Oct. 10, 1933. A. M. BANK 1,929,471

FURNITURE

Filed April 13, 1933

Fig. 1.

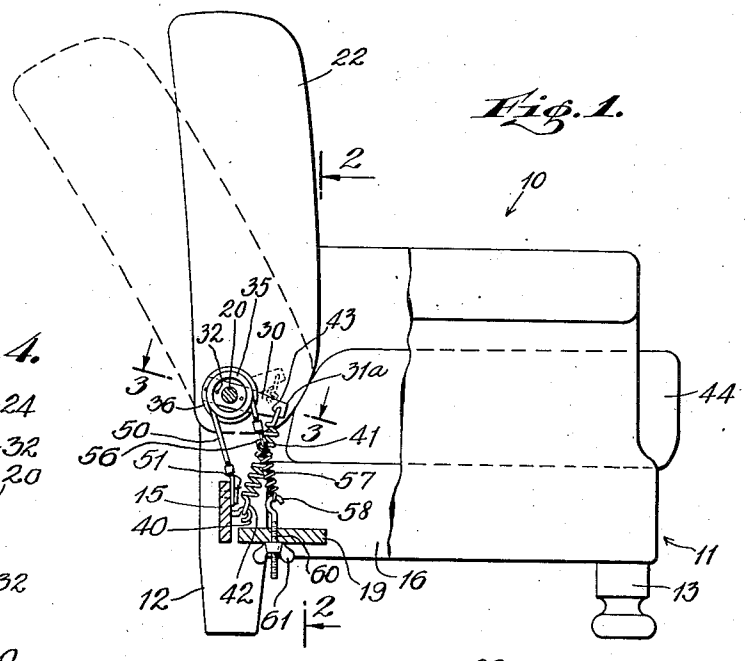


Fig. 4.

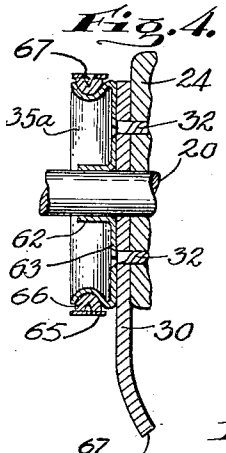


Fig. 2.

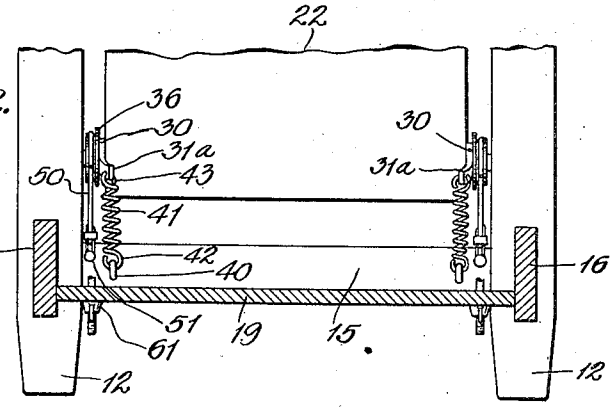


Fig. 5.

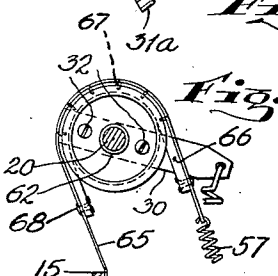


Fig. 3.

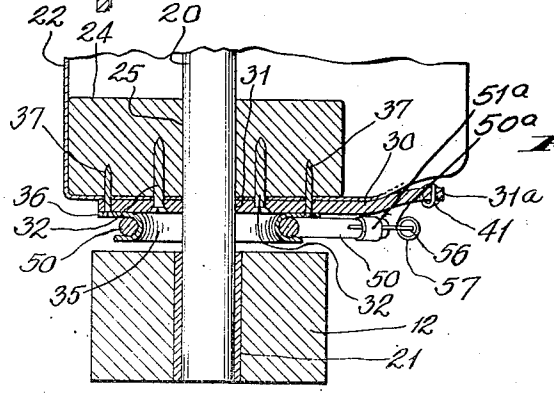
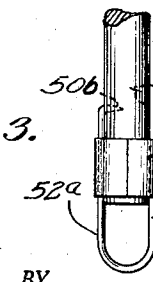


Fig. 3a.



