PATENT CLAIMS

1. A caliper brake (7), particularly a holding and safety brake, for an elevator system (1), comprising a first brake lever (11) and a second brake lever (12), wherein a first brake pad (15) is attached to a brake pad end (14) of the first brake lever (11), wherein a second brake pad (17) is attached to a brake pad end (16) of the second brake lever (12), wherein the first brake lever (11) is mounted at a first mounting point (27), wherein the second brake lever (12) is mounted at a second mounting point (28), and wherein the first brake pad (15) and the second brake pad (17) can be moved relative to one another along an actuation axis (38) by means of the first brake lever (11) and the second brake lever (12),

characterized in

that a tension element (35) is provided and can be moved at least approximately parallel to the actuation axis (38), wherein a distance (39) between the first tension element mounting point (36) and the second tension element mounting point (37) along the actuation axis (38), which is defined by the tension element (35), remains constant, in that the first brake lever (11) is connected to the tension element (35) between its brake pad end (14) and the first mounting point (27) at a first tension element mounting point (36), and in that the second brake lever (12) is connected to the tension element (35) between its brake pad end (16) and the second mounting point (28) at a second tension element mounting point (37).

characterized in

that the first mounting point (27) is arranged stationary with respect to a housing part (29), in that an intermediate lever (31) is provided and mounted at an intermediate lever mounting point (32), in that the intermediate lever mounting point (32) is arranged stationary with respect to the housing part (29), in that the second brake lever (12) is mounted on the intermediate lever (31) at the second mounting point (28), and in that the second mounting point (28) can be moved relative to the housing part (29) during a rotation of the intermediate lever (31) about the intermediate lever mounting point (32).

2. The caliper brake according to claim 1,

characterized in

that the first tension element mounting point (36) and the second tension element mounting point (37) are spaced apart from one another at least approximately parallel to the actuation axis (38).

3. The caliper brake according to one of claims 1 and 2,

characterized in

that a closing spring (50) is provided and at least indirectly moves the first brake lever (11) and the second brake lever (12) relative to one another in order to decrease the distance (55) between the first brake pad (15) and the second brake pad (17) along the actuation axis (38), and in that the closing spring (50) is arranged between the first brake lever (11) and the second brake lever (12).

~~4. The caliper brake according to one of claims 1 to 3,~~

~~characterized in~~

~~that the first mounting point (27) is arranged stationary with respect to a housing part (29), in that an intermediate lever (31) is provided and mounted at an intermediate lever mounting point (32), in that the intermediate lever mounting point (32) is arranged stationary with respect to the housing part (29), in that the second brake lever (12) is mounted on the intermediate lever (31) at the second mounting point (28), and in that the second mounting point (28) can be moved relative to the housing part (29) during a rotation of the intermediate lever (31) about the intermediate lever mounting point (32).~~

4~~5~~. The caliper brake according to one of claims 1 to 3~~4~~,

characterized in

that the first brake pad (15) is attached to the brake pad end (14) of the first brake lever (11) so as to be rotatable about at least one axis (43) and/or in that the second brake pad (17) is attached to the brake pad end (16) of the second brake lever (12) so as to be rotatable about at least one axis (44).

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56. The caliper brake according to one of claims 1 to 45,

characterized in

10 that at least one pretensioning roller (45, 46) is provided for the first brake pad (15) and during the operation ensures a ventilation clearance between the first brake pad (15) and a braking track (20) for the first brake pad (15) in the open state and/or in that at least one pretensioning roller (47, 48) is provided for the second brake pad (17) and during the operation ensures a ventilation clearance between the second brake pad (17) and a
15 braking track (21) for the second brake pad (17) in the open state.

67. The caliper brake according to claim 56,

characterized in

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that the at least one pretensioning roller (45, 46) for the first brake pad (15) has an elastic roller coating (45', 46') and the elastic roller coating (45', 46') is during the operation pretensioned relative to the braking track (20) for the first brake pad (15) in the open state and/or in that the pretensioning roller (47, 48) for the second brake pad (17) has an elastic
25 roller coating (47', 48') and the elastic roller coating (47', 48') is during the operation pretensioned relative to the braking track (21) for the second brake pad (17) in the open state.

