May 12, 1959 A. J. KATZ 2,886,097

MECHANISM FOR CONTROLLING THE ACTION OF A RETRACTABLE HEADREST EXTENSIBLE FROM A CHAIR

Filed Jan. 14, 1958 2 Sheets-Sheet 1

FIG. 1.

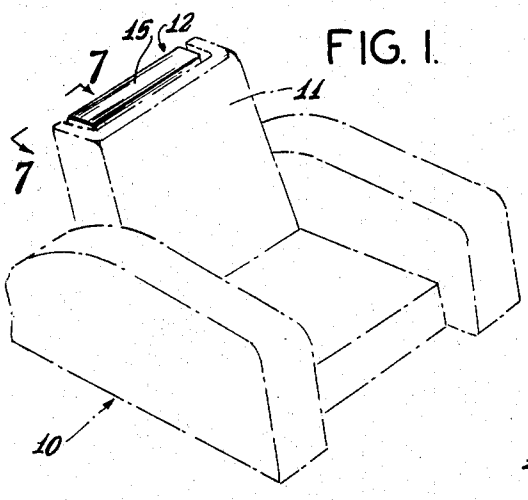


FIG. 2.

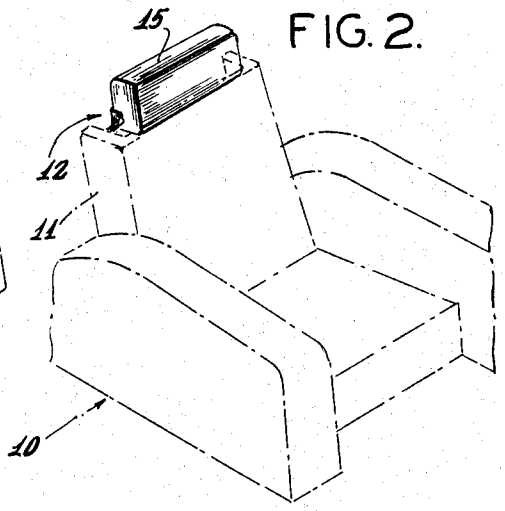


FIG. 3.

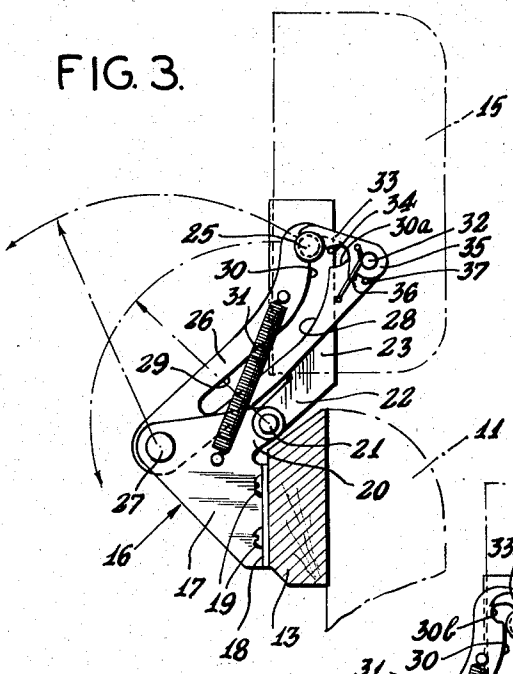


FIG. 6.

