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(54) **A SYSTEM FOR TILTING A NUMBER OF SLATS IN A SCREENING DEVICE**  
SYSTEM ZUM NEIGEN MEHRERER LAMELLEN IN EINER ABSCHIRMVORRICHTUNG  
SYSTEME POUR INCLINER LES LAMES D'UN DISPOSITIF D'OCCULTATION

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## Description

### Field of invention

**[0001]** The present invention relates to a system for tilting a number of slats in a screening device, preferably a Venetian blind, comprising a shaft in connection with the slats, and which transfers rotation for tilting the slats until a predetermined angle, a string loop extending between an upper and a lower turning point, where the upper turning point is arranged as a driving means, which through movement of the string loop transfers rotation to the shaft.

### Background of invention

**[0002]** Screening devices, such as Venetian blinds, are often arranged in connection with openings of buildings to screen the light in directly penetrating into the building. Hereby, the inconvenience by direct light into the eyes as well as potential bleaching of the furniture in the buildings are avoided. Several tests have however shown that persons have a greater well-being in light surroundings, for which reason it is important that the screening device is adjustable so that the amount of light, which penetrate into the building, is suitable for the individual persons who stay there.

**[0003]** Another object of the screening device is to prevent persons from being able to see directly into the building. In this case it is also important to adjust the device, so that the visibility into the building is minimal, while the amount of entered light suits the persons in the building.

**[0004]** It has therefore proved to be advantageous to design the screening devices with slats, which can be tilted. The slats can be tilted so that they fulfil the need for light penetration and visibility. The more the slats are tilted the more they screen. The use of slats in the screening devices has likewise proven advantageous in that the tilting of these can produce a light regulating effect, thus enabling control of the light penetrating through the slats, up in the ceiling or down towards the floor, respectively.

**[0005]** In the cases where no kind of screening is desired, the slats can be raised so that the actual opening of the building is free.

**[0006]** Different ways of tilting the slats in a Venetian blind are known, for example it is known that the slats can be tilted by rotation of a rod. The slats can be tilted until a position, in which they touch each other, and hereby a further tilting of the individual slat is prevented. The known devices possess the disadvantage, that when the rod is further rotated, after the slat has obtained its maximum angle, the connection of the rod to the slats may break as the force transferred by the user does not tilt the slats, but on the other hand is absorbed by the actual connection between the rod and the slat. Most frequently these connections are of such a design that they cannot absorb this force, for which reason they usually are destroyed.

**[0007]** In those situations where the connection between the rod and the slat does not break by the further rotation of the rod, the force of rotation is transferred to a continuous tilting of the slats. As the slats in this position have reached their maximum angle, a further tilting will be forced on them, which results in damaging of the actual slats or the arrangement, in which they are placed.

**[0008]** Furthermore, in the latest years there has been a tendency towards the construction of new buildings with large glass fronts as well as windows, as light has from an architectural point of view been an important element in the designing of buildings. It being both large multistorey as well as single-storey buildings. Thus, hereby a need for Venetian blinds has occurred, which are flexible and which are easily adjustable to the persons in the building.

**[0009]** Thus, these screening devices or Venetian blinds are placed in all sorts of openings of buildings, among these the large window fronts, where the Venetian blinds may be placed over several storeys both inside and outside of the window front.

**[0010]** Furthermore, there is a need for Venetian blinds in roof windows, which are often placed to follow the inclination of the roof. These said windows are often placed, so that the user can only with difficulty reach the window for which reason tilting of the slats in a Venetian blind in such windows is to take place in a great distance of the window.

**[0011]** Thus, there is a need for a solution for tilting of the slats in a Venetian blind placed out of reach of the user.

**[0012]** The need for the amount of light and light direction and how much screening each person needs differs to a large degree individually and may change many times during the day. Furthermore, the users of the Venetian blinds may have different heights, especially if it is a case of both children and adults. For that reason there has for a long time been a need for a solution for tilting of the slats in a Venetian blind, in which the control devices for tilting may be placed in different heights depending on the different heights of the users.

**[0013]** Thus, in US-2,557,978 a Venetian blind system is disclosed, which is placed within the actual window. The tilting of the slats occurs by displacing a pawl, which is in connection with a string, up and down in a short groove permanently placed in the window frame. The length of the groove is determined by the size of an angle, with which the slats can be tilted. The permanently placing of the groove in the frame on the side of the Venetian blind entails that the system cannot be adjusted to fit a taller or lower person, who wants to tilt the slats. Furthermore, the placing of the groove is limited to placement within the length of the Venetian blind and thus cannot be placed substantially under the opening of the building.

**[0014]** For the known Venetian blind the matter is in general that the devices, which the user is using for tilting of the slats, can not be placed freely so as to rectify for different heights of the user or for the placement of the

Venetian blind relative to the user.

**[0015]** Thus, the object of the present invention is to provide a system for tilting a number of slats in a screening device, which can freely be adjusted for use by both tall and low users.

**[0016]** Another object of the present invention is to provide a system for tilting a number of slats in a screening device, which can be used for all kinds of building openings, both roof windows and openings of buildings in the height of a man.

**[0017]** A further object of the present invention is to provide a system for tilting a number of slats in a screening device, where an unintended pull in the control device does not destroy the connection between the latter and the slats and by that the function of being able to tilt the slats by movement of the control device.

### Summary of the invention

**[0018]** The present invention is new and characterised in that a handle is arranged on the string loop and is movable between the upper and the lower turning point, and is arranged so as by movement of the handle a force is applied, which tilts the slats until a predetermined angle. Furthermore, at least one carrier is arranged in connection with the shaft and follows the rotation of the shaft between two permanently defined end positions. Furthermore, the carrier puts at the end positions a disconnecting mechanism in force, so that the handle can be optionally positioned between the turning points.

**[0019]** Hereby it is obtained that the handle easily may be adjusted to a random position of height, so that the system in an advantageous way may be utilized by different kinds of users of different heights. A further advantage is that the slats are not damaged due to the force supplied to the system by the user, which is greater than the force, which stops the tilting in the known systems. This further force is utilized according to the present invention to adjust the placement of the handle on the string loop.

**[0020]** The tilting of the slats in the screening device according to the present invention is carried out in that the handle is pulled or pushed by the user in one direction. By this movement of the handle the string loop is moved around the upper driving means, whereby the shaft is rotated. The slats are connected with the shaft and are tilted by this rotation until the predetermined angle.

