(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
05 June 2025 (05.06.2025)

WIPO | PCT

(10) International Publication Number
WO 2025/116856 A1

(51) International Patent Classification:
E05C 7/00 (2006.01) *E06B 7/18* (2006.01)

(21) International Application Number:
PCT/TR2024/051265

(22) International Filing Date:
30 October 2024 (30.10.2024)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2023/016093 29 November 2023 (29.11.2023) TR

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(54) Title: REAR LOCKING STRIKER

(57) Abstract: Rear locking striker The invention relates to a rear locking striker (40), which is used in the sash profile (20) in door and window sliding systems, and which enables the sash profile (20) to be closed tightly and hermetically to the frame profile (10) from the rear side by adjusting its position without the need for adjustment in case the sash profile (20) sags after a certain period of use.

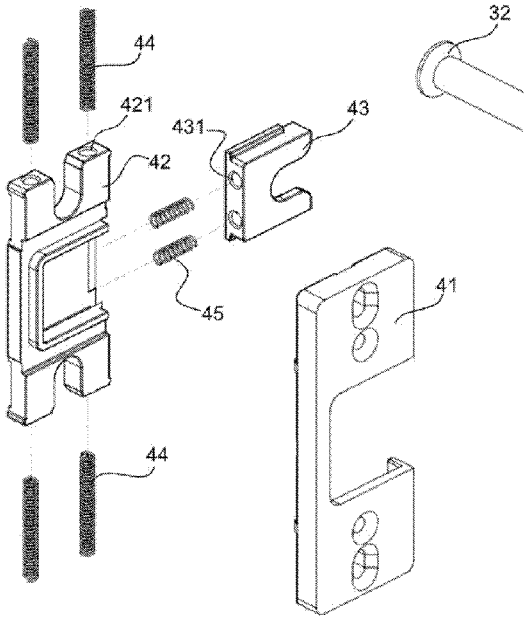


Figure 1

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Published:

— *with international search report (Art. 21(3))*

— *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*

Rear locking striker

Technical Field

The invention relates to a rear locking striker used in the sash profile of door and window sliding systems.

In particular, the invention relates to a rear locking striker which, in the event of sagging of a door or window sash after a certain period of use, adjusts its position without the need for adjustment so that the sash closes tightly and hermetically against the frame from the rear side.

Background Art

Sliding door and window systems with sashes that can slide on the horizontal axis are preferred in narrow spaces where it is not possible to open the sash by rotating around the vertical axis, such as standard hinged doors and windows. Sliding door and window systems, which are widely used today, are applied in double, triple or quadruple sash combinations depending on the openness of the usage area. In sliding door and window systems, the door sash must be tightly closed to the sash profile in the locked position and must be able to provide sealing.

In the state of the art, door and window systems utilise fastening assemblies that pull the door sash towards the frame in order for the door sash to close tightly to the frame profile in the locked position. These assemblies consist of a puller pin fitted to the rear of the door sash and a striker connected to the front surface of the sash profile, opposite to the said pin. When the door sash is closed and switched to the locked position, the pin in the door sash passes into the striker in the sash profile and sealing is ensured by pulling the door sash towards the sash profile. However, in the fastening assemblies used in current applications, the striker attached to the sash profile requires manual adjustment to ensure that the pin in the sash profile is centered and engaged. The adjustment process made during the installation of the door and window system is disrupted due to the sagging of the door or window sash after a certain period of use. It is therefore necessary to readjust the striker so that it centers the pin

to ensure a tight closure. Since this is a situation that requires skill of the user, it causes problems in closing the window or door sash due to the inability to make the necessary adjustment.

Due to the fastening assemblies used in the state of the art, in the door and window sliding systems, although efficient sealing is provided in the front, upper and lower regions of the sash in the studies carried out to ensure sealing in all regions of the sash profile, the desired efficiency cannot be obtained on the back side. Therefore, in the known state of the art, there is a need for an improvement in the assemblies used in door and window sliding systems.

