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(54) **GLAZING ARRANGEMENT**

VERGLASUNGSANORDNUNG

AGENCEMENT DE VITRAGE

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(56) References cited:
**EP-A1- 0 605 353 EP-A1- 1 437 473
EP-A2- 0 100 010 WO-A1-2006/073345**

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Description

Field

[0001] The invention relates to a glazing arrangement for a balcony, terrace or a corresponding space, the glazing arrangement comprising a top rail and a bottom rail, the glazing arrangement further comprising a vertical piece at the vertical edge of the glazing arrangement, and the glazing arrangement further comprising movable sliding window elements having bottom strips but no vertical frames, and said movable sliding window elements being located between a top rail and a bottom rail of the glazing arrangement, the glazing arrangement further comprising a locking arrangement.

Background

[0002] In a balcony or terrace, no walls blocking the visibility are desired but, on the other hand, an open balcony or terrace is windy and possibly cold, too. However, visibility and protection from wind can be accomplished by means of a sliding window arrangement which comprises a plurality of sliding window elements, usually made of glass. When necessary, the sliding window elements may also be drawn aside, i.e. the sliding window arrangement may be opened.

[0003] A basic structure in sliding window arrangements is one in which the sliding window elements are mutually out of line, in which case in an open position the sliding window elements reside in part or completely parallelly, from which position they may be moved into their mainly successive position such that when the sliding window elements are in a closed position, parallelism occurs mostly within the area of the ends of the sliding window elements. In known sliding window arrangements, the locking of the glazing arrangement is implemented such that the actual locking part is provided in a bottom strip, i.e. a bottom frame strip, of the sliding window element, while a counterpiece for a locking tongue of the locking part is provided in the vertical edge of an installation opening of the glazing arrangement. In addition, a glazing arrangement is known wherein the window elements are in line successively, and are thus not located in parallel at all.

[0004] Such glazing arrangements of the aforementioned kind are not satisfactory in their present form since they present problems because the manner of implementation of the locking arrangement and placement of its parts set limitations on the design of the locking arrangement and on the use in particular, thus hampering the use of the entire glazing arrangement. A drawback of the known structure is that in this structure, because of the placement of the lock, the bottom strip of the outermost sliding window element, i.e. the sliding window element to be locked, has to be made quite different from the bottom strips of the rest of the sliding window elements of the glazing arrangement.

[0005] Some other known locking structures for sliding windows are disclosed in documents EP 0100010, WO 8706642, and DE1948274, but they fail to provide a versatile, easy-to-use solution with a satisfactory manufacturability.

[0006] WO 2006/073345 A1 describes a glazing arrangement for a balcony according to the preamble of claim 1.

[0007] Thus, a need exists for a novel glazing arrangement.

Brief description

[0008] An object of the invention is to provide an improved glazing arrangement. This is achieved by a glazing arrangement which is characterized in that the locking arrangement comprised by the glazing arrangement is placed such that an operating interface and a locking tongue of the locking arrangement are provided in a vertical piece at the vertical edge of the glazing arrangement, and that a counterpiece for the locking tongue is provided in connection with a bottom strip of a sliding window element.

[0009] Preferred embodiments of the invention are disclosed in the dependent claims. The preferred embodiments enhance the advantages of the basic invention.

[0010] The glazing arrangement according to the invention provides several advantages, a particularly significant advantage being that the glazing arrangement is now easier to design and use. The invention makes it possible to place the operating interface of the locking arrangement more freely, making it easier to use, while the structure yet remains easy to manufacture and install.

List of figures

[0011] The invention is now described in closer detail in connection with preferred embodiments and with reference to the accompanying drawings, in which

Figure 1 shows, when viewing from inside a space to be protected, sliding window elements on a left-hand side edge of a glazing arrangement, Figure 2 shows, when viewing obliquely from behind and outside the space to be protected, sliding window elements on the left-hand side edge of the glazing arrangement, Figure 3 shows, obliquely from above, a glazing arrangement provided with nine elements, and Figure 4 shows a locking arrangement in connection with a wall rail.

Description of embodiments

[0012] Referring to the figures, Figures 1 to 3 in particular, the glazing arrangement comprises at least two window elements, such as sliding window elements or other sliding pane elements, for instance nine sliding win-

dow elements 111 to 119. Each window 111b to 119b may be made for instance of glass or another material that permeates light to a desired extent and in a desired manner. Each window element has a translucent sheet, i.e. a pane, such as a glass pane 111b, 112b, 113b, 114b, 115b, 116b, 117b, 118b, 119b. Underneath each pane or otherwise in a lower part as a horizontal frame, such as a bottom frame, are provided bottom strips 111a, 112a, 113a, 114a, 115a, 116a, 117a, 118a, 119a, which may be an aluminium strip, manufactured by extrusion, such as a profile strip. In the examples shown in the figures, no top horizontal strip, i.e. top horizontal frame, is shown in the window elements but one may be provided if necessary. The bottom frame strip, such as 111a, is the bottom frame strip of the sliding window element 111 having no vertical frames, via which the window element, such as 111, is supported on a bottom rail 140.

