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FOOT AND LEG REST

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Fig. 1

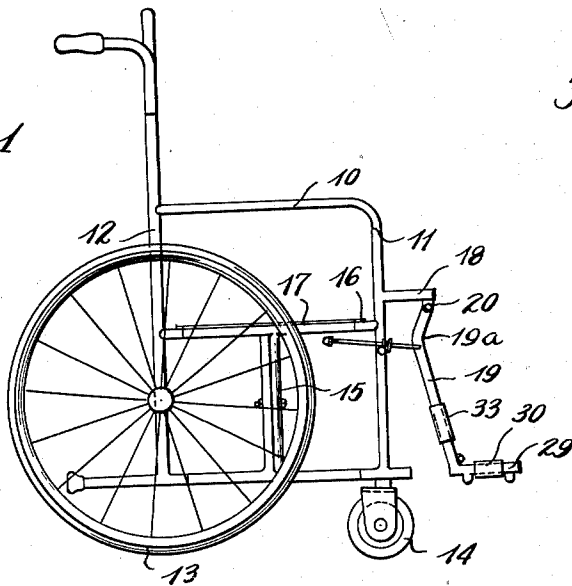


Fig. 2

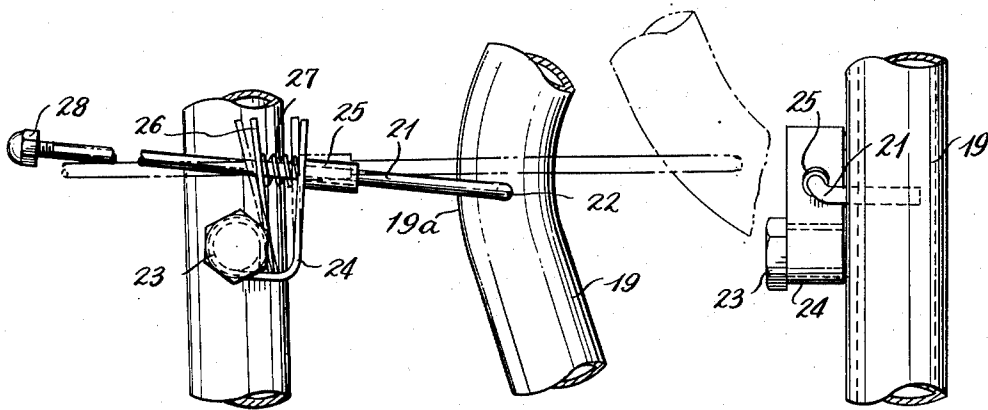
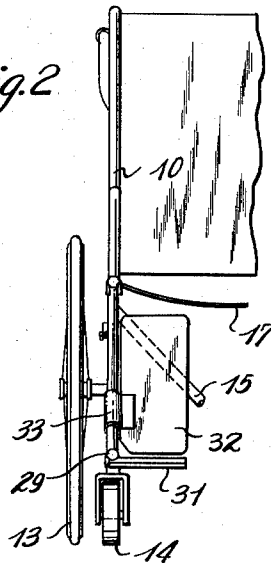


Fig. 3

Fig. 4

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FOOT AND LEG REST

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This invention relates to improvements in foot and leg rest constructions for chairs and has been primarily designed for use in conjunction with a collapsible invalid wheel chair.

A primary object of the invention is to provide an improved foot and leg rest for chairs of this character which is adjustable about an axis disposed above and forwardly of the front edge of the seat and at a location approximately coincident with the center of the knee joints of the user.

Heretofore invalid's wheel chairs have been provided with leg rests which are adjustable with respect to the legs or side frames of the chair. The axis of swinging movement of such foot and leg rests has been at or near the front of the seat and sometimes below the front edge of the seat. When such leg rests are adjusted they are adjusted about one axis whereas the legs of the invalid swing about an axis through the knee joints that is considerably spaced from the axis of adjustment of the foot and leg rest. Such an arrangement in many instances is extremely uncomfortable to the invalid particularly arthritic patients.

By means of the improved foot and leg rest which is so designed as to be adjustable about an axis coincident with the axis of swinging movement of the invalid's legs the foot and leg rest maintains substantially the same position with respect to the invalid's legs throughout all adjustments and is consequently much more comfortable.

Another object of the invention is to provide a foot and leg rest having the above mentioned characteristics which has a novel, simple and easy means of freeing the foot and leg rests for adjustments and locking the same in any adjusted position.

A further object of the invention is to provide a collapsible chair having foot and leg rests on which there are foot and leg supporting panels that are pivotally mounted between limits on their supports to permit of collapse of the chair.

