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(54) **BLOCKING SYSTEM FOR ROLLER AWNINGS**

SPERRSYSTEM FÜR ROLLENMARKISEN

SYSTÈME DE BLOCAGE POUR STORES ROULANTS

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Description

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates to an automatic blocking system for roller awnings slidable within guides and motorized.

BASIC TECHNIQUE OF THE INVENTION

[0002] Generally, roller awning structures slidable within guides and motorized comprise a higher crossbeam connecting two parallel side guides wherein an awning, usually made of a sheet of fabric or plastic material, slides. The awning is fixed with an end edge to a winding roller disposed in the higher crossbeam of the structure and powered by a motor for the moving operations of the awning, during which the awning is wound or unwound around said roller.

[0003] During the winding and unwinding operations, the awning is kept in tension thanks to the weight applied by a terminal formed by a tubular element placed in correspondence with the free end edge of the awning.

[0004] Roller awnings slidable within guides can be divided into two subcategories: those without a blocking system and those furnished with a blocking system. As far as these last are concerned, when the terminal reaches the lower stop end of the side guides, there is provided a blocking system adapted to firmly fix the terminal to the structure by means of a suitable operation of the roller motor, thus increasing the tension of the sheet and consequently improving its resistance to external stresses, such as the wind hitting the sheet crosswise.

[0005] The blocking system can be of the manual type or of the automatic type. The manual blocking system is furnished with a pair of hooks, provided at the ends of the terminal, to be moved manually when the terminal is in the lower stop end position of the guides in order to obtain the removable blocking and the subsequent awning tensioning; similarly, for the subsequent winding of awning it is needed to free the pair of hooks on the terminal manually.

[0006] On the contrary, an automatic blocking system requires that the pair of mechanical hooks placed at the ends of the terminal are actuated automatically when the terminal gets in the proximity of the lower stop ends of the guides.

[0007] Document US2002/0117269, whereon the preamble of claim 1 is based, shows an automatic blocking system. Said system comprises first coupling means integral to the terminal, for example formed by a pair of blocking ratchets associated with the ends of the terminal, and second coupling means fixed to the structure in the proximity of the lower stop ends of the side guides and for example formed by suitably shaped grooves. Said first and second coupling means are adapted to cooperate in the blocking phase in order to achieve the blocking of the awning in the tensioning position, and in the disengagement phase to allow the winding of the awning around the roller.

[0008] In particular, in the blocking phase the terminal ends move in the side guides overcoming said second coupling means and reaching the lower stop end position; during such movement, because of the mechanical interaction with said second coupling means, the blocking ratchets pass from a disengagement position to a blocking position. At this point the motor of the roller reverses the rotation direction returning the terminal upward, until said ratchets reach the second coupling means again remaining fixed thereof.

[0009] During the disengagement phase, first the terminal moves towards the lower stop ends and, at the same time, because of the mechanical interaction with said second coupling means, the ratchets acquire the disengagement position. Then, the roller motor reverses the rotation direction returning the terminal upward, whose ends are now free to pass through said second coupling means thanks to the position acquired by said ratchets.

[0010] The known automatic blocking systems exhibit some inconveniences: first of all it is necessary that said first and said second coupling means are perfectly engaged. This involves a certain precision in the mutual positioning between the terminal and the awning structure and therefore a particular attention in the assembly phase.

[0011] Furthermore, in order to work correctly, the movement of the terminal has to be symmetrical; expansions due to temperature changes or to the presence of possible obstacles inside the guides can cause such misalignments that might not allow the correct working of the blocking system, with the risk of damaging the same.

[0012] Since the ratchets are not connected each other, their movement is allowed not to be coordinated; however, it is not possible to verify from the outside if both are engaged with said second coupling means or if they are in the right position in order to carry out the blocking/disengagement operation.

[0013] Also document WO2013/067549 describes a blocking system associable to a roller awning, in particular for industrial uses, automatically moveable between an opening position and a closed position. Such system comprises, on each side of the awning structure, a sensor to identify when the awning is in a closed position, a controller programmed to receive and manage the signal emitted by said sensor, and a blocking device, placed integrally to the side guides of the awning, adapted to interact with a seat integral to the terminal of the awning to keep it in the closed position.

[0014] However, such blocking system is rather complex, as it requires a controller to manage the signals and to coordinate the movements of the blocking devices provided on each of said pair of side guides; furthermore, the connecting cable between the sensors and the blocking devices have to be placed externally, therefore outer ducts to house them have to be provided thus making

the awning assembly rather complicated.

SUMMARY OF THE INVENTION

[0015] The main accomplishment of the object of the present invention is that of overcoming the inconveniences of the known art by devising an automatic blocking system for roller awnings wherein the operations needed to block and disengage the terminal in the extended position of the awning are carried out automatically.

[0016] A further object of the present invention is that of providing a blocking system for roller awning wherein the operations for blocking and disengaging the roller in the extended position of the awning occur in a perfectly coordinated manner, thus avoiding malfunctioning due to asymmetrical movements.

[0017] Still a further object of the present invention is that of making an automatic blocking system for roller awnings which is solid and simple to install, without the need for particular precautions.

[0018] Another object of the present invention is that of providing a blocking system for roller awnings which is absolutely convenient to use.

[0019] Not last object of the present invention is that of providing a blocking system for roller awning which can be made using the usual and known plants, machineries and equipment.

[0020] The object, the purposes and the advantages aforementioned, as well as others which will be better described in the following description, are achieved by a blocking system of roller awnings as defined by claim 1.

BRIEF DESCRIPTION OF FIGURES

[0021] Advantages and advantageous characteristics of a blocking system of roller awnings according to the present invention will be better described in the description of particular, but not excluding, embodiments shown for exemplification only but not limited to in the appended drawings wherein:

- figure 1 is a perspective view showing a blocking system of roller awnings according to the present invention;
- figure 2 is a sectional view of first coupling means of a blocking system according to a first embodiment of the present invention;
- figure 3 is a sectional view of second coupling means of a blocking system according to a first embodiment of the present invention;
- figure 4 is a sectional view of the blocking system according a first embodiment of the present invention in a free sliding position;
- figure 5 is a sectional view of the blocking system according a first embodiment of the present invention during a blocking operation phase;
- figure 6 is a sectional view of the blocking system according to a first embodiment of the present invention in the blocking position;
- figure 7 is a sectional view of the blocking system according to a second embodiment of the invention in a free sliding position;
- figure 8 is a sectional view of the system according to the embodiment of the previous figure during a blocking operation phase;
- figure 9 is a sectional view of the system according to the embodiment of the previous figures in the blocking position;
- figure 10 is a sectional view of an operating variant embodiment of the previous embodiment in the blocking position.

DETAILED DESCRIPTION OF THE EMBODIMENTS OF THE INVENTION

[0022] With reference to the above-described figures, in particular to figure 1, there is shown a blocking system 1 according to the present invention adapted to be mounted onto a roller awning structure 10.

[0023] In the description which follows terms such as "on", "under", "higher", "lower", "high", "low" or similar might be used; the skilled in the field will not have any difficulties in understanding that such terms are referred to the blocking system orientation and to the awning structure in their normal working arrangement, that is in use, as shown in the appended figures.

[0024] Said roller awning structure 10 comprises a higher crossbeam (not shown), adapted to be coupled for example to an advantageously horizontal wall, such as a ceiling, from where it depart a couple of side guides 2, mutually parallel and preferably vertical, whose lower end portion 2A, or lower stop ends, preferably lie on a horizontal surface such as the ground or the floor.

[0025] Said guides 2 guide the sliding of an awning (not shown), made of, for example, a fabric or polymeric material sheet, fixed with an edge to a winding roller housed in the higher crossbeam and with the opposite edge associated to a terminal 3 comprising a rigid tubular body extending for a length basically the same as the awning width and adapted to keep the latter constantly tensed during its movement.

