

Aug. 21, 1923.

H. J. NELSON
ELECTROTHERAPEUTIC DEVICE

Filed Dec. 3, 1921

1,465,615

FIG. 1.

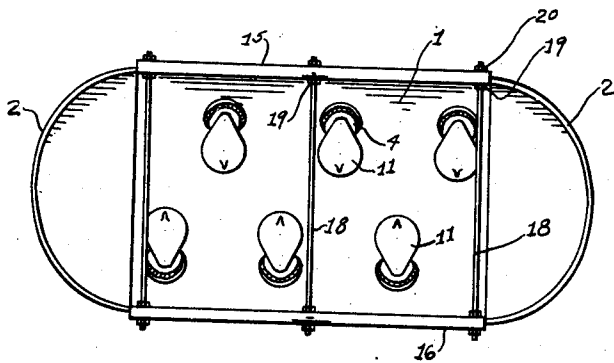


FIG. 2.

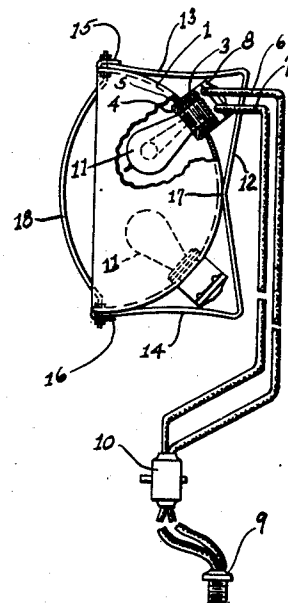


FIG. 3.

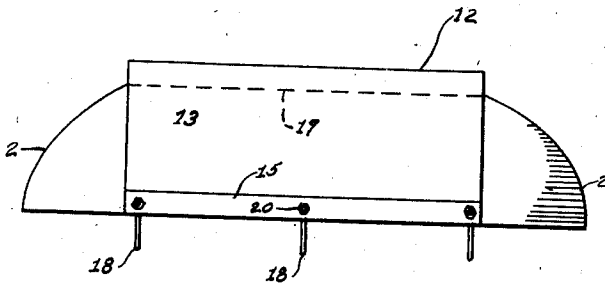


FIG. 4.

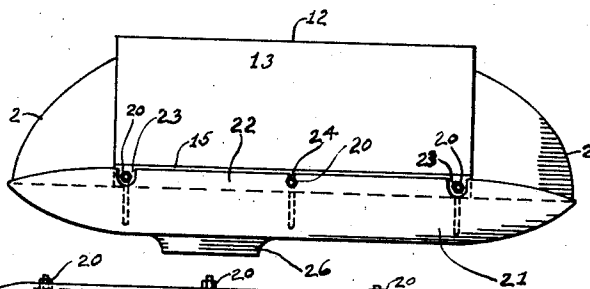
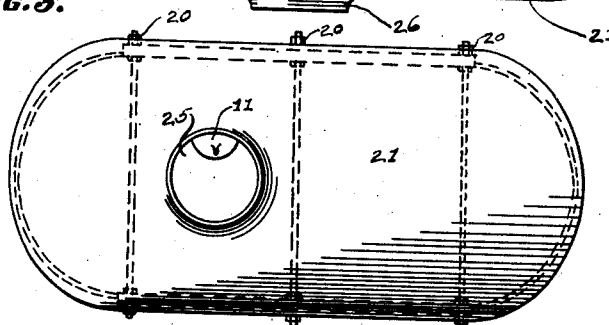


FIG. 5.



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UNITED STATES PATENT OFFICE.

HENRY JOHN NELSON, OF GREEN BAY, WISCONSIN.

ELECTROTHERAPEUTIC DEVICE.

Application filed December 3, 1921. Serial No. 519,622.

To all whom it may concern:

Be it known that I, HENRY J. NELSON, a citizen of the United States, residing at Green Bay, county of Brown, and State of Wisconsin, have invented new and useful Improvements in Electrotherapeutic Devices, of which the following is a specification.

This invention relates to an electro-therapeutic device and is particularly directed to an apparatus especially adapted for home use.

In the treatment of neuritis, rheumatism, lumbago and other diseases, with their accompanying secondary disturbances such as sleeplessness and nervousness, the use of radiant energy, particularly rich in heat and actinic rays, has been steadily gaining favor due to the relatively large number of cures effected, and to the relative simplicity and safeness of the treatment. However, although the treatment itself is simple and safe, there was a hitherto unavoidably associated danger, due to the subsequent exposure of the patient to cold and shock while returning to his home after a treatment. It is well known that immediately after a treatment, the patient is in an extremely relaxed condition and is peculiarly subject to cold and shock, and that either of these disturbances may arrest the beneficial influences which have just been initiated thereby lessening, and often defeating, the very object of this treatment.

