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RECLINING CHAIR MECHANISM

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2 Sheets-Sheet 1

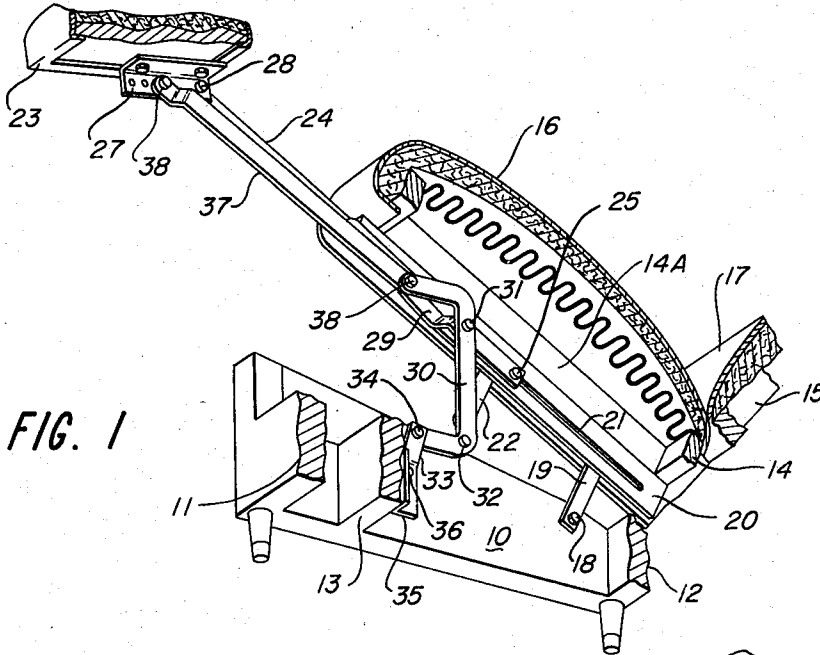


FIG. 1

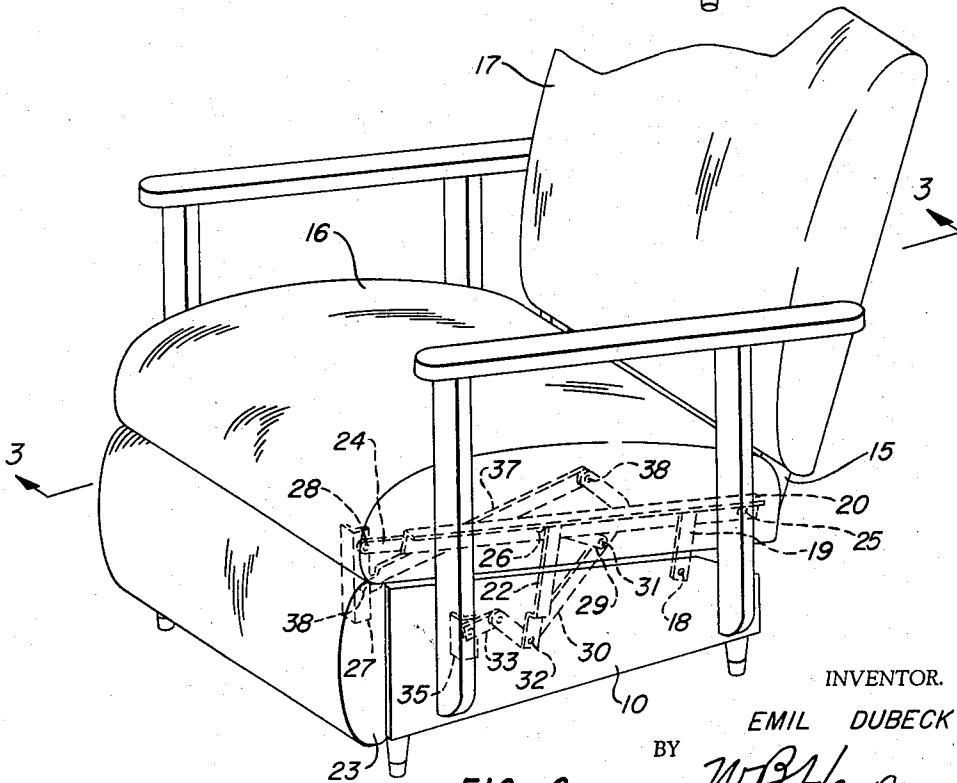


FIG. 2

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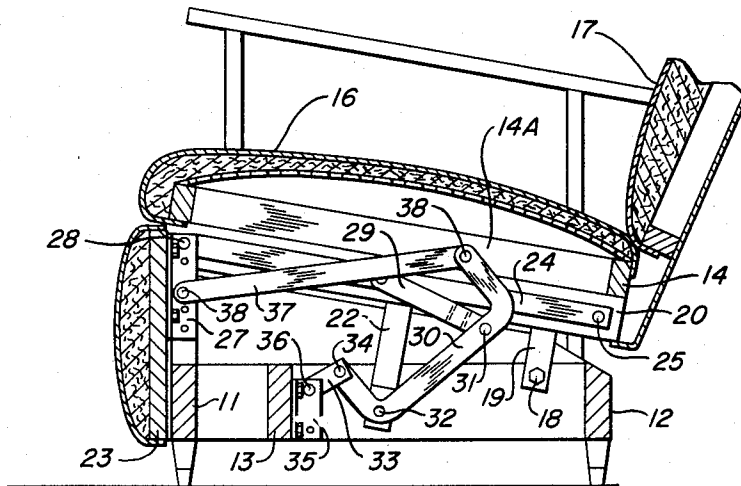


FIG. 3

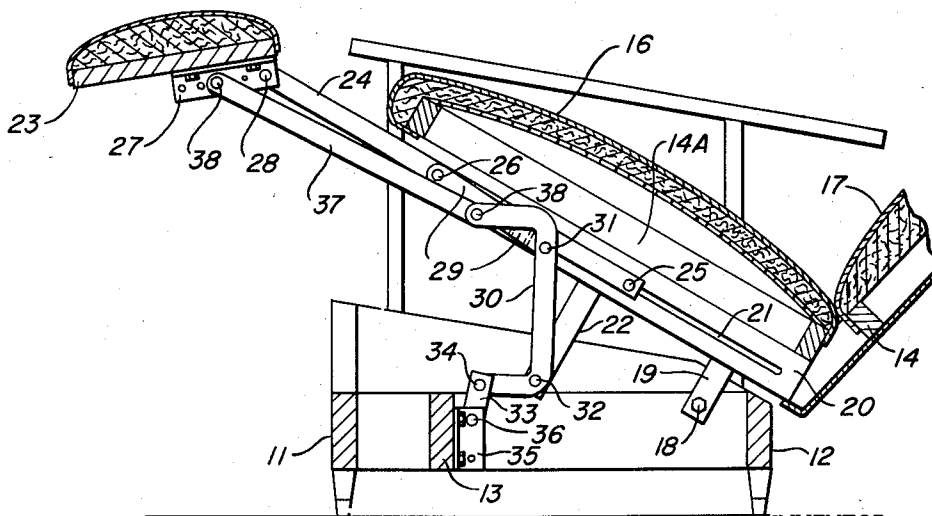


FIG. 4

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## RECLINING CHAIR MECHANISM

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5 Claims. (Cl. 155—106)

This invention relates to a reclining chair mechanism and more particularly to a mechanism for elevating and projecting a leg platform with respect to the seat and back of a chair in which it is installed when the same is tilted.

The principal object of the invention is the provision of a mechanism for tiltably mounting a seat and back unit in a chair frame and movably supporting a leg platform in connection therewith.

A further object of the invention is the provision of an improved reclining chair mechanism for elevating and projecting a leg platform relative to the seat portion of a reclining chair.

A still further object of the invention is the provision of a simple and efficient mechanism for tiltably mounting a seat portion and supporting, elevating, and projecting a leg platform in a reclining chair.

The reclining chair mechanism disclosed herein comprises an improvement in the art in that arms carrying a leg platform are slidably mounted in longitudinally slotted brackets secured to the seat of the chair and arranged to be moved forwardly with respect thereto by levers controlled by the position of the seat in the chair. In reclining chair mechanisms heretofore known in the art the leg platform has usually been supported by hinging it to the seat of the chair or positioning it on the ends of levers which were in turn pivotally engaged and thereby made capable of moving the leg platform with respect to the air. Such mechanisms have a common fault in that they are complicated and usually incapable of providing suitable rigidity and particularly with respect to sideward movement or stress applied to the leg platform.

