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(54) **LOCKING MECHANISM FOR THE SASH OF A ROOF HATCH OR WINDOW**

(57) The solution relates to a locking mechanism for a window hatch or a roof window, equipped with a movable holder 1, hingedly mounted to the sash and mating via blocking peg 6 with stub axle 7 of blocking subassembly 2, movable around pin II.

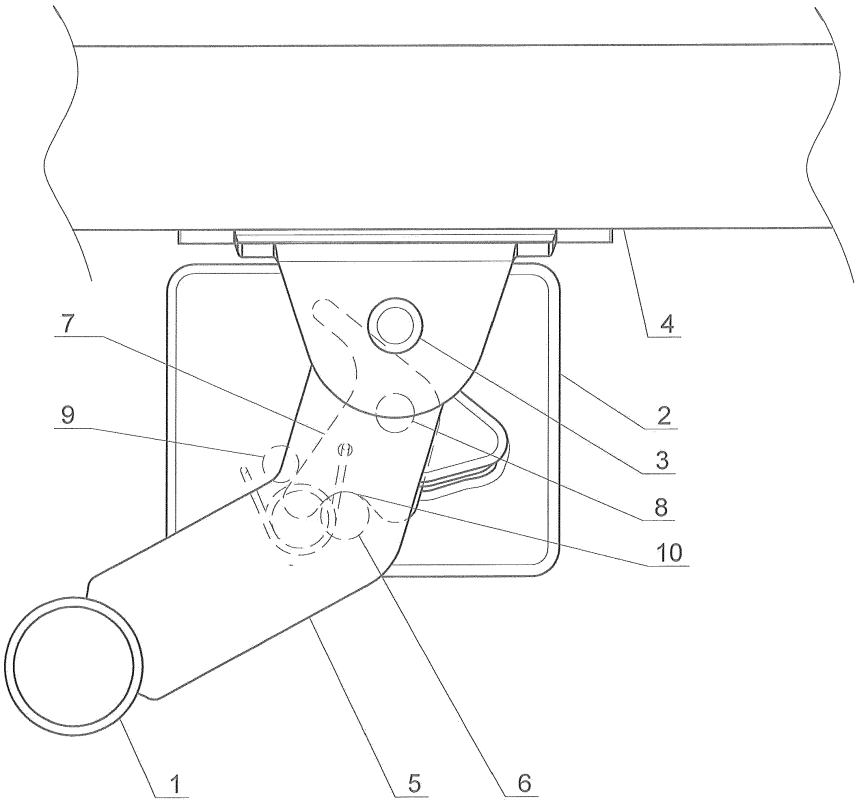

Fig. 2

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Description

[0001] The solution relates to a locking mechanism for the sash of a roof hatch or window, having a holder mating with a blocking subassembly fixed on both sides of the window, on two side members of the hatch or window frame.

[0002] Patent no. GB2083117 (B) discloses a solution comprising a skylight equipped with a locking handle. The side frame members of such a window have sockets into which ends of the handle enter in the locking position, overcoming the force of friction between the handle ends and the walls of guide rails leading to these sockets.

[0003] The present solution relates to a locking mechanism for the sash of a roof hatch or window. The hatch and the window consist of a frame and a sash. Both the frame and the sash are formed by two side members, an upper member, and a lower member. The sash is installed in the frame using tippable hinges in the upper part of the window or swivel hinges in its middle part, enabling tippable and/or rotational opening of the window or hatch sash, respectively. The locking mechanism according to the present solution is equipped with a holder and a blocking subassembly. The holder is hingedly mounted on pin I to two side sash frame members, using two arms equipped with a blocking peg. While operating, the holder mates with movable stub axles of two symmetrical blocking subassemblies using blocking pegs, the subassemblies being mounted on the side frame members. Then, the blocking peg of the holder enters the socket of the movable stub axle mounted on pin II, which results in locking of the window or the hatch in its closed position.

[0004] In the open position of the window or the hatch, the blocking peg of the holder is located outside the stub axle's socket, while the stub axle rotates on pin II under the influence of the blocking peg and a spring in the direction of the moving holder until it rests on the peg. Then, the window or hatch is in a position ready to be opened.

