

[54] **TILTING DEVICE FOR HEAD REST, IN PARTICULAR FOR VEHICLE SEATS**  
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[56] References Cited  
UNITED STATES PATENTS  
3,304,120 2/1967 Cramer.....297/403

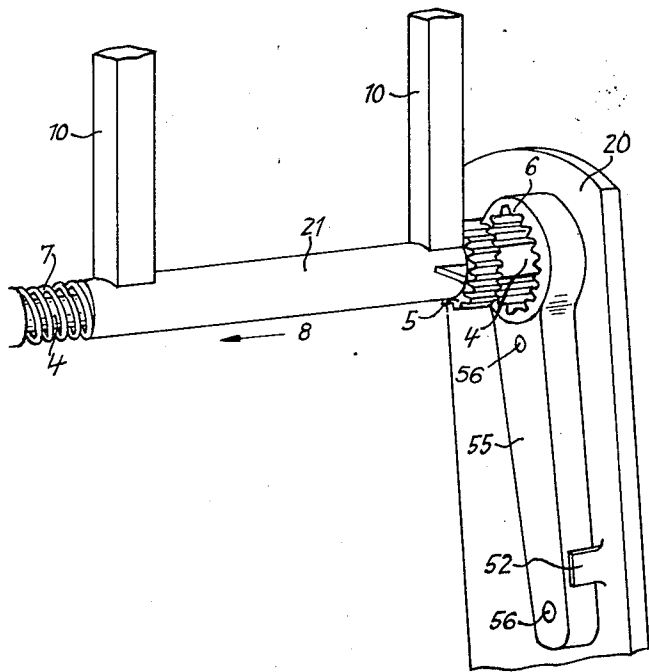
146,776 1/1875 Nichols.....16/144  
534,582 2/1895 Sargent.....297/408

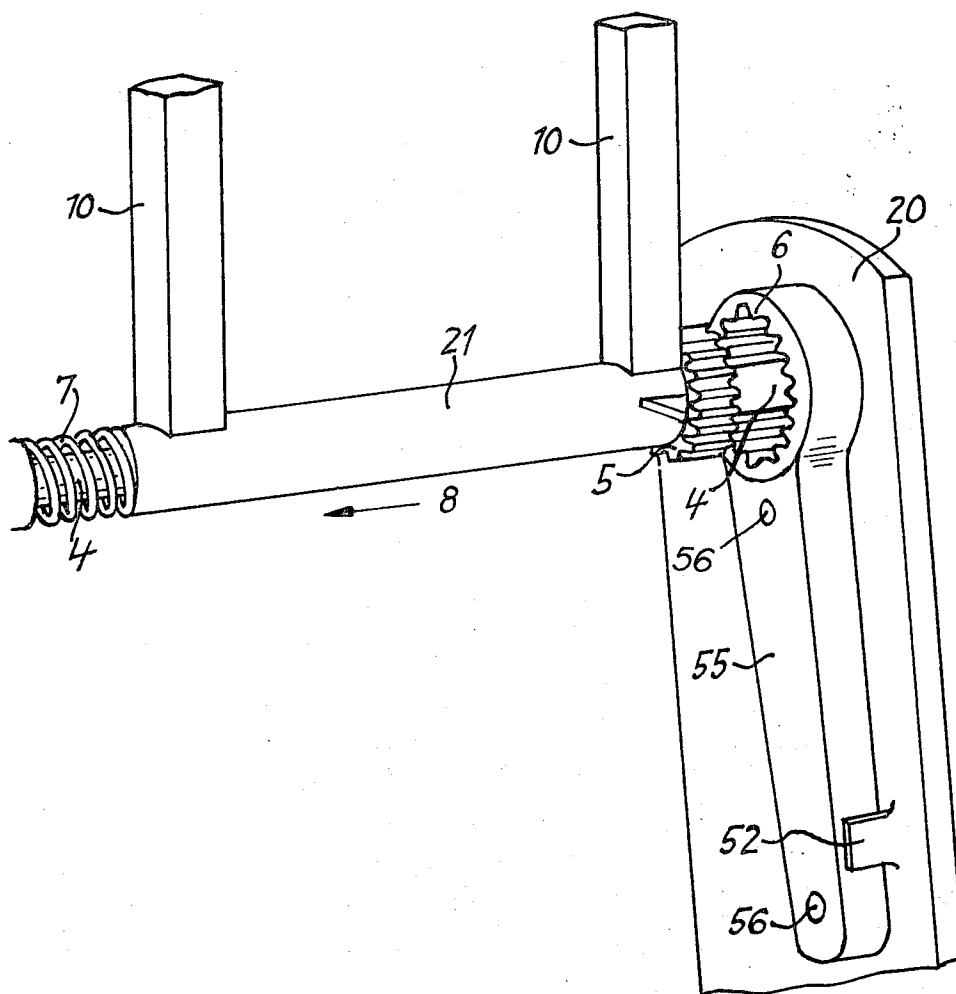
FOREIGN PATENTS OR APPLICATIONS  
1,091,994 11/1967 Great Britain.....297/373

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[57] **ABSTRACT**  
The invention relates to an angularly adjustable head rest which is secured to the structure of the back rest of a motor vehicle seat. The head rest includes elements providing for lateral and tilting movement of the rest subsequent to uncoupling of elements provided adjacent one side of the rest.

