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DEVICE FOR MOVING A CONFIRMATION DEVICE – RACK PRINCIPLE

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DEVICE FOR MOVING A CONFIRMATION DEVICE – RACK PRINCIPLE

Technical Task:

Today's pedals in motor vehicles have the primary purpose of improving usability.

Initial Situation:

However, in highly automated driving, when the vehicle has taken over the driving task independently, it is desirable that the passenger on the "driver side" gets maximum freedom of movement.

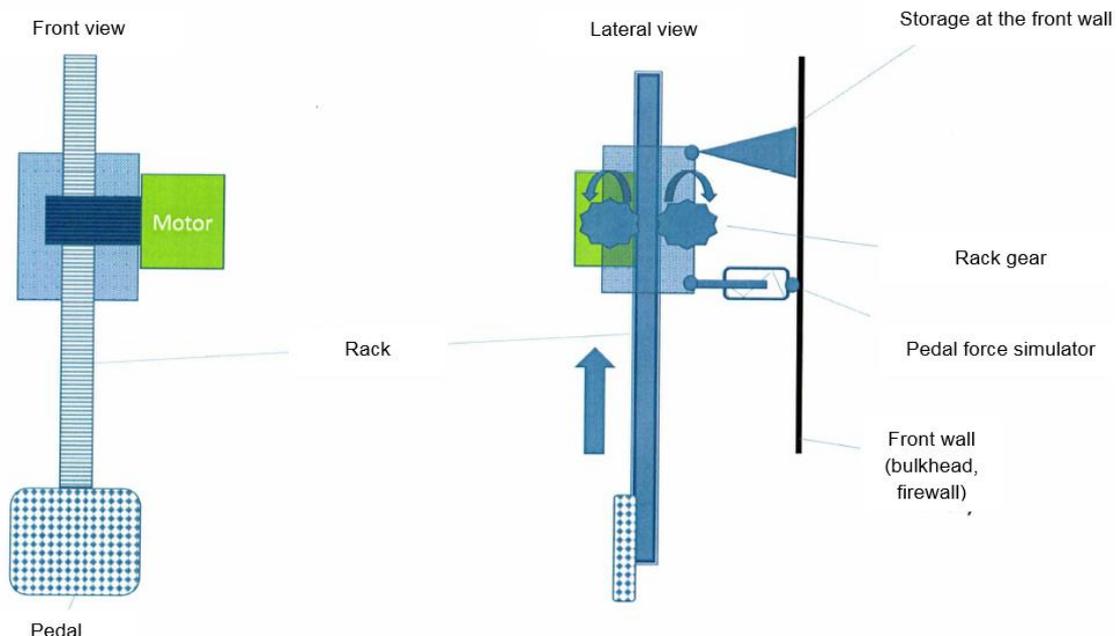
Today's adjustable pedal systems have the disadvantage of only working in direction of travel (x), so that they always remain in the foot area and restrict the freedom of movement of the driver's feet on his side.

Solution:

The pedals should be designed in a way so that they can be pulled under the cockpit while driving autonomously. It is assumed that with increasing level of autonomous driving, confirmation devices without mechanical passage, viz. "steer by wire" and "brake by wire", will have prevailed. In the confirmation elements for "brake by wire" the pedals then no longer have any connection to the brake system. This enables the pedals to move relatively freely.

The confirmation takes place by means of a rack and pinion drive, whereby the pedal arm is design as rack. The drive is carried out by one or more actuators with rack/racks. If necessary (for instance due to space limitations), the adjustment mechanism can be executed around the axed (tilted on the y-coordinate system), so that the adjustment is made in an oblique plane (see pivoted trailer coupling). Optionally, the rack can be executed crookedly.

The accelerator and brake pedals may have common pivotal mounting and / or separate pivotal mounting. The adjustment mechanism can be mechanically locked in the end positions by means of locking elements in order to ensure safe operation or end position. A pedal force simulator and a pedal travel sensor must be installed between the end wall and the pedal.



Advantages:

- The driver or passenger on the driver's side has full freedom of movement in the footwell during autonomous driving without being restricted by pedals.
- Operating error by the driver is impossible.