

July 16, 1935.

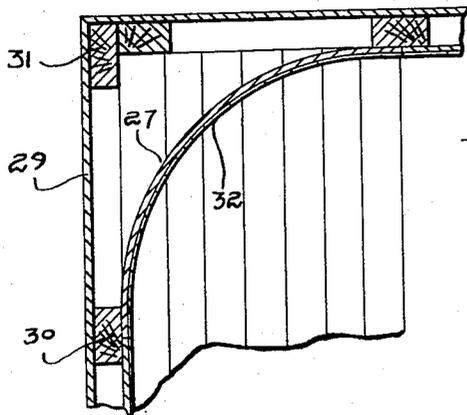
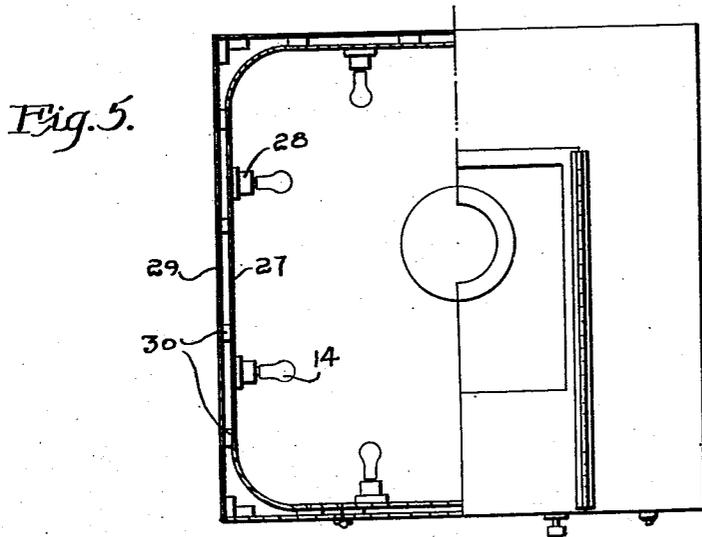
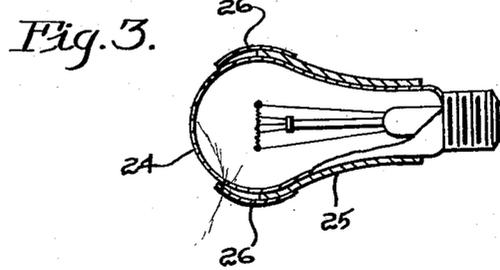
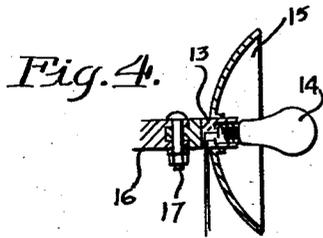
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2,008,653

TREATING CABINET

Filed Sept. 23, 1932

4 Sheets-Sheet 2



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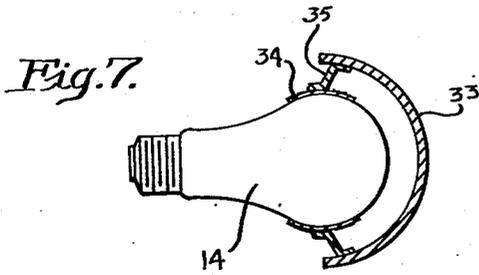


Fig. 8.

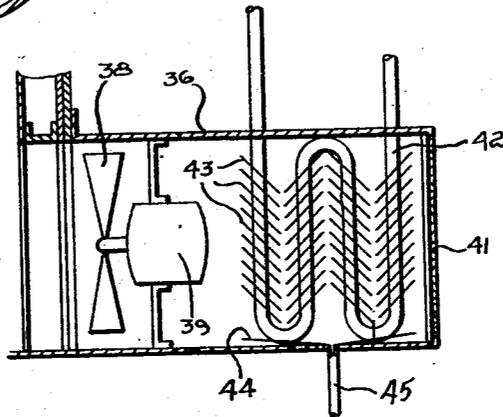


Fig. 12.

