

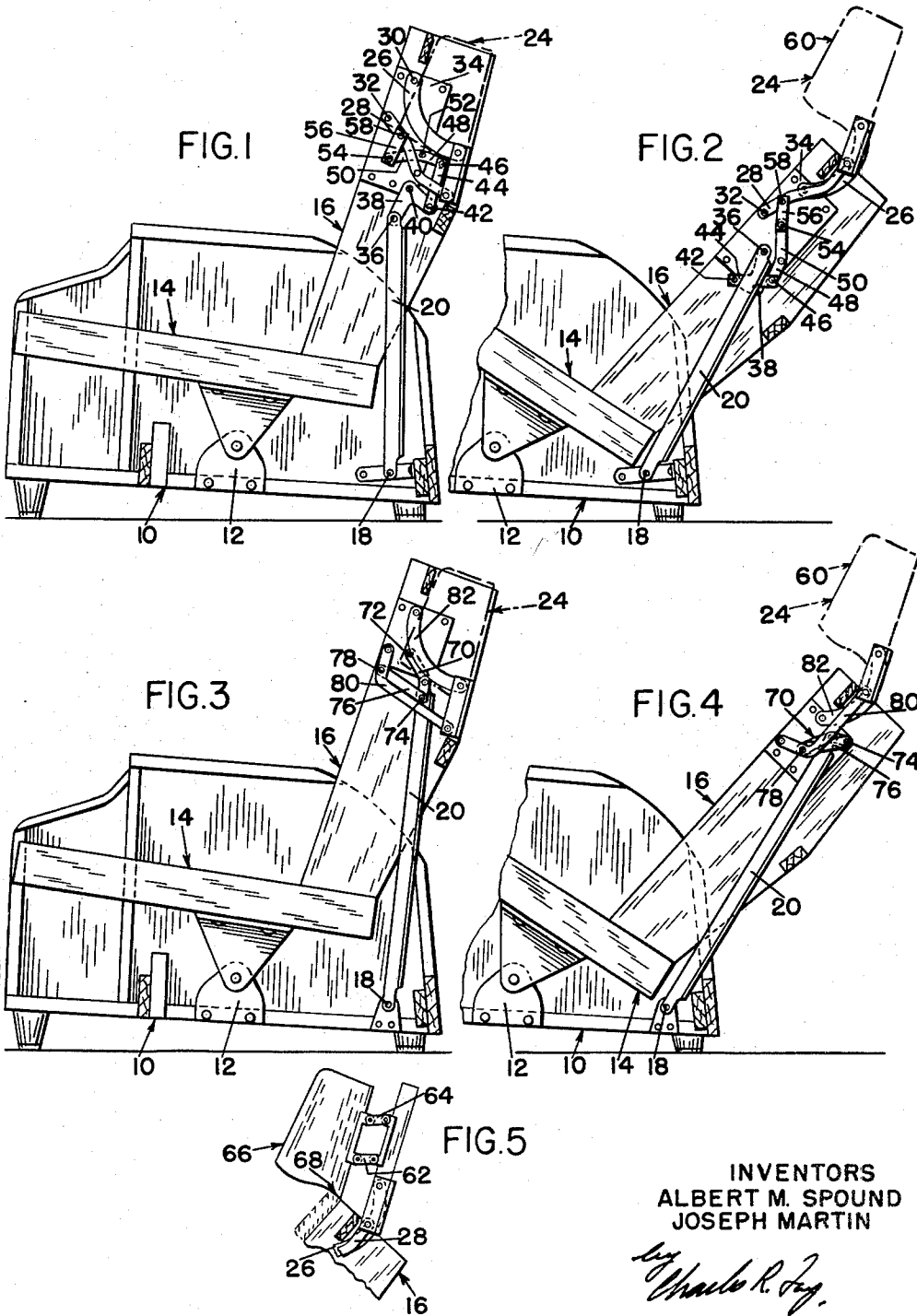
Nov. 1, 1960

J. MARTIN ET AL

2,958,374

AUTOMATICALLY PROJECTIBLE HEADREST

Filed Oct. 24, 1958



INVENTORS
ALBERT M. SPOUND
JOSEPH MARTIN

by Charles R. Day

ATTORNEY

1

2,958,374

AUTOMATICALLY PROJECTIBLE HEADREST

Joseph Martin, Bayside, N.Y., and Albert M. Spound, Wellesley Hills, Mass. (% Charlton Company, Fitchburg, Mass.), said Martin assignor to said Spound

