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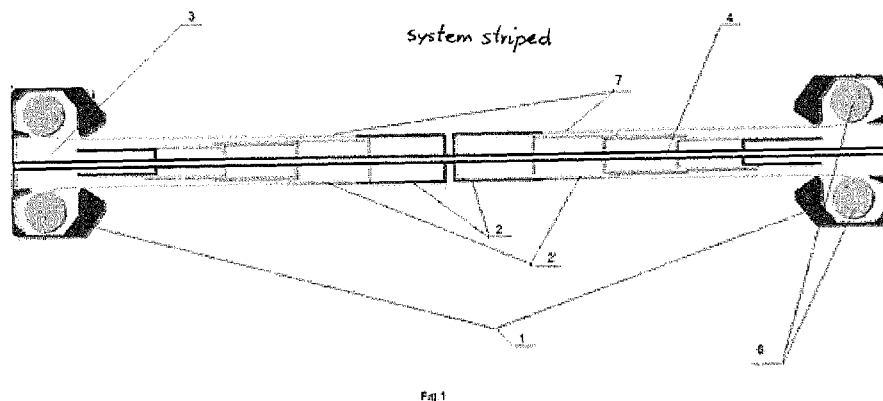
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DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN,
KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA,
MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG,
NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS,
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(54) Title: SLIDING DOOR



(57) Abstract: The subject of the invention is a sliding door particularly for indoor use. A sliding door comprising door frames and a door head characteristic in that between the door frames (1) there are at least two oblong vertical channel sections (2, 2') with a thickness which makes it possible to put one channel section (2') into the preceding channel section (2), whereby the channel sections (2, 2') are of the same height as the door frames and are equipped with catches that prevent the channel sections from sliding out and are placed on a guide bar (4) fixed in the door head (5) in a manner which allows the channel section (2') to be slid into another wider channel section (2) that precedes it.

Sliding door

The subject of the invention is a sliding door particularly for indoor use.

There are various known solutions concerning door movement, whereby the door leaf is concertina folded or the whole door leaf is slid along the wall or slid into and hidden within the wall cavity. Such solutions aim to preserve the usable space in the room, which, in case of a standard hinged door, must be reserved for the movement of the door leaf as it opens.

The description of the utility model W.113194 presents a folded door for installing in wardrobes and closets, which is mounted on a horizontal guide bar and whose door leaf is bipartite and comprises symmetrical parts joined with a hinge. From the inside each of the two parts has got vertical reinforcements in the shape of channel sections formed by the folded edges as well as horizontal stiffening and mounting inserts placed near the upper and lower edge joined with the vertical reinforcements in such a way that they form a frame. On its upper and lower wall each channel section insert is provided with pairs of openings, which are coaxial with the mounting and rotating unit in the one part of the door leaf and with the mounting and sliding unit in the other part of the door leaf. Both units are located near the vertical reinforcements and their rollers are mounted on the horizontal guide bar.

The description of the utility model W.97367 presents a folded door having door leaves comprising a number of oblong modules connected with one another with their sides by means of tongues. There is a guide strip lengthwise adjacent to one of the door leaves.

The strip and the door leaf are joined by means of film hinges. The oblong modules, separately in both door leaves are joined at the ends by means of crosswise tongues. One of the door leaves is equipped with a film hinge along its external edge which joins the leaves with the door frame.

Patent description PL 402376 presents a sliding door comprising a frame with an upper track and a lower track and a pair of door leaves made of a glass unit and slidably connected to the frame by means of running gear. The sliding door is characteristic in that the window unit sash comprises two sheets of glass with a gasket in-between; the running gear in the form of a profiled element comprises a crosspiece fixed with a screw to the glazing unit of the door leaf along its upper edge, a strip ride with at least two rollers located in the track of the upper frame, a strip spacer connecting the strip ride with the fastening strip, whereas the lower edge of the glass unit of the door leaf is placed in the lower track.

Polish utility model description W-95992 entitled „Sliding door” presents a sliding door structure with improved silent-running while sliding and with the possibility of being blocked in extreme positions. The door panel is equipped with a running wheel acting as a rolling bearing, whose outer ring on its whole circumference is covered with a layer of plastic in the form of a circumferential ring. The starter roller located near the lower edge of the door panel is equipped with a rolling ring made of elastic plastic. At the ends of the upper track there are end stops made of elastic plastic.

Patent description PL 388027 presents a sliding door, which in a C-shaped section has got rear mounting walls: an upper one with two mutually perpendicular guide bars – the guiding one (1) and the stabilizing one (2), and a lower one with a supplementary guide bar (2); whereby the rear mounting walls are joined in a perpendicular way with the end blocking walls. The invention is used in furniture industry.

