

Cable brake at a speed limiter for lifts

The invention relates to a cable brake at a speed limiter for lifts, wherein the cable brake comprises two brake blocks.

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Cable brakes of that kind are actuated by the speed limiter when a permissible speed is exceeded, so that a limiter cable guided over a cable pulley of the speed limiter and fixedly connected with a lift cage is braked and a safety brake is triggered, by means of which the lift cage is brought to a stop.

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A speed limiter with a cable brake, which comprises a non-movable and a movable brake block, has been made known by German Patent Specification 25 28 067. The movable brake block is secured to a yoke guided in a cable brake housing. Two levers each disposed under the effect of a respective compression spring are pivotably coupled at one end to two pins mounted in the yoke and are rotatably mounted at the other end at two axles mounted in the cable brake housing. The compression springs are each biased between two discs, wherein one disc bears against a shoulder of the lever and the other disc bears against the axle and wherein a displacement of the lever and thus also of the movable brake block in the effective direction of the compression springs is made possible in slots provided in the levers. An actuating plate is provided at the yoke, by means of which an actuating arm of the speed limiter can displace the movable brake block from an open setting into a braking setting. The brake blocks usually consist, in the case of cable brakes of the afore-described kind, either of aluminium-bronze (CuAl) or of nodular cast iron (GGG). A good braking effect is achieved with brake blocks of aluminium-bronze. The heat liberated by the braking is rapidly dissipated, but the wear is considerable in the case of long braking travels. The brake blocks of nodular cast iron have a less good braking effect. They wear less, but can dissipate the braking heat less well. Moreover, wear of the limiter cable has to be taken into account.

The invention is based on the object of proposing a cable brake according to the introduction in which the afore-mentioned disadvantages of the brake block material are of less consequence.

This object is met by the invention indicated in the independent claims 1 and 4.

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In a preferred embodiment one brake block consists of aluminium-bronze and the other brake block consists of nodular cast iron or soft cast iron.

Particularly effective embodiments similarly have two brake blocks of different materials, wherein in each instance one of the brake blocks consists of a material containing ceramic.

In a further embodiment, both brake blocks consist of a material containing ceramic.

The advantages achieved by the invention are to be seen in that the favourable properties of both materials can be utilised. During braking, the heat is conducted away from the limiter cable particularly by the brake block of aluminium-bronze, which has a positive effect on cable wear. The brake block of nodular cast iron ensures low wear. The advantages of the further embodiment reside in the high wear resistance and heat tolerance of the material containing ceramic.

The invention is explained in more detail in the following on the basis of an embodiment in conjunction with the drawing, in which:

Fig. 1 shows a view of the cable brake,

Fig. 2 shows a view of the cable brake in the direction A of Fig. 1 and

Fig. 3 shows a view of the cable brake in the direction B of Fig. 1.

In Figs. 1 to 3 a brake housing is denoted by 1, which consists of two side members 2, 3 with bent flanges 2.1, 3.1. The side members 2, 3 are connected together by way of a spacer member 4 and a spacer tube 5. A non-movable brake block 6, which, for example, consists of nodular cast iron (GGG) or soft cast iron, is fastened to the spacer member 4. A movable brake block 7, which, for example, consists of aluminium-bronze (CuAl), is connected with a guide member 8 extending between the side members 2, 3 of the brake housing 1.

Two telescopic levers 9 each consist of a respective cylinder part 9.1 and piston part 9.2. The cylinder parts 9.1 are pivotably coupled to two pins 10 mounted at the guide member

8, whereas the piston parts 9.2 are rotatably mounted at two axles 11 arranged in the brake housing 1. Compression springs 12, which are supported at the ends by way of discs 13 on the axles 11 or on the cylinder parts 9.1, are arranged on the piston parts 9.2. A tension spring 16 is tensioned between a cross member 14 fastened to the guide member 8 and a bracket 15 arranged at the brake housing 1. The cross member 14 is supported on an actuating element of a speed limiter (not illustrated) so that the components - cross member 14, guide member 8 and brake block 7 - guided at the telescopic levers 9 are held in an upper setting.

When the permissible speed of a lift cage is exceeded, the said actuating element is so displaced that it no longer supports the cross member 14, so that the guide member 8 together with the movable brake block 7 drops downwardly and the brake block 7 is pressed by the compression springs 12 against a limiter cable 17 running between it and the non-movable brake block 6. The limiter cable 17 is thereby braked and a safety brake tripped.

It is also possible to use aluminium-bronze (CuAl) for the non-movable brake block 6 and nodular cast iron (GGG) or soft cast iron (GG) for the movable brake block 7. In addition, instead of the different metals or alloys, a material containing ceramic can be used for one of the brake blocks or for both brake blocks.

It is within the scope of the invention to equip brake blocks of like material with brake linings of different material, wherein the aforesaid materials are preferably used for the brake linings.

Patent Claims

1. Cable brake at a speed limiter for lifts, wherein the cable brake comprises two
5 brake blocks (6, 7), characterised in that one brake block (6, 7) consists of a first material
and the other brake block (6, 7) consists of a second material, wherein the first material
has better heat conduction properties than the second and the second material has a
higher wear resistance than the first.
- 10 2. Cable brake according to claim 1, characterised in that one brake block (6, 7)
consists of aluminium-bronze and the other brake block (6, 7) consists of nodular cast iron
or soft cast iron.
3. Cable brake according to claim 2, characterised in that the non-movable brake
15 block (6) consists of nodular cast iron or soft cast iron and the movable brake block (7)
consists of aluminium-bronze.
4. Cable brake according to claim 2, characterised in that the non-movable brake
block (6) consists of aluminium-bronze and the movable brake block (7) consists of
20 nodular cast iron or soft cast iron.
5. Cable brake according to claim 1, characterised in that one of the two brake blocks
(6, 7) consists of a material containing ceramic.
- 25 6. Cable brake according to claim 1, characterised in that one of the two brake blocks
(6, 7) consists of material containing ceramic and the other brake block (6, 7) consists of
aluminium-bronze, nodular cast iron or soft cast iron.
7. Cable brake of a speed limiter for lifts, wherein the cable brake comprises two
30 brake blocks (6, 7), characterised in that the brake blocks (6, 7) consist of a material
containing ceramic.