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Pentzien

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[45] Dec. 25, 1973

[54] SAFETY GUARD FOR RECLINING CHAIR
AND THE LIKE

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[58] Field of Search..... 297/68, 85, 217,
297/219, 190, 463; 5/13, 51 R; 248/277

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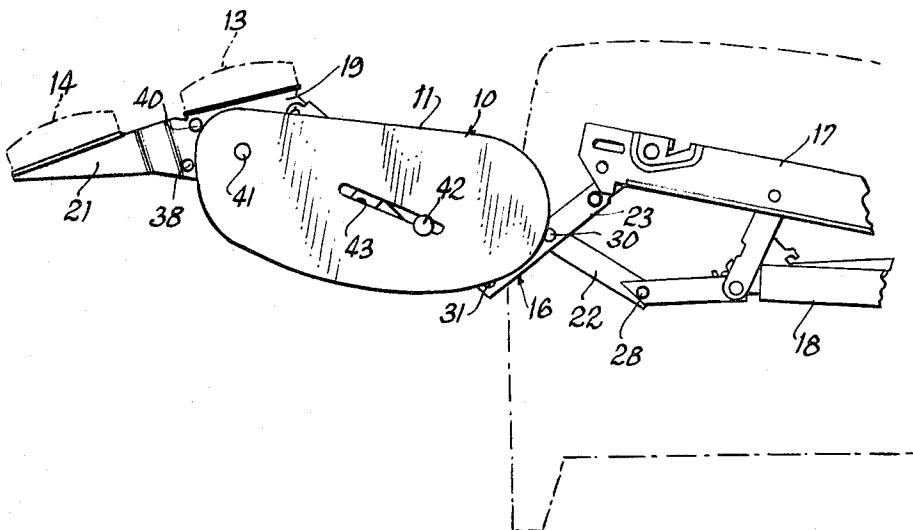
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ABSTRACT

A safety guard for an exposed linkage of an extendable device utilized in reclining chairs and the like. The safety guard has a body member which fastens on one side of the linkage to restrict access to the space between adjacent links of the linkage in all positions of the linkage.