[0026] Said awning can selectively be moved, through the sliding of said end portion 3A of the terminal 3 inside the guides 2, between a wound position around said roller, and an extended position, whose terminal 3 is placed adjacent to the lower stop ends 2A of said guides 2. Said awning can be moved between two positions preferably automatically, thanks to roller main driving means (not shown), such as an electric motor associated with said roller in the known and traditional way and can be actuated by means of suitable push buttons and possibly by means of a remote control. Alternatively, said awning can be moved by means of a manual crank system.

[0027] A blocking system 1, according to the present invention, is formed by pairs of engaging means symmetrically placed onto the side of the awning structure

10 and is adapted to removably engage the end portions 3A of the terminal 3 in correspondence with said stop ends 2A in order to keep the awning in the extended position.

[0028] For convenience, in figures from 2 to 6 and in the following description there are shown and described components of such blocking system 1 placed on one of the two sides of the awning structure 10 but it is clearly understood that on the opposite side there are identical elements, symmetrically placed and working similarly to those described and shown.

[0029] In particular, a blocking system 1 according to the present invention comprises first coupling means 40 comprising a pair of engaging elements 4 each associable to a respective end portion 3A of the terminal 3, adapted to move between a first position, wherein the end portions 3A of the terminal 3 can freely slide inside guides 2, and a second position, wherein they cooperate with second coupling means 50 fixable to the stop ends 2A of said guides 2 in order to achieve the removable blocking of the awning in the extended position.

[0030] In this first embodiment of the invention, said engaging elements 4 are rotatably mounted at the respective end portions 3A of terminal 3 and, as it can be seen in figure 2, each of said engaging elements 4 is actuated by corresponding driving means 44, such as an electric motor, to which it is connected by suitable transmission means 14, said electric motor being preferably housed in a protective casing 47 coupled with the end portion 3A of terminal 3.

[0031] In particular, said transmission means 14 preferably comprise a transmission shaft 41, rotating on suitable ball bearings 42, at an end of which said engaging element 4 is mounted; at the opposed end of said transmission shaft 41 it is keyed an Oldham coupling 43 engaged with the shaft of the electric motor 44. Control means 45, such as an electronic card, and power supply means 46, such as a battery, are connected to each of said electric motors 44 in order to ensure their working.

[0032] Said first coupling means 40 further comprise first actuation means 6, such as a pair of magnetic switches, each housed in a seat advantageously made in the lower part of the corresponding casing 47 and connected to the relative electric motor 44 and electronic card 45 therefore forming a driving circuit 100. Advantageously, said engaging elements 4 and said first actuation means 6 are placed so as to slide inside the guides 2.

[0033] According to an advantageous characteristic of the present invention, the electric motors 44, each one placed at an end 3A of terminal 3, are electrically interconnected thanks to an electrical interconnecting cable 60 extending inside the tubular body of terminal 3; advantageously, the driving circuits 100 placed on the two end portions 3A are interconnected and allow to move coordinately and simultaneously the corresponding engaging elements 4 and, therefore, ensure the symmetrical movement of the awning between the extended position and the wound position.

[0034] Said second coupling means 50 comprise a pair of supports 5, each one associable with the corresponding lower stop end 2A of said guides 2; as said stop ends 2A are preferably placed in correspondence with the ground, said supports 5 can be housed in a seat formed below the ground.

[0035] Each of said supports 5 comprise an outer casing, preferably made of polymeric material, defining in its inside a maneuvering cavity communicating with said guides 2 through an access opening 5B; advantageously, in correspondence with the access opening 5B there are provided abutment means 5C adapted to cooperate with said engaging elements 4 in order to allow their passage selectively, as later explained with greater detail. In particular, in this first embodiment, said abutment means 5C comprise, for each support 5, a pair of elements defining the access opening 5B forming a section narrowing with respect to the guides 2 and to the maneuvering cavity 5A.

[0036] As it can be seen in figure 3, inside the maneuvering cavity 5A, preferably on its bottom, there are provided second actuation means 7, such as a magnet.

[0037] Each of said engaging means 4 is moveable between a first position, or sliding position, wherein end portions 3A of terminal 3 can freely slide inside said guides 2 and pass through the corresponding access openings 5B without interfering with said abutment means 5C, and a second position, or blocking position, which can be acquired exclusively inside said maneuvering cavity 5A, wherein said engaging elements 4 interfere with the abutment means 5C which therefore prevent them from sliding inside said guides 2, blocking the end portions 3A so as the awning can be kept in the extended position.

[0038] In particular, in this first embodiment, the passage between said first and said second position occurs in a rotatably manner, that is by the rotation of the engaging element 4 inside the maneuvering cavity 5A, where an electro-magnetic interaction occurs between said first actuation means 6, placed on said first coupling means 40, and said second actuation means 7, provided on said second coupling means 50 which triggers the automatic activation of the electric motor 44 responsible for the movement of the engaging element 4.

[0039] How the blocking system 1 works according to the present invention will be described with reference to figures 4, 5 and 6. In figure 4 there is shown the blocking system 1 in a free sliding position: as it can be seen, said engaging elements 4 are placed in the first position and, consequently, the end portions 3A of said terminal 3 are free to slide inside the guides 2 thanks to the main electric motor of the awning 10 in order to wind and unwind the awning according to the user's requirements.

[0040] In figure 5 there is shown the system in a maneuvering phase in order to block the awning, during which the passage of said first engaging means 4 from said first position to said second position occurs.

[0041] This operation occurs in a rotatably and automatic manner inside said maneuvering cavity 5A when

said magnetic switch 6 comes into contact with the magnet 7 placed on its bottom: the electro-magnetic interaction between these two actuation means 6, 7 closes the driving circuit 100 producing a first actuation signal to the electrical motor 44 which imposes a rotation of about 90 of said engaging element 4, making it acquire said second position.

[0042] According to an advantageous characteristic of the invention, the synchronous and simultaneous rotation of the engaging elements 4 provided on each end 3A of terminal 3 is carried out only when both magnetic switches 6 come into contact with the corresponding magnets 7 and both driving circuits 100 are closed.

[0043] Then, the main electric motor of the awning 10 returns the terminal 3 in the awning winding direction; consequently, also said engaging elements 4 integral to said terminal 3, are returned upward until they abut against said abutment means 5C.

[0044] In figure 6 there is shown the system in the blocking position: each engaging element 4 abuts against the abutment means 5C provided in correspondence with the access opening 5B, which prevent the passage of the terminal 3 towards said guides 2. At this point, the awning is blocked in the extended position and, in case, it is possible to make it undergo a greater traction in order to increase its resistance to external stresses.

[0045] In order to obtain the disengagement of the terminal 3 from the blocking system 1 it is proceeded backwards, basically carrying out the same operations carried out for the blocking. In particular, the terminal 3 is caused to slide downward thanks to the actuation of the main electrical motor of the roller, until the magnetic switch 6 comes into contact with the magnet 7 placed on the bottom of the maneuvering cavity 5A. The interaction between said actuation means 6, 7 closes the driving circuit 100 and produces a second actuation signal which is transmitted to the electric motor 44.

[0046] When both driving circuits 100 send an identical signal, each of the electric motors 44 give a synchronous rotation of about 90 to the corresponding engaging element 4, making it get back to the first position.

[0047] At this point, the engaging element 4 can pass through the access opening 5B of the support 5 without interfering with said abutment means 5C and, therefore, access the guides 2, allowing the awning to be wound again according to the user's requirements.

