July 6, 1943. C. G. FILZER 2,323,529

APPARATUS FOR VIOLET RAY TREATMENT

Filed Dec. 26, 1939 3 Sheets-Sheet 1

FIG. 1.

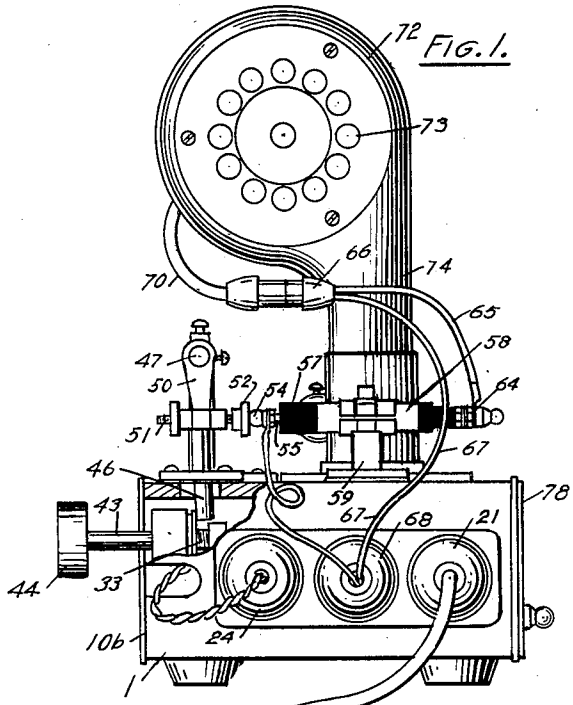
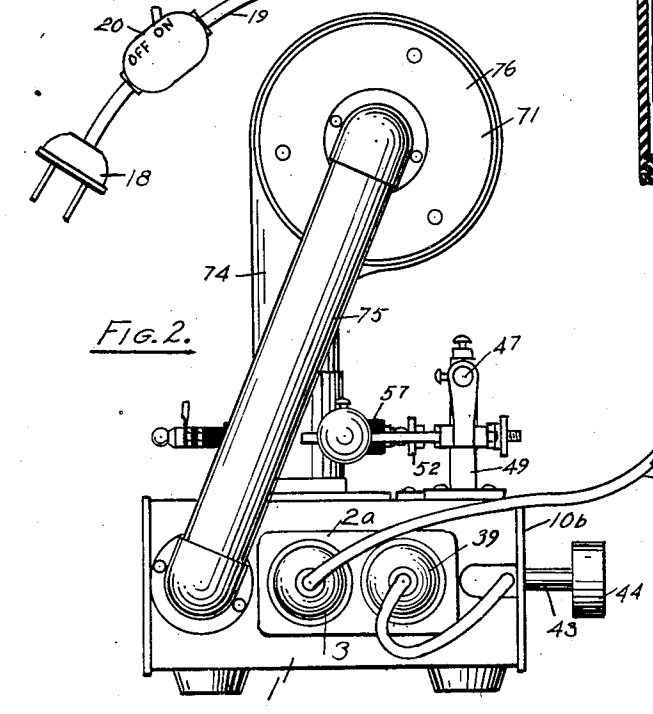
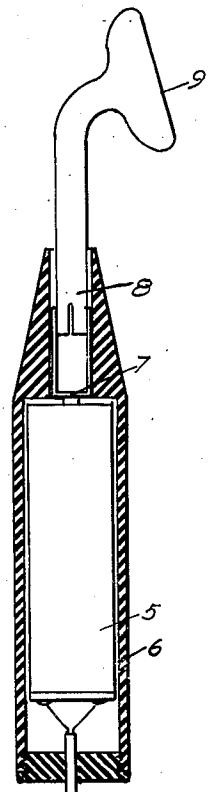


FIG. 2.





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APPARATUS FOR VIOLET RAY TREATMENT

Filed Dec. 26, 1939 3 Sheets-Sheet 2

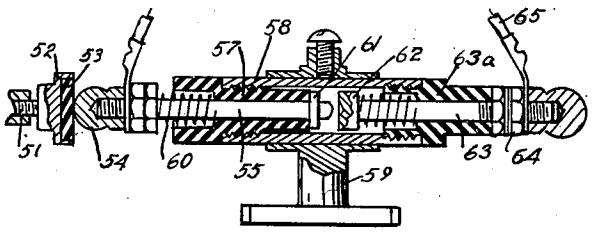


FIG. 4.

