March 30, 1954 S. B. HENDRICKSON 2,673,593

RECLINER CHAIR AND FOLDING BACK REST COMBINATION

Filed Aug. 12, 1952

3 Sheets-Sheet 1

Fig. 1

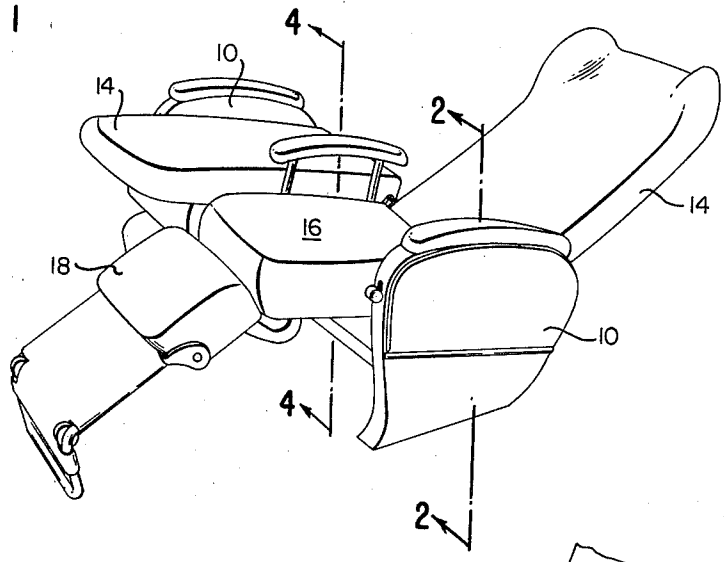
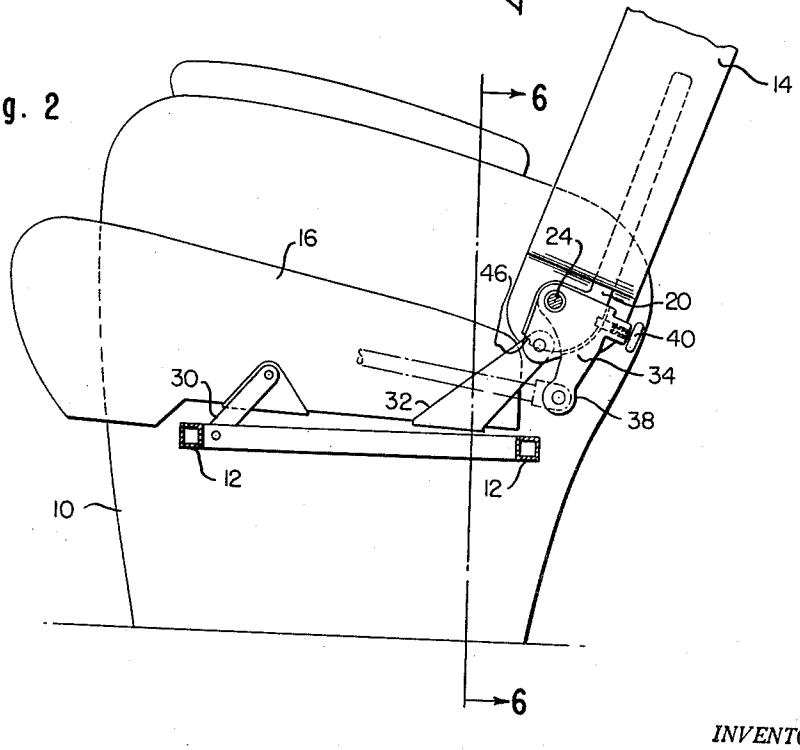


