No. 728,505. PATENTED MAY 19, 1903.

L. SEEGER.

COLLAPSIBLE SUN OR RAIN SHADE.

APPLICATION FILED MAY 28, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

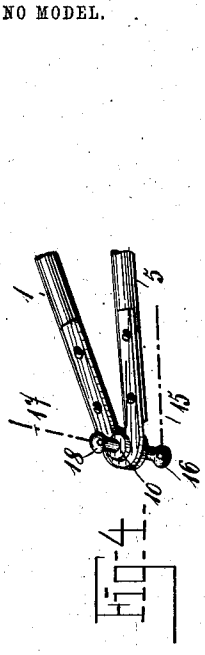


Fig. 4.

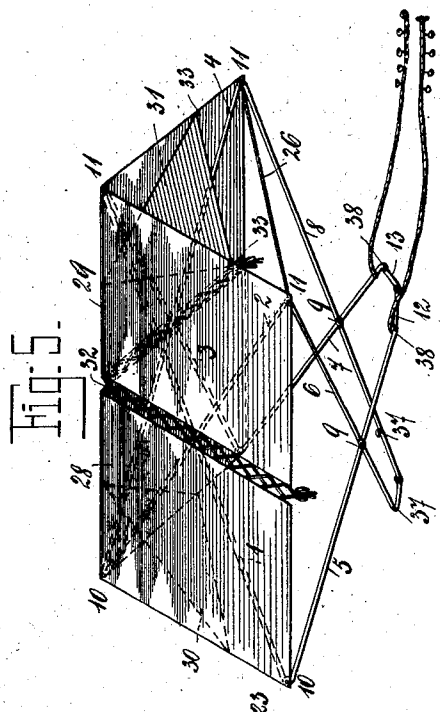


Fig. 5.

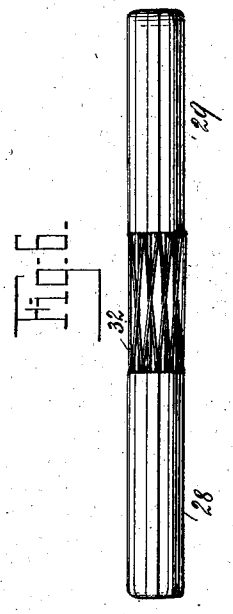


Fig. 6.

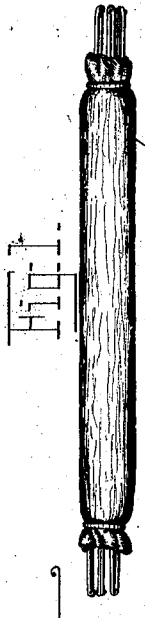


Fig. 1.

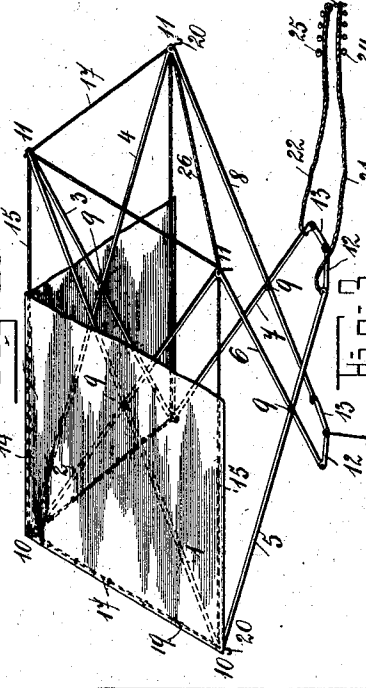


Fig. 2.

