

Aug. 5, 1930.

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1,772,219

SOLAR BATH

Filed Oct. 23, 1928

Fig. 1.

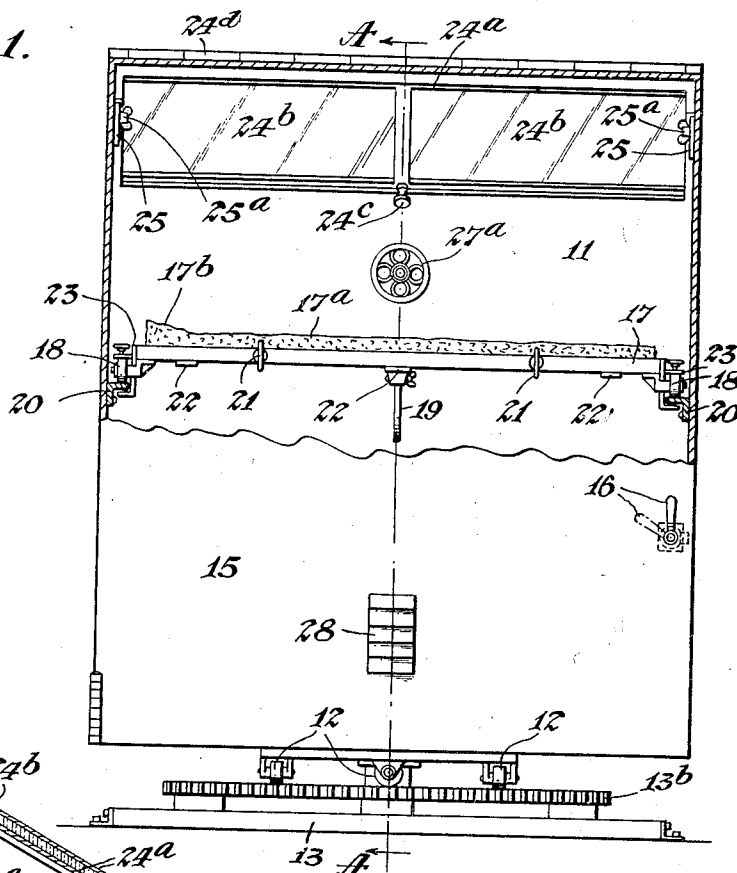


Fig. 4.

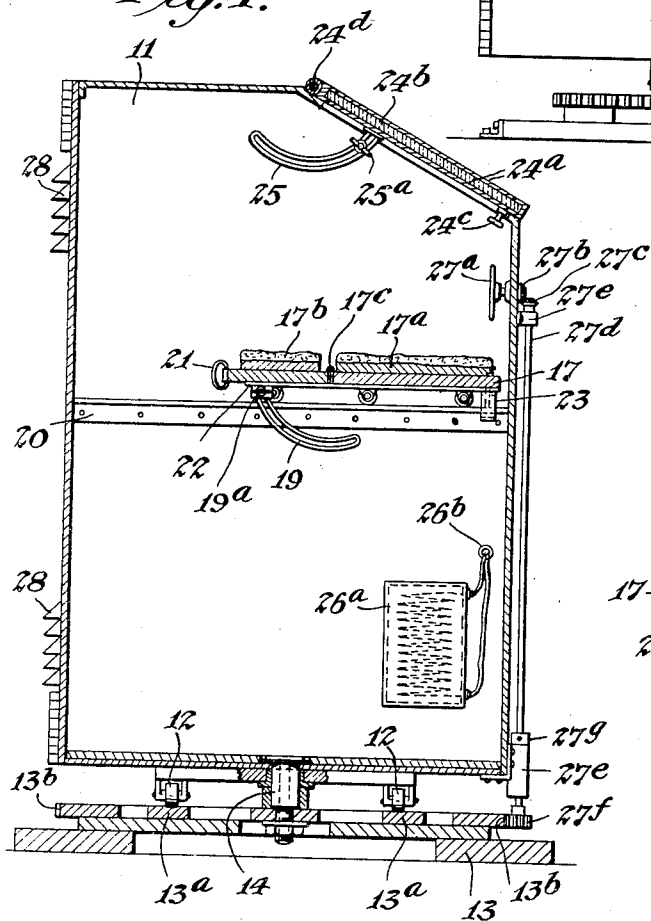


Fig. 2.

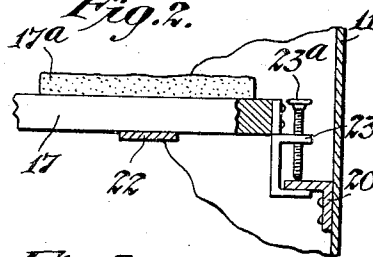
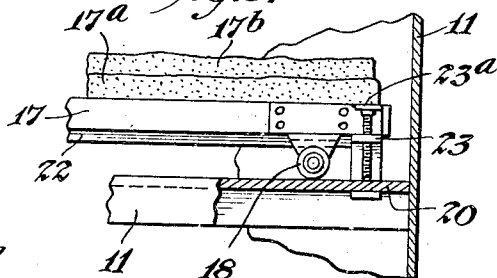


Fig. 3.