Fig. 2



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Fig. 3

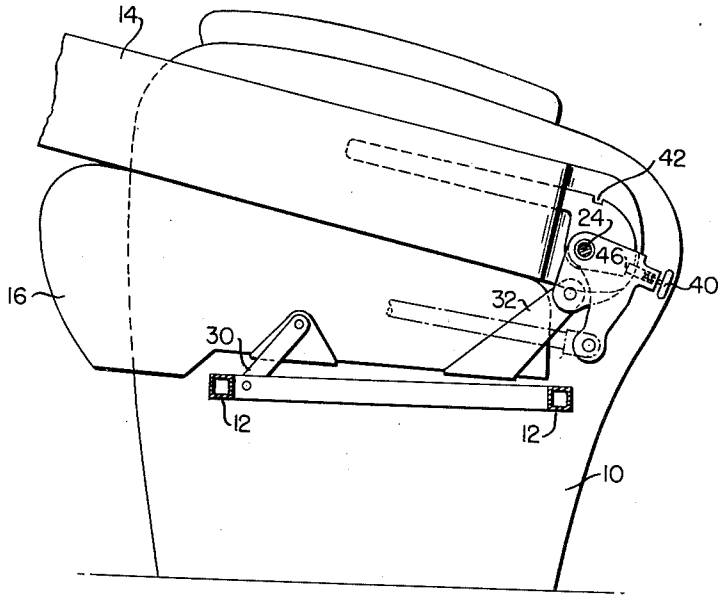
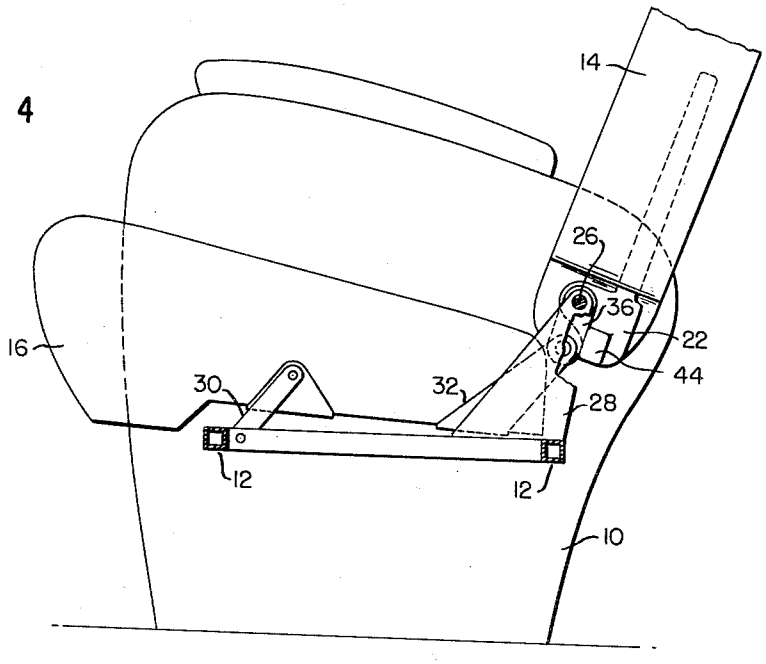


Fig. 4



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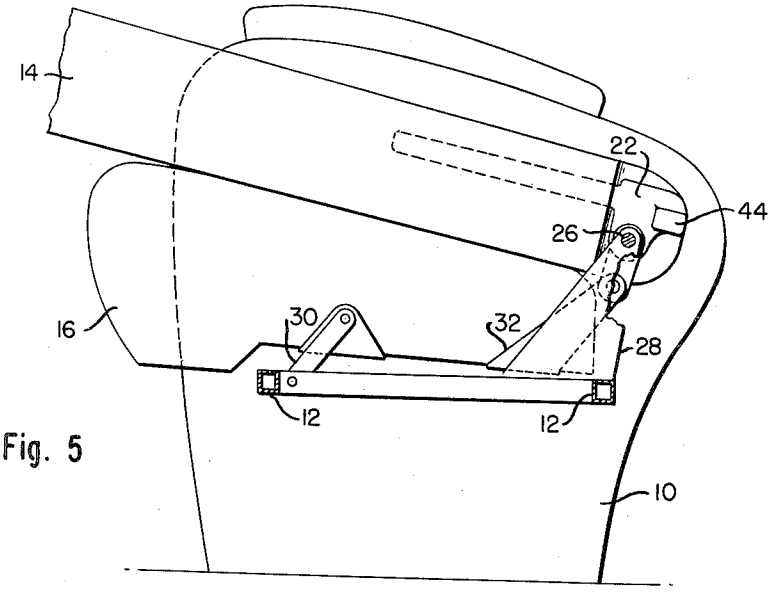