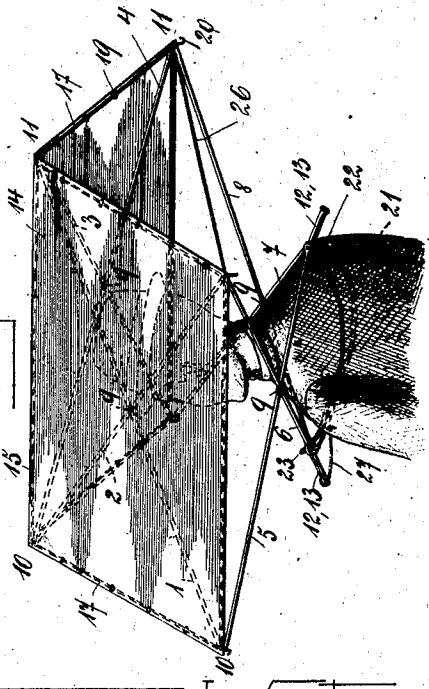


Fig. 3.

Witnesses.

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Fig. 10.

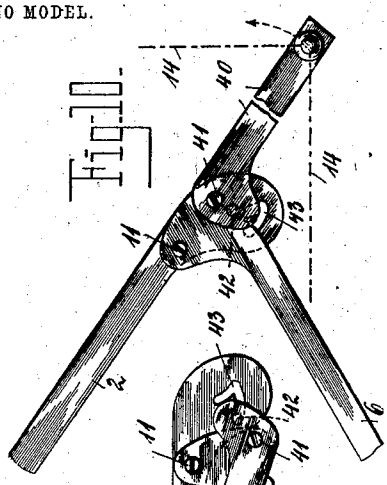


Fig. 11.

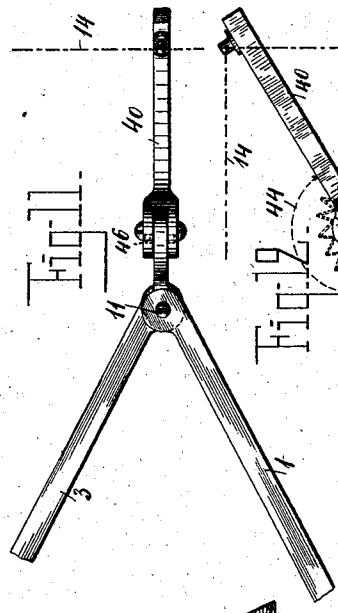


Fig. 12.

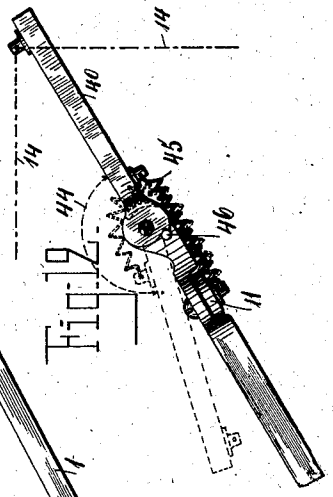


Fig. 9.

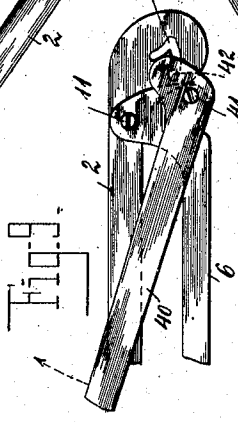


Fig. 7.