**[0021]** Provided that the user continuously pulls or pushes in the handle, the disconnecting mechanism disconnects the handle from the slats, so that the continuous movement in the same direction occurs without tilting the slats. Hereby, the user may place the handle in the position desired by him or her. When this position has been reached, it is possible in a simple way to fine-tune the tilting of the slats, so that the needs of the users are obtained, by moving the handle up or down between the predetermined angles of the slats.

**[0022]** During the use of the system a carrier follows

the rotation of the shaft between two permanently defined end positions, which are determined by the predetermined angle. The predetermined angle corresponds to the maximum angle change of a slat, so that two adjacent slats are situated substantially close to one another. When the carrier is moved to engage with one of the end positions, via the rotation of the shaft, the slats cannot be tilted more in that direction. Subsequently the disconnecting mechanism is put in force, so the handle is disconnected from the slats, so that a continuously movement in the same direction as the handle occurs without tilting of the slats. Hereby, it is obtained, that an unintended pull in the handle does not destroy the system, when the carrier is in engagement with the permanently end position.

**[0023]** According to the present invention a string loop is defined by an endless string or at least a string, which is fastened to the same object at its ends, where the string alternatively may be a band, a rope, a string of pearls, a steel wire, a core or a notched belt.

**[0024]** A handle as described above, is defined by a unit which may be operated by the user, where the handle may be a unit in a firm or soft material, which is fastened to the string loop and alternatively a noose on the string.

**[0025]** In a preferred embodiment according to the present invention the disconnecting device may comprise a spring. Furthermore, the spring may be wound at least once around the shaft, and the ends of the spring may constitute a first and a second carrier, respectively, so that the spring and the carrier follow the rotation of the shaft between the end positions. Thus, when one of the carriers engages with the end position the spring is released around the shaft, so that the shaft rotate, without the following of the spring and the carrier. Hereby, the wound spring applies a spring force against the shaft. The carriers are in an advantageous way arranged as an integrated part of the ends of the spring. Thus, when the carrier engages with one of the end positions, the grasp of the spring around the shaft is released, whereby the spring force, which is applied to the shaft, is disconnected. Hereby, the force, which is further applied to the handle, when the carrier has reached the end position, is transferred to rotation of the shaft without tilting the slats. Subsequently, the handle may in an advantageous way be adjusted to the height chosen by the user. Hereby, an advantageous system is obtained, which is very dependable.

**[0026]** In another preferred embodiment according to the invention the disconnecting mechanism may be arranged to disconnect, when the frictional force between the string loop and the upper turning point is less than the force, which is applied to the handle. During use movement of the handle will cause the shaft to rotate via the frictional force, which is present between the string loop and the upper turning point. Thus, when the carrier engages with one of the permanently end positions, the rotation of the shaft stops. Provided that a further force is applied to the handle, the force will be greater than the

frictional force between the string loop and the upper turning point, whereby the string loop will continue to slide around the turning point without transferring further rotation to the shaft and thereby tilting of the slats. Hereby, the user may freely adjust the height and placement of the handle. Hereby, a simple system for tilting a number of slats is obtained, wherein the handle in a simple way may be adjusted in the height.

**[0027]** In a further preferred embodiment according to the present invention the disconnecting mechanism may be arranged to disconnect, when the frictional force between the shaft and the upper turning point is less than the force, which is applied to the handle. By pulling the handle the shaft is driven round via the rotation of the upper turning point until the predetermined angle. Thus, when the carrier reaches the permanently end position, the force which is applied to the handle will overcome the frictional force between the shaft and the turning point, so that the shaft does no longer rotate, but that the turning point continues its rotation. Hereby, a simple construction of the system is obtained, wherein the handle may easily be adjusted in the height, so that it fits an individual user.

**[0028]** In another advantageous embodiment the system may comprise a gearwheel, which is arranged to transfer movement of the handle to rotation of the shaft. Hereby, it is obtained, that the string loop may be placed decentralized relative to the shaft and thus placed more expedient by arranging the screening device in different openings of the buildings. Simultaneously, a safe transfer of rotation to the shaft is obtained.

**[0029]** In a further expedient embodiment according to the present invention the driving means may comprise a spring, which is arranged for holding the driving means in engagement with the shaft or one part in between. The spring may be arranged to press the driving means towards the shaft, so that a greater friction occurs between them. It may also be the case that the spring is placed between the shaft and the driving means or in connection with a connecting link there in between.

**[0030]** In another preferred embodiment according to the invention the string loop and the handle may be arranged in a slide between the driving means and the lower turning point. Hereby it is ensured that the user cannot unintentionally entangle himself in the string loop which may result in personal injury, and that the string loop is not in an inappropriate way damaged or done useless. Furthermore, the string loop may be guided in a slide, so that it follows the underside of the ceiling, when the system by way of example is placed in a roof window.

**[0031]** In a further embodiment the handle may be permanently arranged on the string loop. Hereby it is obtained that the handle is not unintentionally released from the string loop. A further advantage is that the handle does not slide on the string loop during use.

**[0032]** In further embodiments according to the present invention the distance between the upper and lower turning point may be less, identical, or greater, re-

spectively, than the height of the opening of the building, wherein screening devices may be used. At these different distances it is possible to adjust the string loop to different users of the screening devices in different openings of the building.

**[0033]** Finally, the invention also relates to a screening device with a number of slats, preferably a Venetian blind, at which said screening device comprises a shaft, which is in connection with the slats and transfers rotation for tilting the slats until a predetermined angle, and a string loop extending between an upper and a lower turning point, at which the upper turning point is arranged as a driving means, which via movement of the string loop transfers rotation to the shaft, which is characterised in that a handle is arranged on the string loop and is movable between the upper and the lower turning point, and is arranged so as by movement of the handle a force is applied, which tilts the slats until a predetermined angle. Furthermore, a carrier is arranged in connection with the shaft and follows the rotation of the shaft between two permanently defined end positions. Moreover, the carrier puts a disconnecting mechanism in force at the end positions.

