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(54) **A COMPENSATION SYSTEM FOR PLEATED SCREENS, SUCH AS FOR EXAMPLE MOSQUITO NETS AND BLINDS**

AUSGLEICHSSYSTEM FÜR GEFALTETE ABSCHIRMUNGEN WIE MOSKITONETZE UND BLENDEN

SYSTEME DE COMPENSATION POUR DES ECRANS COMME DES MOUSTIQUAIRES ET DES STORES

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Description

[0001] The present invention relates to the sector of fixtures for doors and windows, and in particular to installation of screens of the pleated type.

[0002] The main purpose of a screen is notoriously to prevent the light (in the case of blinds) or insects (in the case of mosquito nets) from entering the internal environments of offices or dwellings from the door or window openings in the walls.

[0003] Known to the art are technical solutions in which, for convenience, the above screens can be temporarily removed from the corresponding opening by sliding or rotation (obtained by manual or motor-driven actuation) of one or more elements of the screen.

[0004] For example, known from the document No. US 2007/267152 is a system for screens of openings of windows or doors that comprises at least one pleated sheet and a rigid perimetral structure with connection elements at the corners of said structure, which is constituted by upright sectional elements and by guide sectional 1 elements, as well as by a mobile sectional element.

[0005] An aspect of these devices that is of increasing importance is represented by their integration with the other structural elements of the opening (principally the fixtures for doors and windows) both from the dimensional standpoint and from the aesthetic standpoint. The ideal product has small overall dimensions and uniform size all round the perimeter and has an appearance that can be readily combined with the other elements present in the opening.

[0006] Using as classification criterion the type of system used for temporary removal (or de-activation) of the screen, three types of screens may be identified: folding screens, roller screens, and pleated screens.

[0007] Folding screens enable the opening or a portion thereof to be uncovered by causing sliding or rotation of the screening panels that make them up.

[0008] Roller screens envisage, instead, rolling of the screen around a cylindrical element (or drum) generally contained in a box.

[0009] Finally, pleated screens envisage the use of a screen provided with a series of parallel pleats equally spaced apart from one another and at a short distance apart. By packing the pleats it is possible to compact the screen and contain it within a space corresponding to the distance between one pleat and the next.

[0010] The classification presented above reflects the chronological order in which the various types appeared, i.e., the technical evolution of the screens.

[0011] Folding screens are characterized by sturdiness and simplicity but are not particularly attractive since the panel remains always completely in view. They moreover require, in the case of actuation by rotation, free space in the direction of opening.

[0012] Roller screens overcome the limit of folding screens since the sheet is wound round a cylindrical member (referred to as "drum") that is hidden within a box element. The side of the screen opposite to the one fixed with respect to the drum is joined throughout its length to a slidable sectional element, movement of which makes it possible to roll up and unroll the sheet, whereas the other two sides of the screen are housed within two lateral guides.

[0013] This solution implies that, if the aim is of course to prevent the screen from being wound around a drum diameter that is too small (which would create problems of winding), the box that houses both of said elements cannot have very contained dimensions. In effect, the box constitutes in the transverse direction an encumbrance that is far greater than that of the other elements of the structure described.

[0014] This makes it difficult to bestow on this type of screen an appearance that is uniform all round its perimeter, linear, and neat.

[0015] From the standpoint of integration with the elements of the openings, pleated screens make it possible to achieve the best result, given that the transverse dimension is linked to the width of the packed screen (and this is in turn linked to the distance between the pleats), and the structural elements of the screen can be very similar to one another and uniform.

[0016] The typical composition of screens of the latter type envisages at least one quadrilateral pleated sheet comprised between two sectional elements (parallel to the pleats of the screen) of which at least one is mobile and can be used, according to the requirements of the user, for opening (activating) or packing (de-activating) the screen.

[0017] As regards the other two sides of the screen, the sheet is contained by sectional elements referred to as "lateral guides".

[0018] The lateral guides have the dual function of guiding sliding of the mobile sectional element (or elements) and of housing therein the lateral edges of the sheet, guaranteeing complete closing of the opening, which is a characteristic that is necessary for proper operation of the screen.

[0019] The sectional elements fixed to which are the two sides of the screen and which are parallel to the pleats thereof are generally shaped so as to contain the screen when this is packed in order to protect it and hide it from view.

[0020] From this it follows that the transverse dimensions of said sectional elements are equal to the transverse dimension of the packed sheet (i.e., the pleat distance) plus twice the thickness of the walls of the sectional elements that contain the sheet.

[0021] Pleated screens currently available moreover offer the possibility of compensating for possible errors or approximations linked to the dimensions of the opening. It may in fact happen that the dimensions of the screen are, for various reasons, slightly different from those of the opening. In the opening direction, the pleated screen makes it possible to cover an opening greater than the one envisaged, simply by stretching out the

pleats to a greater extent. In the direction perpendicular to the opening direction, the width is compensated thanks to the conformation of the lateral guides that house within them the end of the sectional elements of the screen and that enable a greater or lesser interpenetration according to the difference between the size of the opening and that of the screen.

[0022] In general at least one of the two lateral guides houses the ends of the sectional elements parallel to the pleats of the screen, so that, for this guide, it is possible to obtain a transverse dimension equal to that of the sectional element plus twice the thickness of the wall of the guide itself.

[0023] It may be easily understood, from a constructional standpoint, that for this type of product the main transverse dimension of the screen (i.e., that of the lateral guides) is practically automatically determined once the pleat width has been chosen, since the minimum thickness of the walls is a constructional characteristic that varies only to a minor extent in the framework of the technologies used for this type of applications.

[0024] By reducing the space between the pleats of the screen it is obviously possible to reduce the transverse dimension of the structure, but there exists an aspect that renders spacings that are too narrow unusable.

[0025] Given the same dimensions of a screen, the smaller the space between the pleats the greater the number of pleats, with an increase in the dimensions of the packed screen: in this case, in order to keep the sheet hidden between the sectional elements it becomes necessary to modify the latter and increase the cavity that is to house the packed screen. The result would be wide and unsightly sectional elements.

[0026] There is hence the need to achieve a compromise between the number of pleats and the distance between them, and in fact currently existing screens for the most part employ pleat distances that never depart from a rather narrow range of values.

[0027] If on the one hand the possibility of reducing the dimensions in a direction transverse to the plane of the screen encounters the technological limits as described previously, on the other hand contained dimensions would enable installation of the screen even in areas where there is little space available: having a screen that is even slightly thinner may represent a great advantage over the products currently available on the market.

[0028] According to the known art, the pleated sheet is received within sectional elements shaped so as to receive it inside them when this is packed. These sectional elements must have a transverse dimension greater than that of the sheet that they receive. Said sectional elements then slide within the lateral guides, and hence the latter have a size that is greater than said sectional elements. This configuration affords the advantage of rendering the screen self-compensating, i.e., able to adapt to the opening even in the case of dimensional imperfections, but involves different transverse dimensions for the sectional elements described previously.

[0029] The invention presented herein advantageously enables reduction of the transverse dimension of the screen without changing the transverse dimension of the packed sheet. Basically, the inventive idea underlying the invention consists in a particular connection of the corners of the perimetral structure of the screen, namely, the connection between the guide sectional element (or elements) and the upright sectional elements of the structure.

[0030] Note that in the figures attached hereto by way of example, the screen is stretched out or packed laterally, and hence the guide sectional elements are horizontal (top and bottom) and the upright sectional elements are vertical (right and left), but the invention functions without any modifications also in case of installation with the screen that is stretched out or packed in a vertical direction.

[0031] The present invention avoids the need for dimensional differences between the sectional elements that contain the sheet and the guide sectional elements without forgoing the possibility of being able to compensate easily possible dimensional differences between the screen and the opening in which it is installed. In fact, all the elements of the screen have the same transverse dimension, and thus also an aesthetic improvement thereof is achieved.

[0032] A further advantage of the invention that will be described is represented by the fact that - whereas in the solutions currently known the greater the difference to be compensated (i.e., a larger opening than the one envisaged at the moment of production of the screen), the smaller the portion of sheet that runs fitted in the guide (or guides) - in the present invention the sheet does not exit to any extent from the guide even when it is necessary to compensate for a certain dimensional difference between the screen and the opening that houses it.

[0033] Further characteristics and advantages of the invention will be better understood with reference to the ensuing detailed description and to the attached drawings regarding a preferred, but non-exclusive, embodiment of the pleated screen according to the invention, illustrated by way of indicative and nonlimiting example, wherein:

- Figures 1 and 2 illustrate composition of the screen 1 forming the subject of the invention; it is possible to recognize the pleated sheet 2 contained between the sectional elements 15 and 16 and the lateral guide elements 10 and 18;
- Figures 3 and 4 illustrate the elements that form one of the corners of the structure and in particular the elements that provide the connection between the sectional elements;
- Figure 5 illustrates the particular system of connection between the sectional element 15 (or 17) and the end element 9 (or 14);
- Figure 6 illustrates in detail a corner of the screen;
- Figures 7, 8, and 9 illustrate the sequence of the

operations corresponding to assembly of one of the corners of the structure of the screen: and

- Figure 10 represents an example of the known art.

