

Claims

(Original)1. A cylinder body of an actuating cylinder, comprising an inner lining layer (1) and a first fibrous composite layer (2) bonded on the outside of the inner lining layer (1), wherein the first fibrous composite layer (2) is composed from a first fibrous material and a substrate resin material.

5 (Deleted)2. ~~The cylinder body of an actuating cylinder according to claim 1, wherein, the inner lining layer (1) is made of a metallic material.~~

10 (Amended)32. The cylinder body of an actuating cylinder according to claim 1, wherein, the inner lining layer (1) and the first fibrous composite layer (2) are made of a electroconductive material, and an insulating layer (3) is arranged between the inner lining layer (1) and the first fibrous composite layer (2).

(Deleted)4. ~~The cylinder body of an actuating cylinder according to claim 1, wherein, the first fibrous composite layer (2) is composed from a carbon fiber material and a substrate resin material.~~

15 (Amended)53. The cylinder body of an actuating cylinder according to claim 1, wherein, a second fibrous composite layer (4) is arranged on the outside of the first fibrous composite layer (2), and the second fibrous composite layer (4) is composed from a second fibrous material and a substrate resin material.

20 (Amended)64. The cylinder body of an actuating cylinder according to any of claims 1~53, wherein, the inner lining layer (1) is generally in a cylindrical shape, and comprises a middle part (11) and two end parts (12) at the sides of the middle part (11), and the thickness of the middle part (11) is smaller than the thickness of each end part (12).; a transition part (13) is respectively arranged between each end part (12) and the middle part (11), and the thickness of the transition part (13) transits from the thickness of the end part (12) to the thickness of the middle part (11).

25 (Deleted)7. ~~The cylinder body of an actuating cylinder according to claim 6, wherein, a transition part (13) is respectively arranged between each end part (12) and the middle part (11), and the thickness of the transition part (13) transits from the thickness of the end part (12) to the thickness of the middle part (11).~~

30 (Amended)85. The cylinder body of an actuating cylinder according to claim 74, wherein, the transition part (13) comprises a ramp part (131) and a raised part (132) arranged on the ramp part (131), and the thickness of the ramp part (131) transits uniformly from the thickness of the end part (12) to the thickness of the middle part (11).

(Amended)96. The cylinder body of an actuating cylinder according to claim 74, wherein, an oil port and/or connecting thread is/are arranged on the end parts (12) of the inner lining layer (1), and the first fibrous composite layer (2) is arranged on the outside of the middle part (11) and the transition part (13) of the inner lining layer (1).

35 (Amended)107. A concrete pumping apparatus, wherein, a cylinder body of a pumping cylinder of the concrete pumping apparatus is the cylinder body of an actuating cylinder as set forth in any of claims 1~96.

(Amended)118. A method of manufacturing a cylinder body of an actuating cylinder, comprising:

40 an inner lining layer forming step: forming an inner lining layer (1); and

a bonding step: forming a first fibrous composite layer (2) composed from a first fibrous material and a substrate resin material, and bonding the first fibrous composite layer (2) on the outside of the inner lining layer (1).

45 (Deleted)12. ~~The method of manufacturing a cylinder body of an actuating cylinder according to claim 11, wherein, in the inner lining layer forming step, the inner lining layer (1) is formed from a metallic material.~~

(Amended)139. The method of manufacturing a cylinder body of an actuating cylinder according to claim 118, wherein:

in the inner lining layer forming step, the inner lining layer (1) is formed from a electroconductive material;

in the bonding step, the first fibrous composite layer (2) is formed from a electroconductive material; and

5 the method further comprises an insulating layer forming step: forming an insulating layer (3) on the outside of the inner lining layer (1) before the bonding step, so that the insulating layer (3) is arranged between the inner lining layer (1) and the first fibrous composite layer (2).