**[0034]** The present invention also relates to a disconnecting mechanism for a system for tilting a number of slats in a screening device, preferably a Venetian blind, where the system comprises a shaft, which is in connection with the slats and transfers rotation for tilting of the slats until a predetermined angle, a string loop extending between an upper and lower turning point, at which the upper turning point is arranged as a driving means, which via movement of the string loop transfers rotation to the shaft, a handle is arranged on the string loop and is movable between the upper and the lower turning point, and is arranged so that by movement of the handle a force is applied, which tilts the slats until a predetermined angle, and that a carrier is arranged in connection with the shaft and follows the rotation of the shaft between two permanently defined end positions. The disconnecting mechanism is characterised in that the disconnecting mechanism is arranged for disconnecting the handle from the slats by the predetermined angle so that the continuous movement of the handle in the same direction occurs without tilting of the slats.

**[0035]** The invention is explained in detail below with reference to particularly preferred embodiments and, in which

Fig. 1 shows a screening device according to the present invention for use in an opening of the window in a roof,

Fig. 2 shows in an exploded projection an embodiment according to the present invention, where the disconnecting mechanism is arranged in connection with the shaft and the slat,

Fig. 3 shows in an exploded projection another em-

bodiment according to the present invention, where the disconnecting mechanism is arranged in connection with the driving means, and

Fig. 4 shows in perspective the free wheel clutch according to the present invention.

**[0036]** All the figures are highly schematic and not necessarily to scale, and they show only parts which are necessary in order to elucidate the invention, other parts being omitted or merely suggested. The same reference numbers are used in all figures about identical or corresponding details.

**[0037]** Fig. 1 shows a screening device 1 according to the present invention for use in an opening of the window 2 in a roof. The string loop 3 extending in this embodiment along the frame of the window 4, which follows the inclination of the roof and is led further down along the wall 5, so as it is possible for a user to adjust the tilting of the slats 6 of the screening device 1. Furthermore, a handle 12 is arranged on the lowest part of the string loop 3. The string loop 3 extends in this embodiment between an upper 10 and a lower 11 turning point. Furthermore, the string loop 3 is held up to the wall via a turning block (not shown) immediately below the window 2.

**[0038]** In Fig. 2 an embodiment of the system 7 for tilting a number of slats in a screening device, preferably a Venetian blind, is shown in a exploded projection. In this embodiment it is shown that a plurality of slats 6 is placed horizontally above each other.

**[0039]** The system 7 comprises a shaft 8, which is in connection with the slats 6 and transfers rotation for tilting of the slats 6 until a predetermined angle. The shaft 8 and the slats 6 are in this case connected via tip strings 9, which are arranged for holding the slats 6 in a predetermined distance from each other.

**[0040]** Furthermore, the system 7 comprises a string loop 3 extending between an upper 10 and a lower 11 turning point, where the upper turning point 10 is arranged as a driving means, which via movement of the string loop 3 transfers rotation to the shaft 8. The two turning points 10, 11 may in an advantageous way be designed as pulleys or wheels, which hereby ensures that the string loop 3 can effortlessly run around the turning points. The lower turning point 11 is in this case shown as placed in a bearing 15. Furthermore, the lower turning point 11 may be arranged as a pawl or a pin, around which the string loop can run. A tensioning device may likewise be arranged (not shown) in connection with the lower turning point, which is arranged for maintaining prestressing on the string loop, so that this is always stretched. The tensioning device may for instance be a spring. The upper driving means 10 is in this embodiment further arranged in an insertion part 16.

**[0041]** A handle 12 is arranged on the string loop 3 and is movable between the upper 10 and the lower 11 turning point, and is arranged so that by movement of the handle 12 the slats 6 are tilted until a predetermined angle. The

handle 12 is in this embodiment arranged on the string loop 3 by means of a push part 13.

**[0042]** The handle 12 may within the scope of the invention be arranged on the string loop in many different ways, among these fastened by gluing, welding, riveting or by means of a screw-locking, squeezing devices or locking-pawls, which grasp around the string loop.

**[0043]** According to another embodiment of the invention may the above mentioned tensioning device (not shown) be arranged in connection with the handle 12, whereby it is obtained, that the string loop in expedient manner are giving prestress.

**[0044]** In an advantageous way a gear system 14 may be arranged between the driving means 10 and the shaft 8. The gearing scale between the shaft 8 and the driving means 10 can preferably be 1:2, 1:4 or 1:8.

**[0045]** It may also be the case that the driving means 10 comprises a gearwheel (not shown), which is arranged for transferring of movement of the handle 12 for rotation of the shaft 8. The gear system 14 can in an advantageous way become incorporated via the gearwheels, by for instance having another number of teeth on gearwheel of the shaft 8 relative to the number of teeth on the gear wheel of the driving means 10, which will be appreciated by a person skilled in the art. Thus, the string loop may either be in direct engagement with the teeth on the gearwheel or be in indirectly by further gearwheels.

**[0046]** Furthermore, a carrier (not shown) is arranged in connection with the shaft 8 and follows the rotation of the shaft 8 between two permanently defined end positions (not shown), which are determined by the predetermined angle. The function of the carrier will be disclosed closer below in connection with Fig. 4.

**[0047]** In connection with the tip strings 9 tip arms 17 are available, which are further connected with the disconnecting mechanism 18 which are intended for disconnecting the handle 12 from the slats 6 at the predetermined angle, so that continuous movement of the handle 12 in the same direction occurs without tilting of the slat 6. It is here a question of that the disconnecting mechanisms 18 being arranged in connection with the shaft 8 and the slats 6.

**[0048]** In Fig. 3 another embodiment of the system 7 according the present invention is shown in a exploded projection, for tilting a number of slats 6 in a screening device. The system comprises a shaft 8, which is connected to the slats 6 and transfers rotation for tilting of the slats 6 until a predetermined angle. The shaft 8 is in connection with the slats via the tip strings 9.

**[0049]** The rotation of the shaft 8 is performed via movement of a string loop 3, which extends between an upper 10 and a lower 11 turning point, where the upper turning point 10 is arranged as a driving means.

**[0050]** A handle 12 is arranged on the string loop 3 via a pushing pawl 13 and is movable between the upper 10 and the lower 11 turning point.

**[0051]** The carrier 19 is arranged in connection with the shaft and follows the rotation of the shaft between

two permanently defined end positions, in this embodiment only one end position 20 is shown, which is determined by the predetermined angle.

