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(54) **Door arrangement**

Türanordnung

Arrangement de porte

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Description

Technical field

[0001] The present invention relates to a door arrangement, which comprises at least one flexible door screen movable between a closed position and an open position, and vice versa, and a lower bar arranged at the lower edge of the flexible door screen, wherein end portions of the lower bar are operatively connected to guides, arranged at opposite sides of a door way, by a releasable connecting element.

Background of the invention

[0002] A building sliding door arrangement as shown in US-A-2002/0117271 and according to the preamble of claim 1 usually comprises a door leaf arranged to be operated between a closed position and an open position, and vice versa. Further, such a door arrangement generally comprises guide rails for guiding at least a lower bar attached to the door leaf between the closed and open position of the door arrangement.

[0003] There is often a need for arranging the door leaf releasable in relation to the guide rails in case of an accidental excessive transverse force applied to the door leaf. At the same time there is a need for retaining the door leaf when exposed to e.g. wind loads. The difference in magnitude between the accidental load and the wind load may in certain cases be relatively small.

[0004] Often the door arrangements of the abovementioned kind are provided with a lower bottom bar attached to the lower edge of the door leaf. In general, the end portions of such a lower bar are arranged slidable in the guide rails or attached to guide elements which are slidable operatively arranged in the guide rails. In order to achieve the desired release function, for instance caused by an accidental load, the lower bar has to be releasable from the guide rails or the guide elements. Such a lower bar may be flexible or rigid.

[0005] In the case of a flexible beam, such an arrangement may be a potential cause of accidental or unintended release of the lower beam from the guides or guide members due to applied wind loads. If the wind load is high, the curtain tends to deflect and accordingly the beam attached to the curtain may be bent, wherein the end portions of the beam tends to move inwardly in the longitudinal direction of the beam and thereby may cause an undesired release of the beam from the guide elements.

[0006] EP0508698A2 is an example of prior-art that relates to building sliding door arrangement, wherein a flexible beam is attached to the lower edge of a door panel. The flexible beam is composed of superimposed strips of a resilient material, such as rubber with flexible metal strips disposed between the adjacent resilient strips. Further, each end of the beam is provided with a longitudinal open-ended slot and an extension of a guide member is mounted within each slot in a manner such that the extension can slide in the slots in a direction parallel to the plane of the door panel and will be released from the slots if the beam is subjected to a substantially accidental impact. The relative movement between the guide member and the beam is achieved by deflection of the entire beam caused by the applied accidental load.

[0007] Door arrangements with a flexible curtain suitably has a substantially rigid lower beam for proper stretching of the curtain. The stretching of the curtain is often preferred in order to give the door arrangement an attractive appearance and a high quality impression. Further, the stretching of the door leaf is an advantage to avoid unwanted deflection of the curtain due to wind loads, which may e.g. cause an air leakage between the door leaf and the surrounding structure.

[0008] Additionally, it is realized that prior art lower bar connections often is designed to withstand a specific predetermined load, such as potential wind loads. This may often restrain the need for adapting the predetermined load to existing local conditions.

[0009] Another issue for such door arrangements, is that if the lower beam is released it is often difficult to reinsert it for retaining to normal operation conditions.

[0010] Hence, there is a need for an improved lower bar connection for door arrangements.

Summary of the invention

[0011] An object of the invention is to improve stretching of a flexible door screen of a door arrangement.

[0012] Another object of the invention is to provide a door arrangement which is self repairing.

[0013] Yet another object of the invention is to provide a release function for a substantially stiff lower bar of a door arrangement.

[0014] Additionally an object of the invention is to enable an adjustable threshold for a release load of a door arrangement lower bar.

[0015] These and other objects, which will become apparent in the following description, are achieved by a door arrangement defined in the independent claim.

[0016] A first aspect of the invention relates to a door arrangement, which comprises at least one flexible door screen movable between a closed position and an open position, and vice versa, and a lower bar arranged at the lower edge of the flexible door screen, wherein end portions of the lower bar are operatively connected to guides, arranged at opposite sides of a door way, by a releasable connecting element, said connecting element comprises an engagement device and a holder element, said engagement device is held resiliently by the holder element for, when exposed to loading exceeding a threshold value, enabling a translation between the engagement device and the holder element, in a direction substantially perpendicular to a plane defined by said flexible door screen in its closed position and wherein the holder element is arranged resiliently movable in a substantially

vertical direction.

[0017] The translation between the engagement device and the holder element is such that the end portions of the lower bar is disengaged from the operatively connection with the guides when exposed to a substantially horizontal impact force. The translation is essentially directed in the same direction as the applied impact force, wherein a release of a substantially stiff lower bar being feasible. The use of a substantially stiff lower bar provide for a proper stretching of the flexible door screen. Further, the use of a substantially stiff lower bar provides for a reduced risk of air leakage and unintended release of the flexible door screen due to wind loads.

[0018] The direction of translation for release of the lower bar also enabling a reconnection of the lower bar in a direction substantially perpendicular to the plane defined by the flexible door screen in its closed position. Hence, such a reconnection is preferably arranged in a self repairing manner, which may save time for service and reduce obstruction of the door arrangement.

[0019] Suitably, the engagement device comprises at least one path along which the holder element is guided relative to the engagement device during said translation, said path comprises a first sloping surface in order to establish a threshold for release of the holder element and the engagement device. Additionally, the path preferably comprises a second sloping surface outside the first sloping surface, said second sloping surface has an inclination less than an inclination of the first sloping surface in order to establish a threshold for reconnection less than the threshold for release.

[0020] The inclination of the sloping surfaces should within the context of this application mean, any surface with a curved, inclined or divergent extension in relation to the direction of translation between the engagement device and the holder element.

[0021] This arrangement, with a first sloping surface providing a threshold for the release of the lower bar and a second sloping surface providing a threshold for reconnection of the lower bar, enabling a simple and robust operatively connection of the lower bar to each one of the guide. The shape of the engagement device, and especially the shape of the sloping surfaces, is considered important for enabling a suitable performance of the release and reconnection of the lower bar.

[0022] The holder element is arranged resiliently movable in a substantially vertical direction. Hence, the vertical movement due to the applied impact force allows an opening of the holder element, wherein the engagement device is free to translate relatively to the holder element in the preferred direction perpendicular to the door screen. The resilient effect of the holder element may be achieved in several ways, for instance by spring elements, elastic materials or the like.

[0023] Advantageously, a resilient stiffness for holding the engagement device by the holder element is adjustable. The adjustment of the resilient stiffness enables for setting a predetermined threshold of the force needed for the release of the lower bar. The magnitude of such a predetermined threshold may be varied in order to adapt the release of the lower bar to existing local conditions. Further, it is optional to set the predetermined threshold during assembly of the door arrangement or during installation of door arrangement. Hence, the same design of connecting element may be used for several kinds of door arrangements and for several applications of such a door arrangement.

[0024] According to a preferred embodiment, wherein the holder element has at least one rod member extending in the longitudinal direction of the bottom bar, and overlapping part of the engagement device. The use of a rod member provides for a simple and robust resilient holder element, which comprises few components. The rod member is preferably made of a metal material and in particular a spring steel.

[0025] Suitably, a protruding length of the rod member beyond a support element is adjustable and hence the resilient stiffness of the protruding length of the rod member is adjusted, by the fact that the support member is movable and securable around the rod member. Further, the resilient holding of the engagement device preferably is arranged to be adjustable between 10-200 kg, preferably 20-170 kg, and in particular 30-150 kg. According to a preferred embodiment, the engagement device is intermediately engaged between two rod members forming part of the holder element.