Fig. 5

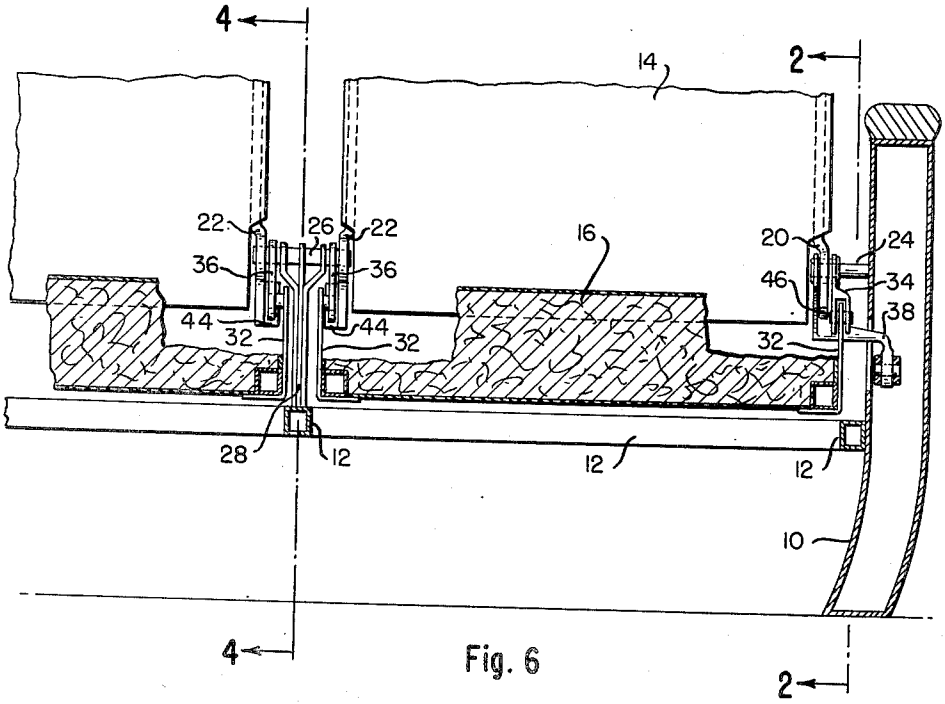


Fig. 6

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UNITED STATES PATENT OFFICE

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RECLINER CHAIR AND FOLDING BACK REST COMBINATION

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Application August 12, 1952, Serial No. 303,964

2 Claims. (Cl. 155—116)

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This invention relates to recliner chairs for vehicles. More particularly this invention relates to recliner chairs adapted for reclining action without opening a gap between the back rest and the seat thereof, and also constructed so that the back rest can fold forward for purposes of space conservation and convenience.

It is an object of my invention to provide a recliner chair which may be fully assembled at the factory and then shipped to the user in the collapsed and folded position so that a conveniently shaped container may be employed, and also so that the chair may be installed easily in cramped spaced such as airplane passenger areas without necessitating disassembly.

Another object of my invention is to provide a recliner chair adapted for reclining without opening a gap between the seat cushion and the back thereof, while at the same time being constructed so that the back rest can be folded forward to a position parallel to the seat where it will be out of the way for cleaning purposes or for the convenience of a passenger seated in the chair immediately to the rear thereof.