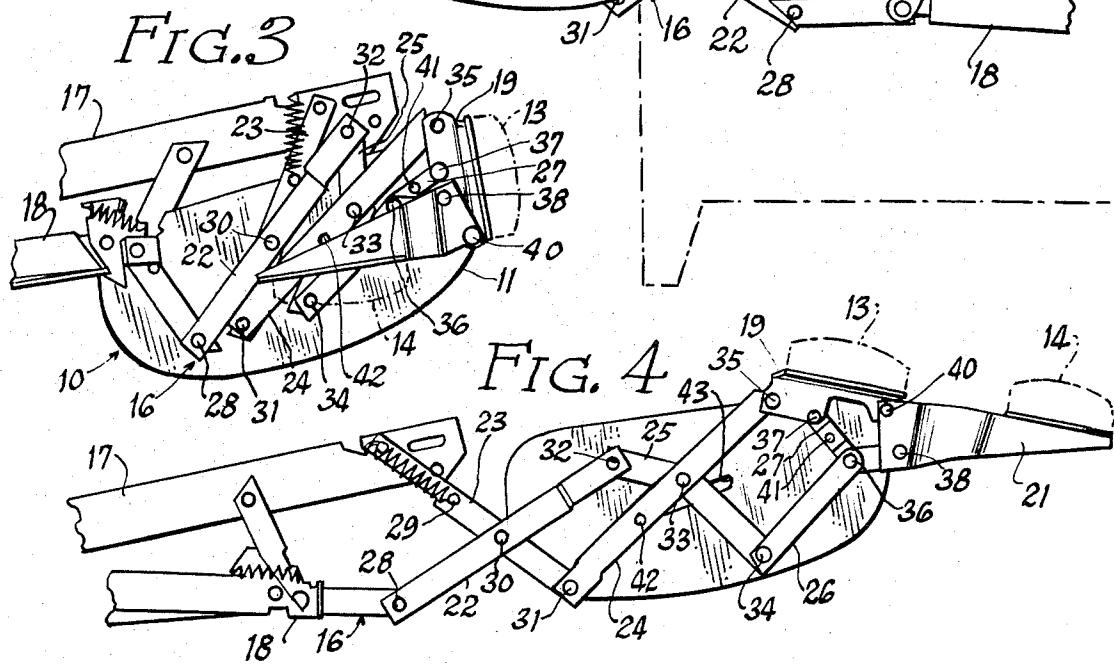
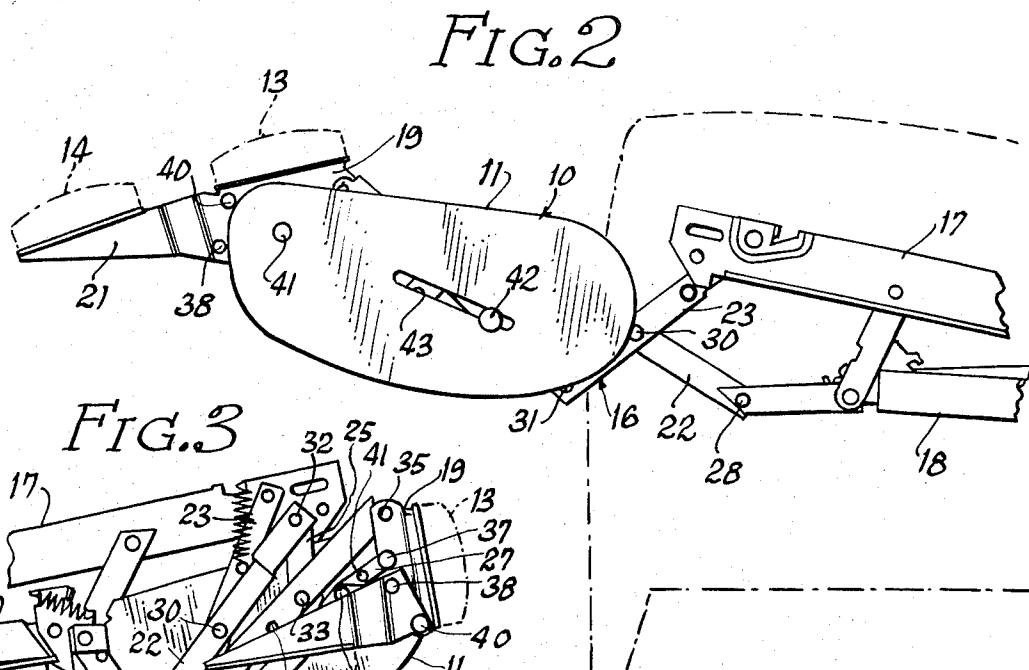
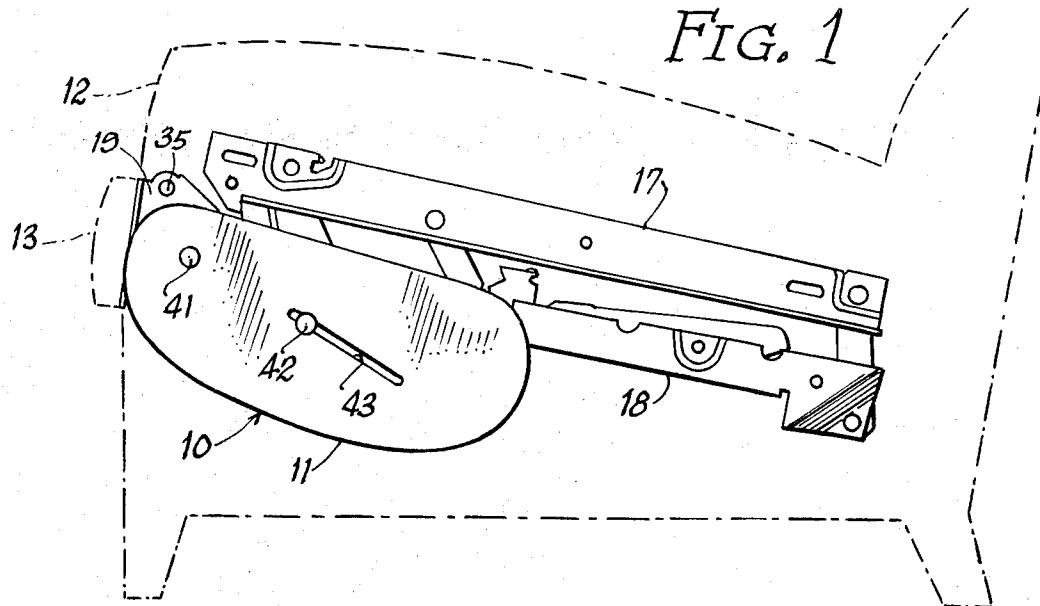
5 Claims, 8 Drawing Figures



