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(54) **Connector for electro-mechanic devices, particularly for refrigerators' compressors and similar machines**

Steckverbinder für elektro-mechanische Geräte, insbesondere für Kühlkastenkompressoren oder ähnliche Maschinen.

Connecteur pour des dispositifs électro-mécaniques, en particulier pour des compresseurs de réfrigérateur ou de machines semblables.

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Description

[0001] The present invention relates to a (power) connector for electromechanical devices, such as compressors to be mounted in home or industrial refrigerators.

[0002] It is known that for connection and operation of particular electromechanical devices (such as motors, compressors and others) inserted in complex machines, said devices are required to be suitably connected to a source of electric energy that can also be of great intensity.

[0003] US5584716 discloses a hermetic terminal assembly having a plurality of conductor pins which define integral fusible links: in this assembly a unique plug is provided, which both separates the individual wires leading to the conductor pins and allows (in cooperation with a fence or with the compressor's shell) the restriction of access to the conductor pins while the conductor pins are connected to a power source. This unique plug also allows positioning of the integral fusible link on the outside of the shell. In this known assembly the so-called "fence" is an essential and non-negligible part and it can be formed as a separate member or, alternately, be integral with the terminal body.

[0004] Under many practical conditions, this connection must also satisfy very severe safety requirements, for example in terms of mechanical stability, impossibility of generating electric arcs or sparks, imperviousness to water or external environmental agents and so on.

[0005] A particular example showing the complexity of the electrical connection of an electromechanical device can be found in the field of refrigerators, in which a compressor has to be structurally and operatively connected to the system for circulation of the refrigerating liquid; usually this compressor is electrically powered by a connector having standard sizes and shapes, known on the market with the name of "FUSITE".

[0006] The hermetic connector of a widespread type is made up of a support base of substantially circular plan, in which three or more electric poles are inserted which pass through the support base and are insulated rela-tive to the latter by suitable hollow spaces filled with an insulating material.

[0007] The connector is then engaged, in accordance with the known art, by an electrical-connection unit that is "external" to the compressor; this connection unit performs the functions, with a more or less high integration degree, of terminal board and/or cable clamping device and/or cover and/or "earthing" device.

[0008] In addition, it is to be pointed out that for the purpose of complying with the severe construction regulations, mounting of this connector on the compressor contemplates the presence of an additional mechanical supporting body (known in the pertinent technical field with the name of "fence") which is designed to bear the whole mechanical interconnection efforts between the compressor and the electrical-connection unit, and in particular the cable clamping device (which, on the contrary, as regards the electric part, is connected to the poles of the "FUSITE" that, however, does not bear any static or dynamic mechanical load).

[0009] While the known art briefly discussed above is widely used, it however has some drawbacks, above all in terms of size compactness, operating flexibility, standardisation and overall production costs, not only of the connector but also of the whole machine making use of it.

[0010] Actually, since a great variety of compressors are known which are very different from each other in terms of shape of the outer casing, positioning at the inside of the refrigerator and sizes, each individual manufacturer of compressors (or more generally each manufacturer of electromechanical devices needing use of a connector of the "FUSITE" type or the like) is necessarily obliged to plan and make, for each of these types, a corresponding mechanical interfacing structure (or fence) and consequently a specific electrical-connection unit; clearly this involves an increase in the production costs and in addition, when the machines is being assembled, also involves the necessity to mount different electrical-connection units each time, depending on the manufacturer producing the compressors (or the electromechanical devices that are necessary for completing the assembly), which adversely affects the operating time on the assembly line, the quality of the finished product and the overall costs and also makes storage of the different pieces more complicated.

[0011] It is also to be pointed out that the operating separation between the capability of absorbing (static or dynamic) mechanical stresses and the capability of ensuring the electrical connection/continuity represents a further factor making planning and manufacture more complicated and also requires the overall bulkiness of the assembly consisting of "connector + electrical-connection unit + compressor" to be increased, which is clearly disadvantageous during planning and manufacture of the whole refrigerator.

[0012] Accordingly, the present invention aims at conceiving an electrical connection unit for electromechanical devices, in particular for refrigerators' compressors and the like, that is capable of obviating the problems connected with above mentioned limits.

[0013] Mainly, the present invention aims at conceiving an electrical connection unit allowing a higher standardisation of the mechanical and electrical interfacing of a compressor (or, more generally, of a similar electromechanical device) and at the same time enabling a substantial integration of the functions of mechanical and electrical connection.