[0048] In figures 7, 8 and 9 there is shown a blocking system 1' according to a second embodiment of the invention. Also for this second embodiment, in the figures and in the following description there are shown and described components of such blocking system 1' placed on one of the two sides of the awning 10 but it is clearly understood that there are identical elements on the opposite side, placed symmetrically and working in the same way as those described and shown.

[0049] As for the previous embodiment, said first coupling means 40 comprise a pair of engaging elements 4' each of which is moveable between a first position, wherein the end portion 3A of terminal 3 can freely slide inside said guides 2 and pass through corresponding access openings 5B without interfering with said abutment means 5C, and a second position, which can be acquired exclusively inside said maneuvering cavity 5A which, therefore, prevent its sliding towards said guides 2, blocking the awning blocked in the extended position in a removable manner.

[0050] However, differently from the previous embodiment, the passage between said first position and said second position occurs by an axial displacement of said engaging element 4' respectively from a position wherein it is at least partially retracted inside the casing 47 associated to the end portion 3A, to a position wherein it partially protrudes from it.

[0051] In particular, said engaging element 4' is formed by a pin axially slidable thanks to the actuation of an electric motor 44, to which it is associated by transmission means 14'. Said transmission means 14' preferably comprise a nut screw 48 engaged to a screw 49. The screw 49 is integral to the shaft of the electric motor 44 and there are provided suitable stops to prevent the nut screw 48 from rotating. An elastic opposing element 15, such as a pressure spring, constantly keeps said engaging element 4' in contact with said nut screw 48.

[0052] Also for this second embodiment, said second coupling means 50 comprise a pair of supports 5, each associable with a lower end portion 2A of said guide trails 2. Each of said supports 5 comprise an outer casing, preferably made of polymeric material, defining at its inside a maneuvering cavity 5A communicating with said guides 2 through an access opening 5B; advantageously, in correspondence with the access opening 5B there are provided abutment means 5C adapted to cooperate with said engaging means 4' in order to selectively allow their passage, as later described in greater detail. In particular, in this second embodiment, said abutment means 5C comprise a protruding element placed in correspondence with the access opening 5B, adapted to interfere with said engaging element 4' only when it is in said second position.

[0053] As for the blocking system of the previously described embodiment, the passage of the engaging element 4' between the first position and the second position is carried out automatically when said second actuation means 7, such as a magnet place on the bottom of the maneuvering cavity 5A, comes into contact with said actuation means 6, such as a magnetic switch placed, on the contrary, on the bottom of the casing 47 of said coupling means 40, thus closing the driving circuit 100.

[0054] Said blocking system 1' works as follows: in figure 7 it is shown the engaging element 4' placed in said first position, wherein the movement of the end portions 3A of the terminal 3 is free inside the guides 2. In such position, thanks to the action of the spring 15, the pin 4' is basically retracted inside the casing 47 and therefore the end portions 3A of the terminal 3 can freely access the maneuvering cavity 5A without interfering with said

abutment means 5C.

[0055] As shown in figure 8, when the terminal 3 gets in correspondence with the maneuvering cavity 5A, the magnet 7 comes into contact with the magnetic switch6 closing the driving circuit 100 and producing a first signal. The electric motor 44 receives the command to activate from the electronic card 45, and the screw 49, whereto the nut screw 48 is engaged, is caused to rotate.

[0056] As already said, since the rotation of the nut screw 48 is prevented by means of suitable stops formed inside the casing 47, it starts to displace pushing axially the engaging element 4' outward in contrast with the spring 15 which is pressed. The electric motor 44 stops when the engaging element 4' has reached the second position.

[0057] At this point, the roller main motor returns the terminal 3 upward. Since this engaging element 4' is in the second position, it abuts against the abutment means 5C (figure 9), consequently blocking the awning in the extended position; now it can undergo a greater traction, thanks to the actuation of the main motor, in order to increase its resistance to external agents.

[0058] In order to achieve the disengagement of the terminal 3 from the blocking system, it is proceeded backwards, basically carrying out the same operations carried out for the blocking. In particular, the end portions 3A of the terminal 3 are caused to displace downward in the maneuvering cavity 5A thanks to the actuation of the main motor, until the magnetic switch 6 comes into contact with the magnet 7, closing the driving circuit 100 and actuating the electric motor 44, which gives the screw 49 a rotation in the reverse direction with respect to the blocking phase; the screw returns the nut screw 48 and, consequently, thanks to the spring 15, the engaging element 4' reenters in order to acquire said first position again, allowing the end portions 3A of the terminal 3 to exit the maneuvering cavity 5A without interfering with said abutment means 5C, thus being able to access the guides 2.

[0059] In figure 10, there is shown a different operating variant embodiment of the second embodiment of a blocking system according to the present invention; in particular, in this variant embodiment, the blocking system is basically identical to the one previously described with reference to said second embodiment but it works in a slightly different way and, as explained later, advantageous in some situations.

[0060] In this operating variant embodiment as well, the passage between the first and the second position of said engaging element 4' is achieved in response to the interaction between first actuation means 6 and second actuation means 7 triggering the driving means 44, such as an electric motor, which push the engaging element 4' outward, in contrast with the action of a spring 15. Then, the terminal 3 of the awning is returned upward and, since said engaging element 4' is in second position, it abuts against the abutment means 5C, consequently blocking the awning in the extended position.

[0061] According to a peculiar characteristic of this operating variant embodiment, as soon as the engaging element 4' abuts against the abutment means 5C, the electric motor 44 returns the nut screw 48 in a retracted position; nevertheless, the engaging element 4' remains in said second position thanks to the friction developed in the point of contact with said abutment means 5C.

[0062] In order to achieve the disengagement of the terminal 3 from the blocking system, it is, therefore, sufficient to make the end portions 3A of the terminal 3 displace downward, in the maneuvering cavity 5A, for example, thanks to the actuation of the main motor of the roller awning; in this operating variant embodiment it is not necessary that said first actuation means 6 come in contact with said second actuation means 7 in order to return the screw nut 48 and get said engaging element 4' re-enter, since the screw nut 48 has already re-entered in the previous phase.

[0063] Therefore, as soon as the engaging element 4' moves from the position wherein it is engaged with the abutment means 5C, the friction action ends and the spring 15 at once returns the engaging element 4' in said first position, allowing the end portions 3A of the terminal 3 to exit the maneuvering cavities 5A without interfering with said abutment means 5C.

[0064] Such operating variant embodiment is particularly advantageous as it makes it possible to disengage the awning from the extended position even without electric power, for example because of a failure; in fact it is sufficient to disengage the engaging element 4' from the corresponding abutment means 5C, if necessary also manually applying the movement downward the terminal 3 of the awning so as it can reenter automatically, making it possible the subsequent rewinding of the awning.

[0065] In conclusion, from the foregoing it is clear that the blocking system 1, 1' according to the present invention achieves the expected objects and advantages. In particular, by means of a blocking system according to the present invention, the action of blocking/disengaging the roller in correspondence with the extended position of the awning occurs simultaneously for both the end portions 3A of the terminal 3, thanks to the electrical connection between the corresponding driving circuits 100 conducted by the interconnecting cable 60.

[0066] In fact, the blocking phase occurs only and exclusively when both engaging means 4, 4' are in the second position, and the disengagement phase occurs only and exclusively when both the engaging means 4, 4' are in said first position.

[0067] The passage from said first position to said second position and vice versa can occur only when the end portions 3A of the terminal 3 are placed inside the corresponding maneuvering cavities 5A, where the movement is actuated automatically thanks to the interaction of the magnet 7 placed on the bottom of said maneuvering cavity 5A and the magnetic switch 6 integral to the terminal 3.