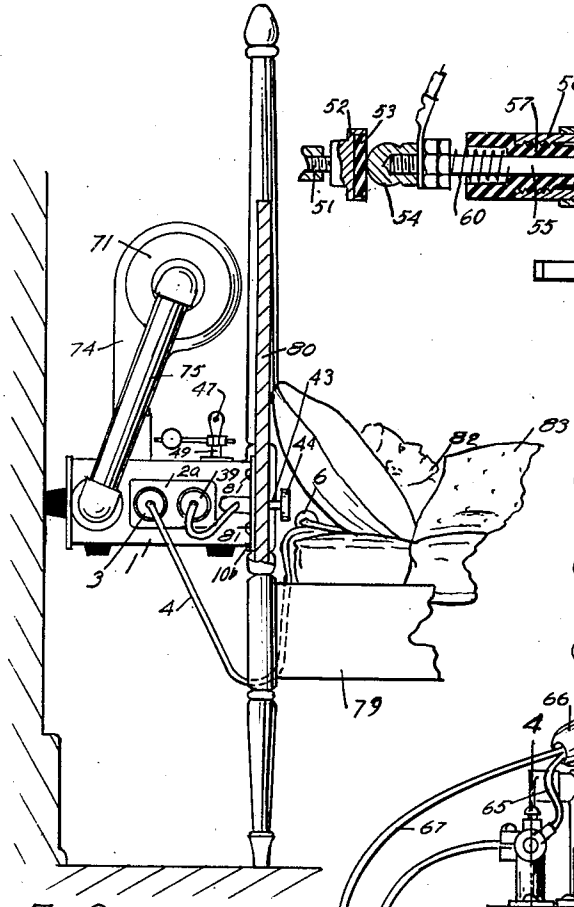


FIG. 3.

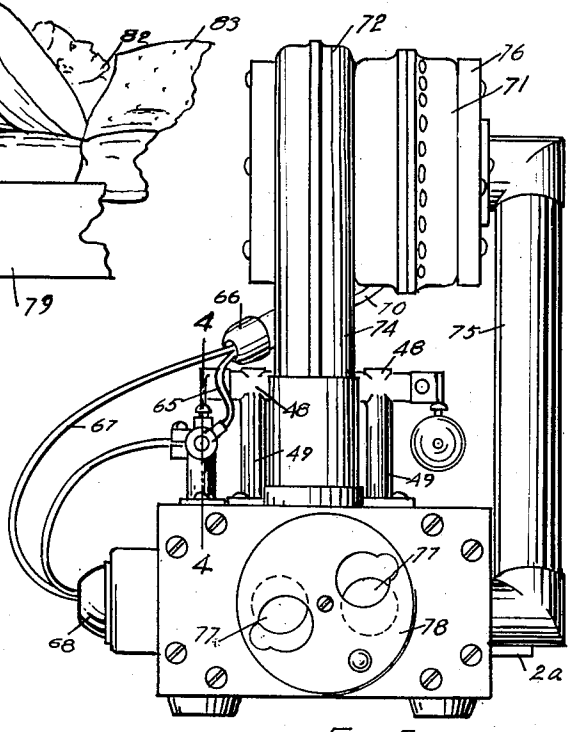


FIG. 5.

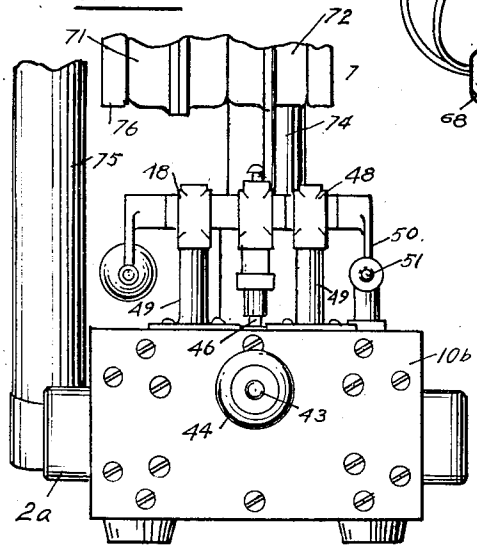


FIG. 6.

