Nov. 27, 1962 D. F. CALDEMEYER 3,065,828

LOCKING MECHANISM

Filed Oct. 20, 1958

FIG. 1

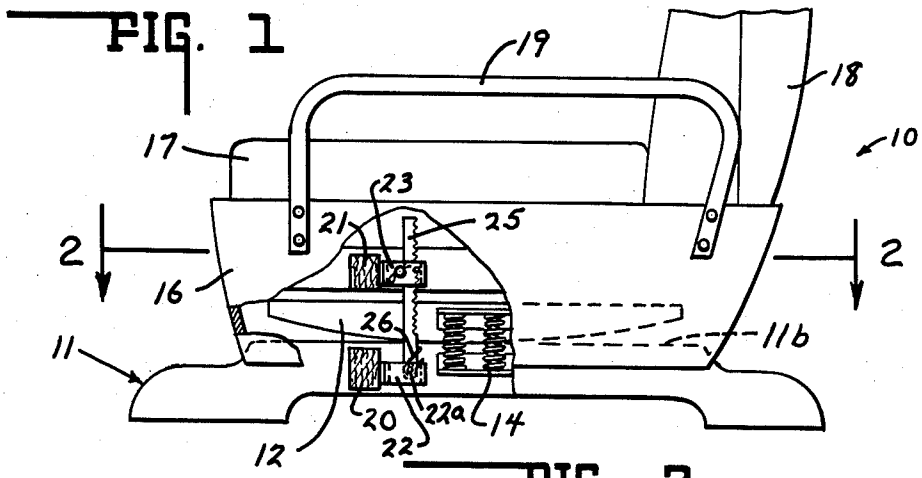


FIG. 2

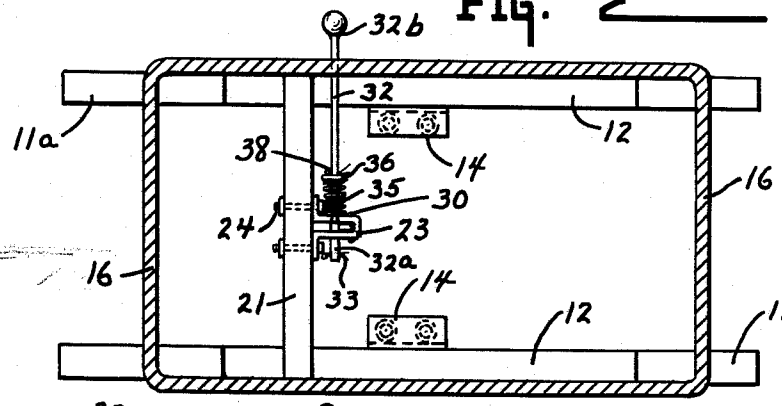


FIG. 3

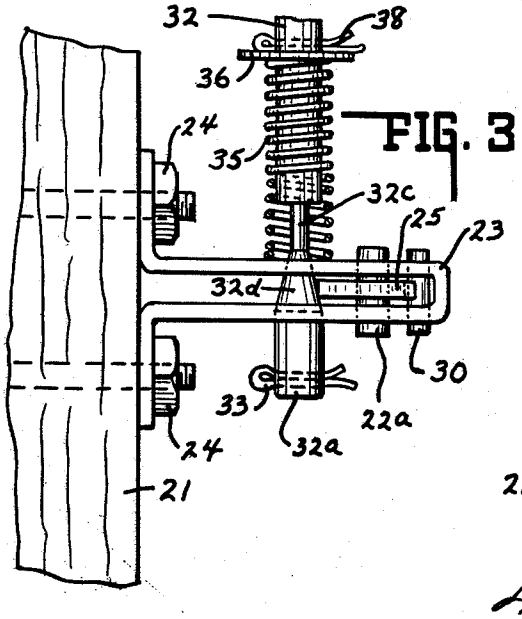
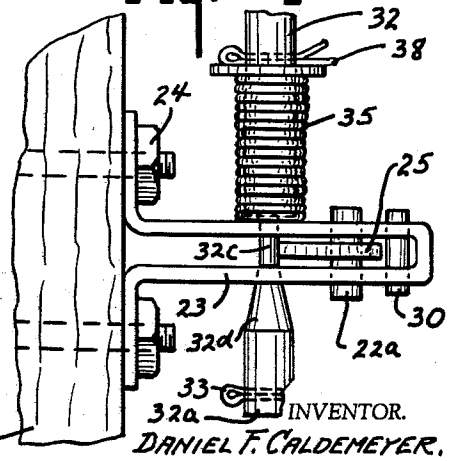