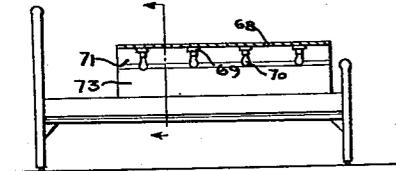


Fig. 9.

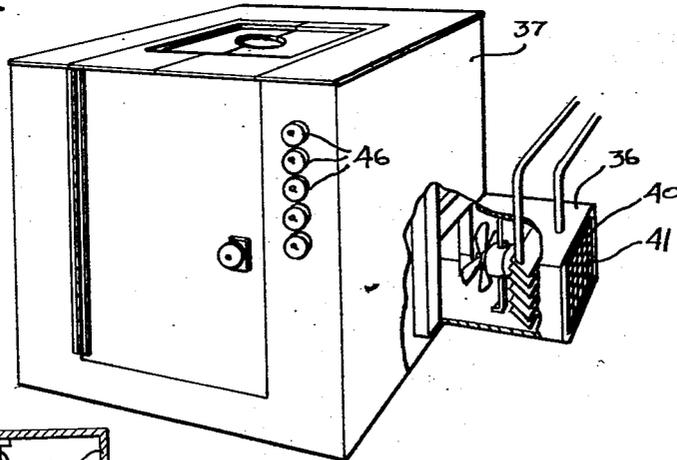
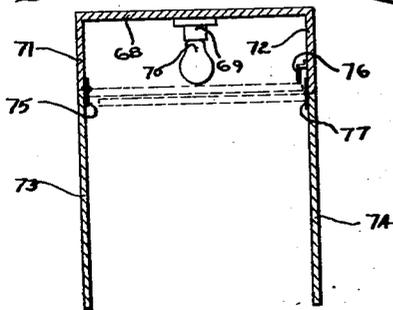


Fig. 13.



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Fig. 10.

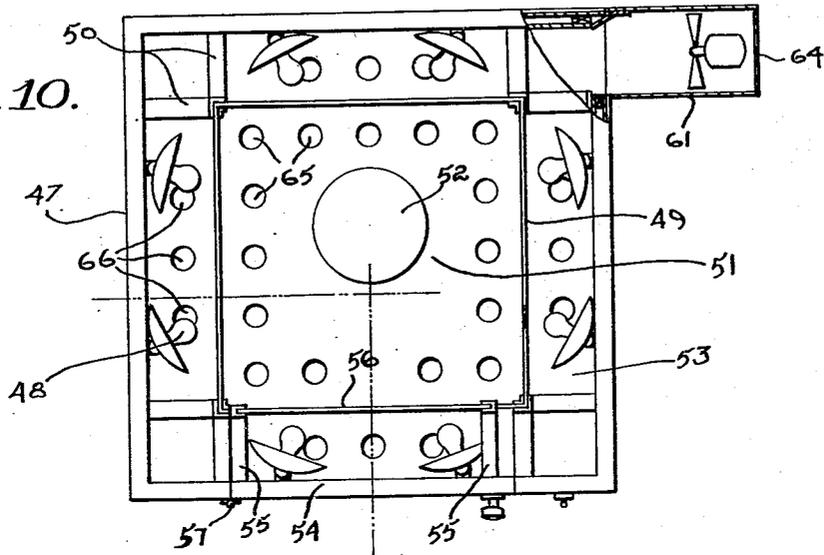
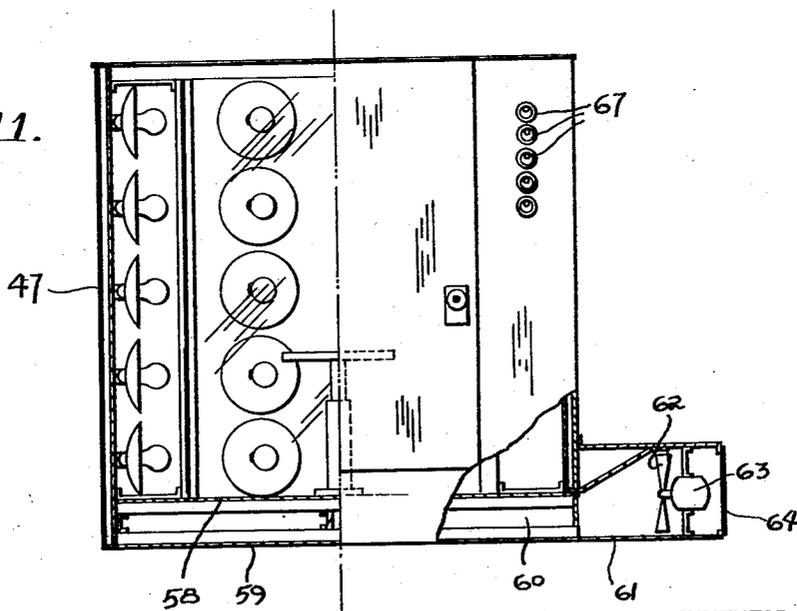


