

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 0 911 476 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
04.09.2002 Bulletin 2002/36

(51) Int Cl.7: **E06B 1/00**, E06B 9/54,
E06B 9/60

(21) Application number: **97118224.1**

(22) Date of filing: **21.10.1997**

(54) **Frame for a roller blind fitted with mechanisms capable of automatically closing the blind which protects a window or a french window**

Rollorahmen mit einer Vorrichtung zum selbständigen Schliessen eines Rollvorhanges der ein Fenster oder eine Fenstertür schützt

Cadre pour store enroulable avec mécanisme capable de fermer automatiquement le store enroulable qui protège un fenètre ou une porte-fenètre

(84) Designated Contracting States:
AT DE ES FR GB IT NL

(43) Date of publication of application:
28.04.1999 Bulletin 1999/17

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(56) References cited:
FR-A- 2 546 226 **US-A- 4 819 295**
US-A- 5 659 999

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Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to a frame for roller blinds fitted with mechanisms capable of automatically closing the blind immediately after its opening. 5

[0002] The frame and the mechanisms according to the present application are essentially used for manoeuvring a vertical blind protecting a room overlooking a veranda or a balcony. 10

[0003] The flyscreens must remain closed for preventing the insects from passing from the veranda into the room; repeated opening and closing manoeuvres of a flyscreen are annoying; therefore, the present invention aims to create a flyscreen automatically closing the French window after its opening for stopping the insects which try to enter the room. 15

PRIOR ART 20

[0004] US-A-4 819 295 relates to a sliding screen closer comprising a sliding screen or a door having an inboard vertical member and an outboard vertical member, the door opening including a frame having a vertical non-movable inboard member, 25 a closer for the door, including:

a vertically mountable housing containing a spring-tensioned block-and tackle arrangement, 30 a cord connected to the block-and tackle arrangement; the cord arranged to extend horizontally from the closer; a hook adjustably secured to the cord whereby the spring-tension can be increased or decreased depending upon the position of the hook; 35 means for mounting the closer in a generally vertically central portion of the non-movable inboard member of the door frame with the cord and hook extending away from the door-opening so that the hook can engage the inboard vertical member of the door or screen; 40 the housing including an adjustable support whereby to speed up or slow down the closing of the door by rotating the housing in relation to the support, whereby the closer can move the door across the door opening without the cord obstructing the door-opening when the screen or door is in an open position. 45

[0005] US-A-5 659 999 refers to a movable screen panel closure apparatus. An automatic closure apparatus for a sliding panel presents a top slide and a bottom slide; said apparatus is mounted for sliding movement relative to an opening having a predetermined height, the closure apparatus further comprising: 50

(a) a cord retainer sized and configured for attachment intermediate the top slide and bottom slide and being mountable to a first edge of the sliding panel; and

(b) a compact closure assembly sized and configured for attachment to a non-movable object intermediate the top slide and bottom slide and adjacent to that side of the opening addressed by the first edge of the sliding panel when positioned so as to close the opening, the closure assembly including: 55

(i) a compact housing having a wall defining an internal cavity and having a cord opening there-through; the housing being configured for mounted to the non-movable object;

(ii) a rotatable take-up reel mounted within the housing and being rotatable about an axis and having a wound length of cord thereon;

(iii) a cord having an end, the cord being initially wound on the take-up reel and passing through the cord opening, the cord end for securement the cord retainer; and

(iv) at least one power spring having an inner end and an outer end located within the internal cavity of the housing, the inner end of the power spring co-operatively engaging the rotatable take-up reel and the outer end engaging the wall of the compact housing whereby, the power spring is placed in tension as the take-up reel rotates to release the wound length of cord therefrom thereby applying torque to the take-up reel to thereby retract the cord back onto the take-up reel; the power spring being mounted and being operational in its generally linear torque range.

[0006] FR-A-2 546 226: relates to an apparatus for manoeuvring stores developing horizontally, the apparatus including two manoeuvring devices in which a blind or other screen is found, the blind being fitted with longitudinal belts to be wound on two winding drums rotated by independent electric motors, wherein a torque spring is located between the drum of at least one of two devices and its motor, said torque spring being capable to elastically compensate the revolving speed differences of both drums due to the winding diameters differences of said drums.

[0007] In these and in other documents of prior art devices are described allowing the manoeuvring of stores mounted on frames; such a device comprises, generally, drums or winding rolls connected to the store and to return means; the drums are rotated in a pre-established direction (by hand or by motors) to open the store, the return means being used to rotate the drums in the opposite direction, that is to automatically close the store.

[0008] The features of the devices described in the above documents of prior art are listed in the preamble of the independent claim 1.

[0009] In these documents as in the available prior art document, frames are not provided being fitted with supporting means to strain an upper guide to the frame, said supporting means allowing the upper guide displacements, said displacements maintaining the upper guide parallel to a lower guide in each position of the manoeuvring bar with respect to the ends of the guides.

[0010] The bar as well, consisting of two separable jambs, represents an inventive step with respect of the available prior art documents.

[0011] Further features of the present invention are disclosed in the claims 3 to 11.

MAIN FEATURES OF THE INVENTION

[0012] The invention relates to a roller blind for protection of windows or French windows and, a frame equipped with a mechanism for automatically closing the blind, in which the blind is guided by a vertical manoeuvring bar sliding between a first upper guide and a second lower guide, said first and second guides belonging to the frame;
the frame further comprising:

a first roller shutter box housing a take-up roller for the blind, and a second roller shutter box, in which a shaft turns;

the manoeuvring bar being connected to the take-up roller by the blind and to the shaft through driving elements;

a first spring loaded mechanism being housed in the first roller shutter box; the first spring loaded mechanism being capable of rotating the take-up roller; a second spring loaded mechanism being located in the second roller shutter box, the second spring loaded mechanism being capable of rotating the shaft; when no external force is applied to the vertical manoeuvring bar of the blind, the force of the second spring loaded mechanism applied to the manoeuvring bar via the driving elements is stronger than the stresses of the first spring loaded mechanism transmitted to the manoeuvring bar by the blind, so that the blind closes the window opening; the frame being characterised by the fact that:

supporting means are provided to constrain the upper guide to the frame, said supporting means being capable of allowing displacements of the upper guide in order to maintain the upper guide parallel to the lower guide for each position of the manoeuvring bar with respect to the ends of the upper and lower guides.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] Other advantages, features and aims of the invention may be more readily understood by referring to the accompanying drawings, which concern a preferred embodiment, in which:

Fig.1 a frame with the flyscreen completely shut;
Fig.2 the frame of Fig.1 with the blind partially open;
Fig.3 the frame of Fig.1 with the blind completely open;

Fig.4 the frame of Fig.1 with the blind completely open and the two jambs of the manoeuvring bar of the blind set apart;

Fig.5 a longitudinal view of the upper guide wherein the blind and both jambs of the manoeuvring bar slide;

Fig.6 an orthogonal sectional view of the upper guide;

Fig.7 an orthogonal sectional view of the guide bearing channel;

Fig.8 an orthogonal sectional view of the guiding channel;

Fig.9 an orthogonal sectional view of an element connecting the guiding channel to the constraints supporting the frame;

Fig.10 a longitudinal sectional view of the guide bearing channel;

Fig.11 a longitudinal sectional view of the guiding channel;

Fig.12 a longitudinal sectional view of the connecting element of Fig.9;

Fig.13 an orthogonal sectional view of one of the upper guide ends;

Fig.14 a schematic view of the upper part of the take-up roller;

Fig.15 an orthogonal sectional view of the lower guide and the jamb of the manoeuvring bar supporting a running roller;

Fig.16 an orthogonal sectional view of the lower guide and of the jamb of the manoeuvring bar connected to the jamb of Fig.15;

Fig.17 a schematic longitudinal view of the elements of Figs 15 and 16;

Fig.18 a draft of the frame with the upper guide supported by two bearing constraints;

Fig.19 a draft of the frame with the upper guide supported by two bearing constraints, the former incorrectly assembled, therefore the two guides are not parallel;

Fig.20 the frame of Fig.19 with the upper guide disposed parallel to the lower guide consequent to the shifting of the manoeuvring bar;

Fig.21 a draft of the frame with the upper guide supported by two bearing constraints, the latter incorrectly assembled, therefore the two guides are not parallel; and

Fig.22 the frame of Fig.21 with the upper guide disposed parallel to the lower guide consequent to the shifting of the manoeuvring bar.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

[0014] The frame of Fig.1 comprises a first roller shut-

ter box 1 which houses a vertical take-up roller 2 and a second roller shutter box 3 wherein a shaft 4 runs. A first elastic mechanism 5, housed in the first roller shutter box 1, is used for rotating the take-up roller 2, while a second elastic mechanism 6 inside the second roller shutter box 3 is capable of rotating the shaft 4.