[0034] With reference to the figures listed above, the screen 1 is particularly suited for preventing the light (in the case of blinds) or insects (in the case of mosquito nets) from entering the internal environments of offices or dwellings from the openings in the walls such as windows, doors, and the like.

[0035] The screen 1 comprises at least one pleated sheet 2 made preferably (but not exclusively) of polymeric material fitted in a substantially perimetral structure that is in turn fixed to the opening to be screened at least on two opposite sides.

[0036] The structure is perimetrally made up of two sectional elements 15 and 17 parallel to the pleating, which can be fixed to the opening in which the screen is installed, of which at least one sectional element, 15, is connected to a side of the pleated sheet 2 and a further two sectional elements, 10 and 18, orthogonal to the former, have a function of guide for the sheet itself. Within said structure there is at least one mobile sectional element 16, parallel to said sectional elements 15 and 17 that are parallel to the pleating, which is free to slide with its ends in the guide sectional elements (or guides) 10 and 18. Said mobile sectional element 16 is connected to the pleated sheet 2, on the side opposite to the one connected to the sectional element 15.

[0037] According to a known operating mode, the screen can assume two configurations:

- screen activated, i.e., pleated sheet 2 stretched out and screening the entire area of the opening;
- screen de-activated, i.e., pleated sheet 2 packed, and opening without screen.

[0038] In order to pass from one configuration to the other it is sufficient to grip the mobile sectional element 16 and cause it to slide (for this reason said element 16 is called "handle"). The screen is activated when the mobile sectional element 16 is rested against the sectional element 17 (the sectional element 17 is commonly called "closing sectional element") and the sheet stretches from one part to the other of the structure. By causing the handle 16 to slide in an opposite direction until it rests against the sectional element 15, the sheet 2 is packed and the opening is consequently free.

[0039] At the top and bottom ends of each of the sectional elements 15, 16 and 17 accessories are present commonly called "end elements" or "plugs" designated, respectively, by 9 and 19, 13 and 20, 14 and 21. The function of said components is to close the ends of the sectional elements and, in some known solutions, enable, together with the components 8 and 22 (set at the ends of the guide sectional elements 10 and 18), fixing of the sectional elements in the opening.

[0040] According to the known art, installation envisages the following steps:

- fixing of the guide sectional elements (10 and 18) to the surfaces of the opening by means of fixing screws; and
- fitting the sectional element 17 and the sectional element 15 within the guides and subsequent fixing to the opening by snap-action blocking on accessories 23 previously fixed to the opening or else by means of the interlocking element between the end elements at the ends of said sectional elements and accessories set at the ends of the guides.

[0041] According to the known art, as already described, the transverse dimensions of the guide sectional elements 10 and 18 are greater than those of the sectional elements 15, 16 and 17 to enable fitting of the latter in the guides.

[0042] Unlike the known art, the present invention envisages that:

- the guide sectional elements 10 and 18 and the sectional elements 15, 16 and 17 perpendicular thereto have the same dimension in a direction transverse to the plane of the screen in order to minimize the transverse dimension of the structure and improve the appearance thereof;
- the end elements 9, 13 and 14 are shaped so that the part that is to be received in the guide 10 has a reduced transverse dimension very close to the transverse dimension of the sheet: only the remaining part 37 of the end element, which is to remain in view, has a dimension equal to the dimension of the sectional element so as to perform the aesthetic function of plug;
- according to a first peculiar characteristic, the end elements 9 and 14 are provided, in the terminal part of the fitting portion, with an inclined surface 35;
- the end elements 9 and 14 moreover have a possible blocking stud 31;
- according to a second peculiar characteristic, the top guide 10 is not directly fixed to the corresponding surface of the opening but is free to move away from this, remaining, however, guided on an internal sectional element 11, which is in turn fixed to said surface of the opening;
- according to a third peculiar characteristic, at the ends of the guide 10 two L-shaped accessories 8 are provided fitted in a purposely designed groove 32 of the guide itself and fixed therein by means of the screw 27; said accessories have an interlocking element 28 (which in itself is already known) but in addition to this have an innovative elongated part that projects perpendicular to the guide 10 and that is provided with an inclined surface 29, a slot 38, and a mechanical interlocking element 33 that is designed to fit into the groove 34 of the sectional element 15;

- according to a fourth peculiar characteristic, the guide sectional element 10 has the possibility of sliding with respect to the fixed sectional element 11 only in a direction orthogonal to the latter, whereas any other movement is prevented thanks to an element 12, fixed to the opening by means of the screw 24, which is constrained to remain within a slot 38 present in the accessory 8; said sliding is limited to the height of the sectional element 11, by an appropriate choice of the point of fixing to the wall of the element 12, given that the guide sectional element 10 can move away from the wall of the opening only up to the point where the accessory 8 reaches the end of the slot 38, thus obtaining that the sectional element 10 cannot disengage therefrom; and
- the sectional elements 15 and 17 are preferably provided with a hole 36 that is to house the stud 31 of the respective end elements 9 and 14.

[0043] The above elements enable fast assembly, a transverse dimension of the product that is smaller than that of the known art, and a system for compensation of possible differences between the size of the opening and that of the screen that does not change the extent of penetration of the sheet 2 within the guide 10.

[0044] In this connection, it should be noted that, according to the invention, it is substantially envisaged to provide a sort of rigid perimetral frame - made up of the fixed sectional elements 15, 17 and the guide sectional elements 10, 18 -, within which the pleated screen 2 is stretched out or packed by operating the handle 16. The inventive idea lies in having devised corner elements 8, 9, 14, 22, 25 for coupling the four sectional elements 15, 17, 10, 18 so as to obtain a precise and stable coupling of the sectional elements themselves, assigning the function of compensation of the possible dimensional differences between the opening and the structure of the screen to a further sectional element 11 that cooperates with one of the four sectional elements of the frame, preferably the top guide 10.

[0045] Advantageously, this makes it possible to obtain fast and precise assembly, without any danger of the pleated screen exiting from the guides, in the case where the size of the opening is greater than that of the structure installed therein.

[0046] Assembly of the sectional elements 15 and 17 , as described in Figures 7, 8 and 9 (which regard the side of the end element 9 but apply identically to the side of the end element 14), starts from fitting the sectional element set slightly inclined. After the end element 9 has been engaged in the protuberance 28, the sectional element is turned to reach a configuration orthogonal to the guide 10. The protuberance 28 and the surface 30 of the end element come into contact, and the sectional element is held against the surface of the opening. Simultaneously, the inclined surface 29 comes into contact with the corresponding inclined surface 35. determining complete interlocking of the end element 9 with respect to the guide 10 through the L-shaped accessory 8. Without any possibility of error, the space between the sectional element 10 and the sectional element 15 is exactly equal to the height of the visible part 37 of the end elements, with the aesthetic result illustrated in Figure 6. Finally, the external lateral projection 33 of the slot 38 is engaged in the groove 34 of the sectional element 15, and this renders the corner perfectly orthogonal.

[0047] In order to complete assembly, it will suffice at this point to engage the bottom end element 19 of the sectional element 15 in the bottom guide 18 (as envisaged according to the known art), and, as may be noted from Figure 9, by bringing down the sectional element 15, also the guide sectional element 10 will consequently drop, compensating for any possible difference between the size of the opening and the size of the screen, without the need for any intervention of adjustment on the part of the installer. The distance (or gap) that is created between the opening and the guide 10 is closed and compensated by the fixed sectional element 11.

[0048] Advantageously, as has already been pointed out, the sheet 2 is always in the right position, occupying the guide 10 right to the bottom thereof with the best possible result in terms of tightness to light and insects, contrary to the known solution in which it is possible for the sheet to penetrate only slightly into the top guide in the case of dimensional errors, thus determining a net reduction of the screening capacity of the sheet.

LEGEND

[0049]

1) screen assembly;
2) pleated sheet;
3) assembly of the upright fixed with respect to on side of the sheet;
4) assembly of the sliding handle fixed with respect to one side of the sheet (opposite to the one fixed with respect to the assembly 3)
5) top-guide assembly;
6) bottom-guide assembly;
7) closing-upright assembly;
8) accessory belonging to the assembly 5 that can be blocked with respect to the sectional element 10 and that concurs in providing the corner joint between the assembly 5 and the assemblies 3 and 7;
9) end plug of the sectional element 15 that concurs in providing the corner joint between the assembly 5 and the assembly 3;
10) guide sectional element;
11) compensation sectional element;
12) bushing that enables constraint of the accessory 8 allowing the possibility of sliding in the direction of compensation;
13) end plug of the sectional element 16;
14) end plug of the sectional element 17 that concurs in providing the corner joint between the assembly

5 and the assembly 7;
15) sectional element fixed with respect to one side of the sheet;
16) handle (or sliding) sectional element;
17) closing sectional element;
18) guide sectional element;
19) end plug of the sectional element 15;
20) end plug of the sectional element 16;
21) end plug of the sectional element 17;
22) accessory for blocking the assemblies 3 and 7 with respect to the assembly 6;
23) blocking accessory;
24) fixing screw;
25) fixing screw;
26) fixing screw;
27) grubscrew for fixing the accessory 8 with respect to the sectional element 10;
28) interlocking element present on 9 and 14;
29) inclined surface present on the end plugs 9 and 14;
30) lead-in portion for interlocking element 28;
31) blocking stud present on the end plugs 9 and 14 for engaging the hole 36;
32) seat for accessory 8;
33) interlocking element for the projections 34;
34) projections for coupling with the interlocking element 33 and the accessory 23;
35) inclined surface for coupling with the surface 29;
36) hole for housing the stud 31;
37) side wall facing the end elements 9 and 14;
38) sliding slot.

Claims

1. A compensation system for screens for openings of windows or doors, such as for example mosquito nets and blinds, comprising at least one pleated sheet (2) inserted in a perimetral structure that can be fixed at least on two opposite sides to the opening to be screened, said system comprising elements for connection of the corners of the perimetral structure of the screen, i.e., for connection of the ends of the guide sectional elements (10, 18) and of the upright sectional elements (15, 17) of the structure, said system being **characterized in that** said connection elements are designed to provide a rigid perimetral frame constituted by said fixed upright sectional elements (15, 17) and said guide sectional elements (10, 18) within which the pleated screen (2) is stretched out/packed by displacing at least one mobile sectional element or "handle" (16); there moreover being provided a further sectional element (11), which is fixed to the opening in which the screen is installed and is designed to co-operate with at least one of the guide sectional elements (10) - by means of a telescopic coupling in a direction substantially transverse to the guide sectional element itself - for compensating the dimensional differences between said perimetral structure that contains the sheet (2) and the opening in which it is installed; wherein all the sectional elements of the structure have one and the same transverse dimension with respect to the plane of the screen itself.

2. The compensation system according to the preceding claim, **characterized in that** said perimetral structure or frame comprises two upright sectional elements (15 and 17) parallel to the pleating, which can be fixed to the opening where the screen is installed, of which at least one (15) is connected to a side of the pleated sheet (2), as well as a further two guide sectional elements (10 and 18) orthogonal to the former, which have a function of guide for the sheet itself; there being located within said perimetral structure said mobile sectional element (16), which is parallel to said upright sectional elements (15 and 17) that are parallel to the pleating and is free to slide with its ends in the guide sectional elements (10 and 18); said mobile sectional element (16) being connected to the pleated sheet (2) on the side opposite to the one connected to the upright sectional element (15).

3. The compensation system according to the preceding claim, **characterized in that**, at the top and bottom ends of each of the upright and mobile sectional elements (15, 16, and 17) parallel to the pleating, accessories are present called "end elements" or "plugs" (9 and 19, 13 and 20, 14 and 21), the function of which is to close the ends of the sectional elements and to enable, together with components (8 and 22) set at the ends of the guide sectional elements (10 and 18), fixing of the sectional elements in the opening.

4. The compensation system according to the preceding claim, **characterized in that**:

   - the guide sectional elements (10 and 18) and the upright and mobile sectional elements (15, 16 and 17) perpendicular to them have the same transverse dimension with respect to the plane of the screen so as to minimize the transverse dimension of the structure and improve the aesthetics thereof;
   - the end elements (9, 13 and 14) are shaped so that the part that is to be received in the guide sectional element (10) has a reduced transverse dimension that is very close to the transverse dimension of the pleated sheet (2): only the remaining part (37) of the end element, which is to remain in view, has the same size as the sectional element itself so as to perform the aesthetic function of plug; and
   - the end elements (9 and 14) of the fixed sec-

tional elements have, in the terminal part of the fitting portion, an inclined surface (35).

5. The compensation system according to the preceding claim, **characterized in that** the end elements (9 and 14) of the fixed upright sectional elements have a blocking stud (31).

6. The compensation system according to Claim 4 or Claim 5, **characterized in that** the top guide sectional element (10) is not fixed directly to the corresponding surface of the opening but is free to move away from the latter, remaining, however, guided with slidable coupling on said further sectional element (11) that is internal to said guide sectional element (10) and is fixed to said surface of the opening.

7. The compensation system according to Claim 3, **characterized in that** provided at the ends of the guide sectional element (10) are said accessories (8), which are L-shaped and are fitted into a purposely provided groove (32) of the guide sectional element itself and fixed therein by means of a screw (27) or other suitable means; said accessories having an interlocking element (28), as well as an innovative elongated part that projects perpendicular to the guide sectional element (10) and that envisages an inclined surface (29), a slot (38), and a mechanical interlocking element (33) that is to co-operate with a purposely provided groove (34) of the fixed sectional element (15) that is connected to one side of the pleated sheet (2).

8. The compensation system according to the preceding claim, **characterized in that** the guide sectional element (10) is able to slide with respect to the further fixed sectional element (11) only in a direction orthogonal to the latter, whereas any other movement is prevented thanks to an element (12), fixed to the opening by means of a screw (24), which is constrained to remain within the slot (38) present in the accessory (8); said sliding of the element (12) in the slot (38) being not greater than the height of the further sectional element (11) so that the guide sectional element (10) cannot disengage from the sectional element (11) itself.

9. The compensation system according to the preceding claim, **characterized in that** the fixed upright sectional elements (15 and 17) have a hole (36) that is to house a stud (31) of the respective end elements (9 and 14).

10. The compensation system according to the preceding claim, **characterized in that** each of the fixed sectional elements (15 and 17) can be installed by being inserted initially in a slightly inclined way after the end element (9) has been engaged in the protuberance (28), the sectional element can be turned to reach a configuration orthogonal to the guide sectional element (10), where the projection (28) and the surface (30) of the end element come into contact and the sectional element itself is held against the surface of the opening; simultaneously, said inclined surface (29) is in contact with a corresponding inclined surface (35) of the end element, determining complete interlocking of the end element (9) with respect to the guide sectional element (10) through the L-shaped accessory (8).

11. The compensation system according to the preceding claim, **characterized in that**, without any possibility of error, the space between the guide sectional element (10) and the fixed upright sectional element (15) is exactly equal to the height of the visible part (37) of the end elements.

12. The compensation system according to the preceding claim, **characterized in that** an external lateral projection (33) of the slot (38) is provided, designed to engage in the groove (34) of the fixed upright sectional element (15) to render the latter and the guide sectional element (10) perfectly orthogonal to one another.

13. The compensation system according to the preceding claim, **characterized in that** the bottom end element (19) of the fixed upright sectional element (15) is designed to be fitted into the bottom guide (18), causing displacement downwards of the upright sectional element (15) so that also the guide sectional element (10) will consequently drop with respect to the further sectional element (11), thus compensating any possible difference between the size of the opening and the size of the screen without there being necessary any intervention of adjustment by the installer.

Patentansprüche

1. Ausgleichssystem für Abschirmungen für Öffnungen von Fenstern oder Türen, wie zum Beispiel Moskitonetze und Blenden, umfassend wenigstens eine gefaltete Lage (2), die in eine perimetrale Struktur eingefügt ist, welche auf wenigstens zwei gegenüberliegenden Seiten an der abzuschirmenden Öffnung befestigbar ist, wobei das System Elemente für eine Verbindung der Ecken der perimetralen Struktur der Abschirmung umfasst, das heißt für eine Verbindung der Enden der Führungsabschnittselemente (10, 18) und der aufrechten Abschnittselemente (15, 17) der Struktur, wobei das System **dadurch gekennzeichnet ist, dass** die Verbindungselemente derart ausgebildet sind, um einen festen perimetralen Rahmen bereitzustellen, der durch die

befestigten aufrechten Abschnittselemente (15, 17) und die Führungsabschnittselemente (10, 18) gebildet ist, innerhalb derer die gefaltete Abschirmung (2) ausziehbar/zusammenfaltbar ist, indem wenigstens ein bewegliches Abschnittselement oder ein "Griff" (16) verlagerbar ist; wobei außerdem ein weiteres Abschnittselement (11) bereitgestellt ist, welches an der Öffnung befestigt ist, in welcher die Abschirmung installiert ist, und welche dazu ausgebildet ist, mit wenigstens einem der Führungsabschnittselemente (10) zusammenzuwirken - mittels einer Teleskopkopplung in einer Richtung im Wesentlichen quer zu dem Führungsabschnittselement selber - zum Ausgleichen der Abmessungsunterschiede zwischen der perimetralen Struktur, welche die Lage (2) und die Öffnung umfasst, in der diese installiert ist; wobei alle Abschnittselemente der Struktur ein und dieselbe Querausdehnung mit Bezug auf die Ebene der Abschirmung selber aufweisen.