Fig. 11.



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UNITED STATES PATENT OFFICE

2,008,653

TREATING CABINET

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Application September 23, 1932, Serial No. 634,480

3 Claims. (Cl. 174—177)

This invention relates to cabinets for treating the human body with heat, light, and other forms of radiation and has for its principal object to provide such a cabinet for subjecting the skin of a person inside the cabinet to ultra-violet radiation either alone or in combination with other rays.

Another object of the invention is to provide a treating cabinet whereby the body of a person inside may be treated uniformly with ultra-violet radiation.

Another object of the invention is to provide a cabinet for treating with ultra-violet radiation in which the radiation directed toward a person sitting within the cabinet is increased by reflection.

Still another object of the invention is to provide a cabinet for treating a person with ultra-violet radiation in which the person's neck and face may be subjected to the influence of the rays without his head being inside of the cabinet.

Another object of the invention is to provide a cabinet for treating with ultra-violet radiation in which the skin of a patient sitting within the cabinet may be maintained dry in spite of a higher temperature within the cabinet.

Still another object of the invention is to provide a cabinet for treating a patient with ultra-violet radiation in which means is provided to eliminate a large amount of the heat usually accompanying such treatment.

Other objects and objects relating particularly to the method of constructing and assembling the various parts of the cabinet will be apparent as the description thereof proceeds.

Several embodiments of the invention have been illustrated in the accompanying drawings in which:

Fig. 1 is a part sectional plan view of a cabinet for giving the radiation treatment, the section being taken on the line 1—1 of Fig. 2;

Fig. 2 is a part sectional front elevation of the cabinet shown in Fig. 1, taken on the line 2—2 of that figure;

Fig. 3 is a sectional elevation of an ultra-violet lamp provided with one form of reflector;

Fig. 4 is a sectional elevation of another form of reflector which may be used with the device;

Fig. 5 is a sectional plan view of another form of cabinet showing a slightly different construction;

Fig. 6 is an enlarged sectional view of one of the corners of the cabinet of Fig. 5;

Fig. 7 is an enlarged sectional view of one form

of reflector adapted to be used particularly with the cabinet of Fig. 5;

Fig. 8 is a sectional elevational view of an air-drying and circulating device which may be attached to either of the cabinets of Figs. 1 or 5;

Fig. 9 is a perspective view of a cabinet showing the drying and circulating device of Fig. 8 attached thereto;

Fig. 10 is a plan view partly in section of another form of cabinet;

Fig. 11 is a part sectional elevational view of the cabinet of Fig. 10; and

Figs. 12 and 13 are side and end sectional elevational views respectively, of still another form of cabinet to treat a person in a reclining position.

Referring now more specifically to the drawings, the invention is shown in Fig. 1 as comprising a cabinet 1 which may be constructed in any suitable way as by the double metal walls 2 and 3 supported by corner brackets 4. The cabinet is provided with a door 5 in the front which may swing outwardly on the hinge 6 and may be provided with a suitable latch 7 for securing it in a closed position. The cabinet has a floor 8 and a top 9 for substantially enclosing the space within it. The top 9 may have an opening 10 in the center thereof which extends outwardly to the front wall and this opening may be closed by two doors 11 pivotally mounted at the sides on hinges 12.