[0014] In addition, the present invention aims at conceiving an electrical connection unit that can be mounted on any type of compressors or electromechanical machines, also for replacing connectors of known type, without requiring modifications and therefore allowing a complete interchangeability with parts of known type.

[0015] Therefore the present invention aims at conceiving an electrical connection unit that is able to offer

appropriate performances in both the mechanical and the electric field, fully in compliance with the regulations in force, while at the same time involving an important reduction in the production and running costs.

[0016] The technical task mentioned and the aims specified are substantially achieved by an electrical connection unit for electromechanical devices, preferably for refrigerators' compressors or the like, having the features set out in one or more of the appended claims.

[0017] The description of a preferred but not exclusive embodiment of an electrical connection unit in accordance with the invention is now given hereinafter and illustrated in the accompanying drawings, in which:

- Fig. 1 is a transverse view, partly in section, of a first embodiment of the present connector;
- Fig. 2 is a sectional plan view of the connector seen in Fig. 1, taken along line II-II in Fig. 1;
- Fig. 3 is a transverse view, partly in section, of a second embodiment of the present connector;
- Fig. 4 is a plan view of the connector seen in Fig. 3; and
- Fig. 5 is a side view, partly in section, of an electrical-connection unit associated with the connector in accordance with the present invention.

[0018] With reference to the drawings, the connector according to the present invention has been generally identified with reference numeral 1 and substantially comprises a support base 2 adapted to be divided into a central portion 2a and a peripheral portion 2b surrounding said central portion 2a; also present is a given number of electric poles 3 (three electric poles for example that are disposed at 120° from each other), which are housed in the central portion 2a.

[0019] Advantageously, the present connector further comprises mechanical-connection means 4 formed in the support base 2 and adapted to enable plugging, preferably of the reversible type, of at least one electric- connection unit to the electric poles 3.

[0020] It should be noted at this point that the present invention markedly differs from the known art: in fact, arrangement of the mechanical-connection means 4 directly on the support base of the connector allows the different types of connections to be standardised and at the same time enables a significant simplification of the assembling operations; by directly connecting, from the mechanical and the electrical point of view, the electrical-connection unit (in turn connectable to cables and/or terminals belonging to an electric circuit) to the connector (which in turn has already been made integral with the compressor or more generally with the electromechanical device), it is possible to eliminate the so-called fence or any other intermediate covering element performing the only function of mechanical support (and possibly the function of environmental protection and/or earthing).

[0021] In other words, by virtue of the mechanical-connection means as above described (and hereinafter claimed) it is advantageously possible to determine two simultaneous functions in a single piece, while respecting the "original" interchangeability with the "FUSITE" connectors of known type and also in compliance with the planning and construction regulations.

[0022] In greater detail, it is possible to see that in the present connector the mechanical-connection means 4 is formed in the peripheral portion 2b and is also adapted to integrally withstand efforts and/or mechanical reactions resulting from connection of the above mentioned electrical-connection unit; for achieving integration of the present invention into complex machines (refrigerators for example, and the like), this electrical-connection unit will be preferably connected to and/or integrated into a terminal board or another similar object and in any case will be plugged in connector 1 without transferring mechanical actions onto the electric poles 3, that at all events will be placed under conditions of circuit continuity with the electrical-connection unit.

[0023] With reference to the accompanying drawings, it is possible to see that the mechanical-connection means 4 can be made in different embodiments, provided they are adapted to achieve the above discussed purpose; at all events means 4 comprises a given number of hooking seats 4a adapted to receive corresponding hooking means (described in greater detail in the following) in engagement, preferably of the reversible type and more preferably of the "snap-fitting" and/or "bayonet-coupling" type, the shape of said hooking means 5 at least partly matching the shape of said hooking seats 4a.

[0024] In one example of an embodiment illustrated in the drawings, the hooking seats 4a comprise a given number of shaped recesses; conveniently said hooking seats are angularly spaced apart the same distance along the peripheral portion 2b (for instance, it is possible to see three hooking seats spaced apart through 120° from each other along the peripheral portion 2b).

[0025] According to another embodiment of the present invention, the mechanical-connection means 4 comprises a flanged expansion 6 jutting out of the support base 2; preferably this flanged expansion 6 juts out of the peripheral portion and extends in an offset plane relative to a lying plane of the central portion 2a.