A significant problem in the so far known solutions is retaining the desired level of silencing and tightness. The overall aesthetic appeal is also an important consideration.

The sliding door according to the invention allows to keep the tightness and silencing characteristics while at the same time eliminating the space needed to open the door.

A sliding door comprising door frames and a door head characteristic in that between the door frames there are at least two channel sections with a thickness which makes it possible to put another channel section into the preceding channel section, whereby the channel sections are of the same height as the door frames and are equipped with catches that prevent the channel sections from sliding out and are placed on a guide bar fixed in the door head in a manner which allows the channel section to be slid into another wider channel section that precedes it.

Favourably, there are at least four channel sections placed opposite each other in pairs so that the channel sections after sliding close the gap between the door frames.

Favourably, the door frame has a cavity with the dimensions relating to the dimensions of the largest channel section, the said cavity being located on the side of the sliding channel section and the channel sections are fixed on the guide bar in such a way as to enable them to slide into the cavity.

Favourably, there is a vertical roller tube in the door frame which stretches the fabric, whose end is fixed to the furthestmost channel section along its entire height.

Favourably, across each set of channel sections there is at least one telescopic bar connecting the door frame with the furthestmost channel section.

Favourably, there are handles or grooves placed on the channel section.

Using the door according to the invention makes it possible to achieve the effect of the door being hidden in the door frame, which saves space in the room, while the rigid construction of the door allows to retain its soundproofness as in the case of a door made of a uniform door leaf.

One embodiment of the door according to the invention is presented in the drawing, where Fig. 1 presents an overview of the door system in the door frame, and Fig. 2 presents the view of the door closed and open.

The embodiment presented in Fig. 1 shows the door as closed, where between the door frames 1 there are vertical channel sections placed opposite one another on the guide bar fixed to the door head whereby the furthestmost one 2 is the largest and

covers more channel sections 2' and 2'' which decrease in width, and which slide into one another in turn as the door is folding. The furthestmost channel section has handles for opening the door or its shape is modified by adding grooves to make sliding the door easier.

Moreover, along the entire height of the channel section 2 fabric is fixed to its both sides, which wraps around the vertical roller tubes 6 at the opposite side, which are hidden in the door frame 1 and stretch the fabric. As the door is being closed and the channel sections 2 (2',2'') fold, the fabric 7 wraps around the tube 6. As the door opens the fabric unwraps and hides the door mechanism. The fabric used improves the soundproof qualities of the door and at the same time fulfills an aesthetic function by hiding the door mechanism and giving the door a uniform smooth look. The fabric may have different colours on each side of the door, which can be chosen to suit the special needs of the room. Moreover the fabric may have different patterns. Additionally, to make the structure more rigid telescopic rods may be used, fixed to the door frame and the furthestmost channel section.

The presented solution of a folded door leaf may be used both in a variation whereby the door leaf slides into one door frame and in a variation whereby there are two smaller door leaves installed opposite each other that close the gap between the door frames.

The presented embodiment does not exhaust all possibilities of its application.

Patent claims

Sliding door

1. A sliding door comprising door frames and a door head **characteristic in that** between the door frames (1) there are at least two oblong vertical channel sections (2, 2') with a thickness which makes it possible to put one channel section (2') into the preceding channel section (2), whereby the channel sections (2, 2') are of the same height as the door frames and are equipped with catches that prevent the channel sections from sliding out and are placed on a guide bar (4) fixed in the door head (5) in a manner which allows the channel section (2') to be slid into another wider channel section (2) that precedes it.
2. A sliding door according to claim 1 **characteristic in that** there are at least four channel sections placed opposite each other in pairs so that the channel sections after sliding close the gap between the door frames.
3. A sliding door according to claim 2 **characteristic in that** the door frame (1) has a cavity (5) with dimensions relating to the dimensions of the largest channel section (2), the said cavity being located on the side of the sliding channel section (2) and the channel sections are fixed on the guide bar in such a way as to enable them to slide into the cavity (3).
4. A sliding door according to claim 2 or 3 **characteristic in that** there is a vertical roller tube (6) in the door frame (1) which stretches the fabric (7), whose end is fixed to the furthestmost channel section (2) along its entire height.
5. A sliding door according to claim 1 to 4 **characteristic in that** across each set of channel sections (2, 2') there is at least one telescopic bar connecting the door frame (1) with the furthestmost channel section (2).
6. A sliding door according to claim 1 to 4 **characteristic in that** there are handles or grooves placed on the channel section (2).

