Abstract: The present invention relates to a tent mechanism (1) which is used in hatchback, type vehicles, which automatically opens and closes upon the movement of the trunk cover by means of the flexible member (6) it has, increases the usable volume in the trunk and client sight, and which provides ease of use and ergonomics in the trunk.
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
MECHANISM FOR A VEHICLE LUGGAGE SPACE COVER

Field of the Invention

The present invention relates to a tent mechanism which is used in hatchback type vehicles, and which automatically opens and closes with the movement of the trunk cover.

Background of the Invention

Hatchback type vehicles do not have trunk extension, their rear parts goes down flatly, their trunk covers can completely open, and the trunk parts are included in the cabin. However, the trunk compartment design of the commercial hatchback vehicles and the trunk compartment design of the passenger hatchback vehicles are different from each other in terms of their purpose of use.

Generally, the rear part is designed in a quite perpendicular structure in order to increase the internal volume and provide easy loading from the back. However, the rear part generally has a concave structure in design in passenger vehicles. Without regarding commercial or passenger vehicle, when the trunk cover is opened in all hatchback type vehicles, there is a movable cover covering the trunk compartment. This cover is called package tray. In order to enable easy access to the trunk, in hatchback type vehicles, the said tray is lifted upwards upon the trunk cover is opened via the ropes connected to the cover. However, due to obligatory design difference, it cannot be provided with a simple solution that the package tray is lifted upon the trunk cover is opened in commercial vehicles as it is in passenger vehicles.
When lifting the package tray in hatchback type commercial vehicle is performed in a way similar to the passenger vehicles, the lifting of the tray is slight and inadequate upon the trunk cover opens. For this reason, an extra effort is made in order to lift the package tray upon the trunk cover is opened. In this way, when a system is used, access to the usable volume in the trunk gets difficult, and comfort of use decreases. Additionally, since the package tray is not completely closed, the user can hit the package tray in case of use, and the user can get hurt.

French Patent Document no FR2907725A1, an application known in the state of the art, discloses luggage covering shelf located in the rear part of the vehicle and having an accordion form. The luggage covering shelf disclosed in this document can be folded on itself upon opening the rear door of the vehicle, however there no mechanism in the document which enables the shelf to open again upon closing the rear door. The document does not disclose a system which enables the shelf to open again when the door is closed.

The Objective of the Invention

The objective of the present invention is to provide a tent mechanism which automatically folds upon opening the trunk cover, and automatically opens upon closing the cover.

Another objective of the present invention is to provide a tent mechanism which increases the usable volume in the trunk and the sight of the customer.

A further objective of the present invention is to provide an ease of use in the trunk and ergonomics.

Summary of the Invention
The present invention relates to a tent mechanism which is used in hatchback type vehicles, which automatically opens and closes upon the movement of the trunk cover, increases the usable volume in the trunk and client sight, and which provides ease of use and ergonomics in the trunk.

Detailed Description of the Invention

A tent mechanism developed to fulfill the objective of the present invention is illustrated in the accompanying figures, in which:

- Figure 1 is the exploded view of one embodiment of the tent mechanism.
- Figure 2 is the perspective view of one embodiment of the tent mechanism.
- Figure 3 is the lateral view of one embodiment of the tent mechanism.
- Figure 4 is the lateral view of another embodiment of the tent mechanism.
- Figure 5 is the lateral view of another embodiment of the tent mechanism when the trunk cover is open.
- Figure 6 is the exploded view of a different embodiment of the tent mechanism.
- Figure 7 is the lateral view of a different embodiment of the tent mechanism when the trunk cover is open.