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SHEET 1 OF 2



PATENTED DEC 25 1973

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SHEET 2 OF 2

FIG. 5

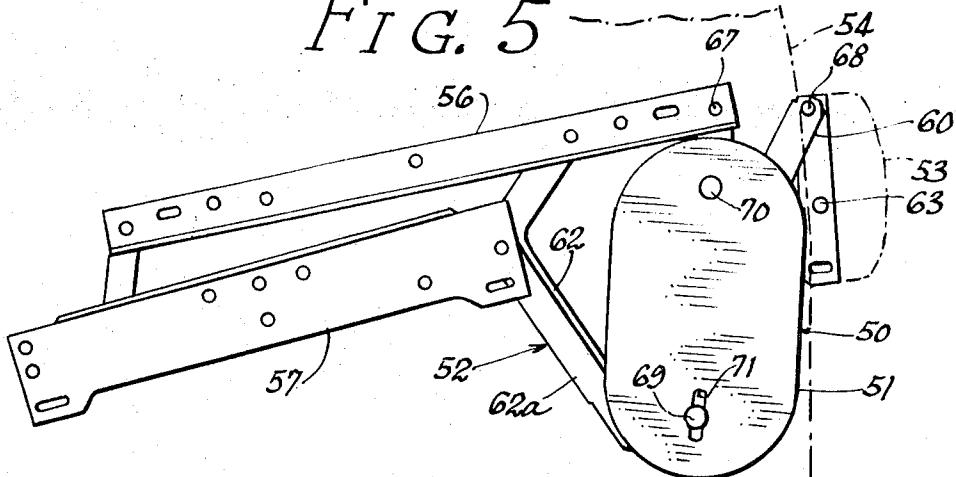


FIG. 6

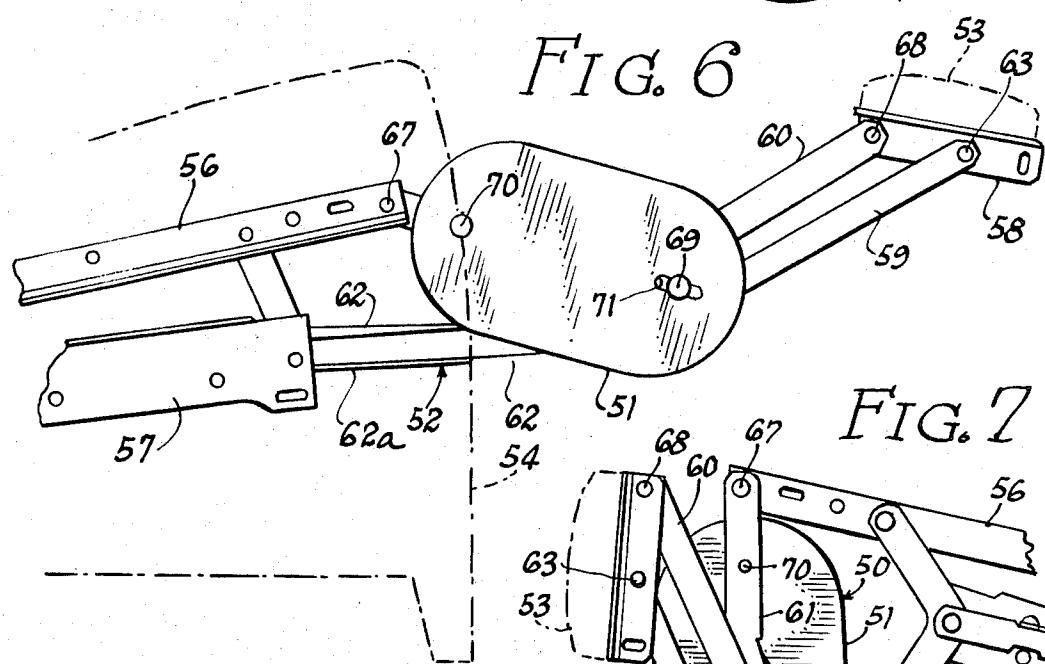


FIG. 7

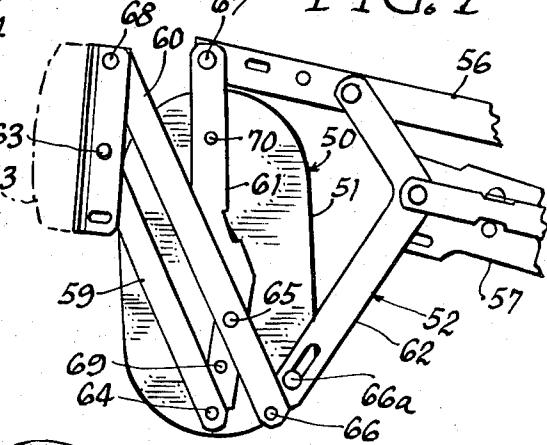
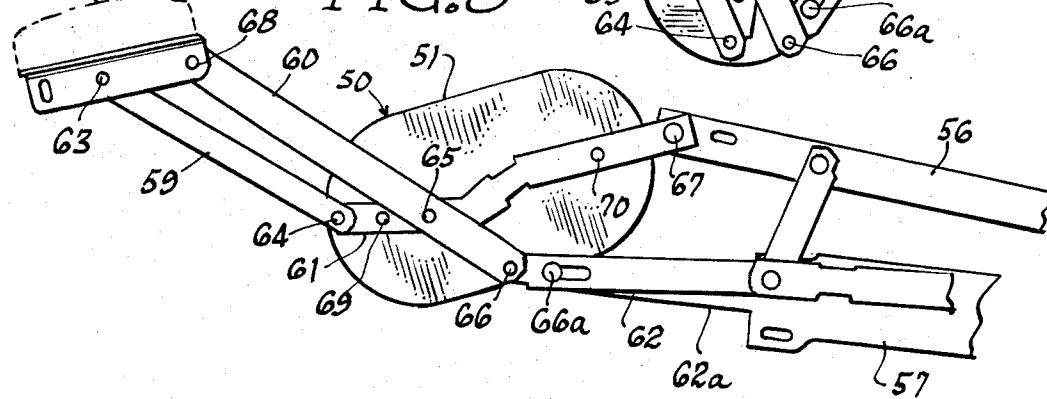


FIG. 8



SAFETY GUARD FOR RECLINING CHAIR AND THE LIKE

BACKGROUND OF THE INVENTION

This invention relates to a safety guard for the exposed linkage of reclining chairs and the like.

Reclining chairs, folding beds and the like have been popular for some time. Many of these devices, and particularly reclining chairs, utilize mechanical linkages to extend one or more portions of the device as it moves from a retracted to an extended position. In reclining chairs particularly, linkages, such as leg rest supporting linkages are necessarily exposed during the retraction or extension operations. Linkages, especially of the lazy-tong type, present a number of nips formed by interconnected links adjacent their pivot points. These nips present a potential hazard to both adults and children having their fingers in exposed portions of the linkage when the chair is operated from one position to another.

SUMMARY OF THE INVENTION

Therefore, it is one object of the present invention to provide a safety guard for exposed linkages to prevent the insertion of fingers into the linkage.

It is another object of the present invention to provide a compact safety guard which is fastenable to an exposed linkage and transportable with the linkage during its movement between retracted and extended positions.

Still another object of this invention is the provision of a safety guard for the exposed portion of a linkage for a reclining chair which is extendable with the linkage to guard exposed nips thereof in its extended position and is retractable with the linkage into the body of the chair upon retraction of the linkage.

These and other objects and advantages of the present invention will become apparent from the following description when the same is considered in connection with the accompanying drawings.