[0026] In order to ensure compliance with the regulations in force, and supplement the electrical connection between any thing that can be interpreted as "circuit terminal" (or any thing that can be defined as "electrical-connection unit" constituting an operating and/or structural end of an electric circuit external to the electromechanical device) and the electromechanical device with suitable safety measures, the present connector can also contemplate the presence of an electric earthing element, which is associable in a circuit with the previously mentioned electrical-connection unit; advantageously, by utilizing appropriate connections and/or electric insulators in the main body 2, this electric earthing element can include the mechanical-connection means 4 at least partly.

[0027] At all events, the electric earthing element can possibly also consist of a wire/cable to be directly connected to the outer portion of the electromechanical device, to part of the machine frame or directly to the ground, depending on current requirements.

[0028] It is also an object of the present invention to provide an electrical-connection unit having a more or less high operating/structural integration degree and comprising a main body 7 connectable to a predetermined number of electric wires and/or cables, and suitable electrical-connection means 8 formed in said main body 7.

[0029] The electrical-connection means 8 is connectable to the just mentioned electric wires and/or cables and is also associable, at least partly, with corresponding electric poles 3 of a connector 1 that advantageously can be of the type as described above and claimed in the following.

[0030] Still in accordance with an advantageous feature of the present invention, it is possible to notice that this electrical-connection unit can comprise hooking means 5 connectable in a reversible manner to a connector 1; this hooking means 5 is therefore adapted to integrally bear efforts and/or mechanical reactions resulting from connection to connector 1, without mechanical actions being transferred onto the electric poles 3 present in said connector 1, which electric poles are therefore brought into a condition of circuit continuity with the electrical-connection means and therefore indirectly with the cables/wires entering the electrical-connection unit itself.

[0031] It will be recognized that, from the point of view of the present invention, other embodiments of same can advantageously contemplate the hooking means 5 being operatively associated with other parts of the electrical-connection unit, with a more or less high integration degree.

[0032] In greater detail, it is possible to notice that the main body 7 has a shape substantially conforming, at least in cross-section, to the shape of a corresponding interfacing surface of connector 1 (see the accompanying figures, for example).

[0033] In order to ensure the connection stability and at the same time the engagement reversibility, the electrical-connection unit in accordance to the invention further comprises driving means 9 that can be operatively activated on the hooking means so as to configure said hooking means in a reversible manner between an engagement condition at which the hooking means interfaces with the mechanical-connection means 4 of connector 1, and a disengagement condition at which, on the contrary, it can be released relative to the mechanical-connection means 4; in an exemplary although non-limiting embodiment of the present invention, this driving means 9 comprises at least one snap device, consisting, by way of example, of a Belleville washer circumscribed about the main body 7 and peripherally acting on the hooking means 5.

[0034] With reference to the accompanying drawings, it is also possible to notice the presence of a selective-lock body 10 to be operatively activated on the above mentioned snap element, or more generally on the driving means 9, to create the engagement and/or disengagement condition of the hooking means 5.

[0035] In the embodiment shown in the figures, this selective-lock body 10 is circumscribed about the Belleville washer and slidable along the main body 7; the selective-lock body, depending on its position relative to the main body 7, allows or inhibits release of the hooking means 5 from seats 4a.

[0036] As regards the hooking means 5, it is possible to see that the latter can conveniently comprise expansions the shape of which at least partly matches that of the mechanical-connection means 4 of connector 1, and/or hooking projections adapted to be at least partly interfaced with a possible flanged expansion 6 connected to the connector 1 itself.

[0037] In compliance with the safety regulations in force, the electrical-connection unit too can contemplate the presence of an electric earthing element to be connected to the cables and/or wires and/or the electrical-connection means 8.

[0038] Should it be possible in accordance with the current requirements, this electric earthing element may preferably comprise at least part of the hooking means 5, so as to obtain an operating integration between the requirements of mechanical-connection/support and the requirements of electric insulation/leakage; alternatively, and by analogy to the description relating to connector 1, the earthing element can consist of a wire/cable to be directly connected to the outer portion of the electromechanical device or to part of the machine frame or also to the ground, depending on current requirements.

[0039] The invention achieves important advantages.

[0040] In fact, due to the particular construction architecture of the present connector, it is possible to gather the functions of mechanical connection and electrical contact in a single piece, which will make use of the so-called fence typical of the known art redundant; in addition, the connection that, as previously seen, can be of the reversible type, in any case ensures accessibility and possibility of disassembling and can be implemented in compliance with the safety regulations in force.