An example of the known state of the art from the literature search is document no. EP2682545. The document relates to a closing device for a sliding door or sliding window. In the aforesaid closing assembly, a pin bearing assembly is connected to the rear surface of the sash profile and a closing element designed as a locking part is connected to the front surface of the frame profile. The closing element in question does not have any adjustment device to ensure that the pin in the sash profile is centered and engaged. For this reason, during the installation of the sliding door or sliding window, the closing element used as a striker must be installed in such a way that the pin is exactly centered. This is a very difficult process. It requires a very low margin of error and a skillful assembly. On the other hand, in case of sagging of the door or window sash, it is necessary to remove the closing element, that is, the striker, and bring it back to the dimensions in which it was first assembled.

Another example of the known state of the art is document no. EP3791035. The present document relates to a fastening assembly for a sliding window or sliding door. In the aforesaid assembly, a pin bearing assembly is connected to the rear surface of the sash profile and a closing element designed as a locking part is connected to the front surface of the frame profile. Setscrews are arranged on the closing element in question for adjustment. However, this setscrew requires manual adjustment to ensure that the pin in the sash profile is centered and engaged. Therefore, in case of sagging of the door or window sash, the closing element must be adjusted up and down by means of the aforementioned setscrews.

As a result, the existence of the above-mentioned problems and the inadequacy of the existing solutions made it necessary to make development in the related technical field.

Aim of the invention

The present disclosure relates to a rear locking striker developed for eliminating the aforementioned disadvantages and providing new advantages to the respective technical field.

The main aim of the invention is to provide a rear locking striker which, in the event of sagging of a door or window sash after a certain period of use, adjusts its position without the need for adjustment so that the sash closes tightly and hermetically against the frame from the rear side.

The aim of the invention is to provide a rear locking striker which is connected to the rear side of the sash profile and which enables the puller pin, which pulls the sash profile to be sealed, to center and self-adjust the puller pin in the desired position by means of vertical and horizontal adjustment springs.

Another aim of the invention is to provide a rear locking striker which eliminates the adjustment problems of the centering bearing in which the puller pin is centered during the installation and use of the sash profile in door and window sliding systems, and provides ease of installation and use.

In order to fulfil all the above-mentioned purposes and all the purposes that may arise from the detailed description, the invention is a rear locking striker which is used in the sash profile in door and window sliding systems and which includes a puller assembly with a puller pin which enables the sash profile to be pulled towards the frame profile, wherein it comprises:

- the housing body attached to the front surface of the frame profile in the closed position of the sash profile, opposite the puller assembly,
- the vertical adjustment part, which is located in the housing body and adjusts its own position in the closed position of the sash profile by moving up and down on the vertical axis in order to catch the arrival position of the puller pin,
- the centering bearing which is located in the vertical adjustment part and adjusts its own position in the closed position of the sash profile by moving in the horizontal axis to right and left to center the puller pin,

- vertical adjustment spring which is located on the vertical axis between the housing body and the vertical adjustment part and moves the vertical adjustment part up and down in the housing body on the vertical axis,
- the horizontal adjustment spring which is located in the horizontal axis between the vertical adjustment part and the centering bearing and which moves the centering bearing in the horizontal axis to the right and left within the vertical adjustment part.

The structural and characteristic features of the invention and all its advantages will be understood more clearly by the figures given below and the detailed description written with reference to these figures. Therefore and thus, the evaluation should be made with reference to these figures and detailed description.

Figures to Help Understand the Invention

Figure 1: A view of rear locking striker of the invention as disassembled.
Figure 2: A view of rear locking striker of the invention.
Figure 3: A view of the rear locking striker and puller assembly of the invention as mounted on the frame profile and the sash profile.

Reference Numerals

10. Frame profile
20. Sash profile
30. Puller assembly
31. Rear locking trolley
32. Puller pin
40.Rearlocking **striker**
41. Housing body
42. Vertical adjustment part
421. Vertical spring slot
43. Centering bearing
431. Horizontal spring slot
44. Vertical adjustment spring
45. Horizontal adjustment spring

Detailed Description of the Invention

The preferred alternatives of the rear locking striker (40) of invention, which are mentioned in this detailed description, are only intended for providing a better understanding of the subject-matter, and should not be construed in any restrictive sense.