[0013] The window elements 111 to 119 are provided between a top rail structure 130 and the bottom rail structure 140. Between the window element and the rails 130, 140 may be provided (not shown) a slide pad or a roller structure. The rails 130, 140 may be made of aluminium by extrusion, for example.

[0014] A glazing arrangement for a balcony, terrace or a corresponding space is thus provided, comprising, between the top rail 130 and the bottom rail 140 of the glazing arrangement, sliding window elements 111 to 119 which have no vertical frames and are mutually out-of-line and movable into a parallel mutual position and into a successive mutual position. When the sliding window elements are parallel, the glazing arrangement is in an open position. When the sliding window elements are in succession, although slightly out of line, the glazing arrangement is in a closed position.

[0015] However, in addition to the above-disclosed, i.e. what is shown in the figures, the locking manner disclosed by the invention is also suitable for such an arrangement wherein the window elements are in line successively.

[0016] Figure 2 shows that in an embodiment of the bottom rail 140 it is provided with parallel support parts, such as projections 141 to 142 for the bottom strips 111a, 112a of the window elements, the window elements thus being provided with support and motion guidance from underneath their bottom strips, by the support part projections 141 to 142 in the bottom rail 140.

[0017] The glazing arrangement also comprises a locking arrangement L. The locking arrangement comprises a lock device L1, an operating interface L2, such as a handle or another grip structure L2 for a user, a locking tongue L4, and a counterpiece L5 for the locking tongue L4. The locking arrangement L comprised by the glazing arrangement is placed such that the locking part L1 of the locking arrangement, together with its operating interface L2 and locking tongue L4, is provided in a vertical piece H of a vertical edge of the glazing arrangement. The counterpiece L5 for the locking tongue L4 is provided in connection with the bottom strip 111a of the sliding

window element 111, in a preferred embodiment in connection with an end of the bottom strip 111a, either in the bottom strip itself or in a part attached thereto, such as a part PL. The vertical piece H, such as a vertical profile, i.e. a wall profile, is attached to an edge of an installation opening or another installation site of the glazing arrangement.

[0018] It is seen that in a preferred embodiment the counterpiece L5 for the locking tongue L4 is provided in an end stopper PL of the end of the bottom strip 111a of the sliding window element. The end stopper PL of the bottom strip 111a belongs to the bottom strip 111a. The end stopper PL, such as an end plug PL, is a piece to be manufactured separately, as compared for instance with a profile-type bottom strip 111a, i.e. a bottom window pane strip, so it, i.e. the end stopper PL, is easy to provide with a desired structure which serves as the counterpiece L5 for the locking tongue L4.

[0019] In an embodiment, the counterpiece L5 for the locking tongue L4 in the bottom strip 111 is 111 an edge E bordering a chamber or an aperture HL in the end stopper PL of the bottom strip. Since according to Figure 4 a tip T of the locking tongue L4 points upwards, in practice it is the edge E above the aperture HL of the end stopper, such as the end plug PL, that serves as the counterpiece L5. The tip T of the locking tongue L4 may optionally point downwards.

[0020] Referring to Figure 4, the locking part L of the locking arrangement comprises, in connection with the vertical piece of the vertical edge of the glazing arrangement, a transfer arm L6 provided between the operating interface L2 and the locking tongue L4. In an embodiment, the operating interface L2 is by means of the transfer arm L6 distanced in the vertical piece H of the vertical edge of the glazing arrangement to be higher with respect to a height-wise position of the locking tongue L4, enabling an operating height of the operating interface L2 of the locking arrangement to be elevated. This is especially significant in terrace glazing or other kinds of glazing wherein the window pane extends all the way down, since in such a case the locking tongue L4 is also located down, so it is easier for the user that the operating interface is by means of the transfer arm lifted to be 80 to 100 cm higher, for instance.

[0021] The lock device L1, particularly its operating interface L2, may be located in the wall profile H at a functionally appropriate height. When the glazing is of the same height as the entire installation opening, it is preferable to place the operating interface L2 at a height of about 900 mm, for instance. The installation height of the lock device, particularly that of the operating interface L2, is chosen by using a transfer bar L6, i.e. an operating bar L6, of an appropriate length. If the glazing is lower, i.e. the bottom edge of the glazing is higher, i.e. the glazing is placed on top of a railing, for instance, it is possible to place the lock device L1, particularly the operating interface L2, right in the lower edge of the vertical piece H, i.e. the wall profile H.