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UNITED STATES PATENT OFFICE

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FURNITURE

Albert M. Bank, Jersey City, N. J., assignor to Sylvia Bank, Jersey City, N. J.

Application April 13, 1933. Serial No. 665,900

12 Claims. (Cl. 155—160)

This invention relates to furniture and is particularly directed to a chair or seat having a reclining back.

An object of this invention is to provide in a chair of the character described having a back movable to reclining position and provided with means for returning the chair back to normal or upright position when the person sitting on the chair releases his weight from the chair back, highly improved means for retarding the upward or return movement of the chair back to prevent a sudden or jerky movement of said chair back.

A further object of this invention is to provide a simple, compact and strong chair construction of the character described which shall be relatively inexpensive to manufacture, comprise few and simple parts, be easy and simple to incorporate into chairs now in use having reclining backs or install in new chairs, and which shall be smooth in operation and withal practical and efficient to a high degree.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown one of the various possible embodiments of this invention,

Fig. 1 is a side, elevational view of a chair embodying the invention with parts in cross-section and showing the back in reclining position in dotted lines;

Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a partial cross-sectional view taken on line 3—3 of Fig. 1;

Fig. 3*a* is a fragmentary, elevational view of one of the anchoring ends of the strap, shown in Fig. 1;

Fig. 4 is a fragmentary, horizontal, cross-sectional view of a portion of the chair illustrating a modified construction; and

Fig. 5 is a fragmentary side elevational view of the structure shown in Fig. 4.

Referring now in detail to the drawing, 10 designates a chair embodying the invention comprising a supporting frame 11 having a pair of rear upstanding legs 12 and front legs 13. The rear legs 12 are interconnected by a vertical board 15 and the front and rear legs are interconnected by a pair of parallel, vertical, side boards 16. Adjacent the rear vertical board 15 is a flat horizontal board 19 interconnecting the boards 16. Interconnecting the upper ends of the rear legs 12 and extending through openings 21 therein, is a horizontal rod 20 for the purpose hereinafter appearing.

Pivotally supported between the legs 12 and on the rod 20 is a chair back 22 swingable about the rod 20 to reclining position as shown in dotted lines in Fig. 1 of the drawing. The chair back 22 may be of any suitable construction and is provided with parallel upright side boards 24 formed with through openings 25 receiving the rod 20 therethrough.

It will be noted that the rod 20 is disposed above and parallel to the rear vertical board 15. Attached to the outer side of each of the upright side boards 24 is a bar 30 preferably made of metal and having a central opening 31 receiving the rod 20 therethrough. The bar 30 may be attached to the board 24 by means of screws 32 or in any other suitable manner. The bars 30 preferably extend forwardly, as at 31*a*, beyond the front edges of the boards 24 and are bent inwardly somewhat toward the mid-section of the chair.

Attached to each bar 30 and disposed between the bars 30 and the adjacent leg 12 of the chair and concentrically of the rod 20 is an annular grooved ring or member 35 of substantially U-shaped cross-section but having the inner flange 36 thereof wider than the outer flange 37. As shown in the drawing, the inner flange 36 contacts the bar 30 and is attached thereto and to the board 24 by means of screws 37.

For the purpose hereinafter appearing, there is attached to the rear wall 15 an eyelet 40. A coil tension spring 41 is interconnected at the bottom end 42 thereof to the eyelet 40 and at the upper end 43 thereof to the outer end 31*a* of the bar 30, said outer end 31*a* being apertured for receiving the upper hooked end of said spring.