[0068] Clearly, the interaction between first actuation

means 6 and second actuation means 7 can also be mechanical; for example, said second actuation means 7 can be formed by a pin, placed on the bottom of said maneuvering cavity 5A, and said first actuation means 6 can comprise a micro-switch which can be triggered mechanically thanks to the contact with said pin 7 so as to generate a signal for said driving means 44 and achieve the movement of said first engaging element 4, 4' from the first position to the second position and vice versa.

[0069] Advantageously, it is not required to be particularly precise when installing the roller awning: the form of the engaging element 4, 4' and that of the maneuvering cavity 5A are such that they do not require particular attention when blocking/disengaging the roller awning.

[0070] Furthermore, advantageously, the blocking system according to the present invention is very compact; in fact, as said engaging elements 4, 4' are associated with the end portions 3A of the terminal 3 of the awning, both the electric motors 44 which actuate them, and the interconnecting cable 60 between said motors for a coordinate movement, are housed inside the tubular body of the terminal 3, therefore outer cable ducts are not necessary.

[0071] Of course, the invention can be modified or varied in a great number of ways without exiting the field of protection of the present invention as defined by any of the appended claims.

[0072] Furthermore, the materials used for the embodiment of the present invention, as well as the forms and dimensions of the single components could be those most suitable according to specific requirements.

Claims

1. Blocking system (1, 1') associable to a roller awning having an edge fixed to a winding roller and the opposite edge associated with a terminal (3) comprising a tubular body whose end portions (3A) are adapted to slide inside guides (2) for moving said awning between a wound position and an extended position, wherein said terminal (3) of said roller awning is adjacent to the lower stop end (2A) of said guides (2), said blocking system (1, 1') comprising first coupling means (40) mountable at respective end portions (3A) of said terminal (3) and comprising a pair of engaging elements (4, 4') capable to move between a first position, wherein said end portions (3A) can slide within said guides (2) and a second position, wherein said end portions (3A) cooperate with second coupling means (50) associable with said lower stop end (2A) of said guides (2) for removably blocking said awning in said extended position, **characterized in that** said first coupling means (40) further comprise driving circuits (100), each comprising first actuation means (6) and driving means (44), each of said driving circuits (100) being connected to one of said engaging elements (4, 4'), said second coupling means (50) comprising second actuation means (7) adapted to interact with said first actuation means (6) for triggering said driving means (44) so that said engaging elements (4, 4') move automatically between said first position and said second position.

2. Blocking system (1, 1') according to claim 1, wherein said first actuation means (6) comprise a pair of magnetic switches and said second actuation means (7) comprise a pair of magnets.

3. Blocking system (1, 1') according to claim 1, wherein said first actuation means (6) comprise a pair of micro-switches and said second actuation means (7) comprise a pair of pins.

4. Blocking system (1, 1') according to any one of the preceding claims, wherein said driving circuits (100) further comprise control means (45) and power supply means (46).

5. Blocking system (1, 1') according to any one of the preceding claims, wherein said driving circuits (100) are electrically interconnected through an electrical interconnecting cable (60) disposed within the tubular body of said terminal (3).

6. Blocking system (1,1') according to claim 5, wherein the interconnection between said driving circuits (100) controlled by said control means (45) determines a simultaneous and coordinated displacement of the engaging elements (4, 4') and the symmetrical movement of the awning between said extended position and said wound position.

7. Blocking system (1, 1') according to any one of the preceding claims, wherein said second coupling means (50) comprise a pair of supports (5), each associable with a corresponding lower stop end (2A) of said guides (2), each of said supports (5) defining a maneuvering cavity (5A) communicating with said guides (2) through an access opening (5B), said second actuation means (7) being arranged on the bottom of said maneuvering cavity (5A) such that the movement of said engaging element (4, 4') between said first and said second position is performed within said maneuvering cavity (5A).

8. Blocking system (1, 1') according to claim 7, wherein abutment means (5C) are provided adjacent to said access openings (5B), said abutment means (5C) being arranged to interfere with said engaging elements (4, 4') when said engaging elements (4, 4') are in said second position, the passage of said engaging elements (4, 4') towards the corresponding guide (2) being prevented by said abutment means (5C) such that said awning is removably blocked in

said extended position.

9. Blocking system (1) according to any one of the preceding claims, wherein said engaging elements (4) are rotatably mounted at the end portions (3A) of said terminal (3) to rotatably move between said first position and said second position.

10. Blocking system (1') according to any of claims 1 to 8, wherein said engaging elements (4') are slidably mounted at said end portions (3A) to move between said first position and said second position by an axial displacement.

11. Blocking system (1, 1') according to any one of the preceding claims, wherein said driving means (44) comprise an electric motor.

12. Roller awning comprising a blocking system (1,1') according to any one of claims 1 to 11.

Patentansprüche

1. Sperrsystem (1, 1'), das mit einer Rollmarkise in Verbindung gebracht werden kann, deren eine Kante an einer Aufwickelrolle befestigt ist und deren gegenüberliegende Kante mit einem Endteil (3) verbunden ist, das einen röhrenförmigen Körper umfasst, dessen Endabschnitte (3A) so eingerichtet sind, dass sie in Führungen (2) gleiten, um die Markise zwischen einer aufgerollten Position und einer ausgerollten Position zu bewegen, wobei das Endteil (3) der Rollmarkise an das untere Anschlag-Ende (2A) der Führungen (2) angrenzt, das Sperrsystem (1, 1') erste Kopplungseinrichtungen (40) umfasst, die an jeweiligen Endabschnitten (3A) des Endteils (3) angebracht werden können, und ein Paar Eingriffselemente (4, 4') umfasst, die sich zwischen einer ersten Position, in der die Endabschnitte (3A) in den Führungen (2) gleiten können, und einer zweiten Position bewegen können, in der die Endabschnitte (3A) mit zweiten Kopplungseinrichtungen (50) zusammenwirken, die mit dem unteren Anschlag-Ende (2A) der Führungen (2) in Verbindung gebracht werden können, um die Markise lösbar in der ausgerollten Position zu sperren, **dadurch gekennzeichnet, dass** die ersten Kopplungseinrichtungen (40) des Weiteren Antriebsschaltungen (100) umfassen, die jeweils erste Betätigungseinrichtungen (6) und Antriebseinrichtungen (44) umfassen, wobei jede der Antriebsschaltungen (100) mit einem der Eingriffselemente (4, 4') verbunden ist und die zweiten Kopplungseinrichtungen (50) zweite Betätigungseinrichtungen (7) umfassen, die so eingerichtet sind, dass sie in Wechselwirkung mit den ersten Betätigungseinrichtungen (6) die Antriebseinrichtungen (44) auslösen, so dass sich die Eingriffselemente (4, 4') automatisch zwischen der ersten Position und der zweiten Position bewegen.

2. Sperrsystem (1, 1') nach Anspruch 1, wobei die ersten Betätigungseinrichtungen (6) ein Paar Magnetschalter umfassen und die zweiten Betätigungseinrichtungen (7) ein Paar Magnete umfassen.

3. Sperrsystem (1, 1') nach Anspruch 1, wobei die ersten Betätigungseinrichtungen (6) ein Paar Mikroschalter umfassen und die zweiten Betätigungseinrichtungen (7) ein Paar Stifte umfassen.

4. Sperrsystem (1, 1') nach einem der vorangehenden Ansprüche, wobei die Antriebsschaltungen (100) des Weiteren Steuereinrichtungen (45) und Stromzuführeinrichtungen (46) umfassen.

5. Sperrsystem (1, 1') nach einem der vorangehenden Ansprüche, wobei die Antriebsschaltungen (100) über ein elektrisches Verbindungskabel (60), das im Inneren des röhrenförmigen Körpers des Endteils (3) angeordnet ist, elektrisch miteinander verbunden sind.