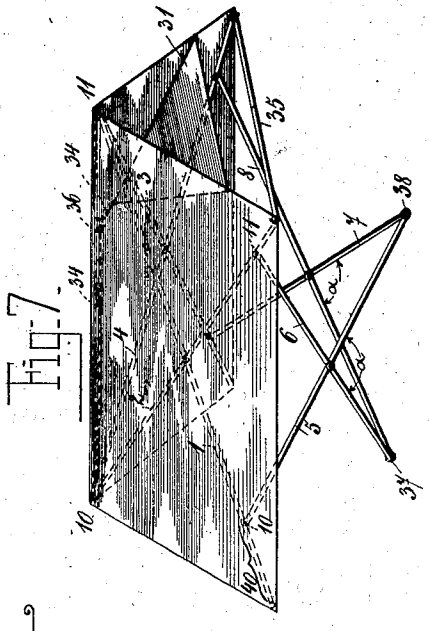
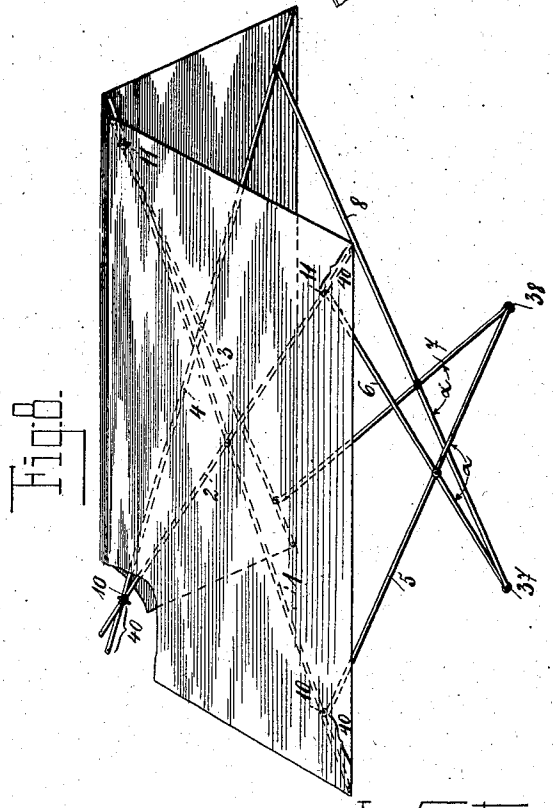


Fig. 8.



Witnesses.

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No. 728,505. Patented May 19, 1903.

UNITED STATES PATENT OFFICE.

LUDWIG SEEGER, OF VORALBERG, AUSTRIA-HUNGARY.

COLLAPSIBLE SUN OR RAIN SHADE.

SPECIFICATION forming part of Letters Patent No. 728,505, dated May 19, 1903.

Application filed May 28, 1902. Serial No. 109,268. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG SEEGER, merchant, a subject of the Emperor of Austria-Hungary, residing in Feldkirch, Voralberg, Austria-Hungary, have invented Improvements Relating to Collapsible Sun or Rain Shades; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to numerals of reference marked thereon, which form a part of this specification.

This invention relates to a sun or rain shade which is adapted to be carried upon the shoulders, so that the hands are left free for other purposes, which is of especial importance for cyclists, surveyors, and others working in the open air, cripples, tourists, horsemen, and others.

This shade consists, essentially, of four pairs of rotatably-connected rods, the extremities of which are pivoted one to the other. The two upper pairs of these rods carry the material constituting the shade, while the lower pairs rest upon the shoulders and permit of the attachment of the shade to the person of the wearer.

In the accompanying drawings several constructional forms of shade in accordance with my invention are illustrated.

Figure 1 shows one form of my sun or rain shade with the frame thereof collapsed and enwrapped in the material forming the cover thereof. Fig. 2 shows the shade extended and with the cover, only a part of which is shown, in position thereon. Fig. 3 shows the manner of attaching the shade to the shoulders. Fig. 4 is a detail illustrating one of the joints in the frame. Fig. 5 shows the shade with a modified form of cover therefor. Fig. 6 illustrates the frame of the shade shown in Fig. 5 collapsed and enwrapped in the material forming its cover. Figs. 7 and 8 illustrate a modified form of the shade, and Figs. 9, 10, 11, and 12 are views illustrating details involved in the frame of that form of the invention illustrated in Figs. 7 and 8.