[0015] The take-up roller 2, stressed by the elastic mechanism 5, stretches a blind 7 (mosquito net or sun-screen) capable of closing a French window; the blind 7 is drawn between the take-up roller 2 and a manoeuvring bar 8 kept in vertical position on two sliding guides 9, 10, respectively the upper and the lower one.

[0016] A pulley 11, (12) is splined to both ends of the shaft 4 for manoeuvring a respective flexible tie rod 13, (14), the free end of which is connected to the manoeuvring bar 8. The tie rods 13, 14 are located inside the respective guides 9, 10, for transmitting the tensile stress of the second elastic mechanism 6 to the manoeuvring bar 8; this stress prevails on the stress of the first elastic mechanism 5 transmitted to the bar 8 by the blind 7, therefore the blind 7 closes the French window when only the stresses of both elastic mechanisms 5, 6 are applied to the blind 7.

[0017] In Fig.2 the blind 7 is partially open as a consequence of a shifting to the left of the manoeuvring bar 8 due to an external force (i. e. a hand) applied to a handle 15 of the bar 8.

[0018] In Fig.3 the blind 7 is completely open as a consequence of a further shifting to the left of the manoeuvring bar 8 due to an external force applied to the handle 15 of the bar 8. In this Figure the guides 9, 10 are shown to highlight the positions of the bar 8 and the tie rods 13, 14.

[0019] The stress shifting the manoeuvring bar 8 to the left is stronger than the one of the second elastic mechanism 6 because it must overcome the tensile stress of the tie rods 13, 14 which acts on the bar 8. The rolling of the blind 7 over the take-up roller 2 is effected by the first elastic mechanism 5, which stretches the blind 7 as it shifts to the left or to the right.

[0020] When the configuration of Fig.3 is reached, the bar 8 is released for automatically restoring the position of Fig.1 of the blind 7 and the bar 8; in fact the second elastic mechanism 6 prevails on the first elastic mechanism 5 in order to automatically shut the French window.

[0021] As shown in Fig.4, the manoeuvring bar 8 consists of two separate jambs 16, 17, which can be connected to each other by means of a known structure (latch or the like); therefore, the jamb 16 connected to the blind 7 can be separated from the jamb 17 on which the tie rods 13, 14 act.

[0022] By means of this configuration of the manoeuvring bar 8 it is possible to maintain the French window open to allow a piece of furniture or other cumbersome item to pass through. It is evident that when the jambs 16, 17 are separate, the blind 7 is completely rolled over the take-up roller 2 because of no stress opposing the

rolling stress of the first mechanism 5; therefore, the tie rods 13, 14 are completely rolled over the respective pulleys 11, 12 as no stress opposes the stress of the second elastic mechanism 6.

[0023] The upper guide 9 (Fig.5) consists of two channels 18, 19; an external channel 18 houses an internal channel 19 representing the real guide of the manoeuvring bar 8; for better understanding the position of both jambs 16, 17 forming the manoeuvring bar 8 shown in this Figure, a section is practiced in connection with said position. The blind 7 is constrained by the jamb 16, while the tie rod 13 (14) is jointed to the jamb 17; both jambs 16, 17 of the bar 8 slide inside the channel 19; the blind 7 is stretched by the take-up roller 2.

[0024] The manoeuvring bar 8 and the channels 18, 19 are also shown in Fig.6; this Figure confirms what disclosed previously.

[0025] The external channel 18 (Figs 7, 10) is essentially shaped like a reversed U wherein the guiding channel shaped like a reversed C with two symmetrical recesses 20,21 is located (Figs 8, 11), said recesses defining a longitudinal groove 22 in which the manoeuvring bar 8 slides. The longitudinal groove 22 occupies the whole length of the guiding channel 19.

[0026] At both ends of the upper guide 9 a connecting element 23 (Figs 9, 12) is provided consisting of a tube-like structure 24 connected to a longitudinal slit 25; two brackets 26, 27 constrain the connecting element 23 to the respective end of the internal guiding channel 19. The upper bracket 26 is found over the rib 28 of the internal guiding channel 19, while the lower bracket 27 is located underneath; the two brackets 26, 27 embracing the rib 28 at the respective end of the guiding channel 19.

[0027] Figs 13, 14 show the upper guide 9 and the upper part of the take-up roller 2; the scales of these Figures have been chosen in order to highlight the configuration of the illustrated mechanical elements, therefore they are not necessarily faithful to the actual dimensions of said elements. The upper guide 9 is connected to an external housing 29 of the roller shutter box 1 (3); in particular, the external channel 18 is fastened to a cap 30 closing the upper part of the roller shutter box 1 (3). The cap 30 presents a supporting rod 31 on which the external channel 18 of the upper guide 9 rests; a cover 32 protecting the take-up roller 2 (and the shaft 4) is fitted with a bracket 33 forming the sliding bearing of the tube 24 of the connecting element 23. In Fig.14 the bracket 33 does not bear the connecting element 23.

[0028] At both ends of the upper guide 9 the longitudinal opening 34 of the external channel 18 houses one connecting element 23 connected to the internal guiding channel 19; the channel 19 is free to vertically translate together with the connecting elements 23 inside the longitudinal opening 34 to allow easy translations of the manoeuvring bar 8.

[0029] Figs 15, 16, 17 schematically show the jambs 16, 17 of the manoeuvring bar 8, the lower guide 10, the

blind 7 and the lower tie rod 14. The jamb 16 presents a housing 35 for a roller 36 rotating around a shaft 37 supported by the walls of the housing 35; the roller 36 has an arched shape 38, the radius of curvature of which is equal to the radius of curvature of the upper edge 39 of the lower guide 10. An internal longitudinal groove 42 occupies the whole length of the rail like lower guide 10; the reversed T groove 42 houses a slide 40 integral with the jamb 16; the slide 40 presents a configuration analogous to that of the groove 42 for preventing the slide 40 from coming out of the groove 42 during translations of the bar 8. The slide 40 is located at the end of the jamb 16 which can be connected to the jamb 17 by means of a latch.

[0030] The jamb 17 of the manoeuvring bar 8 has a longitudinal dimension smaller than the longitudinal dimension of the jamb 16; in addition, it presents a frontal slide 41 fitted with brushes which slide on the guide 10; the frontal slide 41 has a radius of curvature equal to the radius of curvature of the upper edge 39 of the lower guide 10.

[0031] The jamb 16 is stressed by the blind 7, while the jamb 17 is stretched by the tie rods 13, 14.

[0032] Figs 18, 19, 20 show how the upper guide 19 works in case the frame is not duly mounted or protects a French window with an incorrectly levelled cornice.

[0033] If duly mounted in a correctly levelled window (or French window), the frame is set as in Fig.18; the upper guide 19 is supported by two supporting brackets 33a, 33b for any position of the manoeuvring bar 8 with respect to the ends of the guides 10, 19. Therefore, the supporting brackets 33a, 33b (Fig.14) keep the upper guide 19 parallel to the lower guide 10, while the manoeuvring bar 8 can easily slide in both translation directions to open or close the room protected by the blind 7. In this condition the upper guide 19 is constrained by both supporting brackets 33a, 33b like a beam.