6. Sperrsystem (1, 1') nach Anspruch 5, wobei die Verbindung zwischen den Antriebsschaltungen (100), die von der Steuereinrichtung (45) gesteuert werden, eine gleichzeitige und koordinierte Verschiebung der Eingriffseinrichtungen (4, 4') sowie die symmetrische Bewegung der Markise zwischen der ausgerollten Position und der aufgerollten Position bewirkt.

7. Sperrsystem (1, 1') nach einem der vorangehenden Ansprüche, wobei die zweiten Kopplungseinrichtungen (50) ein Paar Halter (5) umfassen, die jeweils mit einem entsprechenden unteren Anschlag-Ende (2A) der Führungen (2) in Verbindung gebracht werden können, jeder der Halter (5) einen Bewegungsraum (5A) bildet, der mit den Führungen (2) über eine Zugangsöffnung (5B) in Verbindung steht, und die zweiten Betätigungseinrichtungen (7) an dem Boden des Bewegungshohlraums (5A) angeordnet sind, so dass die Bewegung des Eingriffselementes (4, 4') zwischen der ersten Position und der zweiten Position im Inneren des Bewegungsraums (5A) durchgeführt wird.

8. Sperrsystem (1, 1') nach Anspruch 7, wobei Anschlageinrichtungen (5C) an die Zugangsöffnungen (5B) angrenzend vorhanden sind, die Anschlageinrichtungen (5C) so eingerichtet sind, dass sie sich mit den Eingriffselementen (4, 4') überlagern, wenn sich die Eingriffselemente (4, 4') in der zweiten Position befinden, und die Bewegung der Eingriffselemente (4, 4') auf die entsprechende Führung (2) zu durch die Anschlageinrichtungen (5C) verhindert

wird, so dass die Markise lösbar in der ausgerollten Position gesperrt wird.

9. Sperrsystem (1) nach einem der vorangehenden Ansprüche, wobei die Eingriffselemente (4) drehbar an den Endabschnitten (3A) des Endteils (3) angebracht sind und sich drehbar zwischen der ersten Position und der zweiten Position bewegen.

10. Sperrsystem (1') nach einem der Ansprüche 1 bis 8, wobei die Eingriffselemente (4') verschiebbar so an den Endabschnitten (3A) angebracht sind, dass sie sich durch eine axiale Verschiebung zwischen der ersten Position und der zweiten Position bewegen.

11. Sperrsystem (1, 1') nach einem der vorangehenden Ansprüche, wobei die Antriebseinrichtungen (44) einen Elektromotor umfassen.

12. Rollmarkise, die ein Sperrsystem (1, 1') nach einem der Ansprüche 1 bis 11 umfasst.

Revendications

1. Système de blocage (1, 1') apte à être associé à un store roulant ayant un bord fixé à un rouleau de bobinage et le bord opposé associé à un caisson (3) comprenant un corps tubulaire dont les parties d'extrémité (3A) sont conçues pour coulisser à l'intérieur de guides (2) pour déplacer ledit store entre une position enroulée et une position déployée, dans lequel ledit caisson (3) dudit store roulant est adjacent à l'extrémité d'arrêt inférieure (2A) desdits guides (2), ledit système de blocage (1, 1') comprenant des premiers moyens de couplage (40) associables aux parties d'extrémités (3A) respectives dudit caisson (3) et comprenant une paire d'éléments d'engagement (4, 4') susceptibles de se déplacer entre une première position, dans laquelle lesdites parties d'extrémité (3A) peuvent coulisser dans lesdits guides (2) et une seconde position, dans laquelle lesdites parties d'extrémité (3A) coopèrent avec des seconds moyens d'accouplement (50) pouvant être associés à ladite extrémité d'arrêt inférieure (2A) desdits guides (2) pour bloquer de manière libérable ledit store dans ladite position déployée, **caractérisé en ce que** lesdits premiers moyens de couplage (40) comprennent en outre des circuits d'entraînement (100), chacun comprenant des premiers moyens d'actionnement (6) et des moyens d'entraînement (44), chacun desdits circuits de commande (100) étant relié à un desdits éléments d'engagement (4, 4'), lesdits seconds moyens d'accouplement (50) comprenant des seconds moyens d'actionnement (7) conçus pour coopérer avec lesdits premiers moyens d'actionnement (6) pour déclencher lesdits moyens d'entraînement (44) de sorte que lesdits éléments d'engagement (4, 4') se déplacent automatiquement entre ladite première position et ladite seconde position.

2. Système de blocage (1, 1') selon la revendication 1, dans lequel lesdits premiers moyens d'actionnement (6) comprennent une paire de commutateurs magnétiques et lesdits seconds moyens d'actionnement (7) comprennent une paire d'aimants.

3. Système de blocage (1, 1') selon la revendication 1, dans lequel lesdits premiers moyens d'actionnement (6) comprennent une paire de micro-interrupteurs et lesdits seconds moyens d'actionnement (7) comprennent une paire de broches.

4. Système de blocage (1, 1') selon l'une quelconque des revendications précédentes, dans lequel lesdits circuits d'entraînement (100) comprennent en outre des moyens de commande (45) et des moyens d'alimentation (46).

5. Système de blocage (1, 1') selon l'une quelconque des revendications précédentes, dans lequel lesdits circuits d'entraînement (100) sont interconnectés électriquement par l'intermédiaire d'un câble d'interconnexion électrique (60) disposé à l'intérieur du corps tubulaire dudit caisson (3).

6. Système de blocage (1, 1') selon la revendication 5, dans lequel l'interconnexion entre lesdits circuits d'entraînement (100) commandés par lesdits moyens de commande (45) détermine un déplacement simultané et coordonné des éléments d'engagement (4, 4') et le mouvement symétrique du store entre ladite position déployée et ladite position enroulée.

7. Système de blocage (1, 1') selon l'une quelconque des revendications précédentes, dans lequel lesdits seconds moyens d'accouplement (50) comprennent une paire de supports (5), chacun pouvant être associé à une extrémité d'arrêt inférieure (2A) correspondante desdits guides (2), chacun desdits supports (5) définissant une cavité de manoeuvre (5A) communiquant avec lesdits guides (2) à travers une ouverture d'accès (5B), lesdits seconds moyens d'actionnement (7) étant disposés sur le fond de ladite cavité de manoeuvre (5A) de telle sorte que le mouvement dudit élément d'engagement (4, 4') entre ladite première et ladite seconde position est réalisée au sein de ladite cavité de manoeuvre (5A).

8. Système de blocage (1, 1') selon la revendication 7, dans lequel des moyens de butée (5C) sont disposés de façon adjacente à ladite ouverture d'accès (5B), lesdits moyens de butée (5C) étant disposés pour interférer avec lesdits éléments d'engagement (4, 4') lorsque lesdits éléments d'engagement (4, 4')

sont dans ladite seconde position, le passage desdits éléments d'engagement (4, 4') vers le guide (2) correspondant étant empêché par lesdits moyens de butée (5C) de sorte que ledit store est bloqué de manière libérable dans ladite position déployée.

9. Système de blocage (1) selon l'une quelconque des revendications précédentes, dans lequel lesdits éléments d'engagement (4) sont montés de manière rotative au niveau des parties d'extrémité (3A) dudit caisson (3) pour se déplacer de manière rotative entre ladite première position et ladite seconde position.

10. Système de blocage (1') selon l'une quelconque des revendications 1 à 8, dans lequel lesdits éléments d'engagement (4') sont montés de façon coulissante au niveau desdites parties d'extrémité (3A) pour se déplacer entre ladite première position et ladite seconde position par un déplacement axial.

11. Système de blocage (1, 1') selon l'une quelconque des revendications précédentes, dans lequel lesdits moyens d'entraînement (44) comprennent un moteur électrique.