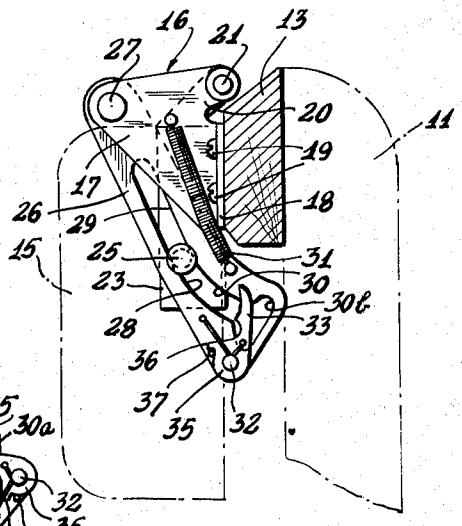
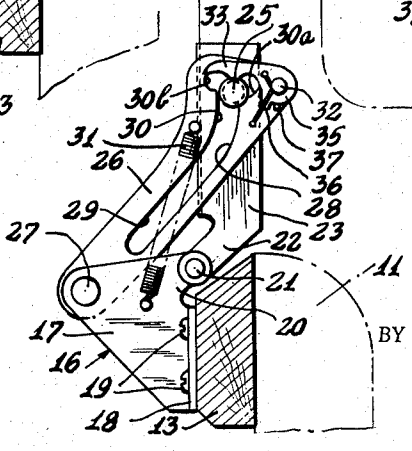


FIG. 5.



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FIG. 4.

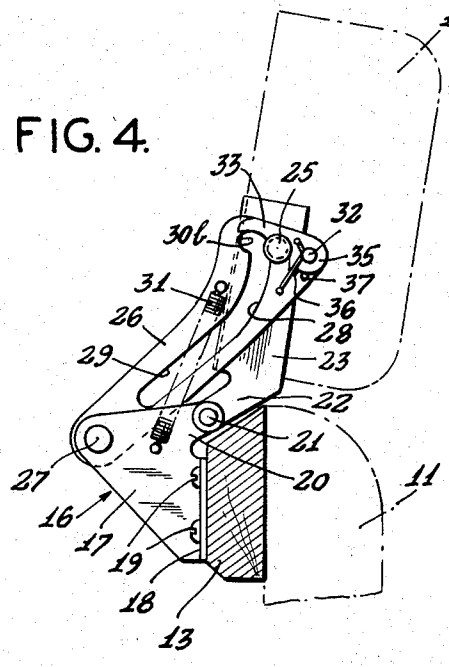


FIG. 7.

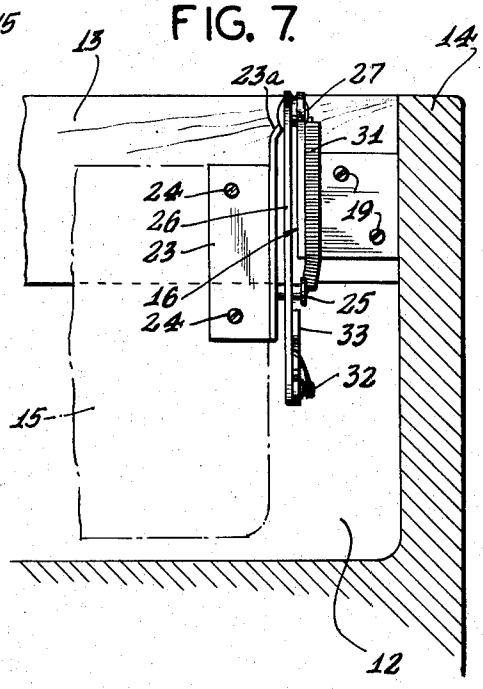


FIG. 8.