[0034] If the constraints of the guides 19 are stiff and the frame is incorrectly mounted or is found in an incorrectly levelled window, the guides 10 and 19 will not be parallel and the manoeuvring bar 8 will not be capable of sliding.

[0035] According to the invention the guiding channel 19 is free to vertically translate together with the connecting elements 23 inside the longitudinal opening 34 of the external channel 18; this feature allows an easy displacing of the manoeuvring bar 8 even in case of incorrect mounting of the frame on an incorrectly levelled cornice.

[0036] If the bracket 33a (Figs 19, 20) is mounted lower than due, the displacement of the manoeuvring bar 8 to the opening position of the blind causes a relative rising of the upper guide 19 with respect to the lower guide 10; on the contrary, if the bracket 33b (Figs 21, 22) is mounted lower than due, the displacement of the manoeuvring bar 8 to the closing position causes a relative rising of the upper guide 19 with respect to the lower guide 10; both displacements allow the upper guide

19 to set parallel to the lower guide 10.

[0037] In a not shown embodiment the external channel 18 is constrained to a structure external to the frame (for example, a wall) in correspondence with the same by means of fixing means (i. e. screws, nails, brackets, etc.).

Claims

1. Roller blind for protection of windows or French windows and a frame equipped with a mechanism for automatically closing the blind, in which the blind (7) is guided by a vertical manoeuvring bar (8) sliding between a first upper guide (9) and a second lower guide (10), said first and second guides (9,10) belonging to the frame;
the frame further comprising:

a first roller shutter box (1) housing a take-up roller (2) for the blind (7), and a second roller shutter box (3), in which a shaft (4) turns; the manoeuvring bar (8) being connected to the take-up roller (2) by the blind (7) and to the shaft (4) through driving elements (11,12,13,14); a first spring loaded mechanism (5) being housed in the first roller shutter box (1); the first spring loaded mechanism (5) being capable of rotating the take-up roller (2); a second spring loaded mechanism (6) being located in the second roller shutter box (3), the second spring loaded mechanism (6) being capable of rotating the shaft (4); when no external force is applied to the vertical manoeuvring bar (8) of the blind (7), the force of the second spring loaded mechanism (6) applied to the manoeuvring bar (8) via the driving elements (11,12,13,14) is stronger than the force of the first spring loaded mechanism (5) transmitted to the manoeuvring bar (8) by the blind (7), so that the blind (7) closes the window opening;

the frame being **characterised by** the fact that:

supporting means (33a,33b) are provided to constrain the upper guide (9) to the frame, said supporting means (33a,33b) being capable of allowing displacements of the upper guide (9) in order to maintain the upper guide (9) parallel to the lower guide (10) for each position of the manoeuvring bar (8) with respect to the ends of the upper and lower guides (9,10).

2. Roller blind as in claim 1, wherein the manoeuvring bar consists of two separable jambs (16,17).
3. Frame as in claim 1, wherein the upper guide (9) consists of two channels (18,19); an external chan-

nel (18) housing an internal channel (19) representing the real guide of the manoeuvring bar (8); the external channel (18) being shaped like a reversed U defining a longitudinal opening (34); the internal channel (19) being located inside the opening (34) shaped like a reversed C and having two symmetrical recesses (20,21), said recesses (20,21) delimiting a longitudinal groove (22) in which the manoeuvring bar (8) can slide.

4. Frame as in claim 3, wherein the internal channel (19) is free to vertically translate inside the longitudinal opening (34) of the external channel (18) to allow an easy displacement of the manoeuvring bar (8) even in the case of an incorrect montage of the frame on an incorrectly levelled window opening.

5. Frame as in claim 1, wherein the supporting means (33a,33b) consist of brackets (33) integral with covers (32) which protect the take-up roller (2) and the shaft (4), the internal channel (19) freely resting on said brackets (33).

6. Frame as in claim 5, wherein two respective connecting elements (23) are provided at both ends of the upper guide (9), each of said connecting elements (23) consisting of a tube-like structure (24) connected to a longitudinal slit (25); two brackets (26,27) constrain the connecting element (23) to the respective end of the internal channel (19), the upper bracket (26) is located over a rib (28) of the internal channel (19), while the lower bracket (27) is located underneath; the two brackets (26,27) embracing the rib (28) at the respective end of the internal channel (19).

7. Frame as in claim 1, wherein the lower guide (10) further presents a longitudinal internal groove (42), the groove (42) being capable of housing a slide (40) integral with a first jamb (16) of the manoeuvring bar (8), the first jamb (16) being connected to the blind (7); the slide (40) having an analogous form to the form of the groove (42) for preventing the slide (40) from coming out of the groove (42) during translations of the bar (8).

8. Frame as in claim 7, wherein said first jamb (16) presents a housing (35) for a roller (36) having an arched shape (38), the radius of curvature of which is equal to the radius of curvature of the upper edge (39) of the lower guide (10).

9. Frame as in claim 7, wherein a second jamb (17) of the manoeuvring bar (8) connected to the shaft (4) presents a frontal slide (41) fitted with brushes, the frontal slide (41) sliding on the lower guide (10); said frontal slide (41) further presenting a radius of curvature equal to the radius of curvature of the upper

edge (39) of the lower guide (10).

10. Frame as in claim 9, wherein the second jamb (17) of the manoeuvring bar (8) connected to the shaft (4) has a longitudinal dimension smaller than the longitudinal dimension of the first jamb (16) connected to the blind (7).

10 Patentansprüche

1. Rollorahmen mit einer Vorrichtung zum selbstständigen Schließen eines Rollvorhanges der ein Fenster oder eine Fenstertür schützt, bei welchem der Vorhang (7) durch eine vertikale Betätigungsstange (8) geleitet wird, die zwischen einer ersten oberen Führung (9) und einer zweiten unteren Führung (10) läuft, wobei die ersten und zweiten Führungen (9,10) zum rahmen gehören; außerdem, der Rahmen folgende Glieder enthält:

einen ersten Rolladenkasten (1), der eine Spannrolle (2) für den Vorhang (7), und einen Rolladenkasten (3) enthält, in welchem eine Welle (4) dreht;

wobei die Betätigungsstange (8) an der Spannrolle (2) durch den Vorhang (7) und an der Welle (4) durch Betätigungselemente (11,12,13,14) angeschlossen ist;

wobei eine erste durch eine Feder belastete Vorrichtung (5) in dem ersten Rolladenkasten (1) enthalten ist; wobei die erste durch eine Feder belastete Vorrichtung (5) geeignet ist, die Spannrolle (2) zu drehen; wobei sich eine zweite durch eine Feder belastete Vorrichtung (6) im zweiten Rolladenkasten (3), wobei die zweite durch eine Feder belastete Vorrichtung (6) geeignet ist, die Welle (4) zu drehen; wenn keine Außenkraft auf die vertikale Betätigungsstange (8) des Vorhanges (7) angewendet ist, ist die Kraft der zweiten zweite durch eine Feder belastete Vorrichtung (6), die auf Betätigungselementen (11,12,13,14) angewendet ist, stärker als die Kräfte der ersten durch eine Feder belastete Vorrichtung (5), die an der Betätigungsstange (8) durch den Vorhang (7) so übertragen werden, daß der Vorhang (7) die Fenstertür sperrt;

wobei der Rahmen **dadurch gekennzeichnet ist, daß:**

Halterungsmittel (33a, 33b) vorgesehen sind, um die obere Führung (9) am Rahmen zu binden, wobei Halterungsmittel (33a,33b) geeignet sind, die Verschiebungen der oberen Führung (9) zu erlauben, damit die obere Führung (9) zu der unteren Führung (10) für jeder Stellung der Betätigungsstange (8) hinsichtlich der

Enden der oberen und unteren Führungen (9,10) parallel bleibt.