12. Store roulant comprenant un système de blocage (1, 1') selon l'une quelconque des revendications 1 à 11.

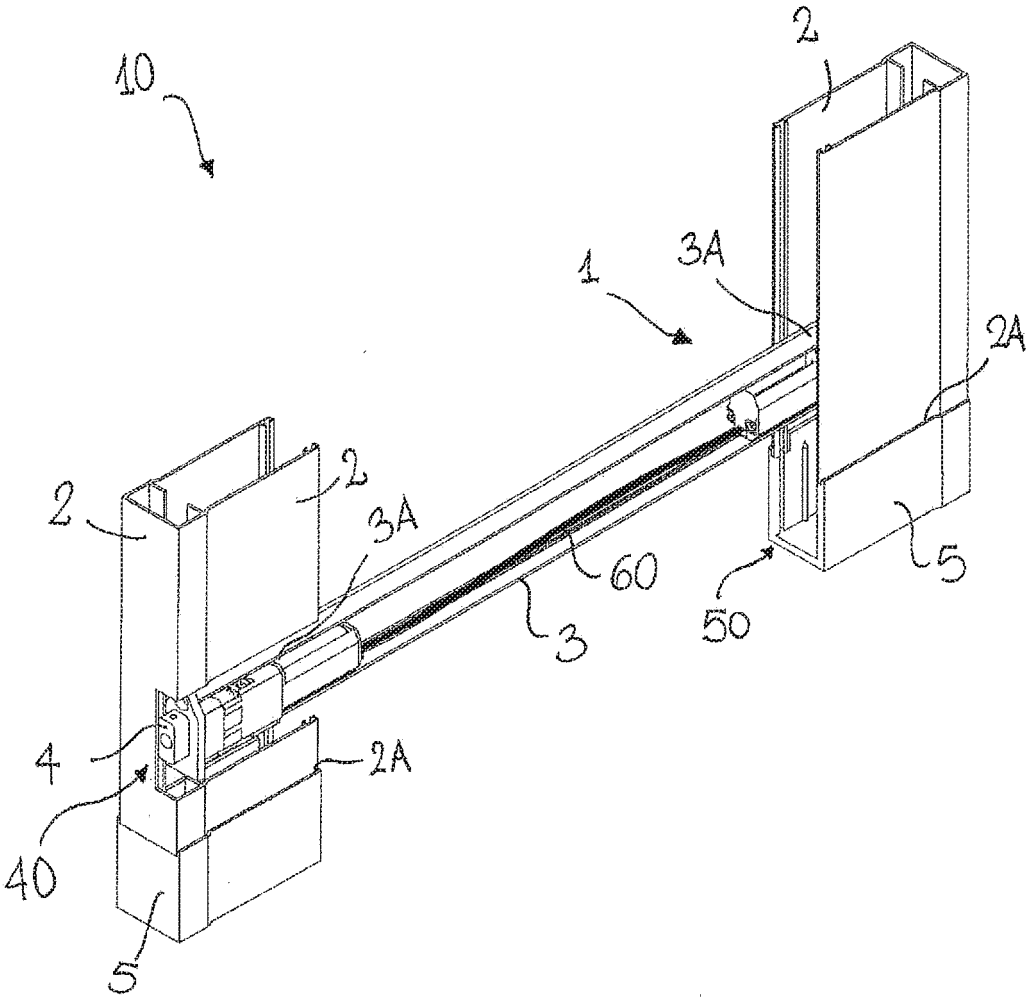

Fig. 1

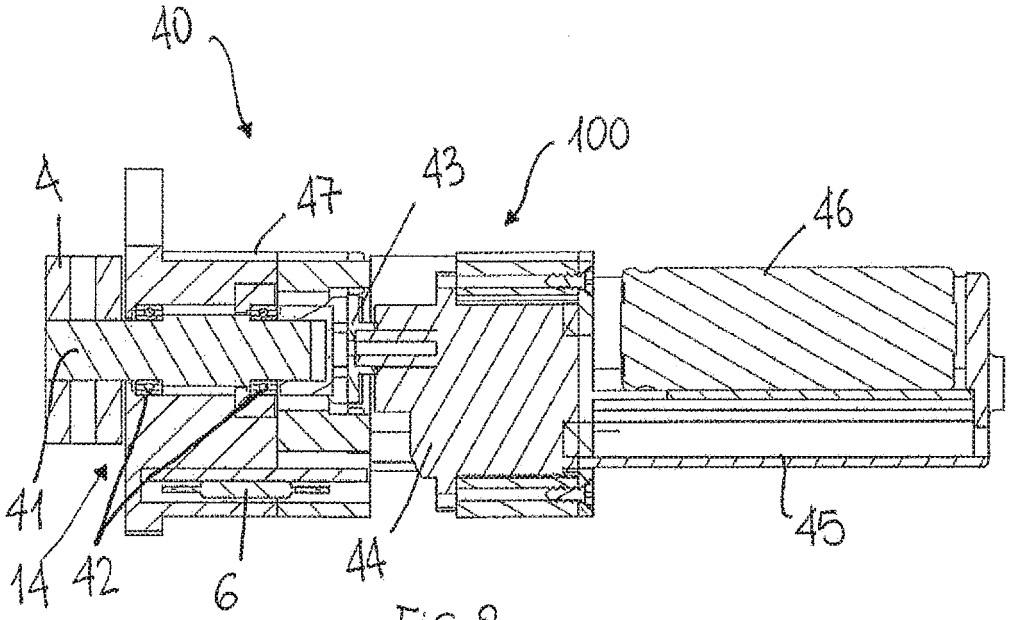

Fig.2

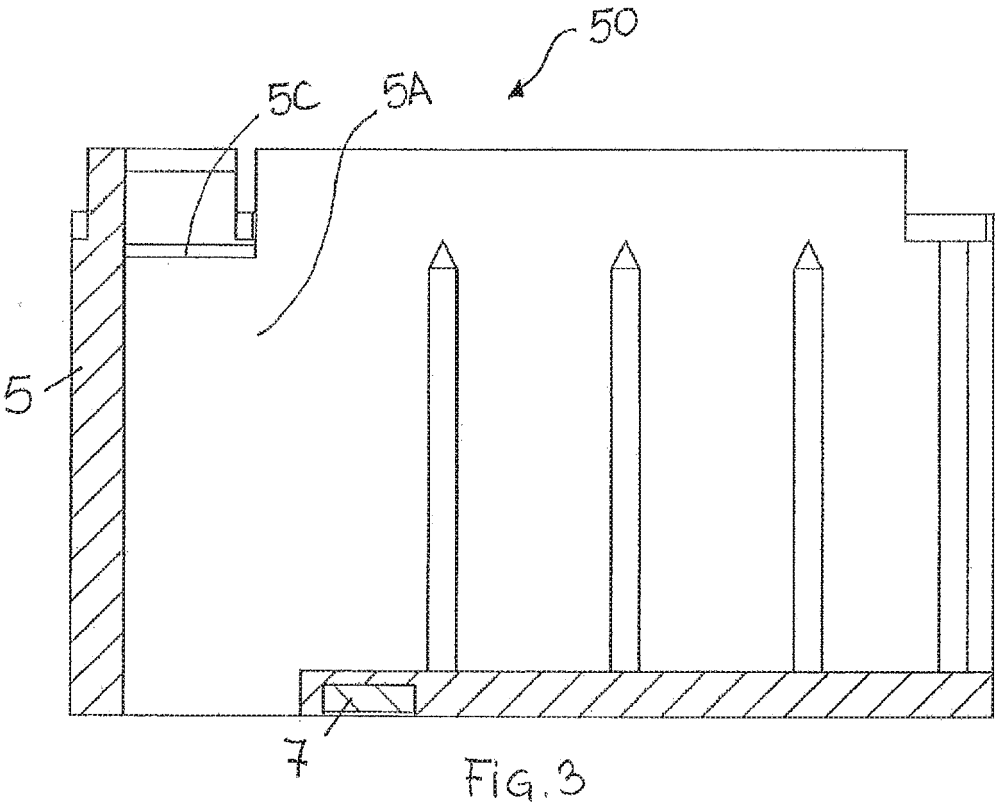

