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(54) **ANTI-BURGLARY SLIDING FRAMES SYSTEM**

**EINBRUCHSSICHERES SCHIEBERAHMENSYSTEM**

**SYSTÈME DE CHÂSSIS COULISSANTS ANTI-CAMBRIOLAGE**

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(56) References cited:  
**EP-A2- 1 775 403 WO-A1-01/00952**  
**CA-A1- 1 029 063 US-A- 3 877 740**

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## Description

[0001] This invention refers to an anti-burglary sliding frames system, applicable to doors and windows, glazing and shutters, whose two main profiles -the frame guide and the sash- are designed in such a way that allows the entrapment and the full lock of the sash's movable sliding framework, into the stable frame of the frame guide attached to the wall, by adding the minimum number of accessories.

[0002] Up to this day, when it comes to aluminium systems for sliding doors and windows, the manufacturing technology has not shown any similar invention as defined by the appended claim. Contrariwise, current system manufacturers have been using a number of expensive accessories and complicated methods in their attempt to achieve the sliding framework's locking into the sash's profile; and finally, these methods produce various locking points throughout the system, however insufficient, as they fail to achieve the totally secure locking between the two frames, meaning the system is still not burglar-proof; it is vulnerable even to rather simple forms of mechanical pressure exerted upon the frame's locking mechanism. Also, at the stage of sliding aluminium frame installation in a building, the adjustment of the striker plates with the locking sub-mechanisms of the sliding frames systems is a difficult process, that requires very specific measurements that can be time consuming.

[0003] WO 01/00952 discloses an anti-burglary sliding frames system for doors and windows in accordance with the preamble of claim 1. The anti-burglary sliding frames system of WO 01/00952 comprises a stable frame guide profile and a movable sliding sash profile, wherein the sash profile has a chamber adapted to receive a locking profile and the frame guide profile has a groove adapted to entrap the locking profile so that the movable sliding sash profile gets embodied along the entire height thereof within the frame guide profile when the sliding frames system is brought in a locked condition

This invention aims to surpass the disadvantages described above, by following a new and groundbreaking design and construction method of the sash's and the frame guide's profiles used in sliding systems for doors and windows. When the cremone is rotated into locking position, the sliding frame's sash gets embodied along its entire height with the door's or window's profile of the frame guide: this way, we achieve totally secure locking along the whole height of the sliding frame's profile, not only at various locking points, and, as a result, the system becomes absolutely burglarproof.

[0004] An example of the system's construction method is described hereunder, along with references to drawings, which clearly illustrate the way in which the invention's basic principle is implemented, while:

Figure 1 illustrates the cross section of a common aluminium frame guide profile (1), which has been designed having as its main characteristic the exist-

ence of a groove (2).

Figure 2 illustrates the cross section of an aluminium sash profile (3) with a groove (5), where the locking profile (4) is placed.

Figure 3 illustrates the cross section of the locking profile (4) being placed into the groove (5) of the aluminium sliding sash's profile (3), in its final positioning in relation to the profile of the frame guide (1). In Figure 3, the locking system has not been yet activated.

Figure 4 illustrates the same cross section as Figure 3 does, with the difference that the locking system is activated and the locking profile (4) is rotated and entered into the groove (2) of the aluminium frame guide's profile (1); as a result, the sliding sash's profile (3) gets embodied with the aluminium frame guide's profile (1) and the whole sliding frame is eventually locked along the whole height of the door or the window.

Figure 5 illustrates a cross section of the accessory (6) which is placed into the groove (5) of the profile of the sliding sash (3).

Figure 6 is a 3-D illustration of the clamping part (6) which has a groove (7), which groove is also the motion driver of the locking accessory (4). The clamping part (6) has two lateral projections (8) which help and guide its entering into the sliding sash's profile groove (5) of the sliding sash's profile (3). Additionally, the clamping part (6) has a through-bore (9), in which a common screw goes, in order to stabilize the clamping part (6) on the sliding sash's profile (3) at the desired upper and lower positions. Figure 7 illustrates the way in which the pin (10) of the cremone -commercially available- goes into the helical groove (11), which has been created on the locking profile (4) half way along its height.

[0005] The conversion of the pin's (10) linear motion into a rotational motion of the locking profile (4) is obtained as follows: When the cremone is rotated, it moves the pin (10) in a linear manner, and as it is moving into the helical groove (11), it forces the locking profile (4) to rotate and trap the sash (3) into the groove (2) of the frame guide (1).

[0006] Using the sash's profile (3), the movable sliding frame for doors and windows can be assembled and installed on the stable framework, which uses the frame guide's profile (1), according to the customs of common technology.