FIG. 4



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LOCKING MECHANISM

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The present invention relates to a locking mechanism and more particularly to a locking mechanism which is adaptable for use in connection with a reclining chair having a fixed base and track.

As is well known, much consideration has been directed to designing simple and effective locking mechanisms adaptable for use on the aforementioned type chair. Previously, locking mechanisms operable through rotary movement proved satisfactory but even more simplified and effective structures have been the object of continued development.

By virtue of the instant invention, the applicant has provided a locking mechanism particularly adapted for use on a reclining chair which is operable by the linear movement of a control member. The linear movement of the control member actually effects unlocking by reason of a cammed portion thereon which permits the movement of a spring-urged pivotable locking member from its corresponding retaining element. Locking at the same or another position is simply accomplished by releasing the control member towards its normal position, which in turn forces the pivotable locking member back into contact with the retaining element.

Moreover, it should be noted that although the applicant's novel locking mechanism is disclosed herein in connection with a reclining chair, it is highly adaptable for use on other structures, as where any movable member(s) are positionable with respect to each other at the will of the user. Such alternate and additional uses of the applicant's novel locking mechanism will become more apparent from the description of the invention set forth herebelow.

A principal object of the present invention, therefore, is to provide a novel locking mechanism particularly adaptable for use in connection with a reclining chair.

Another object of the present invention is to provide a locking mechanism for a reclining chair which is controlled by a linear movement from a normally locked position.

A further and more general object of the present invention is to provide a locking mechanism which is adaptable for use in conjunction with any movable member(s) so that the member(s) may be retained in any desired position with respect to each other.

Other objects and a better understanding of the invention will become more apparent from the following description, taken in conjunction with the accompanying drawing, in which

FIG. 1 is a fragmentary view in side elevation, partially broken away and in section, showing the novel locking mechanism forming the instant invention;

FIG. 2 is a view in horizontal section, taken at line 2—2 of FIG. 1 and looking in the direction of the arrows, showing the locking mechanism in a normally locked position;

FIG. 3 is an enlarged fragmentary view, partly in section, showing details of the locking mechanism in the locked position of FIG. 2; and,

FIG. 4 is another view of the locking mechanism of FIG. 3, with the locking mechanism in an unlocked position.

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawing and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

Referring now to the figures, the applicant's novel locking mechanism is disclosed in connection with a reclining chair 10 supported by a fixed base 11 which, in a typical embodiment, is formed from two substantially parallel runners 11*a*. The runners 11*a* are adapted to receive rails 12 forming a part of the upper or movable portion of the chair structure on tracks 11*b* formed by the top surfaces thereof. The rails 12 are maintained in proper position with reference to the tracks 11*b* on the runners 11*a* by means of a plurality of coil springs 14 which attach to the runners 11*a* and the rails 12 in a well known manner.

The conventional upper or seat portion of the chair disposed above the rails 12 includes a frame 16 which receives a seating surface 17, such as a cushion, for example, and which has a back portion 18 extending upwardly therefrom. The upper chair portion also includes armrests 19 which may be suitably affixed to the frame 16.