In accordance with the present invention a safety guard is provided having a substantially planar body member which is fastenable to one side of a linkage, whereby the member is transportable with the linkage to restrict access to the space between adjacent links of the linkage. The substantially planar body member has a length at least equal to the distance between two pivotal connections of the linkage in its extended position and a width at least equal to the width of the linkage in its retracted position at its widest exposed portion formed by a pair of pivotally interconnected links. Thus, the substantially planar body member has a guard surface which covers substantially all of the exposed nips formed by interconnected links and their pivot points, and is movable with the linkage to restrict access to such nips in all positions of the linkage. In this manner, the insertion of fingers into these nips is prevented whether the linkage is in its extended or retracted positions or in positions intermediate thereto.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of a safety guard in accordance with this invention installed on the leg rest supporting linkage of a reclining chair, with the leg rest in retracted position and with the outline of the reclining chair being shown by broken lines.

FIG. 2 is a similar view showing the linkage and safety guard in its extended position.

FIG. 3 is a fragmentary view of the opposite side of the guard and linkage as shown in FIG. 1.

FIG. 4 is a view similar to FIG. 3 showing the reverse side of the safety guard and linkage shown in FIG. 2.

FIG. 5 is a side elevational view of a safety guard in accordance with another embodiment of the present invention fastened to a linkage of another design.

FIG. 6 is a fragmentary view similar to FIG. 5 showing the linkage in an extended position as placed in a reclining chair, the outline of the chair being shown by broken lines.

FIG. 7 is a fragmentary view similar to FIG. 5 showing the opposite side of the guard and linkage.

FIG. 8 is a view similar to FIG. 6 showing the opposite side of the guard and linkage.

BRIEF DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to FIGS. 1-4 of the drawings, the numeral 10 indicates generally a safety guard in accordance with the present invention. Guard 10 includes a substantially planar body member 11, preferably formed of non-splintering material such as sheet metal, rigid plastic, pressed board, and the like. While the present invention will be described in relation to the leg rest extension linkage of a reclining chair, it is understood that the safety guard of the present invention is applicable to conventional extension linkages of various types utilized in a wide variety of articles. Similarly, while the safety guard may be employed in duplicate, for example, one for each of the linkages on opposite sides of a reclining chair structure, for purposes of simplification, only one of such arrangements will be described in connection with the drawings.

FIG. 1 illustrates a reclining chair whose outline is shown by broken line 12. Chair 12 has a leg rest formed by leg rest pads 13, 14 supported by a linkage, generally indicated as 16 which in turn is fastened to chair 12.

More particularly, linkage 16 is pivotally connected to a fixed rail 17 and a movable rail 18. Pads 13, 14 are mounted on hinged supporting plates 19, 21, respectively. The portion of linkage 16 connected between rails 17 and 18 and plates 19 and 21 comprises links 22, 23, 24, 25, 26 and 27 and pivotal connections 28, 29, 30, 31, 32, 33, 34, 35, 36, and 38. Metal plates 19 and 21 are hinged together by a pivotal connection 40 so that plate 21 is articulated with respect to plate 19.

Generally, linkage 16 includes two pairs of each of three substantially parallel links, 23, 25, and 27 and 22, 24 and 26, respectively. Each of the links are pivoted at their ends as shown, and links 22, and 23 are interconnected substantially intermediate their ends by pivotal connection 30, while links 24 and 25 are interconnected substantially intermediate their ends by pivotal connection 33. As shown in FIGS. 2 and 4, in the extended position of linkage 16, pivotal connections 31, 32, 33, 34, 35, 36, 37, 38 and 40 are normally exposed.

In accordance with the present invention, body member 11 of safety guard 10 is fastened to the outer side of linkage 16 to restrict access to the space between pivotally connected links adjacent the normally exposed pivotal connections described above. As shown in the drawings, fasteners 41 and 42 are provided on linkage 16 and support body member 11. Fasteners 41

and 42 can be bolts, studs, rivets and the like, but preferably are round headed rivets. Fastener 41 is mounted on link 27 intermediate its ends. Fastener 42 is mounted on link 24 between pivotal connections 31 and 33. Apertures are provided in body member 11 so that fasteners 41 and 42 can be inserted therethrough. Preferably the apertures are larger than the diameter of the shanks of the fasteners, so that the fasteners are pivotable within the apertures formed in member 11. The aperture formed in member 11 to pivotally receive the shank of 42 comprises an elongated slot 43 adapted to slidably receive the shank of fastener 42.