It will now be understood that the person sitting on the seat 44 of the chair may recline, the chair back swinging rearwardly as the weight of the person sitting on the chair is imposed on the chair back. Should the person arise from the chair after reclining, and thus release the weight from the chair back, the spring 41 connected on the arm or bar 30 will cause the chair back to swing upwardly toward normal or upright position. To prevent the chair back from jerking upwardly or from moving upwardly suddenly,

there is provided a belt, strap or flexible member 50 attached at one end 51 thereof to the board 15, in any suitable manner and extending within the groove or channel formed in the ring 35. The belt 50 passes around the top of said ring and the other end 56 thereof is attached to the upper end of a coil tension spring 57. The lower end of the spring 57 may be attached to an eyelet screw 58 slidably extending through an opening 60 in the horizontal board 19. A wing nut 61 screwed to the screw 58 may be turned for adjusting the tension of the spring 57. The belt 50 thus frictionally grips and engages the ring 35 so that as the seat moves upwardly under the influence of the spring 41, the friction between the belt and the ring retards movement of the chair back and permits the chair to swing gradually into substantially vertical position, without any jerking movement. The belt 50 may be in the form of a stranded metal rope, or of any other suitable construction.

For the purpose of illustration, however, the belt 50 is shown in the drawing as made of leather, and the ends 51 and 56 thereof may each be provided with a U-shaped wire 50*a* having arms of unequal length receiving an end portion of the strap therebetween and extending longitudinally of said end portion. Said arms are formed with pronged end portions 50*b* embedded inwardly into the leather. A clip in the form of a metal sleeve 51*a* disposed about the end of the strap and about the wire serves to hold the wire 50*a* in place. It will be noted that the wire 50*a* forms a loop 52*a* for receiving either the fastener on the board 15 at one end 51 or the upper end of the spring 57 at the other end 56.

It will be noted that the friction on the flange ring is less when the chair back swings to reclining position than when it swings upwardly, since the swinging movement of the chair back 22 in a counterclockwise direction, looking at Fig. 1 of the drawing, is accompanied by a slight stretching of the spring 57. However, a clockwise swinging movement of the chair back, looking at Fig. 1, causes a pull of the belt 50 on its anchored end 51 without any give whereby sufficiently strong frictional action is accomplished to permit only a gradual rise of the chair back. The spring 57 is smaller than spring 41 to ensure movement of the chair back 22 to upright position under the influence of said spring 41 and to prevent any positive stopping of the chair back until the same reaches the normal vertical position thereof.

In Figs. 4 and 5 there is shown a modified form of friction retarding device. As illustrated in said drawing, there is attached to the bar 30 a wheel 63 having a central hub 62 receiving the rod 20 therethrough. At the outer periphery of the disc 63 is a portion 35*a* of substantially semicircular or grooved cross-sectional shape. The wheel 63 may be attached to the bar 30 and to the side wall 24 of the chair back 22 by means of screws 32. Attached to the vertical board 15 of the chair supporting structure, is one end of an elongated metal band or strip 65. The opposite end of the band 65 may be provided with an opening receiving the upper end of a spring 57. Attached to the inner surface of the band 65 is a friction element 66 preferably snugly received within the groove of the portion 35*a*. The metal band 65 may be formed with prongs 67 stamped from the metal thereof and digging into the friction element 66. The ends of the leather band 66 may be fastened to the band 65 by means of rivets 68 or in any other suitable manner. The friction element 66 may be made of leather or any other suitable friction material.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing, is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a chair, a supporting structure, a chair back pivotally attached thereto, a curved member attached to said chair back and disposed concentrically with respect to the axis of pivotal movement, and a flexible member disposed about and frictionally engaging said curved member.

2. In a chair, a supporting structure, a chair back pivotally attached thereto, a curved member attached to said chair back and disposed concentrically with respect to the axis of pivotal movement, and a flexible member disposed about and frictionally engaging said curved member, and resilient means for swinging said chair back in one direction.