2. Rollvorhang nach Anspruch 1, **dadurch gekennzeichnet, daß** die Betätigungsstange (8) aus zwei trennbaren Pfosten (16,17) besteht. 5
3. Rahmen nach Anspruch 1, **dadurch gekennzeichnet, daß** die obere Führung (9) aus zwei Profilen (18,19) besteht; ein Außenprofil (18) enthält ein Innenprofil (19), das die wirkliche Führung der Betätigungsstange (8) ist; das Außenprofil (18) ist U-förmig, um eine Längsöffnung (34) zu bestimmen; das Innenprofil (19) ist innerhalb der C-förmigen Öffnung (34), die zwei symmetrische Einbuchtungen (20,21) aufweist, wobei die Einbuchtungen (20,21) eine Längsrille (22) begrenzen, bei welchen die Betätigungsstange (8) gleitet. 10 15
4. Rahmen nach Anspruch 3, **dadurch gekennzeichnet, daß** das Innenprofil (19) ist frei, innerhalb der Längsöffnung (34) des Außenprofils (18) senkrecht zu verschieben, damit eine einfache Verschiebung der Betätigungsstange (8) erreicht wird, auch im Fall eines unrichtigen Zusammenbaues des Rahmens auf eine Öffnung, unrichtig planiert. 20 25
5. Rahmen nach Anspruch 1, **dadurch gekennzeichnet, daß** die Halterungsmittel (33a,33b) aus Bolzen (33) bestehen, befestigt am Oberkasten (32), die die Spannrolle (2) und die Welle (4) schützt, wobei sich das Innenprofil (19) auf die Bolzen (33) frei anlehnt. 30
6. Rahmen nach Anspruch 5, **dadurch gekennzeichnet, daß** zwei dazu gehörigen Verbindungselemente (23) an beiden Enden der die oberen Führung (9) vorgesehen sind, wobei jeder der Verbindungselemente (23) aus einer rohrförmigen Struktur (24) besteht, verbunden mit einer Längsritze (25); zwei Ritzen (26,27) binden den Verbindungselement (23) mit dem respektiven Ende des Innenprofils (19), die obere Ritze (26) ist über einer Rippe (28) des Innenprofils (19) angeordnet, und sich die Innenritze (27) unter dem Innenprofil (19) befindet; die beide Ritzen (26,27) umwickeln die Rippe (28) am respektiven Ende des Innenprofils (19). 35 40 45
7. Rahmen nach Anspruch 1, **dadurch gekennzeichnet, daß**, außerdem die untere Führung (10) eine innere Längsrille (42) aufweist, wobei die Rille (42) geeignet ist, einen Schlitten (40) zu enthalten, der an einem ersten Pfosten (16) der Betätigungsstange (8) fest ist, wobei der erste Pfosten (16) mit dem blind (7) verbunden ist; der Schlitten (40) weist eine Gestaltung auf, die der Gestaltung der Rille (42) ähnlich ist, damit der Schlitten (40) aus der Rille (42) während der Bewegungen der Betätigungsstange 50 55

(8) nicht austritt.

8. Rahmen nach Anspruch 7, **dadurch gekennzeichnet, daß**, der erste Pfosten (16) ein Gehäuse (35) für eine Rolle (36) aufweist, deren Gestaltung (38) bogenförmig ist, und deren Radius von Krümmung dem Radius von Krümmung des oberen Profils (39) der unteren Führung (10) gleich ist.
9. Rahmen nach Anspruch 7, **dadurch gekennzeichnet, daß**, ein zweiter Pfosten (17) der an das Welle (4) angeschlossen Betätigungsstange (8) einen mit Bürsten ausgestatteten Stirnschlitten (41) aufweist, wobei der Stirnschlitten (41) auf der unteren Führung (10) läuft; außerdem weist der Stirnschlitten (41) Radius von Krümmung auf, der gleich ist, dem Radius von Krümmung des oberen Profils (39) der unteren Führung (10).
10. Rahmen nach Anspruch 9, **dadurch gekennzeichnet, daß**, der zweite Pfosten (17) der Betätigungsstange (8), das an der Welle (4) angeschlossen ist, eine Längsdimension aufweist, die kleiner ist, als Längsdimension des am Vorhang (7) angeschlossenen ersten Pfostens (16).

Revendications

1. Cadre pour store enroulable avec un mécanisme capable de fermer automatiquement la store enroulable qui protège une fenêtre ou une porte-fenêtre, dans lequel la store (7) est guidée par une barre (8) verticale de manoeuvre, qui glisse entre une première guide supérieure (9) et une seconde guide inférieure (10), la première et la seconde guides (9,10) appartiennent au cadre; en plus, le cadre comprend:

une première caisse (1) qui loge un rouleau (2) pour La store (7), et une seconde caisse (3), dans laquelle un arbre (4) tourne;
la barre (8) de manoeuvre est connectée au rouleau (2) par la store (7) et à l'arbre (4) par des éléments d'entraînement (11,12,13,14);
un premier mécanisme (5) à rideaux est logé dans la première caisse (1); le premier mécanisme (5) à rideaux est apte à tourner le rouleau (2); un second mécanisme (6) à rideaux est logé dans la seconde caisse (3), le second mécanisme (6) à rideaux est apte à tourner l'arbre (4); lorsque aucune force externe est appliquée à la barre (8) verticale de manoeuvre de la store (7), la force du second mécanisme (6) à rideaux (6) appliquée à la barre (8) de manoeuvre à travers les éléments d'entraînement (11,12,13,14) est plus intense que les forces du premier mécanisme (5) à ri-

deaux transmises à la barre (8) de manoeuvre par la store (7), de manière que la store (7) ferme l'ouverture de la fenêtre;

le cadre est **caractérisé en ce que**:

des moyens de soutienne (33a,33b) sont pourvues pour lier la guide supérieure (9) au cadre, les moyens de soutienne (33a,33b) sont aptes à permettre des déplacements de la guide supérieure (9) afin de maintenir la guide supérieure (9) parallèle à la guide inférieure (10) pour chaque position de la barre (8) de manoeuvre par rapport à les extrémités des guides (9,10) supérieure et inférieure.

2. Store enroulable selon la revendication 1, **caractérisée en ce que** la barre (8) de manoeuvre consiste de deux montants (16,17) séparables.

3. Cadre selon la revendication 1, **caractérisé en ce que** la guide (9) supérieure consiste de deux profilés (18,19); un profilé externe (18) loge un profilé interne (19), qui constitue la guide réelle de la barre (8) de manoeuvre; le profilé externe (18) a la forme d'une U renversée, qui définit une ouverture longitudinale(34); le profilé interne (19) est logé dans l'ouverture (34) qui a la forme d'une C renversée avec deux renforcements (20,21) symétriques, les renforcements (20,21) délimitent une rainure longitudinale (22) dans laquelle la barre (8) de manoeuvre peut glisser.

4. Cadre selon la revendication 3, **caractérisé en ce que** le profilé interne (19) est libre de se déplacer verticalement dans l'ouverture longitudinale (34) du profilé externe (18) pour permettre un déplacement facile de la barre (8) de manoeuvre, même en cas de montage incorrect du cadre sur une ouverture de fenêtre nivelée incorrectement.

5. Cadre selon la revendication 1, **caractérisé en ce que** les moyens de soutienne (33a,33b) consistent de goupilles (33) solidaires à des couvercles (32), qui protègent le rouleau (2) et l'arbre (4), le profilé interne (19) s'appuie librement sur les goupilles (33).

6. Cadre selon la revendication 5, **caractérisé en ce que** deux éléments de connexion (23) respectifs sont pourvues aux extrémités de la guide supérieure (9), chaque élément de connexion (23) consiste d'une structure (24) en forme de tube connectée à une fente longitudinale (25); deux goupilles (26,27) lient l'élément de connexion (23) à l'extrémité respective du profilé interne (19), la goupille supérieure (26) est située au-dessus d'une rainure (28) du profilé interne (19), au contraire la goupille inférieure

(27) est logée au-dessous; les goupilles (26,27) embranchent la rainure (28) à l'extrémité respective du profilé interne (19).