Figure 1 shows a view of rear locking striker of the invention as disassembled. Accordingly, the rear locking striker (40) comprises, in its most basic form the housing body (41), which is connected to the front surface of the frame profile (10) in the closed position of the sash profile (20) opposite the pulling device (30), the vertical adjustment part (42), which moves up and down in the vertical axis within the housing body (41), the centering bearing (43) moving in the vertical adjustment part (42) in the horizontal axis to the right and left, the vertical adjustment spring (44) moving the vertical adjustment part (42) in the housing body (41) in the vertical axis up and down, the horizontal adjustment spring (45) moving the centering bearing (43) in the vertical adjustment part (42) in the horizontal axis to the right and left.

The housing body (41) forming the main structure of the rear locking striker (40) of the invention is connected to the front surface of the frame profile (10), and is positioned on the front surface of the frame profile (10) in the closed position of the sash profile (20) against the puller assembly (30).

The pulling assembly (30) ensures that the sash profile (20) is pulled towards the frame profile (10). Said puller assembly (30) mainly comprises a rear locking trolley (31) which is connected to the rear surface of the sash profile (20) and a puller pin (32) located on the rear locking trolley (31). The puller pin (32), when the sash profile (20) is in the locked position, is centered on the rear locking striker (40), allowing the sash profile (20) to be pulled towards the frame profile (10) and creating the necessary pressure for sealing.

In order for the rear locking striker (40) to center the puller pin (32) and to create the necessary pressure towards the frame profile (10) when the sash profile (20) is in the locked position and to close tightly, a vertical adjustment part (42) is inserted into the housing body (41) of the rear locking striker (40). Said vertical adjustment part (42) moves up and down in the housing body (41) on a vertical axis. For this movement of

the vertical adjustment part (42), vertical adjustment springs (44) are placed in the vertical spring slots (421) on the upper and lower surfaces.

The vertical adjustment springs (44) located on the vertical axis between the housing body (41) and the vertical adjustment part (42) are springs with high elasticity that enable the vertical adjustment part (42) to operate in the desired position without adjustment in the vertical position in the housing body (41). The vertical adjustment part (42) moves up and down in the housing body (41) in the vertical axis by means of the vertical adjustment springs (44) and adjusts its position by itself, thus ensuring that the puller pin (32) is centered in the vertical axis without any adjustment.

A centering bearing (43) is inserted in the vertical adjustment part (42), which centers the puller pin (32). Said centering bearing (43) moves in the vertical adjustment part (42) on a horizontal axis to the right and left. For this movement of the centering bearing (43), horizontal adjustment springs (45) are placed in the horizontal spring slots (431) on its rear surface.

Horizontal adjustment springs (45) located on the horizontal axis between the vertical adjustment part (42) and the centering bearing (43) are springs with high elasticity, which allow the centering bearing (43) to operate in the desired position in the vertical adjustment part (42) without adjustment in the horizontal position. The centering bearing (43) adjusts its position in the vertical adjusting part (42) by moving left and right in the horizontal axis, thus enabling the puller pin (32) to be centered in the horizontal axis without any adjustment.

The principle of operation of the rear locking striker (40) of the invention is as follows:

When the puller pin (32) fixed on the rear locking trolley (31) on the frame profile (10) enters the closing position of the sash profile (20), it enters the centering bearing (43) in the rear locking striker (40) on the sash profile (20) and with the movement of the door or window handle on the sash profile, the puller pin (32) compresses the sash profile (20) by pulling it towards the frame profile (10) and creates the necessary pressure for sealing.

In cases such as sagging of the sash profile (20) over time, the vertical adjustment part (42) moves up and down on the vertical axis by means of the vertical adjustment

springs (44) and adjusts its own position, captures the arrival position of the puller pin (32) and provides problem-free operation without the need for adjustment. In between the moving distance of the sash profile (20) and the centering bearing (43), the centering bearing (43) moves left and right on the horizontal axis by means of the horizontal adjustment springs (45) and thus adjusts its own position, so that the desired catching position of the puller pin (32) is achieved without adjustment. This ensures that the sash profile (20) is pulled towards the frame profile (10) and the pressure required for sealing is created between the sash profile (20) and the frame profile (10).

