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(71) Applicant: **Ormazabal Y Cia., S.L.U.**
48140 Igorre (ES)

(72) Inventors:
- **Casado Cartón, Juan María**
  48140 Igorre (Vizcaya) (ES)
- **Arteche Menchaca, Asier**
  48140 Igorre (Vizcaya) (ES)
- **Inchausti Sancho, José Manuel**
  48140 Igorre (Vizcaya) (ES)

(74) Representative: **Carpintero Lopez, Francisco et al**
Herrero & Asociados, S.L.
C/ Alcala, 35
28014 Madrid (ES)

(54) Actuation transmission system for electrical equipment

(57) The invention relates to an actuation transmission system for electrical equipment, joined with a moving contact (26) of a three-position switch (2), with a fixed contact (27) and a grounding contact (25), by means of a transmission bar (3). The actuation transmission system (24) comprises a compression sub-assembly (1) that comprises at least one inner elastic component (5, 6) and retaining means (7, 8, 9, 10) of said, at least one, inner elastic component (5, 6), said, at least one, inner elastic component (5, 6) and retaining means (7, 8, 9, 10) configured to join and keep the moving contact (26) and the fixed contact (27) connected, to join and keep the moving contact (26) and the grounding contact (25) connected and to guarantee the insulation between the two parts of the circuit in the isolating position of the switch (2), respectively.

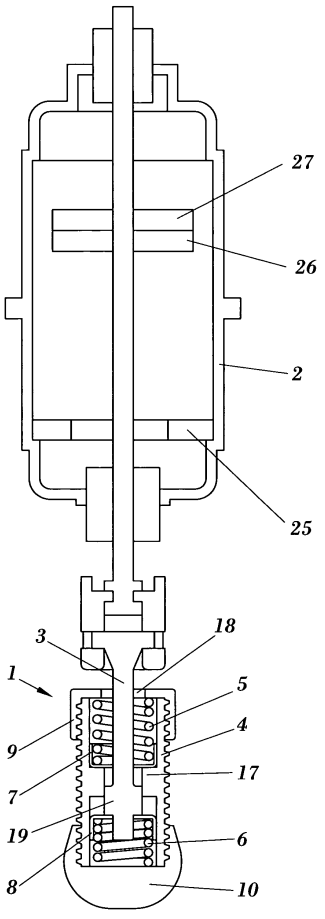

FIG. 2

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Description

OBJECT OF THE INVENTION

[0001] The present invention relates to an actuation transmission system for electrical equipment, and specifically, to the application of short-circuit switches and automatic circuit breakers with three switching functions (power cut/connection, isolating and grounding), which comprises a compression sub-assembly provided with a plurality of elastic and retaining components that guarantee the joining of the moving contact with the fixed contact or with the grounding contact of the circuit-breaker even in surge current or short circuit conditions, such as the insulation between two parts of the circuit when the switch is in the power cut position or in the isolating position.

BACKGROUND OF THE INVENTION

[0002] The switchgear used in power grids comprises switching components that fulfil the installation functions of power cut/connection, isolating and grounding. In this way where there are cases such as a fault in the distribution line, a power cut due to repairs, maintenance or optimization in the distribution of the electric load, said switching components can be actuated to obtain the desired power distribution, preventing the consumers from being left without voltage and guaranteeing the protection of people and electrical equipment such as, for example, transformers.

[0003] These switching components can consist of automatic circuit breakers or short-circuit switches, provided with a moving contact and a fixed contact, including a grounding contact in these three-position switching components (power cut/connection - isolating - grounding). For the execution of these switching functions, the moving contact of the switch transmits thereto an actuation force produced by a switching mechanism, frequently called a control. The actuation of the switching mechanism can be either voluntary, ordered by an operator independent from the value of the current, or due to the action of a device sensitive to certain values of current that directly or indirectly order the opening of the circuit.

[0004] The transfer of the actuation force between the switching mechanism and the moving contact of the switch is carried out through a transmission system inserted therebetween. The coupling between the actuation transmission system and the switching mechanism can consist of a rigid coupling or a non-rigid coupling.

[0005] This actuation transmission system can consist of a linear system, i.e. the transfer of the actuation force arises over a single axis, or can consist of a non-linear system, i.e. that the switching mechanism and the switch are mounted on different axes and therefore the conversion of the movement emitted by the switching mechanism before transmitting it to the moving contact of the switch is necessary, such as, for example, the conversion of a horizontal movement to one of vertical movement.

[0006] In the United States patent application US 2002067230 or in United States patent US 5055640, for example, it can be observed that the switch and the switching mechanism are not mounted on the same axis, which has the drawback that the actuation transmission system has to make several movement conversions before transmitting said movement to the moving contact of the switch, which means that the use of the transmission system is more complex, requiring a larger number of components, which as a consequence means that the dimensions of the electric switchgear are generally greater.

[0007] Normally, the actuation transmission system is a longitudinal bar that directly transmits the movement from the switching mechanism to the moving contact of the switch. Therefore, it is a rigid transmission, wherein the movement is transferred without any damping or system that produces the balancing of force. In this way, the use of this kind of transmission system involves the risk that the transmitted movement could exert a pressure between the contacts of the switch which could entail the deterioration or destruction thereof. In this sense, patent application WO 02082606 and European patent EP 0393733 defines solutions wherein the transmission system used is rigid.

[0008] In the power cut or isolating position, the switch must maintain or support the insulatation between the two parts of the circuit, while in the connection position, the switch must conduct nominal currents in a permanent way, such as endure certain accidental or abnormal situations, which could be surge currents or short-circuits, for a period of time. Likewise, the switch in the grounding position must be capable of maintaining said position in short-circuit situations.

[0009] During the operation of power cut the formation of an electric arc between the separate contacts is possible, this being an undesired phenomenon that has to be avoided given that the formation of the arc may destroy the insulation and the contacts, such as produce a sudden temperature and pressure increase that might produce explosions that cause material damage, formation of toxic gases, and even personal harm. Therefore, the time of the power cut is fundamental, given that from the time of the contact situation step until the final separation, the contacts pass through a range of distances wherein the electric arc could be produced, for which reason said step has to be as fast as possible, i.e. the time of the power cut be minimal, with the objective of minimizing said risk.