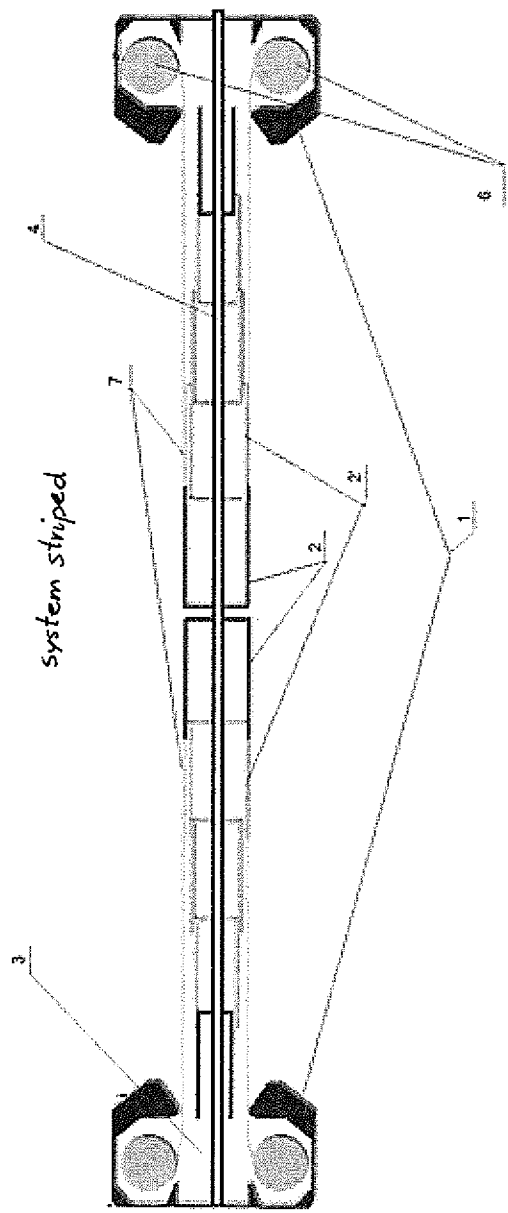
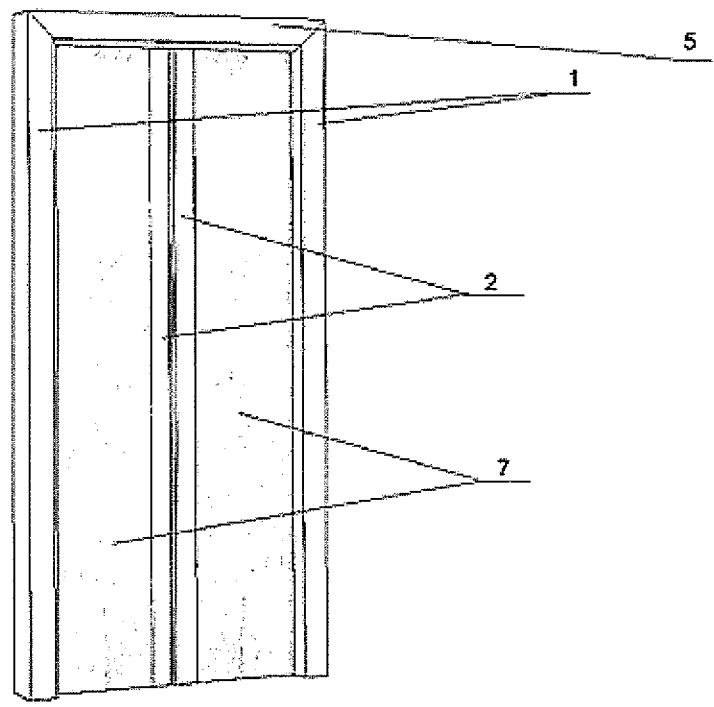


Fig. 1



Door closed

Fig. 2

INTERNATIONAL SEARCH REPORT

International application No.

PCT/PL2017/000009

A. CLASSIFICATION OF SUBJECT MATTER

E06B3/92 (2006.01), E06B3/46 (2006.01), E06B9/40 (2006.01)

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)

E06B

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 practicable, search terms used)

PPO database, EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4072179 A (NAITO HAN ICHIRO [JP]) 1978.02.07	1-2, 5-6
Y	* the whole document *	3-4
Y	WO 2008047997 A1 (MILITEC CO LTD [KR]) 2008.04.24 * fig. 2-7 *	3
Y	WO 2014043741 A1 (CENTOR DESIGN PTY LTD [AU]) 2014.03.27 * fig. 4-5 *	4



Further documents are listed in the continuation of Box C.



See patent family annex.

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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

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PCT/PL2017/000009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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WO 2008047997 A1	2008.04.24	KR 100682631 B1	2007.02.07
WO 2014043741 A1	2014.03.27	US 2015233172 A1	2014.03.27
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