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2,828,802

COMBINED TILTING CHAIR AND FOOT REST

Filed May 20, 1952

2 Sheets-Sheet 1

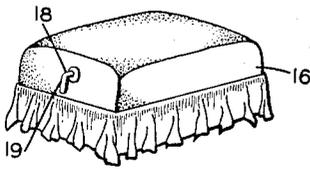


FIG. 2

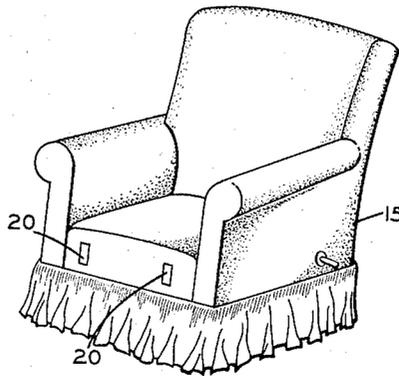


FIG. 1

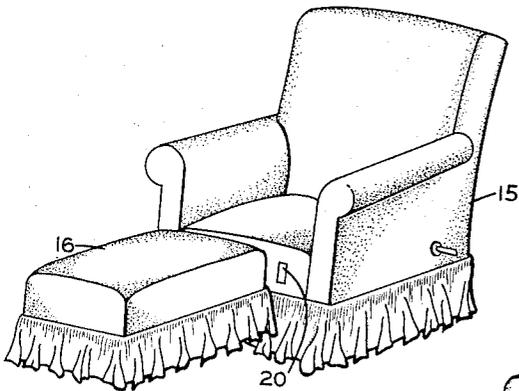


FIG. 3

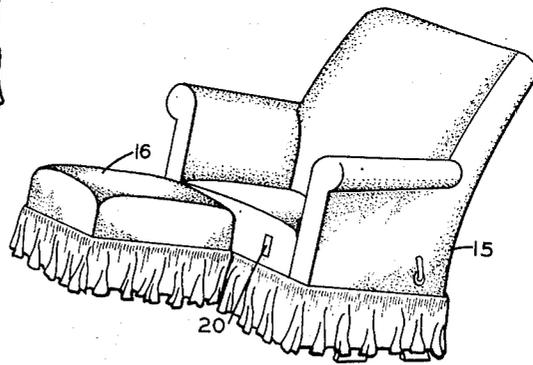


FIG. 4

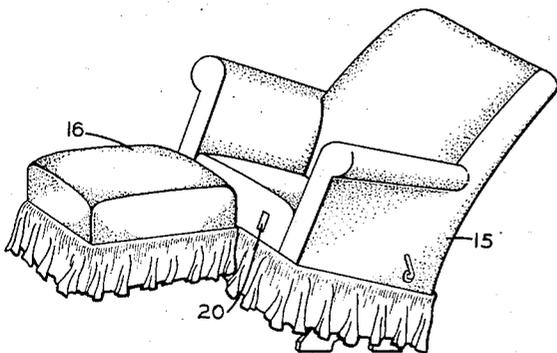


FIG. 5

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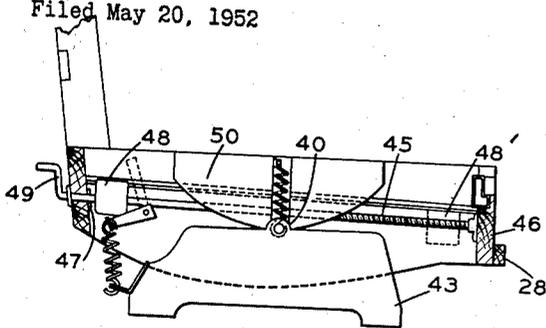