Filed Oct. 24, 1958, Ser. No. 769,461

4 Claims. (Cl. 155—177)

This invention relates to a mechanism for causing the automatic projection of a headrest normally concealed in the backrest of a low-back reclining chair, so that the chair is automatically convertible from a sitting position in which the headrest is completely concealed to a reclining position in which the headrest is projected in convenient position for supporting the head of the occupant of the chair in head-back, reclining or resting position, and in some cases with mechanism providing for further rearward inclination of the backrest with the headrest already fully projected.

An object of the invention includes the provision of the reclining chair and automatically projecting headrest as above described operable by reason of a parallel bar linkage actuated by a driving rod upon motion of the backrest unit of the reclining chair from a sitting position toward or in the direction of a reclining position, together with a simplified arrangement of operable mechanism between the driving rod and the parallel bar linkage, achieving the desired results without the use of cams, etc. This invention is an improvement on that described and claimed in Serial No. 709,594 filed January 17, 1958, now Patent No. 2,884,992 issued May 5, 1959.

Another object of the present invention, with relation to the case previously filed, resides in the provision of a completely satisfactory operative parallel bar linkage system for raising the headrest and bringing the same forwardly, without the use of any cams or the like to control the path or speed of action of said parallel bar linkage. This is accomplished by the use of a unique new and useful linkage system interposed between the driver member or rod and the parallel bar linkage system and this linkage system operates to provide for the smooth operation of the links so that the parallel bar linkage members are moved much more rapidly and quickly in a direction to project the headrest, than is possible due to merely the relative motion of the driver bar with respect to the motion of the backrest unit. In other words, the headrest is projected quickly at the initial portion of the travel of the backrest, so that it is in position for supporting the head before the chair is fully reclined, and this is done by means of a novel linkage system which is more smooth-acting and less expensive to manufacture than by the use of cams, as in the above-identified application.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which—

Fig. 1 is a view in side elevation with parts omitted illustrating the mechanism of the invention and showing the parts in seating position;

Fig. 2 is a similar view showing the parts in reclining position;

Fig. 3 is a view similar to Fig. 1 showing a modification;

Fig. 4 is a view similar to Fig. 2 but applied to the modification of Fig. 3; and

2

Fig. 5 is a partial view showing a modification of the headrest support.

To illustrate the invention, there is provided a fixed stationary chair frame generally indicated at 10. This frame may be of any desired construction and as shown in the present case pivotally supports on a fixed bracket 12 a seat and backrest unit generally indicated at 14 and 16. In this case, the seat and the backrest are shown as in a single unit but this is not necessary to the carrying out of this present invention.

At a point on the frame located toward the rear, there is provided a pivot mounting as at 18 for a driving rod 20. This rod extends generally upwardly into close association with a headrest member generally indicated at 24. This headrest member is mounted to swing from the Fig. 1 position to the Fig. 2 position on a pair of generally parallel bars or links 26, 28 which are respectively pivoted at 30 and 32 on fixed pivots on the backrest member. As shown, these pivots are mounted on a plate 34 and the entire headrest 24 swings from the Fig. 1 position to the Fig. 2 position carried by the parallel links or bars 26, 28.

The driving member 20 is utilized to move the links 26, 28 to raise the headrest from concealed position to be moved forwardly into its supporting condition upon the motion of the backrest 16 from a sitting to a reclining position. As this occurs, it will be seen that the top end of the driving rod or member 20 which is indicated as having a pivot-pin at 36, clearly moves respectively upwardly with reference to the backrest unit.

