

Brake device with brake adjustment system

The invention relates to a wheel assembly provided with a bracket, a wheel which is mounted in the bracket in such a manner that it can rotate about an axle, a
5 brake member which can move with respect to the wheel and has a brake pin provided with a screw thread, around the brake pin a displaceable brake disc provided with a complementary screw thread, and a locking disc for fixing the position of the brake disc along the screw thread. When the brake pin is moved in the direction of its axis towards the wheel, the brake disc can engage on the wheel in order to brake the wheel.

10 Wheel assemblies of this type are known and are assembled by the applicant. They are used, for example, in trolleys for catering in aircraft.

Owing to wear on the engagement surface of the wheel and of the brake disc itself, the braking action may deteriorate over the course of time. To overcome this problem, the position of the brake disc on the brake pin is variable. To displace the
15 brake disc along the brake pin, the locking disc has to be uncoupled, the brake disc has to be moved into the correct position, and finally the locking disc has to be fitted again. According to the prior art, the locking disc is clamped between the brake disc and a locking nut. The locking disc is difficult to remove and fit, since the locking nut, which is situated between the wheel and the bracket, is difficult to reach. Moreover, a tool is
20 required.

One object of the present invention is to make it easier to remove and fit the locking disc and to enable this to be done without using a tool.

To this end, according to the present invention the locking disc is provided with at least one pawl which is positioned radially with respect to the brake pin and can
25 be displaced substantially in the axial direction of the brake pin. The brake disc is provided with at least one radial slot for accommodating the said pawl in order to prevent the rotation of the brake disc.

Since the rotation of the brake disc is blocked only by the axially projecting pawl, the brake disc can be released by lifting the pawl out of the radial slot. This can
30 be done without using a tool, thus considerably simplifying adjustment of the brake disc.

In a preferred embodiment, the pawl is pressed into the slot by a compression spring. It is preferable for the compression spring to be positioned around

the brake pin. It is also preferable for the pawl to be provided with an eyelet which is positioned around the brake pin, the brake pin and the eyelet being flattened on one side in order to prevent rotation of the pawl.

— This design uses a small number of components to prevent, in a manner
5 which is robust and requires little maintenance, the pawl from being able to come out of the slot unintentionally, enabling the brake disc to rotate, while continuing to allow simple adjustment of the brake disc without the need for a tool.

In the above preferred embodiment, the pawl may also be provided with a lip at its end, which simplifies manual displacement of the pawl in the axial direction.

10 The invention is explained in more detail below with reference to the drawings, in which:

Fig. 1 shows a cross section through the wheel assembly with a brake device.

Fig. 2 shows a cross section on line II-II through the brake assembly from Figure 1.

The wheel assembly as shown in Figure 1 comprises a bracket 1 which is
15 rotatably connected, via a pivot member, denoted overall by reference numeral 2, to an attachment plate 3. A wheel 5, which is mounted around an axle 4, is mounted in the bracket 1. A brake member 7 which can move with respect to the wheel 5 is mounted in a bush 6. The brake member 7 comprises a brake pin 8 on which a brake disc 9 is fitted. As a result of the brake pin being moved in the direction of the wheel 5, it is possible
20 for the brake disc 9 to engage on the wheel 5. The embodiment shown is provided with a compression spring 14 which holds the brake disc 9 in a clear position when it is not activated.

The wheel assembly is attached to the bottom of a trolley, for example, by means of the attachment plate 3, the trolley being designed with a brake mechanism
25 which, via a transmission system, presses the brake pin on to the wheel. When the brake system is released, the brake disc is moved away from the wheel by the spring 14, and the wheel is able to rotate again.

The brake pin 8 is provided with a screw thread on which the brake disc 9, which is provided with a complementary screw thread, is mounted. As a result of the
30 brake disc 9 being rotated, it can be displaced in the direction parallel to the axis of the brake pin 8. This is important when the surface of the wheel 5 and/or of the brake disc itself becomes worn, with the result that insufficient friction is generated.

To ensure that the brake disc 9 does not rotate in an undesired manner so that its height varies, the brake disc 9 is provided with slots 10. A pawl 12 on the locking disc 11 which is secured around the brake pin 8 can latch into one of these slots, so that the rotation of the brake disc 9 is blocked. To ensure that the locking disc 11 itself cannot rotate with the brake disc 9, the eyelet in the locking disc 11 and the brake pin 8 are designed with a flat section, which sections engage on one another.

To hold the pawl 12 in the slot 10, it is pressed into the slot by means of a compression spring 16. By means of the lip 13, the pawl 12 can be lifted out of the slot 10, counter to the pressure of spring 16, in order to enable the brake head 9 to rotate with respect to both the brake pin 8 and the pawl 12.

Figure 2 shows a cross section on line II-II through the brake assembly 1 shown in Figure 1. The flattened parts of the brake pin 8 and the locking disc 11 can be seen clearly. Since the pawl 12 has been pressed into one of the slots 10, it is impossible for the brake disc 9 to rotate with respect to the brake pin 8.

Claims

1. Wheel assembly provided with a bracket (1), a wheel (5) which is mounted in the bracket (1) in such a manner that it can rotate about an axle (4), a brake member
5 (7) which can move with respect to the wheel (5) and has a brake pin (8) provided with a screw thread, around the brake pin a displaceable brake disc (9) provided with a complementary screw thread, and a locking disc (11) for fixing the position of the brake disc (9) along the screw thread, characterized in that the locking disc (11) comprises at least one pawl (12) which is located radially with respect to the brake pin
10 and can be displaced substantially in the axial direction of the brake pin (8), and at least one radial slot (10) in the brake disc (9) for accommodating the pawl (12) in order to block the displacement of the brake disc (9) along the axis of the brake pin (8).
2. Wheel assembly according to Claim 1, characterized in that a spring member (16) acts on the locking disc (11) or pawl (12) and presses the said pawl (12)
15 into the slot (10) in the brake disc (9).
3. Wheel assembly according to Claim 2, characterized in that the spring member (16) comprises a compression spring which is positioned around the brake pin (8).
4. Wheel assembly according to Claim 1, 2 or 3, characterized in that the
20 locking disc (11) is provided with an eyelet (15) which is positioned around the brake pin (8), the brake pin (8) and the eyelet (15) being flattened on one or two sides in order to block the rotation of the locking disc (11) about the axis of the brake pin (8).
5. Wheel assembly according to Claim 1, 2, 3 or 4, characterized in that the
25 pawl (12) is provided, at its free end, with a lip (13) for manual displacement of the pawl (12) in the axial direction.

BRAKE DEVICE WITH BRAKE ADJUSTMENT SYSTEM

Abstract

A wheel assembly provided with a bracket (1), a wheel (5) which is mounted in the bracket (1) in such a manner that it can rotate about an axle (4), a brake member (7) which can move with respect to the wheel (5) and has a brake pin (8) provided with a screw thread, around the brake pin a displaceable brake disc (9) provided with a complementary screw thread, and a locking disc (11) for fixing the position of the brake disc (9) along the screw thread. The locking disc (11) is provided with at least one pawl (12) which is positioned radially with respect to the brake pin and can be displaced substantially in the axial direction of the brake pin (8). The brake disc (9) comprises at least one radial slot (10) for accommodating the pawl (12) in order to block the displacement of the brake disc (9) along the axis of the brake pin (8).

Figure 1