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Kunimatu

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[54] **SUNSHADE FOR FOLDABLE CHAIR OR BED**

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[51] **Int. Cl.** **A47c 7/10**, A47c 29/00

[58] **Field of Search** 297/184, 188, 194; 248/205, 104; 135/7.1, 5, 5.2

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Attorney—James E. Armstrong and Harold C. Wegner

[57] **ABSTRACT**

A sunshade to be mounted on the back-rest member of a foldable chair or bed such as a three-fold chair primarily for an outdoor use. The sunshade comprises an awning sheet frame and a pair of support legs pivoted to one end thereof to support the frame shiftably in accordance with the reclination of the back-rest member and the direction of the striking sunlight. The support legs are formed at their lower parts with elongated ring-like portions in facing relation to each other for clamping the opposite shoulders of the back-rest member. The distance between a pair of the opposing support legs is smaller at their intermediate portions than the width of the back-rest member, whereby the support legs are resiliently urged inward about the pivoted pprtions when clamping the shoulders of the back-rest member from outside.

1 Claim, 7 Drawing Figures

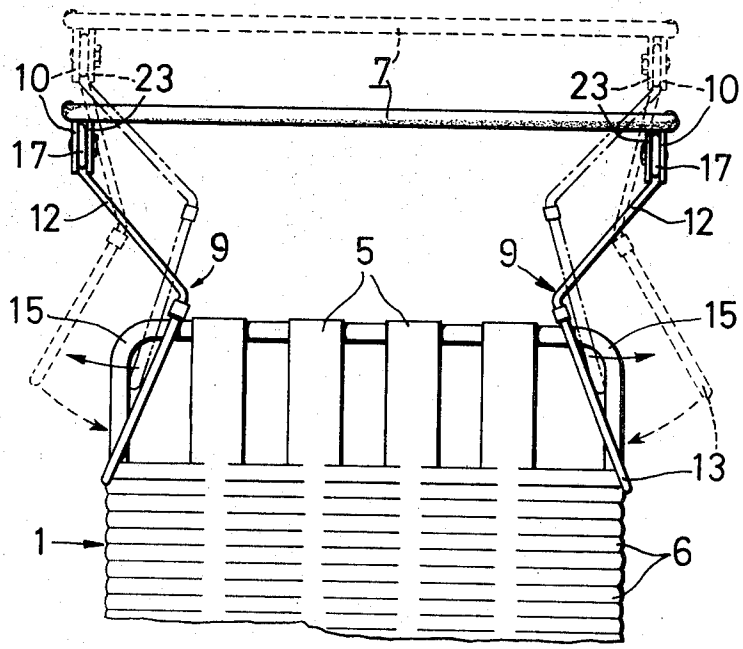
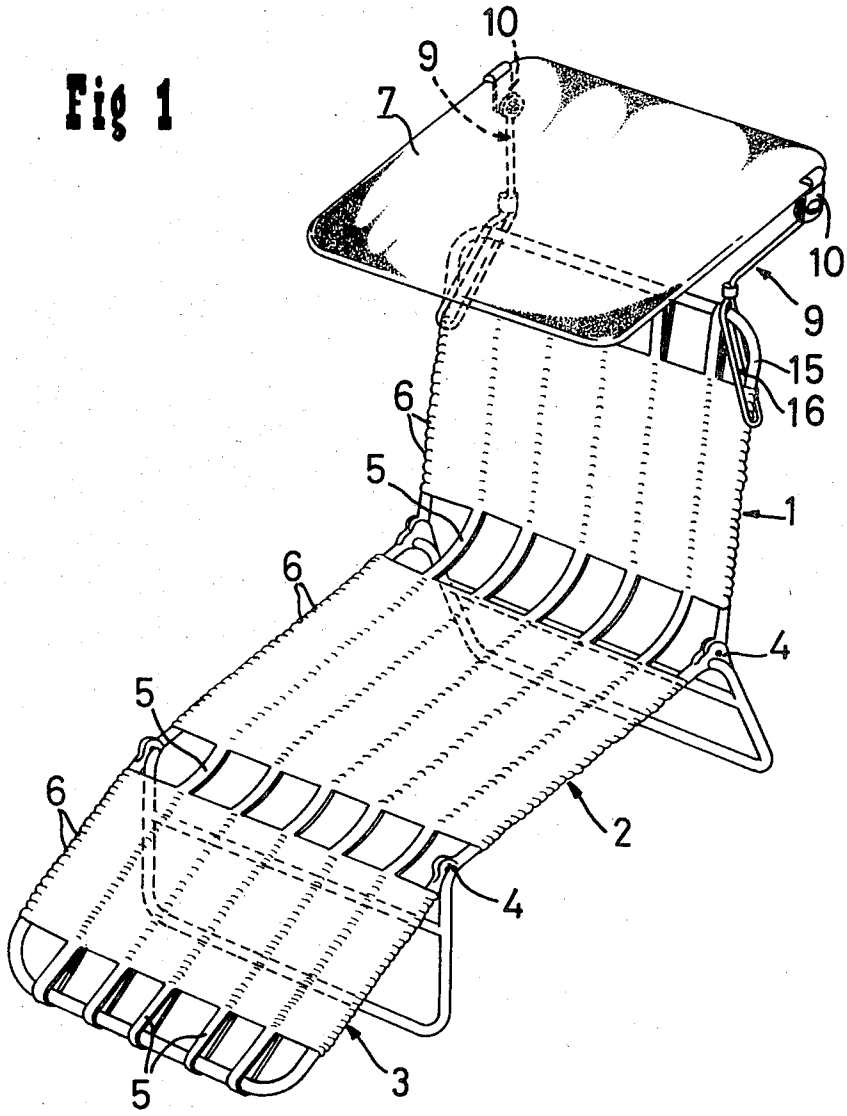