**[0052]** During use of the system, the carrier 19 follows the rotation of the shaft 8 between two permanently defined end positions 20. When the carrier 19 is moved in engagement with or hits the permanently end position 20, the shaft 8 can not be rotated further in that direction, whereby the tilting of the slats 6 is stopped.

**[0053]** Subsequently, the disconnecting mechanism is put in force, so as the disconnecting mechanism disconnects the handle 12 from the slats 6, so that a continuous movement in the same direction of the handle 12 occurs without tilting of the slats 6. Hereby, it is obtained, that a unintended pull in the handle 12 does not damage the system 7 when the carrier 19 engages with the permanently end position 20.

**[0054]** The disconnecting mechanism is in this embodiment arranged in connection with the driving means 10. The driving means 10 is in this case designed so that it by rotation via movement of the handle 12 transfers rotation to the shaft 8 via the friction existing between them.

**[0055]** It is ensured that the shaft 8 cannot rotate any further when the carrier 19 engages with the permanently end position. Provided that the user continues to move the handle 12, this force will be greater than the frictional force between the drive wheel 10 and the shaft 8, whereby the driving wheel 10 will continue to rotate with the movement of the handle 12. Hereby, a simple construction of the system is obtained, wherein the handle 12 can easily be adjusted in the height so as to fit the individual user without this adjustment destroying the connection between the handle 12 and the slats 6.

**[0056]** Furthermore, it has proven advantageous that the driving means 10 comprises a spring (not shown), which is arranged to hold the driving means in engagement with the shaft 8 or a part there in between. The spring is arranged to press the driving means 10 towards the shaft 8, so that a greater friction between these occurs, whereby a dependable system is obtained.

**[0057]** In another preferred embodiment according to the present invention the disconnecting mechanism may be arranged to disconnect, when the frictional force between the string loop and the upper turning point is less than the force, which is applied to the handle. During use movement of the handle will cause the shaft to rotate via the frictional force, which is present between the string loop and the upper turning point. Thus, when the carrier engages with the permanently end positions the rotation of the shaft stops. Provided that a further force is applied to the handle, this force will be greater than the frictional force between the string loop and the upper turning point, at which the string loop will continue to slide around the turning point without transferring further rotation to the shaft and thereby tilting to the slats. In this embodiment the upper turning point or driving means may be arranged in directly permanently connection with the shaft, or it may be the case that a gearwheel is arranged on both

the driving means and the shaft so that the rotation is transferred via the same.

**[0058]** To increase the friction between the string loop and the driving means 10 the construction plane of the string loop can be arranged with friction increasing means, such as teeth or a granulated surface.

**[0059]** Fig. 4 shows in perspective a further embodiment of the disconnecting mechanism 21 according to the present invention. The disconnecting mechanism 21 comprises a spring 23, which is wound around the shaft. The spring 23 is in this case shown with a plurality of windings, but can likewise advantageously consist of only one winding. The ends of the spring 23 constitute a first 24 and second 27 carrier, respectively, so that the spring 23 and the carriers 24, 27 follow the rotation of the shaft between the end positions. Thus, when one carrier 24 engages with the end position 25, the grasp of the spring around the shaft is released, so that the shaft rotates without the following of the spring 23 and the carriers 24, 27.

**[0060]** The matter is, that the windings of the spring, the carriers and the end positions have been arranged in relation to each other so that when the carrier engage with the end position, the force, with of which the windings of the spring press on the shaft is released. This happens by the carrier at the end position so to speak presses the windings of the spring out from the shaft and thereby releases the grasp of the spring around the shaft.

**[0061]** Furthermore, in this embodiment a cap 28 is arranged around the shaft, so as that the spring force with which the spring 23 presses, is absorbed by the cap. It is hereby obtained that the shaft is not subjected to an disadvantageous wear by the spring. Thus, in connection with the spring 23 a tip arm 26 is arranged, where upon the tip strings are arranged. By rotation of the cap 28 and with it the spring 23 the slats are tilted via the tip strings.

**[0062]** The disconnecting mechanism 21 may in an advantageous way be arranged in connection with the shafts, preferably between the shaft and the slats. By use of a disconnecting mechanism in connection with the system for tilting a number of slats in a screening device a system is obtained, in which the user can in an appropriate way adjust the handle in the height without that this by an further unintended movement of the handle may destroy the connection between the handle and the slats.

**[0063]** Thus, according to the scope of the invention the spring may be designed so as to apply a spring force between the shaft and the driving means or to a intervening part for hereby increasing the friction in between. The spring may be designed as a plate spring, a disc spring or a coil spring, which will be appreciated by a person skilled in the art.

**[0064]** Within the scope of the invention it may be that the carrier has been designed as a part extending from the shaft, an arm, and it may be a part, which grasps around the shaft, a cap. Common for the carriers is that they rotate with the shaft between two permanently de-

fined end positions.

[0065] Even though the invention primarily has been disclosed in connection with horizontal slats, it can likewise be used in connection with vertically slats, which will be appreciated by a person skilled in the art.

[0066] Thus, this type of screening devices also comprises systems (not shown) arranged to collect and separate the slats, so that the slats may be raised, to ensure that the whole opening of the building is free from the screening device.

[0067] Several different systems are known where among others a bottom slide may in an advantageous way be arranged to collect the slats by a raising of the same.

[0068] A further known system for raising of slats which could advantageously be implemented by the present invention is a so-called H-string raising system, which is disclosed further in US-6,338,378, which hereby is incorporated by reference in the application.

[0069] The screening device according to the present invention may in an appropriate way be used in openings of buildings, such as doors, windows, inside windows and fronts. The embodiment may with advantage also be used as a room divider inside the actual building.

[0070] Even though the invention disclosed above in connection with the preferred embodiments of the invention, it is obvious to a person skilled in the art that several improvements are possible without deviating from the scope of the invention as defined in the appended claims.