As thus constructed the cabinet corresponds somewhat to cabinets already well known for subjecting persons to heat treatment, and similarly to such cabinets is provided a plurality of electric lamp sockets 13 mounted in rows, there being for convenience two rows on each side wall. Normally for heat treating cabinets these sockets contain carbon lamps for producing a relatively high temperature but in the present instance I use the electric lamps 14 which are especially designed to radiate a large amount of ultra-violet rays. These lamps form no part of the present invention as far as the construction thereof is concerned, but are provided with envelopes of quartz or various other substances, natural or artificially produced, which will permit a large amount of ultra-violet radiation to pass through and the filament is usually heated to a higher temperature to increase the ultra-violet output thereof.

These lamps may be placed in the sockets 13 as clearly indicated, and each socket may be provided with a reflector 15 especially adapted to reflect ultra-violet radiation, such as one with a reflecting surface of aluminum. As indicated

in Fig. 4, the sockets 13 may be hinged to a suitable bracket 16 by means of the bolt 17 as indicated. By this means of mounting the socket, the reflector, and the lamp may all be turned toward the center of the cabinet where is positioned a stool 18 mounted on a screw shaft 19, which is threaded into a pedestal 20 positioned on the floor 8. To further increase the reflection of the cabinet, I may paint the entire inside with aluminum paint or the metal walls 3 may be formed of aluminum or other metal for reflecting ultra-violet radiation.

In cabinets of this nature for heat treatment alone, the doors 11 are usually provided with semi-circular openings which cooperate to form a circular opening for the neck of the patient so that his head may protrude out of the cabinet. In the present instance I provide a sheet 21 of material which is transparent to the ultra-violet radiation suitably mounted in a cut-out portion 22 of the door, and this sheet 21 is provided with semi-circular openings 23 immediately above the stool 18, so that the two openings on the two doors cooperate to form the opening for the neck of the patient. It will be apparent, however, that inasmuch as the sheets 21 are transparent to ultra-violet radiation, some of the rays will pass upwardly through these sheets, falling upon the neck and face of the patient, and thereby treating his face and neck without subjecting it to the additional temperature which is produced within the cabinet by the lamps. A towel or other cloth may be placed over the sheets 21 if desired, to shut out the radiation to the face and neck.

If desired, instead of using the reflectors 15 they may be mounted directly on the lamp bulb. Such a construction is shown in Fig. 3 where the lamp bulb 24 is provided with the reflector 25 formed to fit over the neck of the bulb with suitable spring lugs 26 to hold the reflector in position.

In Fig. 5 an arrangement is shown whereby the auxiliary reflectors mounted on the light bulbs or sockets are entirely eliminated and the wall itself is formed with an aluminum or other suitable reflecting surface. In this figure the socket 28 is shown mounted directly upon the interior wall 27 without any movable connection as there is no necessity of directing the rays. In this case the ultra-violet radiation is more diffused and strikes the body of the patient with greater uniformity.

In Fig. 6 an enlarged section of one corner of the cabinet of Fig. 5 is shown, wherein the outer wall 29 is indicated as being supported by the upright 30 and corner posts 31. The interior wall 27 may be of metal or thin wood and as shown in the figures, it is coated with a layer 32 of aluminum paint or sheet aluminum.

In some instances it may be desired to eliminate the direct radiation from the bulbs 14 where they are used in the cabinet of Fig. 5 and hence small reflector shields 33 may be mounted on each of the light bulbs. These reflector shields may be made of aluminum or may have an inner surface of aluminum so as to reflect the light towards the walls of the cabinet. The reflector may be mounted on the bulbs by means of small spring clips 34 spaced from the reflectors by the supports 35. These clips fit over the part of largest diameter of the bulb and thereby secure the reflector in position. With these small individual reflectors in place on the bulb, all of the ultra-violet radiation is directed toward the inner walls

of the cabinet and is then redirected from these walls to the patient sitting on the stool within the cabinet, with the result that his body is subjected to a very uniform treatment of the rays with no concentration at any one spot.