2. Ausgleichssystem gemäß dem vorherigen Anspruch, **dadurch gekennzeichnet, dass** die perimetrale Struktur oder der Rahmen zwei aufrechte Abschnittselemente (15 und 17) parallel zu der Faltung umfasst, welche an der Öffnung befestigbar ist, wo die Abschirmung installiert ist, von denen wenigstens eines (15) mit einer Seite der gefalteten Lage (2) verbunden ist, und auch weitere zwei Führungsabschnittselemente (10 und 18) umfasst, welche orthogonal zu den ersteren sind, welche eine Funktion der Führung für Lage selber aufweisen; wobei dort innerhalb der perimetralen Struktur das bewegliche Abschnittselement (16) angeordnet ist, welches parallel zu den aufrechten Abschnittselementen (15 und 17) ist, welche parallel zu der Faltung sind, und welches mit seinen Enden in den Führungsabschnittselementen (10 und 18) frei verschiebbar ist; wobei das bewegliche Abschnittselement (16) mit der gefalteten Lage (2) auf der Seite gegenüber derjenigen Seite verbunden ist, die mit dem aufrechten Abschnittselement (15) verbunden ist.

3. Ausgleichssystem gemäß dem vorherigen Anspruch, **dadurch gekennzeichnet, dass**, an den oberen und unteren Enden jedes der aufrechten und beweglichen Abschnittselemente (15, 16 und 17) parallel zu der Faltung, Anbauteile vorhanden sind, welche "Endelemente" oder "Stopfen" (9 und 19, 13 und 20, 14 und 21) genannt werden, deren Funktion es ist, die Enden der Abschnittselemente zu schließen und, zusammen mit Komponenten (8 und 22), welche an den Enden der Führungsabschnittselemente (10 und 18) eingesetzt sind, eine Befestigung der Abschnittselemente in der Öffnung zu ermöglichen.

4. Ausgleichssystem gemäß dem vorherigen Anspruch, **dadurch gekennzeichnet, dass**:

- die Führungsabschnittselemente (10 und 18) und die aufrechten und beweglichen Abschnittselemente (15, 16 und 17) senkrecht zu diesen die gleiche Querabmessung mit Bezug auf die Ebene der Abschirmung aufweisen, um so die Querabmessung der Struktur zu minimieren und deren ästhetischen Eindruck zu verbessern;
- die Endelemente (9, 13 und 14) derart geformt sind, so dass das Teil, welches in dem Führungsabschnittselement (10) aufzunehmen ist, eine reduzierte Querabmessung aufweist, welche sehr dicht an der Querabmessung der gefalteten Lage (2) ist: wobei lediglich das verbleibende Teil (37) des Endelements, welches im Blickfeld verbleiben soll, die gleiche Größe wie das Abschnittselement selber aufweist, um so die ästhetische Funktion des Stopfens zu erfüllen; und
- die Endelemente (9 und 14) der befestigten Abschnittselemente, in dem Abschlussteil des Anbringungsabschnitts, eine geneigte Oberfläche (35) aufweisen.

5. Ausgleichssystem gemäß dem vorherigen Anspruch, **dadurch gekennzeichnet, dass** die Endelemente (9 und 14) der befestigten aufrechten Abschnittselemente einen Blockierzapfen (31) aufweisen.

6. Ausgleichssystem gemäß Anspruch 4 oder 5, **dadurch gekennzeichnet, dass** das obere Führungsabschnittselement (10) nicht direkt an der entsprechenden Oberfläche der Öffnung befestigt ist, sondern sich frei von dem letzteren weg bewegen kann, dabei jedoch mit einer gleitbaren Kopplung auf dem weiteren Abschnittselement (11) in Führung verbleibt, welches in dem Führungsabschnittselement (10) ist und an der Oberfläche der Öffnung befestigt ist.

7. Ausgleichssystem nach Anspruch 3, **dadurch gekennzeichnet, dass** an den Enden des Führungsabschnittselements (10) die Anbauteile (8) bereitgestellt sind, welche L-förmig sind und in einer zweckbestimmt-bereitgestellten Ausnehmung (32) des Führungsabschnittselements selber eingepasst und darin mittels einer Schraube (27) oder einem anderen geeigneten Mittel befestigt sind; wobei die Anbauteile ein Verriegelungselement (28) aufweisen, als auch ein innovatives längliches Teil, welches senkrecht zu dem Führungsabschnittselement (10) hervorsteht und eine geneigte Oberfläche (29), einen Schlitz (38) und ein mechanisches Verriegelungselement (33) umfasst, welches mit einer zweckbestimmtbereitgestellten Ausnehmung (34) des befestigten Abschnittselements (15) zusammenarbeiten soll, welches mit einer Seite der gefalteten Lage (2) verbunden ist.

8. Ausgleichssystem gemäß dem vorherigen Anspruch, **dadurch gekennzeichnet, dass** das Führungsabschnittselement (10) in der Lage ist, mit Bezug auf das weitere befestigte Abschnittselement (11) lediglich in einer Richtung orthogonal zu dem letzteren zu gleiten, wogegen jede andere Bewegung aufgrund eines Elements (12) verhindert ist, das an der Öffnung mittels einer Schraube (24) befestigt ist, welches zwangsweise in dem in dem Anbauteil (8) vorhandenen Schlitz (38) verbleibt; wobei das Gleiten des Elements (12) in dem Schlitz (38) nicht mehr als die Höhe des weiteren Abschnittselements (11) ist, so dass sich das Führungsabschnittselement (10) nicht von dem Abschnittselement (11) selber lösen kann.

9. Ausgleichssystem gemäß dem vorherigen Anspruch, **dadurch gekennzeichnet, dass** die befestigten aufrechten Abschnittselemente (15 und 17) ein Loch (36) aufweisen, welches einen Zapfen (31) der entsprechenden Endelemente (9 und 14) aufnehmen soll.

10. Ausgleichssystem gemäß dem vorherigen Anspruch, **dadurch gekennzeichnet, dass** jedes der befestigten Abschnittselemente (15 und 17) installiert werden kann, indem es anfänglich in einer leicht geneigten Weise eingesetzt wird, nachdem das Endelement (9) in Eingriff mit dem Vorsprung (28) gekommen ist, wobei das Abschnittselement drehbar ist, um eine Konfiguration zu erreichen, die orthogonal zu dem Führungsabschnittselement (10) ist, wobei der Vorsprung (28) und die Oberfläche (30) des Endelements in Kontakt kommen und das Abschnittselement selber gegen die Oberfläche der Öffnung gehalten wird; wobei sich gleichzeitig die geneigte Oberfläche (29) in Kontakt mit einer entsprechenden geneigten Oberfläche (35) des Endelements befindet, wobei eine vollständige Verriegelung des Endelements (9) mit Bezug auf das Führungsabschnittselement (10) durch das L-förmige Anbauteil (8) festgelegt wird.

11. Ausgleichssystem gemäß dem vorherigen Anspruch, **dadurch gekennzeichnet, dass**, ohne jede Möglichkeit eines Fehlers, der Raum zwischen dem Führungsabschnittselement (10) und dem befestigten aufrechten Abschnittselement (15) genau gleich der Höhe des sichtbaren Teils (37) der Endelemente ist.

12. Ausgleichssystem gemäß dem vorherigen Anspruch, **dadurch gekennzeichnet, dass** ein äußerer seitlicher Vorsprung (33) des Schlitzes (38) bereitgestellt ist, der dazu ausgebildet ist, in Eingriff mit der Ausnehmung (34) des befestigten aufrechten Abschnittselements (15) zu kommen, um das letztere und das Führungsabschnittselement (10) exakt orthogonal zueinander zu machen.

13. Ausgleichssystem gemäß dem vorherigen Anspruch, **dadurch gekennzeichnet, dass** das Bodenendelement (19) des befestigten aufrechten Abschnittselements (15) dazu ausgebildet ist, in die Bodenführung (18) eingepasst zu werden, was eine Verlagerung nach unten des aufrechten Abschnittselements (15) verursacht, so dass sich folglich ebenso das Führungsabschnittselement (10) mit Bezug auf das weitere Abschnittselement (11) absenkt, wodurch jeder mögliche Unterschied zwischen der Größe der Öffnung und der Größe der Abschirmung ausgeglichen wird, ohne dass irgendein Einstellungs-Eingriff durch den Installateur notwendig ist.

Revendications

1. Système de compensation pour des écrans pour des ouvertures de fenêtre ou de portes, comme par exemple des moustiquaires et des stores, comprenant au moins une feuille plissée (2) insérée dans une structure périphérique qui peut être fixée à au moins deux côtés opposés sur l'ouverture à masquer, ledit système comprenant des éléments pour la connexion aux angles de la structure périphérique de l'écran, c'est-à-dire pour la connexion des extrémités des éléments profilés de guidage (10, 18) et des éléments profilés verticaux (15, 17) de la structure, ledit système étant **caractérisé en ce que** lesdits éléments de connexion sont conçus pour fournir un cadre périphérique rigide constitué par lesdits éléments profilés verticaux fixes (15, 17) et lesdits éléments profilés de guidage (10, 18) dans lequel l'écran plissé (2) est étiré/replié en déplaçant au moins un élément profilé mobile ou « poignée » (16) ; étant prévu en outre un autre élément profilé (11), qui est fixé à l'ouverture dans laquelle l'écran est installé et est conçu pour coopérer avec au moins un des éléments profilés de guidage (10) - au moyen d'un accouplement télescopique dans une direction sensiblement transversale à l'élément profilé de guidage lui-même - pour compenser les différences dimensionnelles entre ladite structure périphérique qui contient la feuille (2) et l'ouverture dans laquelle elle est installée ; dans lequel tous les éléments profilés de la structure ont une seule et même dimension transversale par rapport au plan de l'écran lui-même.