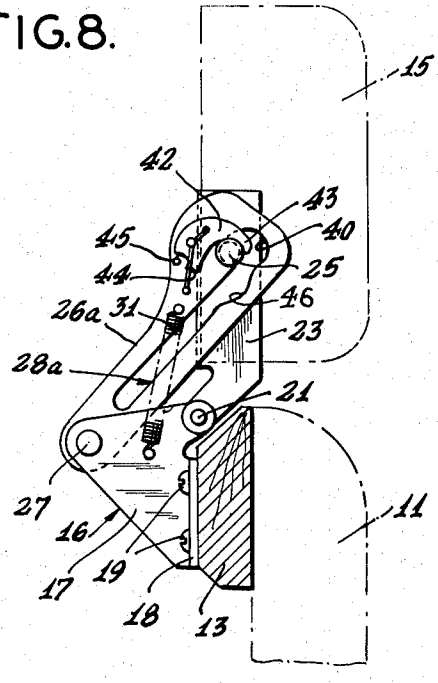
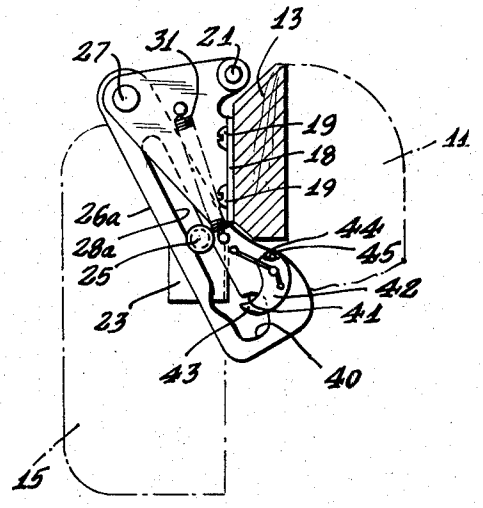


FIG. 9.



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MECHANISM FOR CONTROLLING THE ACTION OF A RETRACTABLE HEADREST EXTENSIBLE FROM A CHAIR

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Application January 14, 1958, Serial No. 708,882

11 Claims. (Cl. 155—177)

This invention relates to lounge chairs or reclining chairs, and is directed particularly to mechanism for controlling the action of a retractable headrest extensible from such chairs.

The principal object of the invention is to provide a control mechanism interconnecting a chair back with a headrest extensible from the upper end of the chair back which is operative to fold the headrest downwardly and retract it into a recess in the rear of the upper end of the chair back when not in use.

Another object of the invention is to provide a headrest control mechanism of the character described, whereby the headrest is swingably supported at its lower end to the upper end of the chair back, and which is manually actuated simply by pulling upwardly on the headrest until it snaps into extended position.

Still another object of the invention is to provide a headrest mechanism of the above nature which can be manually released for retraction into the chair back recess when not in use by simply pulling forward and then pushing backward on the headrest for backward folding into the seat recess again.

Still another object of the invention is to provide a headrest of the character described, the lower surface of which when in extended position forms an upper surface portion of the chair back when in retracted position.

Another object of this invention is to provide a headrest control mechanism of the above nature which is simpler in construction, inexpensive to manufacture, durable in use, and foolproof in operation.

Other objects, features and advantages of the invention will be apparent from the following description when read with reference to the accompanying drawings.

In the drawings:

Fig. 1 is a perspective view of a reclining chair embodying the retractable headrest mechanism of the invention, showing the headrest in fully retracted condition;

Fig. 2 is a view similar to Fig. 1, but showing the headrest in extended condition;

Fig. 3 is a side view of the control mechanism shown in extended condition;

Fig. 4 is a side view of the control mechanism as in Fig. 3, but showing the headrest moved forwardly for unlocking just prior to pushing it backwardly for retraction into the seat back;

Fig. 5 is a similar view showing operation of the unlocking mechanism during retraction;

Fig. 6 is a similar view showing the headrest in fully retracted condition;

Fig. 7 is an end view of the headrest control mechanism taken along the line 7—7 of Fig. 1 in the direction of the arrows;

Fig. 8 is a side view of a modified form of headrest control mechanism embodying the invention, shown in extended condition, and

Fig. 9 is a view similar to Fig. 8 but showing the headrest in fully retracted condition.