[0041] Among other things, the present invention enables a complete standardization of the electrical-connection units, irrespective of the shape and/or the sizes of the electromechanical device (or in particular, of the compressor on which connector 1 and/or the electrical connection unit according to the invention is to be installed); in addition, this standardization is obtained with elimination of the "personalization" requirement, which personalization was imposed until now due for example to the different fences adopted by each manufacturer of compressors.

[0042] It should be however appreciated that if use of the fence or "FUSITE-supporting body" is wished to be still continued, as a further safety measure for example,

or for enabling use of different electrical-connection units and/or pre-existent electrical-connection units, the present invention does not inhibit installation of same; in other words, while an advantageous and simultaneous synergy between two functions is obtained by the present invention (mechanical connection with the electrical-connection unit and electrical continuity, as well as separation of the flow of the mechanical efforts relative to the physical connections between the different parts of the electric circuit powering the electromechanical device), at all events said invention offers the operating possibility of fitting also pieces or parts borrowed from the known art on the electromechanical device, which is advantageous for a greater operating flexibility.

[0043] In addition, due to the fact that the shape of the present connector can completely take the place of the shape of the traditional known connector or the so-called "FUSITE" type, planning and installation of all possible types of machines that are studied and manufactured exactly for installation of known connectors is not jeopardized.

[0044] Furthermore, due to the present invention, the necessary electrical conductivity can be ensured simultaneously with an efficient "earthing" and together with a satisfactory mechanical efficiency.

[0045] To be remarked is also the fact that the present invention also ensures an efficient insulation of the electrical connections from any type of undesirable external environmental agent.

[0046] It is finally to be pointed out that the present invention enables the connector to be obtained at low manufacturing costs and does not involve particular complications or require modifications or adaptations on machines of known type, which is advantageous for the overall production economy and the final cost price of the product.

Claims

1. An electrical connection unit, comprising:

- a main body (7) to be connected to a predetermined number of electric wires and/or cables;
- electric-connection means (8) formed in said main body (7) and connectable to said electric wires and/or cables;
- a connector (1) not comprising an intermediate covering element and comprising:
- a support base (2) having a central portion (2a) and a perimeter portion (2b) circumscribing said central portion (2a); and
- electric poles (3) associable with said electric-connection means (8) and housed in said central portion (2a);
- hooking means (5) reversibly connectable to said connector (1) and being adapted to integrally withstand efforts and/or mechanical reactions resulting from connection to said connector (1) without transferring mechanical actions onto the electric poles (3) present on said connector (1); and
- mechanical-connection means (4) directly and integrally formed in said perimeter portion (2b) and adapted to receive in reversible engagement hooking means (5), said mechanical-connection means (4) allowing reversible plugging of said electrical-connection unit (1) to said electric poles (3) and being adapted to integrally withstand efforts and/or mechanical reactions resulting from a connection of said electrical-connection unit (1) without transferring mechanical actions onto the electric poles (3) themselves, **characterised in that** it further comprises:

- driving means (9) operatively activated on the hooking means (5) so that said hooking means (5) is reversibly configured between an engagement condition, in which said means can be interfaced with the mechanical-connection means (4) of the connector (1), and a disengagement condition, in which said means can be disengaged relative to said mechanical-connection means (4); and
- a selective-lock body (10) that can be operatively activated on said driving means (9) to determine the engagement condition and/or the disengagement condition of the hooking means (5), said selective-lock body (10) being slidable along the main body (7).

2. A unit as claimed in claim 1, wherein said hooking means (5) comprise expansions shaped so as to at least partly match a shape of hooking projections at least partly interfaceable with a flanged expansion (6) connected to the connector (1), said mechanical-connection means (4) further comprising a predetermined number of hooking seats (4a) adapted to receive said hooking means (5).

3. A unit as claimed in claim 2, wherein the hooking seats (4a) comprise a predetermined number of shaped recesses.

4. A unit as claimed in claim 2, wherein the hooking seats (4a) are angularly spaced apart the same distance along the perimeter portion (2b).

5. A unit as claimed in anyone of the preceding claims, wherein said driving means (9) comprises at least one snap device comprising at least one Belleville spring/washer circumscribed about the main body (7), said snap device acting on the hooking means (5) along the perimeter thereof, said selective-lock

body (10) being activated on said snap device and being circumscribed about said Belleville spring/washer.

6. A unit as claimed in anyone of the preceding claims, wherein also present is an electric earthing element to be connected to said cables and/or wires and/or electrical-connection means (8), said electric earthing element comprising at least part of the hooking means (5) or at least part of the mechanical-connection means (4).