[0026] According to a preferred embodiment, a translation between the engagement device and the holder element for reconnection is achieved by a reconnecting device during an opening and/or closing cycle of the door arrangement. Thus, a door arrangement comprising a self repairing reconnection of the lower bar is achieved. Hence, the reconnection of a released lower bar may save time for service and thereby avoid obstructions of the door arrangement.

[0027] Preferably, said reconnecting device is arranged as a funnel shaped guide portion and provided along said guides.

[0028] In one embodiment, the lower bar comprises the holder element. Hence, the engagement device is slidably attached to the guide or any intermediate portion between the guide and the lower bar.

[0029] According to an alternative embodiment, the lower bar comprises the engagement device, wherein the corresponding holder element is associated with the guide.

Brief description of the drawings

[0030] By way of examples, embodiments of the invention will now be described with reference to the accompanying drawings in which:

Figure 1a shows in a perspective view a door arrangement according to one embodimnet of the invention in a closed position,

Figure 1b shows in a perspective view the door arrangemnet according to figure 1a in an open position.
Figure 2 is a partial view in perspective showing a lower bar of the door arrangment according to figure 1a in a connected state.
Figure 3 is a partial view in perspective showing the lower bar according to figure 2 in a released state.
Figure 4 is a partial view in perspective showing the lower bar of the door arrangment according to figure 1b in a self reparing state during a closing operation.
Figure 5 shows in a partial view in perspective support elements for adjustable resilient stiffnes of the holder element.
Figur 6 is a side view of the engagement device.
Figure 7a-7c shows in a schematically view the release of the lower bar.
Figure 8a-8c shows in a schematically view the recconecction of the lower bar.

Detailed description of the drawings

[0031] Preferred embodiments of a door arrangement 1 according to the invention will now be described with reference to figures 1-8c.

[0032] The door arrangement 1 according to figure 1a-1b comprises at least one flexible door screen 5 movable between a closed position and an open position, and vice versa. Further the door arrangement 1 comprises a lower bar 7 arranged at the lower edge of the flexible door screen 5, wherein end portions of the lower bar 7 are operatively connected to guides 3, arranged at opposite sides of a doorway, by a releasable connecting element 9, as shown in figures 2-4. The connecting element 9 comprises an engagement device 11 and a holder element 13, said engagement device 11 is held resiliently by the holder element 13 for enabling a translation between the engagement device 11 and the holder element 13, in a direction substantially perpendicular to a plane defined by said flexible door screen 5 in its closed position.

[0033] According to one embodiment of the door arrangement 1 shown in figure 1a-1b, the flexible door screen 5 is preferably wound on a winding roller 15 which is mounted rotably at the door opening. Further, lateral portions 23 of the flexible door screen 5 is provided with protruding portions 17 adapted for being guided by the guide 3 and holding the flexible door screen 5 between said guides 3.

[0034] According to a preferred embodiment, the winding roller 15 is connected rotably to a driving device which comprising e.g. a motor (not shown). The driving device, and hence the winding roller 15, is arranged to be able to move along with a forward and backward motion.

[0035] The door arrangement 1 according to the embodiment shown in figures 2-4 has at least one slit 19 in the longitudinal direction of the flexible door screen 5. The slit 19 is provided with a reconnectable portion, wherein said reconnectable portion being adapted to engage the door leaf slit 19 and disengage when exposed to impact exceeding a threshold value. In an especially preferred embodiment comprises the reconnectable portion a zipper. The reconnectable portion is arranged reconnectable during an opening and closing cycle of the roller door arrangement 1.

[0036] In an alternative embodiment, not shown, the flexible door screen may be provided without the slit 19. Furthermore, the lateral end portions of the flexible door screen either may be guided in the guides or may be free from the guides.

[0037] According to the embodiment of figures 2-4, the lower 7 bar is operatively associated with the guides 3 in a releasable manner. The lower bar 7 is connected to the guides 3 by an intermediate element 21 attached to a lower part of a lateral portion 23 of the flexible door screen 5. In figures 2-4, the intermediate element 21 is formed as a metal plate, wherein one edge of the metal plate is provided with a protruding portion guided in the guide 3. The intermediate element 21 is preferably pivotable engaged by the corresponding lateral portion 23 of the flexible door screen 5.

[0038] In the preferred embodiment according to figures 2-4, the engagement device 11 is attached to the intermediate element 21 and the holder element 13 is attached to the lower bar 7. The holder element 13 comprises two resilient rod members 25 extending in the longitudinal direction of the lower bar 7.

[0039] The engagement device 11 is in a preferred embodiment formed as one piece comprising recesses 27 arranged at opposite sides, for receiving the holder element rod members 25. Each one of the recesses 27 protrudes in the longitudinal direction of the lower bar 7 and forms part of a path 29 for guiding the rod members 25 during translation relatively to the engagement device 11 in a direction substantially perpendicular to a plane defined by the flexible door screen 5 in its closed position. The path 29 comprises a first sloping surface 31 closest to the center of the engagement device 11 and a second sloping surface 33 located outside the first sloping surface.

[0040] According to figure 6, the second sloping surface 33 has a shape and an inclination β that makes the force needed for the reconnection less than the force needed for release of the connecting element 9. Accordingly, the first sloping surface 31 has an inclination α that is greater than β relatively to the direction of translation between the engagement device 11 and the holder element 13. The inclination α and β of said sloping surfaces 31, 33 should within the context of this application mean, any surface with a curved, inclined or divergent extension in relation to the direction of translation between the engagement device and the holder element.

[0041] Further, the engagement device 11 preferably has an symmetrical form that allows translation in both directions perpendicular to the plane defined by the flexible door screen 5 in its closed position. Thus, the engagement device 11 has two paths 29 at each side en-

abling guiding of the holder element rod bars 25 in two directions.

[0042] If the lower bar 7 is exposed to an substantially horizontal impact, the lower bar 7, and hence the holder element 13, tends to translate relative to the engagement device 11. The translation of the holder element 13 in relation to the engagement device 11 is achieved by the way of guiding the holder element rod members 25 along each corresponding path 29 of the engagement device 11, from the engaged position towards a disengaged position.

[0043] The guiding of the rod members 25 along each path 29 of the engagement device 11 is established by arranging the rod members 25 in a resilient manner. In the preferred embodiment according to figures 2-4, a resilient effect is achieved by attaching the rod members 25 between two support elements 35, 37. The rod members 25 protrudes beyond the support element 35 located closest to the end portion of the lower bar 7, wherein the length of protrusion gives the stiffness of the resilient effect.

[0044] In figures 2-4, the lower bar 7 comprises a guiding element 39 which is formed to include the holder element 13. When an impact force is applied to the lower bar, the guiding element 39 forces the holder element rod members 25 to move in a substantially vertical direction, but not in a horizontal direction. Thereby, the rod members 25 translate along the sloping surfaces 31, 33 of the engagement device 11 during excitation of an impact force.

[0045] In a preferred embodiment according to figure 5, the distance between the support elements is variable in the longitudinal direction of the lower bar 7, in order to adjust the protruding length of the rod members 25, wherein the stiffness of the resilient effect may be set to a predetermined threshold value. The support element 35 closest to the end portion of the lower bar 7 is arranged slidable along the rod members 25. Further, the adjustment of the support element 35 closest to the end portion of the lower bar 7 is operated by a rotatable threaded rod 41 which is arranged in threaded engagement with said support element 35. A first end of the threaded rod 41 is attached in a freely rotatable way, for instance by locking washers, to the support element 37 furthest away from the end portion of the lower bar 7. Thus, the distance between the two support elements 35, 37 is adjusted by rotating the threaded rod 41, which second end being accessible through a hole in the end portion of the lower bar 7 (not shown). The second end of the threaded rod is preferably provided with an interface adapted for a conventional tool, such as a hex socket wrench or the like.