It is therefore a primary object of this invention to provide an electro-therapeutic device, utilizing radiant energy, which is peculiarly adapted for home use; one which may be used in the bed of the patient and, if desired, immediately before the patient goes to sleep, so that the relaxed condition may be produced when desired and may persist for a great length of time without any chance of disturbances, arresting the desirable gradual changes.

Further objects are to provide an electro-therapeutic device which will produce a condition closely corresponding to that produced by a sun bath, which may be easily regulated without decreasing the electrical efficiency of the apparatus, which may be applied to any portion of the body, and which may be controlled by the patient himself if desired.

Further objects are to provide an electro-therapeutic device which does not require

any additional auxiliary apparatus but which is of unitary design, complete in itself; which is portable; which may be applied to any part of the body; which is adapted for the treatment of either a relatively large or small area; which is adequately protected from harmful contact with the patient so as to guard against accidental contact with either the lights or electrical connections; and which may be cheaply and readily manufactured.

Embodiments of the invention are shown in the accompanying drawing, in which:—

Figure 1 is a front elevation of the device as it appears in use.

Figure 2 is a side elevation with parts broken away to more clearly show the construction.

Figure 3 is a plan view of the structure shown in Figure 1.

Figure 4 is a plan view showing a modification which may be employed.

Figure 5 is a front elevation of the structure shown in Figure 4.

The device comprises a reflector whose main portion is an elongated substantially cylindrical member 1 provided with conical or spherical ends 2. These portions 1 and 2 may be formed integrally, if so desired, by a single stamping operation. A series of openings are formed thru the main member 1 of the reflector and two-part sockets inserted therethru; one of such parts 3 constituting the major portion of the socket and positioned to the rear of the reflector, and the other part 4 corresponding to a locking or clamping nut being placed on the forward side of the reflector and extending thereto to engage the rear portion of the socket to thereby lock such socket in position upon the reflector—a resilient or cushioning gasket 5 being preferably placed between the flanged portion of the member 4 and the deflector so as to avoid excessive strains tending to break the porcelain of the socket. These sockets are connected electrically by means of conductors 6 and 7 held beneath a clip-like portion 8 upon the rear side of the socket, such conductors being extended to provide a flexible connector terminating in a screw plug 9 and provided with an intermediate control switch 10; the proportioning of the length of the conductors being such as to allow their ready attachment to a source of electrical energy, while at the same time positioning the

switch 10 within easy reach of the patient.

A series of electric lamps 11 are screwed into the sockets and are so arranged that they occupy the correct positioning relative to the reflector 1. A convenient and satisfactory way of arranging these lights is to arrange alternate lights in the upper and lower rows in staggered relation, as indicated in Figure 1. It is, of course, understood that the curvature or shape of the reflecting surfaces is such as to produce the desired distribution of the reflected and direct radiations. That is to say, if it is desired to cause the rays to be concentrated at one point, or to be projected in horizontal lines, or to be slightly divergent, the relative position of the lights and the curvature of the reflecting surfaces is accordingly suitably varied. It is, however, contemplated projecting the rays more or less in a horizontal direction with, however, a slight amount of divergence, as this is the most generally serviceable arrangement.

In order to stiffen the device and provide both a shield for the electrical connections and a base for the device to rest upon, a suitable sheet metal back is provided, as indicated at 12. This back has integral forwardly projecting upper and lower portions 13 and 14 which are secured beneath the intumed marginal edges 15 and 16 of the central or body portion 1 of the reflector. These portions 13 and 14 are slightly concave, so as to provide increased rigidity, and the rear portion or back 12 is similarly bent inwardly, so as to provide an additional point of contact, as indicated at 17, with the rear surface of the reflector. At each of the several points of lines of contact between this combined back and base portion with the reflector, suitable means are employed to secure a permanent joint as, for example, by means of soldering, brazing, or similar processes. In this manner, the back provides both a reinforcing and protecting sheath for the electrical conductors and a base for the entire apparatus to rest upon.

A series of outwardly bowed protecting rods 18 are provided, and extend across the front of the reflector, and spaced at suitable distances apart so as to prevent harmful contact of the patient with either the lights or the heated reflector. These rods may be secured in any desired manner as, for example, by providing them with a pair of nuts 19 and 20 upon their outer ends and clamping such nuts against the inner and outer surfaces of the reflector adjacent its marginal edges after such rods have been passed thru apertures in the reflector.