Figs. 1 to 4 show a shade consisting of four pairs of rods 1 2, 3 4, 5 6, 7 8, the two rods of each pair being connected one with the other approximately at their middle points at 9 in such a manner as to permit of a certain amount of play. The pairs of rods are also pivoted one to the other at their extremities 10 11, Figs. 2, 4, in such a manner as to permit of play. The lower pairs 5 6 and 7 8 are further connected to each other by means of links 12 13 for the reason hereinafter explained. By means of such a connection of the parts a parallelepiped frame is formed, the upper pairs of rods 1 2 and 3 4 of which constitute the awning or roof frame, while the under pairs 5 6 and 7 8 serve for fixing the shade upon the shoulders. The said upper pairs of rods carry the material 14, forming the shade, which may be of any suitable fabric and is arranged in such a manner that notwithstanding the different lengths of the frame when closed and when open such closing and opening of the shade is in no wise impeded. Within this object at three points on the frame the pivots 10 11 are connected one with the other by means of elastic cords (of india-rubber, twisted wires, or the like) which are fixed to the eyes 16 of these pivots, Fig. 4, and tend to cause the shade to open. These cords form the three longitudinal edges of the awning and pass through sleeves formed in the material 14 of the same, the material and the elastic cords being connected at approximately their middle points in order to keep the awning in shape. At both ends cords 17 are carried through other eyes 18, Fig. 4, formed in the pivots, to which cords the extremities of the material are attached by means of eyes 19. As these cords are only stretched when the shade is open, hanging loose when it is closed, they are provided at their extremities with hooks 20, which when the shade is closed are suspended in the eyes 18 at the summit of the awning or connected one with the other by means of the cord 26.

The shade is fixed in position in the following manner: The links 12 13 permit of an enlargement of the opening formed by the rods 5 6 7 8, so that the head of the user may be comfortably passed through this opening and the four rods rested upon the shoulders. The shade is fixed in position by means of two straps 21 22, which after the links have been turned one upon the other for the purpose of reducing the size of the opening above

referred to are crossed over the back of the wearer and brought forward under the arms, Fig. 3. One of these straps is provided with a bolt 23, which is inserted in the openings in the links, which fit over each other, whereupon in order to suitably tighten these straps one of the eyes 24, provided upon the same, is passed over the bolt. Finally the appropriate eye 25 of the other strap 22 is passed upon the bolt, when the shade is secured to the shoulders sufficiently for all ordinary conditions, a cord 26 assisting in this by preventing any sinking of the awning. This cord 26 joins the rear cord 17, so that when the shade is closed connection may be made with the front hooks 20. When the shade is closed, the cord 26 serves for carrying it.

In order that the shade may not shift if there should be a strong wind, suitable means for attaching it to the person may be carried from the pivots 10 11. There may also be arranged in front upon the links a cord 27, with a safety-pin, which may be attached to the clothes, and thus prevent any tendency of the shade to drop backward. When the shade is open, the shade material 14 may also be firmly attached to the pivots 10 11 for the sake of greater security. Disconnection must of course be effected before closing the shade.

The upper and lower joints 9 may be connected by rigid intermediate members, which latter should preferably consist of readily-removable rods constructed in either one or two parts.

The scissor-like displacement of the pairs of rods, which is necessary when the shade is opened or closed, is rendered possible owing to the play provided in the joints 9 10 11. Owing to the elasticity of the cord 15, when the fastening of the shade is released or when it is removed from its case it automatically opens, while closing is effected by means of both hands by pressing together the rods 5 6 and 3 4 or by pressing together the rods 5 6 and pulling the cord 26.

From the form of shade or awning here represented it is an easy transition to a pyramidal shape more nearly resembling the form of the ordinary umbrella or sunshade by cutting away the upper halves of the rods 1 2 3 4, uniting the two pivots 9, and stretching the material of the awning upon all four sides instead of upon two sides only. The other details remain the same and the opening and closing are effected in the same manner.

In the constructional form illustrated in Figs. 5 and 6 the awning is made in two or in four separate parts. In the former case it consists of the parts 28 29 and in the latter of the parts 30 31 also. The parts 28 29 constitute the awning proper, and they are attached at the outer ends to the connecting-pins 10 and 11 of each of the two pairs of rods 1 2, 3 4, 5 6, 7 8, either permanently or in such a manner as to be readily detachable, the adjacent edges being connected one with the other by lacing 32 or by means of elastic strips. By using an elastic connecting-strip instead of the lacing or straps a joint between the parts 28 29 is avoided. When the shade has been opened, the lacing is tightened in order to close the space between the two parts, and this lacing has to be slackened before the shade is closed. If elastic connecting-straps or an elastic strip are employed, the difference in the lengths of the frame when the shade is open and when it is closed, which has been referred to above, is automatically compensated for.

The parts 30 31 form a protection against obliquely-falling rain or rays of the sun either in front or behind without, however, opposing the passage of air through the shade. With this object these parts form triangular flaps, which are attached by the two base-angles 33 either to the edges of the awning proper or somewhat farther in, while the apex of the triangle is attached to the summit of the roof either directly or (in order to still further facilitate the passage of the wind through the shade) by means of a cord, the attachment being made still farther in, so that these flaps assume an oblique position and when the shade is closed remain inside it.

In order to draw the flaps 30 31 within the awning upon closing the shade, the apexes of these flaps may also be connected by means of an elastic cord with the pivot at the opposite angle of the roof, (10 and 11, respectively,) or the cord 34, Fig. 7, passes through a sleeve 36 to the opposite roof-pivot 10, through the same, and returns to its own pivot 11, to which it is fixed.

The construction described with respect to the flaps may also be adopted for drawing back the cords 17 and hooks 20, Fig. 2, in order to automatically tighten these cords, and consequently the material also, when the shade is closed.

In the case of the cheaper forms of shade it is sufficient to fasten an awning made in one piece, Fig. 7, either to all six fixing-points 10 11 or only to three of the same, attaching the material in such a manner that it may be readily detached, say, by means of spring-buttons at 10, for example, so that the material is attached or its attachment is completed only after the frame has been opened and is detached before the frame is closed. Such a cover in a single piece may, however, also be connected at the extremities by means of elastic cords or lacing of the kind already described with the roof-pins 10 11.

Instead of the cord 26, Fig. 2, a rigid connection may be employed, which may consist of a stay-rod 35, Fig. 7, in one or two parts, or of a tube in two parts, through which is passed an elastic cord.

In order that the shade described above may also be employed in case of need as a tent, (a single tent for soldiers, for example,) the rods 5, 6, 7, and 8, Fig. 5, are connected, on the one hand, at the points 10 or 11 with the other rods and, on the other hand, one with

the other at the points 9 and with the links 12 13 at 37 38 in such a manner as to be readily detachable, so that these four rods may be removed and employed as outside tent-supports.

In order that the shade may also be used as a wagon-tilt, garden-shade, or market-shade, the two pairs of rods 5 6 and 7 8 are detachably connected one with the other at 9 and 37 38, so that the four rods 5 8 may be vertically fixed on the wagon, in the ground, or in sockets in a detachable manner.

In order to insure that the shade shall fit well upon the shoulders, it is preferable that the angles inclosed by the rods 5 6, on the one hand, and the rods 7 8, on the other, should be as small as possible, Fig. 7. As the shade would then be made too small, it is necessary to prevent this by continuing the roof-rods 1 4 beyond the pivots 10 and 11 by lengths 40. In the constructional form represented in Fig. 7 this is done only on the lower extremities of the rods 1 4, while at the apex the pivots 10 11 form the termination of the shade.

In the constructional form shown in Fig. 8 all the roof-rods 1 4 are carried beyond the pivots 10 11 by a length 40 at both ends, so that the top of the roof does not constitute an angle, but a flat surface which is stretched upon the opening of the shade and folded together when it is closed. If the said prolongations 40 are not rigid, but mounted rotatably, they then serve to compensate for the different lengths of the frame when open and when closed as compared with the constant length of the material constituting the cover, because they lengthen the frame upon opening the shade and shorten it upon closing.

