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DEVICE FOR RELEASING THE CONVEYOR TECHNOLOGY WHEN USING HAND-HELD SCREWDRIVING SYSTEMS WITH OPEN-FACE FLAT OUTLETS FOR BRAKE LINES

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DEVICE FOR RELEASING THE CONVEYOR TECHNOLOGY WHEN USING HAND-HELD SCREWDRIVING SYSTEMS WITH OPEN-FACE FLAT OUTLETS FOR BRAKE LINES

Technical task:

The task of the technical innovation is to provide a standardized device for releasing the conveyor technology when using hand-held screwdrivers with open-face flat drives for brake lines.

Initial situation:

In vehicle assembly, brake lines are bolted to so-called open-mouth flat-shaft drives. These open-face flat drives are either on Cordless screwdrivers or EC screwdrivers mounted.

Figure 1 shows a typical installation of hand-held bolting technology in a vehicle assembly. Figure 2 shows an open-jaw flat drive adapted to an EC screwdriver.

Due to the peculiarity of brake line fittings, it is necessary that the output of the open-mouth flat output is slotted.

In the position shown in Figure 2, the screwdriver is guided on the brake line. During the screwing process then rotates the slotted output gear and screwed so the brake pipe with, for example, the caliper. When the tightening torque is reached, the slotted output gear comes to a stop in a non-reproducible position.

In this position, the screwing tool can not be removed from the brake pipe. The screwdrivers with open-face flat-out drive have a special function which allows the slotted output gear to be positioned in zero position so that the screwdriver can be removed again from the screwing point.

During vehicle assembly, screw connections to brake lines are almost always performed in flow mode. The vehicle or the subassembly (eg pivot bearing with brake caliper) are in a cycle production with conveyor technology. For reasons of personal and machine protection, it must be ensured that the assembly to which it is screwed only moves out of the area of action of the screwdriver when the screwdriver with open-face flat output is no longer engaged on the brake line. Today there are various concepts for hedging. An example is shown in Figure 3.

In the example shown, initiators ask if there is a screwdriver in the tray located. If both initiators are not assigned to the clock outlet, the conveyor system stops in the belt stop until both initiators are occupied. A wrench wedged on a brake line can not tear off the cable or damage the vehicle.

Currently, there is no standard concept for ensuring this protection function. Depending on the installation concept of the screwing tools, a query is difficult or less complicated to implement. By way of example, the installation concept of screwdriving tools in the drive train and drive train pre-assemblies is shown here (Figure 4).

Solution:

The technology of 3D printing makes it possible to produce components that change the shape under pressure. As a result, the curvature can be influenced. If you now install several of these components on a vehicle and spans them with flexible material (convertible top, neoprene, etc.), a variable area is created, which can be used to improve the aerodynamics of vehicles.

The technical implementation is carried out by a triangular component which is printed in the 3D printer in one printing operation. Thereby, by means of a force, it is possible to deform this component and thus to adjust the position of the component change. In order to realize a large area, the intermediate areas are covered with a flexible material and thus result in a bendable area at the rear or the front of a vehicle.

Advantages:

- Small, easy to standardize, but still easy to adapt with different spring trains device that represents a part of the plant and machine protection.

Possible application:

- Applicable in conveyor technology, especially when using hand-held screwdriving systems with open-face flat outlets for brake lines.