Fig.3

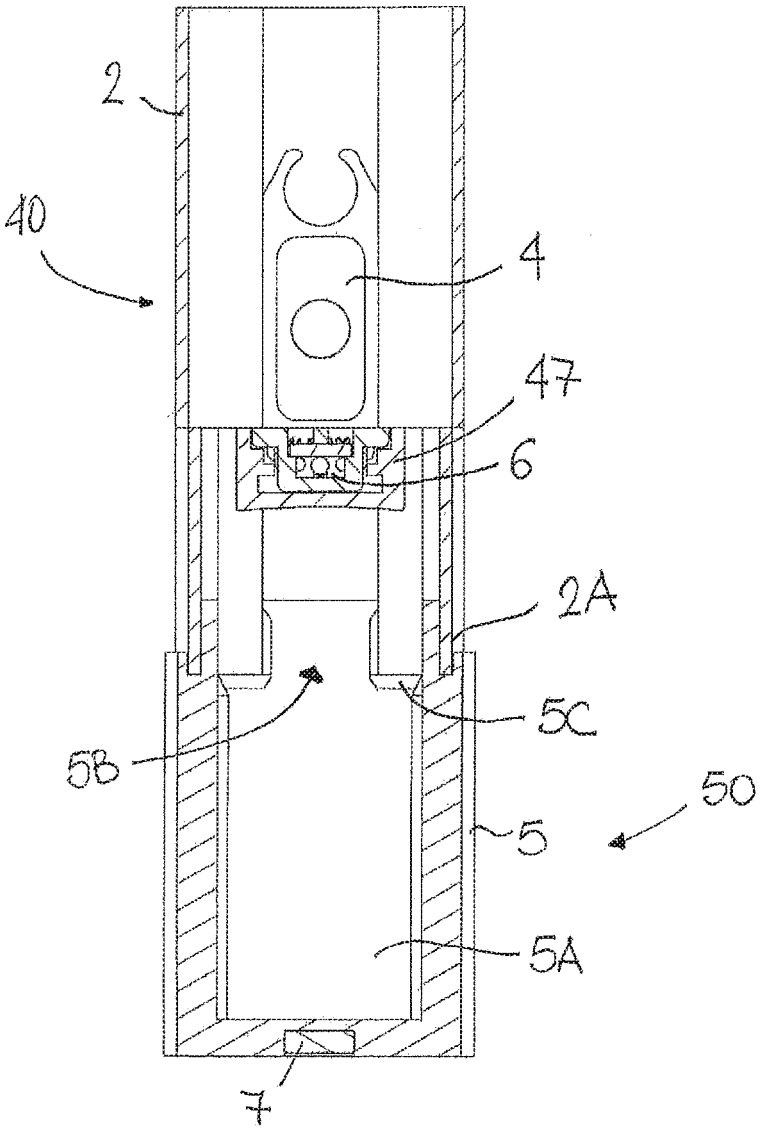

Fig. 4

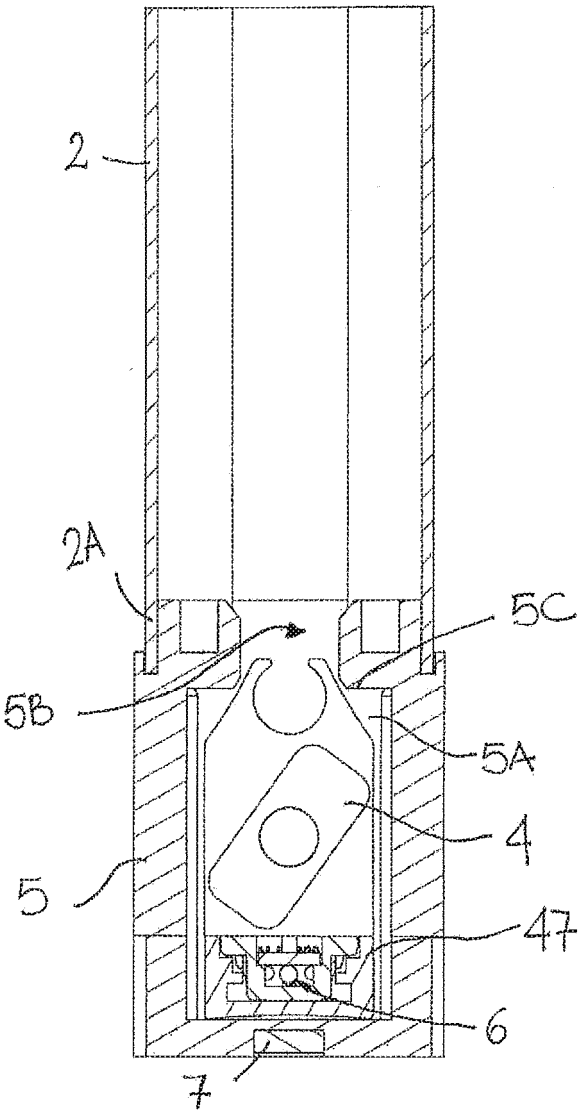

Fig. 5

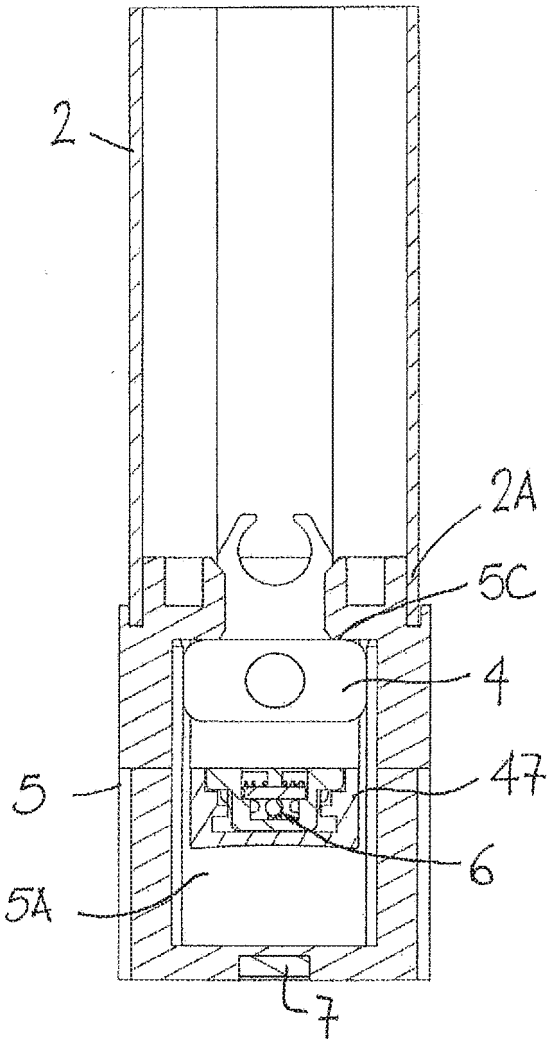

Fig. 6

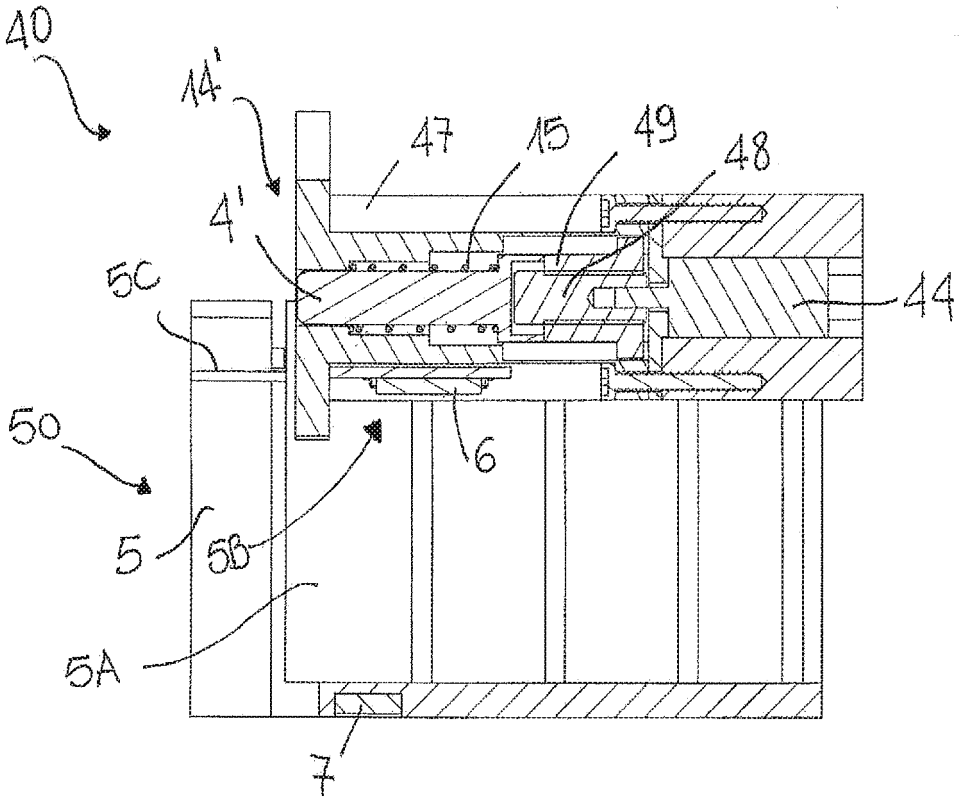

Fig. 7