[0007] The basic implementation principle of the locking method according to this invention, can be applied in the three basic phases that follow:

Phase 1: The locking profile (4) is placed into the groove (5) of the sliding sash's profile (3) along its whole height. The locking profile (4) has the helical groove (11) half way along its height in which the cremone's pin (10) enters.

Phase 2: Two clamping parts (6) are placed within the chamber (5) of the sash (3) at the two upper and lower edges of the locking profile (4).

Phase 3: As the cremone rotates, it transforms the rotary motion to linear motion of the cremone's pin (10), which in its turn forces the locking profile (4) to rotate and entrap the sash (3) into the groove (2) of the frame guide (1). At this phase, the movable sliding frame, which is made of the sash profile (3) -glazing or shutter-, is locked and embodied with the stable framework, which is made of the frame guide profile (1), in such a way that it makes the whole sliding aluminium framework completely burglar-proof.

[0008] As the cremone returns to its original position, the mechanism described above is activated backwards and it unlocks the movable sliding frame of the sash's profile (3), from the stable framework of the frame guide profile (1), since the locking profile (4) is also forced to return to its original position in the groove (5) of the sash (3), along the whole height of the sliding door or window.

[0009] The extremely strong and absolutely secure embodiment of the two frames - movable and stable frame- of the aluminium sliding framework for doors or windows, as it was described in the above, constitutes the main principle of the invention.

[0010] The previously described main accessories and materials can be used in any desired form and any size or shape, and they function according to their main purpose, as it is shown in the drawings attached to this document and as it is defined by the appended claim.

## Claims

1. An anti-burglary sliding frames system for doors and windows comprising an aluminium stable frame guide profile (1) and an aluminium movable sliding sash profile (3), said movable sliding sash profile (3) having a chamber (5) adapted to receive a locking profile (4) and said stable frame guide profile (1) being provided with a groove (2) adapted to entrap the locking profile (4) so that said movable sliding sash profile (3) gets embodied along the entire height thereof within said stable frame guide profile (1) when said sliding frames system is brought in a locked condition, **characterised in that** a pair of clamping parts (6) is being placed within said chamber (5) of the movable sliding sash profile (3) at the upper and lower ends of the locking profile (4), each one of said clamping parts (6) being provided with lateral projections (8) that guide its entering within said chamber (5) of the movable sliding sash profile (3) and with a throughbore (9) adapted to receive a screw for stabilizing the clamping part (6) onto the movable sliding sash profile (3) and with a groove (7) providing a motion driver of the locking profile (4),

said locking profile (4) being provided with a helical groove (11) half way along its height, said helical groove (11) being configured to receive a pin (10) being adapted to move linearly within said helical groove (11) and render a rotational movement of said locking profile (4), said locking profile (4) thereby being trapped within said groove (2) of said stable frame guide profile (1) when said sliding frames system is brought in a locked condition so that said movable sliding sash profile (3) gets embodied along the entire height thereof within said stable frame guide profile (1).

## 15 Patentansprüche

1. Einbruchsicheres Schieberahmensystem für Türen und Fenster, das ein stabiles Aluminium-Führungsrahmenprofil (1) und ein bewegliches Aluminium-Schiebeflügelprofil (3) einschließt, wobei das besagte bewegliche Schiebeflügelprofil (3) eine Kammer (5) verfügt, die für die Aufnahme eines Verriegelungsprofils (5) angepasst wird und das stabile Führungsrahmenprofil (1) mit einer Nut (2) versehen ist, die angepasst wird, um das besagte Verriegelungsprofil (4) fangen zu können, so daß das besagte bewegliche Schiebeflügelprofil (3) entlang dessen Gesamthöhe innerhalb des besagten stabilen Führungsrahmenprofils (1) einverleibt werden kann, wenn das besagte Schieberahmensystem in Verriegelungszustand gebracht wird, **dadurch gekennzeichnet daß** ein Paar von Klemmteilen (6) innerhalb der besagten Kammer (5) des beweglichen Schiebeflügelprofils (3) auf das obere und das untere Ende des Verriegelungsprofils (4) eingesetzt wird, wobei jedes der erwähnten Klemmteilen (6) mit seitlichen Vorsprüngen (8) versehen ist, die dessen Eingang innerhalb der besagten Kammer (5) des beweglichen Schiebeflügelprofils (3) hinführen und mit einer durchgehenden Bohrung (9), die angepasst wird, um eine Schraube aufzunehmen, die für die Stabilisierung des Klemmteiles (6) auf dem beweglichen Schiebeflügelprofil (3) bestimmt ist, und mit einer Nut (7), die einen Bewegungsführer dem Verriegelungsprofil (4) gewährt, wobei das besagte Verriegelungsprofil (4) mit einer spiralförmigen Nut (11) versehen ist, die sich auf den halben Weg seiner Höhe befindet, wo die besagte spiralförmige Nut (11) so gestaltet ist, daß sie einen Stift (10) aufnehmen kann, der angepasst wird, um linear innerhalb der besagten spiralförmigen Nut (11) sich bewegen zu können und eine drehbare Bewegung des besagten Verriegelungsprofils (4) zu leisten, indem durch die das besagte Verriegelungsprofil (4) innerhalb der besagten Nut (2) des besagten stabilen Führungsrahmenprofils (1) eingefangen wird, wenn das besagte Schieberahmensystem in Verriegelungszustand gebracht wird, so daß das bewegliche Schie-