2. Système de compensation selon la revendication précédente, **caractérisé en ce que** ladite structure ou ledit cadre périphérique comprend deux éléments profilés verticaux (15 et 17) parallèles au plissage, qui peuvent être fixés à l'ouverture où l'écran est installé, dont au moins un (15) est connecté à un côté de la feuille plissée (2), ainsi qu'un autre des deux éléments profilés de guidage (10 et 18) ortho-

gonaux à ce dernier, qui ont une fonction de guide pour la feuille elle-même ; ledit élément profilé mobile (16) étant situé dans ladite structure périphérique, lequel est parallèle auxdits éléments profilés verticaux (15 et 17) qui sont parallèles au plissage et est libre de coulisser avec ses extrémités dans les éléments profilés de guidage (10 et 18) ; ledit élément profilé mobile (16) étant connecté à la feuille plissée (2) du côté opposé à celui connecté à l'élément profilé verticaux (15).

3. Système de compensation selon la revendication précédente, **caractérisé en ce que**, au niveau des extrémités supérieure et inférieure de chacun des éléments profilés verticaux et mobile (15, 16 et 17) parallèles au plissage, sont présents des accessoires appelés « éléments terminaux » ou « bouchons » (9 et 19, 13 et 20, 14 et 21), dont la fonction est de fermer les extrémités des éléments profilés et de permettre, conjointement aux composants (8 et 22) installés aux extrémités des éléments profilés de guidage (10 et 18), la fixation des éléments profilés dans l'ouverture.

4. Système de compensation selon la revendication précédente, **caractérisé en ce que** :

- les éléments profilés de guidage (10 et 18) et les éléments profilés verticaux et mobile (15, 16 et 17) perpendiculaires à ceux-ci ont la même dimension transversale par rapport au plan de l'écran de manière à minimiser la dimension transversale de la structure et améliorer l'esthétique de ceux-ci ;
- les éléments terminaux (9, 13 et 14) sont profilés de manière que la partie qui doit être reçue dans l'élément profilé de guidage (10) ait une dimension transversale réduite qui est très proche de la dimension transversale de la feuille plissée (2) ; seule la partie restante (37) de l'élément terminal, qui doit rester visible, a la même taille que l'élément profilé lui-même de manière à effectuer la fonction esthétique de bouchon ; et
- les éléments terminaux (9 et 14) des éléments profilés fixes ont, dans la partie terminale de la portion d'assemblage, une surface inclinée (35).

5. Système de compensation selon la revendication précédente, **caractérisé en ce que** les éléments terminaux (9 et 14) des éléments profilés verticaux fixes ont un goujon de blocage (31).

6. Système de compensation selon la revendication 4 ou la revendication 5, **caractérisé en ce que** l'élément profilé de guidage supérieur (10) n'est pas fixé directement à la surface correspondante de l'ouverture mais est libre de s'éloigner de cette dernière, en restant, toutefois, guidé avec accouplement coulissant sur ledit autre élément profilé (11) qui est interne audit élément profilé de guidage (10) et est fixé à ladite surface de l'ouverture.

7. Système de compensation selon la revendication 3, **caractérisé en ce qu'**aux extrémités de l'élément profilé de guidage (10) sont disposés lesdits accessoires (8), qui sont en forme de L et sont montés dans une rainure spécifiquement prévue (32) de l'élément profilé de guidage lui-même et fixés dedans au moyen d'une vis (27) ou d'autres moyens appropriés ; lesdits accessoires ayant un élément de verrouillage réciproque (28), ainsi qu'une partie allongée innovatrice qui fait saillie perpendiculairement à l'élément profilé de guidage (10) et qui comporte une surface inclinée (29), une fente (38) et un élément de verrouillage réciproque mécanique (33) qui est destiné à coopérer avec une rainure spécifiquement prévue (34) de l'élément profilé fixe (15) qui est connecté à un côté de la feuille plissée (2).

8. Système de compensation selon la revendication précédente, **caractérisé en ce que** l'élément profilé de guidage (10) est adapté pour coulisser par rapport à l'autre élément profilé fixe (11) seulement dans une direction orthogonale à ce dernier, alors que tout autre mouvement est empêché grâce à un élément (12), fixé à l'ouverture au moyen d'une vis (24), qui est contrainte à rester dans la fente (38) présente dans l'accessoire (8) ; ledit coulissement de l'élément (12) dans la fente (38) n'étant pas supérieur à la hauteur de l'autre élément profilé (11) de manière que l'élément profilé de guidage (10) ne puisse pas se désengager de l'autre élément profilé (11) lui-même.

9. Système de compensation selon la revendication précédente, **caractérisé en ce que** les éléments profilés verticaux fixes (15 et 17) ont un trou (36) qui est destiné à loger un goujon (31) des éléments terminaux respectifs (9 et 14).

10. Système de compensation selon la revendication précédente, **caractérisé en ce que** chacun des éléments profilés fixes (15 et 17) peut être installé en étant initialement inséré d'une manière légèrement inclinée après que l'élément terminal (9) a été engagé dans la protubérance (28), l'élément profilé peut être tourné pour atteindre une configuration orthogonale à l'élément profilé de guidage (10), où la saillie (28) et la surface (30) de l'élément terminal viennent en contact et l'élément profilé lui-même est maintenu contre la surface de l'ouverture ; simultanément, ladite surface inclinée (29) est en contact avec une surface inclinée correspondante (35) de l'élément terminal, en déterminant un verrouillage réciproque complet de l'élément terminal (9) par rapport à l'élément profilé de guidage (10) par l'intermé-

diaire de l'accessoire en forme de L (8).

11. Système de compensation selon la revendication précédente, **caractérisé en ce que**, sans aucune possibilité d'erreur, l'espace entre l'élément profilé de guidage (10) et l'élément profilé vertical fixe (15) est exactement égale à la hauteur de la partie visible (37) des éléments terminaux.

12. Système de compensation selon la revendication précédente, **caractérisé en ce qu'**une saillie latérale externe (33) de la fente (38) est prévue, conçue pour s'engager dans la rainure (34) de l'élément profilé vertical fixe (15) pour rendre ce dernier et l'élément profilé de guidage (10) parfaitement orthogonaux l'un par rapport à l'autre.

13. Système de compensation selon la revendication précédente, **caractérisé en ce que** l'élément terminal inférieur (19) de l'élément profilé vertical fixe (15) est conçu pour être installé dans le guide inférieur (18), en entraînant un déplacement vers le bas de l'élément profilé vertical (15) de manière que l'élément profilé de guidage (10) descendra en conséquence par rapport à l'autre élément profilé (11), en compensant ainsi toute éventuelle différence entre la taille de l'ouverture et la taille de l'écran sans que soit nécessaire une quelconque intervention de réglage par l'installateur.