The pivot-pin 36 is connected to one arm of the bell-crank 38 having a fixed pivot 40 and the other arm of which is pivoted by a pin 42 to a link 44. This link extends generally upwardly and at its opposite end is provided with a pivot-pin 46 pivotally engaged by one arm 48 of a link 50 having a fixed pivot-pin 52 centrally thereof. The link 50 is provided with a pivot-pin at its opposite end as at 54 and this in turn is pivotally connected to a link 56 which has a pivot-pin 58 connected intermediate the ends of the link 28.

It is believed that the operation of this construction will be apparent from a comparison of Figs. 1 and 2. As point 36 of arm 20 moves relatively upwardly with respect to the backrest, the bell-crank 38 is pivoted in a clockwise direction, bringing pivot-point 42 downwardly and thus also bringing link 44 downwardly and even into a slightly reversed position as clearly shown in Fig. 2. This causes link 50 to turn also in a clockwise direction, moving link 56 upwardly and links 26 and 28 therefore upwardly or in a counter-clockwise direction, thus accomplishing the extension or projection of headrest 24 from a concealed position within the backrest unit to exposed useful condition. The final position of the headrest is with its head-supporting surface at 60 slightly in advance and tilted with respect to the back-supporting surface of the backrest unit 16.

If desired, the headrest unit may be a pair of loose parallel bar linkages 62, 64, see Fig. 5, by which means a separate unit 66 of the headrest may be allowed to move by gravity downwardly into close association with the top edge 68 of the top of the backrest unit. Upon the reverse motion, this member is made to move relatively upwardly simply by wiping across the top edge of the chair, and then the parts return to the original position concealing the headrest member.

In the form shown in Figs. 3 and 4, the frame 10, seat 14 and backrest 16 are as before as is also the construction of the headrest itself. However, in this case the driving rod 20 is connected intermediate the ends of a lever 70 having a fixed pivot 72 and a movable pivot 74. Movable pivot 74 is pivoted at one end of

3

a link 76, the other end 78 of which is pivoted intermediate the ends of a link 80 which forms with link 82 a parallel bar linkage for extending the headrest as described above.

Having thus described our invention and the advantages thereof, we do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what we claim is:

1. A reclining chair comprising a stationary frame and a back rest swingably associated therewith for disposition between a sitting position and a reclining position thereof, a head rest movably mounted with said back rest, means for mounting and projecting said head rest from said back rest upon swinging motion of the back rest from a seating toward a reclining position, said means comprising a parallel bar linkage corresponding ends of which are pivotally secured to the head rest, the opposite ends being pivotally secured to the back rest, and means for actuating said parallel bar linkage to project said head rest, said means comprising a driving member pivotally mounted with respect to the stationary frame, a lever having a fixed pivot on the back rest and itself pivoted to the driving member and pivotally associated with at least one of the bars of the parallel bar linkage, and means for causing said

4

lever to move said parallel bar linkage upwardly and forwardly with respect to the back rest as said back rest is moved toward reclining position, said last-named means including a link connected between the lever and parallel bar linkage.

2. The reclining chair of claim 1 including a second lever, having a fixed pivot, interposed between the link and the parallel bar linkage.

3. The reclining chair of claim 1 including a second lever, having a fixed pivot, interposed between the link and the parallel bar linkage, said link being pivoted at separate points to one arm of each of said levers.

4. The reclining chair of claim 1 including a second lever, having a fixed pivot, interposed between the link and the parallel bar linkage, said link being pivoted at separate points to one arm of each lever, and a second link connected between the second lever and the parallel bar linkage.

References Cited in the file of this patent

UNITED STATES PATENTS

2,843,183	Luckhardt	July 15, 1958
2,843,184	Lorenz	July 15, 1958
2,884,992	Spound	May 5, 1959