[0010] The switches must be designed in such a way that they can not abandon their switching positions because of gravity, vibrations or because of the action of electrodynamic forces caused by short-circuit. Therefore, these specified phenomena must not reduce the safety of the functioning or aptitude of the switch to bear the current. In this sense, in the examples of the patents previously mentioned the joining between the contacts

of the switch is not guaranteed, nor is the maintenance of the power cut or isolating position guaranteed when there is one of the aforementioned phenomena.

DESCRIPTION OF THE INVENTION

[0011] The present invention relates to an actuation transmission system for electrical equipment, such as, for example, switching components that may consist of automatic circuit breakers or short-circuit switches with three switching positions; a first power cut/connection position, a second isolating position and a third grounding position. Said actuation transmission system can be configured as a linear system, for which the transfer of the actuation force produced by the switching mechanism is carried out on the same axial axis whereupon said switching mechanism and the switch is mounted, thereby avoiding the necessity of making movement conversion before transmitting them to the moving contact of the switch.

[0012] Said actuation transmission system comprises a compression sub-assembly that guarantees the joining of the moving contact with the fixed contact in the connection position or with the grounding contact in the grounding position of the switch in either surge current or short-circuit conditions, a situation wherein the electrodynamic forces, produced by the intensity of the current and the magnetic field created, tend to separate the contacts. Likewise, the compression sub-assembly guarantees the separation between the contacts in the isolating position of the switch, maintaining the insulation between two parts of the circuit without the formation of an electric arc being possible.

[0013] The actuation transmission system is situated between the switching mechanism and the three-position switch, which is provided with a moving contact, a fixed contact and a grounding contact, the connecting component between the switch and the actuation transmission system being a transmission bar that forms part of said actuation system. With regard to the coupling between the switching mechanism and the actuation transmission system, this can consist of a rigid coupling or, on the contrary, a non-rigid coupling.

[0014] One part of the transmission bar is integrated within the compression sub-assembly and moves axially therethrough, this movement being due to the actuation force produced by the switching mechanism for the execution of the position change of the switching operation.

[0015] In accordance with the invention, the compression sub-assembly comprises at least one inner elastic component, such as, for example, a compression spring, and retaining means of said, at least one, inner elastic component. Said retaining means can be divided into first retaining means and second retaining means. These retaining means can be disposed in form of shields or washers. The first retaining means can be supported about an inner peripheral protuberance that can comprise a unidirectional bushing body wherein is inserted part of the transmission bar. The second retaining means can be situated closing the open ends of said unidirectional bushing body. The inner elastic components can be compressed by a peripheral protuberance of the transmission bar, situated between the first retaining means that rest on the aforementioned protuberance and the second retaining means that close the open ends of the body. One of these second retaining means, through a hollow, allows for the insertion of the transmission bar to the compression sub-assembly.

[0016] It is considered as a possibility that the compression sub-assembly, on the outside of the unidirectional bushing body, comprises outer elastic components, and third and fourth retaining means. The third and fourth retaining means could be configured to retain the outer elastic components. The outer elastic components could consist of compression springs. The third retaining means could be shields or washers, while the fourth retaining means could be shields. Likewise, the unidirectional bushing body could comprise an exterior peripheral protuberance whereupon the third retaining means are supported, outside of the bushing body, and the fourth retaining means could be disposed at each end of the body. Therefore, the outer elastic components could be compressed between the third and fourth retaining means.

[0017] On the other hand, the compression sub-assembly comprises a cylindrical bushing liner that covers all of the components that form said sub-assembly, this liner being disposed between the complementary fourth retaining means which compress the outer elastic components. A steady bearing is disposed around the exterior protuberance of the body, limiting the movement of the outer elastic components.

[0018] During a connection operation of the switch, the actuation force produced by the switching mechanism causes the assembly of components formed by the unidirectional bushing body, the inner elastic components and the outer elastic components, to move. In this way, the movement of this assembly of components entails the movement of the transmission bar and, in turn, the movement of the moving contact of the switch, obtaining the joining between the moving contact and fixed contact as a result. This joining is carried out in a damped fashion, since when the moving contact comes up against the fixed contact, the transmission bar can not continue moving, so the remaining part of the movement produces the compression of an inner elastic component, this compression being caused by the pressure exerted by the transmission bar, by means of a peripheral protuberance that this disposes, about a first retaining means, thereby damping the connection between the switch contacts and preventing any deterioration thereof due to a violent joining. Likewise, the compression of the inner elastic component guarantees the maintenance of the connection between the fixed contact and the moving contact, even bearing certain accidental or abnormal situations, such as surge currents or short-circuits, for a while.

[0019] During a isolating operation of the switch, in the

moment when the switching mechanism intervenes in the opening operation, the inner elastic component of the compression sub-assembly, compressed in the connection operation, returns to its decompression state, and once the circuit is opened, these inner elastic components that are disposed decompressed, guarantee the separation between the fixed contact and the moving contact of the switch, maintaining the insulation between the two parts of the circuit.

[0020] During the grounding operation of the switch, in a similar way to in the connection operation but in the opposite direction of movement, the actuation force produced by the switching mechanism causes the sub-assembly of components formed by the unidirectional bushing body, the inner elastic components and the first retaining means, to move. In this way, the movement of this assembly of components entails the movement of the transmission bar and, in turn, the movement of the moving contact of the switch, obtaining the joining between the moving contact and grounding contact of the switch as a result. This joining is carried out in a damped fashion, since when the moving contact comes up against the grounding contact the transmission bar can not continue moving, so the remaining part of the movement produces the compression of an inner elastic component, this compression being caused by the pressure exerted by the transmission bar, by means of a peripheral protuberance that this disposes, above a first retaining means, specifically the first retaining means opposite the one that acts in the connection operation, thereby damping the connection between the switch contacts and preventing any deterioration thereof due to a violent joining. Likewise, the compression of the inner elastic component guarantees the maintenance of the connection between the grounding contact and the moving contact, even in short-circuit situations.