Fig 1



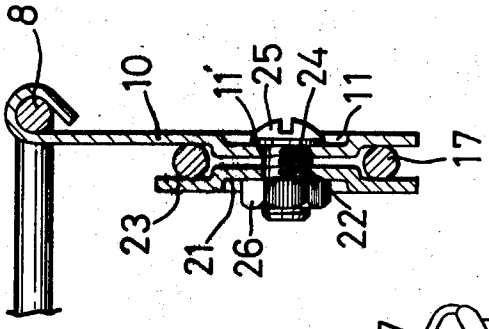

8
10
11'
25
24
11
17
23
21
26
22

Fig 7

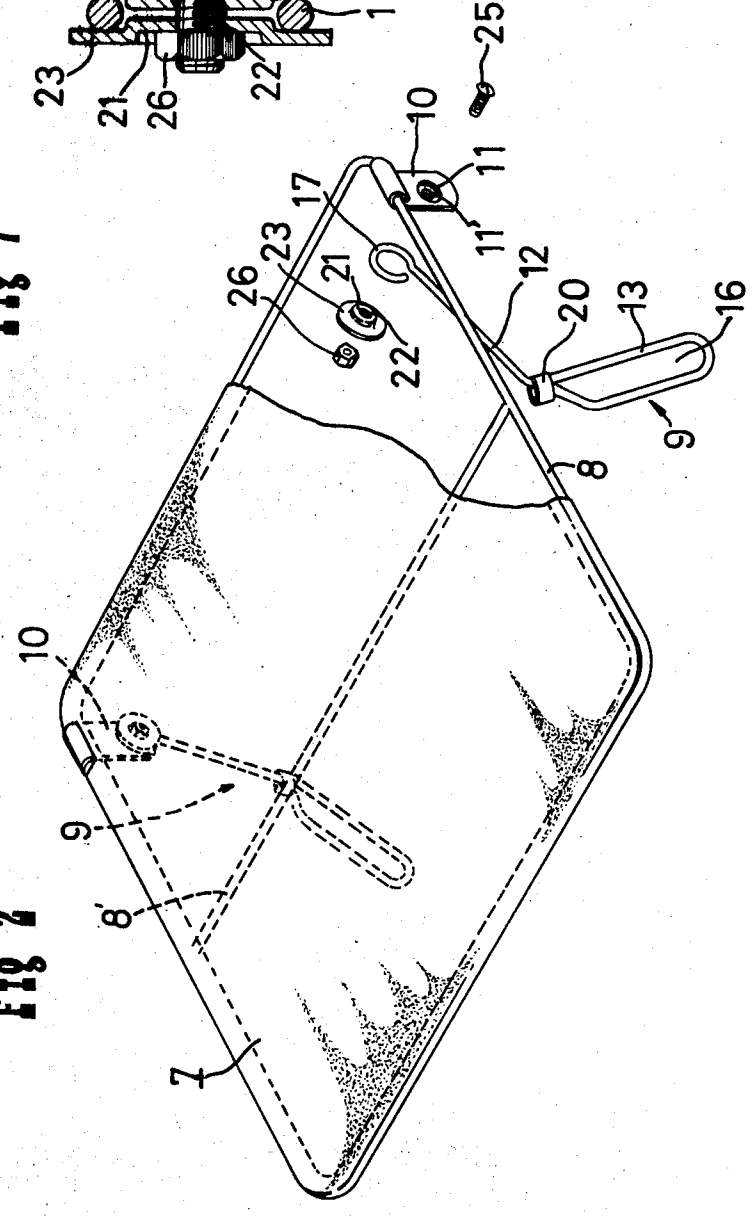

25
10
11
11'
17
23
21
26
22
12
20
13
16
9
8
10
9
8'
7

Fig 2

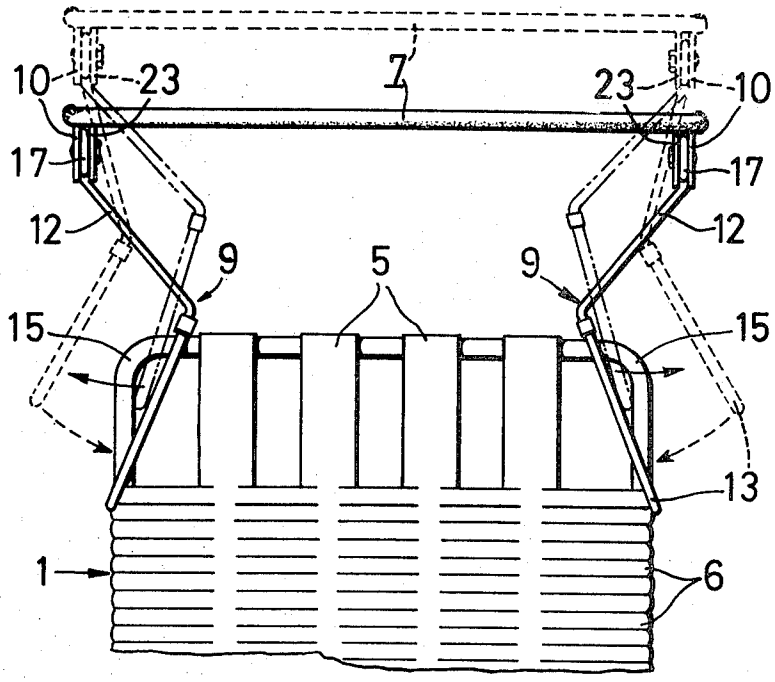

10
23
7
23
10
17
17
12
12
9
5
9
15
15
13
1
6

Fig 3

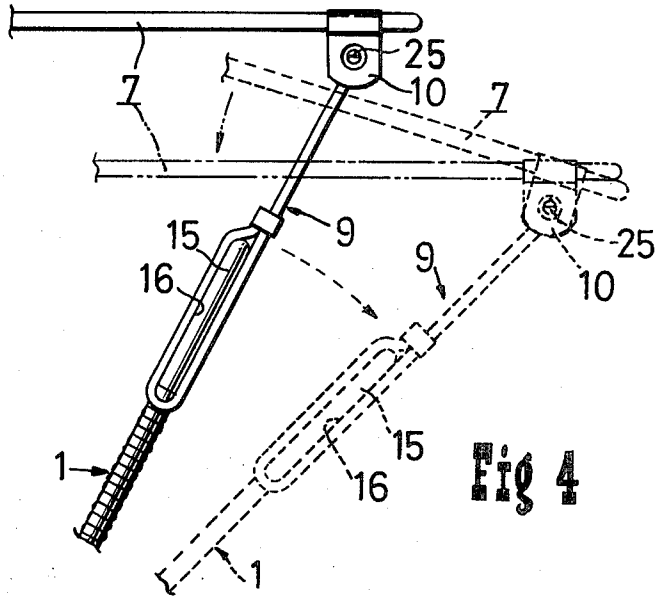

25
10
7
7
15
9
16
9
25
10
15
16
1
1

Fig 4

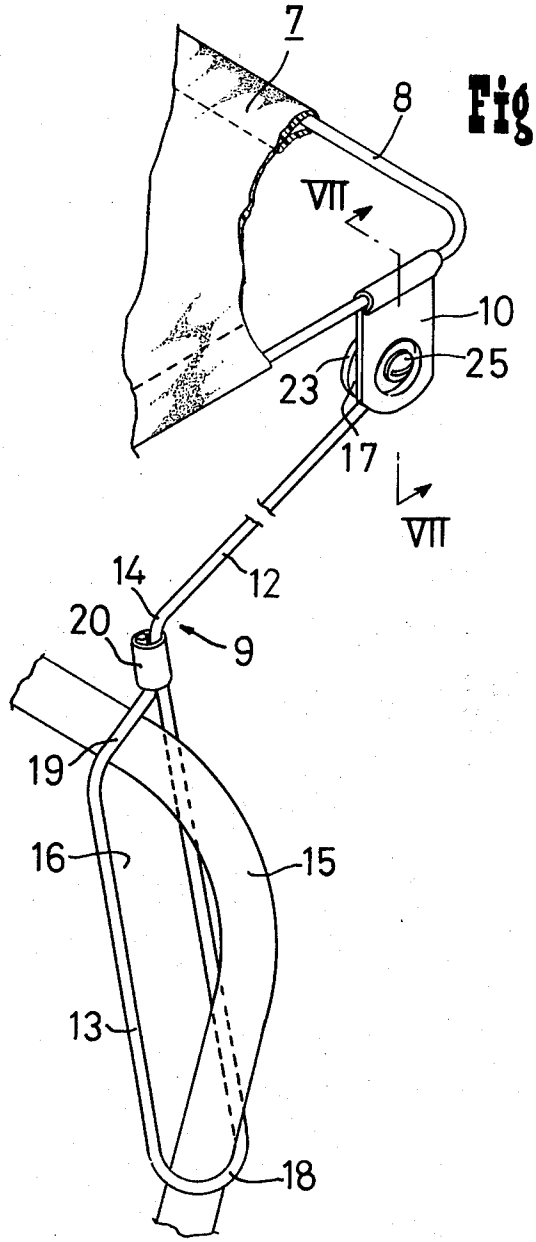
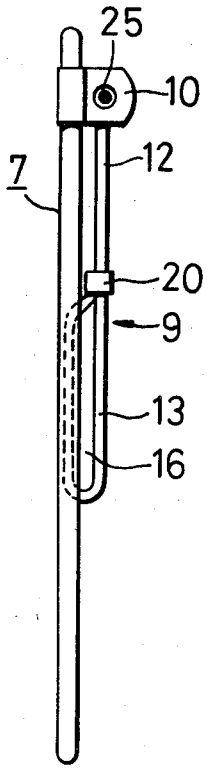


Fig 5

Fig 6



SUNSHADE FOR FOLDABLE CHAIR OR BED

BACKGROUND OF THE INVENTION

The present invention relates to a sunshades to be mounted on the back-rest member of a foldable chair or bed, namely a deck chair which is composed, for example, of a back-rest member, a seat member and a leg-rest member pivotably connected together, more particularly to a detachable sunshade to be used for the chair of the type described wherein an awning sheet serving as the canopy of the sunshade is pivotally adjustable in conformity with the inclination of the back-rest member and support legs for supporting the awning sheet at its one end are adapted to clamp the opposite shoulders of the back-rest member widthwise thereof in corresponding relation to the width of the back-rest member under the action of resilient restoring forces.

A deck chair has been known which comprises a back-rest member, a seat member and a leg-rest member arranged in series and hingedly connected together at the adjacent opposing ends thereof so as to make the back-rest member and leg-rest member foldable against the seat member respectively, the chair further including a plurality of longitudinal flexible supporting strips made of a thermoplastic resin and extending from the end of the back-rest member to the end of the leg-rest member in parallel and transverse flexible supporting strips wound on the respective members, with the intersections of the longitudinal strips and transverse strips fused together. Such deck chair is extensively used at leisure for camping on the beach and lakeside or on poolside and is also used indoors as furniture such as a bed or chair.

In the case where the deck chair is used outdoors at leisure, for instance, for reading, there arises a need to protect the eyes from direct rays of the sun especially during summer.