[0046] The position of the support element 35 closest to the end portion of the lower bar 7 is measurable through a hole provided in the end surface of the lower bar 7 (not shown). By measuring the position of said support member 35 the resilient stiffness of the holder element 13 may be determined. Thereby, a holder element 13 threshold may be set to a predetermined value corresponding to a force needed for the release of the lower bar 7 from the operatively connection to the guides 3. It is obvious for a person skilled in the art that the position of the support element 35 can be determined in several ways, for instance the lower bar 7 may be provided with a direct visual access to the support element 35.

[0047] In the embodiment according to figure 4, the door arrangement 1 is provided with a connecting element 9 reconnecting device 43 attached to the guides 3 at opposite sides of the door way. The reconnecting device 43 is formed as a guide with an enlarged funnel shaped entrance portion 45. When the door arrangement 1 is moved from its closed position towards the open position, the connecting element 9 passes through the funnel shaped entrance portion 45. In the case there the holder element 13 and the engagement device 11 is released from each other, the passage through the reconnecting device 43 applies a force that reconnects the connecting element 9.

[0048] The reconnection of the holder element 13 and the engagement device 11 is achieved by displacement of the holder element rod bars 25 in a substantially vertical direction. The holder element rod members 25 is initially guided along the above mentioned second sloping surface 33 of the engagement device path 29, which second sloping surface 33 serves for separation of the distance between the rod members 25 due to the applied force from the reconnecting device 43 during closing of the door arrangement. The guiding of the holder element 13 along the engagement device 11 allows the rod members 25 to be brought into the connected position, holding the engagement device 11.

[0049] Figure 7a-7c shows in a schematic way how the holder element 13 and the engagement device 11 is separated by a substantially horizontal translation. According to figure 7a it is shown how the lower bar 7 is exposed to a substantially horizontal impact force, or a substantially horizontal impact component force, for instance due to a accidental collision with a vehicle or the like. The applied impact force may cause a translation between the holder element 13 and the engagement device 11 in a direction substantially perpendicular to the flexible door screen 5.

[0050] Figure 7b shows the resilient rod members 25 in a vertical expanded position, established by the initial translation between the holder element 13 and the engagement device 11 along the first sloping surface 31 of the recesses 27 of the engagement device 11.

[0051] Figure 7c shows the holder element 13 and the engagement device 11 in a released state from each other. In the released state the resilient rod members 25 are brought into a neutral position.

[0052] Figure 8a-8c shows in a schematic way how the holder element 13 and the engagement device 11 is reconnected after an accidental or intended release of the lower bar 7. The reconnection of the holder element 13 and the engagement device 11 is achieved by the reconnection device 43 during a closing operation of the

door arrangement 1, in accordance with the abovementioned.

[0053] Figure 8a shows the engagement device 11 and the holder element 13 guided into the reconnection device 43 during the closing operation of the door arrangement 1. When the engagement device 11 and the holder element 13 are entering the reconnection device 43, a force is applied to the lower bar 7, and hence the holder element 13, by the funnel shaped entrance portion 45 of the reconnecting device 43. The engagement device 11 is supported by the guide 3 in order to establish a reacting force. The force applied may cause a displacement of the holder element rod members 25 in a substantially vertical direction. Hence, the engagement device 11 is lead towards an intermediate position between the rod members 25 by further closing of the door arrangement 1.

[0054] Figure 8b shows the holder element rod members 25 in a vertical expanded position, established by the initial translation between the holder element 13 and the engagement device 11 along the second sloping surface 33.

[0055] Figure 8c shows the reconnected position of the engagement device 11 and the holder element 13, wherein the lower bar 7 is operatively reconnected to the guides 3. Further, the reconnection device preferably is located in such a position that the lower bar 7 has reached its upper position when completely passed the funnel shaped entrance portion 45 of the reconnection device 43.

[0056] In additional embodiments, the resilient holder element 13 may be provided in several ways. For instance the holder element 13 may be formed as a spring loaded part that holding the engagement device 11. Such an arrangement may be established by a vertically spring loaded sphere or tap, wherein the resilient effect may be adjusted by setting the spring force. Further, the resilient effect may be established by hinged or flexible spring loaded parts, such as rods holding the engagement device 11 intermediately by means of a clamp force.

[0057] It is obvious for a person skilled in the art that the location of the engagement device 11 and the holder element 13 may be switched, such as the engagement device 11 being attached to the lower bar 7 and the holder element 13 being attached to the lateral portions 23 of the flexible door screen 5.

[0058] It shall be noted that the door arrangement 11 according to the invention may be used for either manually operated doors and machinery operated doors.

[0059] The term "flexible door screen" should be understood to mean, within the context of this invention, any flat element able to form a closure or a separation and able to roll around an axis or to be folded, intended for closing a bay or forming a separating partition. The invention shall not be interpret to only include the above described embodiments, but also combinations of the different embodiments forming alternative embodiments within the scope of the appended claims.

Claims

1. A door arrangement (1), which comprises at least one flexible door screen (5) movable between a closed position and an open position, and vice versa, and a lower bar (7) arranged at the lower edge of the flexible door screen (5), wherein end portions of the lower bar (7) are operatively connected to guides (3), arranged at opposite sides of a doorway, by a releasable connecting element (9), whereby
said connecting element (9) comprises an engagement device (11) and a holder element (13), said engagement device (11) is held resiliently by the holder element (13) for, when exposed to loading exceeding a threshold value, enabling a translation between the engagement device (11) and the holder element (13), in a direction substantially perpendicular to a plane defined by said flexible door screen (5) in its closed position **characterized in that** the holder element (13) is arranged resiliently movable in a substantially vertical direction.

2. Door arrangement (1) according to claim 1, wherein the engagement device (11) comprises at least one path (29) along which the holder element (13) is guided relative to the engagement device (11) during said translation, said path (29) comprises a first sloping surface (31) in order to establish a threshold for release of the holder element (13) and the engagement device (11).

3. Door arrangement (1) according to claim 2, wherein the path (29) comprises a second sloping surface (33) outside the first sloping surface (31), said second sloping surface (33) has an inclination (β) less than an inclination (α) of the first sloping surface (31) in order to establish a threshold for reconnection less than the threshold for release.

4. Door arrangement (1) according to any one of the claims 1-3, wherein a resilient stiffness for holding the engagement device (11) by the holder element (13) is adjustable.

5. Door arrangement (1) according to any one of the claims 1-4, wherein the holder element (13) has at least one rod member (25) extending in the longitudinal direction of the lower bar (7), and overlapping part of the engagement device (11).

6. Door arrangement (1) according to claim 5, wherein a protruding length of the rod member (25) beyond a support element (35) is adjustable and hence the resilient stiffness of the protruding length of the rod member (25) is adjusted, by the fact that the support element (35) is movable and securable around the rod member (25).

7. Door arrangement (1) according to any one of the claims 1-6, wherein the resilient holding of the engagement device (11) is arranged to be adjustable between 10-200 kg, preferably 20-170 kg, and in particular 30-150 kg.

8. Door arrangement (1) according to any one of the claims 1-7, wherein the engagement device (11) is intermediately engaged between two rod members (25) forming part of the holder element (13).

9. Door arrangement (1) according to any one of the claims 1-8, wherein a translation between the engagement device (11) and the holder element (13) for reconnection is achieved by a reconnecting device (43) during an opening and/or closing cycle of the door arrangement (1).

10. Door arrangement (1) according to claim 9, wherein said reconnecting device (43) is arranged as a funnel shaped guide portion and provided along said guides (3).