5 7. Cadre selon la revendication 1, **caractérisé en ce que** la guide inférieure (10) présente, en plus, une rainure (42) longitudinale interne, la rainure (42) est apte à loger une pièce à coulisse (40) solidaire à un premier montant (16) de la barre (8) de manoeuvre, le premier montant (16) est connecté à la store (7); la pièce à coulisse (40) présente une forme analogue à la forme de la rainure (42) pour empêcher la sortie de la pièce à coulisse (40) de la rainure (42) durant les déplacements de la barre (8).

8. Cadre selon la revendication 7, **caractérisé en ce que** le premier montant (16) présente un logement (35) pour un rouleau (36) ayant une forme arquée (38), dont le rayon de courbure est le même du rayon de courbure du côté supérieur (39) de la guide inférieure (10).

9. Cadre selon la revendication 7, **caractérisé en ce que** un second montant (17) de la barre (8) de manoeuvre, connecté à l'arbre (4), présente une pièce à coulisse frontale (41) fournie avec des brosses, la pièce à coulisse frontale (41) glisse sur le guide inférieure (10); la pièce à coulisse frontale (41) présente, en plus, un rayon de courbure qui est le même du rayon de courbure du côté supérieur (39) de la guide inférieure (10).

10. cadre selon la revendication 9, **caractérisé en ce que** le second montant (17) de la barre (8) de manoeuvre, connecté à l'arbre (4), a une dimension longitudinale inférieure à la dimension longitudinale du premier montant (16), connecté à la store (7).

