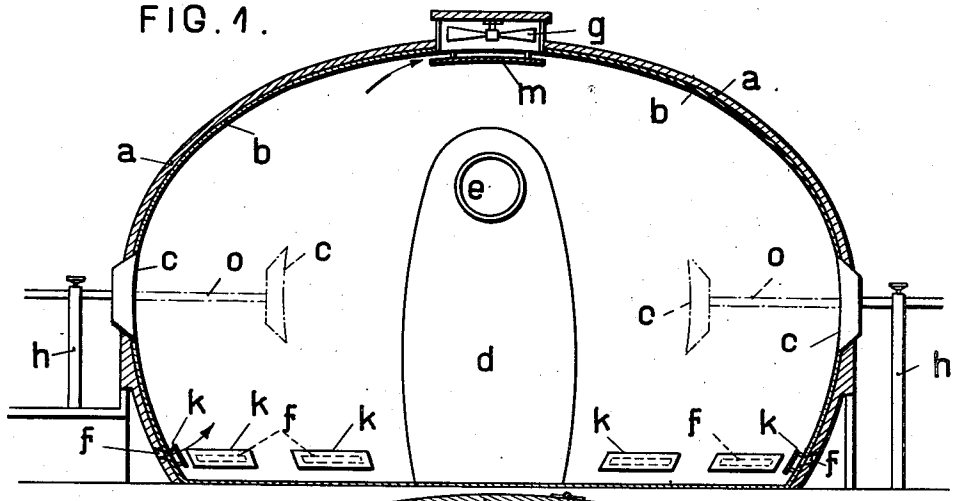
May 4, 1926. 1,583,420

H. PICARD

IRRADIATING CHAMBER FOR THERAPEUTICAL USES

Filed July 15, 1922

FIG. 1.



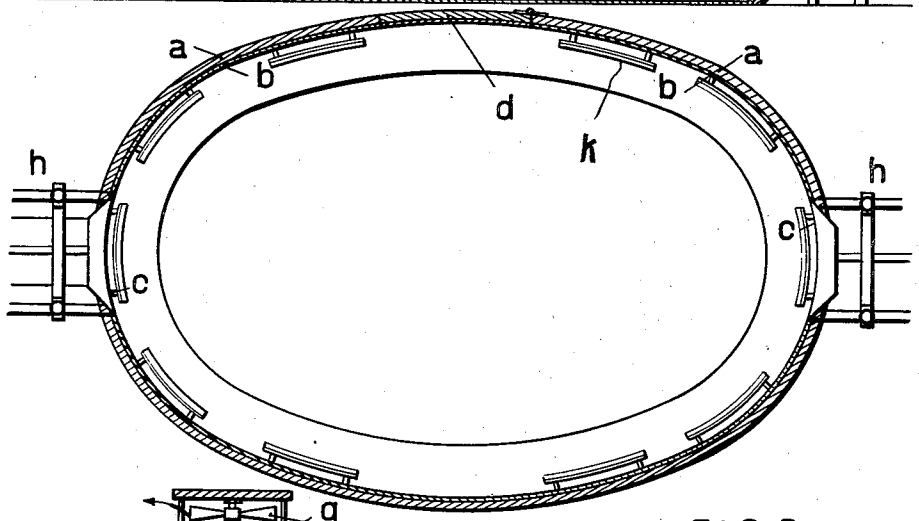


FIG. 3.

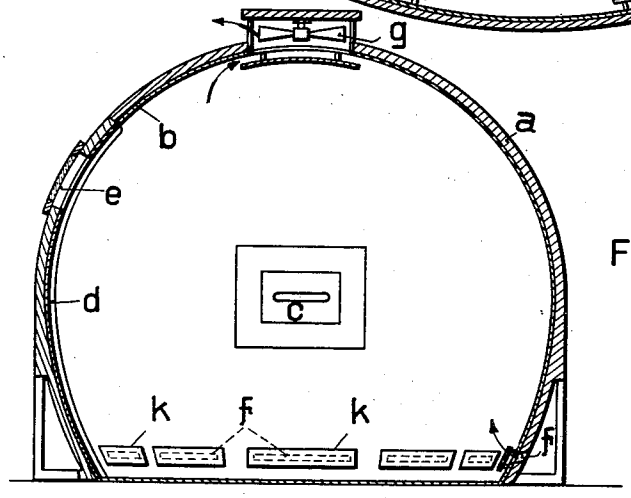


FIG. 2.

INVENTOR:

Hugo Picard.

Patented May 4, 1926. 1,583,420

UNITED STATES PATENT OFFICE.

HUGO PICARD, OF BERLIN, GERMANY.

IRRADIATING CHAMBER FOR THERAPEUTICAL USES.

Application filed July 15, 1922. Serial No. 575,070.

To all whom it may concern:

Be it known that I, HUGO PICARD, a citizen of Germany, residing at Berlin, Germany, have invented certain new and useful Improvements in Irradiating Chambers for Therapeutical Uses (for which I have filed an application in Germany July 13, 1921), of which the following is a specification.

My invention has reference to an irradiation and ionization chamber for purposes of light therapeutics, and it is intended to improve the general construction of devices of this kind so as to intensify the action of light or of other radiant agents to be curatively applied to the objects housed in such chambers. It has already been suggested to utilize light reflecting mirrors or metal walls for the coating of sweating boxes heated by electric light, and according to other suggestions sources of light employed for radio-therapeutic purposes have been housed in boxes likewise coated with light reflecting metal plates similar to the construction of vehicle head lights and reflectors.