[0021] In the case that the coupling between the switching mechanism and the actuation transmission system is not rigid, as has been previously mentioned, the compression sub-assembly can also comprise outer elastic components and their respective retaining means, these being the third and fourth retaining means, so that during a connection operation or a grounding operation, in addition to the compression of one of the inner elastic components, the compression of an outer elastic component is produced due to the movement of the unidirectional bushing body, since the exterior peripheral protuberance of said body exerts a pressure on said third retaining body. Consequently, during a power cut or isolating operation of the switch, the compressed outer elastic component, by means of decompression thereof collaborates in the separation between the moving contact and the fixed contact or in the separation between the moving contact and the grounding contact of the switch.

[0022] Furthermore, dealing with a non-rigid coupling between the switching mechanism and the actuation transmission system, these outer elastic components allow the assembly formed by the unidirectional bushing body, the inner elastic means and the first and second retaining means, to remain secured in their position without risk of fluctuation.

DESCRIPTION OF THE DRAWINGS

[0023] In order to complement the description being made and with the object of helping towards a better understanding of the characteristics of the invention, in accordance with the preferred embodiment examples thereof, a assembly of figures has been included as an integral part of said description wherein, in an illustrative and non-limitative character, the following has been represented.

Fig. 1 Shows a perspective view of the compression sub-assembly that comprises the actuation transmission system associated with the switch by means of a transmission bar.

Fig. 2 Shows a sectional view of a possible embodiment of the compression sub-assembly that comprises a unidirectional bushing body, inner elastic components, first and second retaining means, as well as a transmission bar for the coupling between the actuation transmission system and the switch, the compression sub-assembly being, in this case, in a position such that the switch is in the connection position.

Fig. 3 Shows another sectional view of the form of embodiment of the compression sub-assembly represented in figure 2, wherein the compression sub-assembly is, in this case, in a position such that the switch is in the isolating position.

Fig. 4 Shows another sectional view of the form of embodiment of the compression sub-assembly represented in figure 2, wherein the compression sub-assembly is, in this case, in a position such that the switch is in the grounding position.

Fig. 5 Shows a sectional view of another possible embodiment of the compression sub-assembly that comprises a unidirectional bushing body, inner and outer elastic components, retaining means of said elastic components, a cylindrical liner that covers all of the components that form part of the compression sub-assembly, as well as a transmission bar for the coupling between the actuation transmission system and the switch, said compression sub-assembly, in this case, in a position such that the switch is in the connection position.

Fig. 6 Shows another sectional view of the form of embodiment of the compression sub-assembly represented in figure 5, wherein the compression sub-assembly, in this case, is in a position such that the switch is in the isolating position.

Fig. 7 Shows another sectional view of the form of embodiment of the compression sub-assembly represented in figure 5, wherein the compres-

sion sub-assembly, in this case, is in a position such that the switch is in the grounding position.

PREFERRED EMBODIMENT OF THE INVENTION

[0024] According to the figures shown, in can be observed how the device relates to an actuation transmission system (24) for electrical equipment, such as, for example, an automatic circuit-breaker or a short-circuit switch, with the possibility of this system (24) configured as a linear system, wherein the transfer of the actuation force produced by the switching mechanism (23) which is carried out above the same axial axes whereupon said switching mechanism (23) and the switch (2) are mounted.

[0025] As can be observed in figure 1, this actuation transmission system (24) comprises a compression sub-assembly (1) that is joined by a transmission bar (3) to the moving contact (26) of a switch (2), whether an automatic circuit-breaker or a short-circuit breaker, in either of the cases being a three-position switch (2), a first power cut/connection position, a second isolating position and a third grounding position, so the switch (2) comprises a fixed contact (27), a moving contact (26) and a grounding contact (25). On the other hand, the actuation transmission system (24) and the switching mechanism (23) can be coupled in a rigid fashion or, on the contrary, by means of a non-rigid coupling.

[0026] The compression sub-assembly (1), as shown in figures 2-4, comprises a unidirectional bushing body (4) that, in turn, is provided with inner springs (5, 6), first retaining means (7, 8) and second retaining means (9, 10) of said springs (5, 6); the first spring (5) is disposed between a first retaining means (7) and a first second retaining means (9) and the second spring (6) between a second first retaining means (8) and a second retaining means (19). The first retaining means (7, 8) can be disposed in the form of washers or shields, while the second retaining means (9, 10) close off the open ends of the body (4) and therefore are disposed in the form of shields. Likewise, the body (4) comprises an inner peripheral protuberance (17) wherein the first retaining means (7, 8) can be supported. These first retaining means (7, 8), in turn, can be lean on a peripheral protuberance (19) that comprises the transmission bar (3).

[0027] The transmission bar (3) forms part of the actuation transmission system (24), and as can be observed in figures 2-4, part of this bar (3) is incorporated within the interior of the compression sub-assembly (1) through a hollow (18) established in the first second retaining means (9), so that this transmission bar (3) can move axially through the interior of the compression sub-assembly (1) due to the actuation force produced by the switching mechanism (23) for the execution of the position change of the operation of the switch (2).

[0028] During a connection operation of the switch (2), the actuation force produced by the switching mechanism (23) causes the movement of the assembly of components formed by the unidirectional bushing body (4), the inner springs (5, 6) and the first and second retaining means (7, 8, 9, 10). Thus, the movement of this assembly of components entails the movement of the moving contact (26) of the switch (2), obtaining as a result the joining between the moving contact (26) and the fixed contact (27). This joining is done in a damped fashion, since when the moving contact (26) comes up against the fixed contact (27), the transmission bar (3) can not continue moving, so the remaining part of the movement produces the compression of the second spring (6), as shown in figure 2, this compression being caused by the pressure exerted by the transmission bar (3), by means of a peripheral protuberance (19) that this disposes, above the second first retaining means (8), thereby damping the connection between the switch contacts (2) and preventing any deterioration thereof due to a violent joining. Likewise, the compression of the second spring (6) guarantees the maintenance of the connection between the fixed contact (27) and the moving contact (26), even bearing certain accidental or abnormal situations, such as surge currents or short-circuits, for a while.