Fig.1

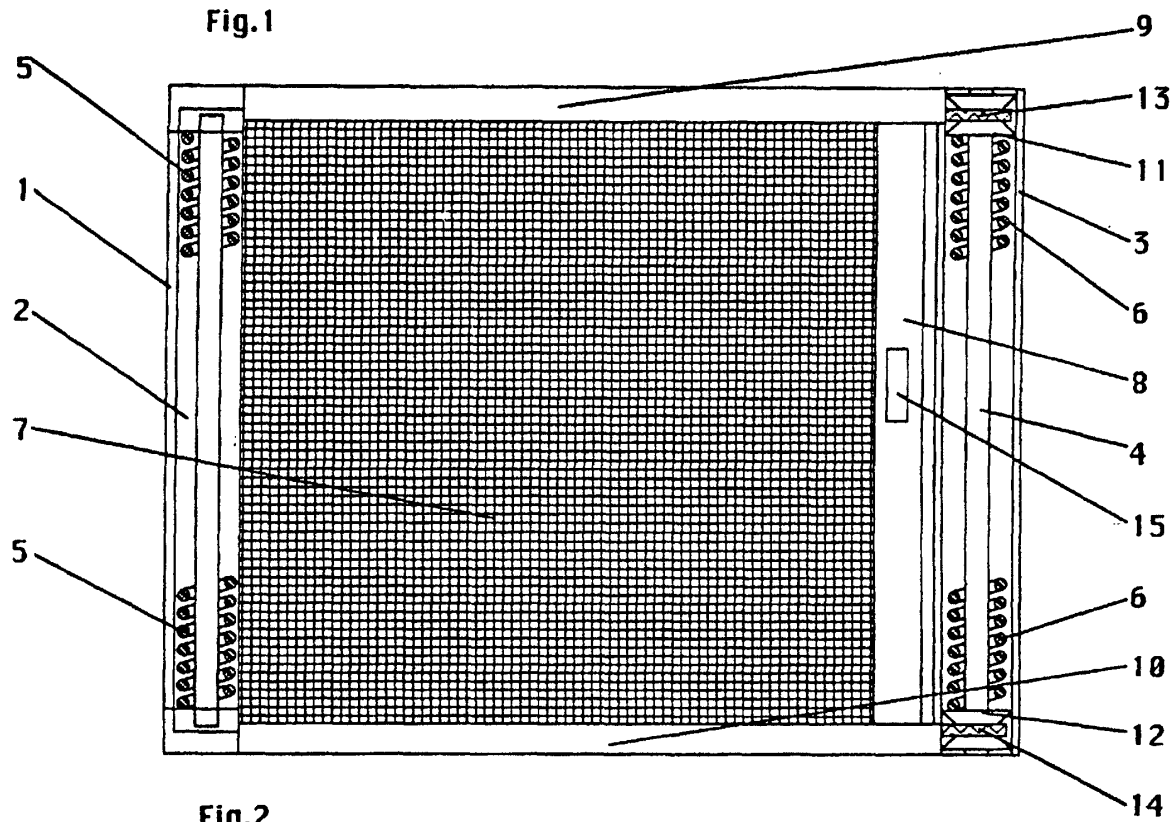


Fig.2

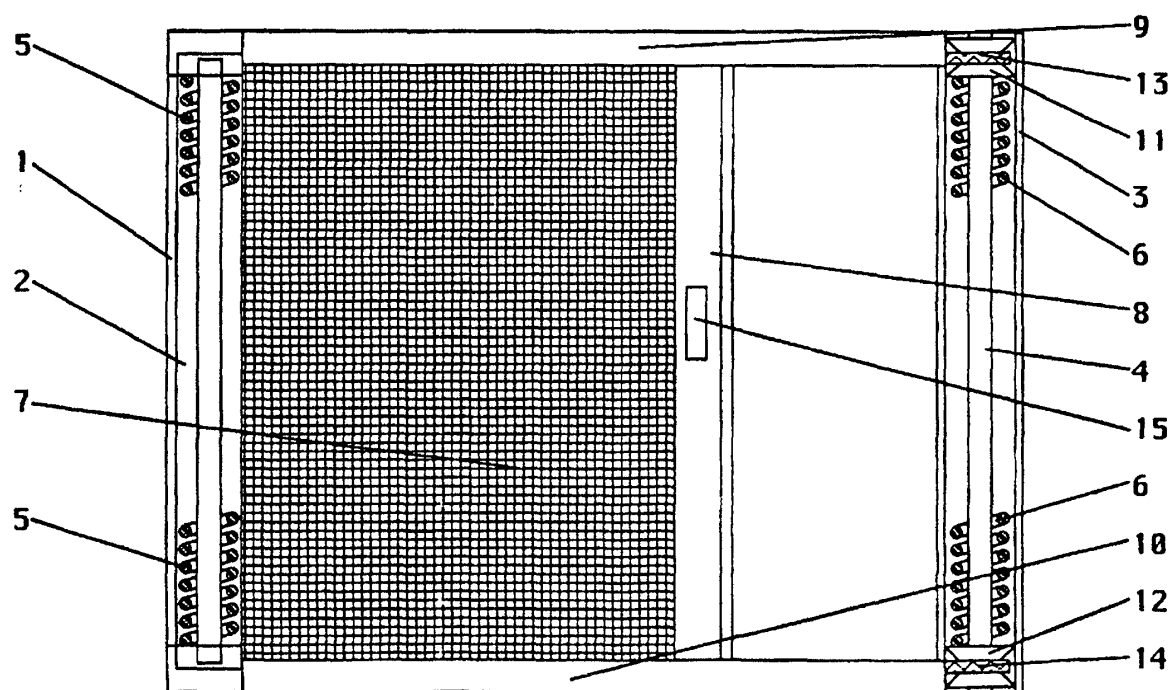


Fig.3

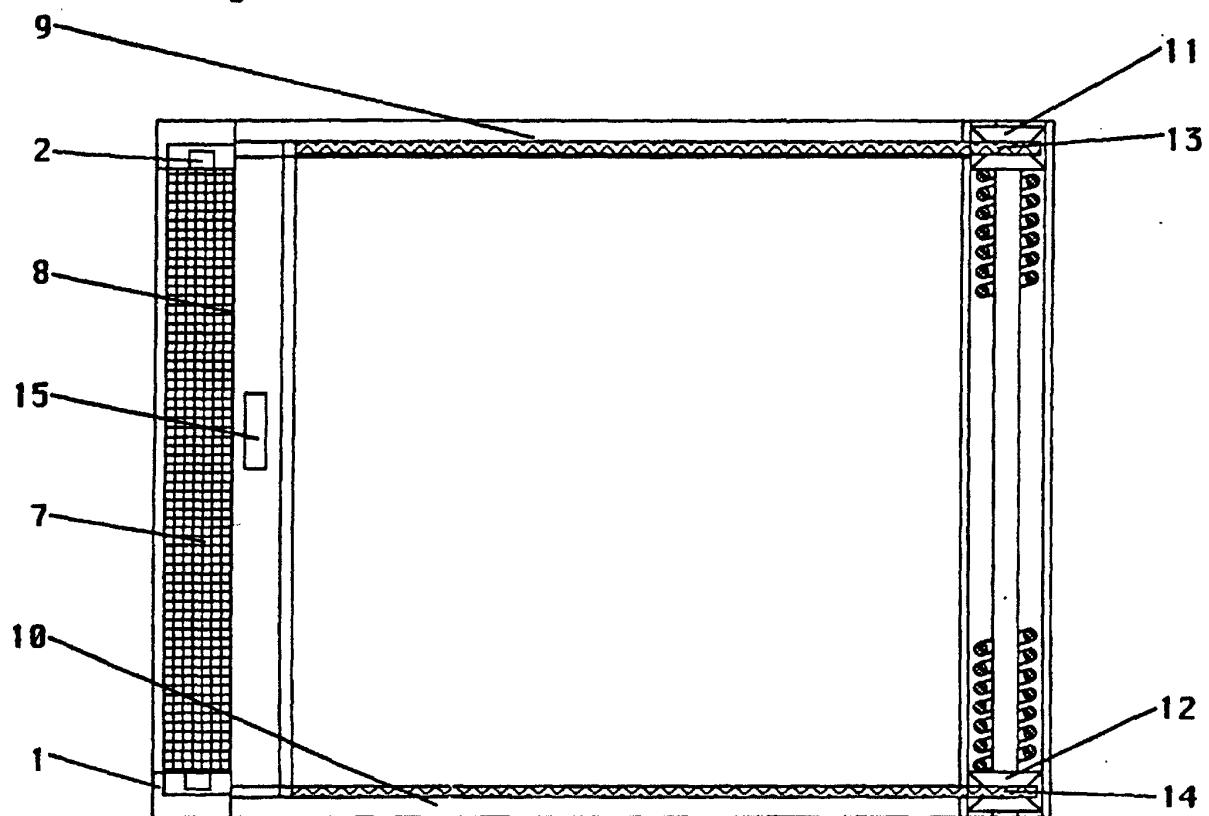


Fig.4

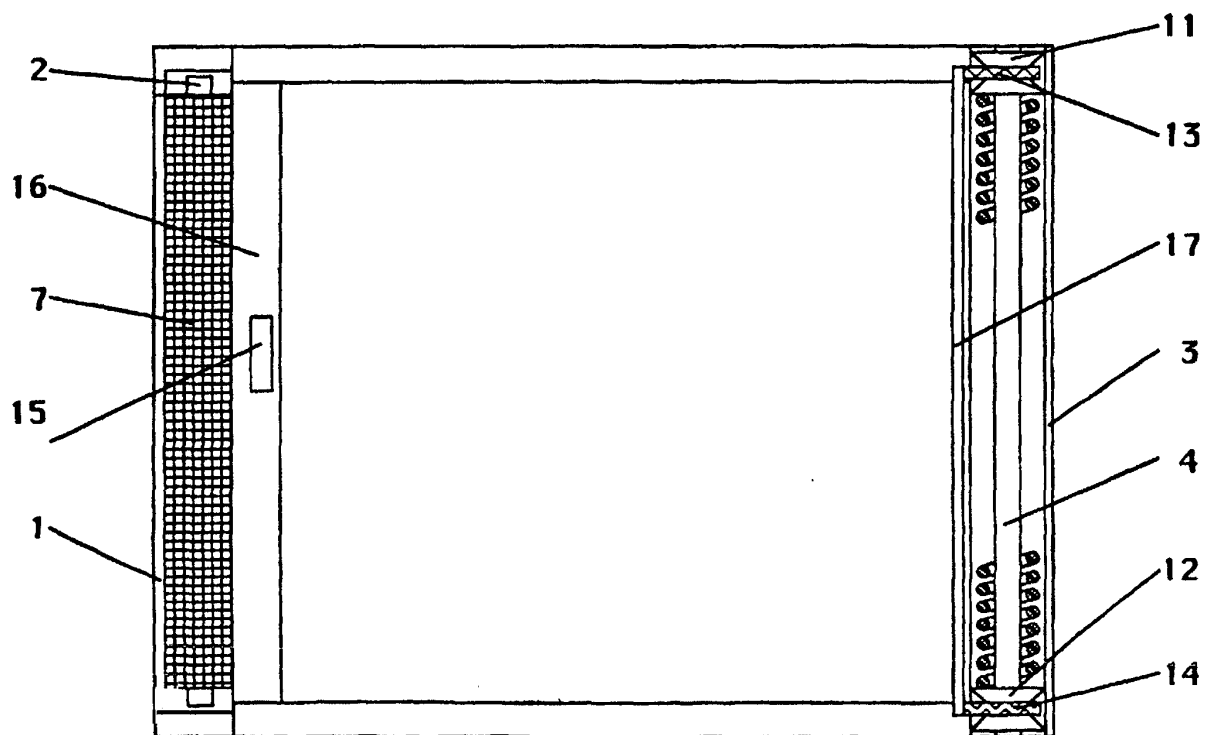


Fig.5

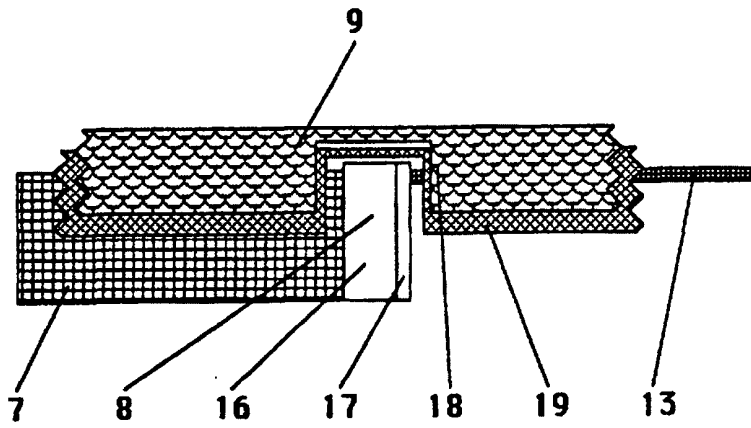


Fig.6

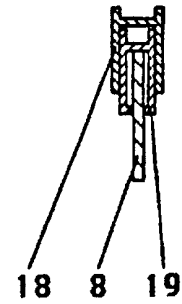


Fig.7

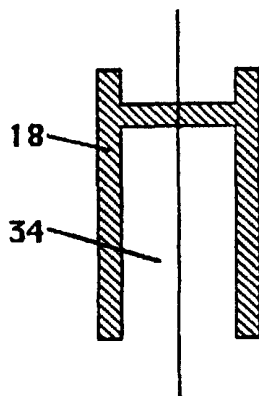


Fig.8