7. A unit as claimed in anyone of the preceding claims, wherein the mechanical-connection means (4) comprises a flanged expansion (6) jutting out of the perimeter portion (2b), said flanged expansion (6) extending in an offset plane relative to a lying plane of the central portion (2a).

Patentansprüche

1. Elektrische Verbindungseinheit, umfassend:

- einen Hauptkörper (7), der mit einer vorbestimmten Anzahl von elektrischen Drähten und/oder Kabeln zu verbinden ist;
- Elektro-Verbindungsmittel (8), die im Hauptteil (7) gebildet werden und an den elektrischen Drähten und/oder Kabeln verbindbar sind;
- einen Steckverbinder (1) umfassend kein dazwischenliegendes Abdeckelement und umfassend:
- eine Stützbasis (2), die einen Mittelabschnitt (2a) und einen Umfansgabschnitt (2b) aufweist, die einen Mittelabschnitt (2a) umschreibt; und
- elektrische Pole (3), die mit den Elektro-Verbindungsmitteln (8) assozierbar und in dem Mittelabschnitt (2a) untergebracht sind;
- Einhakmittel (5), die reversibel mit dem Steckverbinder (1) verbindbar sind und die so angepasst sind, dass sie mit den aus der Verbindung mit dem Steckverbinder (1) resultierenden Anstrengungen und/oder mechanischen Reaktionen widerstehen, ohne mechanische Einwirkungen auf die auf dem Steckverbinder (I) vorhandenen elektrischen Pole (3) zu übertragen; und
- mechanische Verbindungsmittel (4), die direkt und integral in dem Umfangsabschnitt (2b) gebildet sind und angepasst sind, um in reversiblem Eingriff Hakenmittel (5) aufzunehmen, wobei die mechanischen Verbindungsmittel (4) ein reversibles Stecken der elektrischen Verbindungseinheit (1) auf die elektrischen Pole (3) ermöglichen und wobei sie angepasst sind, um Anstrengungen und/oder mechanische Reaktionen, die sich aus einer Verbindung der elektrischen Verbindungseinheit (1) ergeben, integral zu widerstehen, ohne mechanische Einwirkungen auf die elektrischen Pole (3) selbst zu übertragen, **dadurch gekennzeichnet, dass** sie ferner umfassen:

- Antriebsmittel (9), die an den Hakenmitteln (5) wirksam aktiviert werden, so dass die Hakenmittel (5) zwischen einem Eingriffszustand, in dem die Mittel an die mechanischen Verbindungsmittel (4) des Steckverbinders (1) gekoppelt werden können, und einem Ausrückzustand, in dem die Mittel relativ zu den mechanischen Verbindungsmitteln (4) gelöst werden kann, reversibel konfiguriert sind; und
- einen Selektivverriegelungskörper (10), der an den Antriebsmittel (9) wirksam aktiviert werden kann, um den Eingriffszustand und/oder den Ausrückzustand der Hakenmittel (5) zu bestimmen, wobei der Selektivverriegelungskörper (10) entlang des Hauptkörpers (7) verschiebbar ist.

2. Einheit nach Anspruch 1, wobei Hakenmittel (5) Erweiterungen umfassen, die geformt sind, um mit einer Form der Hakenprojektionen, die zumindest teilweise an eine mit dem Steckverbinder (1) verbundenen geflanschte Erweiterung (6) koppelbar sind, übereinzustimmen, wobei die mechanischen Verbindungsmittel (4) ferner eine vorbestimmte Anzahl von Hakenitzen (4a) umfassen, die angepasst sind, um Hakenmittel (5) aufzunehmen.

3. Einheit nach Anspruch 2, wobei die Hakensitze (4a) eine vorbestimmte Anzahl von geformten Ausnehmungen aufweisen.

4. Einheit nach Anspruch 2, wobei die Hakensitze (4a) im gleichen Abstand entlang des Umfangsabschnitts (2b) winklig voneinander beabstandet sind.

5. Einheit nach einem der vorhergehenden Ansprüche, wobei die Antriebsmittel (9) zumindest eine Schnappvorrichtung umfasst, die zumindest eine Tellerfeder/Scheibe umfasst, die um den Hauptkörper (7) umschrieben sind, wobei die Schnappvorrichtung auf die Hakenmittel (5) entlang ihres Umfangs wirkt, wobei der Selektivverriegelungskörper (10) auf die Schnappvorrichtung aktiviert wird und die Tellerfeder/Scheibe umschrieben werden.