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July 6, 1943. C. G. FILZER 2,323,529

APPARATUS FOR VIOLET RAY TREATMENT

Filed Dec. 26, 1939 3 Sheets-Sheet 3

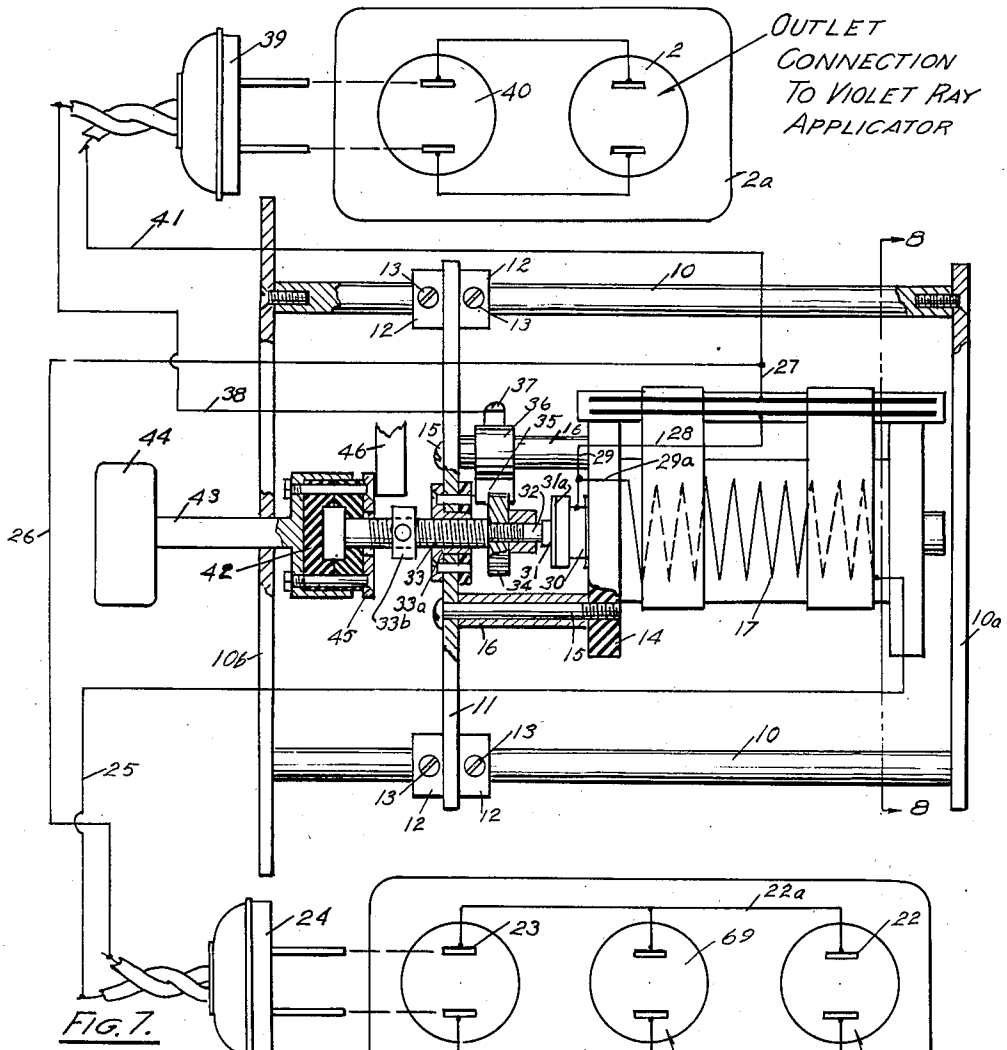


FIG. 7.

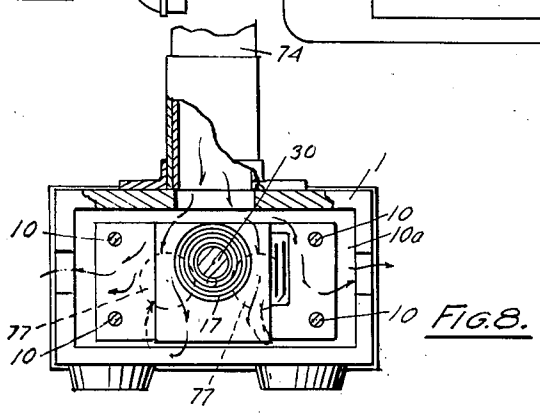


FIG. 8.

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Patented July 6, 1943 2,323,529

UNITED STATES PATENT OFFICE

2,323,529

APPARATUS FOR VIOLET RAY TREATMENT

Christian G. Filzer, Erie, Pa.

Application December 26, 1939, Serial No. 310,936

5 Claims. (Cl. 175—363)

The present invention is designed to improve violet ray apparatus and also involves an arrangement of said apparatus in connection with means improving the application of the ray and the method of such use.

In carrying out the invention I provide a case or enclosure for the coil, condenser and immediately associated parts and provide a fan which is connected with such enclosure by means of which circulation of air may be continued through the enclosure. This is important generally, but particularly important in connection with the treatment which also forms the subject matter of the invention.

