

Fig. 1.

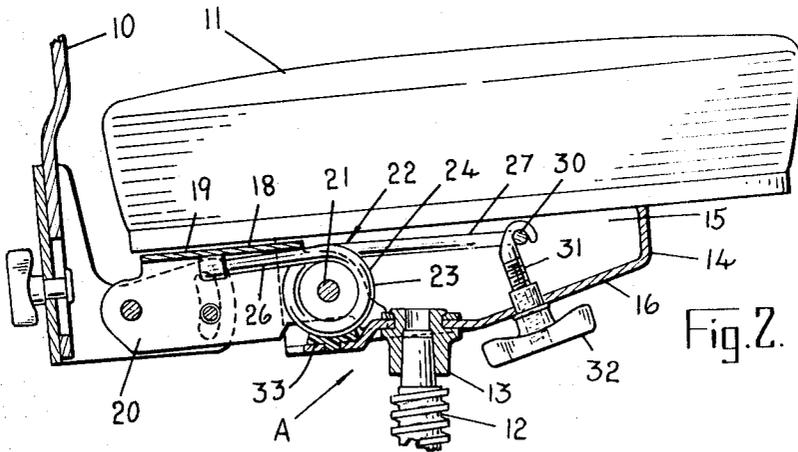
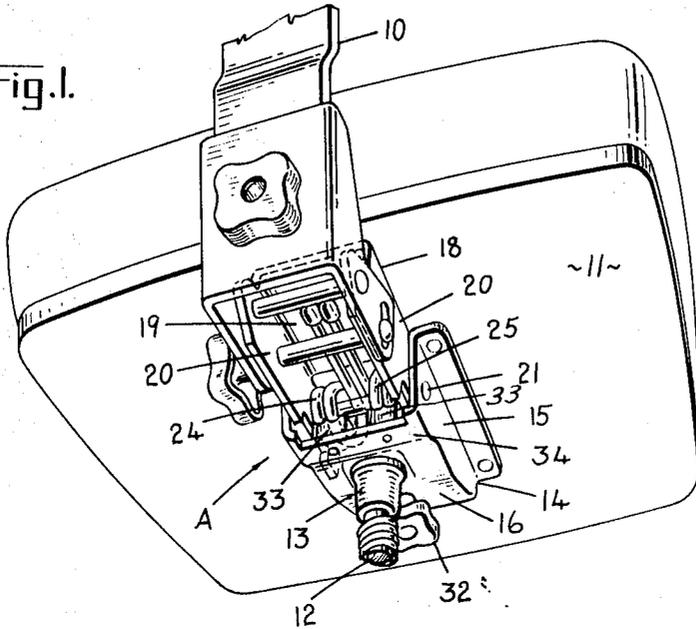


Fig. 2.

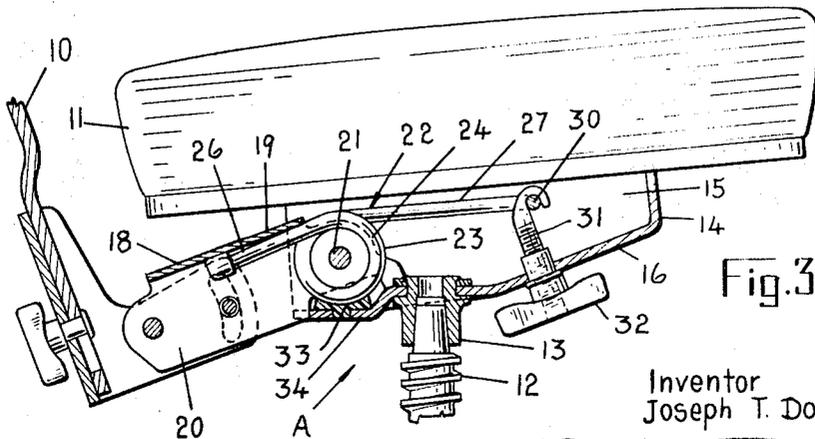


Fig. 3.

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CHAIR CONTROL WITH SUPPORT FOR THE TORSION SPRING

BACKGROUND OF THE INVENTION

The present invention is an improvement on the chair control disclosed in my prior Canadian Pat. No. 771,456 dated Nov. 14, 1967 and its United States counterpart, U.S. Pat. No. 3,339,973 dated Sept. 5, 1967. In that structure the torsion spring was supported on a nylon bushing carried on the pivot pin connecting the cooperating pivot elements of the chair control. The pivot pin is thus subjected to considerable strain which, in time, distorts and fatigues the pin.

