CLAIMS

1. A roller winding mechanism comprising a winding shaft (2) which is created as a tube **characterized in that** the roller winding mechanism comprises a shaft reinforcement (6) which is curved, ~~which~~ wherein the shaft reinforcement (6) is provided with support bearings (10) mutually spaced apart along its length, ~~which~~ wherein the shaft reinforcement (6) is inserted into said winding shaft (2) so that said winding shaft (2) can rotate independently from said shaft reinforcement (62~~2~~).

2. ~~A~~ The roller winding mechanism according to claim 1, wherein the shaft reinforcement (6) has a central part in between both ends, wherein the shaft reinforcement (6) has an extremum in said central part.

3. The ~~A~~ roller winding mechanism according to any of the claims 1-2 ~~comprising a~~wherein the winding shaft (2) ~~which~~ is created as a tube attached at one end to a drive (8)~~,~~ which is coupled to ~~the~~ a frame (7)~~,~~ and at its other end mounted on a bearing (9) on a pi~~vot~~ (13) fixed to ~~the~~ a frame (7), **characterized in that** ~~it comprises a~~the shaft reinforcement (6) ~~which is inserted into a roller winding shaft (2) and~~is anchored firmly to the~~a~~ frame (7) on the side opposite to the~~a~~ drive (8), the bending direction of the shaft reinforcement (6) being opposite to the expected deflection of the winding shaft (2) and the initial curvature of this shaft reinforcement (6) is such that its deformation along its length is such that its axis at maximum deformation coincides with the axis of the originally non-deformed winding shaft (2)~~ and the reinforcement (6) is provided with rolling support bearings (10) mutually spaced apart along its length~~.

4. The r~~R~~oller winding mechanism according to any of the claim~~s~~ 1-3, **characterized in that** the shaft reinforcement (6) has the shape of a hollow or solid profile and between the inner diameter of the support bearings (10) and the outer surface of the shaft reinforcement (6) there are shaped inserts (12) with holes corresponding to the cross-sectional shape and size of the shaft reinforcement (6) and the cylindrical outer surface of the inserts corresponds to the shape and size of the inner surface of the inner ring of the support bearings (10) to allow rotation of the winding shaft (2) relative to the shaft reinforcement (6).

5. The rRoller winding mechanism according to any of the claims 1-4, wherein the shaft reinforcement (6) has a round or polygon shape in cross-section.

6. The rRoller winding mechanism according to any of the claims 1-5, wherein the shaft reinforcement (6) has a circular or regular polygon shape in cross-section.

7. TheA roller winding ~~apparatus~~ mechanism according to any of the claims 1-6, wherein the winding shaft (2) is made of aluminium, steel preferably roll formed steel or composites such as glass fiber.

8. TheA roller winding ~~apparatus~~ mechanism according to any of the claims 1-7, wherein the shaft reinforcement (6) is made of steel, preferably roll formed steel, composites preferably glass fiber composites or titanium.

9. TheA roller winding mechanism ~~apparatus~~ according to any of the claims 1-8, wherein the winding shaft (2) has an outer diameter smaller than 50 mm, preferably smaller than 45 mm, and a length of at least 4 m, preferably at least 5 m, suitable for supporting a linear weight of at least 1250 g/m.

10. TheA roller winding mechanism ~~apparatus~~ according to any of the claims 1-8~~9~~, wherein the winding shaft (2) has an outer diameter smaller than 40 mm, preferably smaller than 30 mm, and a length of at least 3 m, preferably at least 4 m, suitable for supporting a linear weight of at least 500 g/m.

11. TheA roller winding mechanism ~~apparatus~~ according to any of the claims 1-8~~10~~, wherein the winding shaft (2) has an outer diameter smaller than 100 mm, preferably smaller than 78 mm, and a length of at least 5 m, preferably at least 6 m, suitable for supporting a linear weight of at least 4000 g/m.

12. A kit suitable for constructing a roller winding mechanism, comprising:
    - a winding shaft (2) which is created as a tube,
    - a shaft reinforcement (6) which is curved and ~~, which~~ is configured to be inserted into the winding shaft (2), and
    - rolling support bearings (10) configured to be mutually spaced apart along the length of the shaft reinforcement (6) so that said

winding shaft (2) can rotate independently from said shaft reinforcement (6).

13. The~~A~~ kit suitable for constructing a roller winding mechanism according to claim 12, comprising~~ :~~

~~-~~ two~~a~~ frames (7),

~~-~~a~~wherein the ~~winding shaft (2) ~~which is created as a tube~~is attached at one end to a drive (8)~~,~~ which is configured to be coupled to ~~the~~ the first frame (7)~~,~~ and at its other end is mounted on a bearing on a pivot fixed to the second frame (7), wherein

~~-~~the~~a~~ shaft reinforcement (6) ~~which is configured to be inserted into a roller winding shaft (2) and~~is anchored firmly to said frame (7) on the side opposite to said drive (8), the bending direction of the shaft reinforcement (6) being opposite to the expected deflection of the winding shaft (2) and the initial curvature of this shaft reinforcement (6) is such that its deformation along its length is such that its axis at maximum deformation coincides with the axis of the originally non-deformed winding shaft (2)~~ and~~

~~- rolling support bearings (10) configured to be mutually spaced apart along the length of the shaft reinforcement (6)~~.

14. The kit according to claim 13, wherein said shaft reinforcement (6) is provided with said rolling support bearings (10) mutually spaced apart along its length and said drive (8) is inserted into said winding shaft (2).

15~~4~~. The~~A~~ kit according to any of claims 12-14~~3~~, wherein said kit further comprises a blind (4) suitable for attaching to said winding shaft (2).

~~15. A kit according to any of claims 12-14, wherein said shaft reinforcement (6) is provided with said rolling support bearings (10) mutually spaced apart along its length and said drive (8) are inserted into said roller winding shaft (2).~~