78. A caliper brake (7), particularly a holding and safety brake, for an elevator
30 system (1), comprising a first brake lever (11) and a second brake lever (12), wherein a first brake pad (15) is attached to a brake pad end (14) of the first brake lever (11), wherein a second brake pad (17) is attached to a brake pad end (16) of the second brake lever (12), wherein the first brake lever (11) is mounted at a first mounting point (27), wherein the second brake lever (12) is mounted at a second mounting point (28), wherein

the first brake pad (15) and the second brake pad (17) can be moved relative to one another along an actuation axis (38) by means of the first brake lever (11) and the second brake lever (12), and wherein a linear spindle drive (70) is provided and makes it possible to move the first brake lever (11) and the second brake lever (12) relative to one another in order to change a distance (55) between the first brake pad (15) and the second brake pad (17) along the actuation axis (38),

characterized in

that at least one closing spring (50) is provided and at least indirectly moves the first brake lever (11) and the second brake lever (12) relative to one another in order to decrease the distance (55) between the first brake pad (15) and the second brake pad (17), and in that the linear spindle drive (70) counteracts the closing spring (50) in order to increase the distance (55) between the first brake pad (15) and the second brake pad (17).

~~9. The caliper brake according to claim 8,~~

characterized in

that the linear spindle drive (70) comprises a motor (71) and a threaded spindle (72), particularly a ball screw spindle (72), in that the motor (71) at least indirectly acts upon the first brake lever (11) and the second brake lever (12) via the threaded spindle (72), particularly the ball screw spindle (72), when the motor (71) counteracts the closing spring (50) in order to increase the distance (55) between the first brake pad (15) and the second brake pad (17), and in that the threaded spindle (72) is realized in such a way that no self-locking effect occurs on the threaded spindle (72), particularly on the ball screw spindle (72).

~~10. The caliper brake according to claim 9~~,

characterized in

that the motor (71) acts upon an intermediate lever (31) by means of the threaded spindle (72) when the motor (71) counteracts the closing spring (50) in order to increase the

distance (55) between the first brake pad (15) and the second brake pad (17), and in that the closing spring (50) is on the one hand at least indirectly supported on a housing (30) and on the other hand at least indirectly connected to the intermediate lever (31), wherein the threaded spindle (72) particularly is connected to the intermediate lever (31) by a linear freewheel (77).

8~~11~~. The caliper brake according to claim 7~~one of claims 9 or 10~~,

characterized in

that the motor (71) is connected to the threaded spindle (72) by means of a freewheel (74) or by means of a switchable clutch (75).

9~~12~~. The caliper brake according to claim 7 or claim 8~~one of claims 9 to 11~~,

characterized in

that a holding brake (80) for the motor (71) is provided and during the operation at least partially relieves the motor (71) in an open state of the caliper brake.

10~~13~~. The caliper brake according to one of claims 7~~8~~ to 9~~12~~,

characterized in

that the linear spindle drive (70) is realized in such a way that the distance (55) between the first brake pad (15) and the second brake pad (17) is readjusted as the attrition of brake linings (18, 19) of the first brake pad (15) and the second brake pad (17) progresses, and in that the linear spindle drive (70) at least indirectly actuates an attrition indicator switch (76) once a predefined attrition of the brake linings (18, 19) is reached.

11~~14~~. The caliper brake according to one of claims 7~~8~~ to 10~~13~~,

characterized in

that the linear spindle drive (70) is realized in such a way that an increase of the distance (55) between the first brake pad (15) and the second brake pad (17) from a closed state into an open state at least approximately takes place with a predefined, but not necessarily integral number of revolutions.

12~~15~~. An elevator system (1) with an elevator car (2) and at least one brake (7, 8), which is arranged on the elevator car (2) and realized in the form of a caliper brake (7, 8) according to one of claims 1 to 11~~14~~.