With the foregoing and other objects in view, which will be made manifest in the following detailed description and specifically pointed out in the appended claims, reference is had to the accompanying drawings for an illustrative embodiment of the invention, wherein:

Figure 1 is a view in side elevation of a collapsible wheel chair to which the improved foot and leg rest embodying the present invention has been applied.

Fig. 2 is a partial view in front elevation of the same.

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Fig. 3 is a partial view in side elevation illustrating details of construction on an enlarged scale.

Fig. 4 is a view in front elevation of those portions of the parts illustrated in Fig. 3.

Referring to the accompanying drawings, wherein similar reference characters designate similar parts throughout, the present invention is applicable to any type of chair on which it is desired to apply an adjustable foot and leg rest. As it has been designed primarily for use in conjunction with collapsible invalid's wheel chairs it has been illustrated as applied thereto wherein the wheel chair has a pair of spaced side frames 10 providing front and rear legs 11 and 12 rollably supported on wheels 13 and 14. These side frames have their lower ends pivotally connected to the bottom ends of an X-brace 15 and the upper ends of the X-brace are pivotally connected to leg slides 16 which are vertically slidable on the front and rear legs. The seat 17 which is of flexible material connects the upper ends of the X-brace and when the chair is expanded or extended this seat assumes a level approximately even with the upper ends of the X-brace.

In accordance with the present invention extensions 18 are rigidly fastened to the front legs 11 and extend forwardly therefrom a short distance. These extensions have foot and leg rest supports 19 pivotally secured thereto as at 20. The pivotal connection between the supports 19 and the extensions 18 is thus disposed above and forwardly of the front edge of the seat 17 and is arranged to be approximately coincident with the axis of swinging movement of the legs of the patient while seated on the seat 17. The leg rest supports 19 are preferably angular in form being bent at 19a, as illustrated, and brace rods 21 are pivotally connected to the supports at 22. These brace rods extend rearwardly adjacent the outer sides of the front legs 11 through a type of clamp that is pivotally mounted on a stud 23 on the outer side of each of the legs 11. The clamp consists of an angular member 24 that is pivoted on the stud and which carries a sleeve or ferrule 25 through which the brace rod 21 extends. A cooperating member 26 has an aperture therethrough that is somewhat elongated and this cooperating member is urged rearwardly by a compression spring 27. A cap nut 28 may be positioned on the rear end of each brace rod to limit its forward movement.

On pressing the cooperating member 26 toward the angular member 24 against the action of the compression spring 27 the brace rod is released.

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and may slide freely through the sleeve or ferrule 25 to permit of adjustment of the support 19. On release of the cooperating member 26 the spring 27 urges it rearwardly and causes it to bind on the brace rod to lock it in any adjusted position. The exterior surface of the brace rod may be knurled or roughened to assure that the brace rod will be thus adjustably locked even though subject to severe vibration. As the clamp is pivotally mounted on the front leg 11 it may swing into any required position occasioned by the adjustment of the support 19.

It will be understood that there is one extension 18, a leg support 19, a brace rod 21, and a clamp associated with each of the side frames and with each of the front legs 11 thereof on the chair and that these are operable independently of each other, inasmuch as there is no connection between one leg support 19 and the other.

The lower ends of the supports 19 extend forwardly as indicated at 29 and have hingedly mounted thereon such as by strap hinges 30 foot rest panels 31. These panels may assume a horizontal position as indicated in Fig. 2 or may be swung upwardly to assume positions in the planes of their respective supports 19 or substantially so. In a similar manner leg rest panels 32 are pivotally mounted on the supports 19 such as by strap hinges 33 and may assume positions extending laterally from the supports 19 or may be swung forwardly to assume positions substantially in the plane of the support on which they are mounted. The upper ends of the leg rest panels terminate adjacent the bends 19a. This swinging movement of each of the panels 31 and 32 enables the chair to be collapsed by moving the side frames towards each other such movement being permitted by the X-brace.

A foot rest construction embodying the present invention will be found to be highly advantageous in that on adjusting either or both of the supports 19 the foot rest panels 31 and the leg rest panels 32 retain their same relative positions with respect to the patient's feet and legs by virtue of the fact that the axis of the pivot 20 is located substantially coincident with the axis of swinging movement of the patient's legs. In actual practice the position of the pivot 20 is approximately two inches above and three inches forwardly of the seat for the average patient although the positioning of the pivots may vary with different patients.

The improved foot and leg rest is very comfortable to arthritics who frequently complain about foot and leg rests that are adjustable about an axis near the forward edge of the seat or below the forward edge of the seat.

