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(54) **Window for a double skin facade**

Fenster für eine Doppelfassade

Fenêtre d'une façade à double revêtement

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Description

[0001] The present invention relates to a window fitting for a double skin facade.

[0002] Specifically, double skin facades comprise two separate sashes, which can be opened separately from each other. The outer sash may be fitted with monolithic glass, structural or not, with natural or forced ventilation and may also be fitted with blinds.

[0003] Double skin facades are increasingly commonly used given the advantages in terms of thermal, acoustic and radiation insulation which they offer.

[0004] The tendency over recent years has been to make double skin window frames as far as possible free of visible structural elements. Such frames are known for example from WO 91/18175A and CH 232317 A.

[0005] The known solutions present several drawbacks.

[0006] For example, they comprise structural elements relative to the support frame or sash of the outer pane visible from the outside of the facade.

[0007] In addition the known facades of the art are decidedly complicated to clean.

[0008] In fact the outer window or "skin" opens by turning outwards thereby preventing easy access for cleaning the outer pane; consequently cleaning is performed directly from the outside when possible.

[0009] The aim of the present invention is to make a window fitting which resolves the drawbacks mentioned with reference to the known art.

[0010] Such drawbacks and limitations are resolved by a window fitting according to claim 1.

[0011] Other embodiments of the window fitting according to the invention are described in the subsequent claims.

[0012] Further characteristics and advantages of the present invention will be more clearly comprehensible from the description below, made by way of example and not limited to such, of its preferred embodiments, wherein:

[0013] Figure 1 shows a perspective view of a window fitting according to one embodiment of the present invention, from the inner side, in an open configuration;

[0014] Figure 2 shows a perspective of the window fitting in figure 1, from the outer side, in an open configuration;

[0015] Figure 3 shows a front view of the window fitting in figure 1 from the outer side, in a closed configuration;

[0016] Figure 4 shows a perspective of the window fitting according to a further embodiment of the present invention.

[0017] The elements or parts of elements common to the embodiments described below will be denoted by the same reference numerals.

[0018] With reference to the aforesaid figures, reference numeral 4 globally denotes a window fitting according to the present invention, and, specifically, a window fitting for a double skin facade 8.

[0019] The window fitting 4 comprises a frame 12 having a first sash 16 or first skin facing towards an inner side 20 of the facade 8 to which the window fitting 4 is applied.

5 **[0020]** The frame 12 comprises a second sash 24 or second skin facing an outer side 28 of the facade 8 to which the window fitting 4 is applied.

[0021] The first and second sashes 16, 24 face each other and are spaced so as to define a cavity 32 which may be used, for example, to create natural and/or forced circulation of the air.

[0022] Advantageously, the first and the second sashes 16, 24 are hinged to the frame 12 and can both be opened, independently of each other, towards the inner side 20 of the facade 8.

10 **[0023]** According to one embodiment the first and the second sashes 16, 24 are hinged to an upright 36 of the frame 12.

[0024] According to a further embodiment, the first and the second sashes 16, 24 are hinged to opposite uprights 36, 40 of the frame 12.

[0025] According to a further embodiment, the first and the second sashes 16, 24 are of the 'inner casement' type, that is hinged to the frame 12 along a respective lower base so as to open angularly towards the inner side 20 of the facade 8; the second sash 24 may be provided with a "internal wasistas" opening system.

[0026] The frame 12 identifies and encloses an aperture or opening 48 on the outer side 28 of the facade 8.

30 **[0027]** The second sash 24 supports at least one outer pane 52 which virtually forms the second 'skin' of the facade 8.

[0028] Advantageously, the perimetral dimensions of the second sash 24, at the outer pane 52, are smaller or equal to the opening 48 of the frame 12, so as to permit the aperture of the second skin towards the inside of the window fitting 4.

[0029] Preferably, the second sash 24 comprises at least one ledge 56 able to form a limit position to the closure of the second sash 24.

40 **[0030]** In other words, the outer pane 52 has perimetral dimensions equal to those of the second sash 24 and equal to those of the opening 48 of the frame 48. This way, in a closed configuration of the second sash 24, the outer pane is aligned flush with the outer facade.

