Summary

[16] The present invention aims to remedy these disadvantages.

[16a] In an aspect, the present disclosure refers to a friction assembly for a braking system for railway rolling stock, said friction assembly comprising:

a brake head comprising a lower face, an upper face, and at least one secondary channel of central axis A which connects said lower face and an upper face;

at least one friction plate made of friction material comprising a first face which is the friction face, a second face which is adapted to be assembled to said lower face by an assembly mechanism, and at least one primary channel which connects said first face and said second face;

at least one connecting ring which is inserted into said at least one secondary channel and which establishes a connection with said at least one primary channel as said at least one primary channel is aligned with said at least one secondary channel;

a connector block which is connected to a suction device and which is fixed to said brake head at said upper face, said block having a cavity which is connected by a circuit to the suction device and which comprises at least one hole which connects said cavity and said upper face and which is aligned with said at least one secondary channel, and wherein said at least one connecting ring is removably mounted on a connecting plate, said connecting plate and said at least one connecting ring being removably secured to said brake head.

[16b] In an aspect, the present disclosure refers to a method for mounting at least one connecting ring on a brake head with a connector block connected to a suction device, said brake head comprising a lower face, an upper face, and at least one secondary channel of central axis A, said brake head and said connecting ring forming part of a friction assembly for a braking system for railway rolling stock, said friction assembly further comprising a friction plate made of friction material comprising a first face which is the friction face, a second face which is adapted to be assembled to said lower face by an assembly mechanism, and at least one primary channel which connects said first face and said second face, said at least one connecting ring being adapted to be inserted in said at least one secondary channel and to establish a connection with said at least one primary channel as said at least one primary channel is aligned with one of said at least one secondary channel(s), said method comprising the following steps:

Providing said block with a cavity which is connected by a circuit to the suction device, and with at least one hole which connects said cavity and said upper face and which is aligned with said at least one secondary channel;

Providing a connecting plate, wherein said at least one connecting ring is removably mounted on said connecting plate;

Positioning said connecting plate against the upper face of said brake head, and simultaneously inserting said at least one connecting ring in said at least one secondary channel by sliding along central axis A from said upper face, then placing said block on said connecting plate such that said connecting plate and said at least one connecting ring are together sandwiched between said brake head and said block;

Removably securing said block to said brake head;

Assembling said friction plate to said brake head by said assembly mechanism until said friction plate covers said secondary channels.

[16c] In an aspect, the present disclosure refers to a method for mounting at least one connecting ring on a brake head comprising a lower face and an upper face, and having a connector block located at the upper face side and connected to a suction device, said brake head comprising at least one secondary channel of

central axis A, said brake head and said connecting ring forming part of a friction assembly for a brake system for railway rolling stock, said friction assembly further comprising a friction plate made of friction material comprising a first face which is the friction face, a second face which is adapted to be assembled to said lower face by an assembly mechanism, and at least one primary channel which connects said first face and said second face, said at least one connecting ring being adapted to be inserted in said at least one secondary channel and to establish a connection with said at least one primary channel as said at least one primary channel is aligned with one of said at least one secondary channel(s), said method being comprising the following steps:

Providing said block with a cavity which is connected by a circuit to the suction device, and with at least one hole which connects said cavity and said upper face and which is aligned with said at least one secondary channel, and said lower face is provided with a housing;

Providing a connecting plate and removably mounting said at least one connecting ring on said connecting plate;

Housing said connecting plate in said housing such that said connecting plate does not protrude from the lower face, and simultaneously inserting said at least one connecting ring in said at least one secondary channel by sliding along central axis A from said lower face, said connecting plate and said at least one connecting ring being removably secured to said brake head;

Assembling said friction plate to said brake head by said assembly mechanism until said friction plate covers said secondary channels and said connecting plate

[17] The present disclosure aims to propose, in an example, a friction assembly for a railway braking system in which the connector block, which is connected to a suction system, for example a pneumatic manifold block, is fixed to the brake head, this assembly being such that the mounting on the brake head of at least one connecting ring is simple and such that it allows carrying away the particles emitted by wear of the friction plate, towards the suction device.

[18] This goal is achieved due to the fact that the block has a cavity which is connected by a circuit to the suction device and which comprises at least one hole

which connects the cavity and the upper face and which is aligned with the at least one secondary channel, and the fact that the at least one connecting ring is removably mounted on a connecting plate, the entity formed by the connecting plate and the at least one connecting ring being removably secured to the brake head.

[19] By means of these arrangements, each connecting ring is adapted to be inserted into each hole and into a secondary channel so as to place the friction plate in communication with the suction device. This insertion is carried out in a simple manner due to the manipulation of a single entity which consists of the connecting plate and the rings (or ring) carried by this connecting plate and which is kept removably secured to the brake head. Thus, the particles originating from the friction plate are reliably carried away to the suction device during the operation of the friction assembly. In particular, maintenance of the assembly is facilitated due to the ability to remove the rings from the connecting plate, and the entity composed of this connecting plate and rings from the brake head.