The device, as thus far described, is admirably adapted for the treatment of extended areas of the patient's body. It is intended that the device be placed upon the bed of the patient, occupying the position

indicated in Figures 1 and 2, that is to say, standing upon its base portion 14. If, for example, it is desired to treat the back of the patient, he turns upon his side and the attendant places the therapeutic device behind him, allowing it to rest upon the bed with its greatest dimension extending parallel to the patient's body and with the reflector towards the patient. The electrical conductors are so disposed that the switch may be easily reached by the patient. Thereafter, the clothing of the patient is so arranged that the rays may directly reach his body and the current is then turned on. If desired, the bed clothes may be placed over the patient and over the device to thereby further conserve the heat and produce a more rapid rise in temperature. If, however, the relatively high heat is not desired to such an extent, the bed clothes may be removed and the patient may then be subjected merely to the direct rays of the apparatus without being subjected to the relatively high temperature, which would be produced when the device is used as stated above. In either case, however, the patient is subjected to heat rays and actinic rays. The patient becomes relaxed and the therapeutic action of the heat and light rays produce their desirable effect. After the treatment, it is not necessary to disturb the patient, but merely to make sure that he is properly covered and not exposed in any way to cold or shocks. In this manner, the desired effect may be produced whenever it is wished, and the patient may be protected from subsequent exposure in a manner impossible under the usual treatment given at physicians' offices, as in the latter case it is necessary for the patient to again come into the cold and be subjected to shocks of greater or less intensity on his way home, which may in itself arrest the beneficial changes started by the treatment, and which will at all events materially lessen them. By using the device forming the subject matter of this invention, all of the undesirable features enumerated above are wholly avoided, and the beneficial gradual changes may continue for a great length of time after the treatment has stopped.

For the treatment of a relatively small area, the therapeutic device may be provided with a front cover 21, which is of the general shape of the reflector and is slightly outwardly bowed to accommodate the protecting rods 18. This shield may be provided with intumed flanges 22 equipped with suitable cutouts 23 to avoid the end nuts 20, and with an appropriate slot 24 to accommodate the threaded shank of the central protecting rod 18. In positioning this device, it is merely necessary to loosen the central nuts 20 and slip the device into place, thereafter tightening the central nuts and

securely retaining the shield in position. The shield may be provided with a circular opening 25 conveniently arranged slightly to the side of the vertical central line and provided with substantially conical or flaring walls 26. The location of this opening 25 is such as to permit the outward passage of light from three of the lamps simultaneously, if so desired. It is to be noted that the exact amount of heat rays and actinic rays may be secured by utilizing the desired number of lights. For, if it is desired to reduce the effect of the apparatus, one or more lights may be unscrewed from their sockets.

It will thus be seen that an electro-therapeutic apparatus has been produced which is eminently suited for home use; which may be employed in treatments without requiring subsequent exposure of the patient; which is of extremely rigid design; in which the various parts are protected against accidental contact with the patient; and which does not require the use of auxiliary apparatus or equipment.

I claim:—

1. A portable therapeutic device comprising an apertured reflecting element having a cylindrically curved portion, lamp sockets supported from said body portion upon opposite sides of the median line thereof, lamps in said sockets converging toward the axis of said body portion, wiring for supplying current to said sockets exterior to said reflector, and a unitary base and guard at the rear of the reflector and connected thereto at its margins and at a point intermediate said sockets, said guard being bent between

its points of connection with the reflector to constitute a housing for the wiring and to provide a base upon which the device will be stable in a plurality of positions.

2. A portable electro-therapeutic device comprising a cylindrically curved reflector apertured upon either side of its longitudinal median line, sources of radiant energy mounted in said apertures and adapted to receive electrical current from the exterior of the reflector, wiring for connecting said sources of radiant energy with a supply main for electrical current, and a sheet metal housing secured to the margins of said reflector and to an intermediate point thereof and bent between its points of connection with the reflector to enclose said wiring and to provide a three-sided base upon any side of which the device will be stable.

3. A portable electro-therapeutic device comprising an elongated reflector having substantially conical ends and a cylindrical body portion, a plurality of lamps, a plurality of sockets supporting said lamps and extending through said reflector and clamped thereto with their major portion projecting to the rear of said reflector, electrical connectors connecting said sockets and adapted to be connected to a source of electrical energy and positioned upon the rear of said reflector, and a unitary back and base attached to the upper and lower elongated sides and to substantially the middle of the rear surface of said reflector to thereby provide a protecting sheath for said electrical connectors and a base for said device.

HENRY JOHN NELSON.