11. Door arrangement (1) according to any one of the claims 1-10, wherein the lower bar (7) comprises the holder element (13).

12. Door arrangement (1) according to any one of the claims 1-10, wherein the lower bar (7) comprises the engagement device (11).

Patentansprüche

1. Türanordnung (1), die mindestens einen flexiblen Türsichtschutz (5) umfasst, der zwischen einer geschlossenen Position und einer offenen Position und umgekehrt beweglich ist, sowie eine untere Leiste (7), die an dem unteren Rand des flexiblen Türsichtschutzes (5) angeordnet ist, wobei die Endabschnitte der unteren Leiste (7) operativ mit Führungen (3) verbunden sind, welche durch ein lösbares Verbindungselement (9) auf den gegenüberliegenden Seiten eines Türrahmens angeordnet sind, wobei
das Verbindungselement (9) eine Einrückeinrichtung (11) und ein Halterelement (13) umfasst und die Einrückeinrichtung (11) von dem Halterelement (13) nachgiebig gehalten wird, um, wenn sie einer Beanspruchung ausgesetzt ist, die einen Schwellenwert übersteigt, eine Translationsbewegung zwischen der Einrückeinrichtung (11) und dem Halterelement (13) in eine Richtung im Wesentlichen senkrecht zu einer Fläche zu ermöglichen, die von dem flexiblen Türsichtschutz (5) in geschlossener Position definiert wird, **dadurch gekennzeichnet, dass** das Halterelement (13) in eine im Wesentlichen vertikale Richtung nachgiebig bewegbar angeordnet ist.

2. Türanordnung (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Einrückeinrichtung (11) mindestens eine Bahn (29) umfasst, entlang der das Halterelement (13) während der Translationsbewegung relativ zur Einrückeinrichtung (11) geführt wird, und diese Bahn (29) umfasst eine erste geneigte Fläche (31), um eine Schwelle für die Freigabe des Halterelements (13) und der Einrückeinrichtung (11) festzulegen.

3. Türanordnung (1) nach Anspruch 2, **dadurch gekennzeichnet, dass** die Bahn (29) eine zweite geneigte Fläche (33) außerhalb der ersten geneigten Fläche (31) umfasst und die zweite geneigte Fläche (33) eine Neigung (β) aufweist, die kleiner ist als eine Neigung (α) der ersten geneigten Fläche (31), um eine Schwelle für die Wiederverbindung festzulegen, die kleiner ist als die Schwelle für die Freigabe.

4. Türanordnung (1) nach einem der Ansprüche 1-3, **dadurch gekennzeichnet, dass** die nachgiebige Steifheit zum Halten der Einrückeinrichtung (11) durch das Halterelement (13) einstellbar ist.

5. Türanordnung (1) nach einem der Ansprüche 1-4, **dadurch gekennzeichnet, dass** das Halterelement (13) mindestens ein Stangenelement (25) aufweist, das sich in die Längsrichtung der unteren Leiste (7) erstreckt und einen Teil der Einrückeinrichtung (11) überlappt.

6. Türanordnung (1) nach Anspruch 5, **dadurch gekennzeichnet, dass** eine über ein Stützelement (35) hinausragende Länge des Stangenelements (25) einstellbar ist und somit die nachgiebige Steifheit der hinausragenden Länge des Stangenelements (25) eingestellt wird durch die Tatsache, dass das Stützelement (35) rund um das Stangenelement (25) beweglich und feststellbar ist.

7. Türanordnung (1) nach einem der Ansprüche 1-6, **dadurch gekennzeichnet, dass** die nachgiebige Halterung der Einrückeinrichtung (11) so angeordnet wird, dass sie von 10-200 kg, vorzugsweise 20-170 kg und insbesondere 30-150 kg einstellbar ist.

8. Türanordnung (1) nach einem der Ansprüche 1-7, **dadurch gekennzeichnet, dass** die Einrückeinrichtung (11) zwischen zwei Stangenelemente (25) eingeschoben ist, die einen Teil des Halterelements (13) bilden.

9. Türanordnung (1) nach einem der Ansprüche 1-8, **dadurch gekennzeichnet, dass** eine Translationsbewegung zwischen der Einrückeinrichtung (11) und dem Halterelement (13) für die Wiederverbindung während einem Öffnungs- und/oder Schließzyklus

der Türanordnung (1) durch eine Wiederverbindungseinrichtung (43) erreicht wird.

10. Türanordnung (1) nach Anspruch 9, **dadurch gekennzeichnet, dass** die Wiederverbindungseinrichtung (43) als ein trichterförmiges Führungsteil angeordnet und entlang der Führungen (3) bereitgestellt ist.

11. Türanordnung (1) nach einem der Ansprüche 1 - 10, **dadurch gekennzeichnet, dass** die untere Leiste (7) das Halterelement (13) umfasst.

12. Türanordnung (1) nach einem der Ansprüche 1 - 10, **dadurch gekennzeichnet, dass** die untere Leiste (7) die Einrückeinrichtung (11) umfasst.

Revendications

1. Agencement de porte (1), qui comprend au moins un écran de porte flexible (5) pouvant se déplacer entre une position fermée et une position ouverte, et vice versa, et une barre inférieure (7) agencée au bord inférieur de l'écran de porte flexible (5), dans lequel des portions d'extrémités de la barre inférieure (7) sont reliées de manière opérationnelle à des guides (3), agencés à des côtés opposés d'une baie de communication, par un élément de liaison pouvant être libéré (9), moyen par lequel
ledit élément de liaison (9) comprend un dispositif d'engagement (11) et un élément de maintien (13), ledit dispositif d'engagement (11) est maintenu de manière élastique par l'élément de maintien (13) pour, lorsqu'exposé à un chargement dépassant une valeur seuil, permettre une translation entre le dispositif d'engagement (11) et l'élément de maintien (13), dans une direction substantiellement perpendiculaire à un plan défini par ledit écran de porte flexible (5) dans sa position fermée, **caractérisé en ce que** l'élément de maintien (13) est agencé de manière à pouvoir se déplacer de manière élastique dans une direction substantiellement verticale.

2. Agencement de porte (1) selon la revendication 1, dans lequel le dispositif d'engagement (11) comprend au moins un chemin (29) le long duquel l'élément de maintien (13) est guidé par rapport au dispositif d'engagement (11) durant ladite translation, ledit chemin (29) comprend une première surface en pente (31) afin d'établir un seuil pour libérer l'élément de maintien (13) et le dispositif d'engagement (11).

3. Agencement de porte (1) selon la revendication 2, dans lequel le chemin (29) comprend une deuxième surface en pente (33) à l'extérieur de la première surface en pente (31), ladite deuxième surface en pente (33) a une inclinaison (β) inférieure à une inclinaison (α) de la première surface en pente (31) afin d'établir un seuil de reliaison inférieur au seuil de libération.

4. Agencement de porte (1) selon l'une quelconque des revendications 1-3, dans lequel une raideur élastique pour maintenir le dispositif d'engagement (11) par l'élément de maintien (13) est ajustable.

5. Agencement de porte (1) selon l'une quelconque des revendications 1-4, dans lequel l'élément de maintien (13) a au moins un organe de tige (25) s'étendant dans la direction longitudinale de la barre inférieure (7), et en chevauchement avec une partie du dispositif d'engagement (11).

6. Agencement de porte (1) selon la revendication 5, dans lequel une longueur en protubérance de l'organe de tige (25) au-delà d'un élément de support (35) est ajustable et ainsi la raideur élastique de la longueur en protubérance de l'organe de tige (25) est ajustée, par le fait que l'élément de support (35) peut se déplacer et peut être fixé autour de l'organe de tige (25).