From these forms of the invention already described, it will be evident that I have provided a treating cabinet whereby a patient may be subjected to ultra-violet radiation. Naturally the lamps within the cabinet produce a considerable amount of heat as the temperature of the filament must be raised to a maximum, and I have found that this heat aids in the absorption by the body of the ultra-violet radiation due, perhaps, to the fact that the pores of the skin are somewhat extended and opened by the heat, permitting the rays to penetrate deeper. This shortens the period that the patient must sit in the cabinet.

While the absorption of ultra-violet radiation by the body is increased due to the raise in temperature, the effect of the heat on the body is to cause perspiration to flow freely and hence to form a layer of moisture over the surface of the body. Moisture, like any other substance through which ultra-violet rays are caused to penetrate, tends to absorb some of the rays and hence it may be very desirable in some cases, especially where the maximum effect of the ultra-violet radiation is desired, to eliminate the moisture from the surface of the patient's skin. This may be done by surrounding him with dry air which will immediately evaporate the moisture as it is formed. In order to dry the air in the cabinet the device shown in Figs. 8 and 9 may be used. This device consists of a box 36 which may be attached to the side of the cabinet 37 (in Fig. 9), adjacent the floor thereof, a hole in the wall providing communication between the cabinet and box. The box 36 contains a fan 38 driven by a suitable motor 39 for drawing air through the open end 40 of the box which may be provided with a suitable screen 41. In order to dry the air as it passes through the box, I provide a series of pipe coils 42 which are looped up and down within the box and through which cold water may be run. A series of baffles 43 are positioned on the coils within the box and collect water thereon as it is condensed out of the air when it comes in contact with the cooler surfaces of the pipes and baffles. A pan 44 is provided at the bottom of the box below the coils 42 to catch the water as it forms, and a suitable drain pipe 45 drains the water away. This method of drying the air is merely shown for purposes of illustration as any kind of an air drier may be substituted, such as one using moisture absorbing chemicals.

In the cabinet 37 of Fig. 9, I show a plurality of electric switches 46. These switches may be provided on any of the cabinets for controlling the various lamps and in the particular cabinet of Fig. 9, the upper four of the switches are to control the lamps, each controlling two rows of lamps, while the lower switch may be used for controlling the fan motor 39. The manner of connecting the switches has not been indicated as it is considered unnecessary to do so.

In some instances it may be desirable to eliminate a large amount of the heat from the bulb and subject the patient merely to ultra-violet radiation. This may be done with the construction of Figs. 10 and 11. Here a cabinet 47 is provided with the rows of lamps and reflectors 48 similarly to the other cabinets already described,

but is also provided with an inner cabinet formed of quartz glass or other material transparent to ultra-violet radiation. This inner cabinet may be formed of panels 49 which are mounted in corner supports 50 so that they are separated from the lamps 48, as indicated. This forms an inner compartment 51, in which is positioned the stool 52, and an outer compartment 53 which contains the lamps. The door 54 may have spacers 55 mounted on it to which are attached the front panel 56. Thus when the door 54 is open and swings around the hinge 57, the inner panel 56 swings outwardly with it.

The cabinet 47 may be provided with a floor 58 raised a few inches above the bottom 59 of the cabinet, and the space 60 between the floor 58 and the bottom 59 may be connected to a small box 61 in which is positioned a fan 62 driven by a motor 63. The end of the box 61 is open and provided with a suitable screen 64 to permit air to pass in through the box and into the space 60. The floor 58 is provided with a plurality of holes 65 which open into the interior compartment 51 and also a plurality of holes 66 which open into the outer compartment 53, so that when the fan 62 is driven by the motor 63 air passes into the box 61, through the compartment 60, and up through the holes 65 and 66. The air passing up through the center compartment ventilates it thoroughly and cools the patient, greatly lessening any discomfort which might be caused by the heat. The air passing up through the holes 66 into the outer compartment 53 cools the light bulbs and reflectors and prevents the radiation of a large amount of heat from them. The passage of the air in both compartments, however, does not prevent the ultra-violet radiation passing from the lamp to the patient through the panels 49 which are transparent to that radiation.