[0029] During a power cut or isolating operation of the switch (2), at the moment when the switching mechanism (23) intervenes in the opening operation, the second spring (6) of the compression sub-assembly (1), compressed in the connection operation, returns to its decompression state, as shown in figure 3, and once the circuit is opened, the springs (5, 6) which are decompressed, guarantee the separation between the fixed contact (27) and the moving contact (26) of the switch (2), maintaining the insulation between both parts of the circuit.

[0030] During a grounding operation of the switch (2), in a similar way to that of the connection operation but in the opposite moving direction, the actuation force produced by the switching mechanism (23) causes the assembly of components formed by the unidirectional bushing body (4), the inner springs (5, 6) and the first and second retaining means (7, 8, 9, 10). Therefore, the movement of this assembly of components entails the movement of the transmission bar (3) and, in turn, the movement of the moving contact (26) of the switch (2), obtaining the joining between the moving contact (26) and the grounding contact (25) of the switch (2) as a result. This joining is performed in a damping fashion, since when the moving contact (26) comes up against the grounding contact (25), the transmission bar (3) can not continue moving, so the remaining part of the movement produces the compression of the first inner spring (5), as shown in figure 4, this compression being caused by the pressure exerted by the transmission bar (3), by means of the peripheral protuberance (19) that this disposes, above the retaining means (7), thereby damping the connection between the switch (2) contacts and preventing any deterioration thereof due to a violent joining. Likewise, the compression of the first spring (5) guarantees the maintenance of the connection between the

grounding contact (25) and the moving contact (26), even in short-circuit situations.

[0031] In the case that the coupling between the switching mechanism (23) and the actuation transmission system (24) is not rigid, as is shown in figures 5-7, the possibility that the compression sub-assembly (1) comprises outer springs (11, 12), that are disposed at each end of the unidirectional bushing body (4) and around thereof, is considered, these possibly being able to consist of compression springs. Likewise, the unidirectional bushing body (4) comprises an outer peripheral protuberance (20) whereupon third retaining means (14, 15) can be supported outside of the bushing body (4), as well as complementary fourth retaining means (13, 16) disposed on each one of the ends of the body (4) and around the second retaining means (9, 10), which close the open ends of the unidirectional bushing body (4), in a way that the first outer spring (14) and a first fourth retaining means (13) and the second outer spring (12) can be compressed between a second third retaining means (15) and a second fourth retaining means (16).

[0032] In the case mentioned in the previous paragraph, during a connection operation of the switch (2), shown in figure 5, in addition to the compression of the second spring (6), the compression of the second outer spring (12) is produced, due to the movement of the unidirectional bushing body (4), since the outer peripheral protuberance (20) of said body (4) exerts a pressure on the second third outer retaining means (15). Consequently, during a power cut or isolating operation of the switch (2), the second compressed outer spring (12), by means of its decompression, collaborates in the separation between the moving contact (26) and the fixed contact (27) of the switch (2).

[0033] In a similar way, during a grounding operation of the switch (2), shown in figure 7, in addition to the compression of the first inner spring (5), the compression of the first outer spring (11) is produced, due to the movement of the unidirectional bushing body (4), since the outer peripheral protuberance (20) of said body (4) exerts a pressure on the first third outer retaining means (14). Consequently, during a isolating operation of the switch (2), the first compressed outer spring (11), by means of its decompression, collaborates in the separation between the moving contact (26) and the grounding contact (25) of the switch (2).

[0034] Furthermore, dealing with a non-rigid coupling between the switching mechanism (23) and the actuation transmission system (24), these outer springs (11, 12) allow the assembly formed by the unidirectional bushing body (4), the inner springs (5, 6) and the first and second retaining means (7, 8, 9, 10), to remain secured in their position without risk of fluctuation. In addition to the connection and grounding positions mentioned in figure 5 and 7, the isolating position, shown in figure 6, is equally stable due to the joint action of the outer springs (11, 12), the inner springs (5, 6), the first and second retaining means (7, 8, 9, 10) and the third and fourth retaining means (14, 15, 13, 16).

[0035] Finally, as can be observed in figures 5-7, the compression sub-assembly (1) comprises a cylindrical bushing liner (22) which covers all of the components that form said sub-assembly (1), this liner (22) being disposed between the fourth retaining means (13, 16). On the other hand, a steady bearing (21) is disposed around the exterior protuberance (20) of the body (4), limiting the movement of the outer springs (11, 12).

Claims

1. Actuation transmission system for electrical equipment, said transmission system (24) being joined, by a transmission bar (3), with a moving contact (26) of a three-position switch (2), a first power cut/connection position, a second isolating position and a third grounding position, with a fixed contact (27) and a grounding contact (25),
   characterised in that
   the actuation transmission system (24) comprises a compression sub-assembly (1) that comprises at least one inner elastic component (5, 6) and retaining means (7, 8, 9, 10) of said, at least one, inner elastic component (5, 6), that comprises first retaining means (7, 8) and second retaining means (9, 10), said, at least, one inner elastic component (5, 6) and retaining means (7, 8, 9, 10) configured to compress a second inner elastic component (6) in the connection position of the switch, compressing a first inner elastic component (5) in the grounding position of the switch and decompressing the, at least one, inner elastic component (5, 6) in the isolating position of the switch (2).

2. Actuation transmission system for electrical equipment according to claim 1, **characterised in that** it comprises a unidirectional bushing body (4) that integrates inside the, at least one, inner elastic component (5, 6) and the first retaining means (7, 8).

3. Actuation transmission system for electrical equipment according to claim 2, **characterised in that** the actuation transmission system is linear.

4. Actuation transmission system for electrical equipment according to either claim 2 or 3, **characterised in that** the unidirectional bushing body (4) comprises an inner peripheral protuberance (17) configured to function as a buffer of the first inner retaining means (7, 8) to the unidirectional bushing boty (4).

