Jan. 26, 1954 N. M. KAMBOURAKIS 2,667,169

SUN BATHING APPARATUS

Filed Aug. 21, 1952 3 Sheets-Sheet 1

Fig. 1.

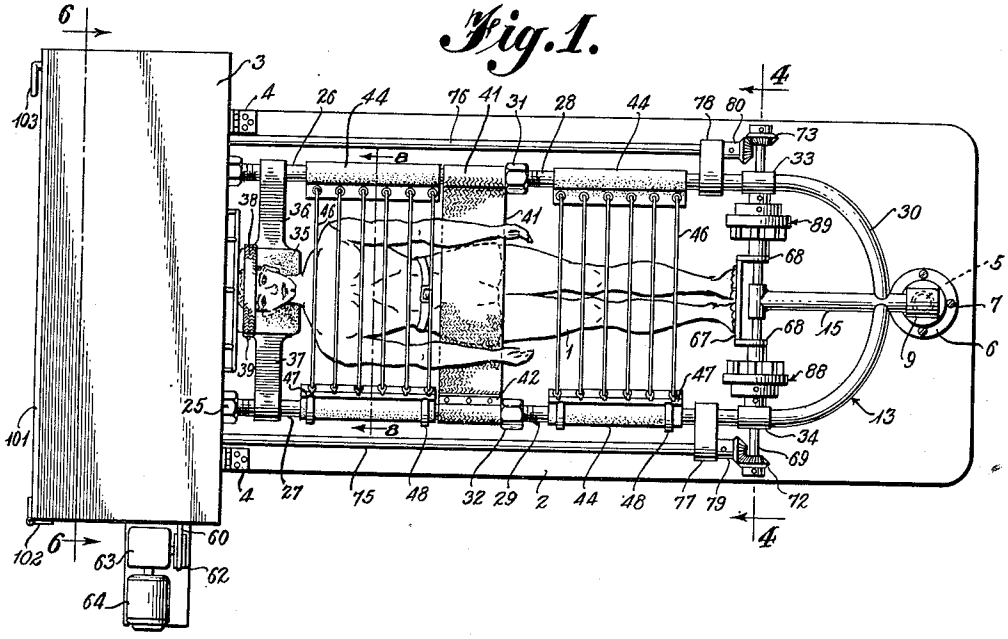
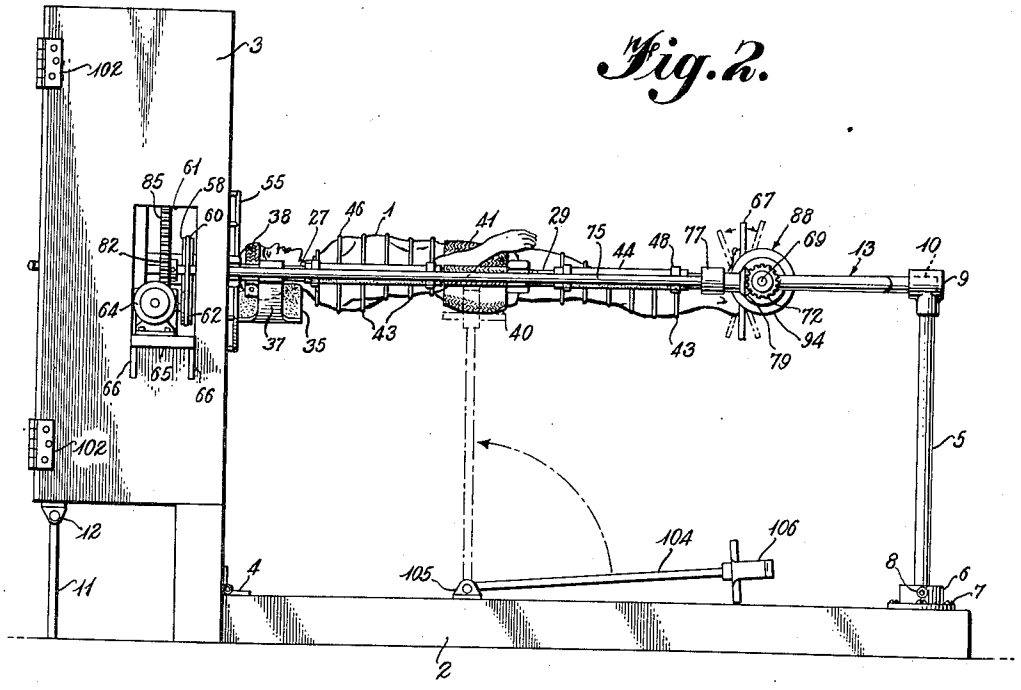


Fig. 2.



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Fig. 3.

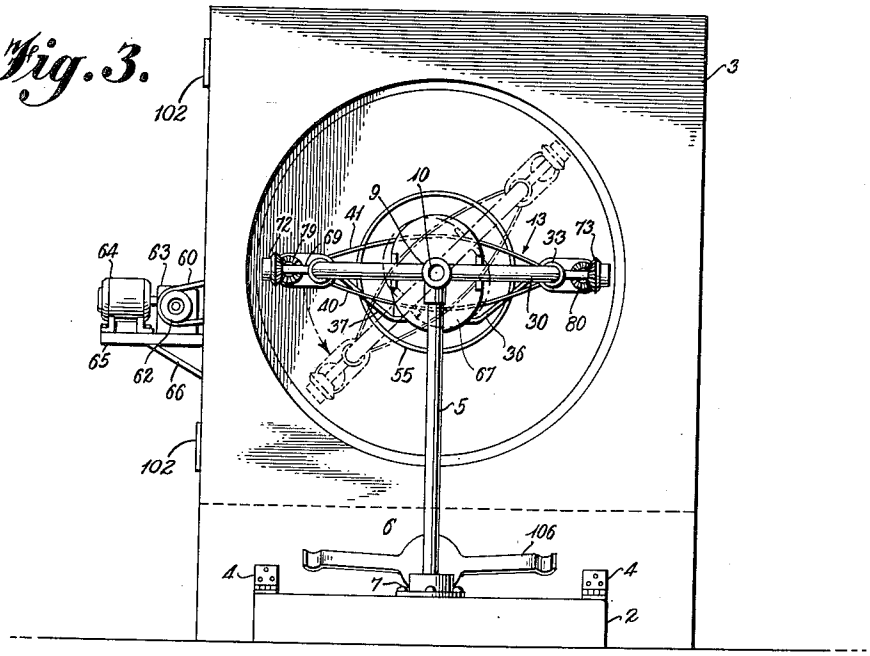
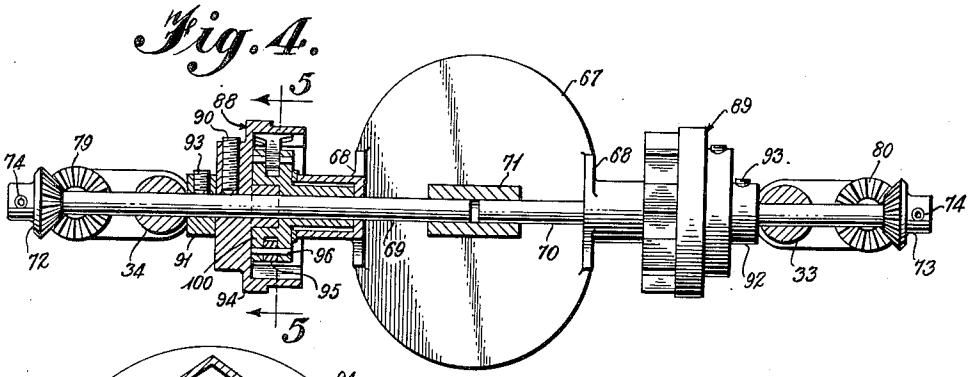


Fig. 4.



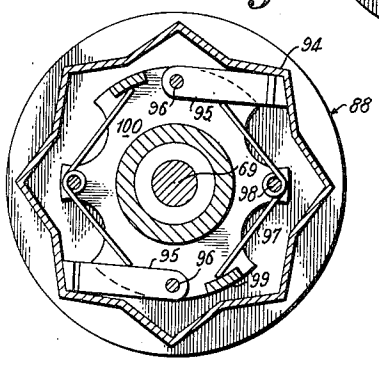


Fig. 5.

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Fig. 6.