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SOLAR BATH

Application filed October 23, 1928. Serial No. 314,451.

This invention relates to solar baths. For the reason that they were of no medical value, as hereinafter shown, solar baths, if they ever were actually used, have become obsolete and are unknown in good medical practice.

The curative power of the sun's rays has been known for ages, but the scientific investigation of the subject is for the most part very recent, and cannot yet be considered completed. But certain facts have become known within the last few years which have a bearing on this invention, among which are (a), that the curative radiations largely inhere in the part of the solar spectrum known as the ultra-violet band, and particularly in the portion of that band between 2970 and 3200° Angström units; (b), that to administer a predetermined dosage, the length of exposure of the skin necessary varies inversely in proportion to the area of skin exposed to irradiation; (c), that neither common window glass nor common plate glass allow the passage of the radiations in question in any but very small and insufficient degree; and (d), that certain substances, now procurable in the open market, allow the passage of the necessary radiations in large and practicable amounts. Some of such substances, of varying composition, manufacture and degrees of transmission of the rays, are known as vitaglass, cel-o-glass, flex-o-glass, Corning glass and quartz-lite. The relative value of such substances as among themselves is not considered here, and their mention is not intended to imply exclusion of other substances which may have been or may hereafter be discovered having similar qualities. The substances named are susceptible of manufacture into panels having the appearance of panes of glass and some are transparent and some translucent.

The old solar bath, equipped as it was with ordinary glass, both colorless and colored, as is now apparent, was ineffective and useless. But owing to the discoveries above mentioned it is now possible to so develop and improve the old machine as to form a mechanism of great utility in the treatment of disease and the maintenance of health, as has been done in this invention.

The general object of the invention, then, is to provide a cabinet wherein a person can be treated by physical therapy through the exposure of his body, lying within the cabinet, to the sun's rays, and particularly to the ultra-violet radiations thereof, such rays to be received through an aperture in the cabinet provided for that purpose.

Particular objects are to provide a cabinet of such form, construction and manufacture as to allow such treatments throughout the year, irrespective of temperature: as to allow such treatments to be made on the roofs, in the yards and in other appropriate places on or near hospitals, office buildings and other public and private structures: and as to shield the patient from view while disrobing and undergoing treatment within such cabinet.

A further object is to provide a modified form of couch, integral with the cabinet, so constructed as to support the patient in comfort when lying partly on his side, as well as when lying face downward or on his back.

Further objects are to provide such modified form of couch with facilities for being moved conveniently, with and without the patient thereon, on tracks or rails, to and from a position adjacent to the entrance to the cabinet, and to positions within the cabinet varying with the position of the sun, and to equip it with means of being fastened in its various positions.

Such objects, as well as others which will be apparent, are accomplished by the mechanism illustrated by the accompanying drawings, in which Figure 1 is a perspective view of the entire mechanism from the rear, showing the entrance door, the upper part of which has been broken away, revealing the modified couch; Fig. 2 is a longitudinal detail view of the device for locking the couch and holding it to the track; Fig. 3 is a side detail view of the device for locking the couch and holding it to the track; Fig. 4 is a vertical section of the mechanism on the line A A, Fig. 1.

Similar numbers refer to similar parts throughout the several views.

A cabinet 11, of suitable form and mate-

rial or materials, is mounted on wheels 12, which run on a track 13^a, forming part of a base 13. Such base, which is of optional construction, supports the cabinet, and is of sufficient size to prevent the latter being easily overturned, in addition to which it may be supplied with means, such as angle irons, whereby it may be fastened to a roof or other place on which it is placed. The cabinet is securely attached to the base by the hollow pivot post 14. An entrance to the cabinet is afforded by the door 15 (Fig. 1) which may have a fastening (not shown) operable by a handle 16 from within or from both within and without the cabinet.

Inside the cabinet is a modified form of couch 17 of optional material, of sufficient size to support a person lying at full length, and made comfortable by upholstery 17^a and a head-rest 17^b. The couch is preferably divided longitudinally into two parts which are of unequal width, and the narrower, placed toward the rear of the cabinet, may be raised from a horizontal position on hinges 17^c (Fig. 4) by handles 21, and maintained in its raised position by means of the slide-bar 19 and its thumb-screw 19^a (Fig. 4). By such means support is provided for the patient when lying partly on his side, which will be an advantageous position when the sun is low in the sky, for the reason that more of the surface of the body is thus exposed to the sunlight. When the sun is overhead, or nearly so, the couch will be used flat. Bars 22 are fastened to the under side of the larger member of the couch, and extend beyond its edge to form additional supports for the smaller section of the couch when horizontal, one of such bars forming the slot through which the slide-bar 19 moves.