5. Actuation transmission system for electrical equipment according to claim 4, **characterised in that** the second retaining means (9, 10) are joined to the unidirectional bushing body (4) by each one of its open ends the, at least, one inner elastic component

(5, 6) remaining disposed between the first retaining means (7, 8) and the second retaining means (9, 10), said inner elastic components (5, 6) being compression springs.

6. Actuation transmission system for electrical equipment according to any of claims 2-5, **characterised in that** the first retaining means (7, 8) are disposed in a form selected between washers and shields, and the second retaining means (9, 10) are disposed in the form of a shield configured to close the open ends of the unidirectional bushing body (4).

7. Actuation transmission system for electrical equipment according to any of claims 1-6, **characterised in that** the first second retaining means (9) comprises a central bushing hollow (18) configured to insert the transmission bar (3) to the compression sub-assembly (1).

8. Actuation transmission system for electrical equipment according to any of claims 1-7, **characterised in that** the transmission bar (3) comprises a peripheral protuberance (19) between the position of the first retaining means (7, 8), said peripheral protuberance (19) configured to move a first retaining means (7, 8) and compress an elastic component (5, 6) in an axial movement of the transmission bar (3).

9. Actuation transmission system for electrical equipment according to any of claims 2-8, **characterised in that** the exterior of the unidirectional bushing body (4) comprises outer elastic components (11, 12), a third retaining means (14, 15) and a fourth retaining means (13, 16), said third retaining means (14, 15) and said fourth retaining means (13, 16) configured in order to retain the outer elastic components (11, 12)

10. Actuation transmission system for electrical equipment according to claim 9, **characterised in that** the outer elastic components (11, 12) consist of compression springs and the fourth retaining means (13, 16) are disposed in the form of shields and the third retaining means (14, 15) are disposed in a form selected between washers and shields.

11. Actuation transmission system for electrical equipment according to either of claims 9-10, **characterised in that** the unidirectional bushing body (4) comprises an outer peripheral protuberance (20) that functions as a buffer of the third retaining means (14, 15).

12. Actuation transmission system for electrical equipment according to any of claims 9-11, **characterised in that** the outer elastic components (11, 12) are disposed between the third retaining means (14, 15) and the fourth retaining means (13, 16), said outer elastic components (11, 12) configured to collaborate by means of the decompression thereof in the separation between the moving contact (26) and the fixed contact (27), in the separation between the moving contact (26) and the grounding contact (25) of the switch (2), and in the maintenance of the assembly formed by the unidirectional bushing body (4), the inner elastic components (5, 6) and the retaining means (7, 8) secured in their position without risk of oscillation.

13. Actuation transmission system for electrical equipment according to claim 11, **characterised in that** a steady bearing (21), configured to limit the movement of the outer elastic components (11, 12), is disposed around the exterior protuberance (20) of the unidirectional bushing body (4).

14. Actuation transmission system for electrical equipment according to any of claims 9-13, **characterised in that** a cylindrical bushing liner (22) that covers the compression sub-assembly (1) is disposed between the fourth retaining means (13, 16).

15. Actuation transmission system for electrical equipment according to claim 14, **characterised in that** the fourth retaining means (13, 16) and the cylindrical liner (22) are secured and the rest of the components that comprise the compression sub-assembly (1) move with respect to the axial axis thereof.