CLAIMS

1. A rear locking striker (40) which is used in the sash profile (20) in door and window sliding systems and which includes a puller assembly (30) with a puller pin (32) which enables the sash profile (20) to be pulled towards the frame profile (10), ***characterized in that*** it comprises:

- the housing body (41) attached to the front surface of the frame profile (10) in the closed position of the sash profile (20), opposite the puller assembly (30),
- the vertical adjustment part (42), which is located in the housing body (41) and adjusts its own position in the closed position of the sash profile (20) by moving up and down on the vertical axis in order to catch the arrival position of the puller pin (32),
- the centering bearing (43) which is located in the vertical adjustment part (42) and adjusts its own position in the closed position of the sash profile (20) by moving in the horizontal axis from right to left to center the puller pin (32),
- vertical adjustment spring (44) which is located on the vertical axis between the housing body (41) and the vertical adjustment part (42) and moves the vertical adjustment part (42) up and down in the housing body (41) on the vertical axis,
- the horizontal adjustment spring (45) which is located in the horizontal axis between the vertical adjustment part (42) and the centering bearing (43) and which moves the centering bearing (43) in the horizontal axis to the right and left within the vertical adjustment part (42).

2. A rear locking striker (40) according to claim 1, characterized in that said vertical adjustment part (42) comprises a vertical spring slot (421) located on its upper and lower surface, which allows the vertical adjustment springs (44) to be fixed to the vertical adjustment part (42).

3. A rear locking striker (40) according to claim 1, characterized in that said centering bearing (43) comprises a horizontal spring slot (431) located on the its rear surface, which allows the horizontal adjustment springs (45) to be fixed to the centering bearing (43).