The invention also involves a common control for the fan, motor and the ray apparatus so that with a single control there is put into operation the different phases of the apparatus in proper sequence.

The invention also involves a proper enclosure and a use of the ray so as to maintain the ozone created by the ray in contact with the portions of the body which may be under treatment. Features and details of the invention will appear from the specification and claims.

A preferred embodiment of the invention is illustrated in the accompanying drawings as follows:

Fig. 1 shows a side elevation.

Fig. 2 a similar view from the opposite side of the apparatus.

Fig. 3 a side elevation showing the apparatus mounted on a couch and the manner of treatment with the apparatus so arranged.

Fig. 4 a sectional view of the controlling switch.

Fig. 5 a rear elevation of the apparatus.

Fig. 6 a front elevation of the apparatus.

Fig. 7 a sectional view of the case with parts removed to show the connections and wiring.

Fig. 8 a sectional view of the case along the line 8—8 in Fig. 7.

1 marks the case. This is provided with a switch socket 2 arranged on a plate 2*a* on the side of the case. A plug 3 is arranged in the switch socket 2. A cord 4 extends from the plug 3 to the resonance coil 5, the resonance coil being placed in a tube from the handle for the applicator. The coil is connected through an electrode 7, extending into tube 8, which terminates in an applicator 9. These are of common construction.

The frame of the device has four rods 10 from front to rear, these being connected with a rear plate 10*a* and a front plate 10*b*. A bridge plate 11 is secured to the rods 10 by means of collars 12 secured in place by set screws 13. A frame block 14 is secured to the rear of the bridge plate 11 by screws 15, distance sleeve 16 being arranged between the block 14 and the plate 11. The usual magnetic coil 17 is carried by the block 14.

A plug 18 is provided to connect the apparatus to a supply current. A core 19 extends from the plug 18 and is provided with the usual switch 20. This plug terminates in a switch-plug 21 which is adapted to connect the current to and from a socket 22 arranged on a plate 1*a* on the case. The socket 22 is connected by connecting bars 22*a* with a socket 23. A plug 24 is placed in the socket 23, and one line 25 from the plug leads to the magnetic coil 17. The opposite line extends from the plug through a wire 26, 27, 28, 29, and 29*a*, to the opposite side of the coil. A cord 30 of the coil operates in connection with a vibrator plate 31 carried by spring arm 31*a* and a contact 32 carried by a controlling rod 33 which is screw-threaded through a nut 33*a* in the bridge plate.

A click wheel 34 is arranged on the adjusting rod and operates with relation to a spring clip 35 arranged on a collar 36. A set screw 37 is provided for the collar, the set screw also providing a connection for wire 38, the wire 38 extending to a switch plug 39 which plug is adapted to operate in connection with a socket 40 on the plate 2*a*. The socket 40 is connected with the socket 2 and with the connections heretofore described leading from them to the resonance coil. The return wire 41 from the socket 40 and plug 39 connects with the wire 27 and also with the vibrating plate 31. The connection is established, therefore, through the click wire 38 and the return circuit described through the vibrator.

The control rod 33 is connected through an insulating block 42 with a rod extension 43 which has an operating knob 44. By operating the knob 44 the contact 32 may be advanced or retracted so as to initially make the vibrator active and then to vary its adjustment to vary the intensity of the ray. A stop collar 33*b* is provided to limit the inward movement of the rod at its innermost adjustment.

In the present invention the controlling rod with its knob also controls the switch mechanism which sets the apparatus in operation. A plate 45 is arranged on the face of the insulating block 42. A rock arm 46 engages the face of this plate and consequently is swung as the rod is moved inwardly through the screw threaded connection of the rod as the rod is advanced, making the

vibrator active. The rock arm 46 is carried by shaft 47 and this shaft is carried by journals 48 mounted on the tops of posts 49, the posts being secured to the top of the case 1. A rock arm 50 is arranged on the end of the shaft and has a screw 51 securing a socket 52 with an insulating pad 53 at the end of the arm. The pad 53 engages a head 54 arranged on the end of a sliding rod 55. The sliding rod 55 is slidingly mounted in a sleeve 57 and this sleeve is screwed into a supporting sleeve 58 secured on a post 59. A spring 60 opposes the movement of the rod 55 inwardly and a stop 61 on the rod limits its outward movement. The rod 55 when pulled inwardly makes contact with a head 62 on a rod 63. The rod 63 is slidingly mounted in a sleeve 63*a* and the sleeve 63*a* is screwed into the sleeve 58. A contact screw 64 is arranged on the outer end of the rod 63 and secures a contact terminal for the wire 65. The wire 65 extends to a coupling 66 and a return wire 67 from the coupling leads to a plug 68, this plug operating in a socket 69 on the plate 1*a*, and the socket 69 being connected with the socket 22, and therefore with the source of supply. A cord 70 runs from coupling 66 to a motor 71. The motor is carried by a fan 72 and drives the fan. The fan obtains air through openings 73 and discharges air through a tube connection 74 to the motor 71, and circulating around the coil and condenser therein and cooling the same. The air may be discharged directly through the atmosphere. The air may be returned by connection 75 to the motor so as to cool the motor. A portion of the air may be returned to a casing 76 of the motor. A portion of the air may be returned to the atmosphere through openings 77 at the rear of the box, these openings being controlled by plate valve or shutter 78.

