CLAIMS

1. A rope storage unit (1,1',1'), comprising

a rope reel (2), formed by a rope (3,3',3",3"") wound in a spiral form; and

a support body (4,4') provided with an inner space (5,5') inside which the rope reel (2) is positioned supported by the support body (4,4'),

characterized in that the rope (3,3',3",3"") is a rod having a straight form when in rest state and elastically bendable away from the straight form, the rope (3,3',3",3"") being under substantial bending tension in said spiral form, and in that the support body (4,4') comprises one or more support members (6,6') delimiting said inner space (5,5') and surrounding radially said rope reel (4,4'), the outer rim of the rope reel (2) radially compressing against said one or more support members (6,6') as an effect of said bending tension.

2. A rope storage unit according to claim 1, **characterized** in that said rope (3,3',3",3"") has width larger than thickness thereof in transverse direction of the rope (3,3',3",3""), and the rope is wound in said spiral form by bending it around an axis extending in width-direction of the rope (3,3',3",3"").

3. A rope storage unit according to any of the preceding claims, **characterized** in that the rope (3,3',3",3"") is wound in a spiral form with several rope rounds, including at least an outermost rope round having an outer rim radially compressing against said one or more support members (6,6') as an effect of said bending tension, as well as several inner rope rounds each having an outer rim radially compressing, as an effect of said bending tension, against the inner rim of the rope round next in radial direction.

4. A rope storage unit according to any of the preceding claims, **characterized** in that said rope comprises one or more load bearing members (8, 8', 8'', 8''') made of composite material comprising reinforcing fibers (f) in polymer matrix (m), said reinforcing fibers preferably being carbon fibers.

5. A rope storage unit according to any of the preceding claims, **characterized** in that said load bearing member(s) is/are parallel with the length direction of the rope.

6. A rope storage unit according to any of the preceding claims, **characterized** in that said reinforcing fibers are parallel with the length direction of the rope.

7. A rope storage unit according to any of the preceding claims, **characterized** in that said one or more support members (6, 6') delimit(s) a cylindrical inner space (5,5'), said cylindrical inner space (5,5') preferably having in axial direction open side via which the rope reel (2) can be brought inside the inner space (5,5') and/or via which the rope (3,3',3'',3''') can be guided away from the rope reel (2).

8. A rope storage unit according to any of the preceding claims, **characterized** in that the support member(s) (6,6') are in supporting contact with the outer rim of the rope reel (2) along at least majority of the rim of the rope reel (2).

9. A rope storage unit according to any of the preceding claims, **characterized** in that the support body (4, 4') comprises a support shaft (14) via which the rope storage unit (1,1', 1') can be rotatably mounted.

10. A rope storage unit according to any of the preceding claims, **characterized** in that the rope reel (2) delimit(s) a free central space (C)

inside the rope reel (2), and the rope (3,3',3",3"') wound in a spiral form has an end (E) extending from the inner rim of the rope reel (2), the rope being unwindable by guiding said end (E) away from the rope reel (2) via said free central space (C).

11. A rope storage unit according to any of the preceding claims, **characterized** in that the rope (3,3',3",3"') is wound in a spiral form with several rope rounds, including at least a radially outermost rope round, and a radially innermost rope round, the rope (3,3',3",3"') being unwindable rope round by rope round starting from the innermost rope round.

12. A rope storage unit according to any of the preceding claims, **characterized** in that the inner rim of the rope reel (2) delimit(s) a free central space (C) inside the rope reel, the central space (C) having in axial direction open side via which the rope (3,3',3",3"') can be guided away from the rope reel (2).

13. A rope storage unit according to any of the preceding claims, **characterized** in that the rope (3,3',3",3"') is wound in a spiral form with several rope rounds, intermediate rope rounds between the innermost and outermost rope rounds, the intermediate rounds radially compressing against the next outer round as an effect of said bending tension.

14. A method for installing an elevator rope, comprising the steps of

providing a rope storage unit according (1,1',1") to any one of the preceding claims; and

unwinding the rope (3,3',3",3"') from the rope storage unit (1,1',1") ; and

connecting the rope (3,3',3",3"') to one or more movable elevator units (11,12), said units (11,12), including at least an elevator car (11) and preferably also a counterweight (12).

15. A method according to any of the preceding claims, **characterized** in that the rope (3,3',3'',3''') is wound in a spiral form with several rope rounds, including at least an radially outermost rope round, and an radially innermost rope round, and in said unwinding the rope is unwound rope round by rope round starting from the innermost rope round.

16. A method according to any of the preceding claims, **characterized** in that the rope reel (2,9) delimit(s) a free central space (C) inside the rope reel (2), and the rope (3,3',3'',3''') wound in a spiral form has an end extending from the inner rim of the rope reel (2,9), and said unwinding comprises guiding said end (E) away from the rope reel (2,9) via said free central space (C).

17. A method according to any of the preceding claims, **characterized** in that the inner rim of the rope reel (2,9) delimit(s) a free central space (C) inside the rope reel (2,9), the central space (C) having in axial direction open side via which the rope (3,3',3'',3''') is guided away from the rope reel (2,9).

