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(54) IMPROVEMENTS IN OR RELATING TO DISC
BRAKE PADS

(71) We, ABEX PAGID EQUIPMENT S.A., a French Body Corporate, of 9, Rue Klock, 92112, Clichy, France, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to disc brake pads.

Disc brake pads comprise in general a support plate on which the friction lining is fixed, and which effects the holding of the lining in the caliper. The support plate receives in addition, the thrusts of the brake pistons as well as the braking stress or torque.

According to the invention, there is provided a support plate for carrying a friction lining to form a disc brake pad, said plate having on one of its faces a plurality of grooves which receive material of the friction lining when the latter is moulded onto the plate, said plate having means enabling it to be mounted in a predetermined orientation in a disc brake assembly whereby, in use, the disc of the brake sweeps in a direction from one side to an opposite side of the plate, said grooves being slantingly inclined to a radius passing through the plate at a point generally midway between the opposed sides whereby the grooves extend in a direction substantially different from the direction defined by said radius.

Further according to the invention, there is provided a support plate for carrying a friction lining to form a disc brake pad, said plate having on one of its faces a plurality of grooves which receive material of the friction lining when the latter is moulded onto the plate, said plate having means enabling it to be mounted in a predetermined orientation in a disc brake assembly whereby, in use, the disc of the brake sweeps in a direction from one side to an opposite side of the brake, said grooves being inclined perpendicularly to a radius passing through the plate at a point generally midway between the opposed sides.

Embodiments of the invention will now

be described, by way of example only, with reference to the accompanying diagrammatic drawings, in which:

Figure 1 is an elevation of a disc brake pad according to the invention;

Figure 2 is a section taken on line II-II of Figure 1;

Figures 3 to 5 are sections showing different cross-sectional shapes of securing grooves in the support plate of the brake pad; and

Figures 6 and 7 are elevations showing different configurations for the securing grooves.

In Figures 1 and 2 there is shown a disc brake pad which consists of a metal support plate 1 on which a friction lining 2 is adhered by a glue which is hot polymerised when the friction lining is moulded on to the plate.

To make sure that the support plate 1 and the friction lining 2 are positively held together, the face of the plate 1 to which the lining 2 is fixed is provided with grooves 3. The grooves 3 are formed by a stamping operation without causing deformation of the metal on the opposite side of the plate; the stamping of the recesses occurs at the same time as stamping of the plate itself.

Then, the mixture intended to form the friction lining 2 is moulded onto the face of the plate 1 having the grooves 3. This mixture may be of low fluidity, the shape of the grooves 3 and their depth permitting their satisfactory filling with the mixture.

The grooves 3 have a width a of 1.5 mm to 2 mm, and are of a length sufficient to retain the brake lining against the action of shear forces. The depth b of the grooves may be about 1 mm.

The grooves may exhibit in cross-section a semi-circular shape 4 as in Figure 3, a triangular shape 6 as in Figure 4 or a trapezoidal or quadrangular shape 7 as in Figure 5.

The grooves 3 may be disposed in slanting manner as represented in Figure 6.

In Figure 7 there are grooves 9 disposed along the longitudinal axis of the plate and grooves 10 along the transverse axis.

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With reference to Figures 6 and 7, it will be apparent that when the pad is mounted in its operative position in the disc brake assembly, as predetermined by the mounting lugs shown at the upper corners of the plate, the brake disc will sweep across the plate from one side of the plate to an opposite side (these being the two vertical sides as viewed in the Figures). The grooves 3 shown in Figure 6 may thus be considered as being slantingly inclined to a radius which passes through the plate at a point generally midway between these opposed sides so as to extend in a direction substantially different from the direction defined by the radius; the grooves 9 shown in Figure 7 may be considered to be inclined perpendicularly to such a radius.

In the brake pads particularly described, the grooves permit a good bond between the lining and the plate to be formed, even when the mixture forming the lining has low fluidity. The bond does not rely on part of the mixture flowing through holes extending through the plate to form "rivets" and which could allow water penetration with consequent corrosion.

WHAT WE CLAIM IS:

1. A support plate for carrying a friction lining to form a disc brake pad, said plate having on one of its faces a plurality of grooves which receive material of the friction lining when the latter is moulded onto the plate, said plate having means enabling it to be mounted in a predetermined orientation in a disc brake assembly whereby, in use, the disc of the brake sweeps in a direction from one side to an opposite side of the plate, said grooves being slantingly inclined to a radius passing through the plate at a point generally midway be-

tween the opposed sides whereby the grooves extend in a direction substantially different from the direction defined by said radius.

2. A support plate for carrying a friction lining to form a disc brake pad, said plate having on one of its faces a plurality of grooves which receive material of the friction lining when the latter is moulded onto the plate, said plate having means enabling it to be mounted in a predetermined orientation in a disc brake assembly whereby, in use, the disc of the brake sweeps in a direction from one side to an opposite side of the brake, said grooves being inclined perpendicularly to a radius passing through the plate at a point generally midway between the opposed sides.

3. A plate according to claim 1 or claim 2, wherein the grooves have a cross-section of triangular shape.

4. A plate according to claim 1 or claim 2, wherein the grooves have a cross-section of quadrangular shape.

5. A plate according to claim 1 or claim 2, wherein the grooves are in cross-section of semi-circular shape.

6. A disc brake pad comprising a plate according to any one of claims 1 to 5, and a friction lining moulded onto the said one face of the plate.

7. A disc brake pad substantially as hereinbefore described with reference to the accompanying drawings.

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FIG. 2

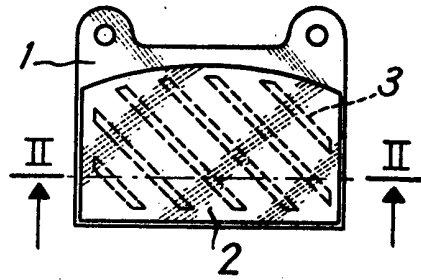


FIG. 1

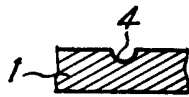


FIG. 3

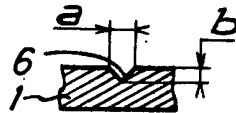


FIG. 4



FIG. 5

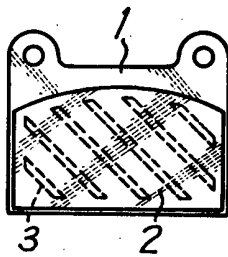


FIG. 6

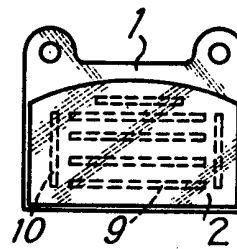


FIG. 7