As means for pretecting eyes from the direct rays, it will generally be suggested to provide the back-rest member of the chair with a sunshade, such as a parasol, having an awning sheet. Such sunshade has to satisfactorily fulfil two requirements. First, the sunshade has to be firmly secured to the back-rest without impairing the foldability and compactness of the chair, and secondly, the awning sheet must be shiftable for adjustment in conformitv with the inclination of the back-rest member and the angle of the striking direct rays of the sun.

The first requirement may be met by a chair equipped with a sunshade which is completely fixed to the back-rest member of the chair as by welding or bolt and nut connection. However, since the chair of this type is usually taken to a camping site on the beach or lakeside in compact, folded state, a chair with a completely fixed sunshade is bulky and inconvenient.

Further if the chairs and sunshades are to be packaged for export, chairs with a completely fixed and therefore unfoldable sunshade will require a greater hand labor for packaging and become bulkier to result in increase in transportation cost, causing a serious difficulty in exporting a large quantity of products. Thus, the chair with fixed sunshade fails to sufficiently meet the first requirement.

The first requirement may alternatively be satisfied by a chair equipped with a sunshade detachably mounted on the rear-rest member. This type of chair has the advantage of eliminating the foregoing drawback to some extent in that the sunshade is detachable from the chair for compact packaging. In this case, the detachable arrangement has to be provided with particular ingenuity, since for this purpose the sunshade must be easy to mount on the chair, it must be retained in place when mounted, and yet it must be readily detachable from the chair. It is noted that the sunshade, if it is easy to mount on and detach from the chair, tends to get detached easily during use, thus failing to withstand a gust of wind at the camping site.

In devising detachable means, it is necessary to provide a sunshade which can be mounted on the back-rest member as the chair is used, namely without providing machining or working for the back-rest. It is further desired that a single detachable sunshade be applicable to various kinds of chairs, particularly with back-rest members of differing sizes. Full consideration has to be given to the width of the back-rest member, therefore.

Even if the first requirement is fully satisfied, there remains another requirement, namely aforementioned second requirement to make the awning sheet shiftable in accordance with the direction of the striking sunlight and the reclination of the back-rest member. Since the user can recline the back-rest member of the chair at a desired angle to the seat member, the awning sheet can not serve the intended purpose if it is not shiftable in accordance with the reclination. Further the awning sheet has to be shiftable in conformity with the direction of the rays of the sun which changes with the lapse of time.

The latter requirement is closely related to the former already described, and these two requirements will be considered in relationship with each other, because the arrangement wherein the awning sheet is shiftable relative to support legs for mounting the awning sheet on the backrest member permits the chair to be folded into a compact form for packaging, whereas the awning sheet with greatly enhanced shiftability will be frequently moved pivotally when subjected to a blast during use. It will then be troublesome to restore the awning to the original position, and there is a need to avoid such trouble.

Although it does not require much of ingenuity to satisfy the foregoing requirements to some extent, it has been extremely difficult to sufficiently fulfil both the requirements at the same time and a sunshade for the chair of the above-mentioned type has not been provided which is satisfactly in every respect. In addition, from the viewpoint the characteristics of the product, its cost and ease of handling, the foregoing requirements have to be met by simple means.

SUMMARY OF THE INVENTION

In the light of the background described, we have devised a novel and useful sunshade for a foldable deck chair.

An object of the present invention is to provide a sunshade in which a frame having an awning sheet is provided with a pair of opposing support legs which are adapted to be detachably mounted at their lower portions on the opposite shoulders of back-rest member of a chair under the action of a resilient restoring force.

Another object of the present invention is to provide a sunshade in which the awning sheet frame is pivotally supported on the support legs so that the awning sheet is shiftable in accordance with the inclination angle of

back-rest member of the chair and the direction of the striking rays of the sun.

Another object of this invention is to provide a sunshade whose support legs can be detachably mounted on the opposite shoulders of the back-rest member in such manner than the lower portions of the support legs extend obliquely across the opposite shoulders to clamp the same under resilient restoring forces inwardly acting thereon from outside and to thereby retain the sunshade in place even when it is forced upward as by a blast.

Another object of this invention is to provide a sunshade in which the awning sheet frame is pivotally supported on the support legs in such manner that the frame will not be easily pivoted even when the awning sheet is forced upward as by a sudden gust of wind.

Still another object of this invention is to provide a sunshade in which the support legs are formed at their lower parts with portions for receiving therein the opposite shoulders of the back-rest member to thereby clamp the shoulders, without a particular need for machining or work for mounting on the back-rest member including the opposite shoulders.

Other objects and advantages of this invention will become more apparent from the following description of an embodiment.

According to this invention, a sunshade to be mounted on the back-rest member of a foldable chair or bed, namely a deck chair, comprises an awning sheet frame provided with an awning sheet made of a desired material such as vinyl, fibrous fabric or the like and a pair of support legs pivoted by connecting means to the opposing portions of the frame to support the same at one end thereof, the connecting means including connecting members having their upper ends secured to the opposing portions of the awning sheet frame and each having one side fitted with a hooked upper end of the support leg and holding members each having a sufficient size to embrace and fit over the hooked end from the opposite side thereof so as to pivot the hooked upper ends of the support legs to the connecting members and the holding members by pins and nuts, the pair of the support legs connected to the awning sheet frame each including an upper slanting portion and a lower slanting portion forming continuous two legs of a triangle when seen from the front and rear, the continuous upper and lower slanting portions of the support legs being arranged in a back-to-back opposing relation to define at their intermediate portions a smaller distance between the support legs than the width of the back-rest member of the chair to thereby impart resiliency to the support legs as a whole, the lower slanting portions being so shaped as to obliquely extend across the opposite shoulders of the back-rest member and having at the obliquely extending portions fitting loops respectively defining openings in facing relation to each other and releasably receiving therein the opposite shoulders.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view showing a foldable deck chair wherein a back-rest member and a leg-rest member are foldably connected to a seat member in series therewith and a sunshade mounted on the back-rest member;

FIG. 2 is a perspective view showing the entire sunshade including an awning sheet frame and a pair of support legs pivotally connected to the opposing portions of the frame, the view showing one of the legs as it is disassembled;

FIG. 3 is a front view showing the sunshade as it is mounted on the back-rest member of the chair, the view also showing the mounting procedure;

FIG. 4 is a fragmentary side elevation of the awning sheet frame of the sunshade showing how the frame is shifted in accordance with the reclination of the back-rest member;

FIG. 5 is a fragmentary enlarged perspective view showing the sunshade as it is mounted on the opposite shoulders of the back-rest member;

FIG. 6 is a side elevation showing the sunshade in folded upright position; and

FIG. 7 is an enlarged view in section taken along the line VII—VII in FIG. 5.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to FIG. 1, a foldable deck chair to be equipped with the sunshade of this invention will generally be described. As already known, the chair comprises a back-rest member 1, a seat member 2 and a leg-rest member 3 which are arranged in series, with the adjacent opposing ends of the members hingedly connected together as at 4. The back-rest member 1 and the leg-rest member 3 are foldable against the seat member 2 respectively. A number of longitudinal flexible supporting strips 5 made of thermoplastic resin extend in parallel from the end of the back-rest member 1 to the leg-rest member 3. Transverse flexible supporting strips 6 made of thermoplastic resin extend across the members 1, 2 and 3, and the intersections of the longitudinal supporting strips 5 and the transverse supporting strips are fused together.

As will be apparent from FIG. 2, the sunshade of this invention to be mounted on the back-rest member 1 of the chair comprises a frame 8 provided with an awning sheet 7 and a pair of support legs 9,9 supporting one end of the frame 8 at the opposing portions of the frame.

The awning sheet 7 is made of vinyl, fibrous fabric or any desired material. If the awning sheet frame 8 is in the form of a square as illustrated, the awning sheet 7 is placed on the frame 8, the margines of the sheet is then wound on the frame 8, and the overlapping portions are thereafter fused or joined together firmly by applying an adhesive or by sewing. At this time, the awning sheet 7 is kept taut.

The awning sheet frame 8 is made of a piece of metal wire or rod of a circular cross section. The wire is bent into a square form, for example, and the abutting ends of the wire are welded together or fitted with a connector of a C-shaped cross section and then caulked to obtain a frame. In the illustrated embodiment, a transverse reinforcing member 8' made of the same material is welded to the awning support frame 8.

Connecting members 10, 10 for supporting a pair of support legs 9, 9 are secured to the opposing portions of the awning sheet frame 8, namely to the right and left portions of the frame at its rear end as seen in the drawing. The connecting members 10, 10 are made of a thin metal plate about 3 mm in thickness and have their upper end wound about the awning sheet frame 8 as seen in FIG. 7 and then caulked against backward or forward displacement or dropping off. In the flat

face of the connecting member **10**, there is formed a circular recess **11** having a pin hole **11'** at its center.

The support legs **9, 9** are pivoted to the connecting members **10, 10** secured to the rear end of the awning sheet frame **8** in facing relationship. Each of the opposing support legs **9** includes an upper slanting portion **12** and a lower slanting portion **13** which form continuous two legs of a triangle when seen from the front and rear. When the supporting legs **9, 9** made up of the upper and lower slanting portions **12, 13** are arranged in a back-to-back opposing relation, the distance between the support legs **9, 9** at their intermediate portions **14** is smaller than the width of the back-rest member **1**, whereby a resilient force is imparted to the support legs **9, 9** as a whole. The lower slanting portions **13, 13** of the support legs **9, 9** are so shaped as to obliquely extend across the opposite shoulders **15, 15** of the back-rest member **1** and have, at the obliquely extending portions, fitting loops **16, 16** respectively defining openings in facing relation to each other and releasably receiving therein the opposite shoulders **15, 15**. One of the support legs **9, 9** will be described more specifically. The support leg **9** is made of a metal wire circular in cross section. The upper end of the wire is bent into a hook **17**. At the base of the hook **17**, the wire is bent in one direction in a plane perpendicular to the plane of the hook **17** to provide the upper slanting portion **12**, and the wire is then bent in the opposite direction in the same plane, i.e. in alignment with the upper slanting portion **12** when seen in a side elevation to thereby provide the lower slanting portion **13**. Thus, the upper and lower slanting portions **12, 13** form continuous legs of a triangle when seen from the front or rear, the internal angle defined by the two slanting portions being about 120° as seen in FIG. **5**. The extension of the lower slanting portion **13** is bent upward as at **18** in a plane at a right angle with the plane including both the upper and lower slanting portions **12, 13**, namely in the same plane as the hook **17**, and the wire further extends in parallel with the lower slanting portion **13**. The distal end of the wire forms an oblique portion **19** and is connected to the intermediate portion **14** with an embracing member **20** of a C-shaped cross section and by caulking.

As illustrated in FIGS. **2** and **7**, the support leg **9** thus formed is fitted at its hooked upper end **17** to one side of the connecting member **10**, with the recessed portion **11** of the connecting member **10** fitted in the hook **17**. A circular fastening member **23** having a sufficient size to fully embrace the hook **17**, a recessed portion **21** to be fit into the hook **17** and a center pin hole **22** is fitted over the hook **17**. After aligning the pin holes **11'** and **22**, a pin **25** threaded as at **24** and having a head is forced into the holes, and a nut **26** is screwed on the threaded stem **24**. In this way, the support legs **9** are pivoted to the awning sheet frame **8**.

FIG. **3** indicates, in the two-dotted line, the normal state of the support legs **9, 9** when the sunshade is not mounted on the chair. It is seen that the distance between the intermediate portions **14, 14** of the support legs **9, 9** is smaller than the width of the back-rest member **1**.

To mount the sunshade on the back-rest **1** of the chair, the support legs **9, 9** are pushed away from each other as indicated by arrows A, A to make the distance between the intermediate portions **14, 14** approximately equal to or somewhat greater than the width of the back-rest member **1** and to thereby deform the sunshade as indicated in the dotted line in FIG. **3**, and the entire sunshade is then brought down to position the lower slanting portions **13, 13** beside the opposite shoulders **15, 15** of the back-rest, whereupon the support legs **9, 9** are relieved of the outwardly pushing force. As indicated by arrows B, B in FIG. **3**, the support legs **9, 9** now tend to come back to the original position under the counteracting force accumulated by the outward pushing as well as by the bending of the lower slanting portions **12, 13**, with the result that the opposite shoulders **15, 15** of the back-rest **1** are securely clamped by the opposing loops **16, 16** of the lower slanting portions **13, 13** as illustrated in FIGS. **3** and **5**. More specifically, each of the shoulders **15, 15** is pushed inward at vertical and horizontal parts by the bent portion **18** and the oblique portion **19** respectively.