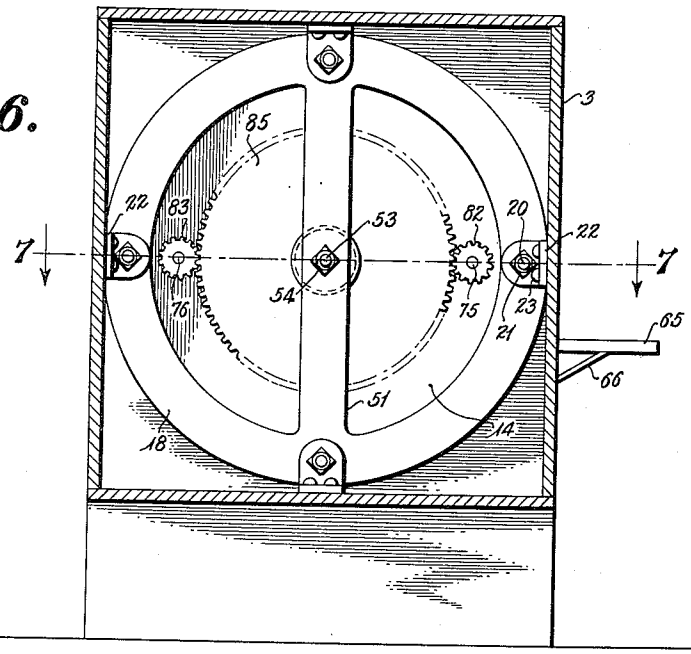
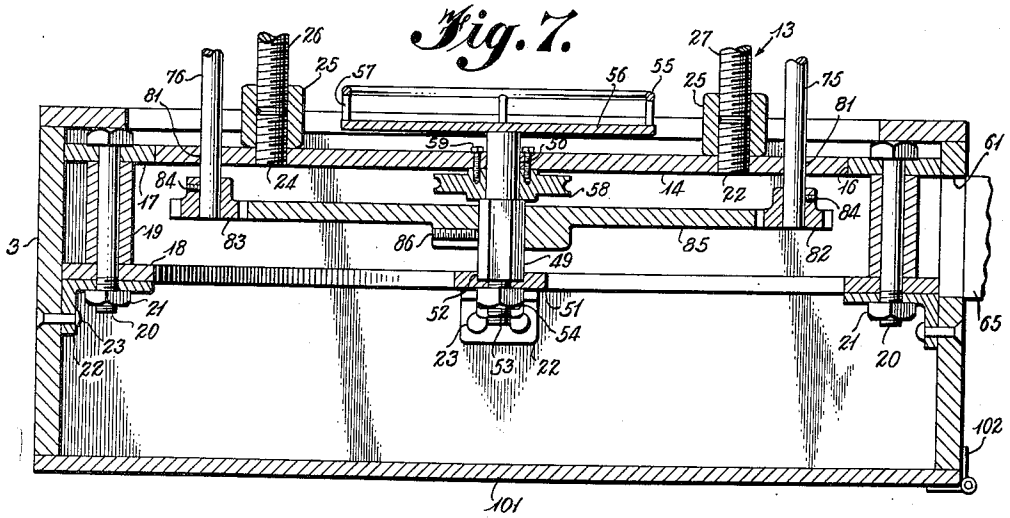


Fig. 7.



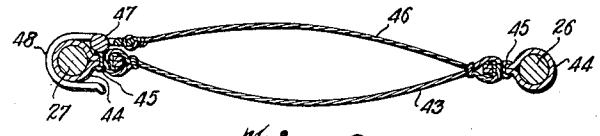


Fig. 8.

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2,667,169

SUN BATHING APPARATUS

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Application August 21, 1952, Serial No. 305,576

8 Claims. (Cl. 128—372)

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My invention relates generally to a sun bathing apparatus and more particularly to a device for rotatably supporting the human body in a reclining or prone position so that uniform exposure of the body to the sun's rays may be secured.

Bathers, seashore residents, and vacationists spend a large portion of their time partaking of the sun's rays to secure a tan appearance and to derive benefits flowing from exposure to ultraviolet light. To secure an even tan over the entire body, it is necessary for a person frequently to assume various awkward and tiresome positions.

