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FASTENING SYSTEM FOR CHARGING CABLES ON ELECTRICALLY OR PARTIALLY ELECTRICALLY OPERATED VEHICLES

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Technical task:
In today's electrically powered vehicles, the charging cable must be routed around the vehicle, depending on the position of the charging socket on the vehicle and the position of the charging possibility of the parked vehicle.
The cable is forced to lie on the ground, which can lead to adhesion of protection and moisture. In some cases, the charging cable must be routed above or below the vehicle, which can also cause the cable to touch the bodywork and attachments.

Initial situation:
Contamination of the cable due to adhesion, danger to pedestrians and passengers from the cable as a tripping hazard. Slight scratches due to the cable being routed over the body and attachments.

Solution:
The cable can be guided in a geometrically defined manner by attaching hooks to corresponding exposed points. In addition, the excess length of the cable can be tied.

The hooks are integrated in such a way that they are hardly or not at all visible in the rest position.
The following locations would be particularly suitable for such locations:
Mirror undercuts, wheel arches, wheel arch linings, license plate holders, front and rear aprons and other body and attachment parts (see: Figures 1 and 2)

The actuators for the extension of the hooks can be realized via a push opener / turn or folding mechanism. Manual actuation or via an actuator is conceivable.

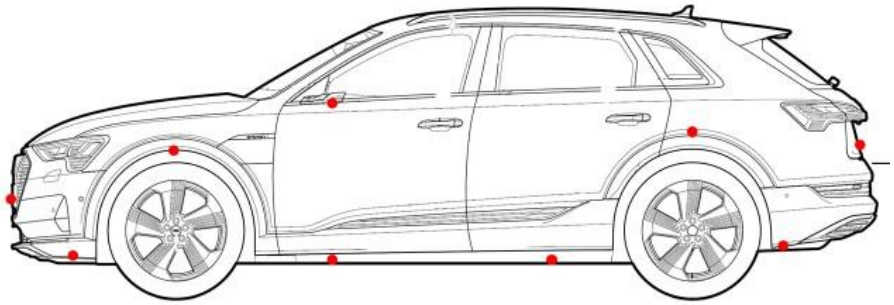

Figure 1

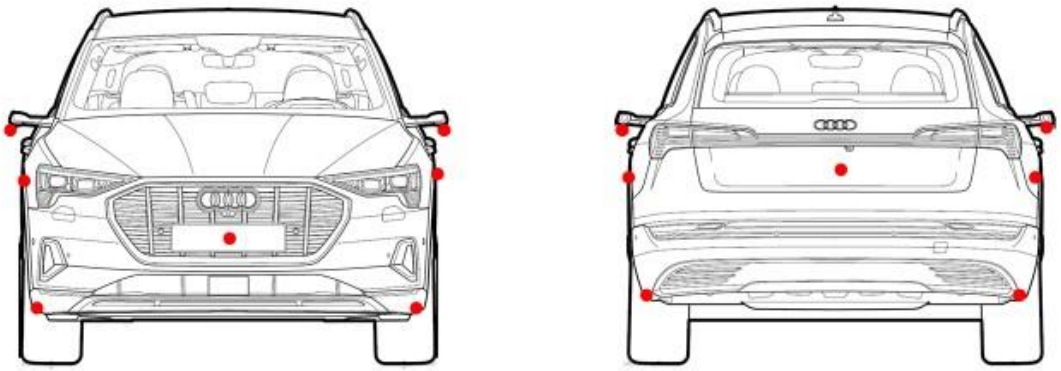

Figure 2: Possible locations for vehicle charging cable attachment points

The hooks should be designed in such a way that they can accommodate the cable geometrically. The hooks can also be fitted with several notches to accommodate a cable loop to shorten the excess length (see Figure 3).

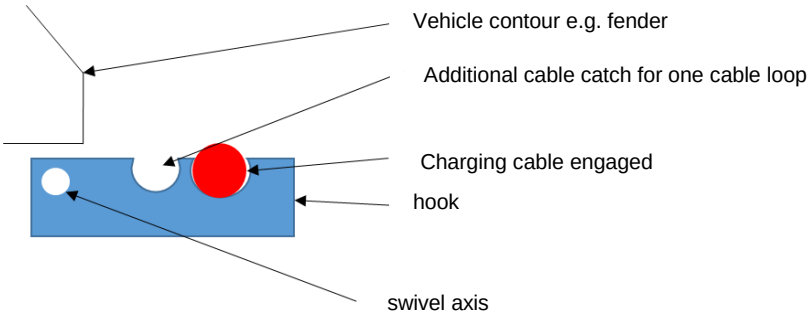

Figure 3: Simplified hook geometry of the vehicle attachment points for the charging cable

It is also possible to design an abuse function of the hook to prevent damage to the surrounding components if the cable is improperly loaded.

Using the hooks, the user can guide the charging cable to the vehicle according to the situation (see Figure 4).

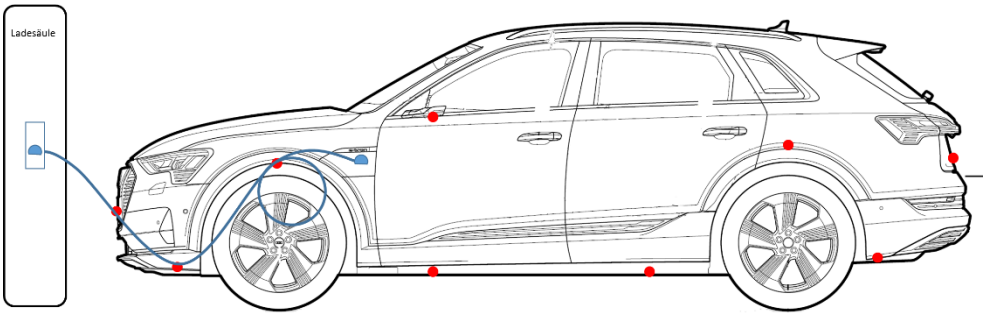

Figure 4: Cable routing over vehicle mounting points with cable loop to charging facility

Advantages:

- Defined geometric guidance of the charging cable around the vehicle
- Prevention of pollution
- Reduction of tripping hazards