[0022] Referring to Figure 4, as to the reliability of technical functions, safety of use and even design it is advantageous that the transfer arm L6 is an internal part of the vertical piece H of the vertical edge of the glazing arrangement. Preferably, the vertical piece H is a profile, enabling structures, such as the transfer arm L6, to be inserted therein.

[0023] The operating interface L2 is a handle or another grip structure for a human hand. In Figure 4, the operating interface L2, such as the grip structure L2, is a slide block movable by a finger in an up-and-down direction and engaged to move the transfer bar L6 correspondingly in the up-and-down direction and also at the same time the locking tongue L4 in the up-and-down direction.

[0024] The locking is thus achieved such that the outermost window element 111, or another sliding-type pane element, is moved into its extreme position, i.e. towards the vertical piece H and the locking tongue L4 therein, whereby the locking tongue L4 is allowed to pass via the aperture HL of the bottom strip 111a of the window element 111 into the inside of the end of the bottom strip 111a, i.e. the bottom profile 111a, into a position wherein the upwards-pointing tip T of the locking tongue L4 resides deeper in the end of the bottom strip 111 than what the location of the edge E of the aperture HL of the end stopper PL covering the end hole of the bottom strip 111 is. Next, the operating interface L2 is used for lifting the locking tongue L4 by means of the transfer bar L6, whereby the tip T of the locking tongue L4 rises higher than the counterpiece, such as the upper edge E of the aperture HL, located in the end stopper PL or otherwise in connection with the bottom strip 111.

[0025] The opening of the locking takes place through a reverse movement, i.e. the operating interface L2 is used for pulling via the transfer bar L6 the locking tongue L4 downwards, enabling the outermost sliding window, i.e. the window element 111, to be distanced from the vertical piece H, i.e. the wall rail H.

[0026] By means of the placement and structure of the parts, the movement of the locking tongue L4 is arranged to be vertical, i.e. to be in accordance with the up-and-down movement, that is a non-curved rotational motion, i.e. turning movement. The movement of the locking tongue L4 is thus arranged to be in a longitudinal direction of the installation site and thus the vertical piece H in the vertical edge of the glazing arrangement as well. The operating interface L2 which, together with the locking tongue L4, is provided in the vertical piece H of the vertical edge of the glazing arrangement, is arranged to be moved in the up-and-down direction, i.e. in the longitudinal direction of the vertical piece H; in this embodiment, the locking and unlocking may take place in a small space, whereas a turning handle or some such operating interface would be problematic when placed close to the wall, since the narrowish vertical piece H is attached to the wall. The operating interface L2, the transfer bar L6 and the locking tongue L4 are thus in unison arranged to move in a straight motion, i.e. in a linear movement.

[0027] Particularly in the case of terrace glazing, the operating interface L2 is distanced with respect to the locking site to be higher, at an operating height suitable for people; in balcony glazing the operating interface of the locking already normally resides more readily at a good operating height since the bottom rail of the balcony glazing and thus also the bottom strip of the sliding window element reside on top of the railing of the balcony.

[0028] The sliding window elements not having vertical frames improves the cost-efficiency of the glazing arrangement and makes the sliding window elements lighter in weight as well as prevents such vertical frames from impairing the appearance of the arrangement.

[0029] The invention and its embodiments are not restricted to the examples described above but may vary within the scope of the claims.

Claims

1. A glazing arrangement for a balcony, terrace or a corresponding space, the glazing arrangement comprising a top rail (130) and a bottom rail (140), the glazing arrangement further comprising a vertical piece (H) at the vertical edge of the glazing arrangement, and the glazing arrangement further comprising movable sliding window elements (111 to 119) having bottom strips (111a, 112a, 113a, 114a, 115a, 116a, 117a, 118a, 119a) but no vertical frames, and said movable sliding window elements (111-119) being located between the top rail (130) and the bottom rail (140) of the glazing arrangement, the glazing arrangement further comprising a locking arrangement (L), **characterized in that** the locking arrangement (L) comprised by the glazing arrangement is placed such that an operating interface (L2) and a locking tongue (L4) of the locking arrangement (L) are provided in the vertical piece (H) at the vertical edge of the glazing arrangement, and that a counterpiece (L5) for the locking tongue (L4) is provided in connection with a bottom strip (111a) of a sliding window element.
2. A glazing arrangement as claimed in claim 1, **characterized in that** the counterpiece (L5) for the locking tongue (L4) is provided in an end stopper (PL) of an end of the bottom strip (111a) of the sliding window element (111).
3. A glazing arrangement as claimed in claim 1 or 2, **characterized in that** the locking arrangement comprises, in connection with the vertical piece (H) at the vertical edge of the glazing arrangement, a transfer arm (L6) provided between the operating interface (L2) and the locking tongue (L4).
4. A glazing arrangement as claimed in claim 3, **characterized in that** the operating interface (L2) is by

means of the transfer arm (L6) distanced in the vertical piece (H) at the vertical edge of the glazing arrangement to be higher with respect to a height-wise position of the locking tongue (L4), enabling an operating height of the operating interface (L2) of the locking arrangement to be elevated.