[0005] Preferable effects of the proposed solution consist in an introduction of a locking mechanism providing easy operation of the hatch or the roof window, overcoming the friction between the holder and the locking mechanism, and closing of the hatch does not require a large effort. The design of the locking mechanism provides secure closing of the window or the hatch, protecting from self-opening of the window or the hatch, e.g. under the influence of stronger gusts of wind. The proposed solution is also characterised by a simple construction and a low level of complexity.

[0006] The solution according to the description is presented in an embodiment, in which:

Fig. 1 shows a roof window with a locking mechanism installed,

Fig. 2 shows a locking mechanism in the closed window position,

Fig. 3 shows a locking mechanism in the open window position.

A roof window in Fig. 1 is equipped with a locking mechanism according to the present solution, consisting of holder 1 and blocking subassembly 2. Holder 1 is hingedly mounted on pin I 3 to two side sash frame members 4, using two arms 5. Each of arms 5 has blocking peg 6 mating with movable stub axle 7 of blocking subassembly 2 moving along a guide of blocking subassembly 2. Stub axle 7 itself rotates around pin II 8, and its rotary motion is confined by peg 9. Fig. 2 shows the locking mechanism in the closed window position, in which the holder is located in an extreme position, and its blocking peg 6 is located in socket 10 of stub axle 7. The stub axle is blocked on peg 9.

[0007] In the open window position in Fig. 3, blocking peg 6 is located outside socket 10 of stub axle 7 resting on peg 9.

Claims

1. A locking mechanism for the sash of a roof window or a roof hatch comprising a frame and a sash having basically rectangular construction consisting of two side frame members, an upper frame member, and a lower frame member, the sash and the frame being connected with each other using tippable hinges in the upper part of the window or the hatch and/or swivel hinges in its middle part, and the locking mechanism has a holder (1) parallel to the upper and the lower sash frame members, holder (1) being hingedly mounted on pin I (3) to side sash frame members (4), **characterised in that** it has two symmetrical blocking subassemblies (2) fixed to the side frame members and equipped with movable stub axle (7) mating with peg (9) on the arms of holder (1).

2. A locking mechanism for the sash of a roof hatch or window according to claim 1, **characterised in that** in the closed window or closed position, holder (1) mates with blocking subassemblies (2), so as blocking peg (6) is located in socket (10) of stub axle (7).

3. A locking mechanism for the sash of a roof hatch or window according to claim 1, **characterised in that** in the open window or open hatch position, blocking peg (6) is located outside socket (10) of stub axle (7).

4. A locking mechanism for the sash of a roof hatch or window according to claim 1, or 2, or 3 **characterised in that** stub axle (7) has a shape and a location of a rotation axis which provides protection from its self-unlocking in the open window or open hatch position or in the closed window or closed hatch position.

5. A locking mechanism for the sash of a roof hatch or window according to claim 1, or 2, or 3, or 4 **characterised in that** stub axle (7) is connected with a spring positioning it in the unlocked position.