I have found that the aforesaid problem can be solved by supporting the spring on a pad, such as nylon, the pad, in turn, being supported on one of the frame members of the chair control, preferably the fixed frame member which is mounted on the chair spindle.

DESCRIPTION OF THE INVENTION

The invention will be described as applied to a secretarial chair but it is to be understood that this is by way of illustration only since it is obvious that it can be used with other kinds of chairs.

For an understanding of the present invention and its advantages, reference is to be had to the following description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective view of a tilter chair employing the chair control of the present invention;

FIG. 2 is a side elevation in cross section through the center of the chair running from front to back thereof to show details of the construction; and

FIG. 3 is a cross-sectional view taken on the same line as FIG. 2 with the back tilted.

FIGS. 1-3 show the present invention as applied to what is commonly known as a posture or secretarial chair.

The posture or secretarial chair incorporates a modified chair control A designed to provide yieldable, backward-tilting support for a tiltable chair back 10 pivotally connected to the chair seat 11 through the medium of the chair control A, the seat in turn being fastened to the control as herein described.

The chair control includes a first frame structure 14 which includes a plate 16 apertured to receive the spigotted end of the spindle 12 and a bushing 13 rigidly attached to the plate 16 and apertured to receive the shank of the spindle 12. The first frame member 14 also includes a seat support member attachable to the underside of the seat 11. The seat support member includes spaced-apart sidewalls 15 apertured for a pivot or hinge pin to be described.

A second frame member 18 of the chair control A is attachable to the chair back 10. The frame member 18 includes a plate portion 19 between sidewalls 20 apertured to register

with the apertures in sidewalls 15. A hinge pin 21 is mounted through the said apertures to connect the first and second frames for relative pivotal movement.

Tilt-resisting spring-biasing means 22 are provided for the chair control to urge the chair back 10 to a normal or first position as illustrated in FIG. 2 and resist movement to the second position as shown in FIG. 3.

The aforementioned spring-biasing means 22 comprise a torsion spring 23 including pair of oppositely wound coils 24, 25 coiled about the hinge pin 21 and mounted between the spaced-apart sidewalls 15. The torsion spring 22 also includes oppositely extending ends 26, 27 of each of said coils 24, 25 and a first end 28, 29 of each of said coils 24, 25 is joined by a connecting portion 30. The connecting portion 30 is connected to the first frame structure 14 by connecting means comprising a threaded rod 31 which is hooked at one end over the connecting portion 30 and which extends at its other end through the plate 16 and is threaded into a manually operable tension-adjusting nut 32 for the spring-biasing means 22, said adjusting nut 32 being easily accessible on the outside of the first frame member 14.

The hinge pin passes centrally through the coiled tension spring as shown. The spring 23 is on a support pad 33 which extends under the spring between the spaced-apart sidewalls 15. The pad 33 is preferably made of nylon and has its upper surface concaved to the curvature of the coils. The concaved surface forms a recess into which the coiled spring seats, the spring being thereby restrained against eccentric displacement when the spring is torsionally twisted. The pad 33, in turn, is supported, on the base portion 34 of the frame 16 in close proximity to the bushing 13. The forces created by the torsion spring are thus carried on parts adapted to carry heavy loads.

What I claim is:

1. A chair control having:

- a. a first nontiltable frame mountable on a chair base;
- b. a second tiltable frame member;
- c. a helical torsion spring operatively connected to the frame members to resist relative movement of the frame members in one direction;
- d. a hinge pin pivotally connecting the frame members together for relative pivotal movement, said pin extending axially through the torsion spring; and
- e. a spring support pad mounted on the first frame underneath the torsion spring, said pad having its upper surface concaved to receive therein adjacent portions of the spring in free slidable relationship whereby the forces generated by the torsionally loaded spring are carried solely on said support member and the spring is restrained against eccentric displacement.

2. The invention according to claim 1 in which the torsion spring comprises a pair of oppositely wound coils connected together by a rearwardly extending connecting portion and the spring support pad being divided into two spaced-apart sections forming a passageway through which connecting portion extends, each section supporting one of said coils.

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