~~(Deleted)14. The method of manufacturing a cylinder body of an actuating cylinder according to claim 11, wherein, in the bonding step, the first fibrous composite layer (2) is composited from a carbon fiber material and a substrate resin material.~~

~~(Amended)1510. The method of manufacturing a cylinder body of an actuating cylinder according to claim 118, wherein, in the bonding step, a bundle of the first fibrous material dipped with the substrate resin is wound on the outside of the inner lining layer (1) by a wet winding process; when the bundle of first fibrous material is wound, the angle between the extension direction of the bundle of the first fibrous material and the axial direction of the cylinder body is 70°~90°.~~

~~(Deleted)16. The method of manufacturing a cylinder body of an actuating cylinder according to claim 15, wherein, when the bundle of first fibrous material is wound, the angle between the extension direction of the bundle of the first fibrous material and the axial direction of the cylinder body is 70°~90°.~~

~~(Amended)1711. The method of manufacturing a cylinder body of an actuating cylinder according to claim 118, further comprising: forming a second fibrous composite layer (4) on the outside of the first fibrous composite layer (2).~~

~~(Amended)1812. The method of manufacturing a cylinder body of an actuating cylinder according to claim 1711, wherein, the second fibrous composite layer (4) is formed by wrapping a piece of cloth made of a second fibrous material on the outside of the first fibrous composite layer (2) so as to make the substrate resin in the first fibrous composite layer (2) infiltrate into the cloth made of a second fibrous material.~~

~~(Amended)1913. The method of manufacturing a cylinder body of an actuating cylinder according to any of claims 118~1812, wherein, the inner lining layer forming step comprises:~~

providing a blank of the inner lining layer that is generally in a hollow cylinder shape; and

30 a machining procedure: reducing the thickness of a part of the blank of the inner lining layer by machining, so that the inner lining layer (1) is formed to have a middle part (11) and two end parts (12) at the sides of the middle part (11), wherein, the thickness of the middle part (11) is smaller than the thickness of each end part (12);

~~in the machining procedure, a transition part (13) is respectively formed between each end part (12) and the middle part (11), and the thickness of the transition part (13) transits from the thickness of the end part (12) to the thickness of the middle part (11).~~

~~(Deleted)20. The method of manufacturing a cylinder body of an actuating cylinder according to claim 19, wherein, in the machining procedure, a transition part (13) is respectively formed between each end part (12) and the middle part (11), and the thickness of the transition part (13) transits from the thickness of the end part (12) to the thickness of the middle part (11).~~

~~(Amended)214. The method of manufacturing a cylinder body of an actuating cylinder according to claim 2013, wherein, in the machining procedure, the transition part (13) is formed to have a ramp part (131) and a raised part (132) arranged on the ramp part (131), and the thickness of the ramp part (131) transits uniformly from the thickness of the end part (12) to the thickness of the middle part (11).~~

~~(Deleted)22. The method of manufacturing a cylinder body of an actuating cylinder according to claim 20, wherein, the inner lining layer forming step further comprises a sand blasting procedure, in the sand blasting procedure, carrying out sand blasting on the outer surface of the inner lining layer (1) formed in the machining procedure, to increase roughness of the outer surface of the inner lining layer (1).~~

(Deleted)23. The method of manufacturing a cylinder body of an actuating cylinder according to claim 19, wherein:

in the inner lining layer forming step, an oil port and/or connecting thread is/are formed on the end parts (12) of the inner lining layer (1);

5 in the bonding step, the first fibrous composite layer (2) is bonded on the outside of the middle part (11) and transition parts (13) of the inner lining layer (1).