beflügelprofil (3) entlang seiner gesamten Höhe innerhalb des besagten stabilen Führungsrahmenprofil (1) einverleibt werden kann.

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## Revendications

1. Système de châssis coulissants anti-cambriolage pour portes et fenêtres comprenant un profil en aluminium stable de guidage de cadre (1) et un profil en aluminium mobile de panneau coulissant (3), où ledit profil mobile de panneau coulissant (3) comprend un compartiment (5) adapté pour recevoir un profil de verrouillage (4) et ledit profil stable de guidage de cadre (1) est muni d'une rainure (2) adaptée pour incorporer le profil de verrouillage (4) afin que ledit profil mobile de panneau coulissant (3) soit inséré le long de toute sa hauteur à l'intérieur dudit profil stable de guidage de cadre (1) lorsque ledit système de châssis coulissants est mis dans un état de verrouillage, **caractérisé en ce qu'**une paire de pièces de serrage (6) est placée à l'intérieur dudit compartiment (5) du profil mobile de panneau coulissant (3), aux extrémités supérieure et inférieure du profil de verrouillage (4), où chacune desdites pièces de serrage (6) mentionnées est munie de saillies latérales (8) qui guident son insertion à l'intérieur dudit compartiment (5) du profil mobile de panneau coulissant (3) et munie d'un orifice traversant (9) adapté pour recevoir une vis pour la stabilisation de la pièce de serrage (6) sur le profil mobile de panneau coulissant (3) et munie d'une rainure (7) qui fournit un dispositif de guidage du mouvement du profil de verrouillage (4), où ledit profil de verrouillage (4) est muni d'une rainure hélicoïdale (11) qui se trouve à la moitié de sa hauteur, où ladite rainure hélicoïdale (11) est configurée afin de recevoir un goujon (10) adapté pour se déplacer linéairement dans ladite rainure hélicoïdale (11) et entraîner un mouvement de rotation dudit profil de verrouillage (4) à travers duquel ledit profil de verrouillage (4) est ainsi incorporé à l'intérieur de ladite rainure (2) dudit profil stable de guidage de cadre (1) lorsque ledit système de châssis coulissants est mis dans un état de verrouillage afin que ledit profil mobile de panneau coulissant (3) soit inséré le long de toute sa hauteur à l'intérieur dudit profil stable de guidage de cadre (1).