The construction disclosed herein overcomes these deficiencies by mounting main leg platform supporting arms in slidable relation in longitudinally slotted brackets so that the same degree of support is present with the leg platform in elevated extended position as is present when the leg platform is in lowered retracted position. Additionally, the mechanism disclosed herein accommodated itself to the structural cross members of the chair frame and can therefore be used with chair frames which include desirable cross frame members at their front edge as well as inwardly thereof inasmuch as the mechanism disclosed herein operates in a relatively small area.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being the intention to cover all changes and modifications of the example of the invention herein chosen for purposes of the disclosure, which do not constitute departures from the spirit and scope of the invention.

The invention is illustrated in the accompanying drawing, wherein:

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Figure 1 is a perspective view of a portion of a chair frame and seat and back unit and half of the reclining chair mechanism mounted therebetween.

Figure 2 is a perspective view of a reclining chair with parts broken away showing a leg platform in retracted position.

Figure 3 is a cross section on line 3—3 of Figure 2.

Figure 4 is a view similar to Figure 3 showing the leg platform in elevated extended relation.

By referring to the drawings and Figures 1 and 2 in particular it will be seen that the reclining chair mechanism is adapted to be installed on the side rails 10 of a chair frame including a front rail 11 and a back rail 12 with a transverse frame member 13 positioned intermediate the same. A seat and back unit including a seat frame 14 and a back frame 15, seat cushioning 16 and back cushioning 17 are supported in pivotal relation to the side rails 10 of the chair frame by pivots 18 which are engaged on depending members 19 which in turn are secured to longitudinally slotted angle members 20.

A pair of the longitudinally slotted angle members 20 are secured to the seat frame 14 so that the depending portions thereof including the longitudinal slots 21 are positioned immediately below the seat frame 14 and parallel with one another and with the sides 14A of the seat frame 14. A secondary depending member 22 is secured to each of the angle members 20. It will be understood that two of the units shown in Figure 1 are used in a single chair, one at either side thereof, to adequately support the seat and back unit and to support and control a leg platform 23. A pair of main arms 24 are provided and each has a pair of longitudinally spaced sidewardly projecting headed studs 25 and 26 respectively which are in turn engaged in the slots 21 of each of the angle members 20. The main arms 24 are thus capable of being removed from the retracted position shown in Figures 2 and 3 of the drawings to extended position shown in Figures 1 and 4 of the drawings while maintaining their longitudinal alignment with the respective angle members 20. The forward end of each of the main arms 24 is pivotally mounted on a bracket 27 by a pivot 28 and the bracket 27 supports the leg platform 23. In order that each of the main arms 24 may be moved longitudinally of the angle member 20, a link 29 is pivotally connected to the headed stud 26 on the main arm 24 and to the intermediate portion of a U-shaped lever 30 by means of a pivot 31. Another pivot 32 engages a portion of the U-shaped lever 30 and movably secures it to the lower end of the secondary depending frame member 22. Thus motion of the chair seat on the pivot 18 moves the pivot 32 in an arc. One of the arms of the U-shaped lever 30 is pivotally connected to a link 33 by means of a pivot 34 and the link 33 is pivotally connected to a bracket 35 by means of a pivot 36. The bracket 35 is secured to the transverse frame member 13 so that when the seat of the chair pivots on the pivot 18 the arcuate movement of the pivot 32 will move the U-shaped lever 30 from the position shown in Figures 2 and 3 of the drawings to the position shown in Figures 1 and 4 of the drawing which motion will cause the link 29 to slide the main arm 24 forwardly of the seat portion and hence move the leg platform 23 forwardly.

The other arm of the U-shaped lever 30 is pivotally connected to a secondary arm 37 by a pivot 38 and the secondary arm 37 is connected at its opposite end to the bracket 27 by means of a pivot 38. The shape and size of the U-shaped member 30 and particularly the arm thereof carrying the pivot 38 is such that the above

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described motion of the mechanism occurs when the chair is moved from sitting position to reclining position and thus causes the secondary arm 37 to move forwardly of the seat of the chair at a rate greater than the rate of movement of the main arm 24 which therefor swings the leg platform 23 from vertical position as in Figures 2 and 3 of the drawings to substantially horizontal position as in Figures 1 and 4 of the drawings. It will be understood by those skilled in the art that the swinging motion of the leg platform just described, as well as the forwarding motion thereof with respect to the seat and back unit of the chair is particularly desirable in that it positions the leg supporting platform in proper location for comfortably receiving the legs of a person sitting in the chair when the same is moved to reclining position.