A couch or bed 79 on which a patient may recline is provided. The plate 10*b* is secured to a head 80 of the couch by screws 81, the controlling rod extending through the head and placing the knob in easy reach of the patient 82 reclining on the couch. A cover forming an enclosing means for the patient is provided and the extension is of sufficient length to permit of the applicator being grasped by the operator and used in the treatment of the body and closed by a cover 83. This treatment produces ozone which is retained by the cover in contact with the body and thus enhances the beneficial effects of the application of the ray to the body. The ray through the applicator may be moved to different parts of the body for treatment. The placing of the control apparatus in easy reach of the patient and so arranged that it may be controlled without substantial opening of the cover makes it possible to vary the intensity and control the ray as desired without substantial loss of the ozone maintained within the cover.

This apparatus by reason of the fan and the cooling effect may be continued over a considerable period whereas the ordinary violet ray apparatus is limited to short periods of use by reason of excessive heat involved, and where the apparatus is used in the manner indicated a longer period is required for the suitable production of ozone and the continued treatment than the ordinary violet ray apparatus will provide.

What I claim as new is:

1. In a current generator designed for use in a violet ray apparatus of the type having a violet ray applicator tube, a resonance coil activating such tube, and a lead from such coil to a current generator, a current supply, a case, the current generator comprising a magnetic coil and condenser enclosed in the case, an electric motor, a fan driven by the motor, connections from the current supply to the motor and to the current generator, a connection leading from the fan to the case providing circulation for the magnetic coil, and a common control means for the apparatus and motor, said control means connecting the supply with the motor in advance of the generation of the ray.

2. In a current generator designed for use in a violet ray apparatus of the type having a violet ray applicator tube, a resonance coil activating such tube and a lead from such coil to a current generator, a current supply, a case, the current generator comprising a magnetic coil and condenser enclosed in the case, an electric motor, a fan driven by the motor, connections from the current supply to the motor and to the current generator, a connection leading from the fan to the case providing circulation for the magnetic coil, and a connection returning air from the case into cooling relation with the motor.

3. In a current generator designed for use in a violet ray apparatus of the type having a violet ray applicator tube, a resonance coil activating such tube, and a lead from such coil to a current generator, a case, the current generator comprising a magnetic coil and condenser enclosed in the case, an electric motor, a fan driven by the motor, a connection from the fan directing air on the magnetic coil, a current supply for the magnetic coil and motor, a switch controlling the said supply, and a control for the vibrator, said control actuating the switch.

4. In a current generator designed for use in a violet ray apparatus of the type having a violet ray applicator tube, a resonance coil activating such tube and a lead from such coil to a current generator, the current generator comprising a magnetic coil and condenser, an electric motor, a fan driven by the motor, a connection from the fan directing air on the magnetic coil, a current supply for the magnetic coil and motor, a switch controlling the said supply, and a control for the vibrator, said control actuating the switch in advance of putting the vibrator in action.

5. In a current generator designed for use in a violet ray apparatus of the type having a violet ray applicator tube, a resonance coil activating such tube and a lead from such coil to a current generator, the current generator comprising a magnetic coil, a vibrator acting with the magnetic coil, an operating rod for the vibrator, said rod putting the vibrator into action initially and controlling the vibrator in action to control the ray, an electric motor, a fan driven by the motor, a connection from the fan directing air on the magnetic coil, a current supply for the magnetic coil and motor, a switch controlling the supply, said switch comprising a rock arm in the path of the operating rod, a shaft actuated by the rock arm, a switch arm on the shaft, a switch rod moved by the switch arm, means for adjusting the relation of the switch rod and the arm, a switch closed by the switch rod, yielding means for the switch rod permitting a continued movement thereof after contact to permit of a control movement of the operating rod.

CHRISTIAN G. FILZER.