In the accomplishment of these and other objects of my invention in a preferred embodiment thereof, I employ a recliner chair mounted within conventional frame elements. The chair includes a pivotally mounted back rest and a cushion seat. The back rest is mounted to pivot about an axis which is substantially above the lower extremity of the back rest. The cushion seat is mounted within the frame with its rear portion adjacent to the lower extremity of the back rest, and is suspended in that position by support links which are in turn mounted to pivot at their upper extremities on the same pivot axis as that of the back rest.

It is a feature of my invention that the back rest is held in fixed relationship to one of the said chair support links by means of a releasable latch mechanism and is free and clear of the other support link. Thus a simple releasing of the said latch mechanism frees the back rest permitting it to be folded forward to a position parallel to the cushion seat. It will be seen that the elevated position of the pivot of the back rest permits such a forward folding motion without causing a jamming or compression of the cushion elements of the back rest and the seat.

It is a further feature of my invention that when the back rest is in the normal position with the latch mechanism engaged and holding the back rest in fixed relationship to one support link, the lower portion of the back rest is adapted

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to abut the other support link and buttress it from the rear. Thus when the chair is in normal position or reclined, both corners of the rear of the cushion seat are fully supported. When the latch mechanism is released permitting the back rest to be folded forward, then only one corner of the cushion seat receives positive support, but it will be seen that at such times there is no necessity for positively supporting both rear corners of the cushion seat since there can be no occupant of the seat at that time. Thus the back rest may be released, for folding forward, by means of a single latch mechanism, without impairing the support necessary for normal operation of the chair mechanism.

Further objects and features of my invention will best be understood from the following detailed description of a preferred embodiment thereof, selected for purposes of illustration and shown in the accompanying drawings, in which:

Fig. 1 is a view in perspective of the recliner chair of my invention;

Fig. 2 is a view in side elevation of the recliner chair along the lines 2—2 of Figs. 1 and 6 showing the support elements for the back rest and cushion seat with the side frame member of the chair removed;

Fig. 3 is a view similar to Fig. 2 illustrating the back rest in the folded forward position;

Fig. 4 is a view in side elevation along the lines 4—4 of Figs. 1 and 6;

Fig. 5 is a view similar to Fig. 4 illustrating the back rest in the folded forward position; and

Fig. 6 is a view in front elevation with the elements of the cushion seat broken away to show the pivotal support arrangement.

The preferred embodiment of my invention herein shown includes in its general organization a chair base having side supports 10, cross braces 12, a back rest 14, and a cushion seat 16. As shown in Fig. 1 a leg rest 18 may be employed, but since it forms no part of this invention it will not be further described herein. As is customary, the back rest 14 and cushion seat 16 may be provided with conventional cushion elements covered by upholstery. Also it will be understood that chairs of this type, as employed in vehicles, are often constructed in pairs, but only one such chair will be described herein.

Turning now to the pivotal suspension arrangement for the back rest 14 and cushion seat 16, the principal supporting elements for the back rest 14 are side braces 20 and 22. These side braces are loosely termed "back irons" in the industry, and by being rigidly secured to the in-

ternal frame of the back rest, serve as supports therefor. The side braces 20 and 22 are mounted respectively on pivot shafts 24 and 26 so as to pivot the back rest from a point substantially above the lower extremity thereof. The pivot shaft 24 is mounted on side support 10 of the chair, while the pivot shaft 26 is mounted on an upstanding bracket 28 mounted on one of the cross braces 12.

The cushion seat 16 is mounted within the chair frame with its forward portion supported by pivot links 30 which are in turn pivotally mounted on elements of the cross braces 12. The rear portion of the cushion seat 16 is suspended adjacent to the lower extremity of the back rest by means of upstanding arms 32 secured to the frame of the cushion seat 16 one on each side and at the rear. The arm 32 on one side is pivotally connected to a support link 34 and at the other side the other arm 32 is pivotally connected to a support link 36. The links 34 and 36 are in turn pivotally connected to the pivot shaft 24 and 26 previously described. The links 34 and 36 at their lower extremities provide a pivot axis for the rear portion of the seat cushion 16 which coincides substantially with the line of adjacency between the lower extremity of the back rest 14 and the upper rear corner of the cushion seat 16. The link 34 is provided with a laterally extending arm 38 which enters the internal structure of the side support 10 where it connects to a conventional reclining control mechanism. This reclining control mechanism includes springs and release elements, but is not shown or described herein because it may be of conventional construction and forms no part of this invention. However, it will be understood that the operational control of the reclining chair herein described is transmitted to the back rest 14 and cushion seat 16 through operation of the link 34 and arm 38.

