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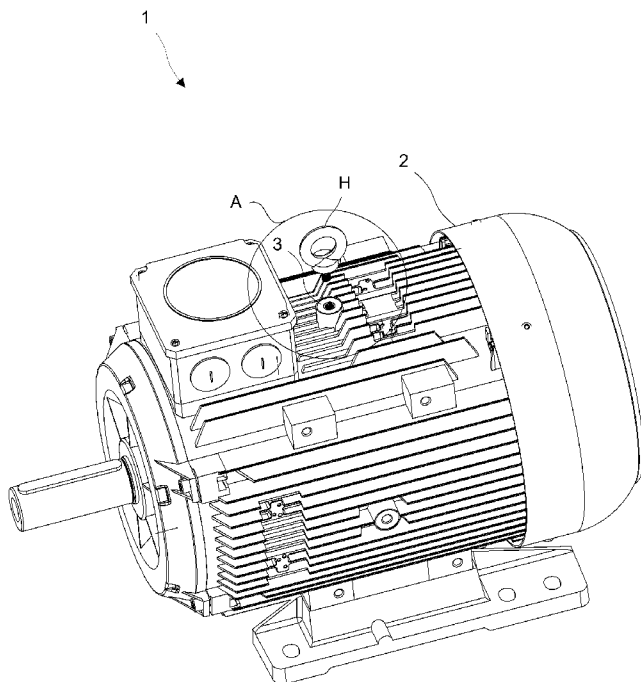
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(54) Title: AN ELECTRIC MOTOR WITH INCREASED TRANSPORTATION SAFETY

Figure 1



(57) Abstract: The electric motor (1) of the present invention
comprises a body (2) that is produced by casting method and
that carries and protects the stator and rotor (not shown in the
figures) disposed therein from external factors.

Description**AN ELECTRIC MOTOR WITH INCREASED TRANSPORTATION SAFETY**

- [0001] The present invention relates to an electric motor having a body produced from cast material.
- [0002] Heavy electric motors having a cast body have to be lifted by a crane for transportation. In order to lift the electric motor by a crane, threads have to be cut at the connection point on the body and lifting bolts are fastened to the body. During transportation of the relatively larger electric motors, the shaking and vibrations cause the threads in the connection point to be damaged/warped. Furthermore, during the operation of cutting threads on the body produced by casting method, local cracks may occur and the body may be scrapped. Moreover, the body is preferably produced from aluminum material in order to obtain lighter bodies, thereby the cut threads can easily be deformed since aluminum is not durable and the lifting bolts can become unbolted. Unbolting of the lifting bolt of the motor during transportation can result in loss of life and property.
- [0003] In the state of the art International Patent Application No. CN202089682, a motor is disclosed, wherein the lifting bolt used in dismounting the crankshaft is fastened to a plate that is connected to the body with bolts.
- [0004] In the state of the art United States Patent Application No. KR101400856, a transportation tool of which the durability and connection strength is enhanced by nuts and bolts is disclosed.
- [0005] The aim of the present invention is the realization of an electric motor whereto the lifting bolt used in the transportation operation is safely connected in long term utilization.
- [0006] The electric motor realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a body produced by casting method, a connection housing disposed at the upper part of the body and a nut that is suitable to be used with a lifting bolt and that is secured to the connection housing.
- [0007] In an embodiment of the present invention, the connection housing is at least as deep as to house a nut. The nut is placed and fixed into the connection housing and thus is prevented from dislodging due to external

factors like impacts.