5. A glazing arrangement as claimed in claim 3, **characterized in that** the transfer arm (L6) is an internal part of the vertical piece (H) at the vertical edge of the glazing arrangement.
6. A glazing arrangement as claimed in claim 1, **characterized in that** the operating interface (L2) is a handle or another grip structure.
7. A glazing arrangement as claimed in claim 1, **characterized in that** the vertical piece (H) at the vertical edge of the glazing arrangement is an edge rail.
8. A glazing arrangement as claimed in claim 1, **characterized in that** the counterpiece (L5) is a counterpiece formed in or attached to the bottom strip.
9. A glazing arrangement as claimed in claim 8, **characterized in that** the counterpiece formed in the bottom strip is a counterpiece machined in the bottom strip.
10. A glazing arrangement as claimed in claim 1, **characterized in that** the movable sliding window elements are arranged to be sliding window elements which are movable into a parallel mutual position and into a successive mutual position and which are mutually out of line.
11. A glazing arrangement as claimed in claim 1, **characterized in that** the locking tongue (L4) which, together with the operating interface (L2), is provided in the vertical piece (H) at the vertical edge of the glazing arrangement, is arranged to be moved in an up-and-down direction, i.e. in a longitudinal direction of the vertical piece (H).
12. A glazing arrangement as claimed in claim 1 or 11, **characterized in that** the operating interface (L2) which, together with the locking tongue (L4), is provided in the vertical piece (H) at the vertical edge of the glazing arrangement, is arranged to be moved in the up-and-down direction, i.e. in the longitudinal direction of the vertical piece (H).

Patentansprüche

1. Verglasungsanordnung für einen Balkon, eine Terrasse oder einen entsprechenden Raum, wobei die Verglasungsanordnung eine Oberschiene (130) und

eine Unterschiene (140) umfasst, wobei die Verglasungsanordnung weiter ein vertikales Stück (H) an dem vertikalen Rand der Verglasungsanordnung umfasst und die Verglasungsanordnung weiter bewegbare Schiebefensterelemente (111 bis 119) umfasst, die Unterbänder (111a, 112a, 113a, 114a, 115a, 116a, 117a, 118a, 119a), aber keine vertikalen Rahmen aufweisen, und die bewegbaren Schiebefensterelemente (111 bis 119) sich zwischen der Oberschiene (130) und der Unterschiene (140) der Verglasungsanordnung befinden, wobei die Verglasungsanordnung weiter eine Verriegelungsanordnung (L) umfasst, **dadurch gekennzeichnet, dass** die durch die Verglasungsanordnung umfasste Verriegelungsanordnung (L) derart angebracht ist, dass eine Bedienoberfläche (L2) und eine Verriegelungszunge (L4) der Verriegelungsanordnung (L) in dem vertikalen Stück (H) an dem vertikalen Rand der Verglasungsanordnung bereitgestellt sind und dass ein Gegenstück (L5) für die Verriegelungszunge (L4) in Verbindung mit einem Unterband (111a) eines Schiebefensterelements bereitgestellt ist.

2. Verglasungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Gegenstück (L5) für die Verriegelungszunge (L4) in einem Endverschluss (PL) eines Endes des Unterbands (111a) des Schiebefensterelements (111) bereitgestellt ist.
3. Verglasungsanordnung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Verriegelungsanordnung in Verbindung mit dem vertikalen Stück (H) an dem vertikalen Rand der Verglasungsanordnung einen Transferarm (L6) umfasst, der zwischen der Bedienoberfläche (L2) und der Verriegelungszunge (L4) bereitgestellt ist.
4. Verglasungsanordnung nach Anspruch 3, **dadurch gekennzeichnet, dass** die Bedienoberfläche (L2) mithilfe des Transferarms (L6) in dem vertikalen Stück (H) an dem vertikalen Rand der Verglasungsanordnung höher beabstandet ist als eine Höhenposition der Verriegelungszunge (L4), was ermöglicht, dass eine Bedienhöhe der Bedienoberfläche (L2) der Verriegelungsanordnung angehoben wird.
5. Verglasungsanordnung nach Anspruch 3, **dadurch gekennzeichnet, dass** der Transferarm (L6) ein Innenteil des vertikalen Stücks (H) an dem vertikalen Rand der Verglasungsanordnung ist.
6. Verglasungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Bedienoberfläche (L2) ein Handgriff oder eine sonstige Griffstruktur ist.
7. Verglasungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** das vertikale Stück (H) an dem vertikalen Rand der Verglasungsanordnung ei-

ne Randschiene ist.

8. Verglasungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Gegenstück (L5) ein Gegenstück ist, das in dem Unterband ausgebildet oder daran befestigt ist. 5
9. Verglasungsanordnung nach Anspruch 8, **dadurch gekennzeichnet, dass** das in dem Unterband ausgebildete Gegenstück ein Gegenstück ist, dass in das Unterband eingearbeitet ist. 10
10. Verglasungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** die bewegbaren Schiebefenster Elemente so angeordnet sind, dass sie Schiebefenster Elemente sind, die in eine Position parallel zueinander und in eine Position nacheinander bewegbar sind und die nicht miteinander übereinstimmen. 15
11. Verglasungsanordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Verriegelungszunge (L4), die zusammen mit der Bedienoberfläche (L2) in dem vertikalen Stück (H) an dem vertikalen Rand der Verglasungsanordnung bereitgestellt ist, so angeordnet ist, dass sie in eine Richtung auf und ab bewegt wird, d. h. in eine Längsrichtung des vertikalen Stücks (H). 20
12. Verglasungsanordnung nach Anspruch 1 oder 11, **dadurch gekennzeichnet, dass** die Bedienoberfläche (L2), die zusammen mit der Verriegelungszunge (L4) in dem vertikalen Stück (H) an dem vertikalen Rand der Verglasungsanordnung bereitgestellt ist, so angeordnet ist, dass sie in eine Richtung auf und ab bewegt wird, d. h. in eine Längsrichtung des vertikalen Stücks (H). 25

Revendications

1. Agencement de vitrage pour un balcon, terrasse ou un espace correspondant, l'agencement de vitrage comprenant un rail supérieur (130) et un rail inférieur (140), l'agencement de vitrage comprenant en outre une pièce verticale (H) au niveau du bord vertical de l'agencement de vitrage, et l'agencement de vitrage comprenant en outre des éléments de fenêtre coulissants mobiles (111 à 119) ayant des bandes inférieures (111a, 112a, 113a, 114a, 115a, 116a, 117a, 118a, 119a) mais pas de cadres verticaux, et lesdits éléments de fenêtre coulissants mobiles (111-119) étant situés entre le rail supérieur (130) et le rail inférieur (140) de l'agencement de vitrage, l'agencement de vitrage comprenant en outre un agencement de verrouillage (L), **caractérisé en ce que** l'agencement de verrouillage (L) compris dans l'agencement de vitrage est placé de sorte qu'une 30

interface d'actionnement (L2) et une languette de verrouillage (L4) de l'agencement de verrouillage (L) sont ménagées dans la pièce verticale (H) au niveau du bord vertical de l'agencement de vitrage, et **en ce qu'**une contre-pièce (L5) pour la languette de verrouillage (L4) est ménagée en liaison avec une bande inférieure (111a) d'un élément de fenêtre coulissants.

2. Agencement de vitrage selon la revendication 1, **caractérisé en ce que** la contre-pièce (L5) pour la languette de verrouillage (L4) est prévue dans une butée d'extrémité (PL) d'une extrémité de la bande inférieure (111a) de l'élément de fenêtre coulissants (111). 35
3. Agencement de vitrage selon la revendication 1 ou 2, **caractérisé en ce que** l'agencement de verrouillage comprend, en liaison avec la pièce verticale (H) au niveau du bord vertical du vitrage, un bras de transfert (L6) ménagé entre l'interface d'actionnement (L2) et la languette de verrouillage (L4). 40
4. Agencement de vitrage selon la revendication 3, **caractérisé en ce que** l'interface d'actionnement (L2) est via le bras de transfert (L6) espacé dans la pièce verticale (H) au niveau du bord vertical de l'agencement de vitrage pour être plus haut par rapport à une position en hauteur de la languette de verrouillage (L4), permettant d'élever une hauteur d'actionnement de l'interface d'actionnement (L2) du dispositif de verrouillage. 45
5. Agencement de vitrage selon la revendication 3, **caractérisé en ce que** le bras de transfert (L6) est une partie interne de la pièce verticale (H) au niveau du bord vertical de l'agencement de vitrage. 50
6. Agencement de vitrage selon la revendication 1, **caractérisé en ce que** l'interface d'actionnement (L2) est une poignée ou une autre structure de préhension. 55
7. Agencement de vitrage selon la revendication 1, **caractérisé en ce que** la pièce verticale (H) au niveau du bord vertical de l'agencement de vitrage est un rail latéral.
8. Agencement de vitrage selon la revendication 1, **caractérisé en ce que** la contre-pièce (L5) est une contre-pièce formée dans ou fixée à la bande inférieure.
9. Agencement de vitrage selon la revendication 8, **caractérisé en ce que** la contre-pièce formée dans la bande inférieure est une contre-pièce usinée dans la bande inférieure.