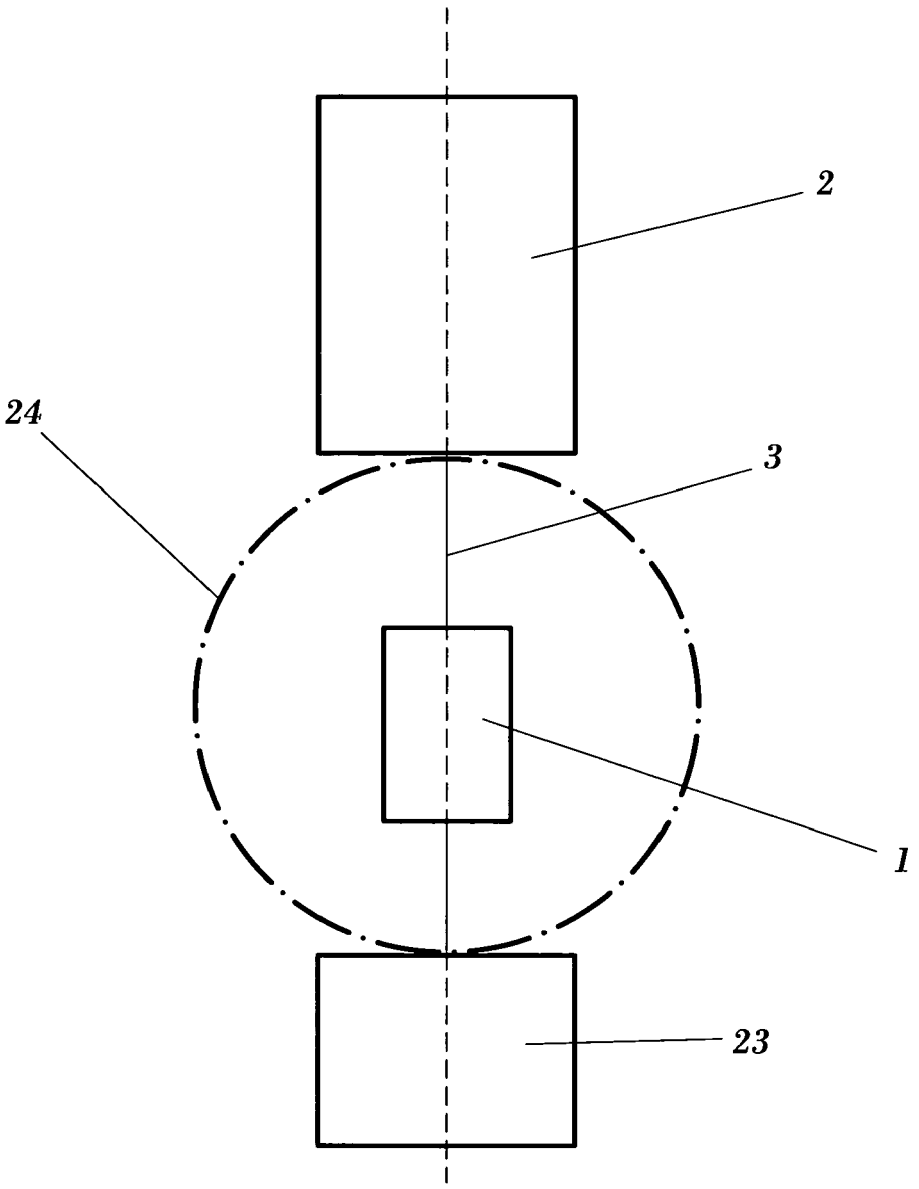

FIG. 1

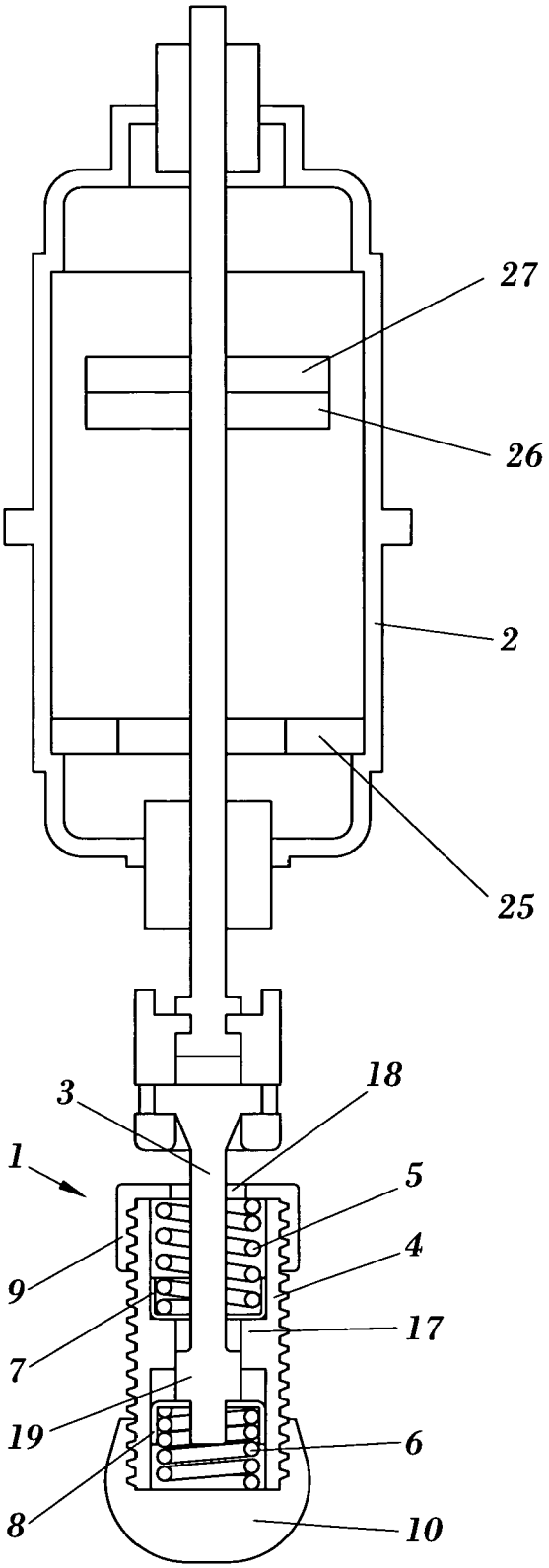

FIG. 2

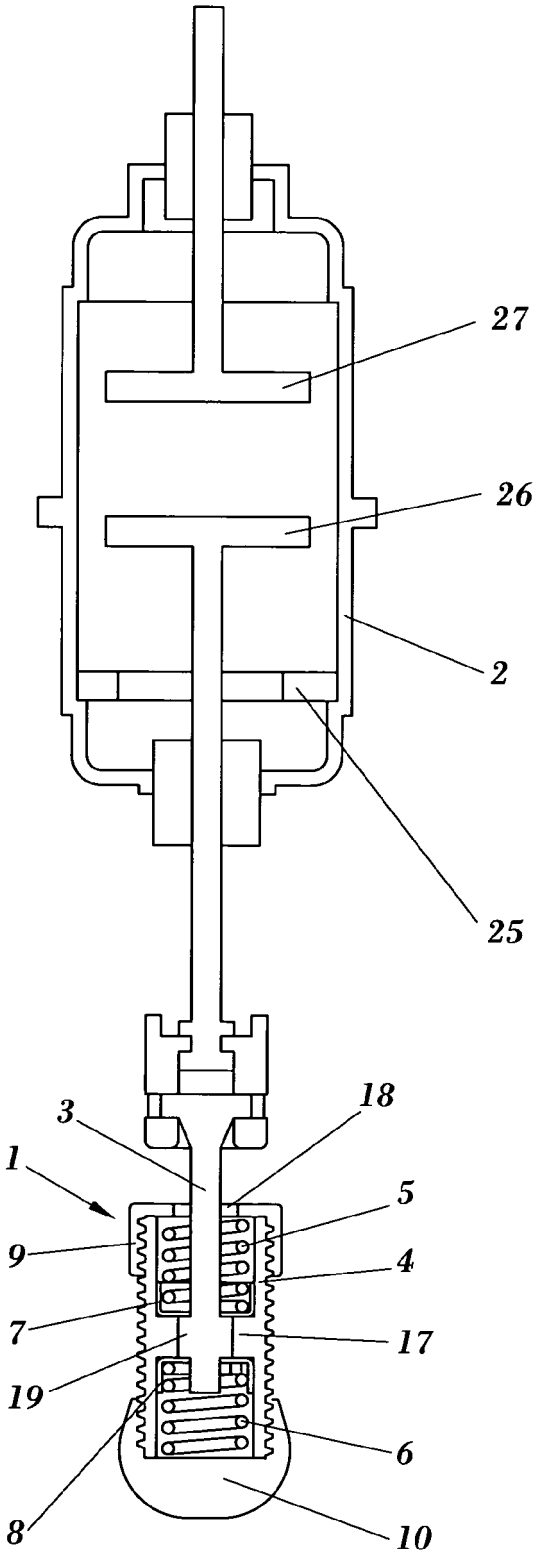

FIG. 3

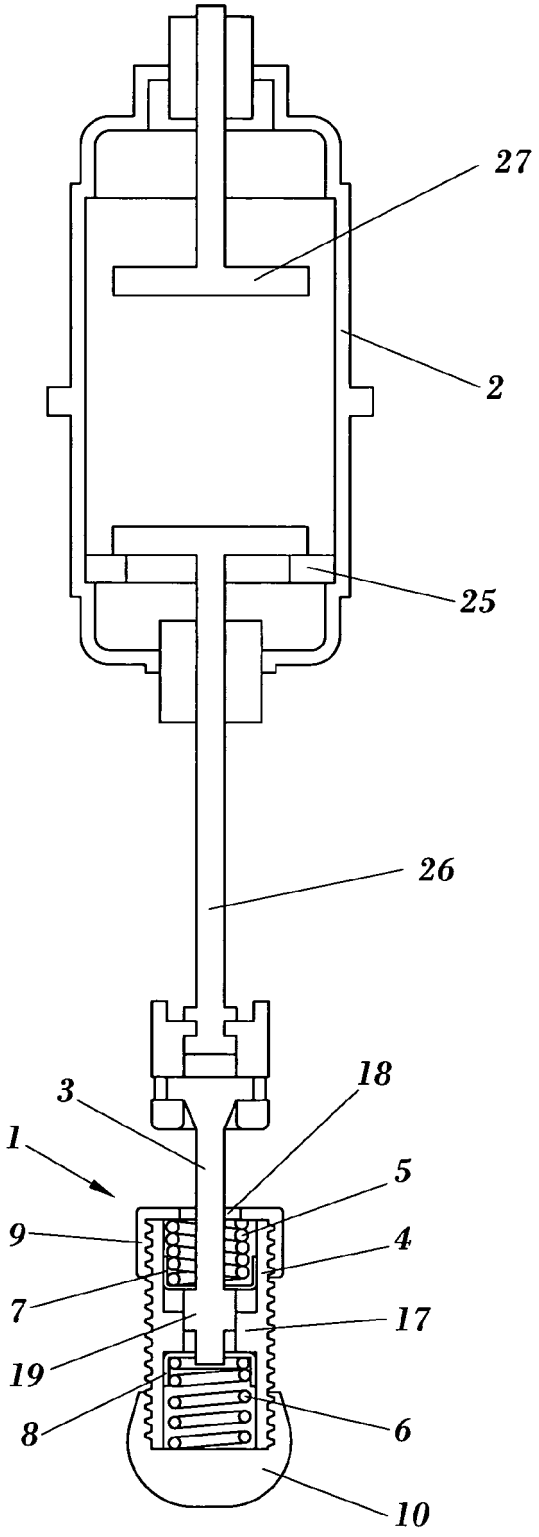

FIG. 4