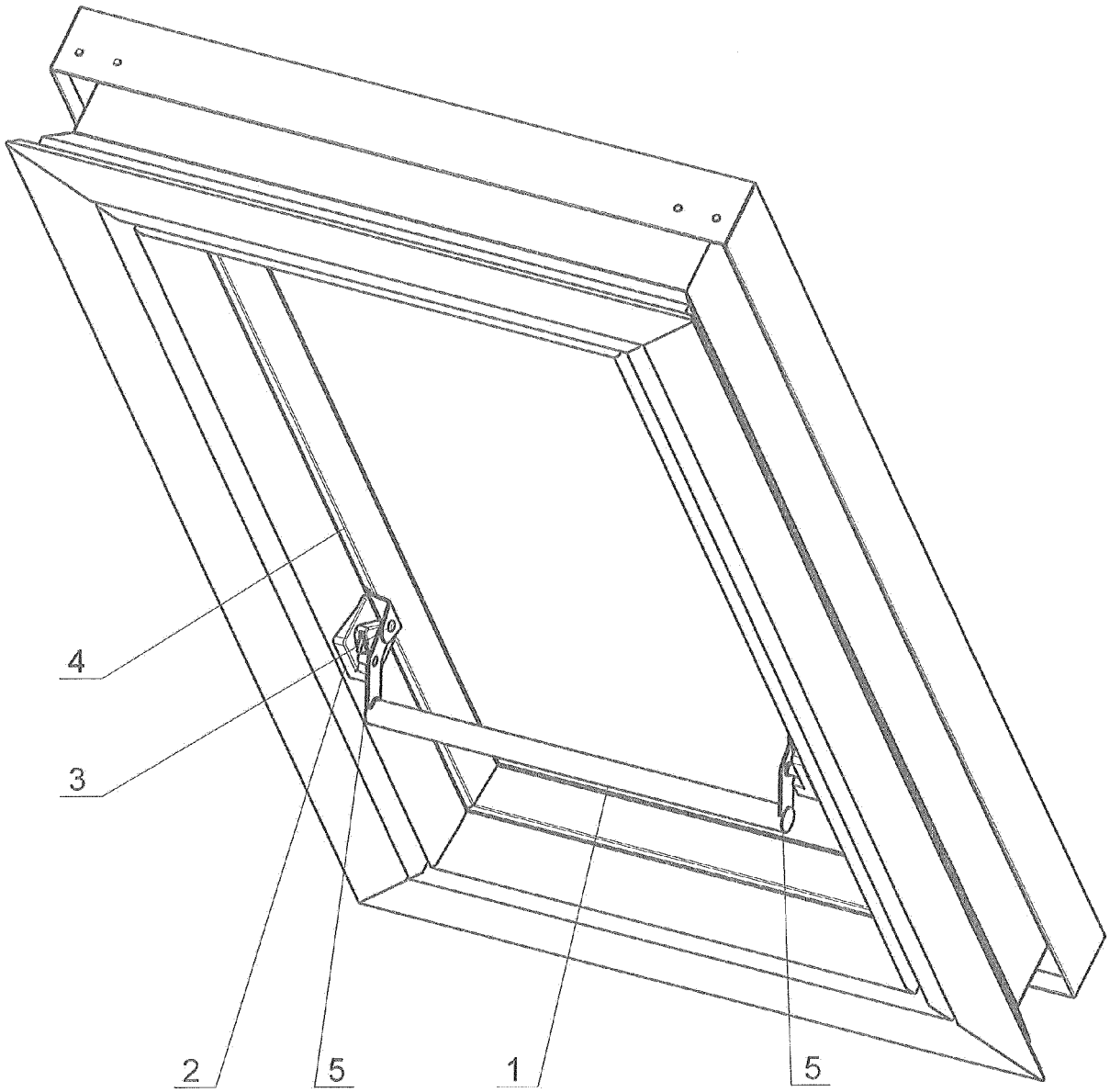

Fig. 1

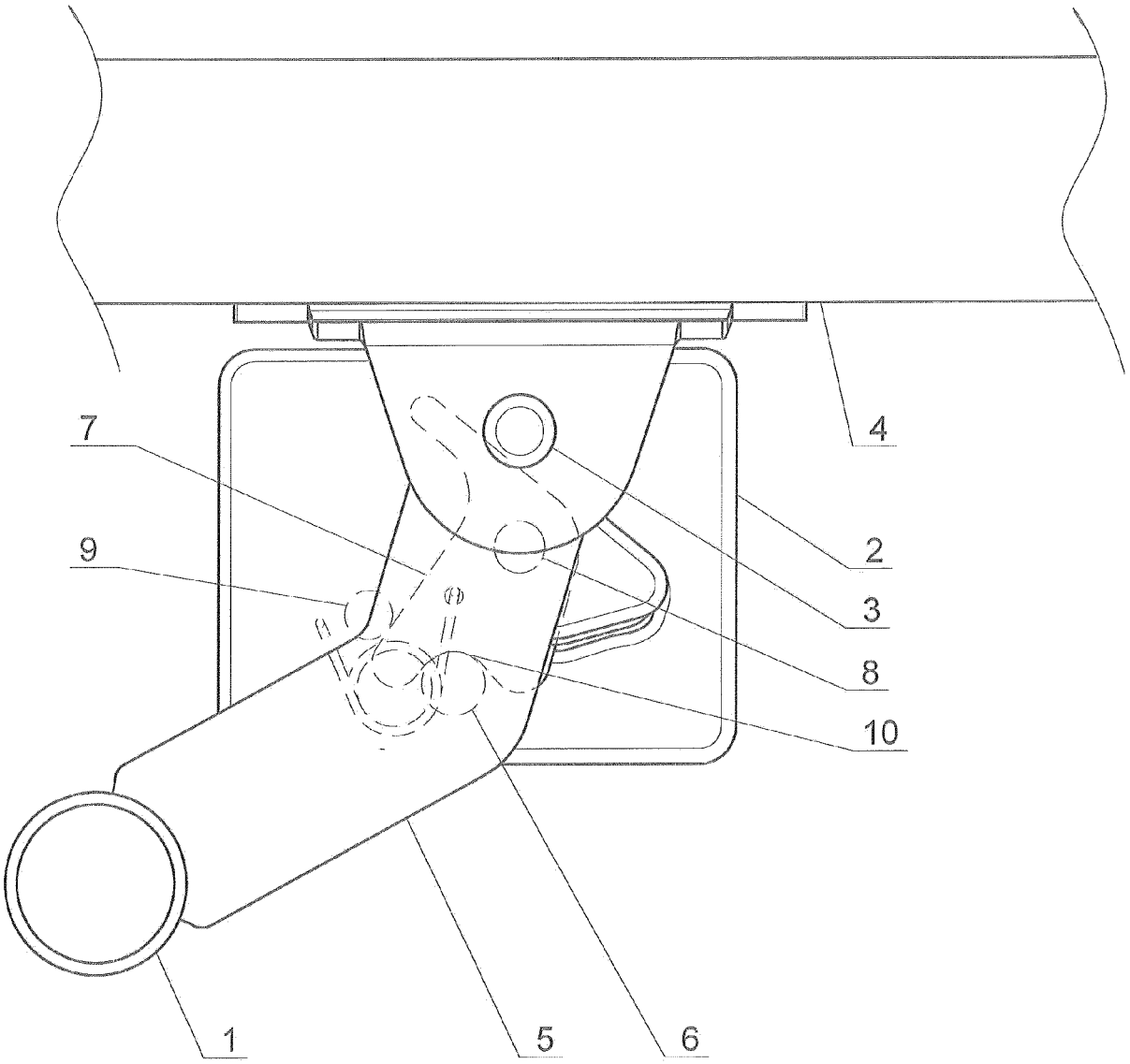

Fig. 2

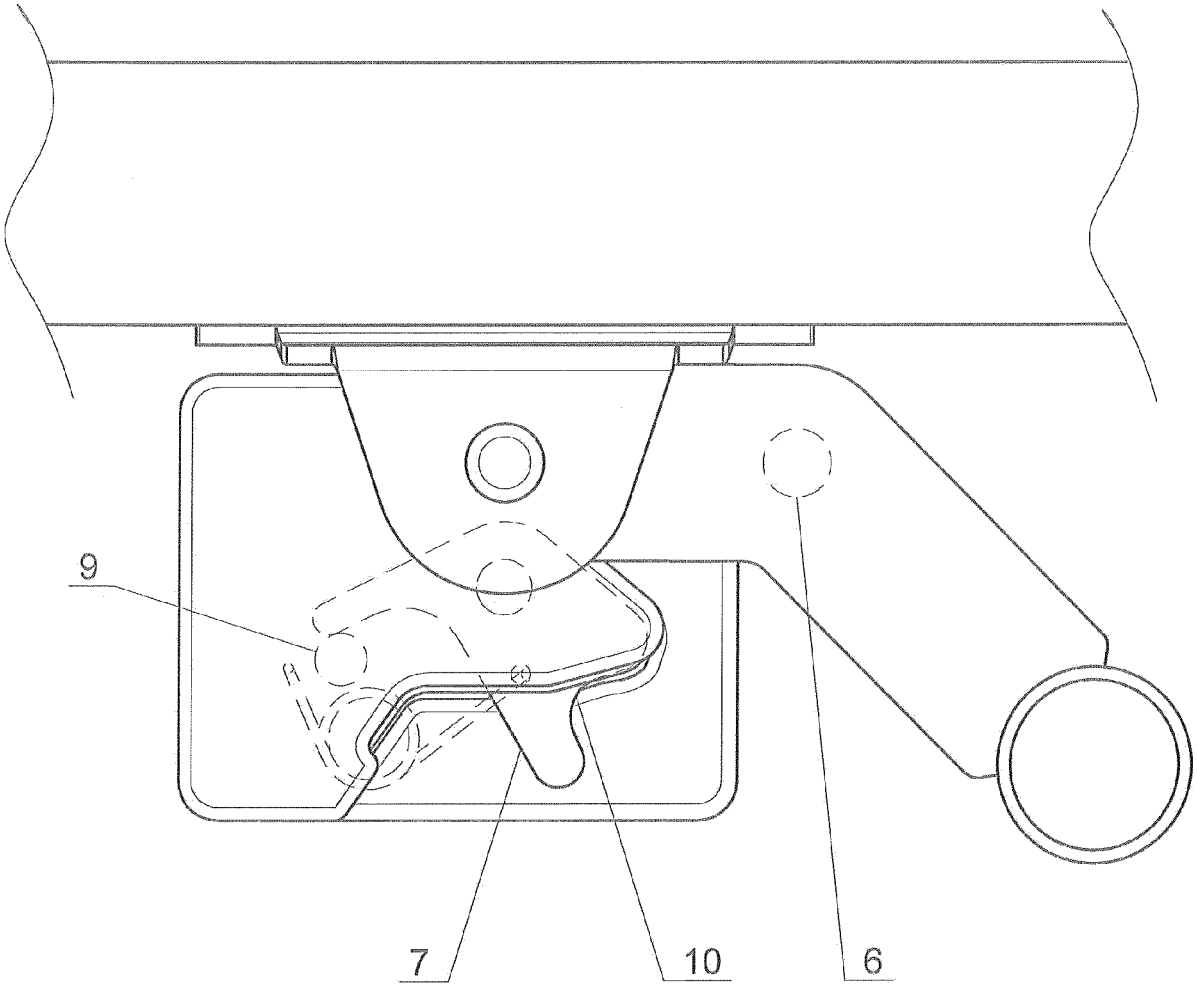

Fig. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 16 15 2157

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 2 083 117 A (BRAAS & CO GMBH) 17 March 1982 (1982-03-17) * page 2, lines 85-94; figure 1 *	1-4	INV. E05B63/24 E05C3/04
X	DE 197 17 351 A1 (WINKHAUS FA AUGUST [DE]) 29 October 1998 (1998-10-29) * figures *	1-5	ADD. E04D13/035
A	FR 2 064 780 A5 (SAMM) 23 July 1971 (1971-07-23) * figures 2-3 *	5	
A	WO 2007/028590 A2 (VKR HOLDING AS [DK]; TORBEN ALLESEN PEDERSEN [DK]) 15 March 2007 (2007-03-15) * pages 10-12; figures 5-9 *	1-5	
