The vehicle seat mechanism (1) of the present invention comprises a seat (2) having a seat portion (3) and a backrest (4). The present invention enables to prevent possible soft tissue injuries at the lower neck region by supporting the user's (driver or passenger) lower neck region effectively in case of vehicle accidents particularly with rear end collisions. Furthermore, the support part (6) can be easily mounted to and removed from the vehicle seat mechanism (1) and this allows the support part (6) to be used optionally.
The present invention relates to a vehicle seat mechanism and particularly to head and neck rests mounted to vehicle seats.

In the state of the art, in vehicle seats, there is provided a headrest which supports and protects the head of the driver or the passenger. The distance between the head of the driver or passenger and the headrest is adjusted and it has become a standard for each vehicle. However, especially in vehicle accidents with rear end collision, although the current headrests support and protect the head, they cannot prevent soft tissue injuries at the lower neck region.

German patent documents numbered 19801536 and 19800077, applications known in the state of the art, include additional parts located between the headrest and the seat. These additional parts are located on the mechanism by which the headrest is connected to the seat. Thus, the headrest and the additional part are located on the same line and they move on this line. In these state of the art documents, in order to cover the gap between the head and the neck of the driver or the passenger, changes should be made in the design of the additional part, and this requires an additional part design which changes from one person to another.

In the state of the art documents, the additional part is mounted on the same slide extending between the seat and the headrest. In this case, it is very difficult to mount and remove the additional part when desired. In order to remove the additional part, either the headrest should be removed or the additional part should be removed by separating the part into a plurality of pieces.

The vehicle seat mechanism of the present invention comprises a seat having a seat portion and a backrest; a moveable headrest mounted to the seat; and a support part which is mounted to the headrest, is located between the headrest and
the seat, and moves with respect to the headrest and the seat. Mounting the support part directly on the headrest, without mounting it to the seat or the mechanism by which the headrest is connected to the seat, allows a more flexible use to the user and enables to prevent possible injuries that may occur at the lower neck region in case of vehicle accidents.

By means of this invention, the support part is mounted not on the main slide where the headrest is connected to the seat, but on an additional slide which is preferably parallel to these main slides and which extends downwards from the headrest. In this case, the support part is enabled to exactly fit the lower neck region of the user. The gap between the lower neck region of the user and the seat is covered by using the support part of the present invention. By means of the support part of the present invention, lower neck region of a person is enabled to be supported in vehicle seats independent of her/his ergonomic characteristics.

In one embodiment of the invention, the support part is mounted onto additional slides which extend downwards from the headrest. Thus the support part does not move on the slides where the headrest is located but on additional slides parallel to the said slides on the same direction. Furthermore, by means of the support part, the lower neck region of the user is enabled to be supported more effectively.

In one embodiment of the invention, the support part can move together with or independent from the headrest.

In one embodiment of the invention, the support part is mounted on an additional slide, which extends downwards from the headrest, and whose upper end is covered by the headrest and lower end is uncovered. In this embodiment of the invention, the vehicle seat mechanism comprises at least one mounting hole on the support part extending throughout the support part. The support part is mounted through its mounting hole onto the vehicle seat mechanism by being fitted over the additional slide from the lower end of the additional slide. In this
embodiment of the invention, a stopper is arranged on the lower end of the additional slide in order to prevent the support part from getting dislocated from the lower end of the additional slide after it is mounted thereon. The support part can move between the headrest and the stopper on the additional slide. Since the headrest and the support part are located on the same slide in the state of the art, when the headrest reaches the lowest position, the support part also necessarily reaches the lowest position. However, in the present invention, since the support part is located on another slide that is parallel to the main slide and the support part can move between the headrest and the stopper instead of between the headrest and the backrest, the support part may be at any position when the headrest reaches the lowest position.

By means of the present invention, the support part can be easily mounted to and removed from the headrest whenever desired.

The present invention enables to prevent lower neck region injuries in case of vehicle accidents particularly with rear end collisions. Thanks to the present invention, the user's lower neck region is supported independent from the ergonomic characteristics of the user by means of a support part which can be easily mounted to and removed from the vehicle seat mechanism.

The objective of the present invention is to support the lower neck region of the user effectively.

The figures related to the vehicle seat mechanism developed to fulfill the objective of the present invention are listed below:

Figure 1 is the perspective view of the vehicle seat mechanism.
Figure 2 is the side view of the support part in lower position.
Figure 3 is the side view of the support part in upper position.
The parts shown in the figures are numbered as follows:

1. Vehicle seat mechanism
2. Seat
3. Seat portion
4. Backrest
5. Headrest
6. Support part
7. Main slide
8. Additional slide
9. Stopper
10. Mounting hole
11. Recess

The vehicle seat mechanism (1) of the present invention comprises a seat (2) having a seat portion (3) and a backrest (2); a preferably moveable headrest (5) mounted to the seat (2); and a support part (6) which is mounted to the headrest (5), is located between the headrest (5) and the seat (2), and moves with respect to the headrest (5) and the seat (2). Mounting the support part (6) directly on the headrest (5), without mounting it to the seat (2) or the main slide (7) by which the headrest (5) is connected to the seat (2), allows the support part (6) to be located at a closer position to the user’s lower neck region and thus enables to prevent possible injuries that may occur in case of vehicle accidents particularly at the lower neck region (Figure 1).

