Claims

1. An endless cable winch, in particular for a service lift (10), in particular for wind power plants, comprising a working cable (28) and a safety cable (16), a driving cable pulley (58) around at least a part of which the working cable (28) is wrapped, a drive (24) for driving the driving cable pulley (58), and further comprising a safety device (30) for the safety cable (16), characterized in that the safety device (30) comprises a non-driven cable pulley (68), which is rotatably mounted in a housing (54) and around at least a part of which the safety cable (16) is wrapped, and further comprises an arresting device (31) which is coupled via a brake (71) to the cable pulley (68) and which blocks and brakes the safety cable (16) by means of the brake (71), at a predetermined speed of the safety cable (16) at least in one direction.

2. The endless cable winch according to claim 1, characterized in that the arresting device (31) comprises a ratchet wheel (32) which interacts with a pawl (34) mounted on the housing (54), in such a way that the pawl (34) latches into the ratchet wheel (32) at the predetermined speed of the safety cable (16).

3. The endless cable winch according to claim 1 or 2, characterized in that a sensor (44) is provided for detecting a blocking of the arresting device (31), which sensor outputs a signal which indicates a blocking of the arresting device (31).

4. The endless cable winch according to any of claims 1 to 3, characterized in that the pawl (34) has a first pawl arm (38) and a second pawl arm (40), between which the pawl (34) is pivotably mounted on the housing (54), wherein the pawl (34) is preloaded against the ratchet wheel (32) in such a way that the first pawl arm (38) can move along the ratchet wheel (32) up to the predetermined speed, and latches with its second pawl arm (40) into the ratchet wheel (32) if the predetermined speed is exceeded in the downward direction of the safety cable (16).

5. The endless cable winch according to any of the preceding claims, characterized in that means (45) for targetedly activating the arresting device (31) are provided,

in particular a button for moving the pawl (34) into a latching position for latching into the ratchet wheel (32).

6. The endless cable winch according to any of claims 2 to 5, characterized in that the ratchet wheel (32) and the cable pulley (68) are rotatable about a common axis of rotation, and in that the ratchet wheel (32) forms a friction brake (71) with the cable pulley (68).

7. The endless cable winch according to one of the preceding claims, characterized in that the brake (71) is in the form of a conical brake.

8. The endless cable winch according to any of claims 6 or 7, characterized in that the friction brake (71) comprises a first friction partner composed of a bronze alloy and a second friction partner composed of a steel alloy.

9. The endless cable winch according to claim 8, characterized in that the brake (71) has a cone angle of approximately 4° to 10°.

10. The endless cable winch according to any of claims 6 to 9, characterized in that the friction brake (71) comprises at least one friction lining.

11. The endless cable winch according to any of claims 7 to 10, characterized in that the ratchet wheel (32) has an external cone (72) which is spring-loaded against an internal cone (74) of the cable pulley (68).

12. The endless cable winch according to claim 11, characterized in that the ratchet wheel (32) is preloaded against the internal cone (74) of the cable pulley (68) by means of a plate spring (78), the preload of which is preferably adjustable.

13. The endless cable winch according to any of the preceding claims, characterized in that at least the working cable (28) or the safety cable (16) are wrapped around the driving cable pulley (58) or the cable pulley (68) with a wrap angle of less than

300°, preferably of approximately 260 to 280°, particularly preferably of approximately 270°.

14. The endless cable winch according to any of the preceding claims, characterized in that the predetermined speed for the braking of the safety cable is 20 to 40 meters/minute, preferably 25 to 35 meters/minute, preferably approximately 30 meters/minute.

15. The endless cable winch according to any of the preceding claims, characterized in that the driving cable pulley (58) and the cable pulley (68) are mounted in a common housing (54).

16. The endless cable winch according to any of the preceding claims, characterized in that the cable pulley (68) has a biasing device (48) for biasing the safety cable (16) against the cable pulley (68).

17. The endless cable winch according to any of the preceding claims, characterized in that the driving cable pulley (58) has a biasing device (56) for biasing the working cable (28) against the driving cable pulley (58).

18. The endless cable winch according to any of claims 15 or 16, in which the biasing device (48, 56) comprises a spring-loaded pressing roller (50).

19. The endless cable winch according to any of the preceding claims, characterized in that the ratchet wheel (32) is mounted on a journal (73) of the cable pulley (68).

20. A person lifting device, in particular a service lift, in particular for wind power plants, characterized by an endless cable winch (20) according to one of the preceding claims.

21. The person lifting device according to claim 20, in which the working cable (28) and the safety cable (16) are guided laterally out of the endless cable winch (20) at

an angle of approximately 90° relative to the upper strands, and are diverted downward merely by means of in each case one diverting roller (14).