The usual method of exposing one's body to the sun's rays consists in lying on the ground and occasionally turning to expose the various parts of the anatomy to the sun. By this method it is not always possible comfortably to obtain a uniform tan. Further, sun bathers assuming a position on the ground are deprived of the benefit of cooling breezes which may prevail above the surface of the ground and in addition are subjected frequently to the unpleasantly hard and uneven contour of the ground.

Accordingly, a principal object of my invention is to provide an apparatus which will support the human body above the surface of the ground for exposure to the sun's rays, said apparatus being operable by the user to effect exposure of all of the various portions of the body.

A further object of my invention is to provide a structure which will rotatably support the body in a prone position whereby uniform exposure to the sun may be effected.

A further object of the invention is to provide an apparatus manually operable by the user for rotatably supporting the human body in a position of exposure to the sun.

A further object of my invention is to provide an apparatus which may be actuated by the user's feet for rotatably supporting the human body in a position for exposure to the sun.

Another object of the invention is to provide an apparatus embodying a body support rotatable by power driven means controlled by the user of the apparatus whereby uniform exposure of the user's body to the sun may be effected.

A further object of the invention is to provide a portable device whereby all parts of the human body may be exposed to the rays of the sun in a graceful attitude.

Yet another object of the invention is to provide a mechanism through the utilization of which an individual may acquire an even and uniform tan while avoiding the dirt and unhealthy conditions which result from positioning the body directly on the surface of the earth.

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These and other objects of my invention will become more apparent from a study of the particular description of the specific embodiment of my invention which follows.

In the drawings:

Figure 1 is a plan view of my sun bathing apparatus showing a person supported by such apparatus in a position to be exposed to the sun's rays,

Figure 2 is a front elevational view of my sun bathing apparatus shown in Figure 1,

Figure 3 is an end view of the apparatus shown in Figures 1 and 2,

Figure 4 is a sectional view of the foot actuating mechanism taken on line 4—4 of Figure 1,

Figure 5 is a detailed sectional view taken on line 5—5 of Figure 4,

Figure 6 is a sectional view taken on line 6—6 of Figure 1,

Figure 7 is a sectional view taken on line 7—7 of Figure 6,

Figure 8 is a detailed sectional view taken on line 8—8 of Figure 1.

Referring to the drawings, I have shown in Figures 1 and 2 a specific embodiment of my sun bathing apparatus wherein a facsimile of the human body 1 is illustrated mounted in position for exposure to the sun's rays.

In the device shown in these figures, a supporting base 2 is hingedly connected to the head box 3 by suitable hinges 4. The base 2 engages the ground or analogous surface on which my device is to be positioned for exposing the body to the sun's rays and joins the head box 3 with the foot supporting post 5.

The post 5, which suports the foot end of the body supporting structure is secured perpendicularly to the base member 2 by a flanged coupling 6. Coupling 6 is appropriately secured to the base 2 by screws 7 and holds the lower end of the post 5 by a set screw 8 engaging the outer surface of the lower end of post 5 which extends into the center opening of coupling 6. The upper end of post 5 is provided with a retaining connector 9 threaded to the upper end of the post. Connector 9 has a pocket 10 which rotatably receives the foot end of the body supporting structure and serves as a bearing support therefor.

Additional support for the head box 3 is provided by leg 11 pivotally joined to the bottom of the head box 3 by member 12. This support in addition to the hinge connection with the base 2 positions the head box 3 perpendicular to the

plane of the base 2, as shown in Figures 6 and 7. The head box houses the rotating mechanism for the body supporting structure, the operation of which will be explained later.

The body supporting structure comprises a generally U-shaped member 13, the ends of which are threadably connected to a disc 14. The center of the curved portion of the U-shaped member 13 is joined with an axle 15, the end of which is received in the pocket 10 of the connector 9 mounted on the upper end of post 5. It will be apparent from the drawings that the axle 15 serves as the axis of rotation for the foot end of the body supporting structure.