10. Agencement de vitrage selon la revendication 1, **caractérisé en ce que** les éléments de fenêtre coulissants mobiles sont agencés pour être des éléments de fenêtre coulissants qui sont mobiles dans une position relative parallèle et dans une position relative en succession et qui sont décalés les uns par rapport aux autres. 5
11. Agencement de vitrage selon la revendication 1, **caractérisé en ce que** la languette de verrouillage (L4) qui, avec l'interface d'actionnement (L2), est ménagée dans la pièce verticale (H) au niveau du bord vertical de l'agencement de vitrage, est agencé pour être déplacé dans une direction de haut en bas, c'est-à-dire dans une direction longitudinale de la pièce verticale (H). 10 15
12. Agencement de vitrage selon la revendication 1 ou 11, **caractérisé en ce que** l'interface d'actionnement (L2) qui, avec la languette de verrouillage (L4), est ménagée dans la pièce verticale (H) au niveau du bord vertical de l'agencement de vitrage, est agencé pour être déplacé dans la direction de haut en bas, c'est-à-dire dans la direction longitudinale de la pièce verticale (H). 20 25

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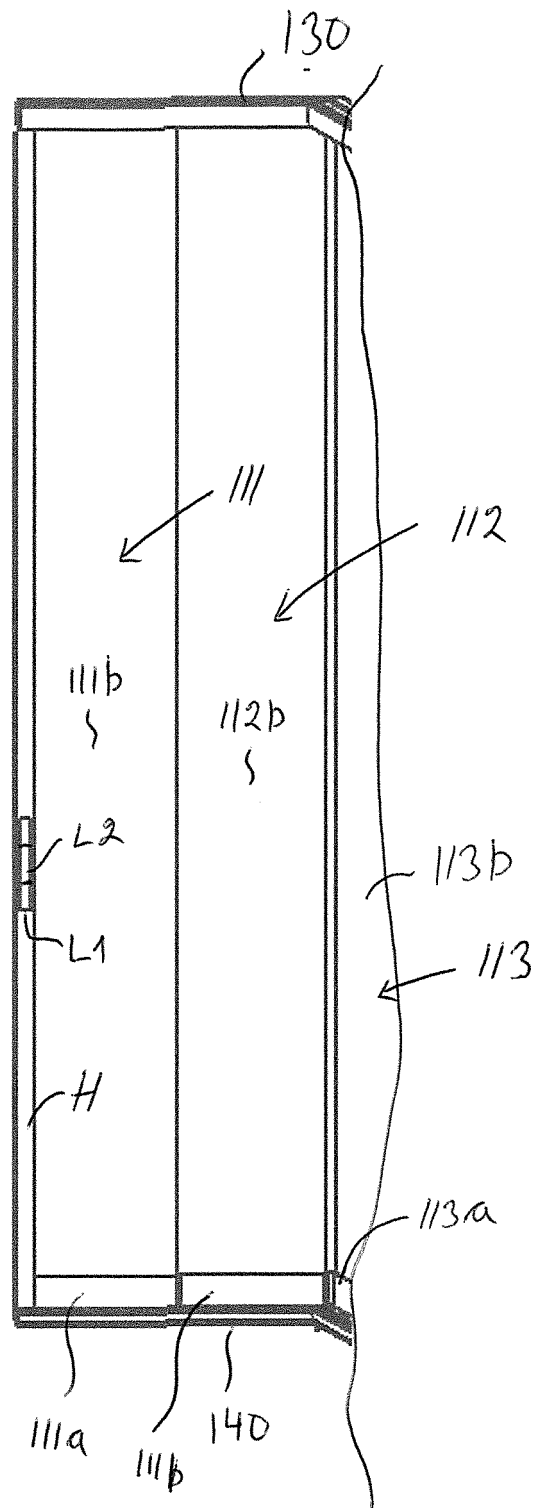
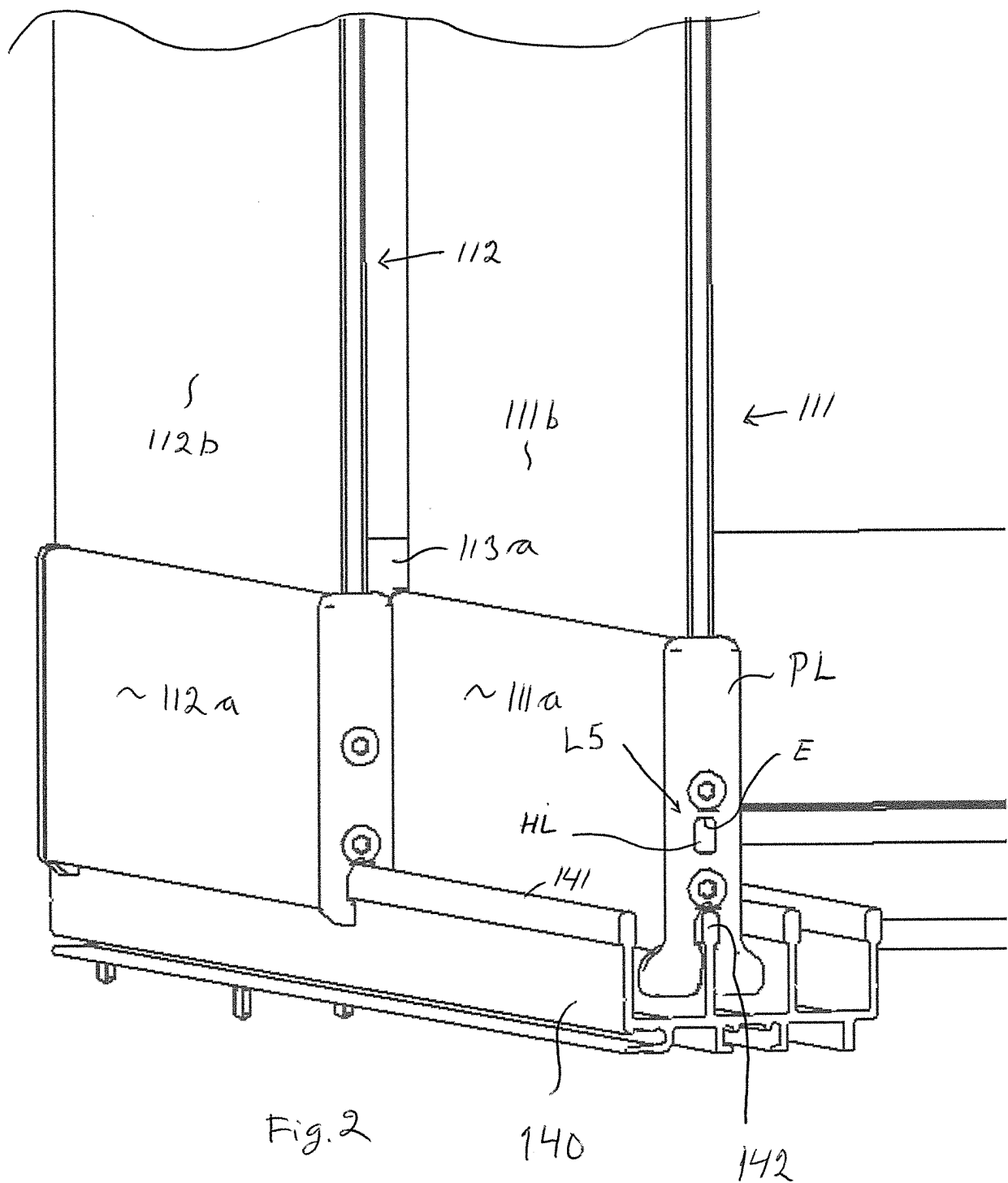
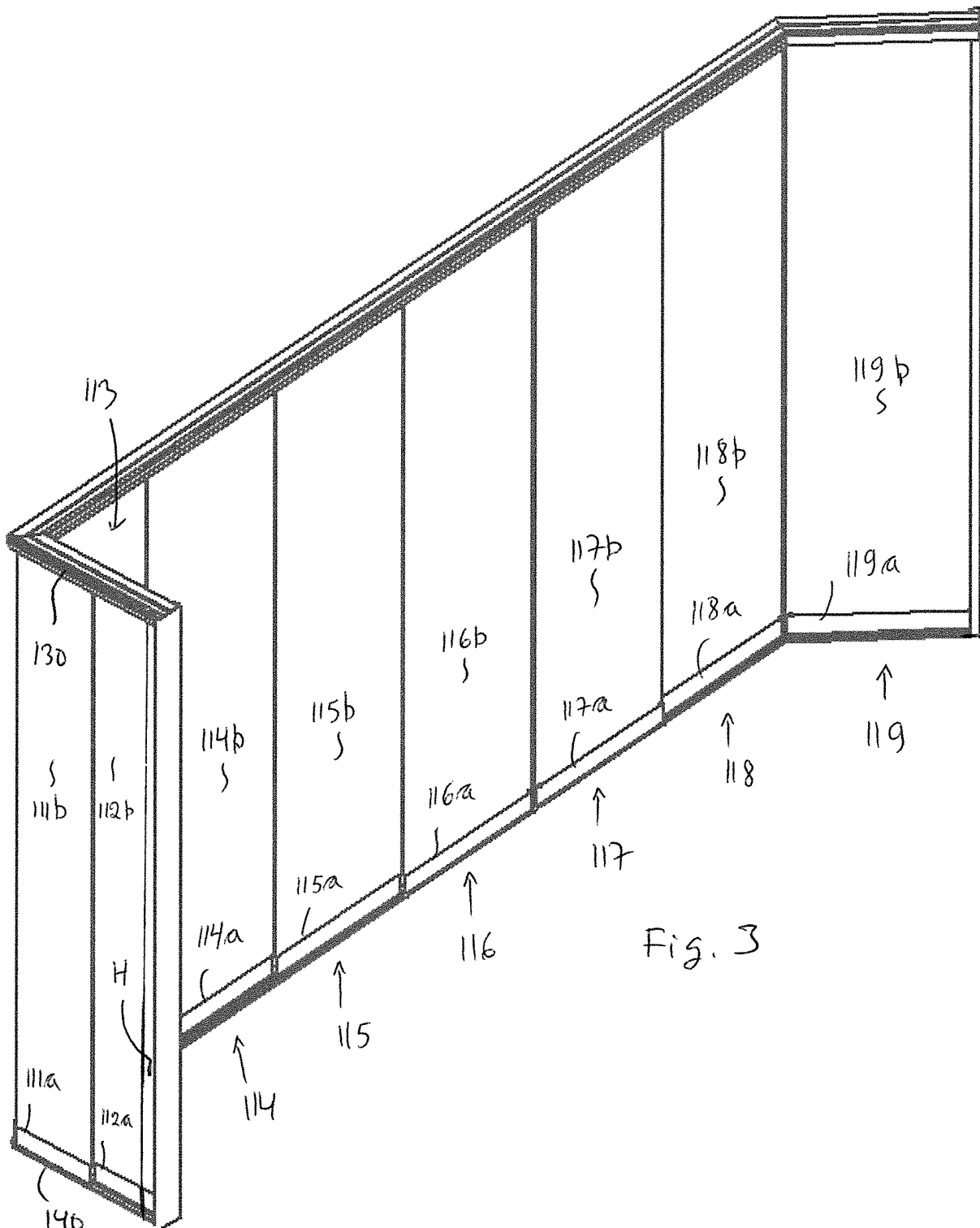