6. Einheit nach einem der vorhergehenden Ansprüche, wobei ein elektrisches Erdungslement ebenfalls vorhanden ist, der mit den Kabeln und/oder Drähten und/oder elektrischen Verbindungsmitteln (8) verbunden werden muss, wobei das elektrische Erdungslement teilweise einen Teil der Hakenmittel (5)

oder zumindest einen Teil der mechanischen Verbindungsmittel (4) umfasst.

7. Einheit nach einem der vorhergehenden Ansprüche, wobei die mechanischen Verbindungsmittel (4) eine geflanschte Erweiterung (6) umfassen, die vom Umfangsabschnitt (2b) herausragt, wobei die geflanschte Erweiterung (6) sich in einer versetzten Ebene im Vergleich zu einer liegenden Ebene des Mittelabschnitts (2a) erstreckt.

Revendications

1. Module de connexion électrique comprenant :

- un corps principal (7) à connecter à un nombre prédéterminé de fils et/ou de câbles électriques ;
- des moyens de connexion électriques (8) formés dans ledit corps principal (7) et pouvant être connectés auxdits fils et/ou câbles électriques ;
- un connecteur (1) ne comprenant pas un élément de recouvrement intermédiaire et comprenant :
- une base de support (2) comportant une partie centrale (2a) et une partie périmétrale (2b) circonscrivant ladite partie centrale (2a) ; et
- des pôles électriques (3) pouvant être associés auxdits moyens de connexion électriques (8) et logés dans ladite partie centrale (2a) ;
- des moyens d'accrochage (5) pouvant être connectés de façon réversible au dit connecteur (1) et étant adaptés pour résister intégralement aux efforts et/ou aux réactions mécaniques résultant de la connexion au dit connecteur (1) sans transférer d'actions mécaniques sur les pôles électriques (3) présents sur ledit connecteur (1) ; et
- des moyens de connexion mécaniques (4) formés directement et intégralement dans ladite partie périmétrale (2b) et adaptés pour recevoir des moyens d'accrochage (5) mis en prise de façon réversible, lesdits moyens de connexion mécaniques (4) permettant le branchement dudit module de connexion électrique (1) auxdits pôles électriques (3) et étant adaptés pour résister intégralement aux efforts et/ou aux réactions mécaniques résultant d'une connexion au dit module de connexion électrique (1) sans transférer d'actions mécaniques sur les pôles électriques (3) eux-mêmes, **caractérisé en ce qu'**il comprend de plus :

- des moyens d'entraînement (9) fonctionnellement activés sur les moyens d'accrochage (5) de sorte que lesdits moyens d'accrochage (5) sont configurés de façon réversible entre une condition d'engagement, dans laquelle lesdits moyens peuvent être mis en interface avec les moyens de connexion mécanique (4) du connecteur (1), et une condition de désengagement, dans laquelle lesdits moyens peuvent être désengagés par rapport auxdits moyens de connexion mécanique (4) ; et
- un corps de blocage sélectif (10) pouvant être fonctionnellement activé sur lesdits moyens d'entraînement (9) pour déterminer la condition d'engagement et/ou la condition de désengagement des moyens d'accrochage (5), ledit corps de blocage sélectif (10) pouvant coulisser le long du corps principal (7).

2. Module selon la revendication 1, dans lequel lesdits moyens d'accrochage (5) comprennent des expansions façonnées de manière à au moins partiellement correspondre à une forme de saillies d'accrochage au moins partiellement mis en interface avec une expansion bridée (6) raccordée au connecteur (1), lesdits moyens de connexion mécaniques (4) comprenant de plus un nombre prédéterminé de sièges d'accrochage (4a) pouvant recevoir lesdits moyens d'accrochage (5).

3. Module selon la revendication 2, dans lequel les sièges d'accrochage (4a) comprennent un nombre prédéterminé de renfoncements façonnés.

4. Module selon la revendication 2, dans lequel les sièges d'accrochage (4a) sont angulairement équidistants le long de la partie périmétrale (2b).

5. Module selon l'une quelconque des revendications précédentes, dans lequel lesdits moyens d'entraînement (9) comprennent au moins un dispositif à encliquetage comprenant au moins un(e) ressort/rondelle Belleville circonscrit(e) autour du corps principal (7), ledit dispositif à encliquetage agissant sur les moyens d'accrochage (5) le long de son périmètre, ledit corps de blocage sélectif (10) étant activé sur ledit dispositif à encliquetage et étant circonscrit autour dudit/de ladite ressort/rondelle de Belleville.