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Figure 1

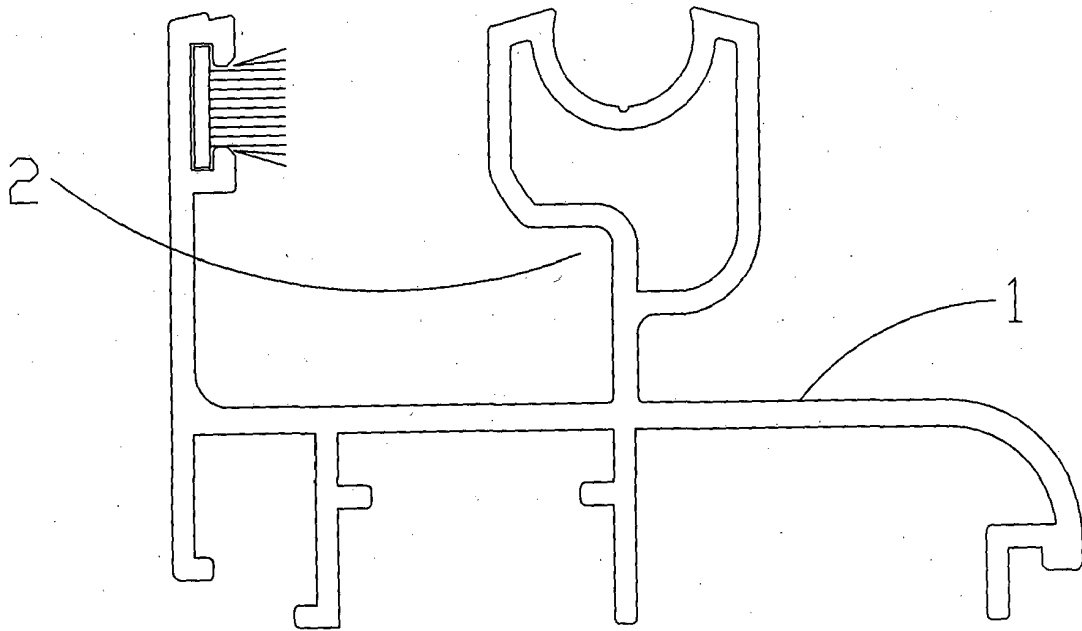


