A SEAT MODULE AND TILT MECHANISM

Field of the Invention

The present invention relates to furniture for sitting, and more particularly to a seat module that can be used in a chair or where several modules can be assembled to form a seating row, as well as a tilting mechanism that is particularly suitable for use in such a seat module.

Background

So-called recliners are usually fitted with a control mechanism so that the angle of the backrest can be varied. The seat and backrest are usually hinged together while the backrest is pivotally attached to the armrests on each side. The user can then vary the angle of the backrest by pushing the body back and forth.

From Norwegian Patent 335401 it is known furniture for sitting where the position of the backrest and seat can be set in the same manner as in the recliners mentioned above. Here, however, the entire mechanism is hidden under the seat. A virtual turning point is established for the backrest so that the backrest does not have to be fixed to the armrests. The solution can therefore also be used in chairs without armrests, such as dining chairs.

There are also known office chairs where the backrest angle can be varied by turning a wheel or by operating a lever that unlock the backrest. With this solution, however, the backrest cannot be adjusted continuously as in the previous examples, as the backrest will return to the locked position when the user has finished the regulation. Such chairs may also have a tilt function that allows the backrest and seat to be tilted as a unit. This feature can also be locked.

Summary of the Invention

Embodiments of the present invention seek to provide a seat module for use in furniture for sitting that provides improved comfort for the user, is designed for rational production and can be used in several different items of furniture such as chairs and sofas or for interconnecting multiple seats in a row. Embodiments of the invention also seek to provide a tilting mechanism that is particularly suitable for use in the said seat module.

This is achieved with a seat module and a tilting mechanism as set forth in the appended claims.

According to a first aspect of the invention there is provided a seat module for use in furniture for sitting, the seat module comprising a backrest, seat and coupling element, the coupling element comprising two side walls held together by at leat one transverse elements and further comprising rear grooves arranged in a rear end of the coupling element and front grooves arranged at a forward end of the coupling element, the rear and front grooves being arranged in respective sidewalls of the coupling element, the backrest being adapted to slide along said rear groove, wherein a rear portion of the seat is connected to the backrest, and wherein a front portion of the seat is adapted to slide along said front groove wherein the seat module further comprises a tilting mechanism connecting the coupling element with a support member, where said tilting mechanism allowing for the rotation of the group of elements consisting of the backrest, the seat and the coupling element around the support member is independent from the sliding movement of the backrest.

The background of this invention is that it is possible to use a backrest and seat adjustment mechanism where no locking mechanism is required, i.e., where the user can sit relaxed in any position of the seat module and at the same time be possible for the user to tilt the seat module, still without having to lock its position. This provides a seat module where the user can immediately use the seat module and easily find an optimal seat position without having to figure out a system of levers etc. Another advantage of this construction is that both the setting function and the tilt function are handled by the coupling element underneath the seat, without the need for attachment to armrests or similar.

According to an embodiment of the invention, the backrest comprises brackets adapted to engage and run in said rear groove, the front portion of the seat being connected to a sliding unit running in said front groove, the rear grooves being provided as arcuate or radial incisions, wherein said brackets comprise corresponding arcuate or radial projections adapted to engage the grooves on the coupling element and wherein the front grooves are provided as radial or arcuate or linear through grooves with a pitch toward the front of the seat module.

This embodiment simplifies the mounting of the backrest on the coupling element.

According to a preferred embodiment, the coupling element comprises through openings located in the rear grooves and the seat module may comprise a locking

C l a i m s

1. A seat module for use in furniture for sitting, the seat module comprising a backrest, seat and coupling element, the coupling element comprising two side walls held together by at least one transverse element and further comprising rear grooves arranged in a rear end of the coupling element and front grooves arranged at a forward end of the coupling element, the rear and front grooves being arranged in respective sidewalls of the coupling element, the backrest being adapted to slide along said rear grooves, wherein a rear portion of the seat is connected to the backrest, and wherein a front portion of the seat is adapted to slide along said front grooves,
wherein the seat module further comprises a tilting mechanism connecting the coupling element with a support member, where said tilting mechanism allowing for the rotation of the group of elements consisting of the backrest, the seat and the coupling element around the support member is independent from the sliding movement of the backrest.

2. The seat module of claim 1, wherein the backrest comprises brackets adapted to engage and run in said rear grooves, the front portion of the seat being connected to a sliding unit running in said front grooves, the rear grooves being provided as arcuate or radial incisions, said brackets comprising corresponding arcuate or radial protrusions adapted to engage the grooves of the coupling element, and wherein the front grooves are provided as radial or arcuate or linear through grooves with a pitch toward the front of the seat module.

3. The seat module of claim 2, wherein the coupling element comprises through-openings located in the rear grooves, the seat module further comprising a locking rod adapted to pass through holes in the brackets and through said openings so that the backrest is locked to the coupling element.

4. The seat module of claim 2, wherein the sliding unit comprises a slide rod with sliding sleeves at each end, the sliding sleeves being adapted to engage said front grooves.

5. The seat module according to claim 4, wherein a spring is secured between a cross beam which passes between the side walls of the coupling element and said slide rod.

6. The seat module of claim 4, wherein the seat comprises rear notches adapted to grip the locking rod and front notches adapted to grip the slide rod.