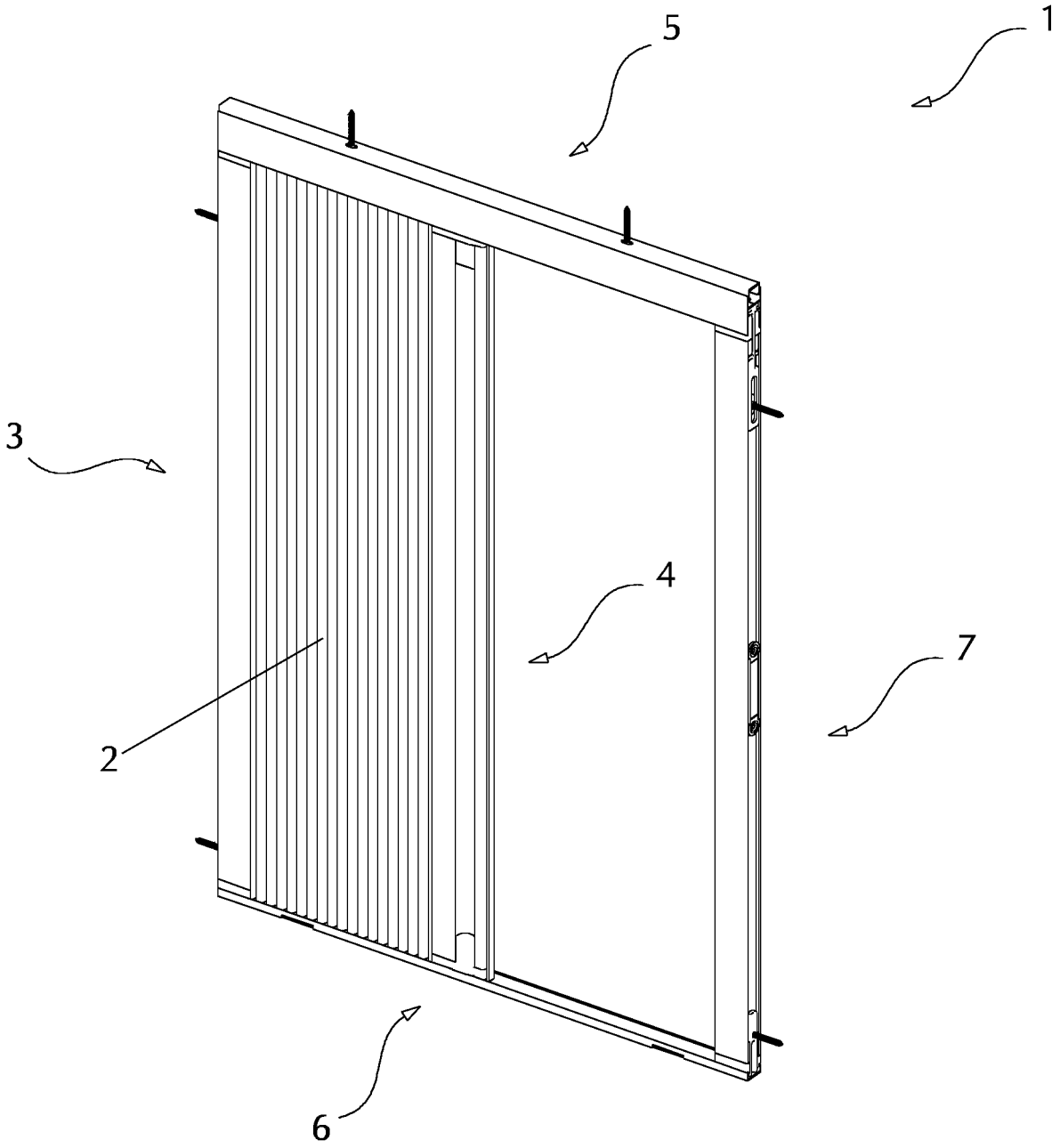


fig. 1

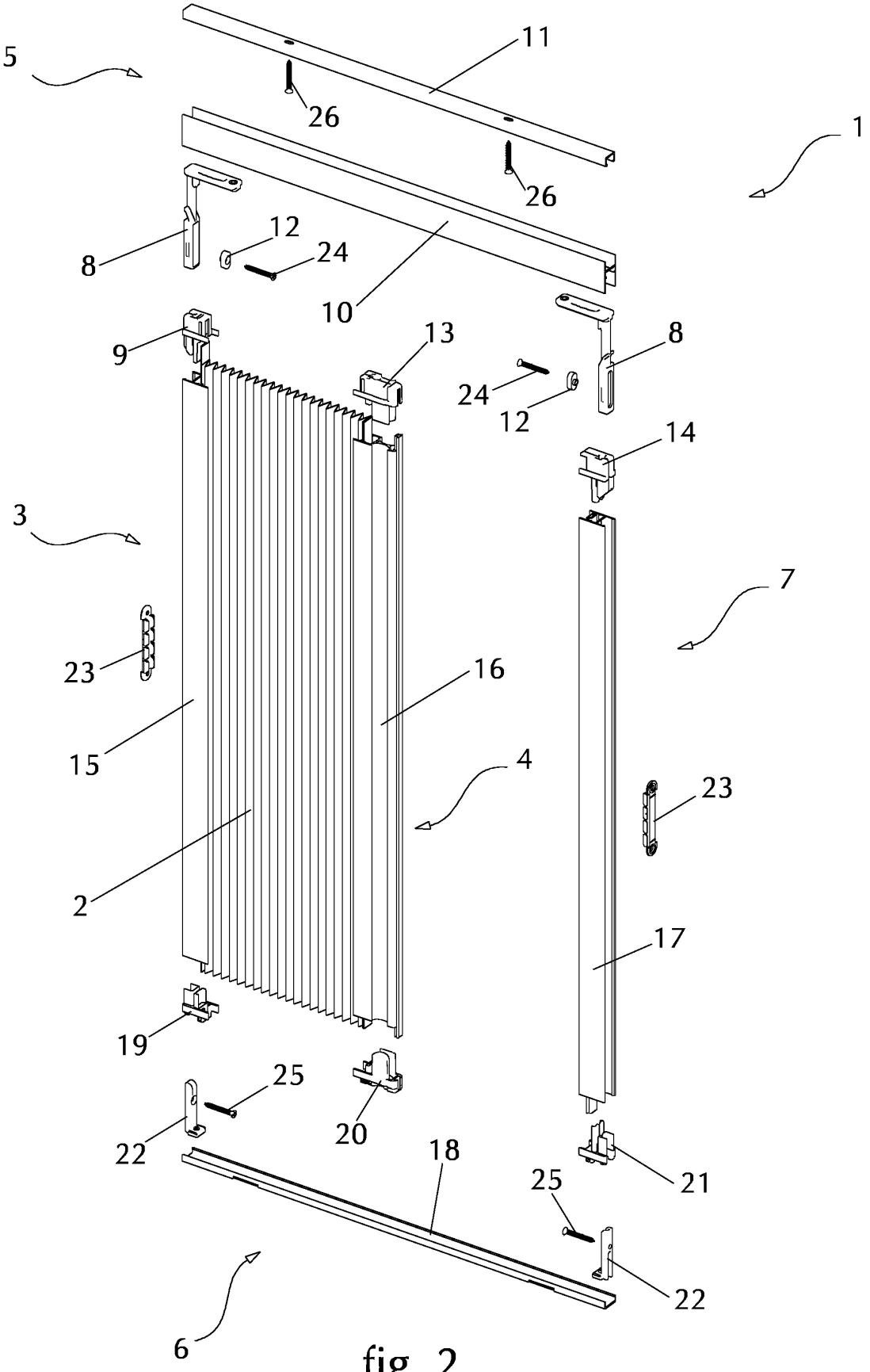

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fig. 2

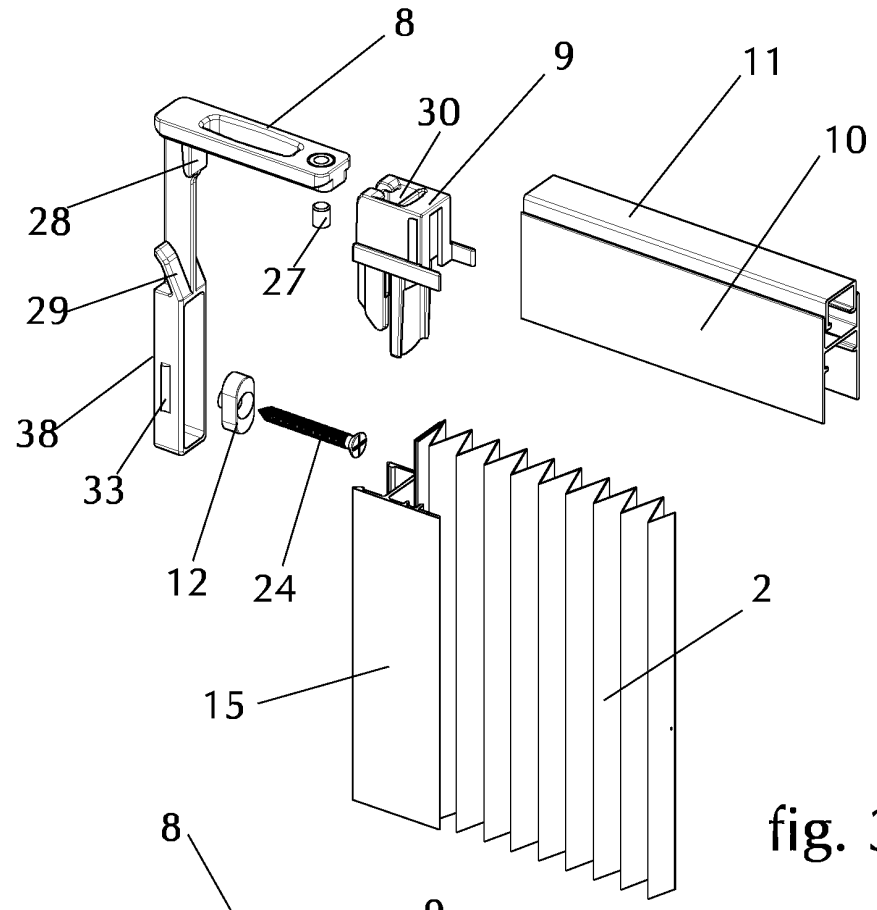

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fig. 3

