition of
 115 carbon and other suitable materials, for example carborundum, are suitable for this purpose but I have found that semi-tubular elements made from material of which the so-called "Globar" is manufactured gives excellent results. These elements resemble sticks of carbon and I have found them to be efficient and to produce light which is rich
 120 in the longer visible and invisible red rays of the solar spectrum. Each element is seated at one end in one of the sockets 32'—33' of the corresponding spring clip 32 or 33 and at the other end lies within cap 44
 125 against washer 45. The convex sides of the
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elements are turned outwardly from the axis or port 42 and at the outer ends their flat edges lie against the bump or ridge 46 across washer 45. Thus the elements are firmly held under compression and converge toward the open end of the reflector. The degree of compression may be varied by turning cap 44 to move the same inwardly or outwardly and, when an element is to be replaced this may be done readily because the cap and its washer 45 can be quickly removed and returned to position. The conductivity between the elements and their metal spring clip sockets and washer 45 may be improved by coating the ends of the elements with aluminum. The molten aluminum spraying process has been found to give good results. "Globalar" elements can be obtained wherein the ends are of greater conductivity or lesser resistance than the body portion and such construction has the advantage of lowering the temperature in the vicinity of the metal contacts.

When the lamp is in service the two elements are connected in series to the source of current. Thus for example current may enter the lamp from one cord conductor, flow through the central contact of the plug receptacle to the inner contact 37 of the cartridge plug, thence through block 36, bolt 35 and clip 33 to element 48, through element 48 to washer 45 and cap 44, back through element 47, spring clip 32, bolt 34, outer plug and receptacle contacts 38 and 18 to the other cord conductor. If a switch type receptacle is used its make and break contacts will, of course, be interposed in this circuit in the usual way.

The forwardly converging elements of semi-cylindrical form afford a relatively large light radiating surface and, because the supporting post is centrally located where it does not screen any effective part of either element, the elements are exposed to the reflector directly and without obstruction. The cartridge may be readily removed and replaced like an ordinary electric lamp bulb and the elements may be quickly renewed should occasion require.

Having thus illustrated and described the nature and one embodiment of my invention, what I claim and desire to secure by United States Letters Patent is as follows:

1. A therapeutic lamp comprising a curved reflector, an insulating base mounted in the reflector, a plurality of rigid radiant energy generating elements lying in front of the base about the axis of the reflector and for producing therapeutic effects when heated by electric current passing there-through, a plurality of supports mounted on the base and carrying the rear ends of the elements, a rigid post carried by the base on the axis of the reflector, means on the post for carrying the forward ends of the ele-

ments, and electrical conductors for connecting the elements to an electric circuit.

2. A therapeutic lamp unit comprising an electric current conducting plug for attachment to a receptacle, a rigid post projecting from the face of the plug, a plurality of current carrying clips mounted on the plug, a detachable yoke mounted on the outer end of the post, and a plurality of therapeutic light generating elements supported by and between the clips and yoke.

3. A therapeutic lamp unit comprising an insulating plug base having inner and outer current conducting contacts, a rigid post projecting axially from the face of the plug base, a plurality of rigid electric radiant energy generating elements lying along the post, and supports carried by the plug base and the outer end of the post detachably to hold the elements under compression at opposite ends.

4. A therapeutic lamp comprising an open ended flaring reflector, a plug receptacle mounted within the reflector adjacent its smaller end, a plug detachably fitting the receptacle, a pair of current carrying spring clips mounted on the plug, a post projecting forwardly from the plug on the axis thereof and including an abutment, a pair of electrically operated radiant energy producing elements lying in the plane of the post on opposite sides thereof, each element being supported at one end by one of the clips and at the other end by the abutment on the post.

5. A radiant energy generating unit comprising an insulating base, a supporting post projecting from the base, a yoke carried by the post, a plurality of current conducting spring clips carried by the base and insulated from the post, energy converting elements supported between the yoke and the clips, and electrical terminals carried by the base and connected to the clips.

6. A therapeutic radiant energy generating unit comprising an insulating base provided with inner and outer plug-receptacle contacts, a supporting post projecting from the base, a current conducting yoke carried by the post, a pair of current conducting spring clips carried by the base on opposite sides of the post, an energy converting element supported by and between each clip and the yoke, and electrical conductors for connecting the clips to the plug-receptacle contacts whereby current may be conducted to and from the energy converting elements.

7. A radiant energy generating unit for a therapeutic lamp comprising a pair of elongated energy converting elements, a post extending therebetween, a current conducting yoke for anchoring one end of each element to the post, an insulating base for supporting the post, a pair of spring clips secured to the base and carrying the opposite ends

of the elements, and electrical terminals carried by the base and connected to the spring clips to conduct current to and from the elements.

5 8. A therapeutic lamp radiant energy generating cartridge comprising a pair of semi-tubular rods of electrical resistance material which will become incandescent when electric current is passed therethrough, an insulating base provided with inner and outer contacts for attachment to a plug-receptacle, a pair of spring clips secured to the base and for supporting one end of each rod in current conducting relation to the inner and outer contacts respectively, a post projecting from the base and lying between the rods, and a metal yoke carried by the post and supporting the outer ends of the rods and electrically interconnecting them.

20 9. A therapeutic lamp radiant energy generating cartridge comprising an insulating base, inner and outer plug-receptacle contacts carried by the base, a post projecting from the base, a metal yoke attached to the outer end of the post, a pair of spring clips attached to the base on opposite sides of the post and insulated from the post, semi-tubular energy converting units supported between the clips and the yoke on opposite sides of the post.

30 10. A radiant energy generating-cartridge for a therapeutic lamp comprising an insulating base provided with contacts for cooperation with a plug receptacle, a plurality of current conducting elements for converting electrical energy into radiant energy, a current conducting support for holding one end of each element, said supports being carried by the base, and a post for supporting the other ends of said elements, said post extending longitudinally between said elements and carried by the base.

40 11. A radiant energy generating unit for a therapeutic lamp comprising a plug of insulating material for attachment to a receptacle and having electrical terminals adapted to contact with the receptacle terminals, a plurality of current conducting spring clips attached to the base and having sockets adjacent their outer ends, said clips being electrically connected to the plug terminals, a post supported by and projecting axially from the plug and insulated from the spring clips, a removable current conducting yoke carried by the post adjacent its outer end, and a plurality of rigid electrically energized radiant energy generating elements seated at opposite ends in the clip sockets and against the yoke to be supported thereby on the plug in circuit with the plug terminals.

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12. An energy generating unit designed for generating ray energy at the red end of the spectrum, said unit comprising a plug base having outer and inner contacts and designed to be inserted into usual forms of lamp socket, a plurality of supports carried by and projecting from the base, a member projecting axially of the base and having an abutment thereon, a plurality of rigid elements designed for producing radiant energy of the character described when energized by an electric current and each having one end held by a support and the other end held against the abutment of the member projecting axially of the base, and means for connecting said radiant energy producing elements electrically with the contacts of the base.

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85 13. A unit as defined in claim 12 wherein said supports are of conducting material, and are electrically connected to the outer and inner contacts respectively, the generating means thereby being electrically connected in the circuit in series.

In witness whereof, I hereunto subscribe my name this 16 day of October, 1925.

FRITZ A. ANDERSON.