FIG. 6

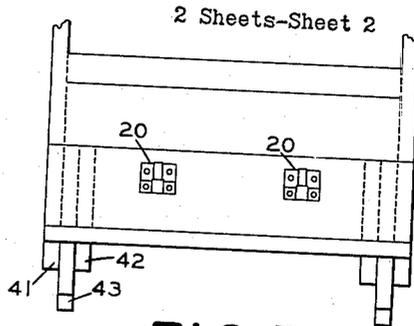


FIG. 7

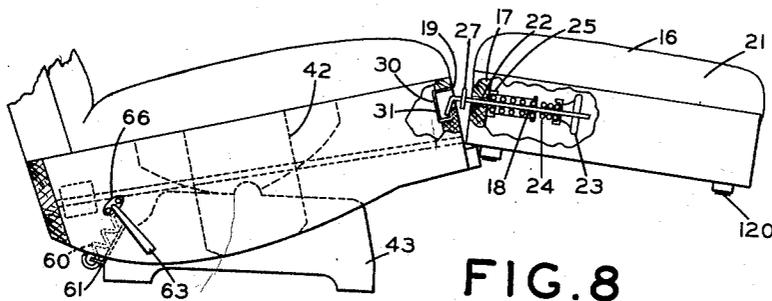


FIG. 8

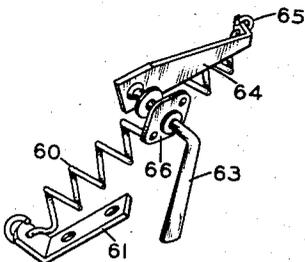


FIG. 9

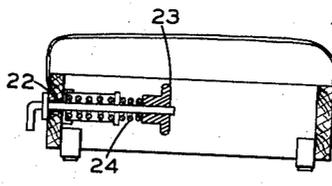


FIG. 10

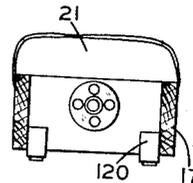


FIG. 11

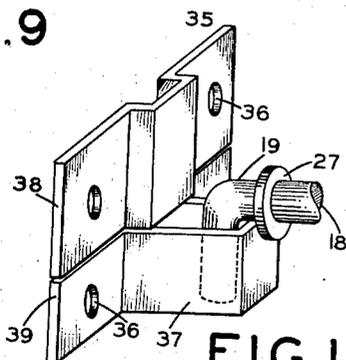


FIG. 12

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COMBINED TILTING CHAIR AND FOOT REST

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8 Claims. (Cl. 155—77)

This invention pertains to chairs of the tilt-back type and, more particularly, to one with an easily detachable foot rest portion in which a stationary or tilt chair is converted to a lounge chair, a sofa chair, and to an adjustable device for establishing substantial balance in the tilt chair to provide for needed adjustments required for users of various sizes and weights and for the foot rest portion weight if attached.

In the use of tilt-back chairs with separate Ottomans or footstools, the user may obtain complete comfort in one relative position of stool and tilted chair, whereas, for further desired tilting with the stool still resting on the floor, an uncomfortable position obtains, possibly even leaving the user's legs without sufficient support from the stool or even dangling in front of the chair free from the stool.

In order to obtain a more comfortable position, some have connected an extended footrest section to the front of the chair, but this does not give continuous maximum comfort under all conditions with users of various heights, sizes, and weights. Such an extended chair or chaise lounge often sticks out too far into a small room to look well or be safe for those afoot about the room, in which case it may be desirable to use only the rear or original portion of tilt-back chair, and to use the footrest portion separately for another seat elsewhere positioned in the room. Likewise, it might be more desirable to position the tilting chaise lounge out of the way alongside a wall, in which case such a piece of furniture would look out of place without a high side to replace an arm on that side to form what would be a back on a sofa. Such a back would of course preferably be stationary with respect to the legs of the chair and would not be moved with the tilting of the chair.

Also in such extended tilt-back chair or chaise lounge, the extended portion is of the same width as the seat, and access to the seat becomes cumbersome and clumsy, and women particularly avoid the use of them. The narrower footrest, required on the right side of the seat for some on the left side for others, makes it easy for even women, cripples, or children to get in and out of the chair. Also, often the user's condition of rest demands a change of position with one momentary desire for a feet-in-the-air position, followed perhaps by an inbetween position, or by a front sloping position with the footrest on the floor; or one may wish, in some positions of tilt, to remove the feet from the footrest and have them adjacent the rest and flat on the floor, as if the footrest were not there. Thus with the narrower footrest one may sit in the tilt-back chair or chaise lounge with his feet comfortably on the floor or with his feet on the footrest, without making any change in the chair's adjustment, as detaching the footrest.