## Claims

1. A system (7) for tilting a number of slats (6) in a screening device, preferably a Venetian blind, comprising a shaft (8) which in connection with the slats (6), transfers rotation for tilting the slats (6) until a predetermined angle, a string loop (3) extending between an upper (10) and a lower (11) turning point, which upper turning point (10) is arranged as a driving means, which through movement of the string loop (3) transfers rotation to the shaft (8), **characterized in that** a handle (12) is arranged on the string loop (3) and is movable between the upper (10) and the lower (11) turning point, and is arranged so as by movement of the handle (12) a force is applied, which tilts the slats (6) until the predetermined angle, and that at least one carrier (19) is arranged in connection with the shaft (8) and which follows the rotation of the shaft (8) between two permanently defined end positions (20,25), and that the carrier (19) at the end positions (20,25) puts a disconnecting mechanism into force, so that the handle can be positioned optionally between the turning points.
2. A system according to claim 1, wherein the disconnecting mechanism comprises a spring (23).
3. A system according to claim 1, wherein the spring (23) is wound at least once around the shaft (8) and where the ends of the spring constitute a first (24) and a second (27) carrier, respectively, so that the spring (23) and the carriers (24, 27) follow the rotations of the shaft between the end positions, and thus when one carrier engages with the end position the grasp of the spring around the shaft (8) is released, so that the shaft (8) rotates without following of the spring and the carrier.
4. A system according to claim 1, wherein the disconnecting mechanism is arranged to disconnect, when the frictional force between the string loop (3) and the upper turning point (10) is less than the force applied to the handle (12).
5. A system according to claim 1, wherein the disconnecting mechanism is arranged to disconnect, when the frictional force between the shaft (8) and the upper turning point (10) is less than the force, applied to the handle (12).
6. A system according to claim 2 to 4, wherein the driving means (10) comprises a gearwheel, which is arranged to transfer movement of the handle (12) for rotation of the shaft (8).
7. A system according to claim 5, wherein the driving means (10) comprises a spring, which is arranged to hold the driving means (10) in engagement with the shaft (8) or with a part in between.
8. A system according to any of the preceding claims, wherein the string loop (3) and the handle (12) are arranged in a slide between the driving means (10) and the lower turning point (11).
9. A system according to any of the preceding claims, wherein the handle (12) is permanently arranged on the string loop (3).
10. A system according to any of the preceding claims, wherein the distance between the upper (10) and the lower (11) turning point is less than, identical to or greater than the height of an opening of the building, wherein the screening device is to be used.
11. A screening device with a number of slats (6), preferably a Venetian blind, **characterized in that** it comprises a system as claimed in any of the preceding claims.
12. Use of a screening device according to claim 11 in an opening of a building, preferably a window or a door.

### Patentansprüche

1. System (7) zum Neigen mehrerer Lamellen (6) in einer Abschirmvorrichtung, vorzugsweise einer Jalousie, das eine Welle (8) aufweist, die in einer Verbindung mit den Lamellen (6) eine Drehung zum Neigen der Lamellen (6) bis zu einem vorgegebenen Winkel überträgt, wobei sich eine Schnurschlaufe (3) zwischen einem oberen (10) und einem unteren (11) Wendepunkt erstreckt, wobei der obere Wendepunkt (10) als ein Antriebsmittel ausgestaltet ist, das durch eine Bewegung der Schnurschlaufe (3) eine Drehung auf die Welle (8) überträgt, **dadurch gekennzeichnet, dass** ein Griff (12) an der Schnurschlaufe (3) angeordnet und zwischen dem oberen (10) und dem unteren (11) Wendepunkt beweglich und so angeordnet ist, dass durch eine Bewegung des Griffs (12) eine Kraft aufgebracht wird, die die Lamellen (6) bis zu dem vorgegebenen Winkel neigt, und dass wenigstens ein Träger (19) in Verbindung mit der Welle (8) angeordnet ist, der der Drehbewegung der Welle (8) zwischen zwei dauerhaft festgelegten Endstellungen (20, 25) folgt, und dass der Träger (19) an den Endstellungen (20, 25) einen Lösemechanismus in Kraft setzt, so dass der Griff optional zwischen den Wendepunkten angeordnet werden kann.
2. System nach Anspruch 1, wobei der Lösemechanismus eine Feder (23) aufweist.
3. System nach Anspruch 1, wobei die Feder (23) wenigstens einmal um die Welle (8) gewickelt ist und wobei die Enden der Feder einen ersten (24) bzw. einen zweiten (27) Träger bilden, so dass die Feder (23) und die Träger (24, 27) der Drehung der Welle zwischen der Endstellungen folgen und somit, wenn ein Träger mit der Endstellung eingreift, der Griff der Feder um die Welle (8) freigegeben wird, so dass die Welle (8) sich dreht, ohne dass dem die Feder und der Träger folgt.
4. System nach Anspruch 1, wobei der Lösemechanismus ausgebildet ist, sich zu lösen, wenn die Reibungskraft zwischen der Schnurschlaufe (3) und dem oberen Wendepunkt (10) kleiner als die Kraft ist, die auf den Griff (12) ausgeübt wird.
5. System nach Anspruch 1, wobei der Lösemechanismus ausgebildet ist, sich zu lösen, wenn die Reibungskraft zwischen der Welle (8) und dem oberen Wendepunkt (10) geringer ist als die Kraft, die auf den Griff (12) ausgeübt wird.
6. System nach Anspruch 2 bis 4, wobei die Antriebsmittel (10) ein Zahnrad umfassen, das ausgebildet ist, eine Bewegung des Griffs (12) für eine Drehung der Welle (8) zu übertragen.

7. System nach Anspruch 5, wobei die Antriebsmittel (10) eine Feder aufweisen, die vorgesehen ist, die Antriebsmittel (10) in Eingriff mit der Welle (8) oder einem Teil dazwischen zu halten.
8. System nach einem der vorhergehenden Ansprüche, wobei die Schnurschlaufe (3) und der Griff (12) in einem Schieber zwischen den Antriebsmitteln (10) und dem unteren Wendepunkt (11) vorgesehen sind.
9. System nach einem der vorhergehenden Ansprüche, wobei der Griff (12) dauerhaft an der Schnurschlaufe (3) angeordnet ist.
10. System nach einem der vorhergehenden Ansprüche, wobei der Abstand zwischen dem oberen (10) und dem unteren (11) Wendepunkt geringer als, identisch oder größer als die Höhe einer Öffnung des Gebäudes ist, in dem die Abschirmeinrichtung verwendet werden soll.
11. Abschirmeinrichtung mit mehreren Lamellen (6), vorzugsweise eine Jalousie, **dadurch gekennzeichnet, dass** sie ein System nach einem der vorhergehenden Ansprüche aufweist
12. Verwendung einer Abschirmeinrichtung nach Anspruch 11 in einer Öffnung eines Gebäudes, vorzugsweise einem Fenster oder einer Tür.