18. A method for fabricating a rope storage unit (1,1',1''), comprising the steps of

providing a rope (3,3',3'',3'''), which is a rod having a straight form when in rest state and elastically bendable away from the straight form;

providing a support body (4,4') provided with an inner space (5,5'), the support body (4,4') comprising one or more support members (6,6') delimiting said inner space (5,5'),

forming a rope reel (2) by winding the rope (3,3',3'',3''') in a spiral form;

positioning the rope (3,3',3'',3''') inside the inner space (5,5') such that it is supported by the support body (4,4') and surrounded radially by said one or more support members (6,6'), and such that the rope (3,3',3'',3''') is under substantial bending tension in said spiral form, the

outer rim of the rope reel (2) radially compressing against said one or more support members (6,6') as an effect of said bending tension.

CLAIMS

1. A rope storage unit, comprising

a rope reel, formed by a rope wound in a spiral form; and

a support body provided with an inner space inside which the rope reel is positioned supported by the support body,

characterized in that the rope is a rod having a straight form when in rest state and elastically bendable away from the straight form, the rope being under substantial bending tension in said spiral form, and said rope comprises one or more load bearing members made of composite material comprising reinforcing fibers in polymer matrix, and the support body comprises one or more support members delimiting said inner space and surrounding radially said rope reel, the outer rim of the rope reel radially compressing against said one or more support members as an effect of said bending tension.

2. A rope storage unit according to claim 1, **characterized** in that said rope has width larger than thickness thereof in transverse direction of the rope, and the rope is wound in said spiral form by bending it around an axis extending in width-direction of the rope.

3. A rope storage unit according to any of the preceding claims, **characterized** in that the rope is wound in a spiral form with several rope rounds, including at least an outermost rope round having an outer rim radially compressing against said one or more support members as an effect of said bending tension, as well as several inner rope rounds each having an outer rim radially compressing, as an effect of said bending tension, against the inner rim of the rope round next in radial direction.

4. A rope storage unit according to any of the preceding claims, **characterized** in that said reinforcing fibers are carbon fibers.

5. A rope storage unit according to any of the preceding claims, **characterized** in that said load bearing member(s) is/are parallel with the length direction of the rope.

6. A rope storage unit according to any of the preceding claims, **characterized** in that said reinforcing fibers are parallel with the length direction of the rope.

7. A rope storage unit according to any of the preceding claims, **characterized** in that said one or more support members delimit(s) a cylindrical inner space, said cylindrical inner space preferably having in axial direction open side via which the rope reel can be brought inside the inner space and/or via which the rope can be guided away from the rope reel.

8. A rope storage unit according to any of the preceding claims, **characterized** in that the support member(s) are in supporting contact with the outer rim of the rope reel along at least majority of the rim of the rope reel.

9. A rope storage unit according to any of the preceding claims, **characterized** in that the support body comprises a support shaft via which the rope storage unit can be rotatably mounted.

10. A rope storage unit according to any of the preceding claims, **characterized** in that the rope reel delimit(s) a free central space inside the rope reel, and the rope wound in a spiral form has an end extending from the inner rim of the rope reel, the rope being unwindable by guiding said end away from the rope reel via said free central space.

11. A rope storage unit according to any of the preceding claims, **characterized** in that the rope is wound in a spiral form with several rope rounds, including at least a radially outermost rope round, and a radially innermost rope round, the rope being unwindable rope round by rope round starting from the innermost rope round.

12. A rope storage unit according to any of the preceding claims, **characterized** in that the inner rim of the rope reel delimit(s) a free central space inside the rope reel, the central space having in axial direction open side via which the rope can be guided awayfrom the rope reel.

13. A rope storage unit according to any of the preceding claims, **characterized** in that the rope is wound in a spiral form with several rope rounds, intermediate rope rounds between the innermost and outermost rope rounds, the intermediate rounds radially compressingagainst the next outer round as an effect of said bending tension.

14. A method for installing an elevator rope, comprising the steps of

providing a rope storage unit according to any one of the preceding claims; and

unwinding the rope from the rope storage unit; and

connecting the rope to one or more movable elevator units, said units, including at least an elevator car and preferably also a counterweight.

15. A method according to claim 14, **characterized** in that the rope is wound in a spiral form with several rope rounds, including at least an radially outermost rope round, and an radially innermost rope round, and in said unwinding the rope is unwound rope round by rope round starting from the innermost rope round.

16. A method according to any of the preceding claims 14-15, **characterized** in that the rope reel delimit(s) a free central space inside the rope reel, and the rope wound in a spiral form has an end extending from the inner rim of the rope reel, and said unwinding comprises guiding said end away from the rope reel via said free central space.

17. A method according to any of the preceding claims 14-16, **characterized** in that the inner rim of the rope reel delimit(s) a free central space inside the rope reel, the central space having in axial direction open side via which the rope is guided away from the rope reel.

18. A method for fabricating a rope storage unit, comprising the steps of

providing a rope, which is a rod having a straight form when in rest state and elastically bendable away from the straight form and comprises one or more load bearing members made of composite material comprising reinforcing fibers in polymer matrix;

providing a support body provided with an inner space, the support body comprising one or more support members delimiting said inner space,

forming a rope reel by winding the rope in a spiral form;

positioning the rope inside the inner space such that it is supported by the support body and surrounded radially by said one or more support members, and such that the rope is under substantial bending tension in said spiral form, the outer rim of the rope reel radially compressing against said one or more support members as an effect of said bending tension.