Referring now to the drawings wherein like reference numerals denote corresponding parts throughout the several views, the numeral **10** designates in general a lounge chair having a back **11**, which may be reclined at will by the chair occupant by well known mechanism not further described herein. The upper end of the chair back is provided with a substantially rectangular recess **12** framed by a transverse wood brace **13** at the top of said chair back joined at each end with vertical members **14** (only one shown in Fig. 7) at each side. The recess **12** is adapted to receive a headrest **15** therein when in the retracted position, in the manner hereinafter described. When in the extended position as illustrated in Fig. 2, the upholstered front surface of the headrest **15** lies substantially in a common plane with the front surface of the back **11**, to provide an extended surface for resting the head, especially when the chair back is adjusted to reclining position.

As illustrated in Figs. 3 through 7, the first form of headrest embodying the invention comprises a control mechanism unit **16** secured between the headrest **15** and the chair back at each side of said headrest. Each mechanism **16** comprises a triangular bracket plate **17** having a rectangularly-bent base portion **18** provided with openings for securing against the wood brace **13** near one end thereof as by screws **19**. The bracket plate **17** has an inwardly projecting portion **20** above the upper end of the base portion **18** to which is pivotally connected as by pin **21** the downwardly and inwardly projecting arm **22** of a right-angular bracket **23** embracing the rear vertical corner portion of the headrest **15**, and secured thereon as by screws **24**.

The side surface portion of the headrest bracket **23** near the upper end thereof is fitted with an outwardly-extending headed guide pin **25**.

An elongated operating arm **26** is pivoted at one end by pivot pin **27** to the outermost apex of the triangular bracket plate **17** and is slotted to provide a track **28** within which the guide pin **25** rides. The track **28** comprises a longitudinal portion **29** which extends at its outermost end into a curved portion **30** extending to the left as viewed in Fig. 3. The upper end of the curved portion **30** of the track **28** is widened to the right (Fig. 3) to provide a forwardly-extending rounded recess **30*a*** and a rearwardly-extended recess **30*b***. The inwardly-projecting arm **22** of the bracket **23** is sidewardly offset as indicated at **23*a*** in Fig. 7, to allow free pivotal operation of the operating arm **26**. A coil tension spring **31** interconnects the outer end portion of the operating arm **26** and the triangular bracket **17**.

Pivoted to the outer front end (Fig. 3) of the operating arm **26** as by pivot pin **32** is a latch pawl **33** extending along the upper end of the widened end of the track **28**, and formed with an inwardly-extending lug portion **34**. A torsion spring **35** arranged around the pivot pin **31** and acting between the latch pawl **33** and the operating arm **26** urges said latch pawl in the counterclockwise direction. A lug **36** formed on the latch pawl **33** abuts a pin **37** fitted in the operating arm **26** to limit motion of said latch pawl (see Fig. 6).

In operation, when it is desired to extend the headrest **15** from the retracted position as shown in Fig. 1, to the extended position as shown in Fig. 2, the headrest will be manually swung up about the pivot pin **21** at each side, from the position shown in Fig. 1 to the position shown in Fig. 3. During this action, the guide pins **25** will ride in their respective tracks **28** and the toggle action of the springs **31**, after passing the axis of the pivot pin **27** of the operating arm **26**, will aid in erecting the headrest. When the guide pin **25** reaches the upper end of the curved portion **30** of the track **28**, it falls into the rearwardly-extending recess **30*b***, being additionally guided therein by the inwardly-extending tri-

angular lug portion 34 of the pawl 33. The headrest is now in erect or extended position, and backward pressure thereon while in use will only tend to lock it more firmly in place.

To release the headrest 15, it will first be pulled forwardly, whereupon the guide pins 25 will slide along the upper edges of the widened portions of the tracks and into the forwardly-extending recess 30*a* thereof, urging the pawls 33 upwardly temporarily while passing by the triangular portions 34 thereof. Thereafter the headrest will be pushed backwardly whereupon, as shown in Fig. 5, each of the pawls 33 acting upon its guide pin will lift the operating arm 26 upwardly, thereby preventing reentering the recess 30*b* and guiding it against the curved portion 30 of the track 28, whereupon continued downward motion of the headrest can be effected to return it to upside-down withdrawn or retracted position within the recess 12 at the back of the chair.