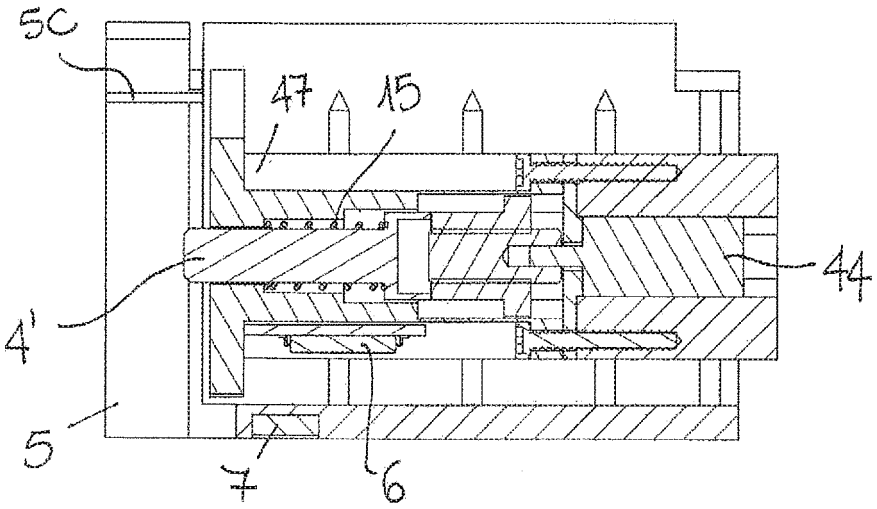

Fig. 8

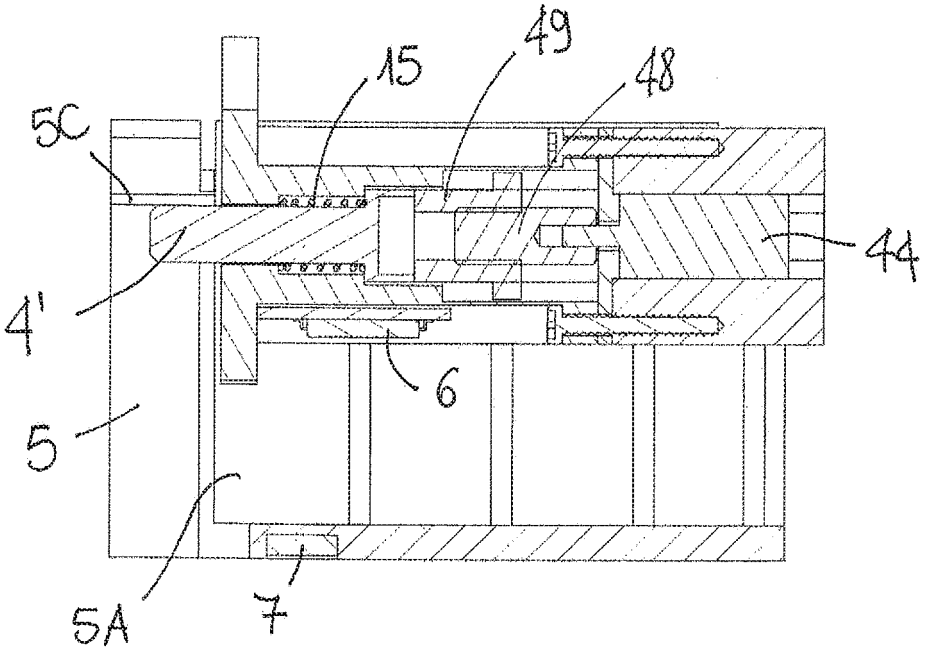

Fig. 9

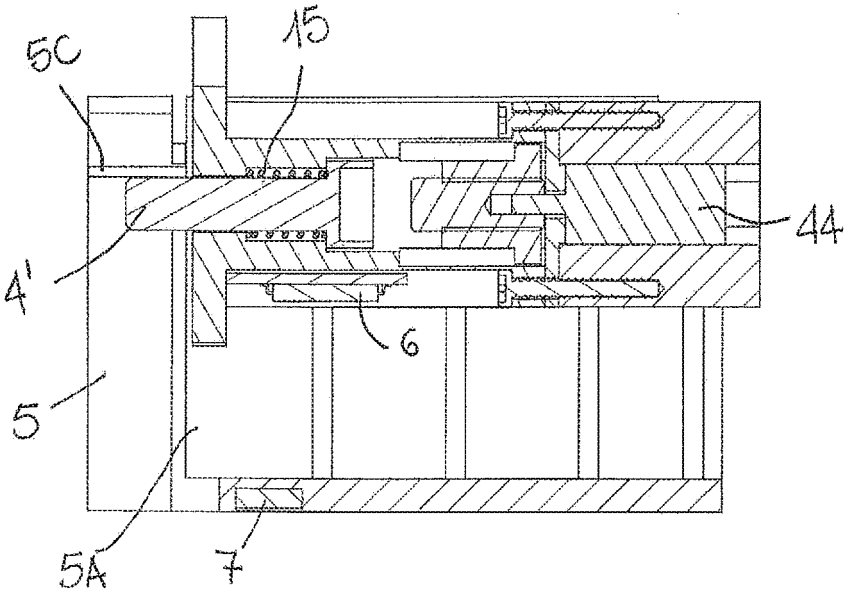

Fig. 10

REFERENCES CITED IN THE DESCRIPTION

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