The components shown in the figures are each given reference numbers as follows:

1. Tent mechanism
2. Tent
3. Connecting member
4. Rotating member
4.1. Hole
5. Fixing member
6. Flexible member

B. Trunk cover

The tent mechanism (1), which is used in hatchback type vehicles and which opens and closes automatically upon the movement of the trunk cover (B), essentially comprises

- at least one tent (2) which can opens and closes according to the angular movement of the trunk cover (B),
- at least one connecting member (3) one end of which is connected to the trunk cover (B) and its other end is connected to the tent (2), and which actuates the tent (2) by changing place with the movement of the trunk cover (B),
- at least one rotating member (4) which is in surface contact with the connecting member (3), and which rotates around itself upon the connecting member (3) changing place during the angular movement of the trunk cover (B),
- at least one fixing member (5) at both end of which the rotating member (4) is placed,
- at least one flexible member (6) which enables the tent (2) to be opened upon closing the trunk cover (B).

In one embodiment of the invention, there is a tent (2) which is folded upon the opening of the trunk cover (B) and opens upon closing of the trunk cover (B) in the tent mechanism (1). A fixing member (5) is connected to the end of the tent (2) which is not on the side of the trunk cover (B). The fixing member (5) has preferably a cylindrical geometry, and it has a certain length. The fixing member (5) can preferably be manufactured from metal or hard plastic material. The fixing member (5) is fixed inside the vehicle from both sides, and it remains fixed during the movement of the trunk cover (B). One rotating member (4) is placed at each end of the fixing member (5). The rotating member (4) preferably has a cylindrical geometry, and it has a certain diameter and height. There is a hole (4.1) at the center of the rotating member (4), made along the center axis of the rotating
member (4). The diameter of the hole (4.1) is almost same as the diameter of the fixing member (5). There is a moving connection between the rotating member (4) and the fixing member (5), and the rotating member (4) can freely rotate around its own axis and the axis of the fixing member (5). In the tent mechanism (1), there are two connecting members (3) preferably for being used on both sides of the tent (2). One end of the connecting members (3) is connected to the trunk cover (B), and the other end is connected to the end of the tent (2) located on the trunk cover (B) side. Additionally, the connecting members (3) are in surface contact with the surrounding of the rotating members (4). The connecting member (3) starts to change its place upon the angular movement of the trunk cover (B), and it rotates the rotating member (4) which it contacts around its own axis. While the connecting member (3) changing its place, in one embodiment of the invention the surface of the rotating member (4) is manufactured rugged so that it does not slide on the rotating member (4). In the tent mechanism (1), a flexible member (6) is placed between the end of the tent (2) located on the trunk cover (B) side and the end of the tent (2) not located on the trunk cover (B) side. The flexible member (6) is placed parallel to the opening and closing direction of the tent (2), and preferably it is placed in equal distance to both edges of the tent (2). When the trunk cover (B) is in closed position, there is a certain initial force on the flexible member (6). The flexible member (6) having a force thereon moves in opposite direction of the trunk cover (B) starting from the end of the tent (2) located on the trunk cover (B) side when the trunk cover (B) starts to open. In this way, the tent (2) closes upon the opening of the trunk cover (B). In case the trunk cover (B) is closed, the compressed flexible member (6) moves towards the trunk cover (B) direction of the tent (2) and enables it to open. In this embodiment of the invention, the flexible member (6) is preferably a spring.

In another embodiment of the invention, in the tent mechanism (1), there are rotating members (4) positioned at different points of the trunk except the rotating members (4) mounted at the end of the fixing member (5). The said rotating members (4) enable the connecting member (3) to follow a certain route, and
improve trunk usage comfort and ergonomics. Depending on the positions of the rotating members (4) that are used, the connecting member (3) changing less place can enable the tent (2) to move more.

In another embodiment of the invention, in the tent mechanism (1), there are four rotating members (4) mounted on the tent (2). Two of the rotating members (4) are mounted at two ends of the fixing member (5) connected to the end of the tent (2) that is not located on trunk cover (B) side. The other two rotating members (4) are mounted at the end of the tent (2) that is located on trunk cover (B) side. One end of connection member (3) is connected to the trunk cover (B), and the other end is connected to the rotating member (4) placed at the end of the tent (2) located on the trunk cover (B) side. Depending on the movement of the trunk cover (B), the rotating members (4) mounted at the end of the tent (2) located on the trunk cover (B) side also move together with the end of the tent (2) that is located on the trunk cover (B) side.