The runners 11*b* forming a part of the fixed base 11 of the chair are maintained in spaced-apart relation by several connecting or cross members, which for reasons of clarity are not shown herein, but which include a cross member 20. Disposed above the cross member 20, but between the side members of the frame 16 forming a part of the upper portion of the chair, is another cross member 21. Cross members 20 and 21 serve to position the applicant's novel locking mechanism which is to be discussed in detail herebelow.

Extending rearwardly from cross member 20, i.e. towards the back of the chair, is a mounting bracket 22 which may be secured thereto through conventional nut and bolt means (not shown). Pivotally supported on the mounting bracket 22 at 22*a* is a locking member 25 in the form of a ratchet bar having notches or serrated teeth disposed on one side edge thereof. The locking member 25 is continually urged toward the front of the chair through a conventional torsion spring 26, shown more particularly in FIG. 1.

A mounting bracket 23, similar in structure to the mounting bracket 22, extends from cross member 21 and may be secured thereto by conventional nut and bolt means 24. The mounting bracket 23 has a retaining element 30 in the form of a locking bar extending through the U-like end portion thereof which is adapted to cooperate with and be recived in one of the teeth or serrated portions disposed on the side edge of the locking member 25.

The applicant's novel locking mechanism includes a control member 32 having an end portion 32*a* disposed through and supported by the mounting bracket 23, with the other end portion 32*b* thereof, which is enlarged for ease of use, being supported by the frame 16 of the upper portion of the chair. A cotter pin 33 is provided proximate the end portion 32*a* of the control member 32 to prevent the withdrawal thereof from its mounted position in the chair.

The control member 32 has a cammed portion formed thereon which is defined by a uniform smaller diameter portion 32*c* which flares outwardly at 32*d* to the normal diameter of the shaft. The structure is arranged so that when the locking mechanism is in locking position, the flared portion 32*d* of the control member 32 engages the locking member 25 and forces the latter into engagement with the retaining element 30 (see FIG. 3). Conversely, when the control member 32 is in an unlocked position,

the small diameter portion 32c thereof is adjacent the locking member 25 and, as the locking member 25 is spring-urged towards the front of the chair, the locking member 25 disengages itself from the retaining element 30 (see FIG. 4) and the upper portion of the chair may be moved with reference to the base 11 thereof.

The control member 32 is spring-urged to a normal locking position by a coil spring means 35 which is seated between a side wall of the mounting bracket 23 and a disc 36 positioned on the control member 32 by a cotter pin 38. Thus, to unlock the chair, the control member 32 is pushed inwardly through a linear movement, and when the user releases the control member 32, a locked position is automatically assumed.

From the preceding it should be apparent that the applicant has provided a novel locking mechanism which may be simply and effectively released with a simple linear motion of a control member. The locking mechanism is arranged so that it is in a normally locked position and when the control member is released after use, the control member automatically assumes such locked position. It should be further apparent that the locking mechanism disclosed herein in connection with a typical reclining chair is equally adaptable for use in connection with any members which are positionable with respect to each other, as mentioned hereabove.

Moreover, the applicant's novel locking mechanism is susceptible to various changes within the spirit of the invention. For example, the placement of the mounting brackets and the broad dimensioning disclosed by the figures herein is arbitrary and equally effective results may be achieved through variations in such position and dimensions. Thus, the above description should be considered illustrative and not as limiting the scope of the following claim.

I claim:

A push-type locking mechanism for positioning a first member with reference to a second member comprising a bracket fixedly mounted on said first member, a locking member pivotally mounted on said second member, said bracket having a retaining element forming a portion thereof adapted to be selectively engaged by said locking member, said locking member being in the form of a bar having a serrated edge, spring means normally urging said serrated edge of said bar forming said locking member away from said retaining element of said bracket, a linearly movable control member having a camming portion thereon extending through said bracket, and spring means encircling a portion of said linearly movable control member normally urging said camming portion thereon into engagement with said locking member and the latter into locking engagement with said retaining element.

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