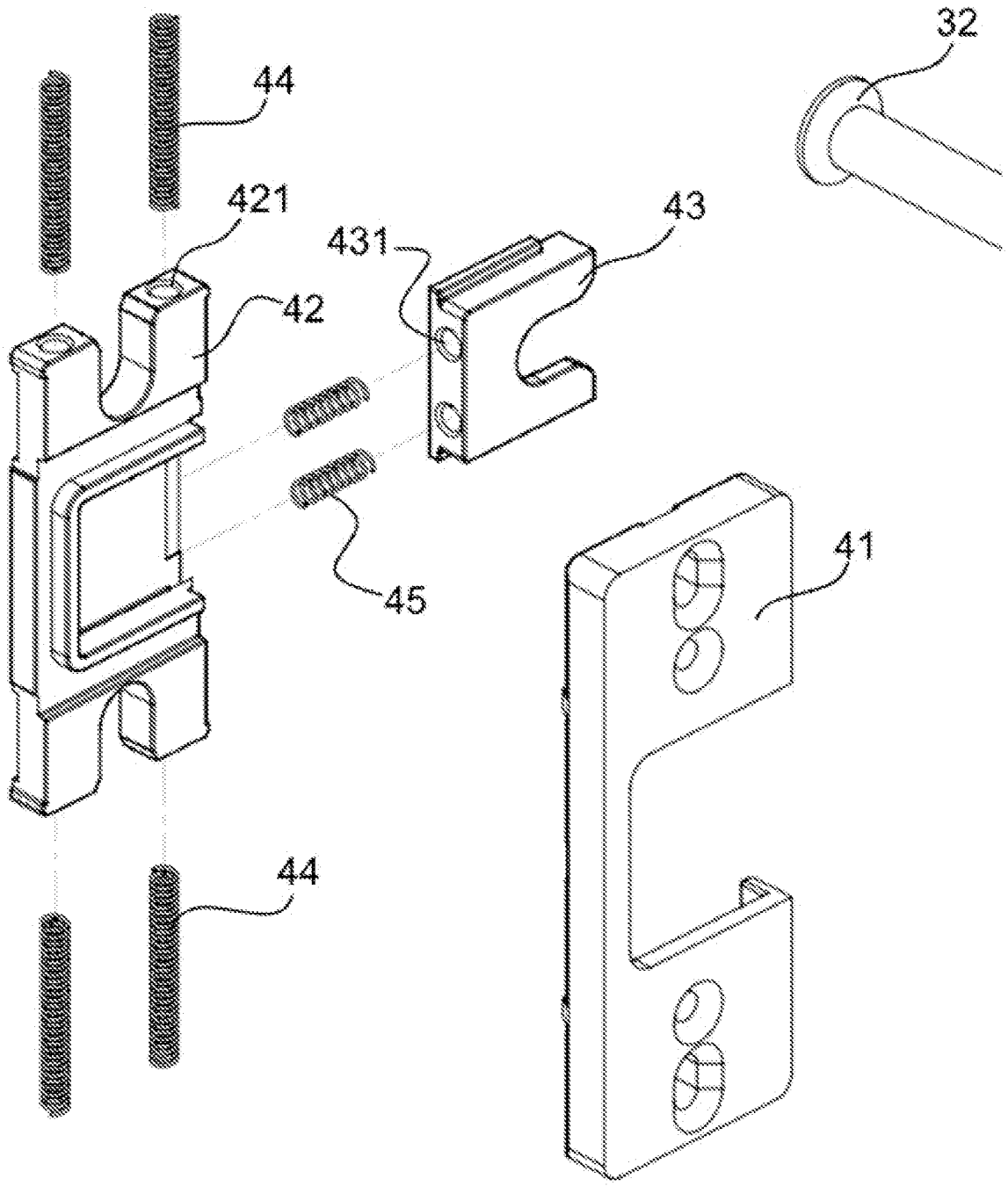


Figure 1

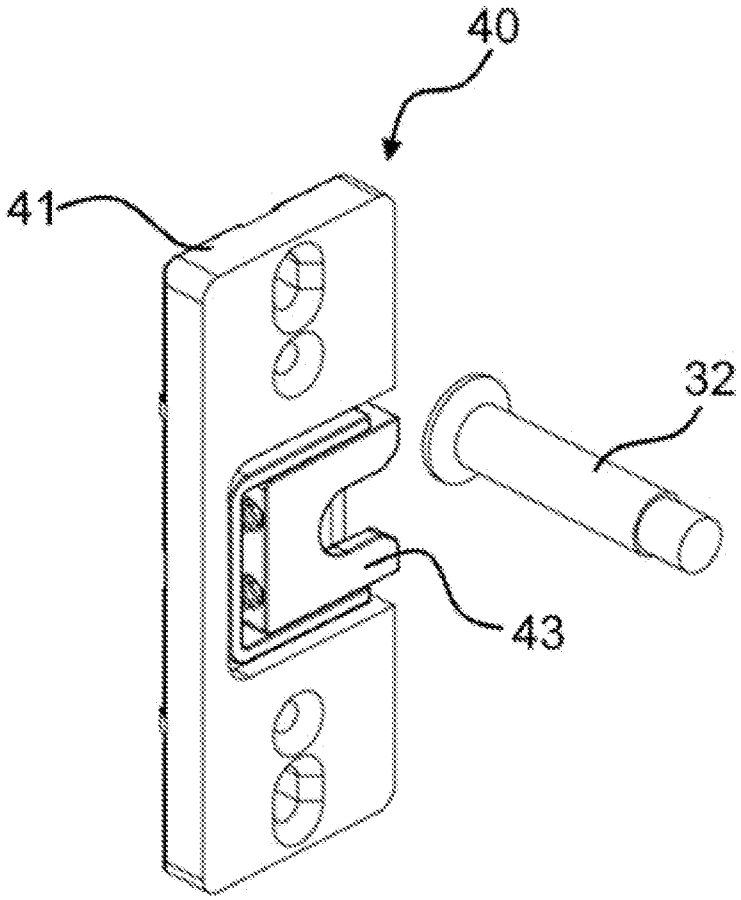


Figure 2

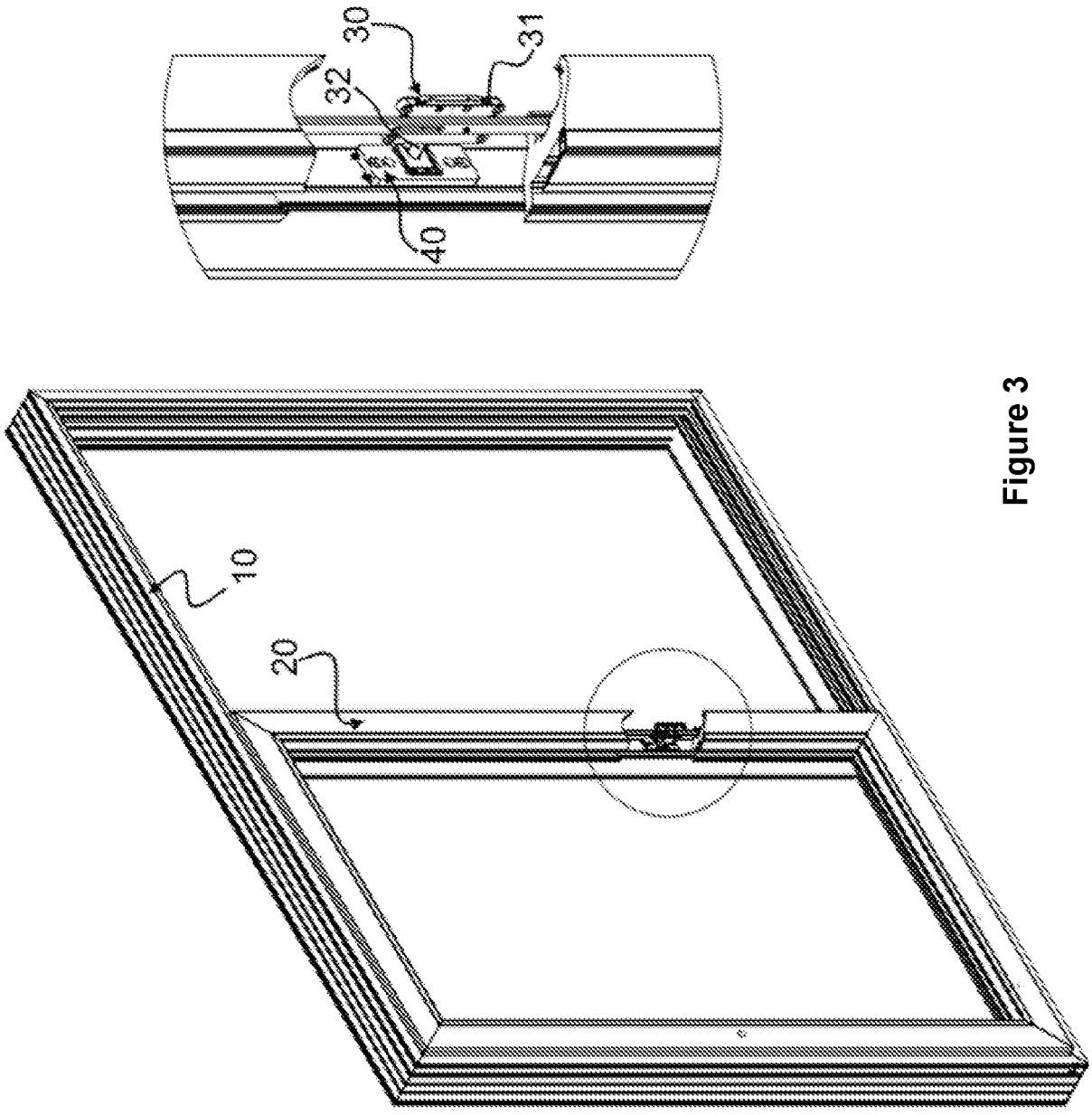


Figure 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/TR2024/051265

A. CLASSIFICATION OF SUBJECT MATTER

E05C 7/00(2006.01)i; **E06B 7/18**(2006.01)i

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)

E05C 7/00; E06B 7/18

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

TURKPATENT Database

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

AbS KIME, Google Patents, Turkish National Patent Database, IEEE, ScienceDirect

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	AU 2011100723 A4 (GHASSAN HADDAD) 21 July 2011 (2011-07-21) Claims 1,2 and paragraphs: 5-20	1-3
A	KR 20220140262 A (JANG MAN DONG [KR]) 18 October 2022 (2022-10-18) Abstract, paragraphs: 12-21 claims :1-4	1-3
A	KR 20230144733 A (MRCNE CO LTD [KR]) 17 October 2023 (2023-10-17) Paragraphs 5-29, claims : 1 and 2	1-3

☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"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
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Date of the actual completion of the international search	Date of mailing of the international search report
05 February 2025	**10 February 2025**

Name and mailing address of the ISA/TR	Authorized officer
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/TR2024/051265

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
AU 2011100723 A4	21 July 2011	AU 2011100723 B4	13 December 2012
KR 20220140262 A	18 October 2022	KR 102540957 B1	05 June 2023
KR 20230144733 A	17 October 2023	NONE	