The embodiment of the invention illustrated in Figs. 8 and 9 differs only in that the track 28*a* of the operating arm 26*a* is formed at its uppermost end with an enlarged opening 40 providing a backwardly extending shoulder portion 41 adapted to receive and lock the guide pin 25 when the headrest 15 is moved to extended position. A pawl 42 is provided on the operating arm 26*a* and has a curved finger 43 overlying the shoulder 41, being urged in the direction of said shoulder by a torsion spring 44 acting between said pawl and said operating arm. An abutment pin 45 limits motion of the pawl 42, as can be seen in Fig. 9. Pulling forwardly on the headrest 15 for release and retraction, causes the guide pin 25 to pass over the top of the pawl 42, and into the upper portion of the enlarged opening 40 in the operating arm 26*a*. Subsequent rearward pushing of the headrest 15 causes the guide pin 25 to ride over the upper surface of the curved pawl finger 43 and into an outwardly curved recess 46 near the upper end of the guide track 28*a*, thereby unlocking the headrest 15 and allowing complete retraction thereof into the seat recess 12 as shown in Fig. 9.

While I have described and illustrated preferred embodiments of my invention, it is to be understood that the disclosure is for the purpose of illustration only, and that various omissions or changes in arrangement of parts, as well as the substitution of equivalent elements for those herein shown and described, can be made without departing from the spirit and scope of the invention as defined in the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a control mechanism for retractable headrests, the combination comprising a first bracket member adapted to be secured to a chair back, a second bracket member pivotally connected to said first bracket member at a first position thereon, and adapted to be secured to a headrest, an elongated operating arm pivotally connected at one end to said first bracket member at a second position thereon spaced from said first position, a guide pin secured to said second bracket member, a longitudinally extending track opening formed in said operating arm and entrained on said guide pin, said second bracket being swingable from a position where it lies against the first bracket to retain the headrest in retracted position through an angle of substantially 180°, to a position where it extends away from said first bracket to hold the headrest in erect position, and releasable pawl means on said operating arm for locking said guide pin with respect to said track at its terminus at the other end of said operating arm for retaining the headrest in said erect position.

2. In a control mechanism for retractable headrests, the combination comprising a first bracket member adapted to be secured to a chair back, a second bracket member pivotally connected to said first bracket member at a first position thereon, and adapted to be secured to a headrest, an elongated operating arm pivotally connected at one end to said first bracket member at a second position thereon spaced from said first position, a guide pin secured to said second bracket member, a longitudinally extended track opening formed in said operating arm and entrained on said guide pin, releasable pawl means for locking said guide pin with respect to said track at its terminus at said other end of said operating arm, and a coil spring interconnecting said first bracket member and said operating arm.

3. In a control mechanism for retractable headrests, the combination comprising a first bracket member adapted to be secured to a chair back, a second bracket member pivotally connected to said first bracket member at a first position thereon, and adapted to be secured to a headrest, an elongated operating arm pivotally connected at one end to said first bracket member at a second position thereon spaced from said first position, a guide pin secured to said second bracket member, a longitudinally extending track opening formed in said operating arm and entrained on said guide pin, releasable means for locking said guide pin with respect to said track at its terminus at the other end of said operating arm, said releasable locking means comprising a widened, laterally extending opening at said terminus of said track providing rearwardly and forwardly extending recesses, a latch pawl pivotally connected to said operating arm and extending along said laterally extending opening, spring means urging said latch pawl beyond the edge of said laterally extending opening, and a guide lug portion extending from said pawl and separating said rearwardly and forwardly extending recesses.

4. The mechanism as defined in claim 3 including stop means for limiting the motion of said latch pawl under the urging of said spring means.

5. The mechanism as defined in claim 3 wherein said terminus end of said track is rearwardly curved in the direction of said rearwardly extending recess.