Claims

1. An endless cable winch, in particular for a service lift (10), in particular for wind power plants, comprising a working cable (28) and a safety cable (16), a driving cable pulley (58) around at least a part of which the working cable (28) is wrapped, a drive (24) for driving the driving cable pulley (58), and further comprising a safety device (30) for the safety cable (16), wherein the safety device (30) comprises a non-driven cable pulley (68), which is rotatably mounted in a housing (54) and around at least a part of which the safety cable (16) is wrapped, and further comprises an arresting device (31) which is coupled via a brake (71) to the cable pulley (68) and which blocks and brakes the safety cable (16) by means of the brake (71), at a predetermined speed of the safety cable (16) at least in one direction, wherein the arresting device (31) comprises a ratchet wheel (32) which interacts with a pawl (34) mounted on the housing (54), in such a way that the pawl (34) latches into the ratchet wheel (32) at the predetermined speed of the safety cable (16), characterized in that the ratchet wheel (32) and the cable pulley (68) are rotatable about a common axis of rotation, and in that the ratchet wheel (32) forms a friction brake (71) with the cable pulley (68).

2. The endless cable winch according to claim 1, characterized in that a sensor (44) is provided for detecting a blocking of the arresting device (31), which sensor outputs a signal which indicates a blocking of the arresting device (31).

3. The endless cable winch according to any of claims 1 to 2, characterized in that the pawl (34) has a first pawl arm (38) and a second pawl arm (40), between which the pawl (34) is pivotably mounted on the housing (54), wherein the pawl (34) is preloaded against the ratchet wheel (32) in such a way that the first pawl arm (38) can move along the ratchet wheel (32) up to the predetermined speed, and latches with its second pawl arm (40) into the ratchet wheel (32) if the predetermined speed is exceeded in the downward direction of the safety cable (16).

4. The endless cable winch according to any of the preceding claims, characterized in that means (45) for targetedly activating the arresting device (31) are provided, in particular a button for moving the pawl (34) into a latching position for latching into the ratchet wheel (32).

5. The endless cable winch according to one of the preceding claims, characterized in that the brake (71) is in the form of a conical brake.

6. The endless cable winch according to claim 5, characterized in that the friction brake (71) comprises a first friction partner composed of a bronze alloy and a second friction partner composed of a steel alloy.

7. The endless cable winch according to claim 6, characterized in that the brake (71) has a cone angle of approximately 4° to 10°.

8. The endless cable winch according to any of claims 5 to 7, characterized in that the friction brake (71) comprises at least one friction lining.

9. The endless cable winch according to any of claims 5 to 8, characterized in that the ratchet wheel (32) has an external cone (72) which is spring-loaded against an internal cone (74) of the cable pulley (68).

10. The endless cable winch according to claim 9, characterized in that the ratchet wheel (32) is preloaded against the internal cone (74) of the cable pulley (68) by means of a plate spring (78), the preload of which is preferably adjustable.

11. The endless cable winch according to any of the preceding claims, characterized in that at least the working cable (28) or the safety cable (16) are wrapped around the driving cable pulley (58) or the cable pulley (68) with a wrap angle of less than 300°, preferably of approximately 260 to 280°, particularly preferably of approximately 270°.

12. The endless cable winch according to any of the preceding claims, characterized in that the predetermined speed for the braking of the safety cable is 20 to 40 meters/minute, preferably 25 to 35 meters/minute, preferably approximately 30 meters/minute.

13. The endless cable winch according to any of the preceding claims, characterized in that the driving cable pulley (58) and the cable pulley (68) are mounted in a common housing (54).

14. The endless cable winch according to any of the preceding claims, characterized in that the cable pulley (68) has a biasing device (48) for biasing the safety cable (16) against the cable pulley (68).

15. The endless cable winch according to any of the preceding claims, characterized in that the driving cable pulley (58) has a biasing device (56) for biasing the working cable (28) against the driving cable pulley (58).

16. The endless cable winch according to any of claims 13 or 14, in which the biasing device (48, 56) comprises a spring-loaded pressing roller (50).

17. The endless cable winch according to any of the preceding claims, characterized in that the ratchet wheel (32) is mounted on a journal (73) of the cable pulley (68).

18 A person lifting device, in particular a service lift, in particular for wind power plants, characterized by an endless cable winch (20) according to one of the preceding claims.

19. The person lifting device according to claim 18, in which the working cable (28) and the safety cable (16) are guided laterally out of the endless cable winch (20) at an angle of approximately 90° relative to the upper strands, and are diverted downward merely by means of in each case one diverting roller (14).