The couch is mounted on wheels 18, which run on horizontal tracks 20, extending from front to rear along the two sides of the cabinet. Means are provided to prevent the couch being easily displaced from the tracks and to lock it in place by the device 23 and its set-screw 23^a, detailed in Figs. 2 and 3, one, or preferably two of which are attached, one on each side, at the front end of the larger section of the couch, as illustrated. When the patient needs assistance, or is helpless, nurses or attendants may lock the couch in position adjacent to the door 15, and when the patient has been placed thereon it may then be moved to a place within the cabinet where the sunlight will cover the patient's body, at which station the couch may be again locked.

At the top of the cabinet and along the front thereof is left an aperture of the general size and shape indicated by Figs. 1 and 4. Into this aperture is fitted a frame 24^a in which is inserted a panel or panels of some substance offering small resistance to the passage of the ultra-violet rays of the sun

24^b, which, together with the frame, constitute a window, which may be raised by a handle 24^c upon hinges 24^d (Fig. 4). Slide-bars 25 and their thumb-screws 25^a form a simple means of fastening the window when it is open. As every substance offers some resistance to the passage of the radiations and as the fresh air in motion is itself of therapeutic value, it is advisable to have the window wide open when that is feasible, for which reason ample means of heating should be provided. The heating unit 26^a, as illustrated, is an electric stove extending across the cabinet and fastened to the side walls thereof, supplied with current by wires entering through the hole 26^b. Its position as shown, being beneath the patient, is a preferable one, an alternative arrangement being to attach it to the under part of the couch. In case steam or gas be substituted for electricity, a better arrangement would be to have the steam or gas piping enter through a hole in the head of the hollow pivot post 14 (Fig. 4) within the cabinet, and an inner flooring be provided for the cabinet, under which the piping would run to the heating unit. This substitution would also occasion obvious changes in the base 13 and pivot post 14, to accommodate the piping.

Means of rotating the cabinet on its vertical axis from within may assume various forms. That shown in the drawings is preferred when the cabinet is used by a person without an attendant, because the cabinet can be turned without the necessity of such person leaving the couch. In such method a pinion and rack device is used. A wheel 27^a is connected by a shaft passing through the front wall of the cabinet with the spur wheel 27^b, which is engaged with another bevel gear 27^c at the end of a shaft 27^d. This shaft turns in the brackets 27^e by which it is held in position, the shaft being safeguarded from slipping through the brackets by a collar 27^f resting on the top of a bracket. The shaft at its lower end terminates in a pinion 27^g, which engages the circular rack 13^b, integral with the base 13. When it is contemplated that the machine will be used more often with a nurse or attendant present, a position of the shaft 27^d passing through the flooring of the cabinet slightly to the rear of the heating unit 26^a as illustrated, and away from the wall of the cabinet is preferable, slight and obvious changes in the rotatable means being made necessary thereby.

Means of ventilation such as louvers 28 are provided, as are also hooks for clothing and a seat, not shown. Partitions may be provided in order to reduce the cubic contents of the space requiring the most heat.

There has been set forth above the principle of the invention and also, so far as possible, the underlying scientific theories. But I do not intend, by my explanatory state-

ment, to rest my invention upon such precise scientific theories. In particular, the exact physiological action of the various parts of the solar spectrum on the body, and the possibility that in addition to such radiations there may be other therapeutic emanations from the sun and possibly also from cosmic space (such as the Millikan rays), remain for future investigation. I anticipate, also, improvements in the substance to be used as panels in the cabinet aperture, so that improved transmission of all therapeutic factors will be possible, whatever those factors may eventually prove to be.

Preserving my rights also in unmentioned variations and equivalents, I claim:

1. A solar bath consisting of a cabinet, having means of being completely closed except for ventilation; an aperture in such cabinet into which fits a frame containing panels of an ultra-violet ray transmitting material; means for removing such frame and its contained panels from such aperture; a hole in such cabinet of suitable size to allow the passage of electric wiring or gas or steam pipe; and means of ventilating the cabinet; all substantially as shown and described.

2. In a solar bath, a modified couch, integral with a containing cabinet, the couch having means of being moved on wheels horizontally to and from the entrance to the cabinet and to various positions within the cabinet; having means of being locked in position; and being divided longitudinally into two members of unequal width, the narrower of which is connected along the line of division with the wider, with means of adjustment of its plane laterally at various angles to that of the wider member; all substantially as shown and described.

EDWIN KEMPTON.