As previously described the ends of the U-shaped member 13 are connected to the disc 14. This disc 14 is concentric to an opening 16 of an annular ring 17. Ring 17 and a similar ring 18 are secured in spaced relationship by a plurality of spacing tubes 19. The rings 17 and 18, spaced by the tubes 19, are secured together by bolts 20 and nuts 21. This assembly of the rings 17 and 18 is secured within the head box 3 by angle members 22, one end of which is secured beneath the nuts 21 on bolts 20 and the other end of which is secured to the adjacent wall of the head box 3 by securing members 23. The concentric relationship between disc 14 and the opening 16 in ring 17 provides an effective seal to prevent sand and other foreign matter from seeping into the head box 3 and injuring the driving parts therein. The function of the ring 18 will become more apparent from the description which follows.

Stub threaded members 24 are threadably received in threaded openings in the disc 14. Threaded couplings 25 are threaded on these stub members 24 for threadably engaging the ends of the generally U-shaped member 13. The generally U-shaped member 13 is constructed of four rods 26, 27, 28, and 29, which are connected by threaded couplings 31 and 32, respectively. A semi-circular member 30 is joined to the connected straight members by bearing boxes 33 and 34 to complete the U-shaped member 13. These bearing boxes 33 and 34 may be appropriately connected to the semi-circular member 30 and the outer ends of the straight members 28 and 29 as by welding or brazing. By joining the straight members through threaded couplings 25 or 31 and 32, it is a simple matter to disassemble the body supporting structure so that the apparatus may be folded up when it is desired to transport the device from one location to another.

To support the human body on the apparatus, there is provided a head supporting pillow 35 which is secured by rigid arms 36 and 37 at the opposite sides thereof to the rods 26 and 27, respectively, of the U-shaped member 13. A head strap 38 is rigidly secured to one side of the head supporting pillow 35 and detachably connected to the opposite side of the head pillow by a suitable clasp 39. This head strap 38 extends across the forehead of the person positioned on the apparatus to retain his head on the pillow 35 when the apparatus is rotated for exposing the back of the body to the sun.

For supporting the hip portion of the body, a suitable canvas strap 40 is connected between rods 26 and 27 and normally extends beneath the buttocks. A second, similar, strap 41 extends above the person's body and is securely fastened to the rod 26, but is releasably connected to the rod 27 by a suitable clasp 42. Thus, it will be seen that when the member 13 is rotated so that the person is facing downwardly the detachable strap 41 will support the weight of the person's hips.

In addition to the head and hip supports, a plurality of fine soft strands 43 are connected between the opposite side rods 26 and 28 and 27 and 29, extending below the body on the apparatus so as to assist in distributing and supporting the weight of the person's body. These strands 43 are secured to the rods of the U-shaped member 13 by suitable straps 44 extending around the appropriate rods of the U-shaped member. These straps 44 are perforated at points spaced along their meeting edges and provided with grommets 45 to which the strands 43 are secured. As shown specifically in Figure 8, the strand 43 is secured to the rod 27 by extending through the grommet 45 in the strap 44 around rod 27. This strand extends across to the strap 44 on rod 26 through the grommet 45 of this latter strap and back across as upper strands 46 to the opposite rod 27. The upper strands 46 are releasably connected to the rods 27 and 29 so as to enable their removal from one side when the person desires to leave or have access for use of my apparatus. To obtain this releasability for the ends of the upper strands 46, the ends thereof are secured to a longitudinally extending rod 47 which has hooks 48 at the opposite ends thereof adapted to hook over the rods 27 and 29 to secure the upper strands 46 to these rods 27 and 29.

It is apparent from the above discussion that when an individual desires to use my sun bathing apparatus the head strap 38 will be unlatched from clasp 39, the canvas strap 41 disconnected from clasp 42 and the plurality of strands 46 disconnected from the rods 27 and 29 by unhooking the hooks 48. The person then may position himself, as shown in Figures 1 and 2 of the drawings, for exposure of his body to the beneficial rays of the sun. When the user is facing upwardly, as shown in these figures, it is not necessary of course that the head strap, body strap, and strands be connected across the upper side of his body. However when he desires to rotate the body so as to expose his back to the sun's rays the head strap 38 is secured across the forehead by attaching at clasp 39, the body strap 41 is secured in place by clasp 42, and strands 46 are connected to the rods 27 and 29 by hooks 48. Having done this, the body supporting structure may be rotated so that the individual faces downwardly. When facing downwardly, it of course is obvious that the person's weight is supported by the head strap, body strap, and detachable strands.