After the sunshade has been mounted on the back-rest member in the foregoing manner, there arises a necessity to shift the sunshade in accordance with the posture of the user and the change in the direction of the striking rays of the sun. On such occasion, the back-rest **1** is reclined as indicated in the dotted line in FIG. **4** and the awning sheet frame **8** is pivoted in accordance therewith as indicated in the two-dotted line.

Further when the sunshade is to be detached from the back-rest member **1**, the procedures already described with reference to FIG. **3** are followed in the reverse sequence. After separation, the awning sheet frame **8** and the support legs **9, 9** are folded against each other into an extremely compact form shown in FIG. **6**.

It will be apparent from the above description that the sunshade of this invention fully satisfies the foregoing two requirements which are indispensable to the attachment of a foldable chair. The requirement to keep the sunshade mounted securely on the back-rest, in other words, to prevent the support legs from disengagement from the back-rest even when the awning sheet of the sunshade is subjected to a blast is satisfied as follows. The construction wherein the support legs **9** are composed of the upper and lower slanting portions **12, 13** and the distance between the intermediate portions **14** is smaller than the width of the back-rest member **1** assures that, when the support legs **9, 9** forced away from each other are mounted on the opposite shoulders **15, 15** of the back-rest member, the resulting restoring or repellent force will build up on the support legs **9, 9**, which therefore clamp the opposite shoulders **15, 15** securely. Moreover, the loops **16, 16** fitting obliquely around the opposite shoulders **15, 15** as seen from the front and rear to press the same at two points of their horizontal and vertical portions respectively can satisfactorily retain the sunshade in position against backward or rearward disengagement. It is further noted that when mounted on the opposite shoulders **15, 15**, the support legs **9, 9** are retained in the clamping position under a restoring force. Due to the fact that the distance between the opposing legs at the pivoted portions is definite, the restoring force acts outward at the pivoted portions, which prevents not only disengagement at the pivoted portions but also objectionable shifting of the awning sheet **8**. On the other hand, the second requirement that the awning sheet frame **8** should be shiftable in conformity with the reclination of the back-rest member and the direction of the

sunlight is sufficiently satisfied by the pivotal connections. As already described, the awning sheet, once shifted to an adjusted position, will be retained in position even when subjected to a blast.

The sunshade in accordance with this invention does not require particular working or machining on the chair for mounting the shade thereon. Furthermore, a single sunshade can be used for chairs of somewhat various standards with back-rest members of differing widths. Since the awning sheet frame **8** and the support legs **9, 9** can be folded together at the pivots for packaging and transportation, the sunshade and chair can be packaged in a compact form. This is a great advantage particularly in transporting a great quantity for export.

The present invention will be fully understood from the above description of useful embodiment of the invention. The invention can of course be modified or altered in various modes without departing from its spirit and scope. For example, in order to enhance the clamping ability of the loops **16, 16** of the support legs **9, 9** the width of the loops **16, 16** may be made slightly smaller than that of the back-rest member **1** to impart resilience to the loops **16, 16,** if the back-rest member is made of a tubular material. Such modifications or alterations are to be covered by the appended claim.

What is claimed is:

1. A sunshade for a foldable chair or bed comprising an awning sheet frame provided with an awning sheet made of a desired sheet material and a pair of support legs pivoted by connecting means to the opposing portions of said frame to support the same at one end thereof, said connecting means including connecting members having their upper ends secured to the opposing portions of said awning sheet frame and each having one side fitted with a hooked upper end of said support leg and holding members each having a sufficient size to embrace and fit over the hooked end from the opposite side thereof so as to pivot the hooked upper ends of said support legs to said connecting members and said holding members by pins and nuts, the pair of said support legs connected to the awning sheet frame each including an upper slanting portion and a lower slanting portion forming continuous two legs of a triangle when seen from the front and rear, said continuous upper and lower slanting portions of said support legs being arranged in a back-to-back opposing relation to define at their intermediate portions a smaller distance between said support legs than the width of the back-rest member of the chair to thereby impart resiliency to said support legs as a whole, said lower slanting portions being so shaped as to obliquely extend across the opposite shoulders of the back-rest member and having at the obliquely extending portions fitting loops respectively defining openings in facing relation to each other and releasably receiving therein the opposite shoulders.

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