7. Agencement de porte (1) selon l'une quelconque des revendications 1-6, dans lequel le maintien élastique du dispositif d'engagement (11) est agencé afin d'être ajustable entre 10-200 kg, de préférence 20-170 kg, et en particulier 30-150 kg.

8. Agencement de porte (1) selon l'une quelconque des revendications 1-7, dans lequel le dispositif d'engagement (11) est engagé de manière intermédiaire entre deux organes de tige (25) formant une partie de l'élément de maintien (13).

9. Agencement de porte (1) selon l'une quelconque des revendications 1-8, dans lequel une translation entre le dispositif d'engagement (11) et l'élément de maintien (13) pour une reliaison est accomplie par un dispositif de reliaison (43) durant un cycle d'ouverture et/ou de fermeture de l'agencement de porte (1).

10. Agencement de porte (1) selon la revendication 9, dans lequel ledit dispositif de reliaison (43) est agencé comme une portion de guidage en forme d'entonnoir et pourvu le long desdits guides (3).

11. Agencement de porte (1) selon l'une quelconque des revendications 1-10, dans lequel la barre inférieure (7) comprend l'élément de maintien (13).

12. Agencement de porte (1) selon l'une quelconque des revendications 1-10, dans lequel la barre inférieure (7) comprend le dispositif d'engagement (11).