While in the cabinets described in connection with the other figures it may be desirable for the patient's head to protrude out of the cabinet so that it will not be subjected to the heat therein, I may prefer to extend the walls of the cabinet 47 high enough so that the head of the patient will be below the top of the walls. I then eliminate entirely the cover for the cabinet which is shown in connection with the other figures, leaving the tops of both the inner and outer compartments open and permitting the air to circulate freely out of the cabinet. In this case the patient would sit in the cabinet and have his whole body including his head and neck, subjected to the ultra-violet radiation. Suitable goggles may, of course, be worn by the patient to prevent any deleterious effect on his eyes. In this case also, a plurality of switches 67 are provided for controlling the lights as well as the motor 63 so that some of the lights may be turned off if the patient does not desire the full effect.

In Figs. 12 and 13 a modified form of the cabinet is shown which is adapted to be placed over a person lying prone. This cabinet may comprise an upper wall 68 which carries a plurality of lamp sockets 69 for supporting the lamp bulb 70, and has short side walls 71 and 72 to which are hinged respectively, the supporting side walls 73 and 74. The short side wall 71 is made long enough so that its lower edge extends slightly below the light bulb 70 so that the supporting side wall 73 when swung upwardly, pivoting on the hinges 75, may have its lower edge strike against suitable angle brackets 76, provided for that purpose in the side wall 72, without touching the light bulbs.

The side wall 72 may extend slightly below the side wall 71 so that the supporting side wall 74 may be swung upwardly about the hinges 77 to fit against the wall 73 as shown in dot and dash lines in Fig. 13. In this manner the device may be folded up to a relatively compact position for storing when not in use. When used the side walls 73 and 74 may be swung down to their open position and the whole cabinet placed over the body of a person lying on a bed, for instance, as indicated in Fig. 12, so that the ultra-violet radiation from the lamp may be directed upon his body while he is lying at ease, perfectly relaxed. If desired, the ends of the cabinet may be covered with a blanket or towel, or they may be left open to permit air to circulate through the device.

It will be seen from the above description that I have provided a cabinet for treating a patient with ultra-violet radiation either alone or combined with heat and light. Means have also been provided to treat the skin of a patient and at the same time dry the moisture therefrom so as to eliminate any absorptive effect of the moisture on the ultra-violet radiation. It is obvious that many changes may be made in the forms of cabinets shown and described without departing from the spirit of the invention. The shape of the cabinet may be altered in any way for convenience or for other purposes, and the various modifications may be combined with each other in any desirable manner. Thus drying equipment may be used with the cabinet of Figs. 10 and 11 and the reflectors shown are interchangeable with any of the cabinets, or any other suitable type of reflector may be used with any of them.

Individual reflectors are shown in connection with the lamps mounted on the sockets as well as on the lamps themselves, but it is evident that several may be combined, making one, for instance, for each row of lamps, and these reflectors may be attached by any convenient method to the cabinet or to the lamps. Other changes may be made, and I do not, therefore, desire to be limited to what is shown and described in the drawings except as such limitations occur in the appended claims.

What I desire to secure by Letters Patent and claim is:

1. A treating cabinet comprising an enclosure, means for producing ultra-violet radiation within said enclosure, a hole in the top of said enclosure to permit the head of a patient being treated to protrude therethrough, and means transparent to ultra-violet radiation surrounding said hole.
2. A treating cabinet comprising an enclosure having an opening in the top thereof for the head of a patient to protrude therethrough, means transparent to ultra-violet radiation immediately surrounding said opening, means within said enclosure for producing ultra-violet radiation, and means to control the direction of said ultra-violet radiation produced within said enclosure.
3. A treating cabinet comprising an enclosure, a plurality of electrical devices for producing ultra-violet radiation, said enclosure having openings including an opening in the top thereof to permit the head of a person being treated to protrude therethrough, means transparent to ultra-violet radiation immediately surrounding said opening, and means for removing moisture from air entering said enclosure.