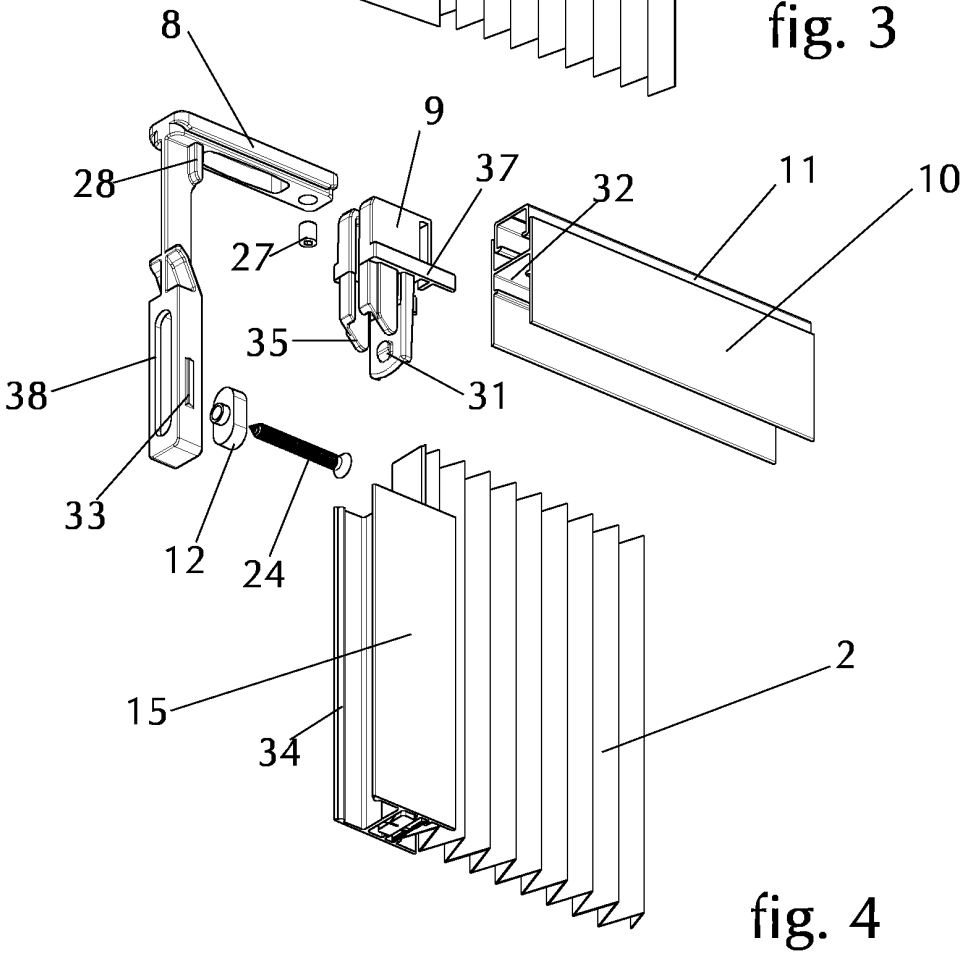

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fig. 4

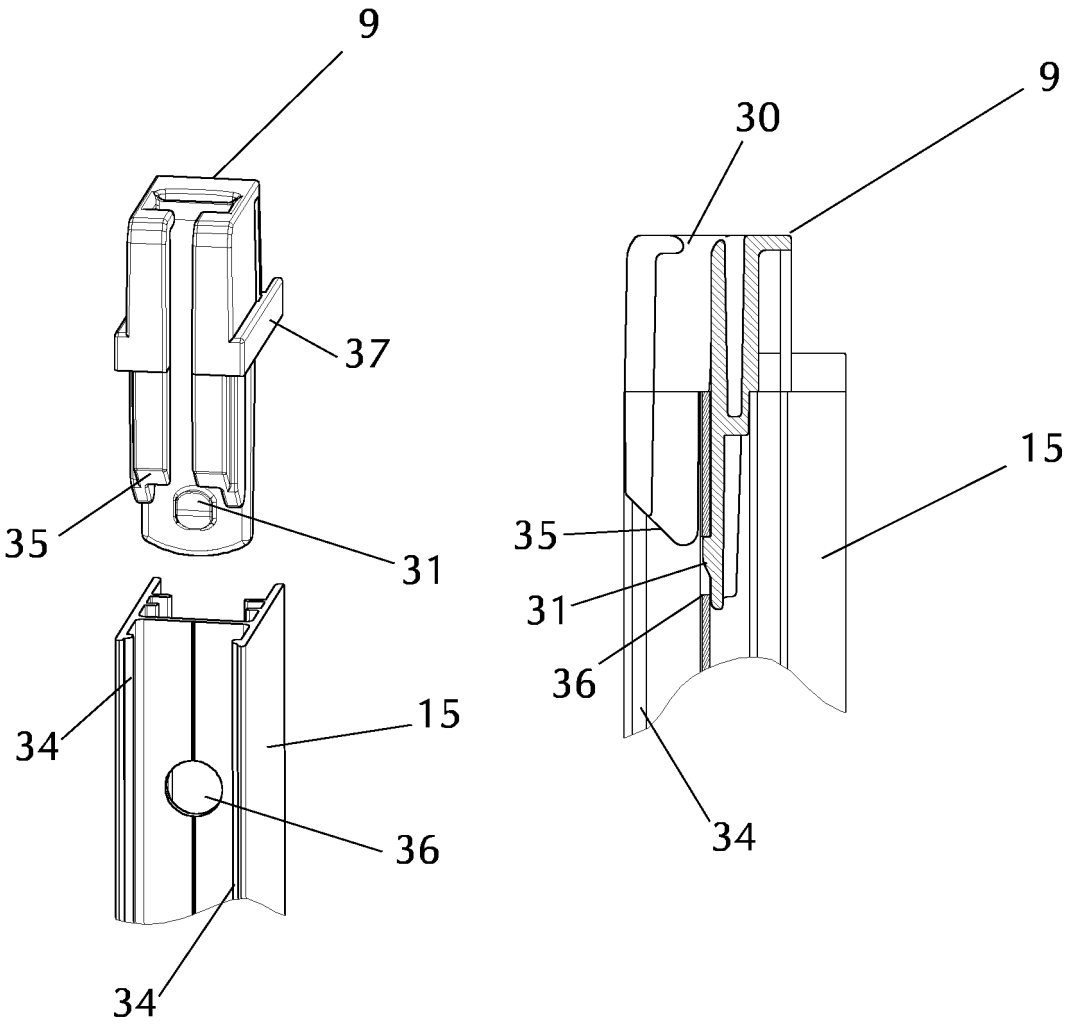


fig. 5

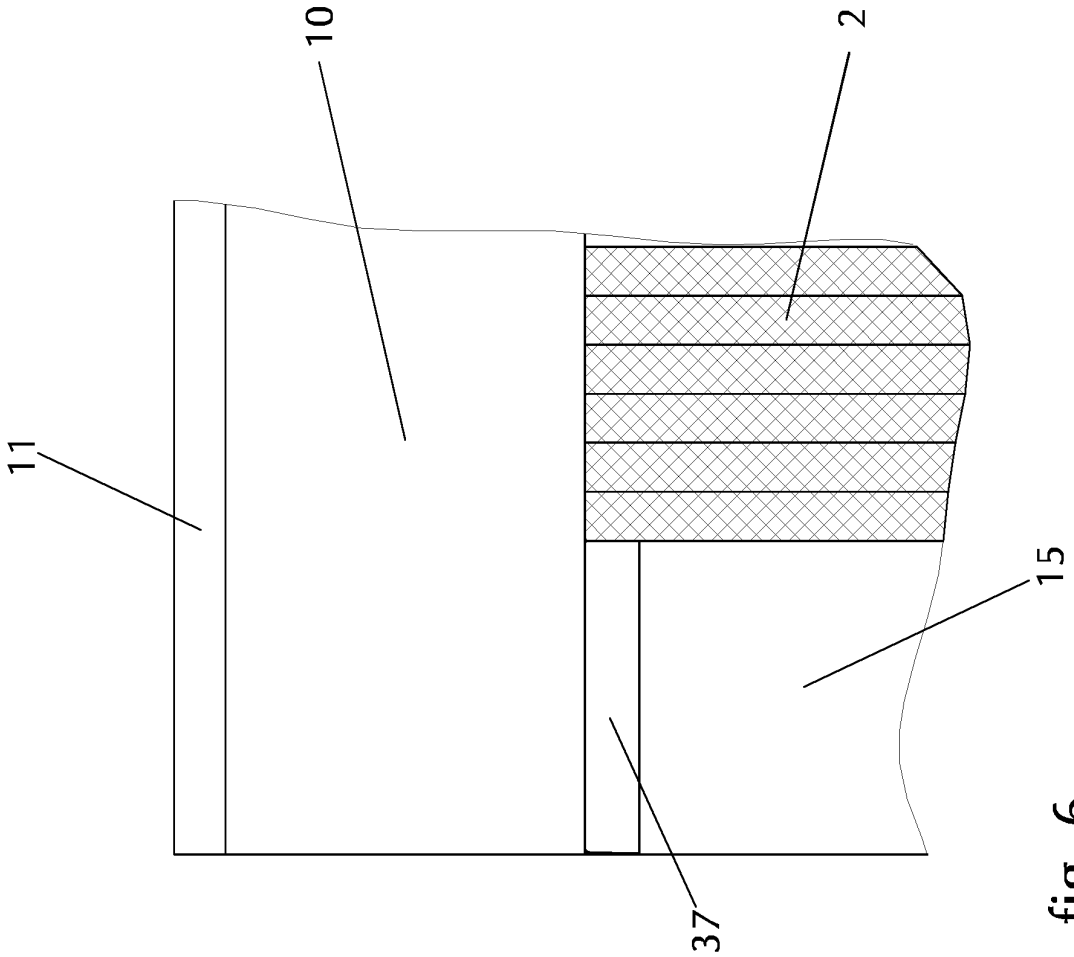
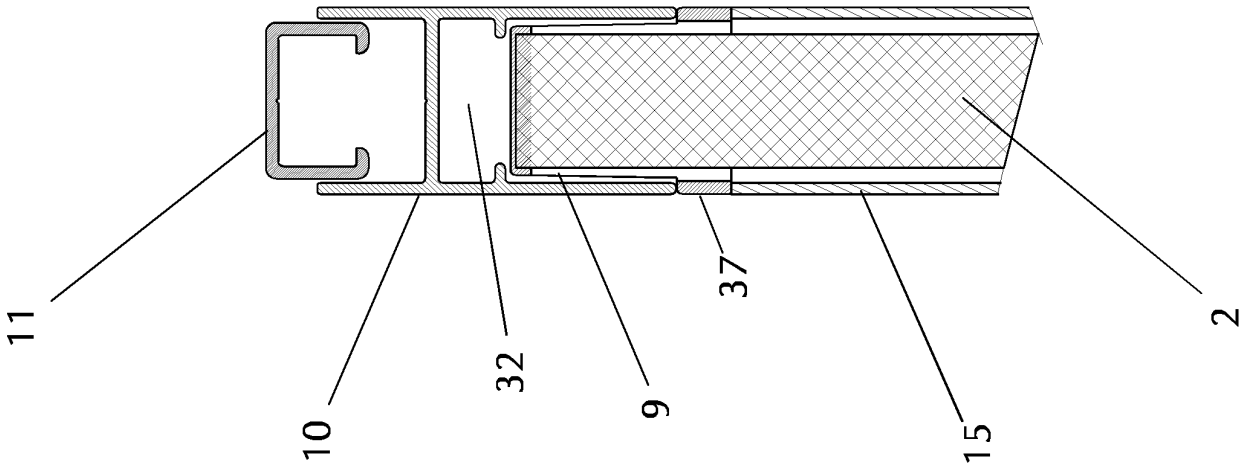