Figure 2

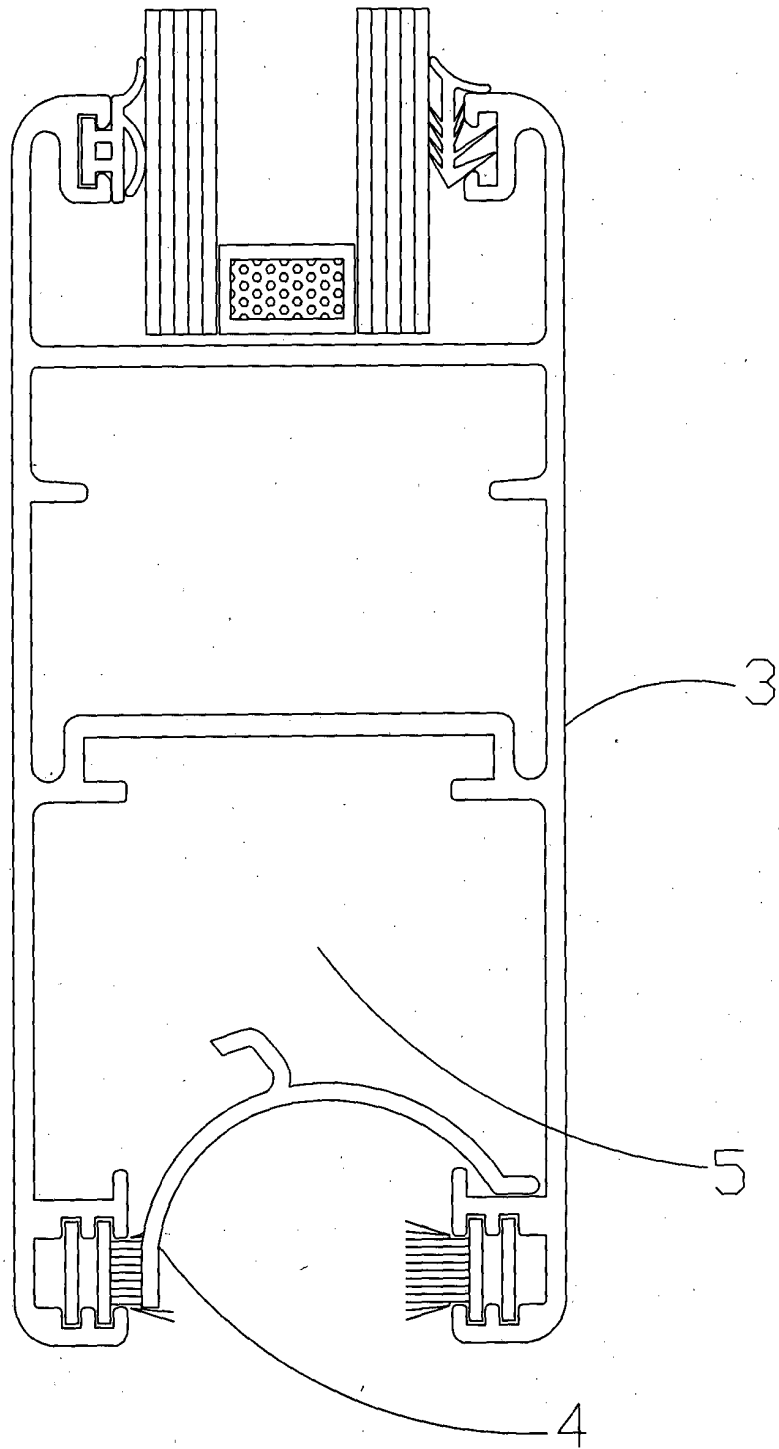


Figure 3

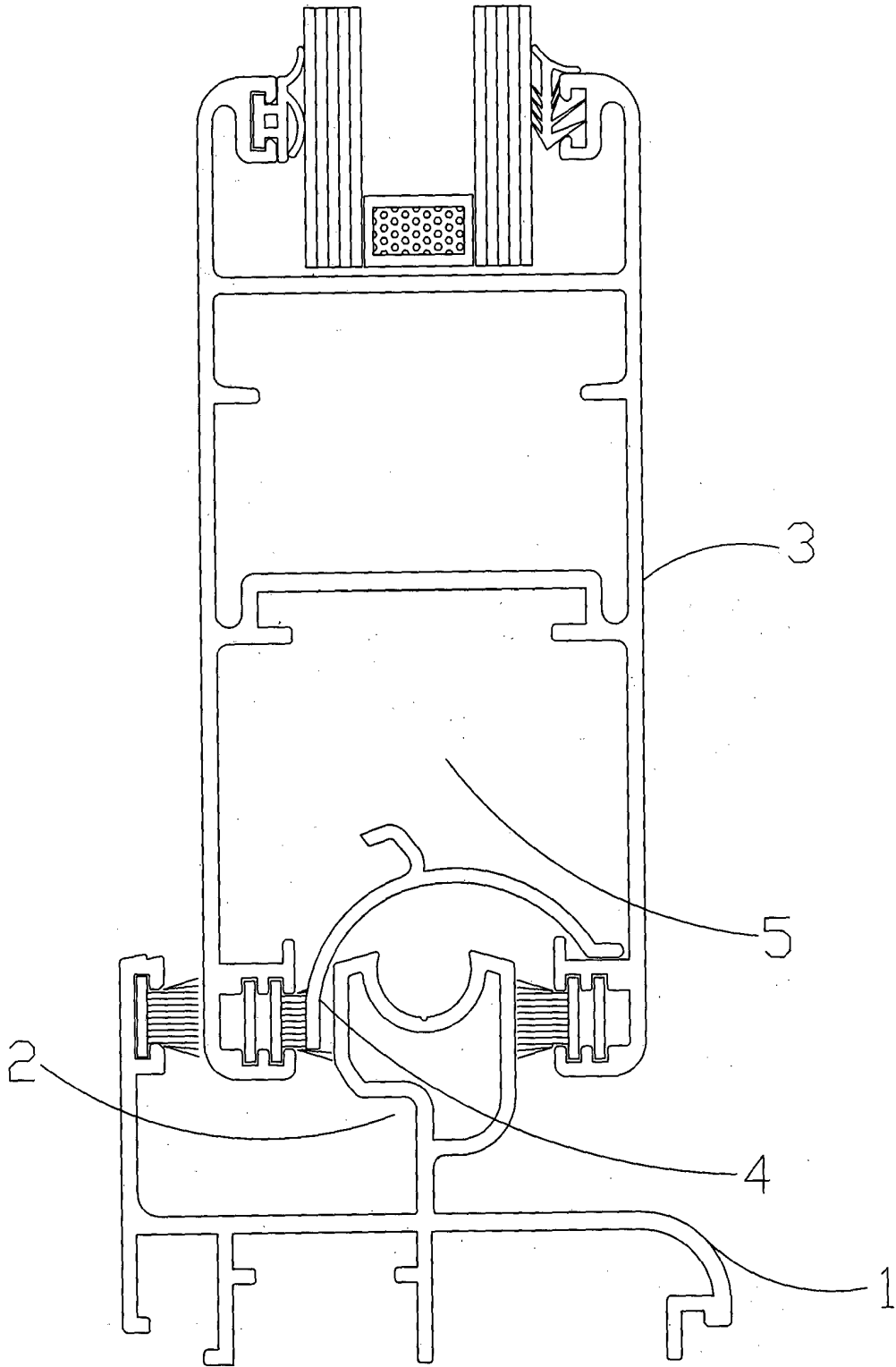