4 Claims, 1 Drawing Figure





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# **TILTING DEVICE FOR HEAD REST, IN PARTICULAR FOR VEHICLE SEATS**

This application is a further improvement upon the subject matter contained in U. S. application, Ser. No. 879,398 filed Nov. 24, 1969.

The invention relates more specifically to means for releasably locking the head rest against tilting movement and more particularly to those devices that are also vertically adjustable to conform to persons of different height. Advantage is taken of the more efficient construction of the type referred to in said earlier application, but in this further improvement the interlocking gears are of the conoid type to facilitate intermeshing.

In this connection tilting adjustment of the head rest is accomplished by means of two conforming mutually engaging toothed members, one of which is attached to the supporting frame that carries the inner structure of the locking means and can be released from the outer structure by a lateral displacement of the inner structure with its supporting means.

Excessive movement of the mutually engaging toothed members to achieve separation thereof should be avoided in order not to cause injury by requiring only a small amount of movement of the cushioned head rest. Also the relative positioning of the cushioned head rest to a person's head must be such as not to permit injurious acceleration of one's head before contacting the head rest.

The dictates of mass production require that materials may, if so desired, be used in the fabrication of this device that lend themselves to die casting and injection molding. Such procedure will facilitate the manufacture of the entire tilting parts consisting of the engaging elements, shaft and sleeve, braces and cushion supports, etc.

The single perspective view shows one form the invention may take.

Turning now to the drawing, there is shown one side of a frame member 20 of a seat back rest (not shown) and in which the frame may be made of pressed sheet metal. A lever arm 55 attached to the frame 20 has formed therein a cone-shaped opening in which gear teeth 6 are provided at one end thereof with said lever arm including an elongated portion having attaching means 56. The frame 20 may also include an integral stop means such as that shown at 52.

A support shaft 4 for the head rest now to be described extends through the cone-shaped opening carrying the teeth 6. Slidable along and tiltable about shaft 4 is a sleeve 21 which carries a cone gear 5 having teeth complementary to and arranged for meshing with the internal teeth 6 whereby the sleeve may be held in various adjusted positions. A spring 7, which is positioned between the opposite free end of sleeve 21 and

an abutment on shaft 4, serves to yieldingly hold the gears 5 and 6 in engagement, but allows for lateral movement of sleeve 21 along shaft 4 by sidewise pressure on the head rest, as indicated by arrow 8, to disengage gears 5 and 6, and thus allow tilting of the head rest to the desired position thereof.

Vertical members 10 which are shown in detail serve to support the cushion pad of the head rest.

That which is claimed is:

1. An adjustable mounting means for an automobile head rest having a cushion pad wherein said rest may be tilted about an axis subsequent to movement laterally along said axis, comprising, a generally vertically extending lever arm fastened to the side frame of the automobile seat back, the side frame extending generally vertically, means defining an opening at the upper end of said lever arm, engaging means around the wall of said opening projecting inwardly from the wall of said opening, a guide shaft extending across said seat back and into said opening, a sleeve tiltable about and slidable along said guide shaft and members extending from said sleeve for supporting the cushion pad of the head rest, a coupling means comprising means at one end of said sleeve which upon movement of the sleeve toward said lever arm will be projected into said opening and into engagement with the aforesaid engaging means to lock said sleeve and head rest carried thereon against tilting movement about said axis, said lever being fastened to the side frame by means including a fastening element extending parallel to the axis of said guide shaft adjacent the opening at the upper end of said lever, and a stop element carried by the side frame in contact with the lower end of the lever to absorb torsional forces to which the lever may be subjected.

2. An adjustable mounting means for an automobile head rest as claimed in claim 1, wherein the end of said sleeve opposite to said coupling means is spaced from the adjacent end of said guide shaft and spring means positioned between the sleeve and the adjacent end of said guide shaft yieldingly urges said coupling means into the opening in the lever arm and into locking engagement with the engaging means around the wall of said opening to prevent tilting of the head rest.

3. An adjustable mounting means for an automobile head rest as claimed in claim 2, wherein the engaging means around the wall of said opening comprises a hollow cone and the coupling means on the slidable sleeve is complementary thereto.

4. An adjustable mounting means for an automobile head rest as claimed in claim 3, wherein the coupling means is further provided with gear teeth complementary to teeth formed in the surface of the hollow cone-shaped engaging means.

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