### Revendications

1. Système (7) pour incliner un certain nombre de lames (6) dans un dispositif d'occultation, de préférence, un store vénitien, comprenant un arbre (8) qui, en liaison avec les lames (6), transfère un mouvement de rotation destiné à incliner les lames (6) jusqu'à l'obtention d'un angle prédéterminé, un cordon en forme de boucle (3) s'étendant entre un point de giration supérieur (10) et un point de giration inférieur (11), lequel point de giration supérieur (10) est agencé en tant que moyen de commande, qui par l'intermédiaire du déplacement du cordon en forme de boucle (3) transfère la rotation à l'arbre (8), **caractérisé en ce que** une poignée (12) est agencée sur le cordon en forme de boucle (3) et peut se déplacer entre le point de virage supérieur (10) et le point de giration inférieur (11), et est agencée de telle sorte que, par le déplacement de la poignée (12), une force soit appliquée, laquelle incline les lames (6) jusqu'à atteindre l'angle prédéterminé, et **en ce que** au moins un support (19) est agencé en liaison avec l'arbre (8) et lequel suit la rotation de l'arbre (8) entre deux positions d'extrémité définies de façon permanente (20, 25), et **en ce que** le support (19) au niveau des positions d'extrémité (20, 25) met en action un

- mécanisme de déconnexion de sorte que la poignée peut être positionnée de façon facultative entre les points de giration.
2. Système selon la revendication 1, dans lequel le mécanisme de déconnexion comporte un ressort (23). 5
  3. Système selon la revendication 1, dans lequel le ressort (23) est enroulé au moins une fois autour de l'arbre (8) et dans lequel les extrémités du ressort constituent, respectivement, un premier (24) et un second (27) support, de sorte que le ressort (23) et les supports (24, 27) suivent les rotations de l'arbre entre les positions d'extrémité et, ainsi, lorsqu'un support s'engage avec la position d'extrémité, la préhension du ressort autour de l'arbre (8) se relâche, de sorte que l'arbre (8) tourne sans être suivi par le ressort et le support. 10 15
  4. Système selon la revendication 1, dans lequel le mécanisme de déconnexion est agencé en vue de se déconnecter, lorsque la force de frottement exercée entre le cordon en forme de boucle (3) et le point de giration supérieur (10) est inférieure à la force appliquée sur la poignée (12). 20 25
  5. Système selon la revendication 1, dans lequel le mécanisme de déconnexion est agencé pour se déconnecter lorsque la force de frottement exercée entre l'arbre (8) et le point de giration supérieur (10) est inférieure à la force appliquée à la poignée (12). 30
  6. Système selon les revendications 2 à 4, dans lequel les moyens de commande (10) comportent une roue d'engrenage, laquelle est agencée pour transférer le mouvement de la poignée (12) permettant une rotation de l'arbre (8). 35
  7. Système selon la revendication 5, dans lequel les moyens de commande (10) comportent un ressort, lequel est agencé pour maintenir les moyens de commande (10) en engagement avec l'arbre (8) ou avec une partie entre eux. 40
  8. Système selon l'une quelconque des revendications précédentes, dans lequel le cordon en forme de boucle (3) et la poignée (12) sont agencés dans une glissière entre les moyens de commande (10) et le point de giration inférieur (11). 45 50
  9. Système selon l'une quelconque des revendications précédentes, dans lequel la poignée (12) est agencée de façon permanente sur le cordon en forme de boucle (3). 55
  10. Système selon l'une quelconque des revendications précédentes, dans lequel la distance comprise entre le point de giration supérieur (10) et le point de giration inférieur (11) est plus petite que, identique à, ou plus grande que la hauteur d'une ouverture du bâtiment dans lequel le dispositif d'occultation doit être utilisé.
  11. Dispositif d'occultation comportant un certain nombre de lames (6), de préférence un store vénitien, **caractérisé en ce qu'il** comprend un système selon l'une quelconque des revendications précédentes.
  12. Utilisation d'un dispositif d'occultation selon la revendication 11 dans une ouverture de bâtiment, de préférence, une fenêtre ou une porte.