A disadvantage in the combination of a tilt-back chair with detachable footrest is that one balanced relation of the movable part to the stationary legs obtains when the footrest is attached and another when the chair is in use

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without the rest. Likewise, when users of different height, weight or size use the same chair following each other, the required balance is disturbed and some kind of adjustment becomes desirable for practical use.

In order to improve on the chair with separate footstool, some persons have provided a chair with an extended footrest portion in a fixed seat-to-foot-rest shape, and the entire combination tilts together. This, however, does not give maximum comfort under all conditions of size of user and does not give other than momentary comfort. Also it makes getting into and out of such a chair somewhat difficult, particularly if arms are used. It is for this reason that women very seldom use such a chair.

Another disadvantage in present tilt-back chair footrest combinations lies in the fact that, when a tilt-back chair having frictional position retaining means is used by a user of one size or weight or without an attached footrest portion, its center of balance is at one location; but, if a user of greatly different size or weight sits down or when a foot portion is connected to the front of the chair, the center of balance of the chair is moved and the person sitting in the chair must supply too much effort to keep the chair in its tilted-back position. This, over a period of time, becomes uncomfortable.

It is an object of the invention to provide a stationary or tilt-back chair of the friction-holding type with an easily connected and disconnected footrest portion, and to provide means for varying the shape relation between chair and rest for substantially balancing the chair with such footrest portion and for balancing the chair without the footrest portion.

A further object of the invention is to provide a tilt-back chair with or without an easily connected and disconnected footrest portion which automatically assumes a balanced position as the chair is tilted backwards, regardless of size and shape and weight of user or any attachable footrest.

Another object of the invention is to provide an adjustable footrest portion for a tilt-back chair, which footrest portion can be easily connected to or disconnected from the chair.

It is also an object of the invention to provide means controlled by a person sitting in a tilt-back chair to control the center of balance of the chair.

A further object is to provide a movable footrest portion for a sofa or davenport center portion.

It is also an object of this invention to provide an ottoman or footrest portion narrower than the width of the seat with provision for use on either side of the front chair portion so that room remains for the occupant to rest his feet on the floor adjacent the ottoman or to swing his feet up on the stool and by his weight swing the combination lounge up to any degree of backward inclination.

For a better understanding of the present invention, together with other and further objects thereof, reference is had to the following description taken in connection with the accompanying drawings, and its scope will be pointed out in the appended claims.

In the drawings:

Fig. 1 is an isometric view of a chair to which a footstool may be attached.

Fig. 2 is an isometric view of a footstool which may be attached to the chair shown in Fig. 1.

Fig. 3 shows the footrest of Fig. 2 connected to the front of the stationary or tilt chair shown in Fig. 1;

Fig. 4 shows the combination of Fig. 3, with the chair tilted backward and the footrest rigidly connected to the chair;

Fig. 5 shows the combination of Fig. 3 with the chair tilted backwards but with the footrest adjusted to form a

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comfortable angle with respect to the seat of the chair;

Fig. 6 is a sectional view taken through the seat of a tilt chair showing a form of an adjustable chair balance device having two main co-acting portions;

Fig. 7 is a front view of the chair seat shown in Fig. 6;

Fig. 8 is a sectional view showing the tilt chair with footrest attached and a third form of chair balance device;

Fig. 9 is an isometric view of a detail of the adjustable device shown in Fig. 8;

Figs. 10 and 11 are side and front views of a modified type of adjustable footrest-hinging device;

Fig. 12 is a detail of the hook connecting device used to attach the footrest to the chair.