6. In a control mechanism for retractable headrests, the combination comprising a first bracket member adapted to be secured to a chair back, a second bracket member pivotally connected to said first bracket member at a first position thereon, and adapted to be secured to a headrest, an elongated operating arm pivotally connected at one end to said first bracket member at a second position thereon spaced from said first position, a guide pin secured to said second bracket member, a longitudinally extending track opening formed in said operating arm and entrained on said guide pin, releasable means for locking said guide pin with respect to said track at its terminus at the other end of said operating arm, said releasable locking means comprising an enlarged opening at said terminus of said track providing a reawardly-extending shoulder, a latch pawl pivotally connected to said operating arm and having a curved finger portion extending forwardly over said shoulder, and spring means urging said latch pawl finger downwardly toward said shoulder, said track being formed with an enlarged portion opposite said shoulder to allow downward passage of said guide pin past said curved finger portion upon release.

7. The mechanism as defined in claim 6 including stop means for limiting the motion of said latch pawl under the urging of said spring means.

8. In a control mechanism for retractable headrests, the combination comprising a first bracket member adapted to be secured to a chair back, a second bracket member pivotally connected to said first bracket member at a first position thereon, and adapted to be secured to a headrest, an elongated operating arm pivotally connected at one end to said first bracket member at a second position thereon spaced from said first position, a guide pin secured to said second bracket member, a longitudinally extending track opening formed in said operating arm and entrained on said guide pin, releasable means

for locking said guide pin with respect to said track at its terminus at the other end of said operating arm, releasable locking means comprising said widened, laterally extending opening at said terminus of said track providing rearwardly and forwardly extending recesses, a latch pawl pivotally connected to said operating arm and extending along said laterally extending opening, spring means urging said latch pawl beyond the edge of said laterally extending opening, a guide lug portion extending from said pawl and separating said rearwardly and forwardly extending recesses, and a coil spring interconnecting said first bracket member and said control link.

9. In a control mechanism for retractable headrests, the combination comprising a first bracket member adapted to be secured to a chair back, a second bracket member pivotally connected to said first bracket member at a first position thereon, and adapted to be secured to a headrest, an elongated operating arm pivotally connected at one end to said first bracket member at a second position thereon spaced from said first position, a guide pin secured to said second bracket member, a longitudinally extending track opening formed in said operating arm and entrained on said guide pin, releasable means for locking said guide pin with respect to said track at its terminus at the other end of said operating arm, said releasable locking means comprising an enlarged opening at said terminus of said track providing a rearwardly-extending shoulder, a latch pawl pivotally connected to said operating arm and having a curved finger portion extending forwardly over said shoulder, spring means urging said latch pawl finger downwardly toward said shoulder, said track being formed with an enlarged portion opposite said shoulder to allow downward passage of said guide pin past said curved finger portion upon release, and a coil spring interconnecting said first bracket member and said control link.

10. In combination with a chair back, a headrest pivoted about a fixed pivot to the upper end of a chair back,

and extending downwardly therefrom at the rear thereof facing rearwardly, and being swingable upwardly to a position spaced above and in alignment with the chair back facing forwardly, and releasable means to lock said headest in its upwardly swung position, said releasable locking means including means to effect a release of said locking means upon pushing the head rest from its upwardly swung locked position, first forwardly, and then rearwardly, to permit the headrest to be swung down in back of the chair back.

11. In combination, a bracket having a wall adapted to be attached to a chair back and being provided with a wall extending rearwardly and at right angles with respect to the first wall, a second bracket pivoted to the second wall about a pivot disposed in the plane of the first wall, said second bracket being adapted to be attached to a headrest, an operating arm pivoted to the second wall of the first bracket about a pivotal point spaced rearwardly from the first wall of the bracket, said operating arm being formed with a longitudinal slot, a pin on the second bracket passing through said slot, said second bracket being swingable from a position disposed on one side of the second pivot to a position on the opposite side of said second pivot in combination with spring means to bias said second bracket towards its first position and towards its second position.

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