It will occur to those skilled in the art that the structure disclosed operates with a minimum of levers and arms as compared with many of the reclining chair mechanisms heretofore known in the art and that it occupies a minimum of space in the reclining chair and thereby permits desirable construction of the chair in which it is used. Those skilled in the art will understand that a pair of the device herein described are used in each reclining chair, one being located on each side of the chair and beneath the seat portion thereof and located to enable the swinging ends of the U-shaped levers 30 to move without engaging the seat portion of the chair.

It will thus be seen that the reclining chair mechanism disclosed herein meets the several objects of the invention and having thus described my invention, what I claim is:

1. A reclining chair mechanism comprising a pair of units adapted to be positioned between the frame and the seat of a chair and connected with a movable leg platform thereof, each of said units comprising an elongated angle member having a longitudinal slot therein, an arm having spaced means thereon engaged in said longitudinal slot, a depending member on said angle member pivotally engaged on said chair frame, a secondary depending member on said angle member, a U-shaped lever pivoted intermediate its ends to said secondary depending member, a link pivoted to said arm and to said U-shaped lever, a secondary arm pivoted to one end of said U-shaped lever, a bracket on said leg platform, said arm and said secondary arm pivoted to said bracket, a secondary bracket fixed to the frame of said chair and a secondary link pivoted to said secondary bracket and to the other end of said U-shaped lever, whereby relative motion of said angle member with respect to said secondary bracket moves said U-shaped lever and said U-shaped lever imparts movement to said arm and said secondary arm to move said leg platform relative to said angle member and tilt the same relative to said arm.

2. The reclining chair mechanism set forth in claim 1 and wherein the secondary arm is pivoted to one end of said U-shaped lever and said link is pivoted to said U-shaped lever intermediate the ends thereof.

3. The reclining chair mechanism set forth in claim 1 and wherein the secondary depending member is

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spaced longitudinally of said angle member with respect to said depending member.

4. A reclining chair mechanism set forth in claim 1 and wherein said U-shaped lever includes an intermediate portion extending between the pivotal connection to the secondary depending frame member and the end of said link, and wherein said intermediate section is of greater length than either of the end portions of said U-shaped lever.

5. A mechanism for use in a chair having separate seat, frame and leg platform portions, said mechanism tiltably mounting said seat portion in said frame portion and including a pair of angle members positioned beneath said seat portion of said chair and secured thereto and extending from the back to the front of said seat portion in spaced relation to one another, main arms having headed studs thereon, said studs engaged in a longitudinal slot in each of said angle members and thereby mounting said main arms for movement longitudinally of said angle members and outwardly with respect to said seat portion, brackets pivoted to the outer ends of said main arms, said brackets mounted on said leg supporting platform, secondary brackets mounted on said chair frame, depending frame members affixed one to each of said angle members adjacent one end thereof and pivotally mounted on said chair frame, secondary depending frame members mounted one on each of said angle members in spaced relation to each of said first mentioned depending frame members, a pair of U-shaped levers, each including an intermediate section and two arms extending at right angles therefrom, each being pivoted to one of said secondary depending frame members adjacent one end of said intermediate section of each of said U-shaped levers, links pivotally connected one to each of the ends of the arms adjacent said pivotal connections to said secondary depending frame members and pivotally connected to said secondary brackets, secondary links each pivotally connected to one of said headed studs on said main arms and to the opposite ends of the intermediate portion of said U-shaped levers, secondary arms pivotally connected one to each of said brackets on said leg platform and to each of the outer ends of the other arms of said U-shaped levers whereby arcuate motion of said secondary depending frame members responsive to tilting motion of said seat portion of said chair moves said U-shaped levers and said U-shaped levers impart different degrees of motion to said main arms and said secondary arms respectively, to move said leg platform toward and away from said seat portion of said chair and partially rotate the same relative to said arms.

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