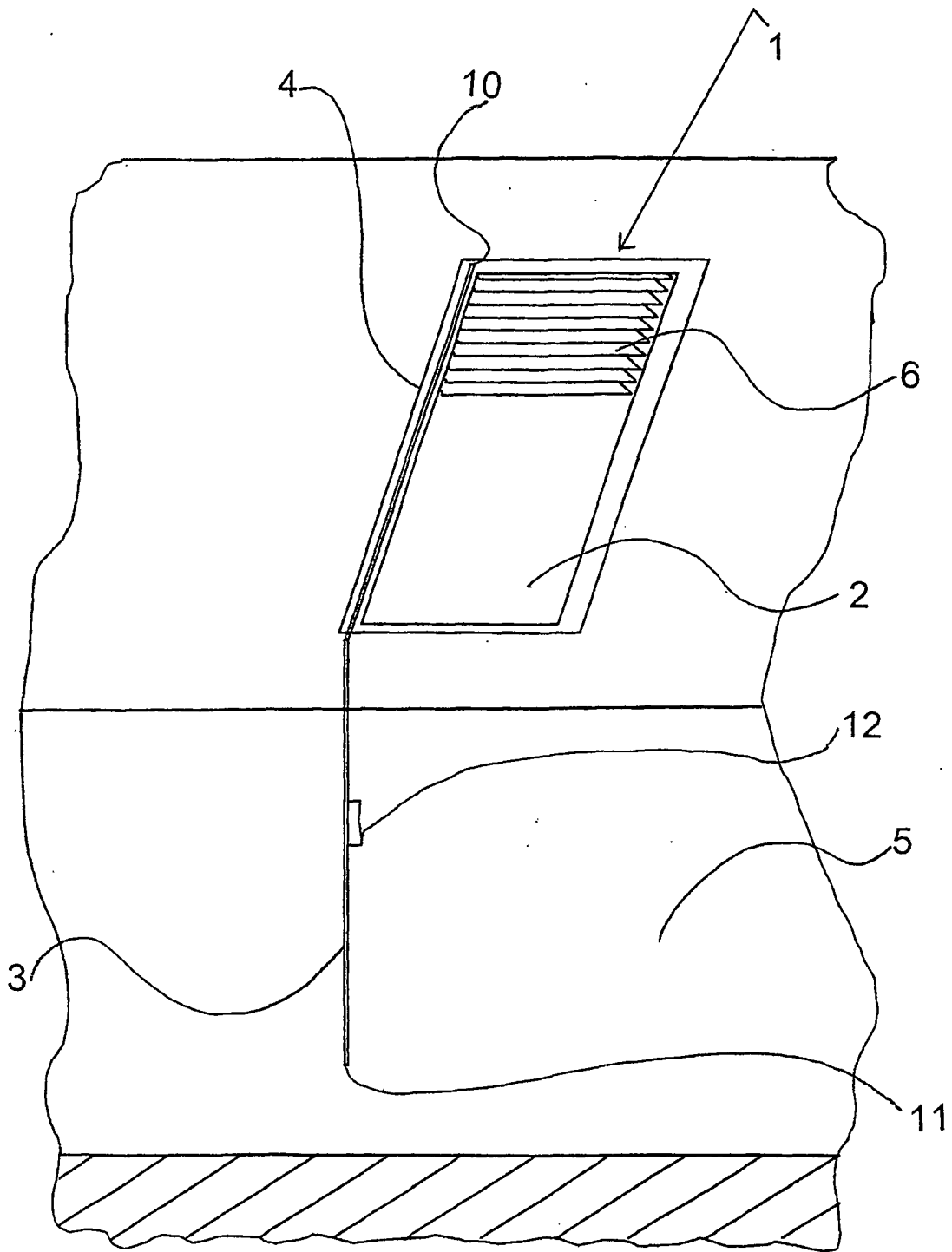


Fig. 1

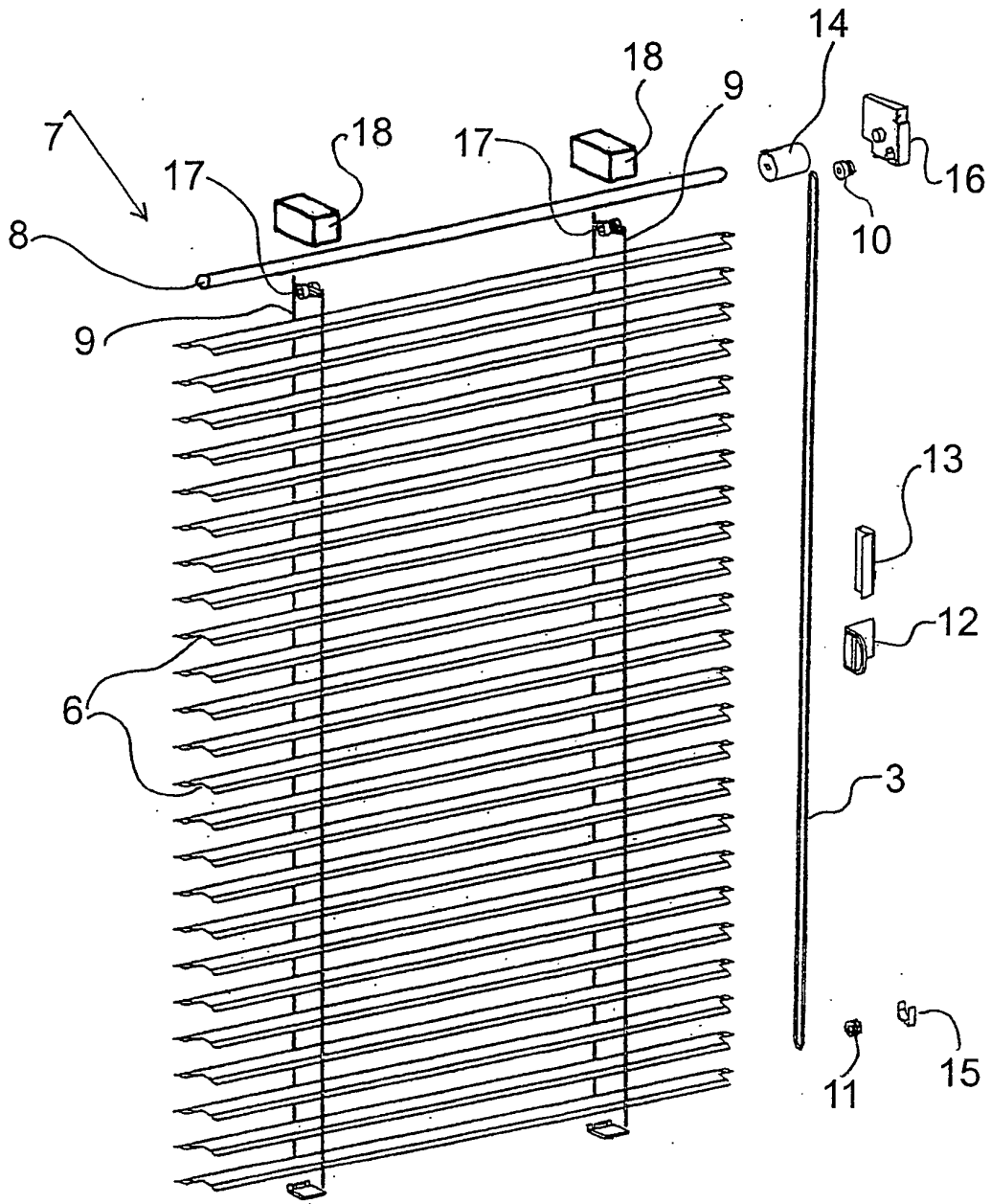


Fig. 2

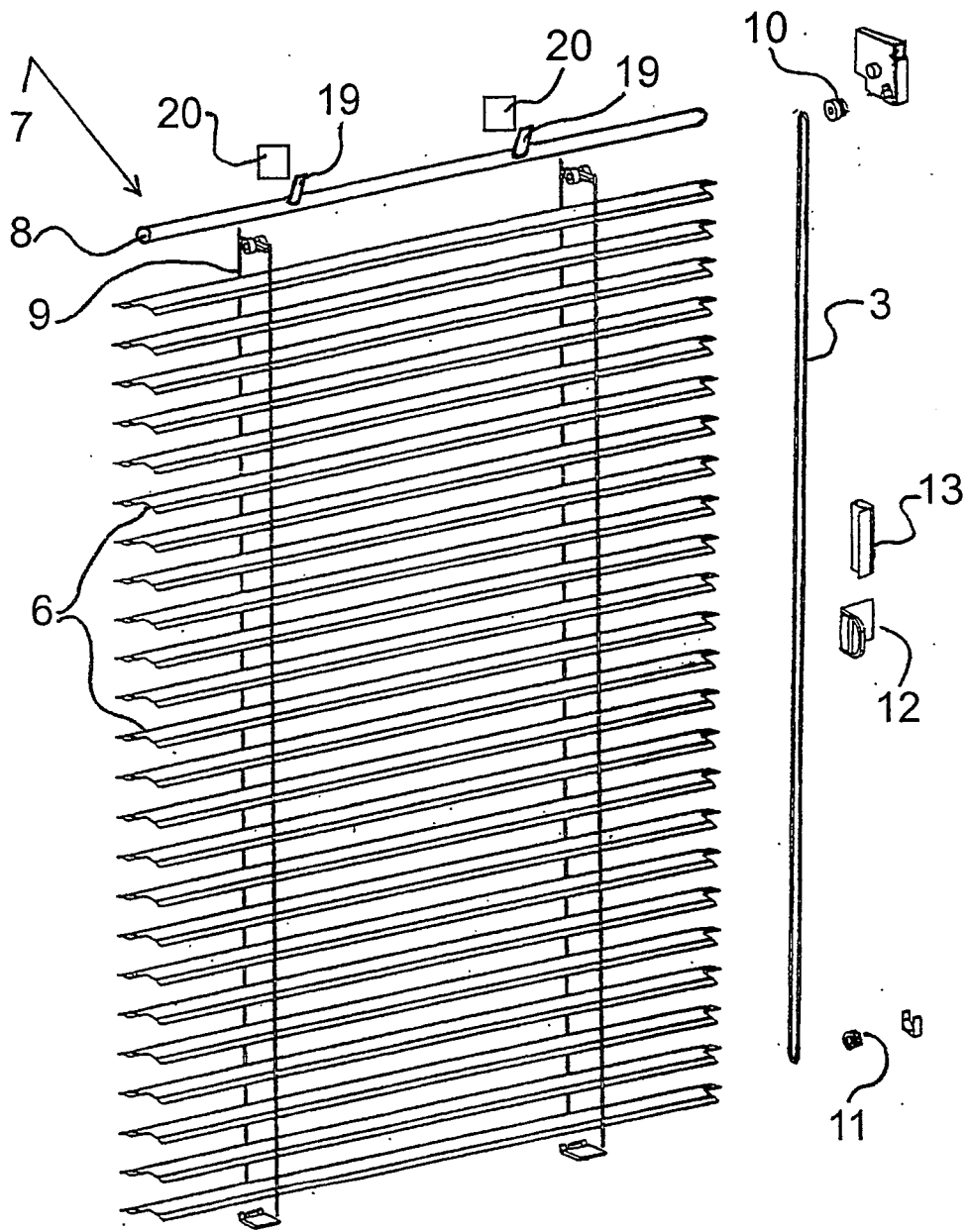