fig. 6



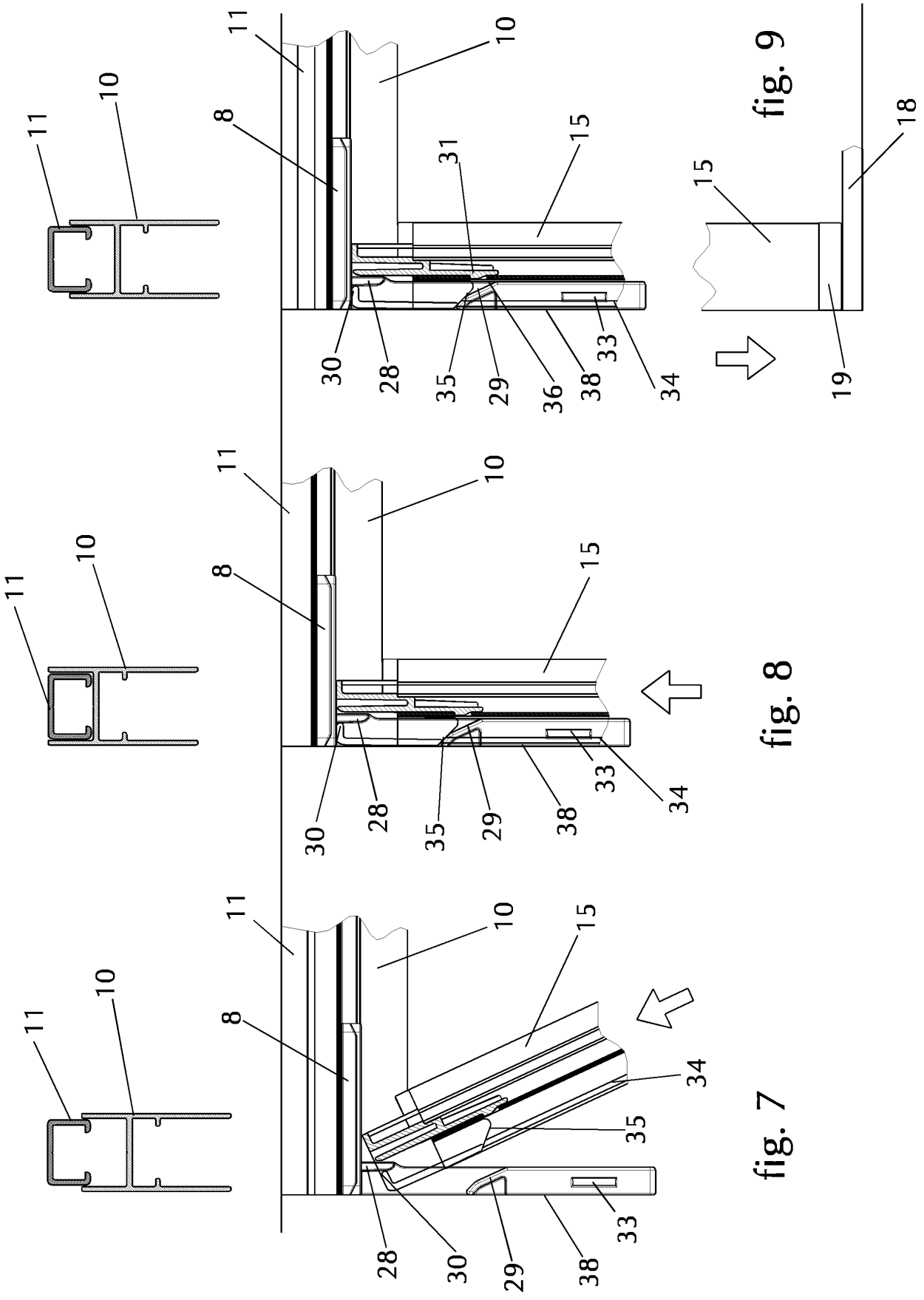


fig. 9

fig. 8

fig. 7

PRIOR ART

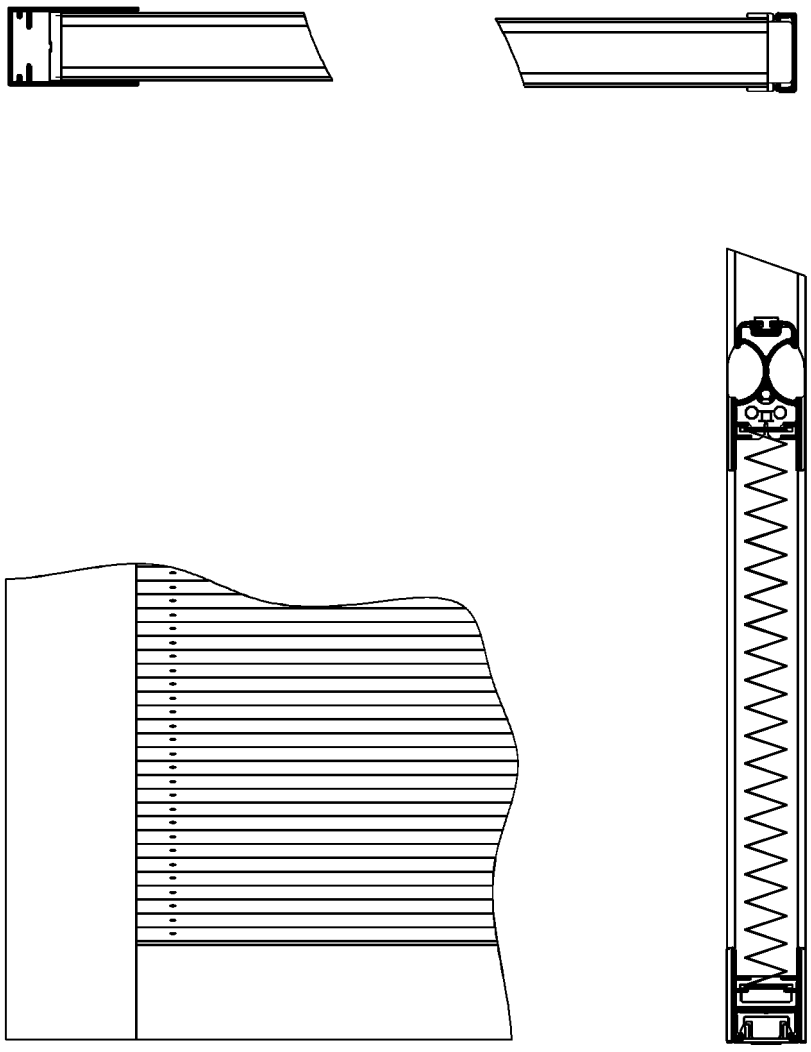


fig. 10

REFERENCES CITED IN THE DESCRIPTION

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