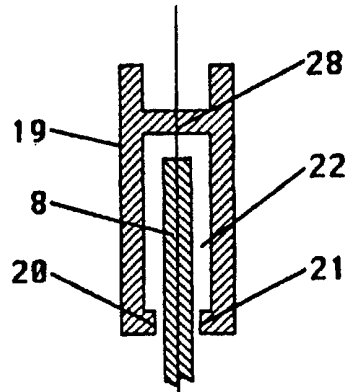


Fig.9

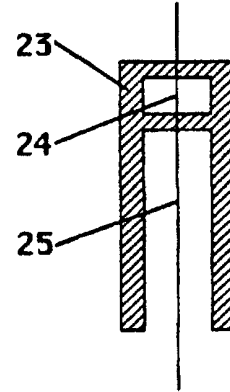


Fig.10

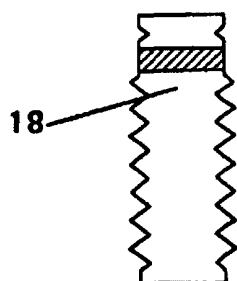


Fig.11

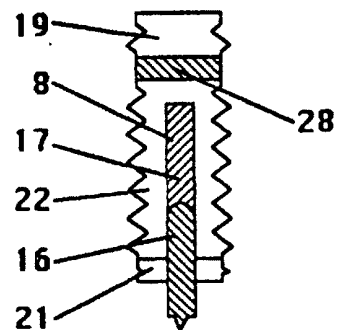


Fig.12

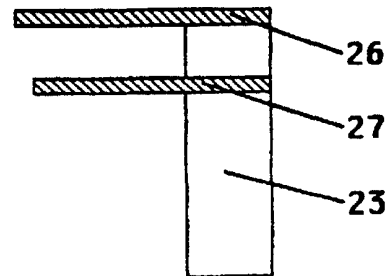


Fig.13

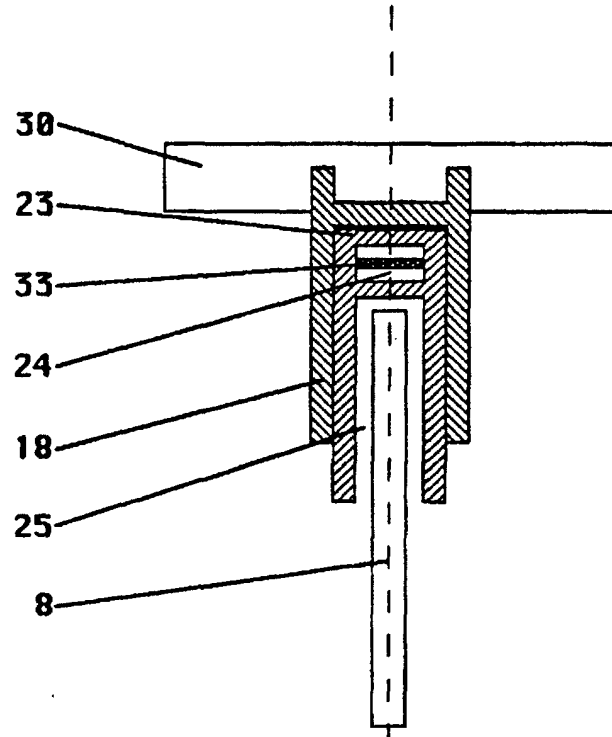


Fig.14

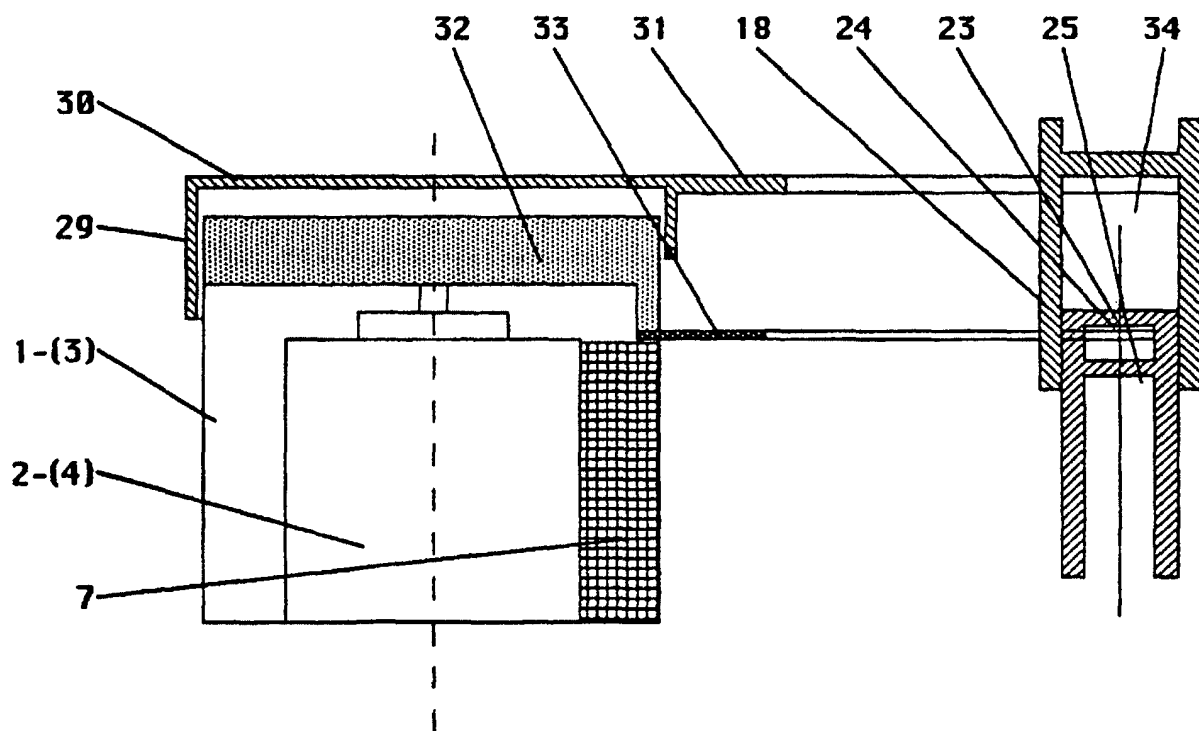


Fig.15