- [0008] In another embodiment of the present invention, during the casting process of the body, the nut is positioned so as to be placed in the connection housing and casting process is performed accordingly. Therefore, the nut becomes embedded inside the connection housing. In this embodiment, no extra operation is required for fixing the nut to the connection housing.
- [0009] In an embodiment of the present invention, some portion of the body covers the nut so as not to prevent the fastening of the lifting bolt to the nut. Accordingly, the nut is prevented from dislodging while the electric motor is lifted by the lifting bolt.
- [0010] In another embodiment of the present invention, the nut is driven into the connection housing in an unreleasable manner. Thus, the nut is prevented from rotating around itself while the lifting bolt is fastened to the nut.
- [0011] In another embodiment of the present invention, the nut is welded to the connection housing.
- [0012] By means of the present invention, when the electric motor is desired to be transported from one place to another, the lifting bolt is fastened to the nut and the motor is transported safely by solving the problems mentioned in the introduction.
- [0013] A motor realized in order to attain the aim of the present invention is illustrated in the attached claims, where:
- [0014] Figure 1 – is the perspective view of an electric motor.
- [0015] Figure 2 – is the view of detail A in Figure 1.
- [0016] Figure 3 – is the perspective view of the electric motor in another embodiment of the present invention.
- [0017] Figure 4 – is the view of detail B in Figure 3.
- [0018] Figure 5 – is the cross-sectional view of the connection housing and the nut in another embodiment of the present invention.
- [0019] The elements illustrated in the figures are numbered as follows:
1. Electric motor
 2. Body
 3. Connection housing

4. Nut

H.Lifting bolt

- [0020] The electric motor (1) comprises a body (2) that is produced by casting method and that carries and protects the stator and rotor (not shown in the figures) disposed therein from external factors. The body (2) is preferably produced from materials like pig iron (cast iron) or aluminum alloy.
- [0021] The electric motor (1) of the present invention comprises a connection housing (3) that is disposed on the body (2) at the upper part of the body (2) and a nut (4) that is fixed to the connection housing (3) and that enables the body (2) to be transported by mounting the lifting bolt (H) thereto. The nut (4) is produced from a material like steel having high mechanical strength so as to support the weight of the electric motor (1). The nut (4) has a threaded configuration so as to allow the fastening of the lifting bolt (H). When the electric motor (1) is desired to be lifted, the lifting bolt (H) is rotated to be fastened to the nut (4) and the electric motor (1) is lifted by the crane or any device used in lifting objects. By means of the nut (4) fixed to the connection housing (3), problems like falling encountered during lifting of the electric motor (1) are solved and thanks to the high mechanical strength of the nut (4) the thread configuration is not damaged and is enabled to be used repeatedly.
- [0022] In an embodiment of the present invention, the depth of the connection housing (3) is at least as much as the height of the nut (4). In this embodiment, the entire nut (4) remains inside the connection housing (3) and thus dislodgement of the nut (4) is made difficult while the electric motor (1) is being lifted.
- [0023] In another embodiment of the present invention, the nut (4) is fixed to the connection housing (3) by being surrounded with the body (2) material while casting the body (2). Prior to the casting process, the nut (4) is placed into the portion of the casting mold that shapes the connection housing (3) and then the casting operation is performed. Thus, the advantage of steel being stronger than aluminum is benefited from by using the nut (4) preferably produced from steel material in the body (2) that is preferably produced from aluminum material.

- [0024] In another embodiment of the present invention, the portion of the body (2) around the connection housing (3) projects over the nut (4) such that fastening of the lifting bolt (H) is not prevented. In other words, the nut (4) is embedded into the connection housing (3) such that the middle part thereof remains open. In this embodiment, the portions of the body (2) projecting over the nut (4) prevent the nut (4) from dislodging (Figure 5).
- [0025] In another embodiment of the present invention, the nut (4) is snap-fittingly driven into the connection housing (3). The connection housing (3) is narrower than the nut (4) within tolerances of snap-fitting and the nut (4) is driven and fixed into the connection housing (3). In this embodiment, the nut (4) is prevented from dislodging and rotating around itself when the lifting bolt (H) is fastened.
- [0026] In another embodiment of the present invention, the nut (4) is fixed to the connection housing (3) by the welding method. In this embodiment, the nut (4) is placed into the connection housing (3) and is welded to the connection housing (3) by state of the art welding methods.
- [0027] In the electric motor (1) of the present invention, the nut (4) whereto the lifting bolt (H) used in lifting the electric motor (1) is fastened is fixed to the connection housing (3), thereby enabling the transportation to be realized safely. By means of producing the nut (4) from steel as standard, the lifting bolt (H) and the threads providing fastening are prevented from being damaged and the electric motor (1) is prevented from falling during transportation.