With reference to the drawings, there is shown a lounge chair 15 of the type which is adapted to be tilted backwards by the occupant and which, by frictional resistance between engaging parts underneath the chair, will remain in the tilted position until the occupant leans forward, at which time the chair will tilt forward and remain in the forward position while the occupant gets out of the chair.

For maximum comfort a tilt-type chair is often provided with a separate footstool which rests on the floor in front of the chair, and tilt-type chairs also have been provided integrally with footrest portions extended beyond the front edge of the seat portion. Neither of these combinations provide comfortable accommodations at all times. When a footstool separate from the chair is used and the chair is tilted backwards, the arrangement sometimes is uncomfortable. When the footrest is a rigid part of the chair and the chair is tilted back, the position may after a period become uncomfortable for an occupant of the chair and a change of the shape of the chair and footrest may be desirable. Or, the extended portion may take too much room for continued use as such and a tilt chair without the extension desirable. Or one may wish to use the extension as a separate seat or stool or as an ottoman in connection with another chair.

The footrest of this invention is shown in Fig. 2 and is identified throughout by reference character 16. It comprises the usual frame member 17 (Fig. 8) with or without legs connected to the frame, and upholstery and cushion material connected across the top of the frame. Extending from one side of the footrest 16 is a hook with comprises a bar 18 extending from the outside through the frame of the footrest into the inside thereof and the outside end of the bar 18 is turned downwardly to form a hook 19.

The hook 19 is adapted to engage and be held by either one of the two hook engaging devices 30 mounted on the front edge of the seat portion of the tilt-back chair. The hook engaging device 30 is shown in detail in Fig. 12. In Fig. 3 the hook 19 of footrest 16 is connected into the righthand hook engaging device 30, forming a chair and footrest combination wherein the occupant of the chair is provided with a comfortable place for his feet, yet is allowed plenty of room to the near-side of the footrest for getting into or out of the chair, thus eliminating one of the disadvantages of a tilt-chair having a permanently extended footrest. As shown in Fig. 3, the footrest 16 can be connected to the one side of the chair 15 if it is more convenient to get in and out of the chair from the other side.

Fig. 4 shows the chair 15 with the footrest 16 adjusted to be rigidly secured to it, the combination being tilted back a moderate degree lifting the footrest completely off of the floor. Some persons prefer this position with the feet slightly elevated and supported substantially straight out from the seat of the chair. However, some persons, especially if the chair is tilted to a more appreciable degree, prefer to have the footrest slant downward away from the edge of the chair seat, as illustrated by Fig. 5.

The device of this invention provides for all positions in between and may be acquired by any maker of systems of mechanism or hinges, one mechanism being shown in

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detail in Figs. 8, 10 and 11. The footrest 16 comprises the usual square or oblong wooden frame 17 to which are connected four legs 120 and upholstery 21. The bar 18 extends through a hole 22 in the frame 17 and the downwardly turned hook portion 19 is outside of the frame. A cap 23 is threaded onto the other end of the bar 18 and a helically coiled compression spring 24 is mounted around the bar 18 between the frame 17 and the cap 23. A metal plate 25 may be secured to the frame 17 at the end of the spring 24 to prevent the spring from damaging the frame 17, and a washer 27 may be welded or otherwise affixed to the bar 18 at a location outside of the frame to keep the hook portion 19 extended beyond the frame enough to permit entrance through the hole in the engaging device or fixture 30. A support strip 28 holds the bottom of 16 horizontal.

As shown in Fig. 8, with the hook member 19 engaged in the hook holding fixture 30 connected to the front face of the chair seat, the weight of the footrest 16 compresses the spring 24 between the metal plate 25 and the cap 23 by pulling a short length of the rod 18 out through the hole 22 in the frame 17. This permits the footrest 16 to "drop down" with respect to the chair seat, to assume a position which is more comfortable for some occupants of the chair. The amount that the footrest "drops down" can be adjusted by turning the cap 23 to compress or release the spring 24. When the spring 24 is strongly compressed, the rod 18 will not move appreciably when the chair is tilted, thereby closely holding the footrest to the chair, as shown in Fig. 4. With the cap 23 backed off, the spring 24 is under less compressional force, and the footrest will assume the position shown in Fig. 5 when the chair is tilted backward. Thus the relative position of the chair and footrest may be adjusted by turning the cap 23 to vary the spring force.