The operation of the tent mechanism (1) is carried out as follows: In case the trunk cover (B) is opened, the connecting member (3) connected to the trunk cover (B) changes its place, and moves the end of the tent (2) located on the trunk cover (B) side. Upon the opening of the trunk cover (B), the end of the tent (2) located on the trunk cover (B) side moves along the axis of the flexible member (6) in opposite direction of the trunk cover (B), and the tent (2) is closed. Upon closing of the trunk cover (N), the connecting member (3) is released, and the compressed flexible member (6) opens the tent (2). In case the trunk cover (B) is closed, the flexible member (6) moves the end of the tent (2) located on the trunk cover (B) side towards the trunk cover (B), and it opens the tent (2).
CLAIMS

1. A tent mechanism (1), which is used in hatchback type vehicles and which opens and closes automatically upon the movement of the trunk cover (B), essentially characterized by
   - at least one tent (2) which can opens and closes according to the angular movement of the trunk cover (B),
   - at least one connecting member (3) one end of which is connected to the trunk cover (B) and its other end is connected to the tent (2), and which actuates the tent (2) by changing place with the movement of the trunk cover (B),
   - at least one flexible member (6) which enables the tent (2) to be opened upon closing the trunk cover (B).

2. A tent mechanism (1) according to claim 1, characterized by rotating member (4) which is in surface contact with the connecting member (3), and which rotates around itself upon the connecting member (3) changing place during the angular movement of the trunk cover (B).

3. A tent mechanism (1) according to claim 1, characterized by fixing member (5) at both ends of which the rotating member (4) is placed.

4. A tent mechanism (1) according to claim 1, characterized by tent (2) which is folded upon opening of the trunk cover (B), and opens upon closing of the trunk cover (B).

5. A tent mechanism (1) according to claim 1, characterized by tent (2) wherein the fixing member (5) is connected to its end that is not located on trunk cover (B) side.
6. A tent mechanism (3) according to claim 3, characterized by fixing member (5) which has preferably a cylindrical geometry and a certain height, and at both ends of which the rotating member (4) is placed.

7. A tent mechanism (3) according to claim 3, characterized by fixing member (5) which is preferably manufactured from metal or hard plastic material.

8. A tent mechanism (3) according to claim 3, characterized by fixing member (5) which is fixed inside the vehicle from two sides, and which remains fixed during the movement of the trunk cover (B).

9. A tent mechanism (2) according to claim 2, characterized by rotating member (4) which has preferably a cylindrical geometry and a certain height and diameter.

10. A tent mechanism (2) according to claim 2, characterized by rotating member (4) which has a hole (4.1) at its center, made along the central axis, and the diameter of which is almost same as the diameter of the fixing member (5).

11. A tent mechanism (2) according to claim 2, characterized by rotating member (4) which has a moving connection between itself and the fixing member (5), and which can freely rotate around its own axis and the axis of the fixing member (5).

12. A tent mechanism (2) according to claim 1, characterized by connecting member (3) which is preferably located on both sides of the tent (2), and one end of which is connected to the trunk cover (B) and the other end is connected to the end of the tent (2) located on trunk cover (B) side.
13. A tent mechanism (2) according to claim 1, characterized by connecting member (3) which is in surface contact with the surrounding of the rotating members (4).

14. A tent mechanism (2) according to claim 1, characterized by connecting member (3) which starts to change its place upon the angular movement of the trunk cover (B), and which rotates the rotating member (4) which it contacts around its own axis.

15. A tent mechanism (2) according to claim 2, characterized by rotating member (4) the surface of which is preferably manufactured in a rugged way so that the moving connecting member (3) does not slide thereon.