Fig. 1





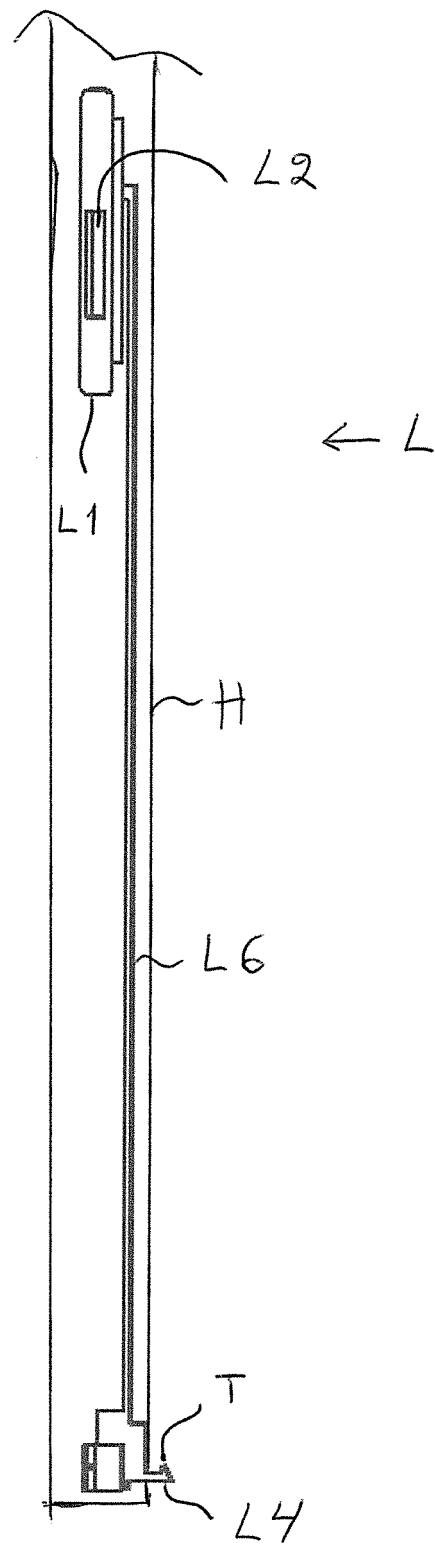


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 0100010 A [0005]
- WO 8706642 A [0005]
- DE 1948274 [0005]
- WO 2006073345 A1 [0006]