Claims

1. An electric motor (1) **comprising** a body (2) that is produced by casting method and that carries and protects the stator and rotor (not shown in the figures) disposed therein from external factors, **characterized by** a connection housing (3) that is disposed on the body (2) at the upper part of the body (2) and a nut (4) that is fixed to the connection housing (3) and that provides the transportation of the body (2) by mounting the lifting bolt (H) thereto.
2. An electric motor (1) as in Claim 1, **characterized by** the connection housing (3), the depth of which is at least as much as the height of the nut (4).
3. An electric motor (1) as in any one of the above claims, **characterized by** the nut (4) that is fixed to the connection housing (3) during the casting of the body (2).
4. An electric motor (1) as in Claim 3, **characterized by** the body (2) of which the portion around the connection housing (3) extends over the nut (4) so as to not prevent the fastening of the lifting bolt (H).
5. An electric motor (1) as in Claim 1 or 2, **characterized by** the nut (4) that is snap-fittingly driven into the connection housing (3).
6. An electric motor (1) as in Claim 1 or 2, **characterized by** the nut (4) that is fixed to the connection housing (3) by welding method.

Figure 1

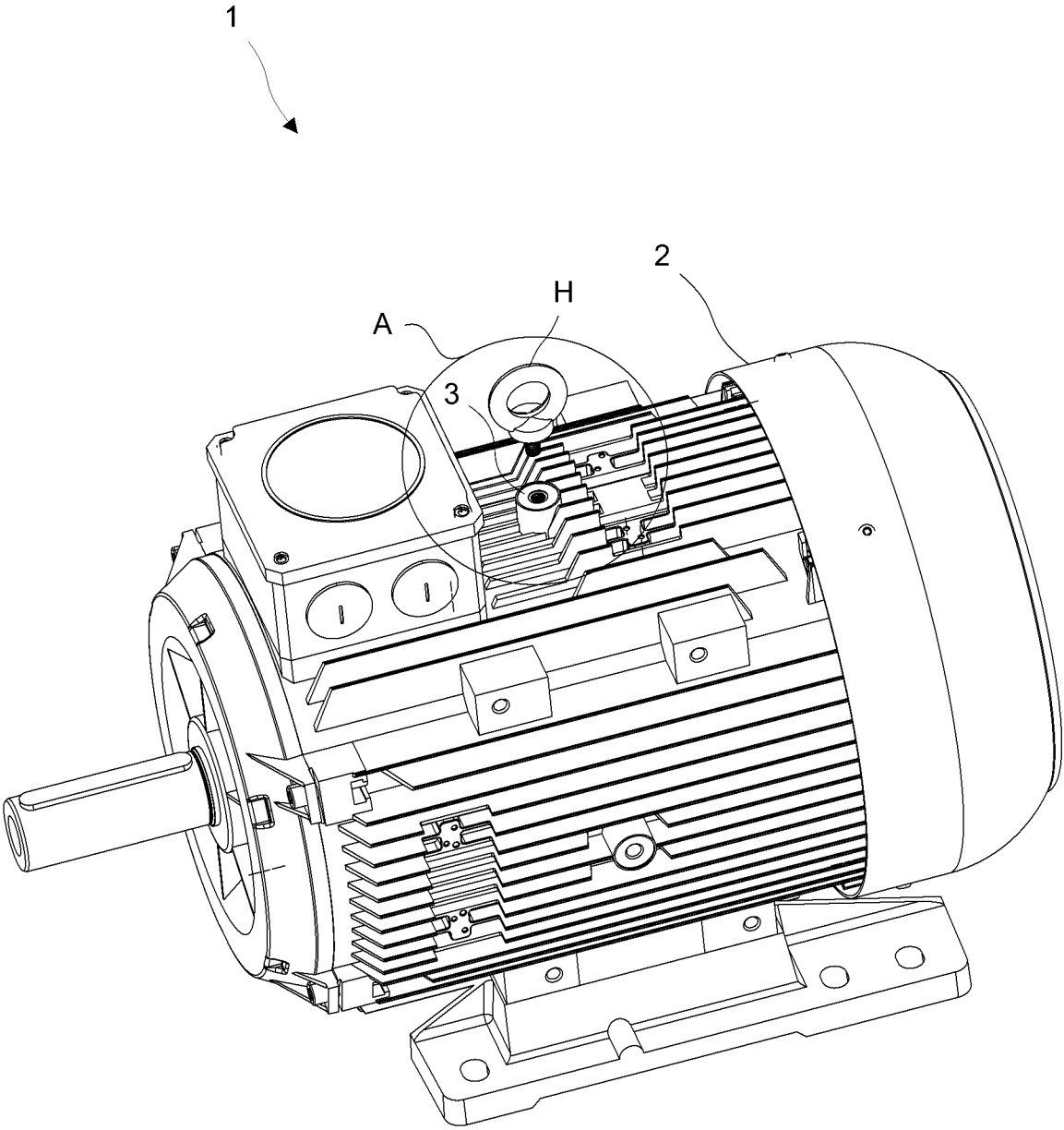


Figure 2

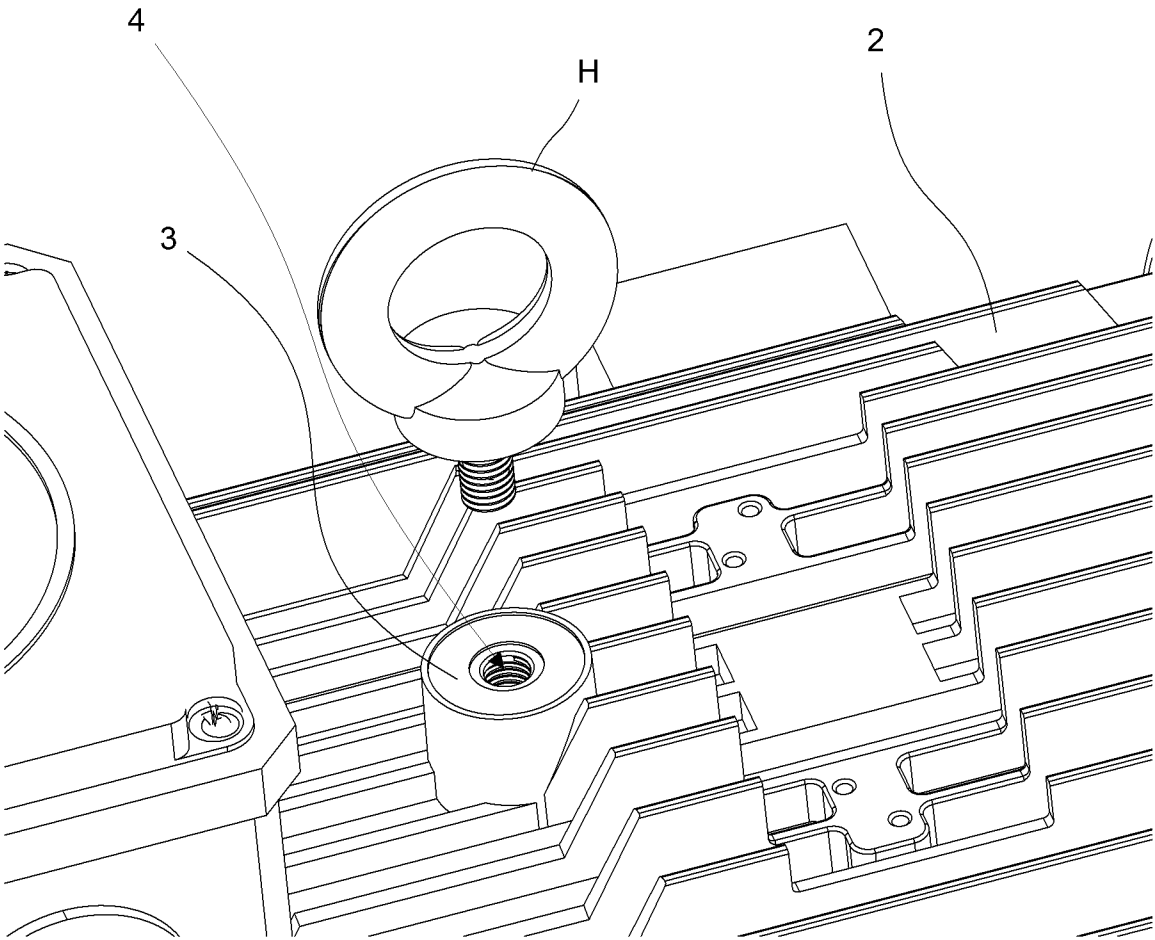


Figure 3

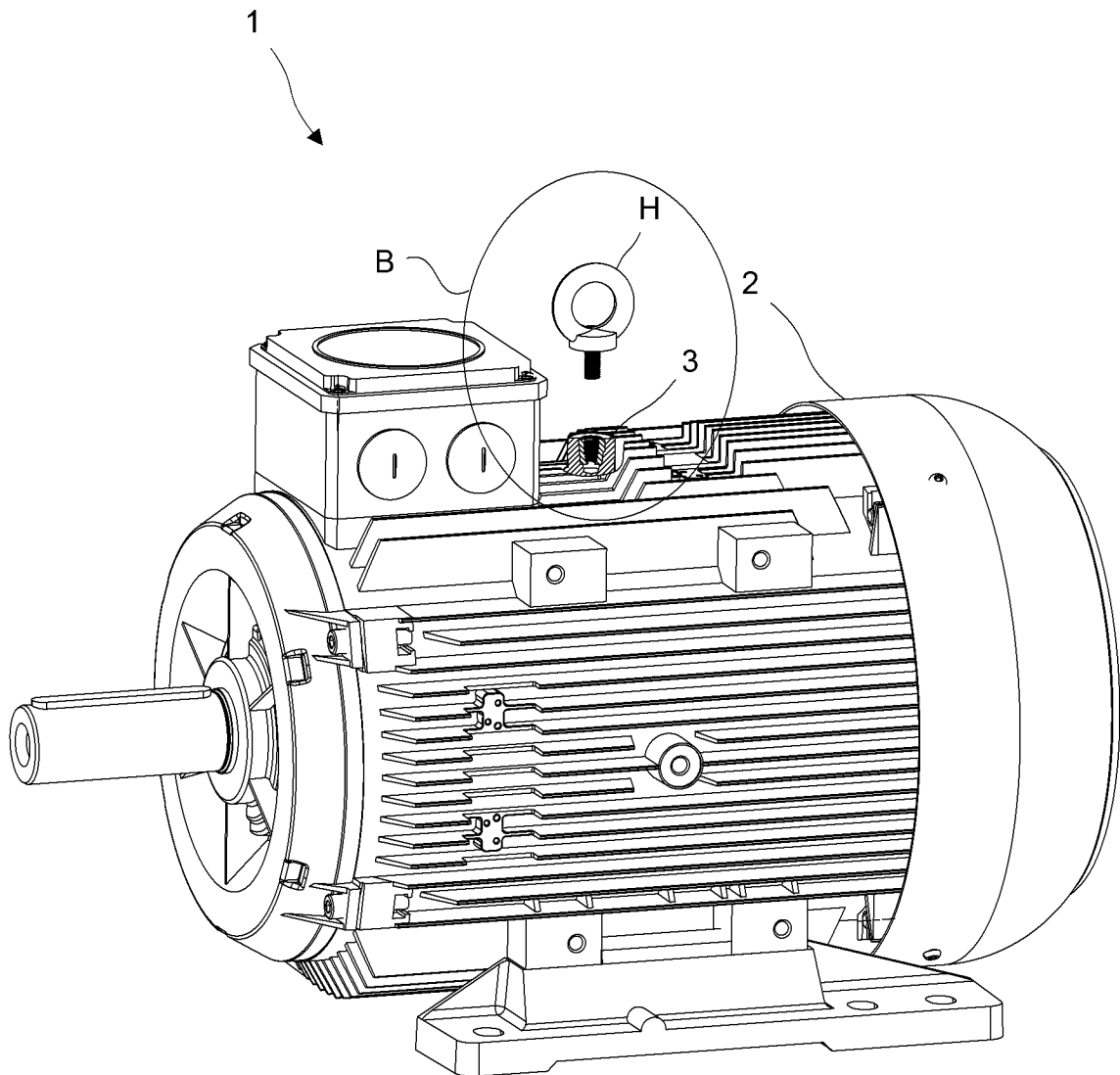


Figure 4