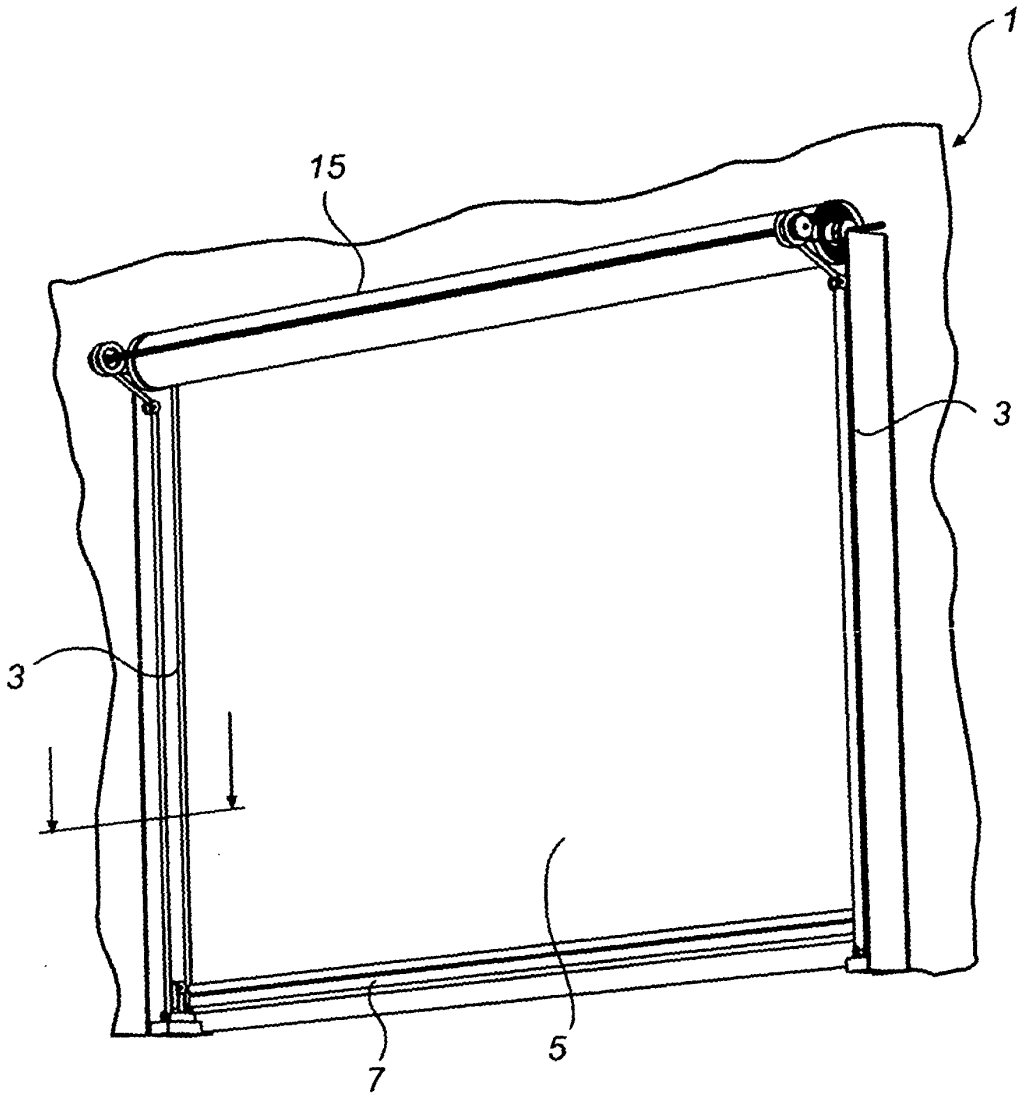

Fig. 1a

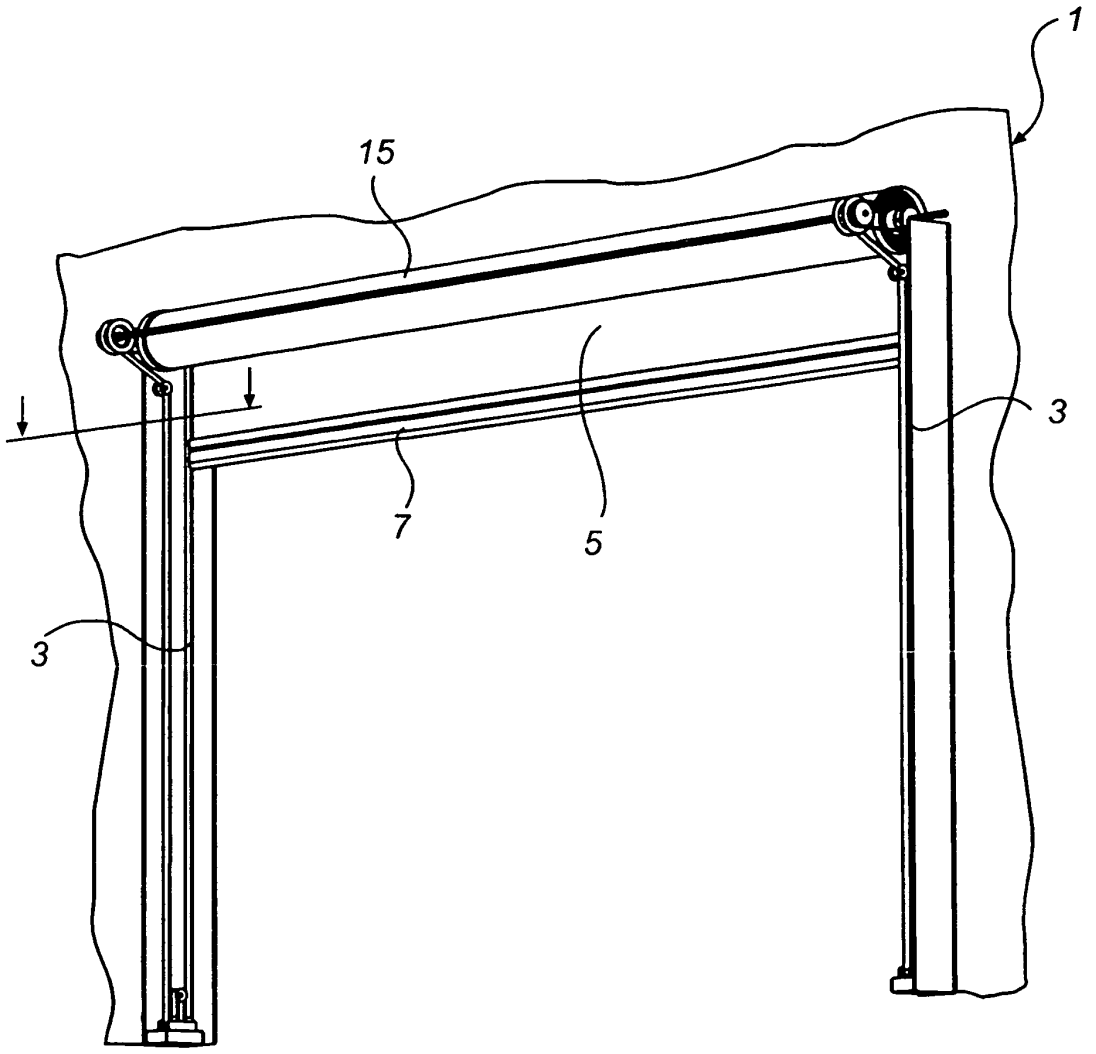

Fig. 1b

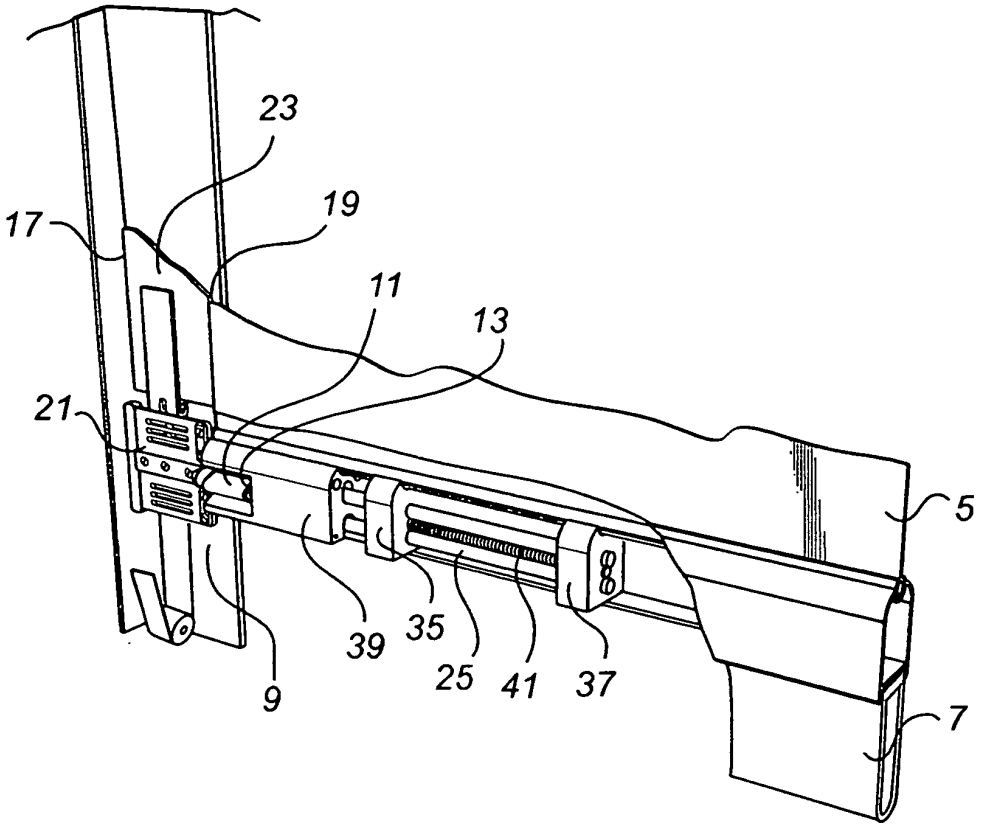
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Fig. 2

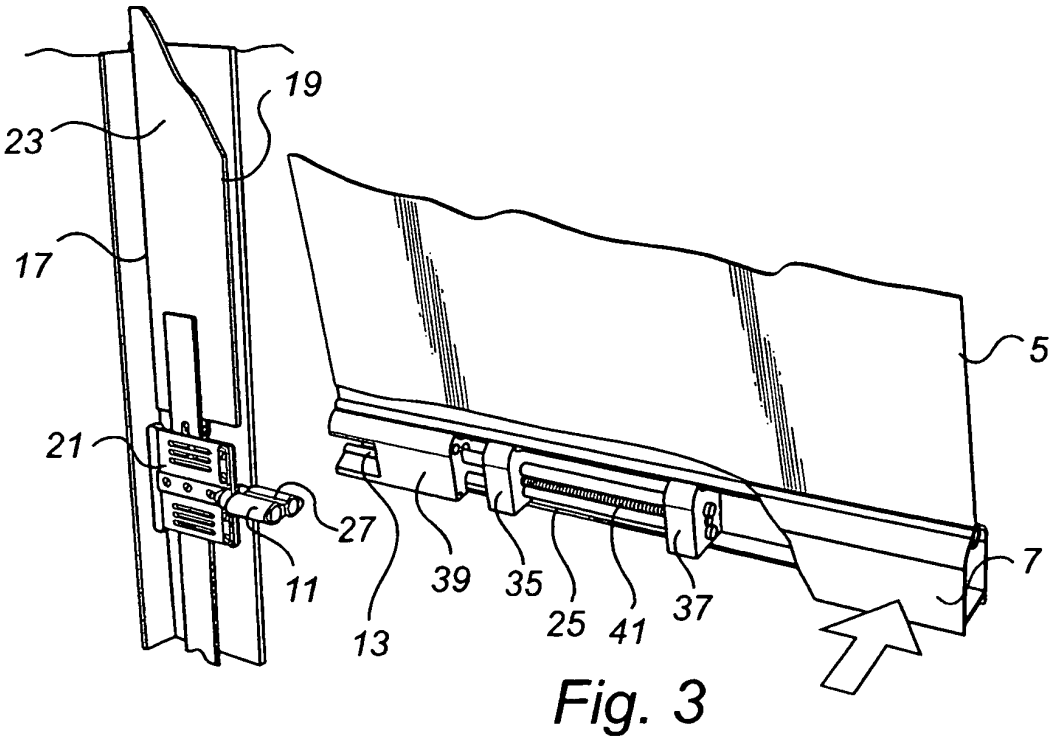
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Fig. 3