16. A tent mechanism (2) according to claim 1, characterized by flexible member (6) which is placed between the end of the tent (2) located on the trunk cover (B) side and the end of the tent (2) not located on the trunk cover (B) side.

17. A tent mechanism (2) according to claim 1, characterized by flexible member (6) which is placed parallel to the opening and closing direction of the tent (2), and which is preferably positioned in equal distance to both edges of the tent (2).

18. A tent mechanism (2) according to claim 1, characterized by flexible member (6) which has a certain force thereon when the trunk cover (B) is in closed position.

19. A tent mechanism (2) according to claim 1, characterized by flexible member (6) which moves in opposite direction of the trunk cover (B) starting from the end located on the trunk cover (B) side by means of having an initial force thereon when the trunk cover (B) starts to open.
20. A tent mechanism (2) according to claim 1, characterized by flexible member (6) which is present in a compressed way when the trunk cover (B) is in open position, and enables the tent (2) to open by moving towards the trunk cover (B) direction by stretching in case the trunk cover (B) is closed.

21. A tent mechanism (1) according to claim 1, characterized by flexible member (6) which is a spring.

22. A tent mechanism (1) according to claim 2, characterized by rotating member (4) which is positioned at different points of the trunk apart from being mounted at the end of the fixing member (5).

23. A tent mechanism (1) according to claim 2, characterized by rotating member (4) which enables the connecting member (3) to follow a certain route and improves the trunk usage comfort and ergonomics.

24. A tent mechanism (1) according to claim 2, characterized by rotating member (4) which enables the tent (2) to move more by the connecting member (3) changing less place depending on its positioning.

25. A tent mechanism (1) according to claim 1, characterized by tent (2) on which four rotating members (4) are mounted.

26. A tent mechanism (1) according to claim 2, characterized by four rotating members (4) two of which are connected at two ends of the fixing member (5) located at the end of the tent (2) that is not located on trunk cover (B) side, and the other two which are connected to the end of the tent (2) that is located on trunk cover (B) side.
27. A tent mechanism (1) according to claim 1, characterized by connecting member (3) one end of which is connected to the trunk cover (B), and the other end of which is connected to the rotating member (4) placed at the end of the tent (2) that is located on the trunk cover (B) side.

28. A tent mechanism (1) according to claim 2, characterized by rotating member (4) which is mounted to the end of the tent (2) that is located on the trunk cover (B) side, and which moves together with the end of the tent (2) that is located on the trunk cover (B) side depending on the movement of the trunk cover (B).

29. A tent mechanism (1) according to claim 1, characterized by connecting member (3) which starts to change its place in case the trunk door (B) opens, and moves the end of the tent (2) located on the trunk cover (B) side.

30. A tent mechanism (1) according to claim 1, characterized by tent (2) the end of which located on the trunk cover (B) side moves along the axis of the flexible member (6) in opposite direction of the trunk cover (B) upon the opening of the trunk cover (B).

31. A tent mechanism (1) according to claim 1, characterized by connecting member (3) which is released upon closing of the trunk cover (B).

32. A tent mechanism (1) according to claim 1, characterized by flexible member (6) which is released of its compressed status and opens the tent (2) upon the connecting member (3) is released when the trunk cover (B) is closed.

33. A tent mechanism (1) according to claim 1, characterized by flexible member (6) which moves the end of the tent (2) located on the trunk cover (B)
side towards the trunk cover (B), and which opens the tent (2) in case the trunk cover (B) is closed.
**INTERNATIONAL SEARCH REPORT**

International application No
PCT/TR2016/05Q511

A. CLASSIFICATION OF SUBJECT MATTER
INV. B6QR5/Q4
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)
B6QR

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Date of the actual completion of the international search
5 April 2017

Date of mailing of the international search report
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Authorized officer
Standri ng, Mi chael
# INTERNATIONAL SEARCH REPORT

**International application No**

PCT/TR2016/05Q511

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