Figs. 9 and 10 show a constructional form of the rotatable arrangement of the prolongations 40 when the shade is closed and open as applied to the rods 2 and 6, by way of example. These rods are, as before, pivotally connected one with the other at 11, (or 10,) and upon the opening of the shade they rotate through an angle of about forty-five degrees. Upon the rod 6 the prolongation 40 is pivoted at 41 eccentrically to the pivot 11. By means of a second pin 42 this part 40 also engages in an angle-slot 43 formed in the rod 2. When the shade is closed, the prolongation is turned inward, Fig. 9, which corresponds to the difference of lengths between the frame and the cover. When the shade is opened, the two rods 2 6 separate angularly, thus causing the prolongation 40 to rotate around the pin 42 outwardly in the direction of the arrow. As the pin 42 does not remain fixed, but is capable of displacement in the angle-slot 43, in spite of the small angular displacement of the rods 2 6 the prolongation will rotate through almost one hundred and eighty degrees until it forms a continuation in a straight line of the rod 2, Fig. 10. This corresponds to a prolongation of the frame, so that the cover is stretched upon it. The play provided in all the pivots permits of the rotation of the rods and of the prolongations in the manner necessary for the manipulation of the shade.

At the summit of the roof either two prolongations are positively rotated in the manner described by means of two slots formed in one rod, or, contrary to the arrangement shown in Fig. 8, only a single prolongation 40 is provided, as shown in Figs. 11 and 12, in plan and side elevation, as applied to the rods 1 and 3, by way of example. These rods are connected one with the other, as before, at 11, (or 10,) and the prolongation 40 is rotatably mounted upon the rod 1 in such a manner that it is able to move substantially in a plane passing vertically through the summit of the shade within the arc 44. A spiral spring 45, connecting the prolongation with one of the rods, tends, in conjunction with the stop 46, to maintain the same in the position indicated in continuous lines. The operation of this arrangement is as follows: Upon the opening of the shade the four lower prolongations 40, Figs. 9 and 10, are forced to rotate outwardly. The prolongations at the summit of the frame are also, owing to the shortening of the frame upon the opening of the shade, caused to turn outward to a certain extent by the action of the spring 45. This rotation is, however, completed by the action of the lower prolongations, which by means of the material of the cover exert traction upon the upper prolongations. In Figs. 10, 12 the material of the cover is indicated by the lines 14.

Where the rods consist of more than one piece, the pieces being adapted to be readily fitted together and taken apart, it is possible to fold the whole arrangement into a compact parcel.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. The combination of a frame consisting of pairs of rods disposed in upwardly-converging planes, the members of each pair crossing each other and being pivotally secured together at the crossing and the upper ends of the members of one pair being pivotally connected to the corresponding ends of the members of the other pair, and a flexible cover carried by said frame, substantially as described.

2. The combination of a frame consisting of pairs of rods disposed in upwardly-converging planes, the members of each pair crossing each other and being pivotally secured at the crossing and the upper ends of the members of one pair being pivotally connected to the corresponding ends of the members of the other pair, a flexible cover carried by said frame, and means for drawing the free ends of one pair of members toward each other so as to maintain said frame open or expanded, substantially as described.

3. The combination of a frame consisting of pairs of rods disposed in upwardly-converging planes, the members of each pair crossing each other and being pivotally secured at the crossing and the upper ends of the members of one pair being pivotally connected to the corresponding ends of the members of the other pair, a flexible cover carried by said frame, and elastic means for drawing the free ends of one pair of members toward each other so as to maintain said frame open or expanded, substantially as described.

4. The combination of a frame consisting of pairs of rods disposed in upwardly-converging planes, the members of each pair crossing each other and being pivotally secured together at the crossing and the upper ends of the members of one pair being pivotally connected to the corresponding ends of the members of the other pair, a flexible cover carried by said frame, means for drawing the free ends of one pair of members toward each other so as to maintain said frame open or expanded, and other rods connected to said free ends of said first-named rods and constituting a support for the frame, substantially as described.

5. The combination of a frame consisting of pairs of rods disposed in upwardly-converging planes, the members of each pair crossing each other and being pivotally secured together at the crossing and the upper ends of the members of one pair being pivotally connected to the corresponding ends of the members of the other pair, a flexible cover carried by said frame, means for drawing the free ends of one pair of members toward each other so as to maintain said frame open or expanded, and other pairs of crossed rods connected to said free ends of said first-named rods and constituting a support for the frame, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of May, 1902.

LUDWIG SEEGER.

Witnesses:
JAKOB OLBDERHALDEN,
JOSEPH SIMON.