[0031] The ledge 56 protrudes laterally in relation to the outer dimensions of the pane 52 so as to form a stop to the closing of the second sash 24 which cannot therefore be opened outwards from the facade 8. The ledge 56 is positioned rearwards of the outer pane 52 so as to permit closing of the second sash 24 and so as not to interfere with the opening of the said sash 24 inwards.

[0032] According to one embodiment, the first sash 16 is fitted with blocking devices 60 able to permit blocking and closure of the sash.

55 **[0033]** For example, said blocking devices 60 comprise a rotating handle.

[0034] Advantageously, the second sash 24 comprises

es the outer pane 52 which is constrained by connection devices positioned towards the inside of the window fitting 4 so as not to be visible from the outside of the facade 8.

[0035] According to one embodiment of the present invention, the connection devices of the second sash 24 comprise a structural weather-sealing.

[0036] According to some possible variations, such connection devices comprise epoxy, silicone and polyurethane glues, or high resistance adhesive tape.

[0037] Preferably, such connection devices are essentially interposed between the outer pane 52 and a perimetral glazing bar 72 of the second sash 24 so as to be invisible.

[0038] According to one embodiment, the second sash 24, at the perimetral glazing bar 72, comprises a number of slots 76, passing through the window fitting itself, so as to create ventilation in the cavity 32.

[0039] According to a further variation, the connection devices comprise plates, 80, fitted with threaded connection mechanisms, such as screws or pins, suitable for constraining the outer pane 52 from the inner side 20.

[0040] Specifically, the plates 80 and the screws keep the outer pane 52 detached from the perimetral glazing bar 72 so as to create a gap 84 for the ventilation.

[0041] The second sash 24 may have a double-glazed structure, which preferably contains a blind with adjustable fins. In other words, the second sash may comprise an inner pane which forms a double glazed structure with the outer pane 52.

[0042] As may be appreciated from the description, the window fitting according to the invention makes it possible to overcome the drawbacks of the known technique.

[0043] Specifically, the outer sash may be opened inwards so as to enable easy cleaning of the pane, even from the outside.

[0044] Cleaning operations are also safer given that the operator can reach the entire surface of the outer pane without having to lean outside the window fitting.

[0045] In addition, the outer sash, thanks to the structural weather-sealing and/or positioning of the connection devices between the pane and the perimetral glazing bar of the second sash, has no visible metal or plastic structural elements.

[0046] This way a totally flat facade can be created with a series of windows flush with the facade, according to the latest market demands.

[0047] In addition, the window fitting according to the invention allows efficient aeration of the room, given that the two sashes open from the same inner side, thus encouraging ventilation.

Claims

1. Window fitting (4) for a double skin facade (8) having an inner side (20) and an outer side (28), the window

fitting comprising a frame (12) having

- a first sash (16) facing said inner side (20),
- a second sash (24) facing said outer side (28),
- said sashes (16, 24) facing each other and being spaced from each other so as to define between them a cavity (32),

wherein

- the first and the second sashes (16,24) are hinged to the frame (12) and can both be opened, independently of each other, towards the inner side (20),
- the second sash (24) comprises an outer pane (52) constrained to the relative sash (24) by connection devices positioned towards the inner side (20) so as to be invisible from the outer side (28),

characterised in that

the connection devices are positioned between the outer pane (52) and the perimetral glazing bar (72) of the second sash (24) so as to be invisible from the outer side (28) of the window fitting (4), in order to create a ventilation in the cavity (32), the second sash (24), at the perimetral glazing bar (72), comprises a number of slots (76) passing through the bar itself (72) or the connection devices of the outer pane (52) to the second sash (24) comprise plates (80), fitted with threaded connection devices able to constrain the outer pane (52) from the inner side (20), wherein the plates (80) and screws keep the outer pane (52) detached from the perimetral glazing bar (72) so as to create a gap (84) for ventilation.

2. Window fitting (4) according to claim 1, wherein the first and the second sashes (16, 24) are hinged to an upright (36) of the frame (12).
3. Window fitting (4) according to claim 1, wherein the first and the second sashes (16, 24) are hinged to opposite uprights (36, 40) of the frame (12).
4. Window fitting (4) according to claim 1, 2 or 3, wherein the first and the second sashes (16, 24) are of the 'leaf casement' type, hinged to the frame (12) along a respective lower base (44).
5. Window fitting (4) according to claim 4, wherein the second sash (24) is fitted with a mechanism for opening inwardly from the top.
6. Window fitting (4) according to any of the previous claims, wherein the perimetral dimensions of the second sash (24), at the outer pane (52), are smaller than an aperture (48) or opening of the frame (12),

so as to enable the aperture of the second sash (24) towards the inner side (20) of the facade (8).

7. Window fitting (4) according to claim 6, wherein the second sash (24) comprises at least one ledge (56) able to create a limit position to the closing of the second sash (24), said ledge (56) being positioned rearwards, towards the inner side (20). 5
8. Window fitting (4) according to any of the previous claims, wherein the second sash (24) has a monolithic glass structure. 10
9. Window fitting (4) according to any of the previous claims, wherein between the first and the second sashes (16, 24) there is natural and/or forced ventilation. 15
10. Window fitting (4) according to any of the previous claims, wherein the connection devices of the outer pane (52) to the second sash (24) comprise structural weather-sealing. 20
11. Window fitting (4) according to any of the previous claims, wherein the connection devices of the outer pane (52) to the second sash (24) comprise epoxy, silicone and polyurethane glues or high resistance adhesive tape. 25

Patentansprüche

1. Fensterbeschlag (4) für eine Doppelfassade (8) mit einer Innenseite (20) und einer Außenseite (28), wobei der Fensterbeschlag einen Rahmen (12) umfasst mit:
 - einem ersten Flügel (16), der der Innenseite (20) zugewandt ist,
 - einem zweiten Flügel (24), der der Außenseite (28) zugewandt ist,
 - wobei die Flügel (16, 24) einander gegenüberliegen und voneinander beabstandet sind, um einen Hohlraum (32) dazwischen zu definieren,
 wobei
 - die ersten und zweiten Flügel (16, 24) an dem Rahmen (12) eingehängt sind und beide unabhängig voneinander in Richtung der Innenseite (20) geöffnet werden können,
 - wobei der zweite Flügel (24) eine Außenscheibe (52) umfasst, die durch Verbindungsvorrichtungen, die in Richtung der Innenseite (20) positioniert sind, so dass sie von der Außenseite (28) unsichtbar sind, auf den jeweiligen Flügel (24) beschränkt ist,

dadurch gekennzeichnet, dass

die Verbindungsvorrichtungen zwischen der Außenscheibe (52) und der umlaufenden Fenstersprosse (72) des zweiten Flügels (24) positioniert sind, so dass sie von der Außenseite (28) des Fensterbeschlags (4) unsichtbar sind, wobei, um eine Lüftung in dem Hohlraum (32) zu erzeugen, der zweite Flügel (24) an der umlaufenden Fenstersprosse (72) eine Anzahl von Schlitzten (76) umfasst, die durch die Sprosse (72) selbst gehen, oder die Verbindungsvorrichtungen der Außenscheibe (52) mit dem zweiten Flügel (24) Platten (80) umfassen, die mit Schraubverbindungen montiert sind, die fähig sind, die Außenscheibe (52) von der Innenseite (20) zu beschränken, wobei die Platten (80) und Schrauben die Außenscheibe (52) von der umlaufenden Fenstersprosse (72) getrennt halten, um einen Spalt (84) für die Belüftung zu erzeugen.

2. Fensterbeschlag (4) nach Anspruch 1, wobei die ersten und zweiten Flügel (16, 24) an einem Pfosten (36) des Rahmens (12) eingehängt sind.
3. Fensterbeschlag (4) nach Anspruch 1, wobei die ersten und zweiten Flügel (16, 24) an gegenüberliegenden Pfosten (36, 40) des Rahmens (12) eingehängt sind.
4. Fensterbeschlag (4) nach Anspruch 1, 2 oder 3, wobei die ersten und zweiten Flügel (16, 24) vom 'Flügelblatt'-Typ sind, der entlang eines jeweiligen unteren Sockels (44) an dem Rahmen (12) eingehängt ist.
5. Fensterbeschlag (4) nach Anspruch 4, wobei der zweite Flügel (24) mit einem Mechanismus ausgestattet ist, um ihn von oben nach innen zu öffnen.
6. Fensterbeschlag (4) nach einem der vorhergehenden Ansprüche, wobei die umlaufenden Abmessungen des zweiten Flügels (24) an der Außenscheibe (52) kleiner als eine Öffnung (48) zum Öffnen des Rahmens (12) sind, um die Öffnung des zweiten Flügels (24) in Richtung der Innenseite (20) der Fassade (8) zu ermöglichen.
7. Fensterbeschlag (4) nach Anspruch 6, wobei der zweite Flügel (24) wenigstens eine Leiste (56) umfasst, die fähig ist, eine Grenzposition für das Schließen des zweiten Flügels (24) zu erzeugen, wobei die Leiste (56) rückwärts in Richtung der Innenseite (20) positioniert ist.
8. Fensterbeschlag (4) nach einem der vorhergehenden Ansprüche, wobei der zweite Flügel (24) monolithisch ist bzw. eine Glasstruktur aus einem Guss hat.

9. Fensterbeschlag (4) nach einem der vorhergehenden Ansprüche, wobei es zwischen den ersten und zweiten Flügeln (16, 24) eine natürliche und/oder Zwangsbelüftung gibt.

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10. Fensterbeschlag (4) nach einem der vorhergehenden Ansprüche, wobei die Verbindungsvorrichtungen der Außenscheibe (52) mit dem zweiten Flügel (24) eine bauliche Wetterabdichtung umfassen.

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11. Fensterbeschlag (4) nach einem der vorhergehenden Ansprüche, wobei die Verbindungsvorrichtungen der Außenscheibe (52) mit dem zweiten Flügel (24) Epoxid, Silikon und Polyurethanglas oder hoch beständiges Klebeband umfassen.

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Revendications

1. Fenêtre (4) pour une façade à double peau (8) ayant un côté interne (20) et un côté externe (28), la fenêtre comprend un châssis (12) ayant :

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un premier cadre (16) faisant face audit côté interne (20),
un deuxième cadre (24) faisant face audit côté externe (28),
lesdits cadres (16, 24) se faisant face et étant espacés l'un de l'autre afin de définir entre eux une cavité (32),
dans laquelle :

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les premier et deuxième cadres (16, 24) sont articulés par rapport au châssis (12) et peuvent tous deux être ouverts, indépendamment l'un de l'autre, vers le côté interne (20),
le deuxième cadre (24) comprend une vitre externe (52) contrainte dans le cadre (24) relatif par des dispositifs de raccordement positionnés vers le côté interne (20) afin d'être invisible depuis le côté externe (28),

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caractérisée en ce que:

les dispositifs de raccordement sont positionnés entre la vitre externe (52) et le fer à vitrage périphérique (72) du deuxième cadre (24) afin d'être invisibles depuis le côté externe (28) de la fenêtre (4),
afin de créer une ventilation dans la cavité (32), le deuxième cadre (24), au niveau du fer à vitrage périphérique (72), comprend un certain nombre de fentes (76) passant par le fer lui-même (72) ou les dispositifs de raccordement de la vitre externe (52) jusqu'au deuxième cadre (24) comprennent des plaques (80), montées avec des dispositifs de

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raccordement filetés pouvant contraindre la vitre externe (52) par rapport au côté interne (20), dans laquelle les plaques (80) et les vis maintiennent la vitre externe (52) détachée par rapport au fer à vitrage périphérique (72) afin de créer un espace (84) pour la ventilation.

2. Fenêtre (4) selon la revendication 1, dans laquelle les premier et deuxième cadres (16, 24) sont articulés par rapport à un montant (36) du cadre (12).

3. Fenêtre (4) selon la revendication 1, dans laquelle les premier et deuxième cadres (16, 24) sont articulés par rapport aux montants opposés (36, 40) du châssis (12).

4. Fenêtre (4) selon la revendication 1, 2 ou 3, dans laquelle les premier et deuxième cadres (16, 24) sont du type « fenêtre à vantaux », articulés par rapport au châssis (12) le long d'une base inférieure (44) respective.

5. Fenêtre (4) selon la revendication 4, dans laquelle le deuxième cadre (24) est monté avec un mécanisme pour l'ouverture vers l'intérieur à partir de la partie supérieure.

6. Fenêtre (4) selon l'une quelconque des revendications précédentes, dans laquelle les dimensions périmétrales du deuxième cadre (24), au niveau de la vitre externe (52) sont inférieures à une ouverture (48) ou ouverture du châssis (12), afin de permettre l'ouverture du deuxième cadre (24) vers le côté interne (20) de la façade (8).

7. Fenêtre (4) selon la revendication 6, dans laquelle le deuxième cadre (24) comprend au moins un rebord (56) pouvant créer une position de limite par rapport à la fermeture du deuxième cadre (24), ledit rebord (56) étant positionné vers l'arrière, vers le côté interne (20).

8. Fenêtre (4) selon l'une quelconque des revendications précédentes, dans laquelle le deuxième cadre (24) a une structure de vitre monolithique.

9. Fenêtre (4) selon l'une quelconque des revendications précédentes, dans laquelle entre les premier et deuxième cadres (16, 24), on trouve une ventilation naturelle et/ou forcée.

10. Fenêtre (4) selon l'une quelconque des revendications précédentes, dans laquelle les dispositifs de raccordement de la vitre externe (52) sur le deuxième cadre (24), comprennent un joint d'étanchéité structurel.

11. Fenêtre (4) selon l'une quelconque des revendications précédentes, dans laquelle les dispositifs de raccordement de la vitre externe (52) sur le deuxième cadre (24) comprennent les colles époxy, silicone et polyuréthane ou une bande adhésive à haute résistance. 5

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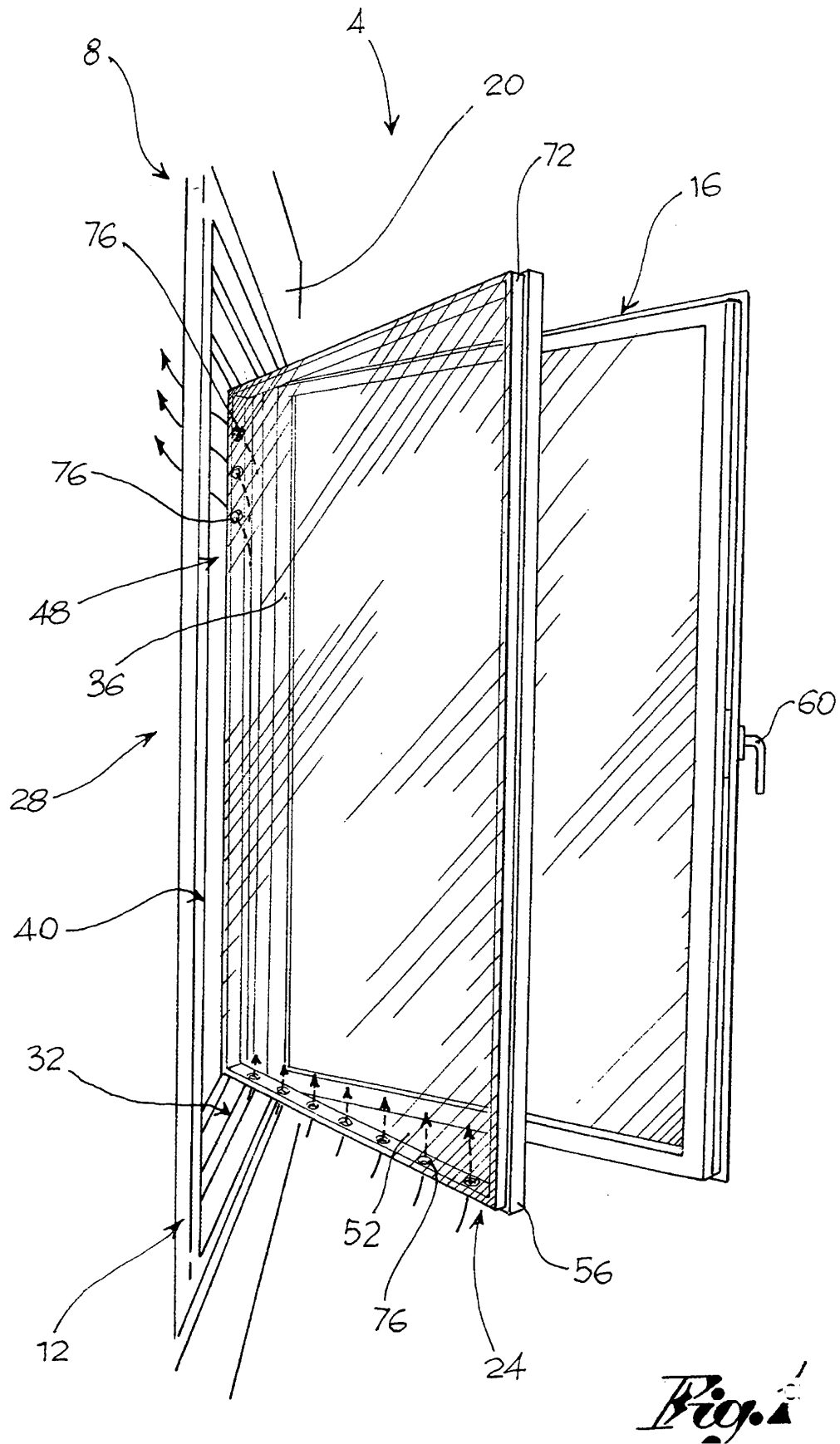
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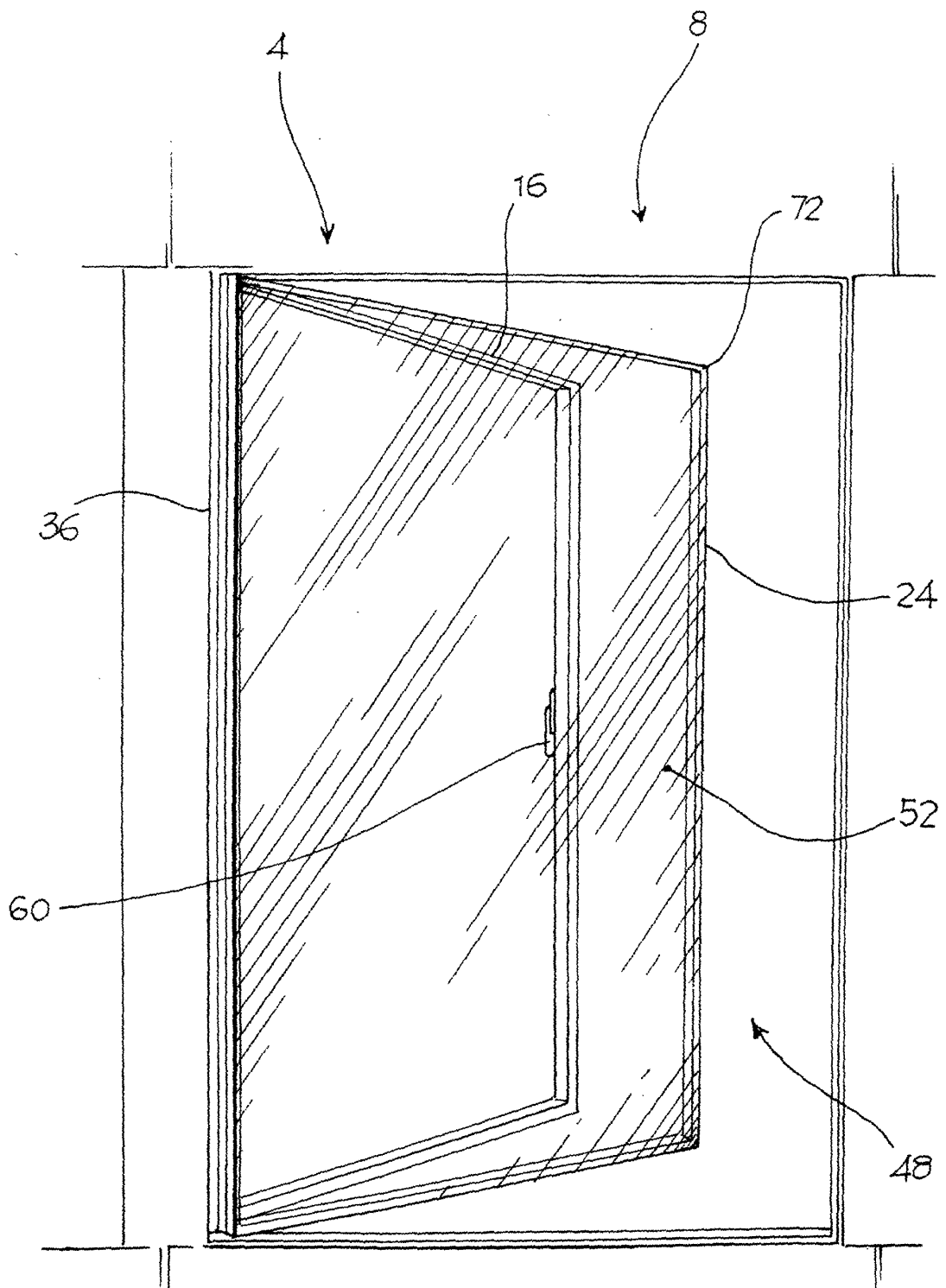