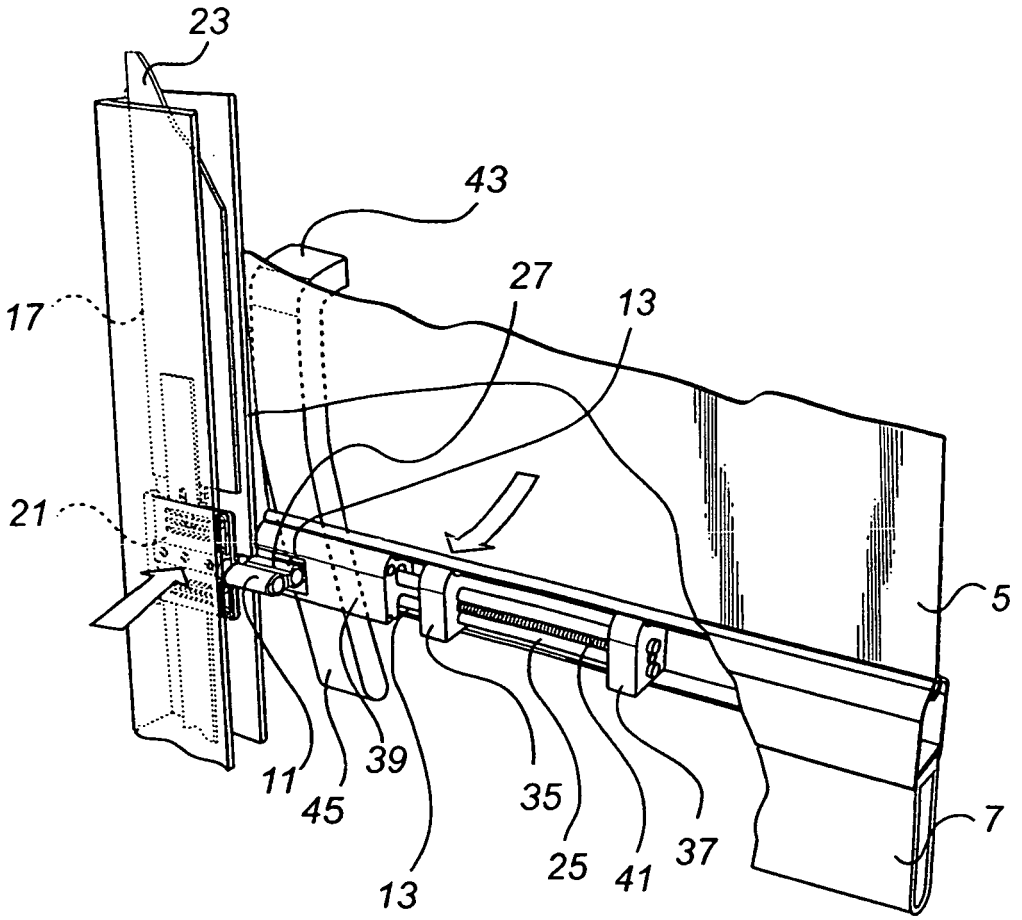

Fig. 4

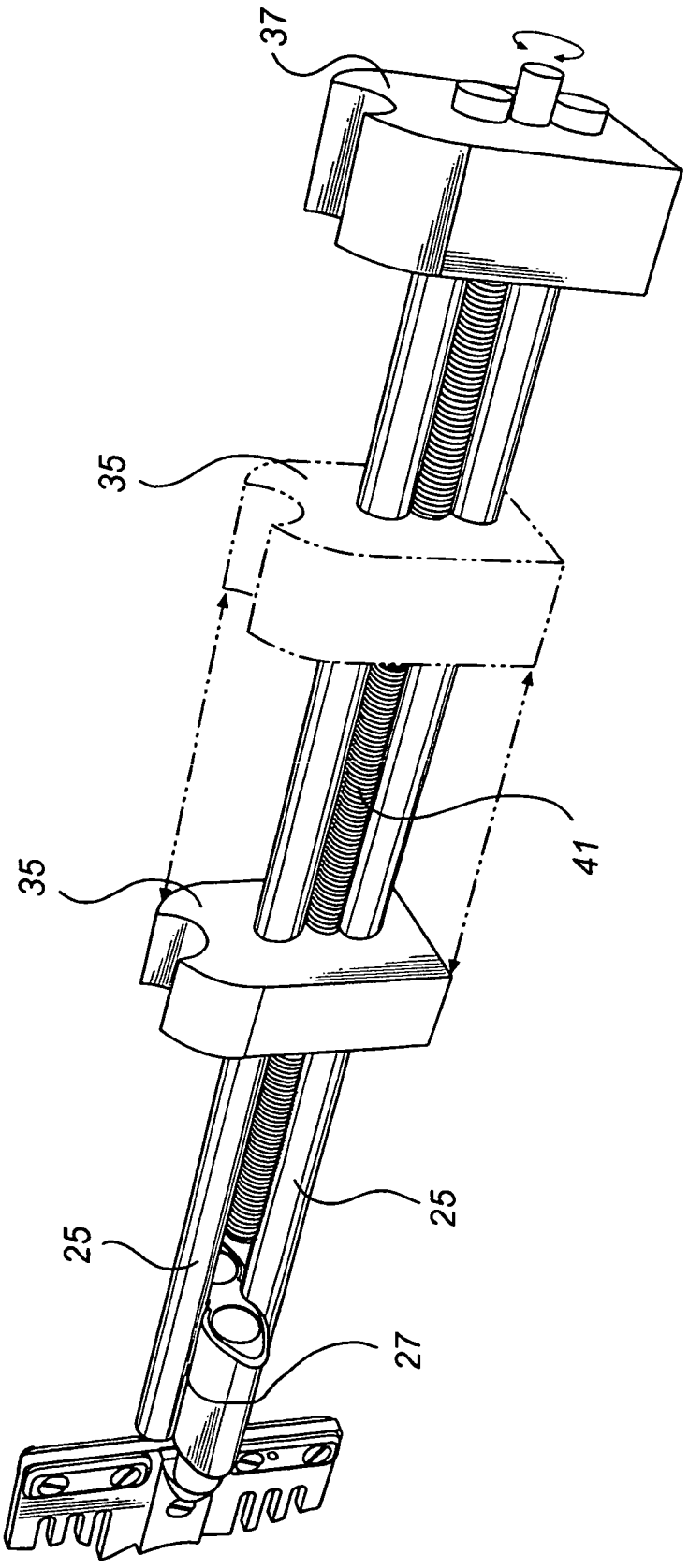

Fig. 5

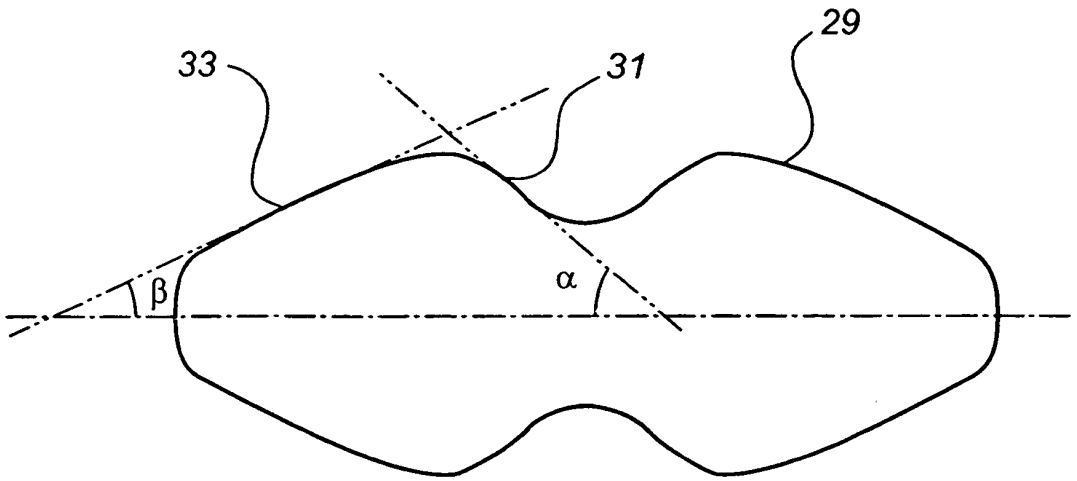

Fig. 6

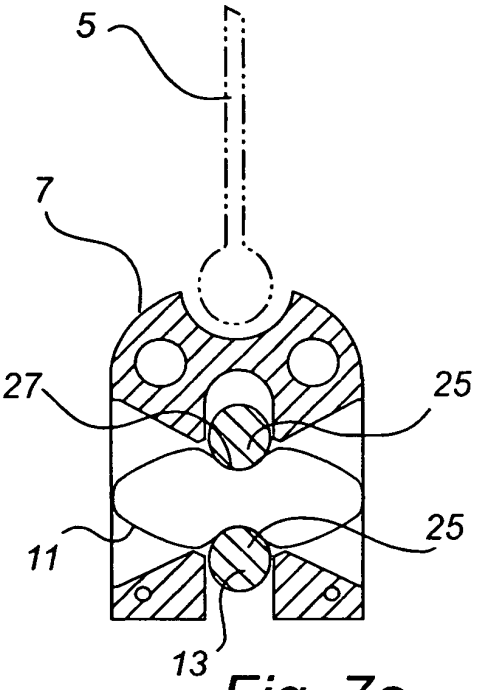

Fig. 7a

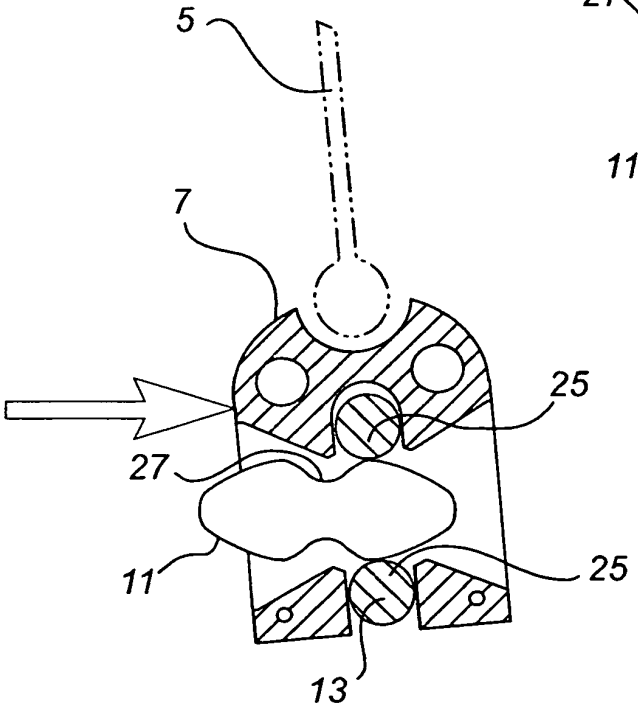

Fig. 7b

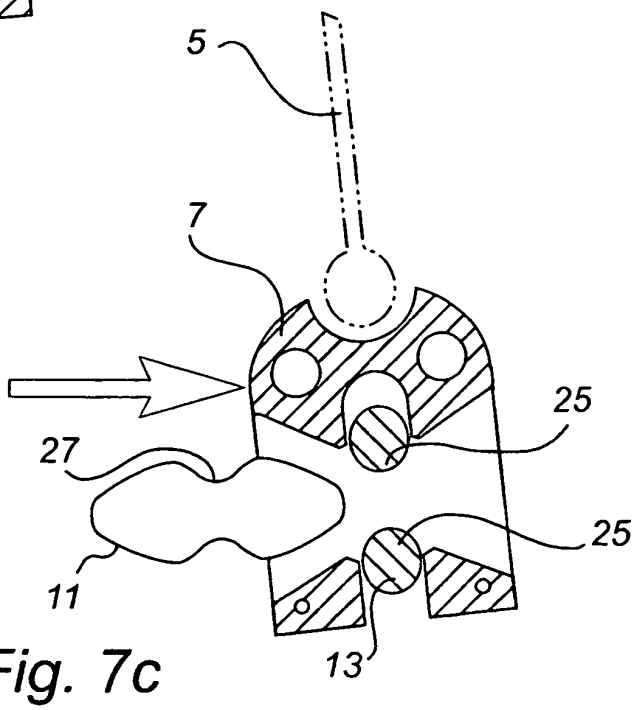