Figure 4

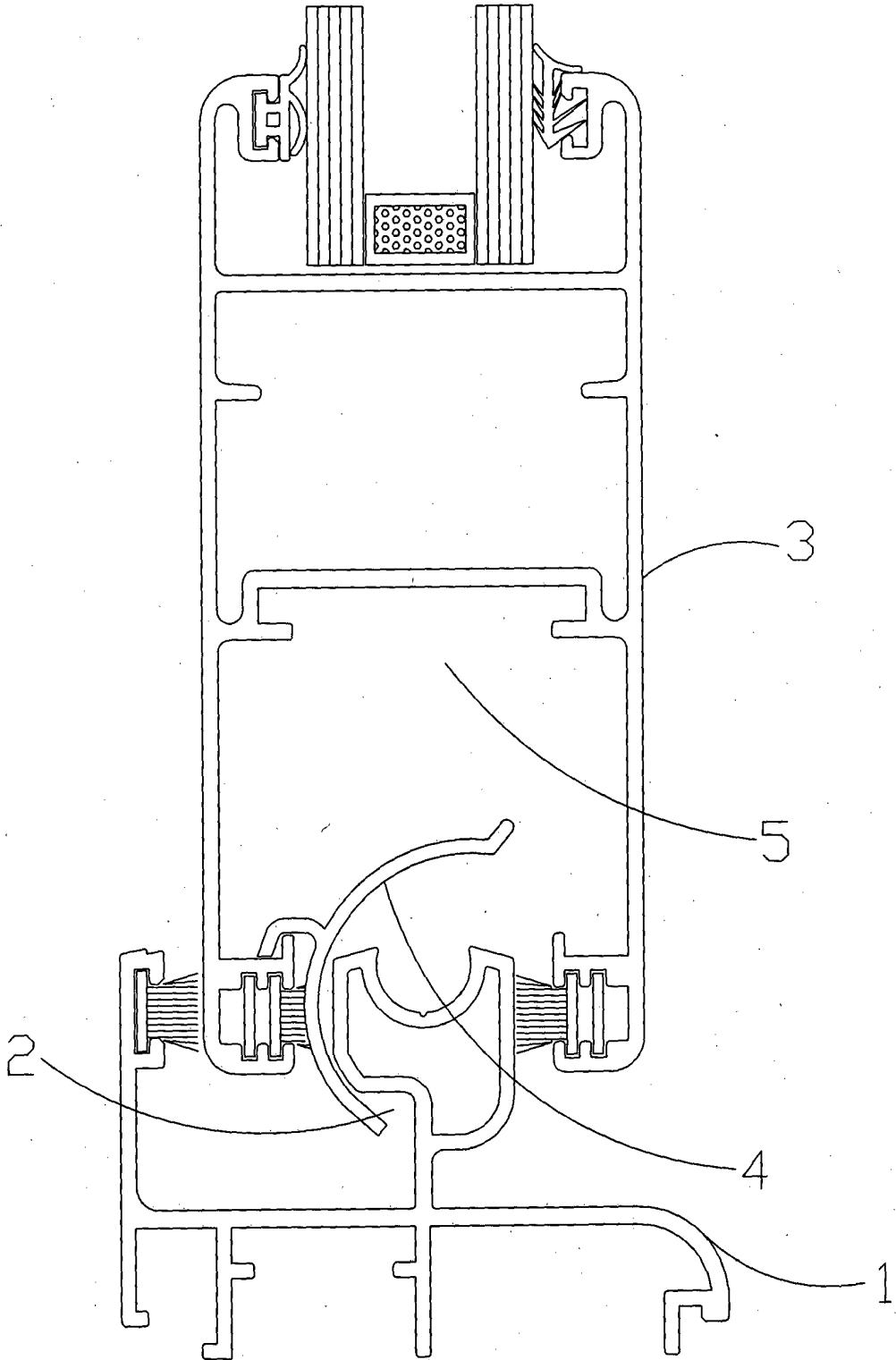




Figure 5

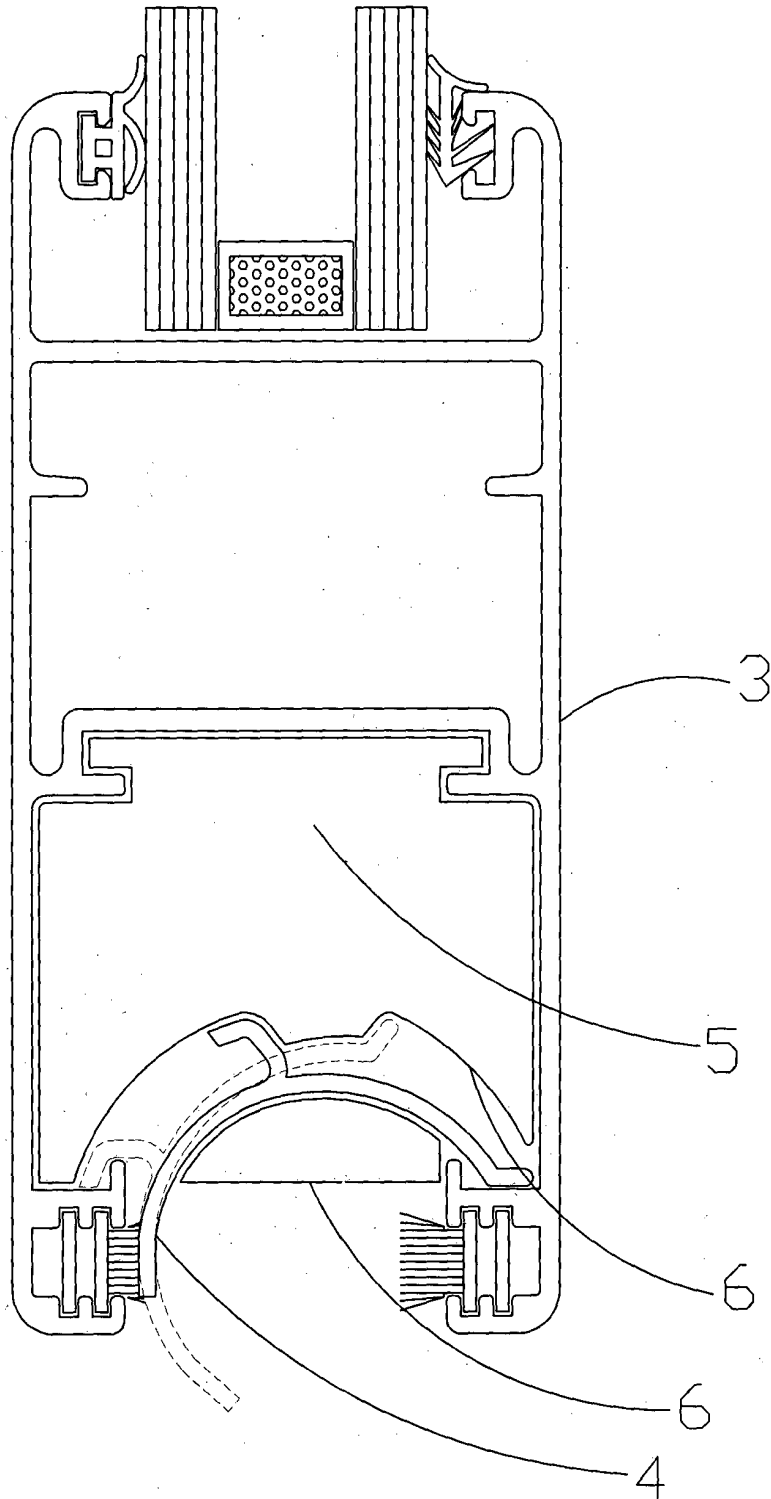