By means of the present invention, the support part (6) is mounted not on the main slide (7) where the headrest (5) is connected to the seat (2), but preferably on at least one additional slide (8) which is parallel to the said main slide (7) and which extends downwards from the headrest (5). Thus the support part (6) moves not on the slides (7) where the headrest (5) is located but on the additional slides (8) extending parallel to the said slides (7) on the same direction. Since the support
part (6) is located at a closer position than the distance between the user's head and the headrest (5), the gap between the user's lower neck region and the seat (2) is covered by means of the support part (6) thereby supporting the user's lower neck region completely. This enables to support the lower neck region of a person by means of the support part (6) independent from the ergonomic characteristic of the person.

In one embodiment of the invention, the support part (6) can move together with the headrest (5).

In one embodiment of the invention, the support part (6) can move independent from the headrest (5).

In one embodiment of the invention, the vehicle seat mechanism (1) comprises at least one mounting hole (10) on the support part (6) extending throughout the support part (6). In this embodiment of the invention, the support part (6) is mounted via the said mounting holes (10) on an additional slide (8); which extends downwards from the headrest (5), and on the upper end of which the headrest (5) is located, and whose lower end is uncovered. The lower end of the additional slide (8) is passed through the mounting holes (10) provided on the support part (6) and thereby the support part (6) is mounted onto the vehicle seat mechanism (1). In this embodiment of the invention, the vehicle seat mechanism (1) comprises a stopper (9) which is mounted to the lower end of the additional slide (8) in order to prevent the support part (6) from getting dislocated from the lower end of the additional slide (8) after it is mounted to the additional slide (8). The support part (6) can move on the additional slide (8) between the headrest (5) and the stopper (9). This way, the support part (6) is prevented from accidentally getting dislocated from the additional slide (8). By means of this invention, the support part (6) can be easily mounted to and removed from the headrest (5) whenever desired. Additionally, since the support part (6) moves not between the headrest (5) and the backrest (4) of the seat (2), but between the headrest (5) and
the stopper (9), the support part (6) may be located at any position between the uppermost position and lowermost position even when the headrest (5) reaches the lowest position.

In another embodiment of the invention, the vehicle seat mechanism (1) comprises a recess (11), which is located on the headrest (5), and in which the support part (6) moves. The said recess (11) is located between the lower side of the headrest (5) and the side thereof facing the user. The additional slide (8) extends downwards from the base side of this recess (11). By means of the said recess (11) and by mounting the support part (6) on the additional slide (8) instead of the main slide (7), the support part (6) does not prevent the headrest (5) from reaching the lowest position.

In another embodiment of the invention, the support part (6) abuts the headrest (5) when in the uppermost position and abuts the backrest (4) of the seat (2) when in the lowermost position (Figure 2 and Figure 3). The support part (6) and the headrest (5) produce a continuous form at the uppermost position.

The present invention enables to prevent possible soft tissue injuries at the lower neck region by supporting the user's (driver or passenger) lower neck region effectively in case of traffic accidents particularly with rear end collisions. Furthermore, the support part (6) can be easily mounted to and removed from the vehicle seat mechanism (1) and this allows the support part (6) to be used optionally.
CLAIMS

1. A vehicle seat mechanism (1) comprising a seat (2) having a seat portion (3) and a backrest (4) and a headrest (5) mounted to the seat (2); characterized by a support part (6) which
   • is mounted to the headrest (5),
   • is located between the headrest (5) and the seat (2),
   • moves with respect to the headrest (5) and the seat (2).

2. A vehicle seat mechanism (1) according to Claim 1, characterized by the support part (6) which is mounted directly to the headrest (5).

3. A vehicle seat mechanism (1) according to Claim 1 to 2, characterized by the support part (6) which is mounted on at least one additional slide (8) extending downwards from the headrest (5).

4. A vehicle seat mechanism (1) according to Claim 3, characterized by the additional slide (8), on the upper end of which the headrest (5) is located, and whose lower end is uncovered.

5. A vehicle seat mechanism (1) according to any one of the preceding claims, characterized by a support part (6) which moves together with the headrest (5).

6. A vehicle seat mechanism (1) according to any one of Claims 1 to 4, characterized by a support part (6) which moves independent from the headrest (5).

7. A vehicle seat mechanism (1) according to any one of the preceding claims, characterized by at least one mounting hole (10) on the support part (6) extending throughout the support part (6).
8. A vehicle seat mechanism (1) according to any one of the preceding claims, **characterized by** a stopper (9) mounted to the lower end of the additional slide (8).

9. A vehicle seat mechanism (1) according to any one of the preceding claims, **characterized by** the support part (6) which abuts the headrest (5) when in the uppermost position.

10. A vehicle seat mechanism (1) according to any one of the preceding claims, **characterized by** a recess (11), which is located on the headrest (5), and in which the support part (6) moves.

11. A vehicle seat mechanism (1) according to Claim 10, **characterized by** the recess (11), which is located between the lower side of the headrest (5) and the side thereof facing the user.

12. A vehicle seat mechanism (1) according to Claim 10 to 11, **characterized by** the additional slide (8) which extends downwards from the base side of the recess (11).
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

INV. B60N2/48
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B60N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Date of the actual completion of the international search: 1 April 2015
Date of mailing of the international search report: 14/04/2015

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### INTERNATIONAL SEARCH REPORT

Information on patent family members

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