3. In a chair, a supporting structure, a chair back pivoted thereto, a bar attached to said chair back, a spring attached at one end thereof to said supporting structure and at the other end thereof to said bar, an annular grooved member attached to said chair and disposed concentrically of the pivotal axis for said chair back, and a flexible member disposed about and frictionally engaging said grooved member and having the ends thereof connected to said supporting structure.

4. A chair comprising a supporting structure, a chair back pivotally attached thereto and movable to reclining position, a curved member attached to said chair back and disposed concentrically of the pivotal axis for said chair back, a friction member disposed about said curved member and having one end thereof fixed to said supporting structure, a coil tension spring attached to the other end of said friction member, and means for attaching said springs to said supporting structure.

5. A chair comprising a supporting structure, a chair back pivotally attached thereto and movable to reclining position, a curved member attached to said chair back, and disposed concentrically of the pivotal axis for said chair back, a flexible member disposed about said curved member and having one end thereof fixed to said supporting structure, a coil tension spring attached to the other end of said flexible member, and means for attaching said spring to said supporting structure, said last named means including means for adjusting the tension of said spring.

6. A chair comprising a supporting structure, a chair back pivotally attached thereto and movable to reclining position, a curved member attached to said chair back, a flexible member disposed about said curved member and having one end thereof fixed to said supporting structure on one side of said pivot during the normal range of movement of said chair back, a coil tension spring attached to the other end of said flexible member, and means for attaching said

spring to said supporting structure on the other side of said pivot during the normal range of movement of said chair back, and a coil tension spring attached at one end thereof to said supporting structure and at the other end thereof to said chair back.

7. A reclining chair comprising a supporting structure, a horizontal rod extending through said supporting structure, a chair back pivoted adjacent the bottom end thereof to said rod, a bar attached to the sides of said chair back and receiving said rod therethrough, and a pair of coil springs attached at the upper ends thereof to the ends of said bars and at the lower ends thereof to said supporting structure, an annular ring of U-shaped cross-section attached to each bar and disposed concentrically of said rod, and a flexible member attached at one end thereof to said supporting structure and extending within the groove of said annular member, the other end of said flexible member being connected by a spring to said supporting structure.

8. In a chair, a supporting structure, a chair back pivotally attached thereto, a curved member attached to said chair back, and a flexible member disposed about and frictionally engaging said curved member and having its ends secured to said supporting structure on opposite sides of said pivot during the normal range of movement of said chair back.

9. In a chair, a supporting structure, a chair back pivotally attached thereto, a curved member attached to said chair back, and a flexible member disposed about and frictionally engaging said curved member and having its ends secured to said supporting structure on opposite sides of said pivot during the normal range of movement of said chair back, and resilient means for swinging said chair back in one direction.

10. A reclining chair comprising a supporting structure, a chair back pivoted to said supporting structure, a curved member fixed to said chair back, a metallic band attached at one end thereof to said supporting structure on one side of said pivot during the normal range of movement of said chair back and at the other end thereof to one end of a spring, means for connecting the other end of said spring to said supporting structure on the other side of said pivot during the normal range of movement of said chair back, and a friction element attached to the inner side of the band and frictionally engaging said curved member.

11. A reclining chair comprising a supporting structure, a chair back pivoted to said structure, a metallic disc having a grooved portion at the outer periphery thereof fixed to said chair back and disposed concentrically of the pivotal axis for said chair back, and a friction element attached to said supporting structure and engaging within the groove of said periphery.

12. A reclining chair comprising a supporting structure, a chair back pivoted thereto, a curved member fixed to said chair back and disposed concentrically of the pivotal axis for said chair back, a strap disposed about said curved member, a U-shaped wire having arms of unequal length receiving one end portion of the strap therebetween, and extending longitudinally of said portion, the ends of said wire extending inwardly into said strap, and a clip disposed about the end of said strap and about the arms of said U-shaped wire, said U-shaped wire forming a loop, and a member attached to said supporting structure engaging said loop.

ALBERT M. BANK.