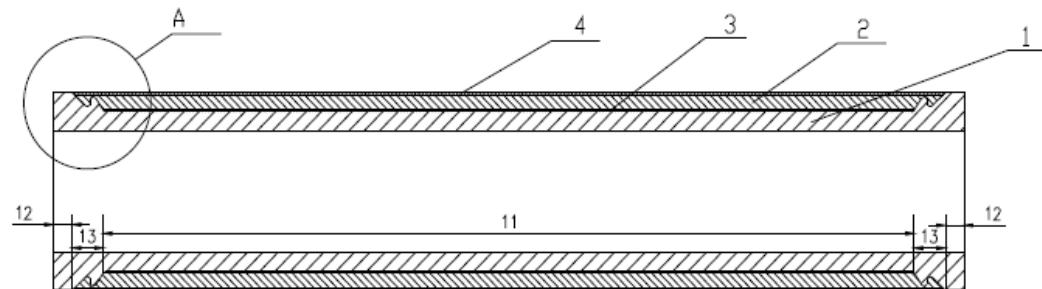


Figure 1

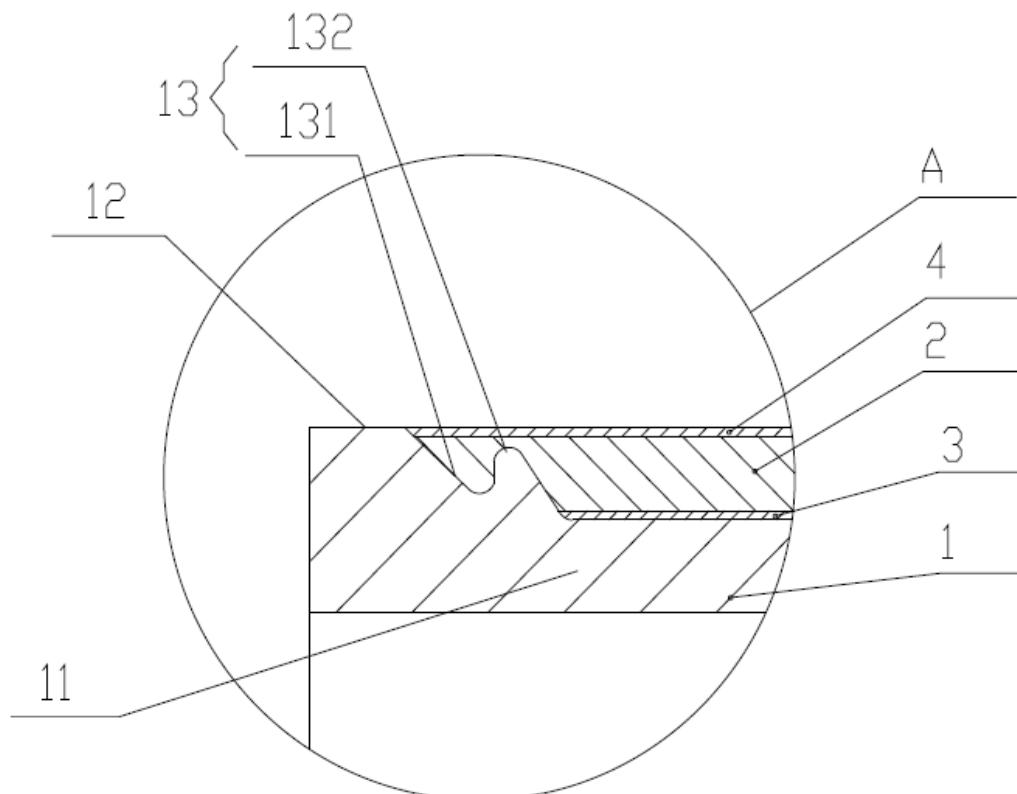


Figure 2

S. Ganguli

Dr. Sanchita Ganguli
of S. MAJUMDAR & CO.
(Applicant's Agent)

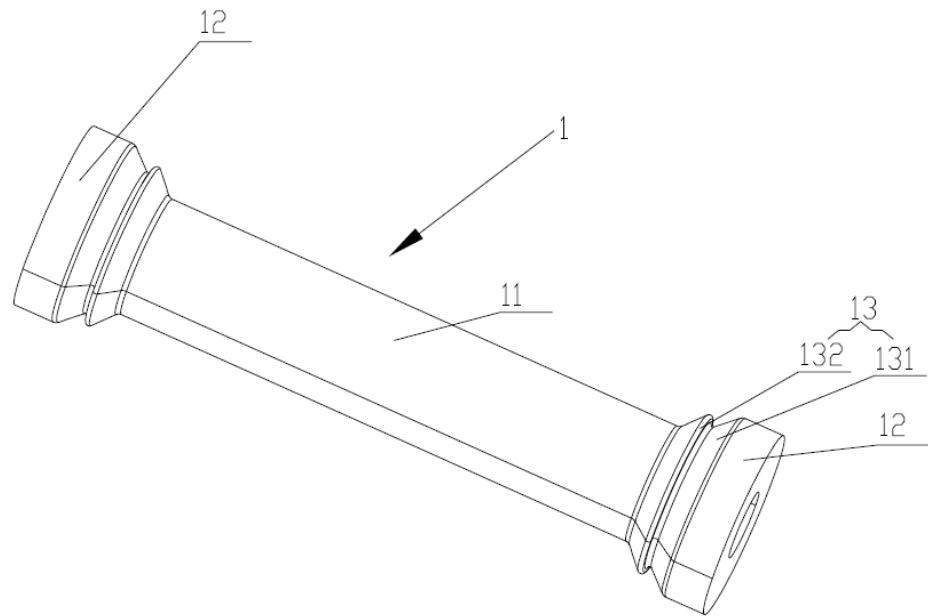


Figure 3

S. Ganguli

Dr. Sanchita Ganguli
of S. MAJUMDAR & CO.
(Applicant's Agent)