[20] For example, the connecting plate is housed between the connector block and the brake head, and the block is removably fixed to the brake head so as to hold the connecting plate between the block and the brake head.

[21] The rings are thus kept reliably secured to the brake head, while allowing their easy replacement.

[22] For example, the lower face has a housing, the connecting plate being housed in this housing without protruding from the rest of the lower face when the at least one connecting ring is inserted in the at least one secondary channel, and

the friction plate covers the connecting plate when the friction plate is assembled to the brake head by the assembly mechanism.

[23] The rings can thus be secured to the brake head independently of the block being secured to the brake head.

[24] For example, the block is an integral part of the brake head.

[25] Thus, in this case where one face of the brake head (on the block side) is not accessible, it is still possible to secure the rings to the brake head.

[26] For example, the connecting plate is mechanically secured to the brake head or to the block by means of a securing mechanism.

[27] The ring(s) are thus kept secured to the brake head more effectively, due to the securing mechanism.

[28] For example, the housing comprises a tapped hole and the connecting plate is pierced with a screw hole which is in line with the tapped hole when the connecting plate is housed in the housing, and the securing mechanism consists of the tapped hole and a screw V adapted to screw into the tapped hole through the connecting plate via the screw hole.

[29] The securing mechanism is therefore simple.

[30] For example, the friction assembly further comprises a return mechanism which is adapted to press the rings against the second face.

[31] The seal between rings 8 and friction plate 2 is thus improved.

[32] For example, the assembly mechanism comprises a receiving slide which is formed on the lower face, and a dovetail section which is formed on the second face and which is configured to engage with the receiving slide.

[33] The assembly of the friction plate to the brake head is thus facilitated since it is achieved by sliding, while being removable.

[34] The present disclosure also relates, in an example, to a method for mounting a connecting ring on a brake head with a connector block connected to a suction device, the brake head comprising a lower face, an upper face, and at least one secondary channel of central axis A, the brake head and the connecting ring forming part of a friction

assembly for a braking system for railway rolling stock, the friction assembly further comprising a friction plate made of friction material comprising a first face which is the friction face, a second face which is adapted to be assembled to the lower face by an assembly mechanism, and at least one primary channel which connects the first face and the second face, the at least one connecting ring being adapted to be inserted into the at least one secondary channel and to establish a connection with the at least one primary channel when the at least one primary channel is aligned with one of the at least one secondary channel(s).

[35] According to an example, the method comprises the following steps:

(a) The block is provided with a cavity which is connected by a circuit to the suction device, and with at least one hole which connects the cavity and the upper face and which is aligned with the at least one secondary channel;

(b) A connecting plate is provided and the at least one connecting ring is removably mounted on the connecting plate;

(c) The connecting plate is then placed against the upper face of the brake head, and simultaneously the at least one connecting ring is inserted in the at least one secondary channel by sliding along axis A from the upper face, then the block is placed on the connecting plate such that the entity formed by the connecting plate and the at least one connecting ring is sandwiched between the brake head and the block;

(d) The block is removably secured to the brake head;

(e) The friction plate is assembled to the brake head by the assembly mechanism until the friction plate is covering the secondary channels.

[36] The present disclosure also relates, in an example, to another method for mounting a connecting ring on a brake head comprising a lower face and an upper face, and having a connector block located at the upper face side and connected to a suction device, the brake head comprising at least one secondary channel of central axis A, the block forming an integral part of the brake head at the upper face, the brake head and the connecting ring forming part of a friction assembly for a brake system for railway rolling stock, the friction assembly further comprising a friction plate made of friction material comprising a first face which is the friction face, a second face which is adapted to be assembled to the lower face by an assembly mechanism, and at least

one primary channel which connects the first face and the second face, the at least one connecting ring being adapted to be inserted in the at least one secondary channel and to establish a connection with the at least one primary channel when the at least one primary channel is aligned with one of the at least one secondary channel(s).

[37] According to an example, the method comprises the following steps:

(a) The block is provided with a cavity which is connected by a circuit to the suction device, and with at least one hole which connects the cavity and the upper face and which is aligned with the at least one secondary channel, and the lower face is provided with a housing;

(b) A connecting plate is provided and the at least one connecting ring is removably mounted on the connecting plate;

(c) The connecting plate is then housed in the housing such that the connecting plate does not protrude from the rest of the lower face, and simultaneously the at least one connecting ring is inserted in the at least one secondary channel by sliding along axis A from the lower face, the entity formed by the connecting plate and the at least one connecting ring being removably secured to the brake head;

(d) The friction plate is assembled to the brake head by the assembly mechanism until the friction plate is covering the secondary channels and the connecting plate.

[38] For example, the block is an integral part of the brake head at the upper face.

[39] For example, during step (a), the block is removably fixed to the brake head at its upper face.

[40] For example, the method comprises, after step (c) and before step (d), the following step (c2):

(c2) The connecting plate is mechanically secured to the brake head or to the block by means of a securing mechanism.

[41] The invention will be well understood and its advantages will be more apparent from reading the following detailed description of some embodiments represented by way of non-limiting examples. The description refers to the attached drawings, in which: