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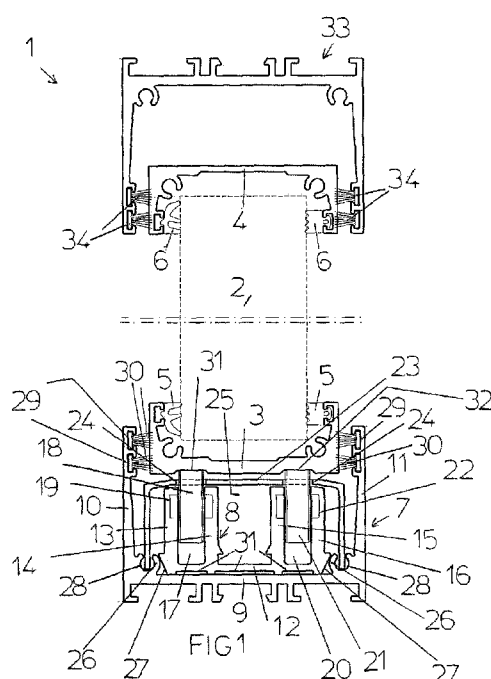
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(54) Title: A SLIDING SUPPORT FOR GLASS WINDOW OR DOOR, AND GLASS WINDOW OR DOOR HAVING SUCH
SUPPORT

(57) Abstract: The sliding support for glass window or door (1), comprises a first section (7) and at least one second section (8) positioned inside said first section (7), said first section (7) having a primary base (9) from which at least one first and one second primary walls (10, 11) transversally extend, said second section (8) having a secondary base (12), supported by said primary base (9), from which at least one first, second, third and fourth secondary walls (13, 14, 15, 16) transversally extend substantially mutually parallel and to said first and second primary walls (10, 11), a first space (17) delimited between said first and second secondary walls (13, 14), a second space (2) delimited between said third and fourth secondary walls (15, 16), at least one first wheel (18) pivotally supported in said first space (17), at least one second wheel (21) pivotally supported in said second space (20), and a covering housing (23) of said second section (8), having apertures (24) for the partial sticking out of said first and second wheels (18, 21) on which the lower base (3) of the frame of said glass window or door (1) is apt to rest.

A SLIDING SUPPORT FOR GLASS WINDOW OR DOOR, AND GLASS WINDOW OR DOOR HAVING SUCH SUPPORT

DESCRIPTION

The present invention refers to a sliding support for window or glass door, and to a window or glass door provided with such support.

Various systems were proposed for simplifying the sliding of the glasses in glass doors or windows, mounted on frames which must withstand vibrations and efforts of mechanical and other kind.

The efficiency of the sliding system becomes fundamental in the case in which the glass window or door is particularly wide and consequently heavy. In this case the correct function of the sliding system assures the preserving of the structural integrity of the glass door or window and finally also the safety of utilization for the user. In particular the glass door or window, even when it is extremely heavy being very wide, must be able to slide with a reasonable manual effort and must remain centered during the sliding even in presence of the unavoidable oscillations to which it is subjected.

Sliding systems for glass doors or windows are known for example from EP2093364.

Technical task of the present invention is therefore to realize a sliding support for glass window or door, and a glass window or door being provided with such support, which permit to eliminate the technical drawbacks lamented in the known art.

Within this technical task one aim of the invention is to realize a sliding support for glass window or door which has an optimum efficiency even when the glass door or window is very wide and consequently very heavy.

Another aim of the invention is to realize a sliding support for glass window or door, which is extremely sturdy, structurally simple and easily assembled.

The technical task, and also these and other aims according to the present invention, are reached by realizing a sliding support for glass window or door, characterized in that it comprises a first section and at least one second section positioned inside said first section, said first section having a primary base from which at least one first and second primary walls transversally extend, said second section having a secondary base, supported by said primary base, from which at least one first, second, third and fourth secondary walls transversally extend substantially mutually parallel and to said first and second primary walls, a first space delimited between said first and second secondary wall, a second space delimited between said third and fourth secondary wall, at least one first wheel pivotally supported in said first space, at least one second wheel pivotally supported in said second space, and a covering housing of said second section, having apertures for the partial sticking out of said at least one first and second wheel on which the lower base of the frame of said glass or door window is apt to rest.

Preferably said second and third secondary walls delimit between them a third central space having a dimension greater than said first and second lateral spaces which in turn have between them the same dimension.

Preferably said first and second wheel are supported by a shaft common to both or by a shaft dedicated for each of them, said shaft being orthogonal to the sliding direction of said glass window or door.

Preferably said primary base has two centering shake against which inclined surfaces engage, present at the lateral ends of said secondary base.

Preferably said shapes have notches for retaining the basal end of the lateral walls of said housing.

Preferably said shake are at the two internal corners present between said primary base and said primary walls.

Preferably the facing surfaces of said primary and secondary base delimit at least one space having internally a filler for buffering the possible oscillation of said second section with respect to said first section.

Preferably said primary walls have the same height greater than that of said secondary walls which in turn have the same height.

Preferably the ends of said primary walls protruding beyond said secondary walls have on their internal side seats for supporting brushes against which the lower base of the frame of said glass window or door is apt to crawl.

Preferably said housing has a thickness less than that of said first and second section.

The present invention also shows a glass window or door comprising such sliding support.

Preferably the external surface of said lower base of the frame of said glass window or door has guides extending parallel to the sliding direction, in which said at least one first and at least one second wheel engage.

Preferably said guides comprise recesses of said external surface of said lower base of the frame of said glass window or door.

Further characteristics and advantages will be more evident from the description of a preferred but non exclusive embodiment of the sliding support for glass window or door according to the finding, illustrated in an indicative and not limitative way in the annexed drawings, in which :

figure 1 shows a side elevation view of a cross section of the glass door or window provided with the sliding support.

With reference to cited figures, a glass window or door is shown, indicated as a whole with the reference character 1.

The window or door 1 comprises a glass 2 (shown hatched) surrounded by a frame, generally made of aluminum or other light alloy, of which the section making the lower base 3 and the section making the upper base 4 are visible.

Suitable tightening gaskets 5 or 6 are present between the bases 3 and 4 of the frame and the glass 2.

The sliding support of the glass window or door 1, comprises a first section 7 and a second section 8 positioned inside of the first section 7.

The first section 7 has a primary base 9 from which transversally, in particular orthogonally, a first and a second primary wall 10 and 11 extend. The global structure of the first section 7 is substantially U-shaped.

The thickness of the primary walls 10 and 11 is decreasing in the direction towards the end adjacent to the end remote from the primary base 9.

The second section 8 has a secondary base 12, supported by the primary base 9, from which transversally, in particular orthogonally, a first, a second, a third and a fourth secondary wall 13, 14, 15, 16 extend, substantially mutually parallel and to the first and second primary walls 10, 11.

The thickness of the secondary base 12 is less than both that of the primary base 9 and that of the secondary walls 13, 14, 15 e 16,

The secondary walls 13, 14, 15 and 16 have the same height less than that of the primary walls 10 and 11 which in turn have the same height.

The portions of the primary walls 10 and 11 protruding beyond the secondary

walls 13, 14, 15 and 16 have on their internal side seats 29 for supporting brushes 30 against which the lower base 3 of the frame of the glass window or door 1 is apt to crawl.

The first and second secondary walls 13 and 14 delimit a first space 17 in which a plurality of first pivotal wheels 18 are present.

The first wheels 18 are coplanar aligned and parallel to the sliding direction (orthogonal to the plane of the sheet in figure 1) and are each centrally supported by a corresponding pivotal shaft 19 in turn supported by the first and second secondary walls 13 and 14 orthogonal to the plane in which the first wheels 18 are placed. In the same way, the third and fourth secondary wall 15 and 16 delimit a second space 20 in which a plurality of second pivotal wheels 21 are present.

The second wheels 21 are coplanar aligned and parallel to the sliding direction (orthogonal to the plane of the sheet in figure 1) and are each centrally supported by a corresponding pivotal shaft 22 in turn supported by the third and fourth secondary walls 15 and 16 orthogonal to the plane in which the second wheels 21 are placed.

Alternatively it is possible that the wheels 18 and 19 be supported by a common shaft.

The second and third secondary walls 14 and 15 in turn mutually delimit a third central space 25 having a dimension greater than the first and the second lateral spaces 17 and 20 which in turn have mutually the same dimension.

Within the first section 7, the second section 8 is covered by a housing 23 having apertures 24 for the partial sticking out of the first wheels 18 and of the second wheels 21 on which the lower base 3 of the frame of the glass window or door 1 is apt to rest.

The housing 25 has no structural functions and therefore it is realized from a section, in particular a pressed and bent plate, advantageously having a thickness less than that of the first and second section 7 and 8.

The primary base 9 has two centering shapes 26 against which inclined surfaces 27 engage, present at the lateral ends of the secondary base 12.

The shapes 26 have notches 28 for retaining the basal end of the lateral walls of the housing 23.

The shapes 26 are at the two internal corners present between said primary base 9 and said primary walls 10 and 11.

The facing surfaces of the primary and secondary base 9 and 12 delimit spaces 31 having internally a filler for buffering the possible oscillation of the second section 8 with respect to the first section 7.

The external surface of the lower base 3 of the frame of the glass window or door 1 has a first and respectively a second guide which extend parallel to the sliding direction, in which the first wheels 18 and respectively the second wheels 21 engage.

The first guide and respectively the second guide are made by a first recess 31 and respectively a second recess 32 of the external surface of the lower base 3 of the frame of the glass window or door 1.

The sliding support of the glass window or door 1 is completed by a further section 33, identical to that of the section 7, which guides the sliding of the upper base 4 of the frame of the glass window or door 1.

The section 33 internally supports suitable brushes 34 against which the upper base 4 of the frame of the glass window or door 1 is apt to crawl, during the sliding of this latter.

The structure of the sliding support is extremely compact and sturdy and the support of the glass is extremely stable and safe. In particular, the weight of the assembly formed by the glass 2 and the frame surrounding it is completely discharged on the wheels 18 and 21, from these on the secondary base 12 and from this in turn on the primary base 9.

The lateral centering of the glass 2 is guaranteed both by the shapes 26 in which the inclined surfaces 27 wedge, and by the recesses 31, 32 in which the wheels 18 and 21 engage.

Even from the esthetic viewpoint the solution is particularly appreciated due to the fact that the frame surrounding the glass 2 is at least partially retractable, as it is at least partially hidden by the sliding support.

The sliding support can be realized by any kind of material, preferably a metal, is mechanically resistant and sufficiently non deformable.

The sliding support for glass window or door and the glass window or door so conceived are susceptible of numerous changes and variations, all within the concept of the invention; furthermore all details can be substituted with technically equivalent elements.

In practice the used materials, and also their dimensions, can be of any kind according to the needs and the state of the art.

CLAIMS

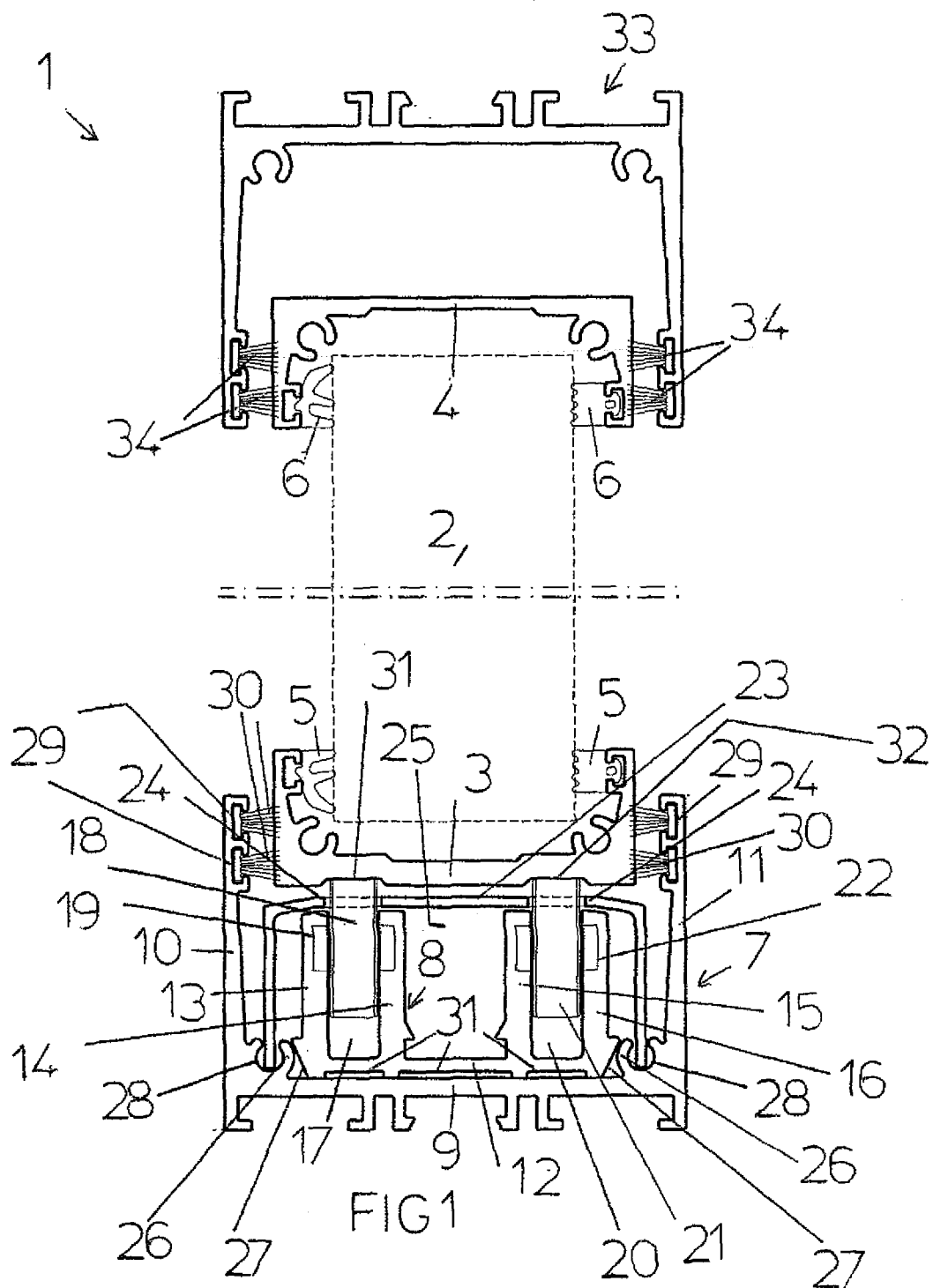
1. A sliding support for window or glass door (1), characterized in that it comprises a first section (7) and at least a second section (8) positioned inside said first section (7), said first section (7) having a primary base (9) from which transversally extend at least a first and a second primary walls (10, 11), said second section (8) having a secondary base (12), supported by said primary base (9), from which transversally extend at least a first, a second, a third and a fourth secondary wall (13, 14, 15, 16) substantially mutually parallel and to said first and second primary walls (10, 11), a first space (17) delimited between said first and second secondary wall (13, 14), a second space (2) delimited between said third and fourth secondary wall (15, 16), at least a first wheel (18) pivotally supported in said first space (17), at least a second wheel (21) pivotally supported in said second space (20), and a covering housing (23) of said second section (8), having apertures (24) for the partial sticking out of said at least one first and second wheel (18, 21) on which the lower base (3) of the frame of said window or glass door (1) is apt to rest.
2. The sliding support for window or glass door according to any claim 1, characterized in that second and third secondary walls (14, 15) delimit between them a third central space (25) having a dimension greater than said first and second lateral spaces (17, 20) which in turn have between them the same dimension.
3. The sliding support for window or glass door according to any of preceding claims, characterized in that said first and second wheel (18, 21) are supported by a shaft common to both or by a shaft dedicated for each of

them, said shaft (19, 22) being orthogonal to the sliding direction of said window or glass door (1).

4. The sliding support for window or glass door according to any of preceding claims, characterized in that said primary base (9) has two centering shape (26) against which inclined surfaces (27) engage, present at the lateral ends of said secondary base (12).
5. The sliding support for window or glass door according to the preceding claim, characterized in that said shapes (26) have notches (28) for retaining the basal end of the lateral walls of said housing (23).
6. The sliding support for window or glass door according to any of claims 4 and 5, characterized in that shapes (26) are at the two internal corners present between said primary base (9) and said primary walls (10, 11).
7. The sliding support for window or glass door according to any of preceding claims, characterized in that the facing surfaces of said primary and secondary bases (9, 12) delimit at least a space (31) having internally a filler for buffering the eventual oscillation of said second section (8) with reference to said first section (7).
8. The sliding support for window or glass door according to any of preceding claims, characterized in that said primary walls (10, 11) have the same height greater than that of said secondary walls (13, 14, 15, 16) which in turn have the same height.
9. The sliding support for window or glass door according to any of the preceding claims, characterized in that the ends of said primary walls (10, 11) protruding beyond said secondary walls (13, 14, 15, 16) have on their internal side seats (29) for supporting brushes (30) against which the lower

base (3) of the frame of said window or glass door (1) is apt to scrape.

10. The sliding support for window or glass door according to any of preceding claims, characterized in that said housing (23) has a thickness lower than that of said first and second sections (7, 8).
11. A window or glass door (1) characterized in that it comprises a sliding support conforming to any of preceding claims.
12. The window or glass door (1) according to the preceding claim characterized in that the external surface of said lower base (3) of the frame of said window or glass door (1) has guides extending parallel to the sliding direction in which said at least a first and at least a second wheels (18, 21) engage.
13. The window or glass door according to the preceding claim, characterized in that said guides comprise recesses (31) of said external surface of said lower base (3) of the frame of said window or glass door (1).



INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2011/059509

A. CLASSIFICATION OF SUBJECT MATTER

INV. E05D15/06

ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

E05D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	wo 2010/024703 AI (UNLTD PERSPECTIVE SA [CH] ; PINTO PEREIRA BRANCO ROBERTO M [PT] ; MACHAD) 4 March 2010 (2010-03-04)	1-4,6-13
A	page 1, lines 14-16,27-28 page 6, lines 9-10, 14 - page 7, line 2 figures 3,4	5
A	----- EP 2 093 364 AI (ORCHIDEES CONST S A [CH]) 26 August 2009 (2009-08-26) cited in the application paragraphs [0001] , [0006] , [0009] , [0012] figures 1,3D -----	1-13



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2011/059509

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2010024703	A1	04-03-2010	NONE

EP 2093364	A1	26-08-2009	AT 494446 T 15-01-2011
		ES 2359279 T3	20-05-2011