It is likewise obvious from the above description that an individual may leave my sun bathing apparatus when desired by merely rotating the body supporting structure until he is facing upwardly and then disconnecting the various straps and strands which extend across his body.

Reference will now be made to Figures 6 and 7 wherein I have shown the head end support construction for the body supporting structure. As previously noted, the disc 14 is secured to the ends of the U-shaped member 13. An axle 49 extends through an opening 50 in the disc 14. This opening 50 rotatably engages the axle 49. To reduce the friction and possible wear upon relative rotation between disc 14 and axle 49, the opening 50 may be provided with suitable bearing material or ball bearings (not shown). The load supporting axle 49 is supported at one

end thereof by a support 51 extending diametrically across the outer ring 18. The end of axle 49, which engages the support 51 is made hexagonal in cross-section and is engaged in a hexagonal recess 52 formed in the support 51 to prevent rotation of the axle with respect to the support 51. A securing bolt 53 extends through the support 51 and a nut 54 is threaded thereon so as to securely fasten the axle 49 to the support 51.

It will thus be seen that with rings 17 and 18 mounted in the head box 3 as previously described, axle 49 provides a bearing surface for rotatably positioning the disc 14 within the head box and thereby supporting the head end of the body supporting structure.

Having described the structure for rotatably mounting the body supporting structure, I will now describe the various means for rotating the body support as desired by the user when positioned on my sun bathing apparatus.

To enable a person when positioned on my sun bathing apparatus to rotate his body by manual means, I provide a hand ring 55 adjacent to the head pillow 35. This ring 55 is mounted on a stationary plate 56 by support rods 57 as shown in Figure 7. This plate 56 is rigidly secured to one end of the axle 49 as by welding or some other suitable securing means. Since the axle 49 is specifically mounted so that it will not rotate, when the disc 56 and hand ring 55 are mounted thereon, it is a simple matter for the user of the apparatus to reach over his head, grasp the hand ring 55 to turn his body and the supporting structure.

As an alternative means for revolving the user's body, I have shown a pulley 58 secured to the disc 14 and rotatably received on the bearing surface of the axle 49. This pulley 58 is secured to the disc 14 by cap screws 59. In the previous description, it was pointed out that disc 14 was secured to the body supporting structure and obviously, therefore, rotates with such structure. Accordingly, by providing suitable driving means for the pulley 58, it is possible to rotate the body supporting structure. In Figures 1, 2, and 3 I have illustrated such a form of driving means. In these figures a driving belt 60 engages the pulley 58 and extends outwardly through an opening 61 in the head box 3 around a driving pulley 62. This pulley 62 is mounted on the output shaft of a suitable speed reducer 63, which, in turn, is driven by an electric motor 64. Thus it will be seen that by mounting a suitable control switch for the motor 64 adjacent the hand of the person on my sun bathing apparatus, it is a simple matter to cause rotation of the body supporting structure, by closing the switch for motor 64 and thereby rotating the device by means of the belt drive for pulley 58.

The motor 64 and speed reducer 63 are illustrated in Figures 1, 2, and 3 as being secured to a shelf 65 attached to the side of the head box 3. In a conventional manner this shelf 65 is braced by diagonal struts 66 engaging the under side of the shelf and the side of the head box 3 below the shelf 65.

A third alternative driving means for my sun bathing apparatus consists of a mechanism so that rotation of the body supporting structure may be accomplished by movement of the user's feet.

To enable the body supporting structure to be rotated by the user's feet, a pedal 67 is positioned at the foot end of the body supporting structure

mounted so that it may be rocked on a transverse axis between the positions shown in dotted lines on Figure 2. Bearing supports 68 for the pedal are provided on the under side of the pedal 67 and are journaled on axles 69 and 70. These axles 69 and 70 extend transverse to the body supporting structure through the bearing boxes 33 and 34 of U-shaped member 13. The inner ends of axles 69 and 70 are rotatably received in a transverse bearing 71 secured to the inner end of the axle 15. The outer ends of axles 69 and 70 are provided with bevel gears 72 and 73, respectively, secured to the axles by suitable screws 74.