As shown in Fig. 8, the hook retaining device 30 on the chair seat may comprise a downwardly extending metal plate 30 and an upwardly extending metal plate 31 with the upwardly extending plate 31 set slightly forward of the plate 30. The distance between the two plates should be sufficient to permit the easy entrance of the hook portion 19 of the bar 18 and to prevent the hook portion 19 from pulling out due to the forward and downward pulling force exerted by the footrest in its suspended position. When the chair seat is horizontal, the hook 19 will easily slip upward and out of the hook retaining device 30. When the footrest 16 is raised vertically, the hook may then be pulled out by a horizontal movement of the footrest.

Fig. 12 shows an alternative arrangement for holding the hook portion 19 to the chair. It comprises metal plate means 35 adapted to be firmly connected to the front portion of the chair frame by screws extending through holes 36 in the plate into the frame of the chair. The plate means 35 include a forwardly extending box-like portion 37 into which the hook portion 19 is adapted to be positioned. It may be convenient to make the metal plate means in two portions, an upper portion 38 and a lower portion 39 as shown, or the upper and lower portions 38, 39 may be integral. When the hook portion 19 is in place and the bar 18 is tilted downwardly away from the chair, the upper plate portion 38 keeps the hook portion 19 from coming out.

The tilt-back chair with which the footrest 16 is particularly adapted to cooperate is the type wherein frictional forces are used to hold the chair in any tilt position which the occupant desires. The chair is provided with an axis 40 (Figs. 6, 8) about which it tilts, and side pieces 41 and 42 frictionally engage the leg member 43 in order to set up the required frictional forces. A rocker member is mounted on top of each of the leg members 43. Means may be provided to squeeze the side pieces 41, 42 together to maintain the frictional forces and to increase the forces if, after a period of time, they drop to too low

a degree. Depending upon the weight distribution of the chair and its occupant and upon the location of the axis 40, the chair has a given center of balance to permit the occupant to easily tilt back or tilt forward. However, when a footrest is connected to the front edge of the chair, it rather radically alters this center of balance, making it hard for the occupant to tilt the chair back. To compensate for this difficulty there is provided balancing means for moving the center of balance of chair so that it is easy to tilt forward or backward with or without the footrest.

Fig. 6 shows a balancing device comprising a metal bar 45 connected underneath the chair seat and extending from the front part of the seat to the rear. Bracket 46 secured to the front chair frame member serves to hold the front end of bar 45 in place, and the bar 45 extends through a hole 47 in the rear frame member to hold the other end of the bar 45. The rear end of the bar 45 is turned to form a crank 49 to facilitate turning the bar 45. A weight 48 is movably mounted on the bar 45 so that it can occupy any position between the extreme forward and rearward positions 48' and 48 shown in Fig. 6. Preferably the bar 45 is threaded and the position of the weight 48 is changed with respect to the chair by turning the crank 49. Means such as a board 50 extending parallel to and closely adjacent the weight 48 are provided to prevent the weight from turning as the bar 45 is turned. When the footrest is not connected to the chair, the weight should be in position 48', but when the footrest is connected, the weight should be moved to position 48 to substantially re-establish the proper balance. To provide adjustment for users of different height and weight, another method is to slidably mount a weight on a rectangular bar similar to bar 45 but unthreaded, so that gravity slides the weight from the front 48' to any intermediate position to lower limit 48.