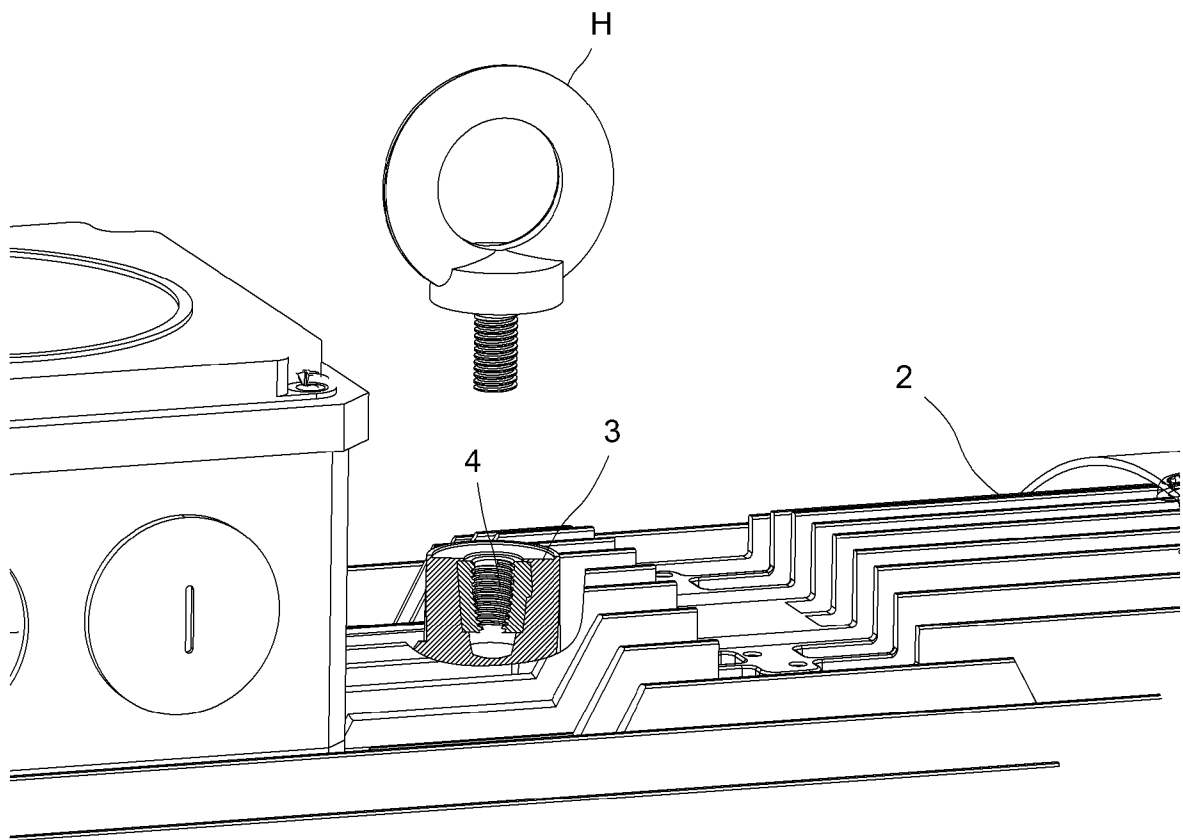
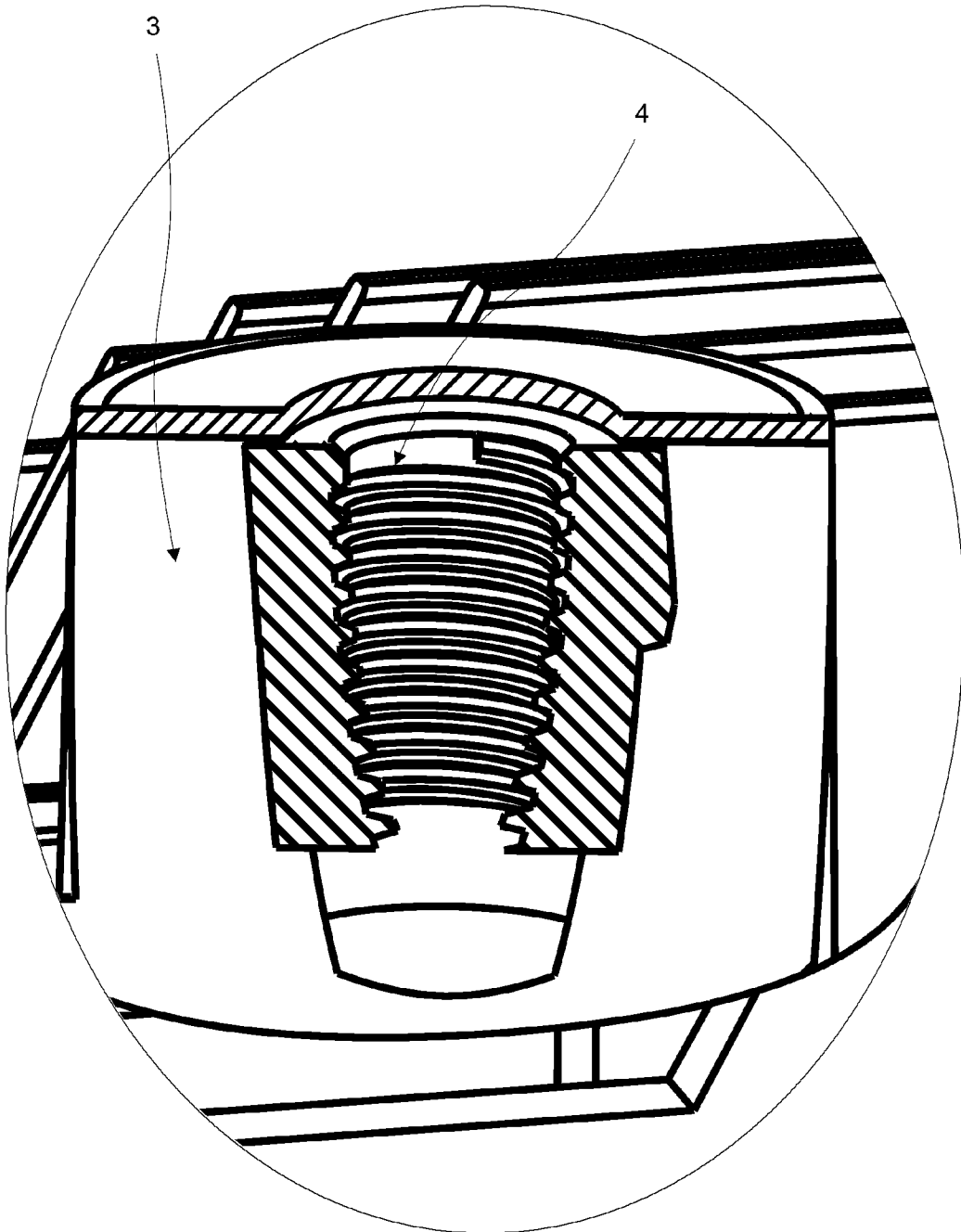


Figure 5



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2016/056245

A. CLASSIFICATION OF SUBJECT MATTER
INV. H02K5/22
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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H02K H01F B66C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2014/265691 A1 (MINARI TAKAHIRO [JP] ET AL) 18 September 2014 (2014-09-18) abstract paragraph [0025] - paragraph [0038] figures 2,5	1-6
Y	US 2 674 485 A (JAMISON KENNETH B) 6 April 1954 (1954-04-06) claim 4 figure 3	1-6
Y	CN 202 798 315 U (BONENG TRANSMISSION SUZHOU CO LTD) 13 March 2013 (2013-03-13) figure 1	1-6



Further documents are listed in the continuation of Box C.



See patent family annex.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2014265691	A1	18-09-2014	CN 104052181 A	17-09-2014
			DE 102014001877 A1	18-09-2014
			JP 2014176266 A	22-09-2014
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