Extending parallel and adjacent to the rods 26, 27, 28, and 29 of the U-shaped member 13 are drive shafts 75 and 76. These shafts are supported at the foot end of the body supporting structure by bearing blocks 77 and 78, rigidly secured to the rods 28 and 29, respectively, so as to support the shafts 75 and 76 outwardly of and parallel to the rods of U-shaped member 13. The foot ends of shafts 75 and 76 are provided with bevel gears 79 and 80 operatively associated with the bevel gears 72 and 73, respectively. The head ends of the shafts 75 and 76 are journaled in apertures 81 in the disc 14 and are provided at this end with driving pinions 82 and 83, respectively. Each pinion is secured to its respective shaft by a suitable set screw 84. A stationary gear 85 is mounted on the hexagonal portion of axle 49 within the head box 3. This gear 85 is fixed on the axle 49 by a set screw 86. The teeth on the periphery of this gear are engaged by the pinions 82 and 83 so that rotation of these pinions will compel the rotation of disc 14 an U-shaped member 13. Thus, it will be apparent that when the shafts 75 and 76 are rotated in the same direction, with the gear 85 being stationary, the rotation of shafts 75 and 76 and the pinions 82 and 83 thereon will cause the pinions to roll around the periphery of the gear 85 and carry the U-shaped member 13 fastened to disc 14 along with them.

Referring to Figures 1 and 4 specifically, it is seen that with the particular gear relationship illustrated, the shafts 75 and 76 will be rotated when the axles 69 and 70 are rotated in opposite directions. To accomplish this opposite rotation of axles 69 and 70, ratchet means 88 and 89 are secured intermediate the ends of the respective axles 69 and 70 by set screws 90. Between the ratchet means 88 and 89 and the bearing boxes 33 and 34, I have shown spacing collars 91 and 92 secured to the respective shafts by set screws 93 so that proper positioning of the ratchet means 88 and 89 on the axles will be secured. Bearing supports 68 and the pedal 67 are secured to a driving member 100 within each of the ratchet means 88 and 89 on either side of the pedal 67.

The specific construction of the ratchet means 88 is illustrated in Figure 5. In this figure, it will be noted that a ratchet housing 94 having a somewhat star-shaped interior area is used as the ratchet wheel in the ratchet means. The sides of the points of this star-shaped area are provided so that they may be engaged by pawls 95 which are pivoted about pins 96 and urged outwardly toward the housing 94 by suitable springs 97. Each spring 97 has a loop surrounding a pin 98 with one arm of each spring engaging one of the pawls 95 and the other arm of the spring resting on a stop 99 on the driving member 100. The pins 96 and 98 secure the pawls

95 and spring 97, respectively, to the driving member 100. It will thus be seen that upon rotation of the driving member 100 in a clockwise direction, the pawls 95 will engage the sides of the star points of housing 94 and impart the clockwise movement to the housing and shaft 69 secured thereto. Likewise, when the driving member 100 is rotated in the opposite direction, i. e., counterclockwise, the pawls 95 will move inwardly on pins 96 so as not to impart movement to the housing 94.

The ratchet means 89 on the opposite side of the pedal 67 is similarly constructed to the ratchet means 88. However, ratchet means 89 is assembled so that when the pedal 67, during the rocking action, is rotating driving member 100 of ratchet means 88 so as to cause rotation of axle 69, the axle 70 will not be driven but will be riding free. Likewise, in the reverse rocking of the pedal 67, the ratchet means 89 causes driving of axle 70 while the axle 69 is riding free through its ratchet means 88.

Having specifically described my particular foot actuated mechanism for causing rotation of the body supporting structure in my sun bathing apparatus, it should be clear that when the user is in position on the apparatus, he will engage the pedal 67 with his feet and cause the pedal to rock backwards and forwards from the positions shown in dotted lines on Figure 2. This rocking of pedal 67 through the appropriate ratchet means 88 or 89 will cause driving force to be transmitted for each movement of the pedal through axle 69 or 70, the bevel gear drive, shaft 75 or 76 to the pinions which engage the stationary gear 85.

With regard to the structure of the head box 3, it will be noted that I have provided a covering door 101 for the rear side of such box and have hingedly connected this door as by hinges 102, so that access may be had to the interior of the head box 3 for greasing and such servicing of the mechanism therein as may be necessary. It will also be noted that a latching handle 103 is provided on the door 101 to retain the door in closed position so that dust and dirt may not enter the head box 3 and interfere with the efficient operation of the rotating mechanism mounted therein.