Figs. 8 and 9 illustrate another means for re-establishing the proper chair balance. It comprises a spring 60, one end of which is connected to bracket 61 screwed to the chair leg 43. The other end of spring 60 is connected through a hole 65 in one end of the plate 64. A handle 63 is connected to the other end of the plate 64, and the plate 64 is secured at 66 to the frame of the chair in such a manner that it may be turned about the axis of the handle 63. The assembly is in the form of an over-center tension spring, such that the occupant of the chair can, by turning the handle 63, establish two separate spring tensions tending to hold the back of the chair down toward the floor. Thus when the footstool 16 is connected to the front of the chair as shown in Fig. 8, the occupant of the chair could adjust the tension of the spring 60 to its greater amount to substantially re-establish a comfortable balance for the chair and footstool combination.

While there have been described what are at present considered to be the preferred embodiments of this invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention, and it is, therefore, aimed in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. In combination; a tilt chair having a seat portion, a leg member, tilt means supporting said seat portion on said leg member for tilting motion of said seat portion with respect to said leg member, frictional means in engagement with said seat portion and in engagement with said leg member for frictionally controlling the fixed tilt position of the seat portion with respect to the leg member, balance adjusting means connected to said seat portion for effectively moving the center of balance of said seat portion with respect to said leg member, and means for changing said balance adjusting means.

2. A tilt chair as set forth in claim 1, further charac-

terized by said balance adjusting means comprising a bar mounted under said seat portion and extending from the front toward the back of said chair, a weight movably mounted on said bar, and means for moving said weight on said bar to shift the center of balance of said seat portion with respect to said leg member.

3. A tilt chair as set forth in claim 1, further characterized by said balance adjusting means comprising spring means connected to said leg member and connected to said seat portion, and means for varying the spring forces exerted by said spring between said leg member and said seat portion.

4. A tilt chair as set forth in claim 3, further characterized by said spring means comprising a tension spring stretched between said leg member and said seat portion, and by means for varying the tension in said tension spring.

5. In combination; a tilt chair having a seat portion, a leg portion for supporting said seat portion on the floor, tilt means supporting said seat portion on said leg portion for tilting motion of said seat portion with respect to said leg portion, frictional means in engagement with said seat portion and in engagement with said leg portion for frictionally controlling the fixed tilt position of the seat portion with respect to the leg portion, a footrest portion, means for detachably securing said footrest portion to said seat portion, chair balance adjusting means connected to said seat portion for effectively moving the center of balance of said seat portion with respect to said leg portion, and means for changing said balance adjusting means to compensate for the weight of said footrest portion on said seat portion.

6. In combination: a tilt chair having a seat portion; a leg member; means connected between said seat portion and said leg member comprising a portion of said chair whereby said seat portion may be tilted backwards with respect to the leg member; frictional means in engagement with said seat portion and in engagement with said leg member for frictionally controlling the fixed tilt position of the seat portion with respect to the leg member; a foot rest portion; means for connecting said foot rest portion to the front of said seat portion; and balancing means comprising a bar connected underneath said seat extending from the front of said seat toward the rear, a weight movably mounted on said bar for changing the center of balance of said chair as said weight moves whereby said seat portion may be substantially balanced upon the connection of said foot rest portion to said seat portion.

7. In combination: a tilt chair having a seat portion; a leg member; means connected between said seat portion and said leg member comprising a portion of said chair whereby said seat portion may be tilted backwards with respect to the leg member; frictional means in engagement with said seat portion and in engagement with said leg member for frictionally controlling the fixed tilt position of the seat portion with respect to the leg member; a foot rest portion; means for connecting said foot rest portion to the front of said seat portion; and balancing means comprising a spring connected between said seat portion and said leg member, and means connected to said spring to change the spring tension.

8. In combination: a lounge chair having a seat portion including a pair of spaced rockers; a foot rest portion; first connecting means comprising hook receiving and retaining means secured to the front edge of the seat portion of said chair; and cooperating second connecting means comprising a hook member having a hook portion and a bar portion slidably connected to said foot rest portion with the hook portion outside of one edge of said foot rest portion and with the bar portion within said foot rest portion and detachable therefrom; said foot rest portion including a frame; and compressible spring means mounted around said bar portion and against the frame of said foot rest portion to be com-

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pressed as said foot rest portion hangs by said hook
from said seat portion.

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