A	WO 2005/106174 A1 (FAKRO PP SPOLKA ZOO [PL]; FLOREK RYSZARD [PL]; ZWYRTEK BRONISLAV [CZ]) 10 November 2005 (2005-11-10) * figure 7 *	1-5	
A	WO 2012/016372 A1 (DONG ZHIJUN [CN]) 9 February 2012 (2012-02-09) * figures 8,10,11 *	1-5	

TECHNICAL FIELDS SEARCHED (IPC)

E05B
E05C
E05D
E04D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	26 May 2016	Leroux, Corentine

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 16 15 2157

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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26-05-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2083117 A	17-03-1982	AT 373025 B	12-12-1983
		BE 888382 A1	31-07-1981
		CH 650059 A5	28-06-1985
		DE 3031318 A1	08-04-1982
		DK 130581 A	21-02-1982
		FR 2488936 A1	26-02-1982
		GB 2083117 A	17-03-1982
		IT 1170851 B	03-06-1987
		JP S628589 B2	24-02-1987
		JP S5771979 A	06-05-1982
		LU 83256 A1	24-06-1981
		NL 8101530 A	16-03-1982
		US 4416094 A	22-11-1983
DE 19717351 A1	29-10-1998	NONE	
FR 2064780 A5	23-07-1971	NONE	
WO 2007028590 A2	15-03-2007	EA 200800749 A1	30-12-2008
		JP 5114407 B2	09-01-2013
		JP 2009520134 A	21-05-2009
		US 2008309099 A1	18-12-2008
		WO 2007028590 A2	15-03-2007
WO 2005106174 A1	10-11-2005	CN 1997803 A	11-07-2007
		EP 1751385 A1	14-02-2007
		PL 210344 B1	31-01-2012
		WO 2005106174 A1	10-11-2005
WO 2012016372 A1	09-02-2012	CN 103314170 A	18-09-2013
		EP 2601365 A1	12-06-2013
		WO 2012016372 A1	09-02-2012

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- GB 2083117 B **[0002]**