Fig. 2

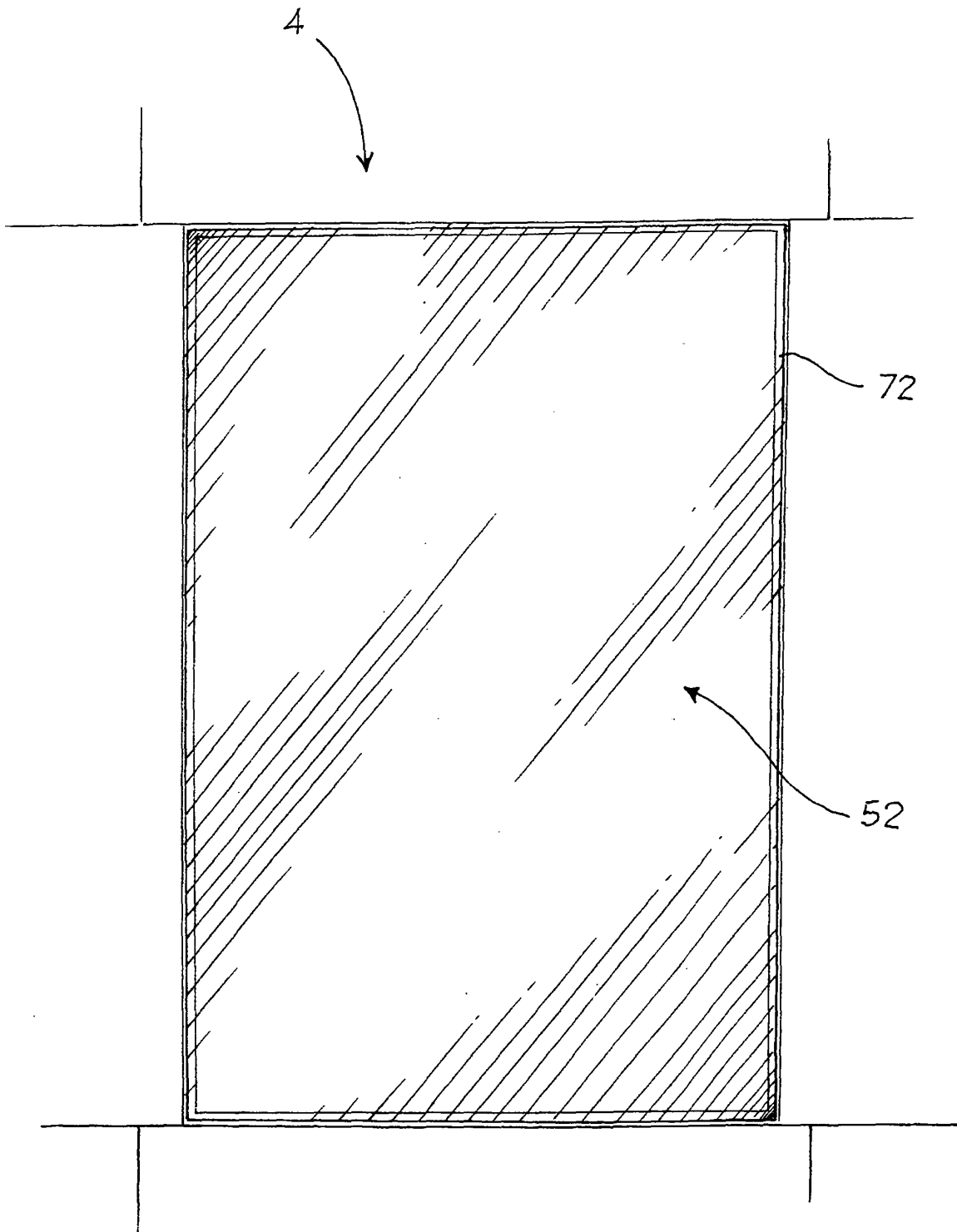


Fig. 3

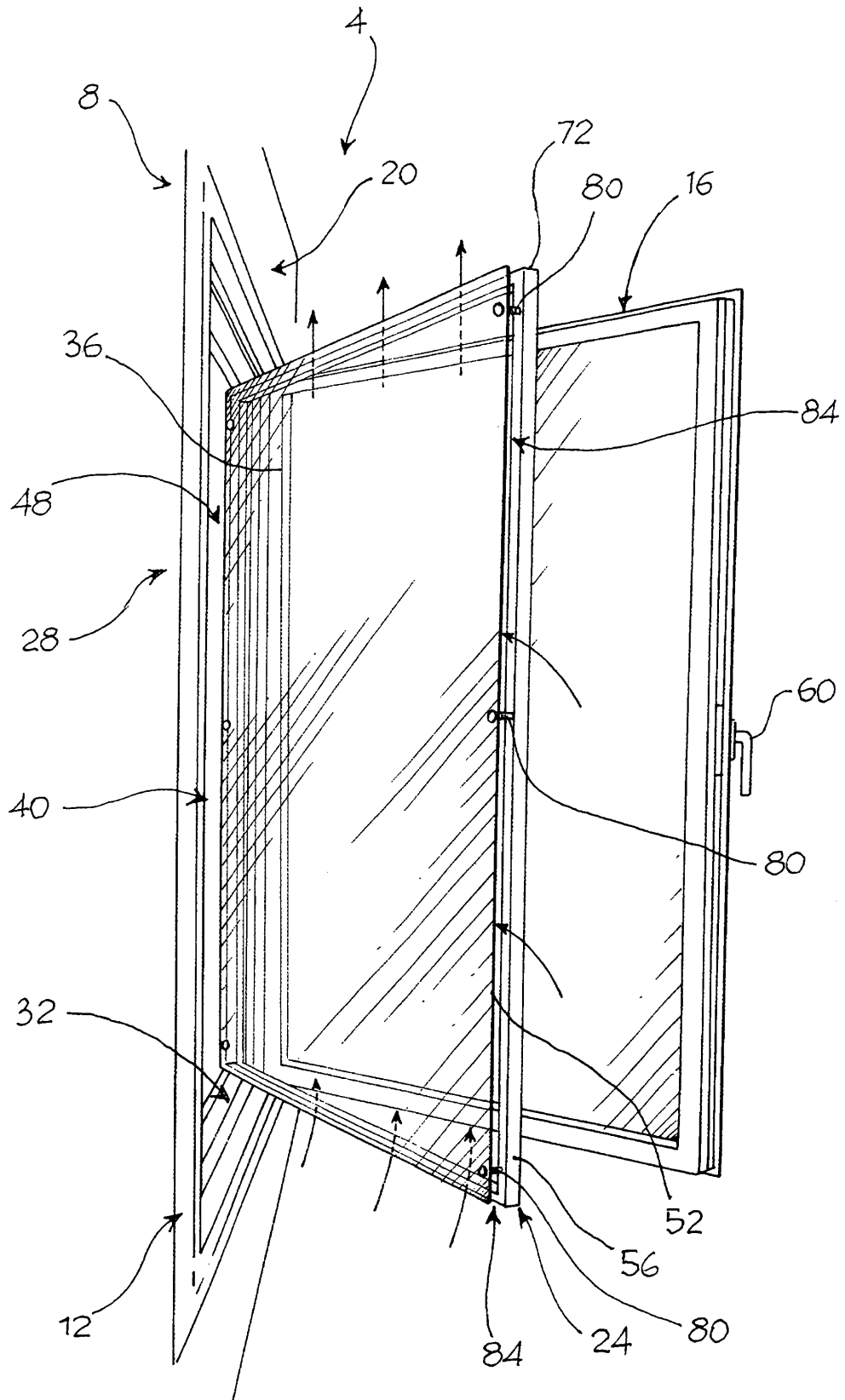


Fig. 4

REFERENCES CITED IN THE DESCRIPTION

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