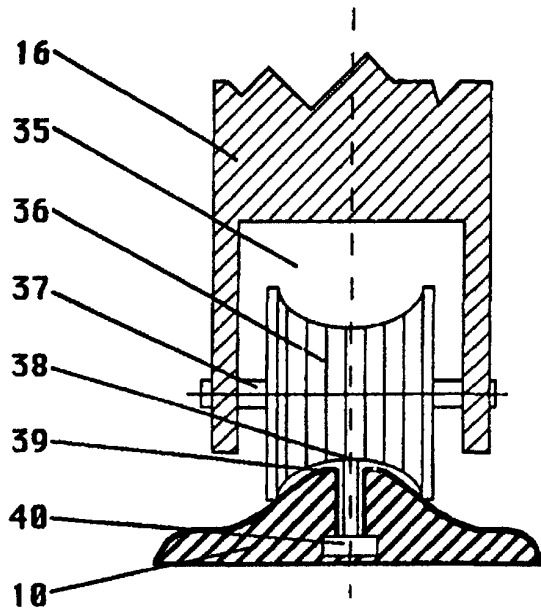


Fig.16

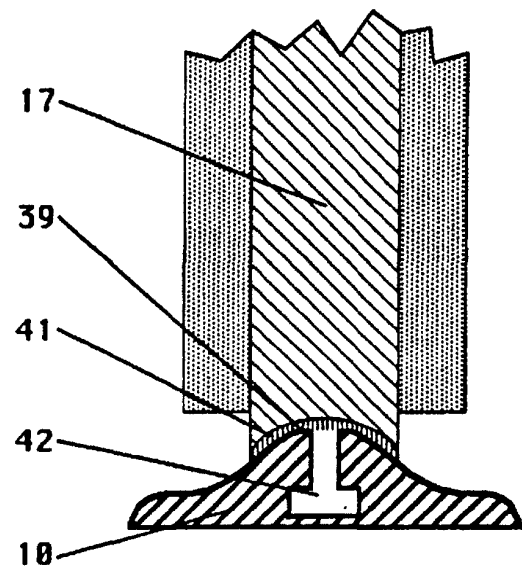


Fig.17

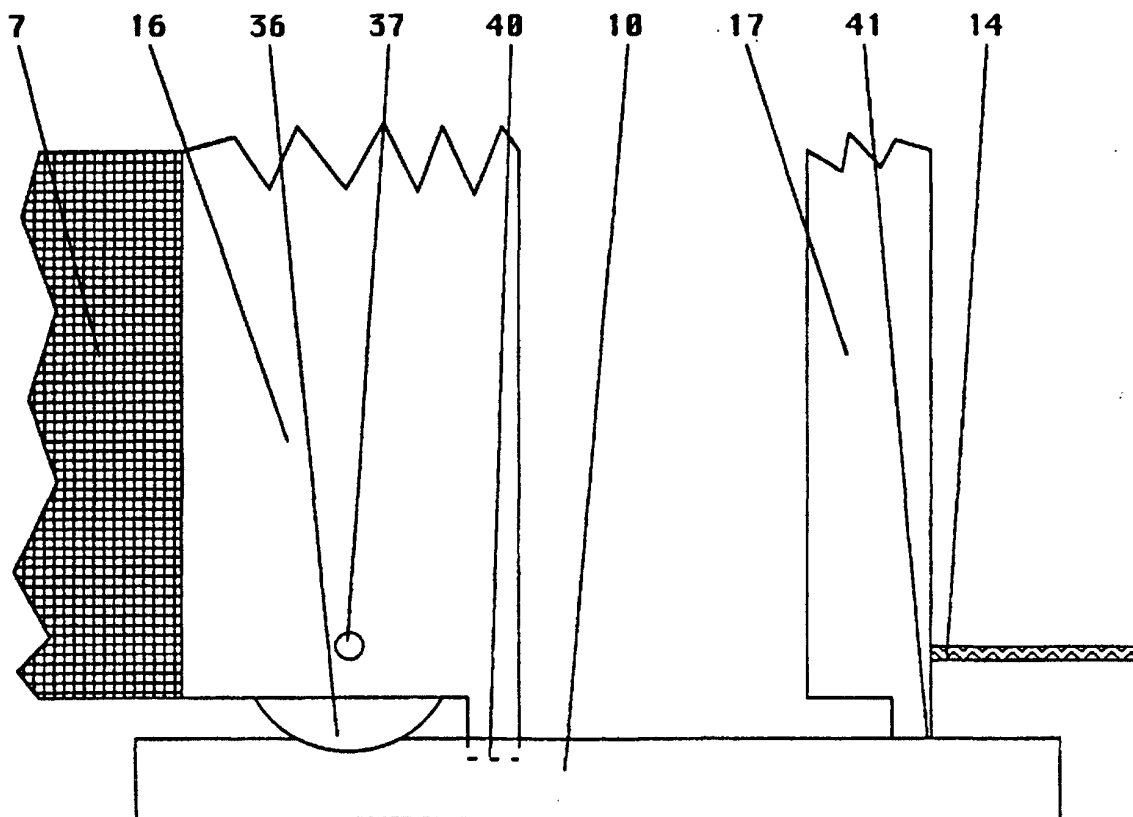


Fig.18

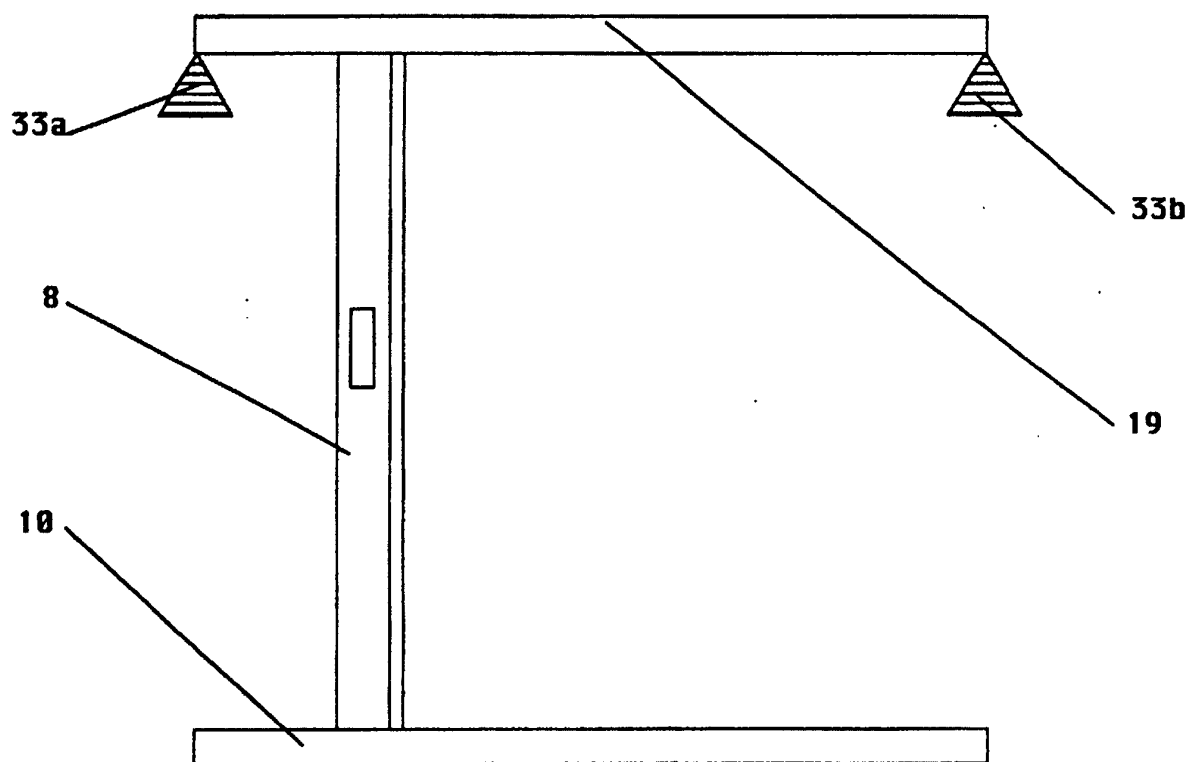


Fig.19

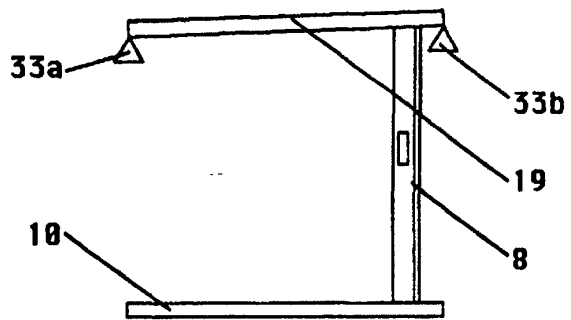


Fig.20

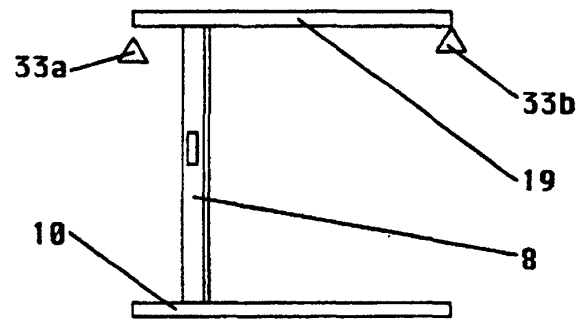


Fig.21

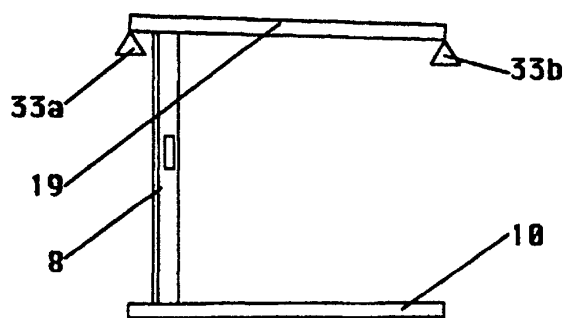


Fig.22