6. Module selon l'une quelconque des revendications précédentes, dans lequel se trouve aussi un élément de mise à la terre électrique à raccorder auxdits câbles et/ou fils et/ou moyens de connexion électrique (8), ledit élément de mise à la terre comprenant au moins une partie des moyens d'accrochage (5) ou au moins une partie des moyens de connexion mécanique (4).

7. Module selon l'une quelconque des revendications

précédentes, dans lequel les moyens de connexion mécanique (4) comprennent une expansion bridée (6) faisant saillie hors de la partie périmétrale (2b), ladite expansion bridée (6) se prolongeant dans un plan décalé par rapport à un plan d'appui de la partie centrale (2a).

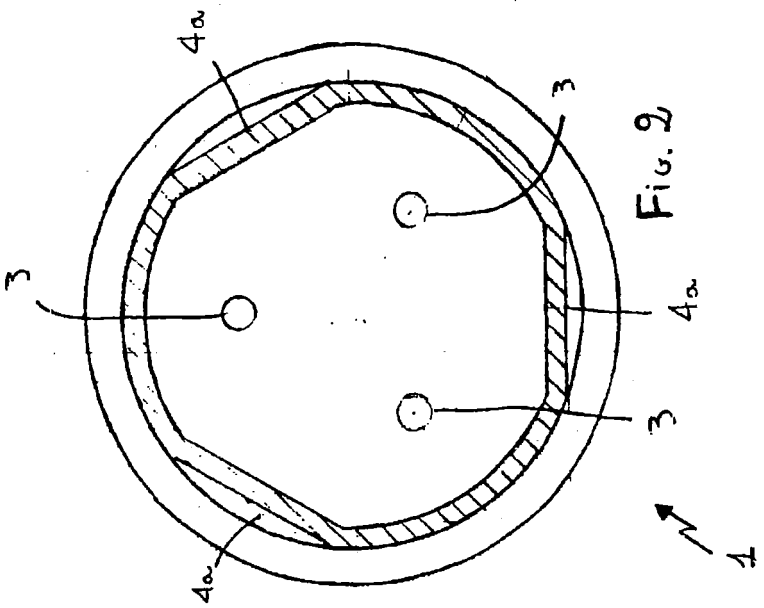


Fig. 2

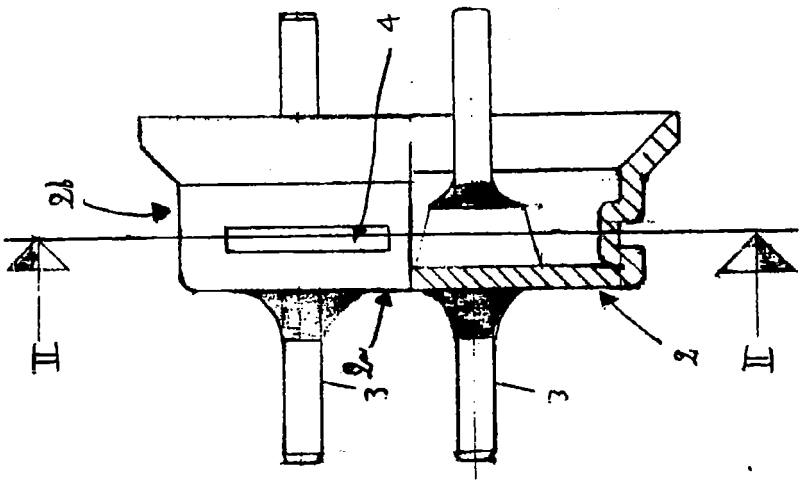


Fig. 1

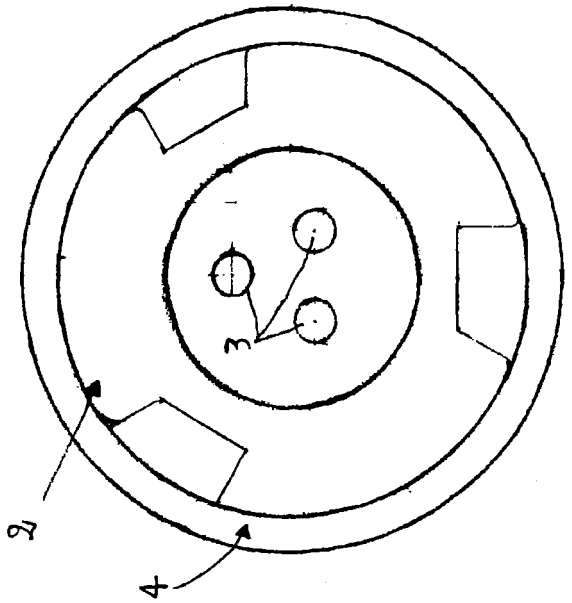


Fig. 4

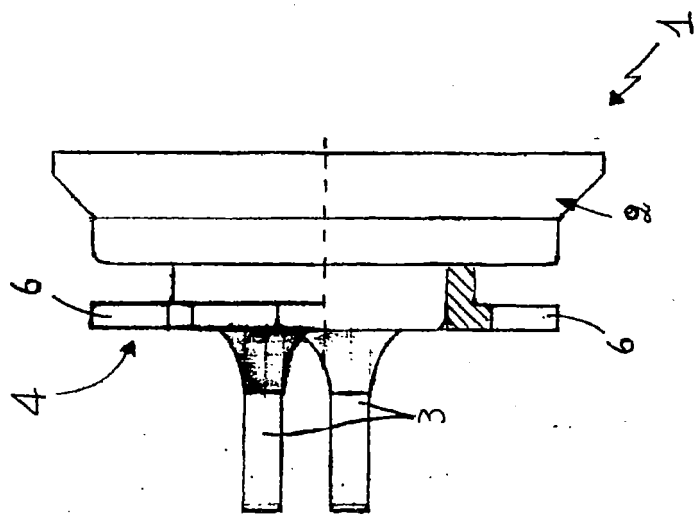


Fig. 3

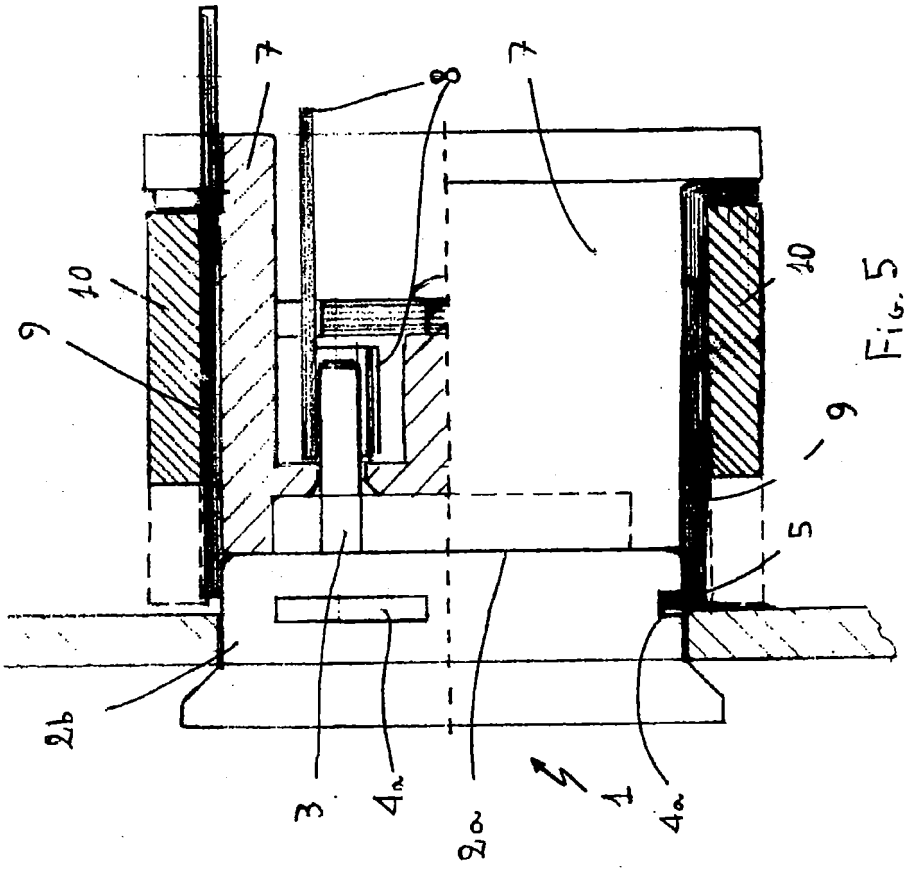


Fig. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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