My invention, besides presenting other important novel features, is distinguished from the previous devices referred to by the fact that it provides an irradiation chamber closed on all sides, and all the enclosures of which, that is to say, not only the side walls but also the cover, and, whenever desired, the bottom likewise are constructed so as to present bright strongly reflecting metal surfaces. By this means the living beings to be irradiated in this chamber, besides being directly irradiated, will be submitted chiefly or to a large extent to an indirect irradiation by reflection with the utilization of the light otherwise lost by dispersion. An irradiation chamber according to this invention, therefore, presents the advantage that owing to the utilization of diffuse light the electric energy supplied to the lamps is utilized far more efficiently, their therapeutic efficiency being likewise enhanced by increasing their actinic efficacy. In the irradiation chamber a plurality of persons may be treated at a time, and the possibility is afforded to the persons within the chamber to move about, without interrupting the operativeness of the all-sided irradiation. In view of the utilization of reflected light a shorter period of time suffices for producing a certain irradiating action than it was possible to obtain with the devices heretofore in use. The invention is adapted for all possible irradiating purposes, thus for instance for irradiation by mercury vapor lamps, for treatment by means of the aureol lamp, the spectrosol lamp and similar equivalent means, without any danger of producing burning phenomena. The irradiating chamber has oval or elliptical cross section.

For the purpose of coating the irradiating chamber in accordance with this invention in order to convert its inner walls into a pair of oppositely arranged parabolic reflectors merging into each other, I may make use of specially treated strongly reflecting very bright metallic surfaces, of aluminium for example. Inasmuch as the different metals in view of their different atomic weights possess different absorbing capacities for rays of different wave lengths the said metal surfaces may be treated with other metals or metal compounds in such a manner as to absorb rays of a certain wave length, and to cause only therapeutically valuable rays of light to be utilized. The application of such metals, for example of tin, bismuth and the like, upon the metallic wall, thus for example upon aluminium, may be effected by any well known mechanical or other means, thus for instance by the well known Schoop spraying process or other metallization means. On account of its low atomic weight aluminium of all metals possesses the lowest light absorbing qualities, and is therefore, particularly adapted for the purposes of my invention as constituting a light reflecting surface.

In the accompanying drawing a chamber embodying my invention is shown by way of example in vertical longitudinal section in Figure 1.

Figure 2 is a transverse section, and Figure 3 is a plan view.

In the modification shown in the drawing the chamber is constructed on an elliptical plan; and the vertical longitudinal section is likewise elliptical with the exception of the bottom surface which is plane. The transverse sectional form is substantially horse-shoe or U-shaped. The walls *a* are covered with highly brilliant metallic surfaces *b*. The walls are interrupted at the point where the door *d* is inserted which is likewise covered with highly brilliant sur-

faces. The door *d* is preferably provided with a loop hole to be closed by a slide, likewise with highly brilliant metallic surfaces.

For the admission of fresh air passages *f* are provided near the bottom which are preferably also covered or shielded with metal plates *k*, so that the fresh air enters the chamber between these plates and the wall itself. The consumed air is sucked off from the top of the chamber by a ventilator or fan *g*. The air outlets are also preferably shielded or covered by a bright metallic plate *m*, as shown in the drawing.

The sources of light *c* are mounted upon special supporting means *o* which project through the walls *a* and may be supported on standards *h* which may be so arranged and constructed as to allow of an adjustment of the sources of light for close and distant irradiation. The said sources of light *c* may consist of quartz lamps or of any other suitable light emitting means.

The invention is not restricted to the particular configuration of the chamber herein shown and described as one of the many forms of embodiment of which the invention is susceptible. These features may be changed to suit existing conditions and other alterations and modifications both in the construction and arrangement of parts will suggest themselves to the expert in accordance with the conditions of adaptation of the invention to its various uses, and within the scope of the claims as hereunto appended.

I claim:—

1. Irradiating chamber for therapeutic purposes comprising in combination, a shell having the form of an ellipsoid of rotation cut by a plane representing the floor, means in the two foci of the ellipsoid for emitting therapeutically useful rays, and metallic surfaces of high reflecting capacity on the inner side of said shell.

2. Irradiating chamber for therapeutic purposes comprising in combination, a shell having the form of an ellipsoid of rotation cut by a plane representing the floor, means in the two foci of the ellipsoid for emitting therapeutically useful rays and aluminium lining of high reflecting capacity on the inner side of said shell.

3. Irradiating chamber for therapeutic purposes comprising in combination, a shell having the form of an ellipsoid of rotation cut by a plane representing the floor, means in the two foci of the ellipsoid for emitting therapeutically useful rays, and metallic surfaces of high reflecting capacity on the inner side of said shell, a coating on said surfaces having a different absorbing capacity for such rays.

4. Irradiating chamber for therapeutic purposes comprising in combination, a shell having the form of an ellipsoid of rotation cut by a plane representing the floor, means in the two foci of the ellipsoid for emitting therapeutically useful rays and aluminium lining of high reflecting capacity on the inner side of said shell, a coating on said surfaces having a different absorbing capacity for such rays.

5. Irradiating chamber for therapeutic purposes comprising in combination, a shell having the form of an ellipsoid of rotation cut by a plane representing the floor, ventilating means arranged in openings of said shell, means in the two foci of the ellipsoid for emitting therapeutically useful rays, and metallic surfaces of high reflecting capacity on the inner sides of said shell and said openings.

In testimony whereof I affix my signature.

HUGO PICARD.