Figure 6

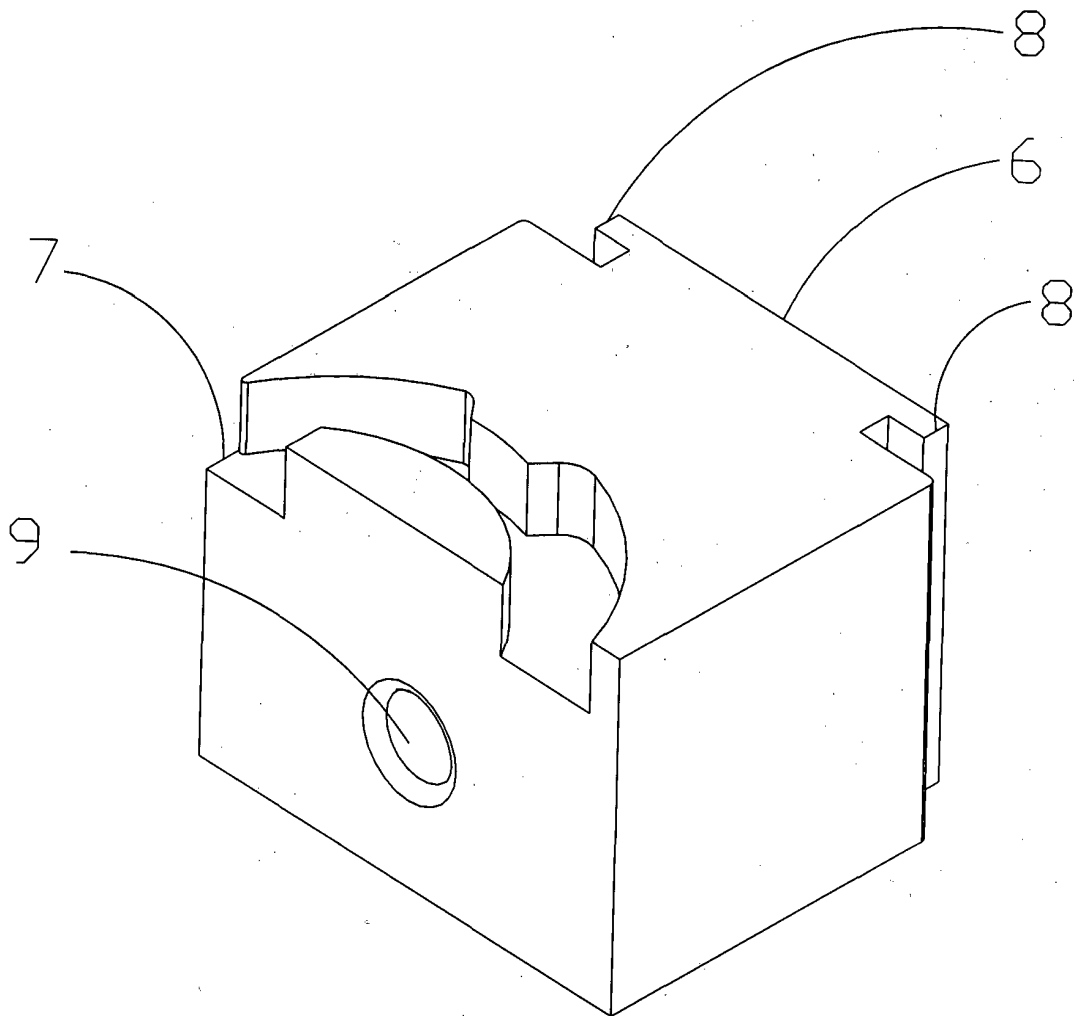
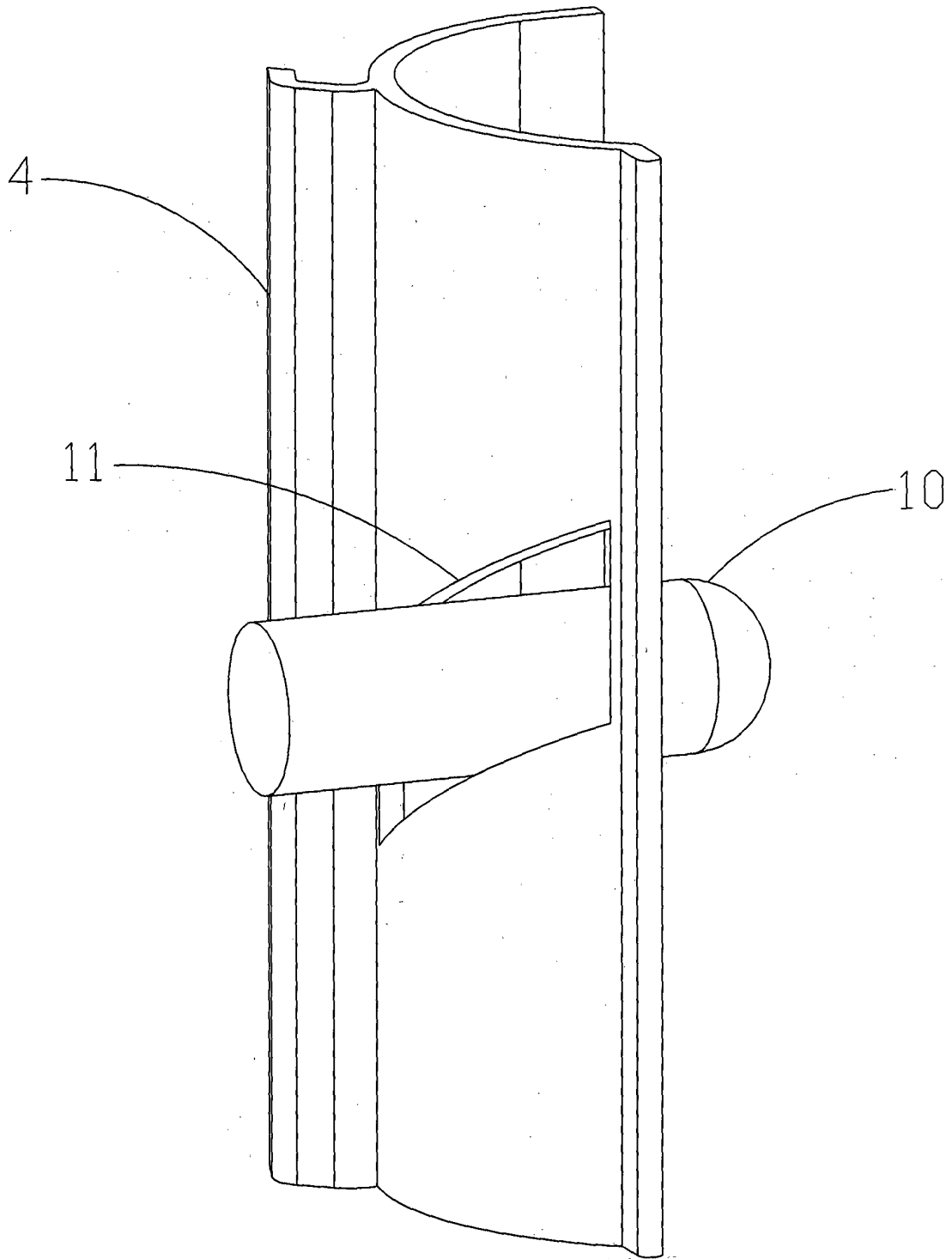


Figure 7



**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- WO 0100952 A [0003]