The side brace 20 of the back rest 14 is operatively associated with the link 34 and when the back rest 14 is in normal position for use by an occupant, the side brace 20 is held in fixed relationship to the link 34 by means of a latch mechanism 40 employing a spring and plunger arrangement adapted to enter a notch 42 on the rear edge of the side brace 20.

At the other side of the chair, the link 36 is not held in fixed relationship to the side brace 22 of the back rest 14, but, when the back rest 14 is in the normal position for use by an occupant, a lug 44 mounted on the side brace 22 abuts the rear edge of the link 36, thus buttressing the same against forces due to the weight of the occupant of the chair.

It will be seen, therefore, that when the chair is reclined to the rear, as may be seen for instance in Fig. 1, the links 34 and 36 carry the rear portion of the cushion seat 16 forwardly and upwardly in an arcuate path corresponding to the motion of the lower extremity of the back rest 14, such that no substantial gap opens up between these two elements. Furthermore, it will be seen that when it is desired to fold the back rest 14 forward for purposes of convenient shipping, stowage, or other uses, one need only to release the single latch mechanism 40 and fold the seat forward. When in the fully folded position, the latch mechanism 40 may enter a notch 46 in the lower forward corner of the side brace 20 and

thereafter the back rest 14 will be held in the fully folded position.

Certain minor variations of this preferred embodiment of my invention will now be obvious to those skilled in the art, and therefore, it is not intended to confine this invention to the precise form herein shown, but rather to limit it in terms of the appended claims.

Having thus described and disclosed a preferred embodiment of my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a reclining chair for vehicles a base frame for said chair, a back rest pivotally mounted within said frame with the pivot axis running horizontally of said back rest at a point substantially above the lower extremity of said back rest, seat supporting links pivotally connected to said base frame adjacent and to each side of said back rest pivoting on the same axis as said back rest and extending downward to a point adjacent to the lower extremity of the back rest, a cushion seat supported at its forward end by said base frame and at its rearward end by said seat supporting links, said cushion seat being positioned with its upper surface adjacent to the lower extremity of the back rest, means operatively associated with the back rest adapted to engage said support links when said back rest is reclined to the rear whereby the rearward end of said seat cushion is carried forwardly and upwardly by said support links in an arcuate path without opening a gap between said seat cushion and said back rest when said back rest is reclined, and releasable latch mechanism interconnecting said back rest and one said support link whereby said back rest can be secured in a fixed position relative to said support link or in the alternative may be released thereby permitting said back rest to pivot forward into substantially parallel relationship with said seat cushion.

2. A reclining chair for vehicles comprising a base frame, a back rest, means for pivotally mounting said back rest in said frame to pivot on a horizontal axis substantially above the lower extremity of said back rest, a cushion seat supported at its forward end by said base frame, a pair of links connected at their upper ends to said frame to pivot on the same axis as the pivot axis for said back rest, said links extending downwardly as far as the lower extremity of said back rest, the lower ends of said links being pivotally connected to the rear end of the cushion seat and supporting the same adjacent to the lower extremity of said back rest, one of the links being operatively connected to recliner mechanism for said chair, releasable latch mechanism interconnecting said back rest to said last mentioned link, and means operatively associated with the lower extremity of said back rest engaging the other link when the back rest is in the normal position for use by an occupant.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
395,975	Hogan	Jan. 8, 1889
2,612,211	Gielow et al.	Sept. 30, 1952