In order to assist the person in mounting my sun bathing apparatus, I have provided a center body support 104 which is pivotally connected to the base 2 by a bracket 105. The upper end of this body support 104 has a saddle member 106 which may be positioned beneath the strap 40 to reinforce the apparatus and facilitate the operation of mounting the sun bathing apparatus. As shown in dotted lines in Figure 2, this center body support 104 extends vertically from beneath the center of the body supporting structure. The arms of the saddle 106, when the center body support is in this position, engage the side members of the body supporting structure to prevent rotation of the device when the person is positioning himself on the apparatus.

Having now particularly described a specific embodiment of my invention, what I consider to be novel and desire to secure by Letters Patent is:

1. Sun bathing apparatus comprising a generally U-shaped body supporting member having spaced parallel side rails to extend along the sides of the body, said side rails being constructed of a plurality of separable sections connected in axially aligned relation, means rotatably mounting the opposite ends of said member for rotation about a longitudinal axis, a body supporting means connected between said parallel rails for releasably retaining a person on said member, said body supporting means including a head support, hip support, and first plurality of spaced parallel flexible strands spaced from said head and hip support, and a head strap, hip strap and second plurality of spaced parallel flexible strands detachably connected to and cooperating with said head support, hip support and first flexible strands, respectively, to retain the person's body on said member during complete rotation thereof and permit exposure of substantially the entire body to the sun's rays and driving means actuatable by the person on the member for causing said member to rotate so as to expose different portions of the person's body to the sun's rays.

2. An apparatus as recited in claim 1 wherein said driving means comprises an electric motor and driving belt operatively associated with said member whereby operation of said motor will cause said member to rotate.

3. A sun bathing apparatus comprising a rotatably mounted generally U-shaped member having spaced parallel side rails, a head support on said member, a hip support on said member, a plurality of parallel flexible strands connected between said side rails for further supporting the body of an individual using the apparatus while permitting exposure of the body to the sun's rays, a head strap detachably connected to said head support for retaining the user's head on said head support, a hip strap detachably connected to said hip support for retaining the user's hips on said hip support, a second plurality of parallel, flexible strands detachably connected between said side rails, said head strap, hip strap, and second plurality of strands serving to retain the user's body on said U-shaped member when said U-shaped member is completely rotated while permitting exposure of the body to the sun's rays.

4. A sun bathing apparatus as recited in claim 3 having means operable from said U-shaped member for effecting rotation of said U-shaped member.

5. A sun bathing apparatus comprising a base, a substantially U-shaped body supporting member, a disc secured to the head end of said U-shaped member, means on said base mounting said member and disc for rotation about a longitudinal axis, a head support secured between the legs of said U-shaped member, a hip support secured between the legs of said U-shaped member, means detachably associated with said head and hip supports for retaining a human body on said member, a gear mounted on said base adjacent said disc, drive shafts extending parallel to the legs of said member and journaled in apertures in said disc, pinions mounted on the ends of said drive shafts engaging said gear, a pedal on the foot end of said member mounted for rocking movement on an axis transverse to said member, means connecting said pedal and drive shafts whereby movement of said pedal causes rotation of said drive shafts to thereby rotate said member.

6. An apparatus as recited in claim 5 wherein said connecting means comprises bevel gears mounted on the end of each of said shafts and bevel gears mounted on the pedal mounting constructed and arranged to cause rotation of said drive shafts upon rocking of said pedal.

7. An apparatus as recited in claim 6 wherein

ratchet means are provided between said second-named bevel gears and said pedal whereby every rocking movement of said pedal will transmit driving power to one of the shafts.

8. Sun bathing apparatus comprising a generally U-shaped member, means rotatably mounting the opposite ends of said member for rotation about a longitudinal axis, body supporting means on said member for releasably retaining a person on said member and driving means actuatable by the person on the member for causing said member to rotate so as to expose different portions of the person's body to the sun's rays, said driving means comprising a pedal mounted for rocking movement about an axis

transverse to and in the plane of said U-shaped member, and power transmitting means operatively associated therewith whereby rocking of said pedal causes rotation of said U-shaped member.

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