In the embodiment shown in FIGS. 1-4, linkage 16 and safety guard 10 mounted thereon are hidden within chair 12 when linkage 16 is in its retracted position. In this condition, none of the pivotal connections of linkage 16 is exposed to the fingers of the occupant of the chair or other person. Upon extension of linkage 16, as when the leg rest of the chair is extended, link 27 of the linkage extends forwardly of the chair and is rotated from its position shown in FIG. 3 to its position shown in FIG. 4. In such movement, fastener 41 is pivoted within the corresponding aperture formed in body member 11 and pulls body member 11 outwardly of the front of chair 12 to the position shown in FIG. 4. Concurrently, fastener 42 on link 24 of linkage 16 is also extended from the position shown in FIG. 3 to its position as shown in FIG. 4, while sliding and slightly pivoting within slot 43 from the position shown in FIG. 1 to the position shown in FIG. 2. As shown in the latter Figure, in the extended position of linkage 16, body member 11 restricts access to the nips or spaces between adjacent links at their pivotal connections heretofore described.

In another preferred embodiment of the present invention, as shown in FIGS. 5-8, the safety guard in accordance with the present invention is generally indicated by the numeral 50. Guard 50 in this embodiment includes a substantially planar body member 51 formed of a material similar to the material utilized for body member 11 in the previous embodiment. Body member 51 has portions defining two apertures by which member 51 is fastened to the outer side of a linkage 52 which supports a leg rest 53 of a reclining chair whose outline is shown by broken line 54.

Linkage 52 is pivotally connected to a fixed rail 56 and a movable rail 57. Leg rest 53 is mounted on a supporting plate 58 which is connected to rails 56 and 57 by linkage 52 which comprises links 59, 60, 61, 62 and 62a and pivotal connections 63, 64, 65, 66, 66a, 67 and 68.

In this embodiment, body member 51 of safety guard 50 is fixedly fastened to link 61 by means of two fasteners 69 and 70. Preferably, a short slot 71 is provided in body member 51 to permit initial adjustment of the body member to the fastener. However slot 71 is optional and not required.

As body member 51 is fixedly fastened to link 61,

safety guard 50 is transportable therewith as linkage 52 is moved from its retracted to its extended position, and to its intermediate positions. In being transported with link 61, safety guard 50 restricts access of the fingers of the occupant or other person to the nips formed by the links adjacent the pivotal connections 64, 65, 66 and 66a as guard 50 and link 61 moves from its generally vertical position as shown in FIGS. 5 and 7 to its generally acutely inclined position shown in FIGS. 6 and 8. It is noted that the nip formed adjacent pivotal connection 67 lies within the body of chair 54, although body member 51 could readily be extended to restrict access to that area as well.

Various changes coming within the spirit of my invention may suggest themselves to those skilled in the art; hence, I do not wish to be limited to the specific embodiment shown and described or uses mentioned, but intend the same to be merely exemplary, the scope of my invention being limited only by the appended claims.

I claim:

1. A safety guard for an exposed linkage of an extendable device having at least a pair of pivotal connections between links thereof and at least a pair of spaced apart fasteners mounted on at least one link thereof, said safety guard comprising a substantially planar body member having a length at least equal to the distance between two pivotal connections of the linkage in its extended position and a width at least equal to the width of the linkage in its retracted position at its widest exposed portion formed by at least a pair of links pivotally interconnected, said member being fastenable to one side of the linkage to a pair of fasteners of the linkage, whereby said member is transportable with the linkage to restrict access to the space between adjacent links of the linkage in all positions of the linkage.

2. The safety guard of claim 1 wherein said member is pivotally connected to a pair of fasteners of the linkage.

3. The safety guard of claim 2 wherein one of said pivotal connections of said member to the linkage includes a slidable connection whereby said member is substantially unaffected by a change in the distance between the pair of pivotal connections of the linkage interconnecting pairs of links of the linkage.

4. The safety guard of claim 3 wherein said slidable connection comprises a portion of said member defining an elongated slot adapted to receive an extension of a fastener member of the linkage for sliding movement within the elongated slot defined by said portion of said member.

5. The safety guard of claim 1 wherein said member is adapted to be fastened to two fasteners mounted on one selected link of the linkage adjacent the ends of the link, whereby said member is transportable with the selected link between the contracted and extended positions of the linkage.

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