As the foot and leg rest moves or is movable about an axis coincident with the knee joint of the patient the adjustment of the rest does not involve a shortening of the distance between the foot rest and the knees. The pivot 20 may be regarded as located above the seat approximately one-half the thickness of an average upper leg and the planes of the panels 32 may be regarded as spaced rearwardly of the pivot 20 a distance approximately one-half the thickness of an average lower leg. Consequently, when a patient is seated in the chair with the backs of his lower legs positioned and resting against the panels 32, the axis of pivot at 20 will be approximately coincident with the axis of swinging movement between his lower leg and the upper leg. Therefore, as the leg rest is adjusted relatively to the chair, the support for the feet and lower legs will

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swing about an axis substantially coincident with the axis of swinging movement of the patient's lower legs relatively to his thighs and adjustment of the foot and leg rest therefore does not bring about any discomfort or involve a shift of the patient on the seat to accommodate himself to the new adjustment. Furthermore, the fine adjustment afforded by the clamp adds much comfort to arthritic patients where such fine adjustments are either necessary or highly desirable.

Various changes may be made in the details of construction without departing from the spirit and scope of the invention as defined by the appended claims.

We claim:

1. A leg rest for chairs comprising suspending means providing pivots disposed upwardly and forwardly of the forward edge of the seat of the chair, leg rest supports pivotally suspended therefrom, foot rest means carried by the leg rest supports, and leg rest panel means carried by the leg rest supports, said leg rest panel means being arranged in planes spaced rearwardly of a plane through said pivots and parallel to said leg rest supports, the spacing of the pivots upwardly and forwardly from the forward edge of the seat and the spacing of the leg rest panel means rearwardly of the pivots being such that when the upper legs of a patient are resting on the seat and his lower legs are positioned against the panel means, the pivots will be located approximately coincident with the axis of swing at the patient's knees, and means for releasably holding the leg rest supports in adjusted positions relative to the suspending means.

2. A leg rest for chairs comprising suspending means providing pivots disposed upwardly and forwardly of the forward edge of the seat of the chair, leg rest supports pivotally suspended therefrom, said leg rest supports being angular in form having upper portions extending downwardly and rearwardly from the pivots and lower portions extending downwardly and forwardly therefrom, foot rest means carried by the leg rest supports, and leg rest panel means carried by the leg rest supports on the lower portions thereof, said leg rest panel means being disposed in planes disposed rearwardly of a plane through said pivots and parallel to said leg rest supports, the spacing of the pivots upwardly and forwardly from the forward edge of the seat and the spacing of the leg rest panel means rearwardly of the pivots being such that when the upper legs of a patient are resting on the seat and the lower legs are positioned against the panel means the pivots will be located approximately coincident with the axis of swing at the patient's knees, and means for releasably holding the leg rest supports in adjusted position relative to the suspending means.

3. A leg rest for chairs comprising suspending means providing pivots disposed upwardly and forwardly of the forward edge of the seat of the chair, leg rest supports pivotally suspended therefrom, foot rest means carried by the leg rest supports, and leg rest panel means carried by the leg rest supports, said leg rest panel means being arranged in planes spaced rearwardly of a plane through said pivots and parallel to said leg rest supports, the spacing of the pivots upwardly and forwardly from the forward edge of the seat and the spacing of the leg rest panel means rearwardly of the pivots being such that when the upper legs of a patient are resting on the seat and his lower legs are positioned against the

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panel means, the pivots will be located approximately coincident with the axis of swing at the patient's knees, and means for releasably holding the leg rest supports in adjusted positions relative to the suspending means comprising braces pivotally mounted on the leg rest supports and extending rearwardly therefrom, clamping means pivotally mounted upon the chair through which the braces slidably extend, said clamping means being arranged to releasably bind upon the braces to hold the braces in adjusted positions.

4. A leg rest for chairs comprising suspending means providing pivots disposed upwardly and forwardly of the forward edge of the seat of the chair, leg rest supports pivotally suspended therefrom, said leg rest supports being angular in form having upper portions extending downwardly and rearwardly from the pivots and lower portions extending downwardly and forwardly therefrom, foot rest means carried by the leg rest supports, and leg rest panel means carried by the leg rest supports on the lower portions thereof, said leg rest panel means being disposed in planes disposed rearwardly of a plane through said pivots and parallel to said leg rest supports, the spacing of the pivots upwardly and forwardly from the forward edge of the seat and the spacing of the leg rest panel means rearwardly of the pivots being such that when the upper legs of a patient are resting on the seat and the lower legs are positioned against the panel means the pivots will be located approximately coin-

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cident with the axis of swing at the patient's knees, and means for releasably holding the leg rest supports in adjusted position relative to the suspending means comprising braces pivotally mounted upon the leg rest supports adjacent the angle thereof, clamps pivotally mounted upon the chairs through which the braces slidably extend, each clamp consisting of two opposed members through which the brace extends, and spring means therebetween urging said members to separate to cause one of said members to bind upon the brace and releasably hold it in said position.

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