Fig. 3

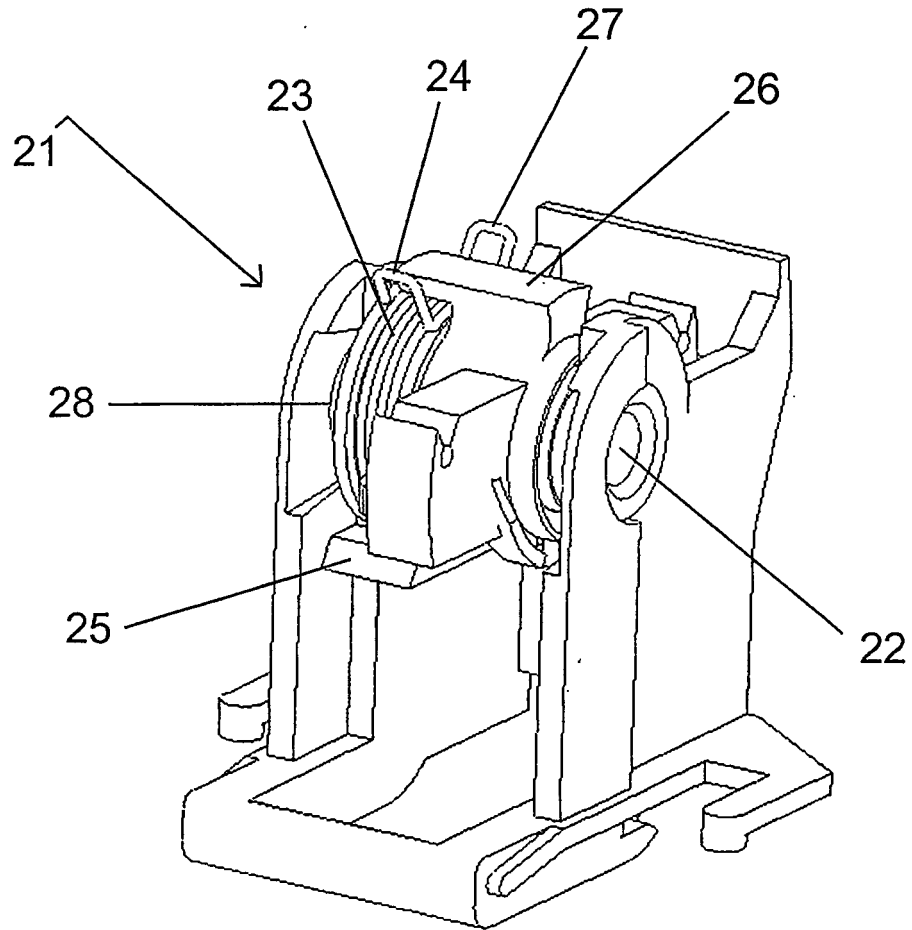


Fig. 4

**REFERENCES CITED IN THE DESCRIPTION**

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