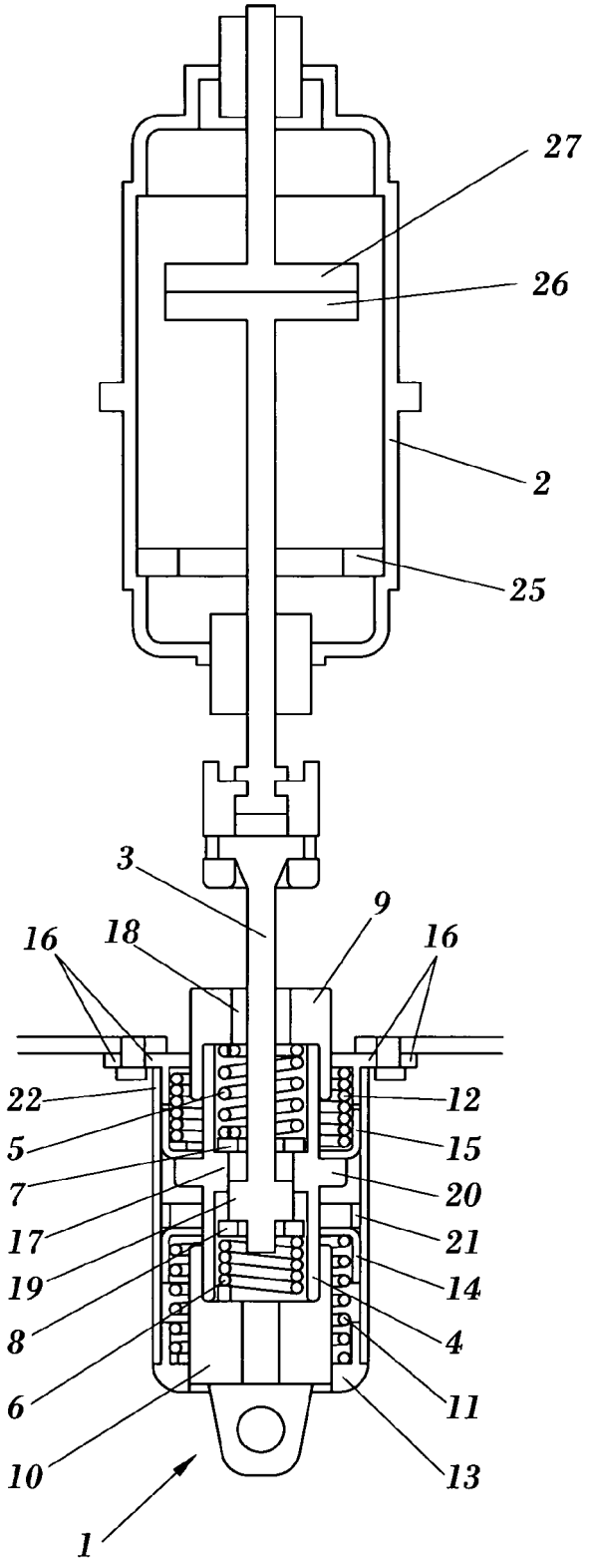

FIG. 5

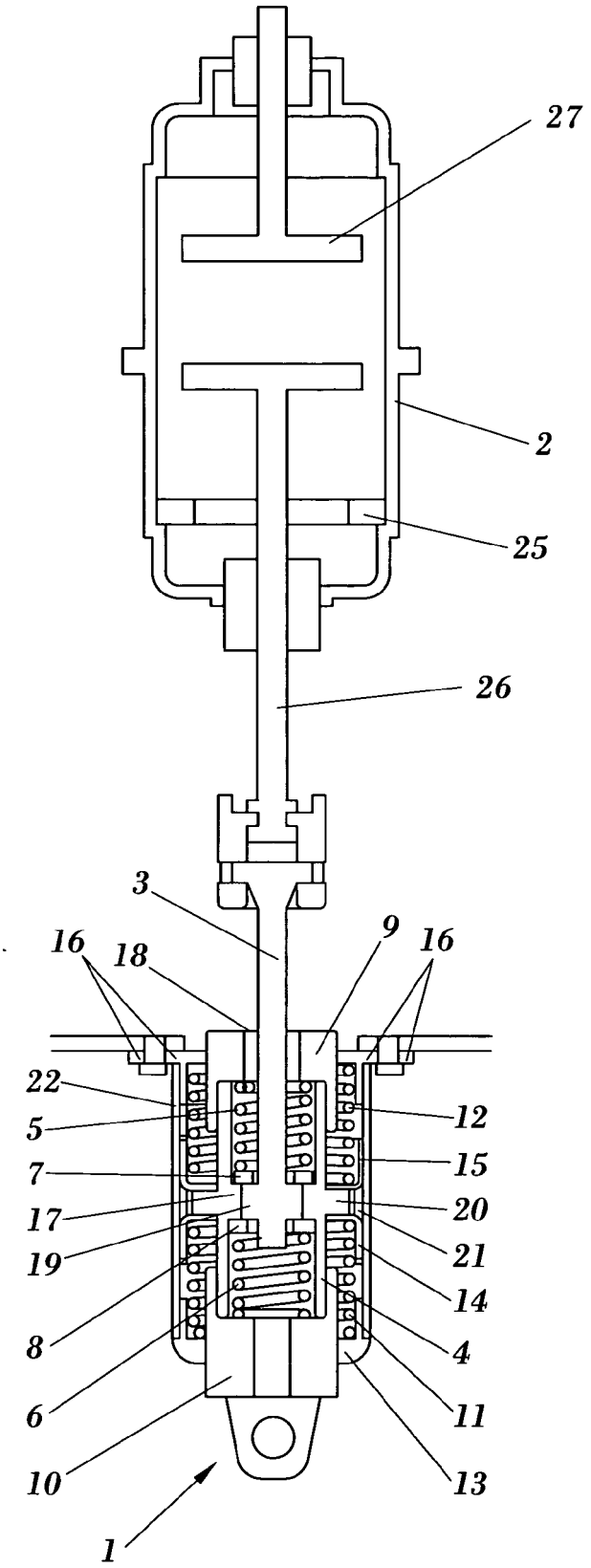

FIG. 6

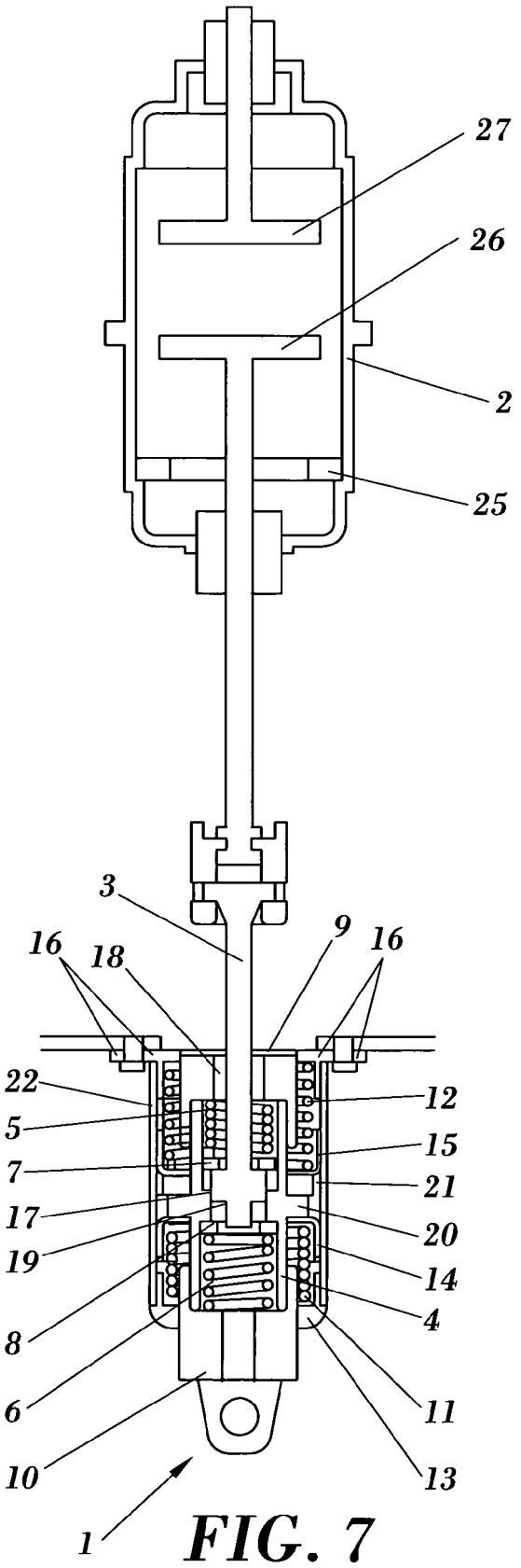

FIG. 7

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EUROPEAN SEARCH REPORT

Application Number
EP 07 38 0394

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	18 July 2008	Nieto, José Miguel

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