Fig. 7c

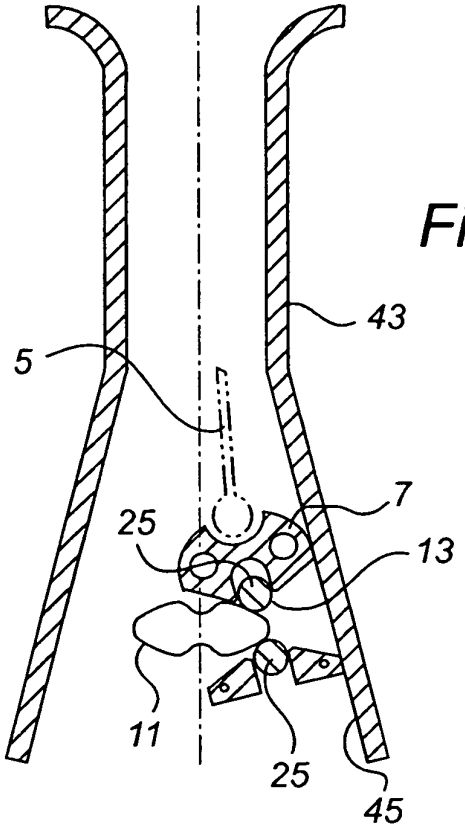

Fig. 8a

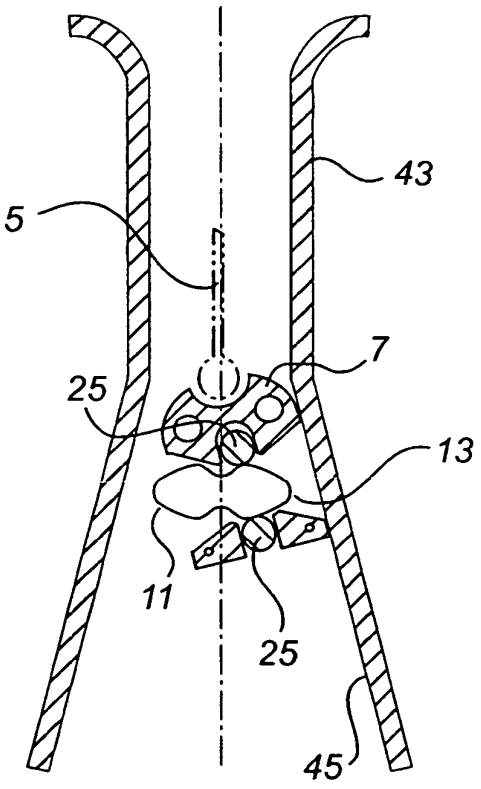

Fig. 8b

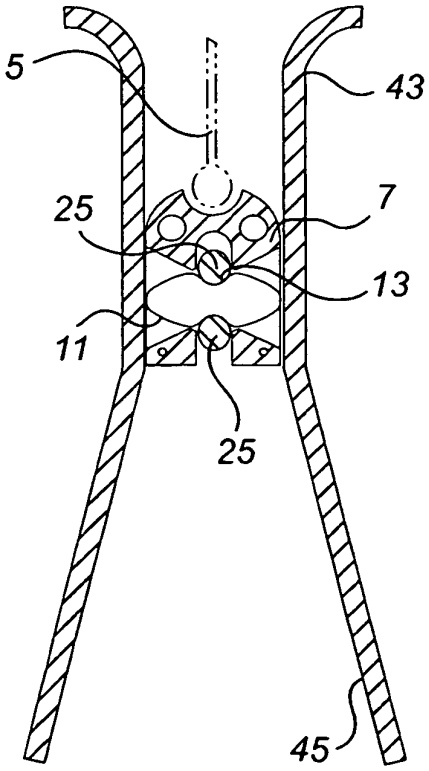

Fig. 8c

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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- EP 0508698 A2 **[0006]**