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(54) **HIDDEN UPLIFTING FRAME WITH LOCKING MECHANISM**

VERSTECKTER HEBERAHMEN MIT SCHLIESSMECHANISMUS

CADRE DE SOULEVEMENT CACHÉ AVEC MÉCANISME DE VERROUILLAGE

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(73) Proprietor: **SEU PLASTICS ONE MAN L.L.C.**
62122 Serres (GR)

(72) Inventor: **MYLONAS, Alexandros**
546 36 Panorama Thessalonikis (GR)

(74) Representative: **Panagiotidou, Effimia**
3 Aristotelous Str.
546 24 Thessaloniki (GR)

(56) References cited:
WO-A1-01/25576
DE-A1- 1 808 276
US-A1- 2009 013 605

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Description

[0001] The invention belongs to the field of engineering and in particular concerns hidden sliding door frames.

[0002] "Hidden" sliding frame means the frame whose aluminium sash frame is entirely inserted into the case, which may be built-in into the floor and the surrounding walls. Hidden sliding frames maximise the field of the user's vision, however their technical problem is that the frame built-in into the floor and surrounding walls limits the vital space required for fitting sufficient frame sealing means. The result is installing waterproofing brushes in the limited space left, which may allow the sash to slip easily, but offer incomplete waterproofing compared to rubber insulating materials. Therefore, in the currently used technique, hidden frames use only brushes as waterproofing means. To lock the frame, a common handle is used that can be "hidden" within the walls, when the door is closed, and is operated by means of a protruding piston.

[0003] At the same time, in the current state of the art there are uplifting sliding frames, such as EP2141314 B1, which -unlike the hidden sliding frames- have good waterproofing properties, because they feature rubber materials, all around but mostly in their lower horizontal guide, where there is mainly the risk of water entering the interior. However, in order to slide the frame with the sealing rubbers on the horizontal guide, it should be lifted with at least a slight clearance thereto, thus obtaining their technical name: "uplifting frames". Uplifting is achieved by a lifting mechanism that is placed in the lower horizontal profile and is operated by the handle on the vertical side profile of the frame and is directly connected to the lifting mechanism. Therefore, in the current state of the art, uplifting frames may use rubber waterproofing means, but both the lifting mechanism and the handle require an aluminium profile several centimetres wide that can in no way be "hidden" and as a result they limit the surface of the glass panel and the user's field of vision. The same problem confronts document US2009/0013605 A1 of prior art.

[0004] However, the solution described in US2009/0013605 A1 differs from the solution revealed in the present invention, because, contrary to the present invention, in US2009/0013605 A1 a classic lift and slide system is described without rubber means nor brushes. Also, there is no hidden frame and there is no use of any additional mechanism for the diversion of the handle rotary movement, whilst the handle is directly connected to lifting mechanism. The same problem also confronts document DE 1808 276 A1 of prior art. However, the solution described in DE 1808 276 A1 differs from the solution revealed in the present invention, because, contrary to the present invention, in DE 1808 276 A1 a classic lift and slide system is described. The frame is not hidden but is perimetrically visible, it is wooden and makes no use of rubber means nor brushes. Final difference, the mechanism and the handle are positioned on the sash, not on the frame as in the present invention.

[0005] This leads us to the problem that needs to be solved, namely that there is no hidden uplifting frame in the current state of the art, that is, a frame that is "hidden", i.e. its frame can be entirely inserted into the case, offering maximum visibility to the user and at the same time combining brushes and rubber waterproofing means.

[0006] Many hidden sliding frames have an additional technical problem that the majority of them, in the current state of the art, have their lock positioned in the middle, at the point where the vertical frames of the two sashes of the frame, called in practice "profile hooks", overlap. The problem with this locking mode is that the lock at the overlapping point is easily accessible and given that aluminium is an easily deformed material, it would be equally easy to tamper the lock.

[0007] This is the solution that EP 2921624 A1 proposes, namely placing the handle at the point where the vertical frames of the two sashes of the frame overlap at the "profile hooks", as opposed to the present invention featuring the handle at the vertical side panel. The same problem confronts document WO 01/25576 A1 of prior art. However, the solution described in WO 01/25576 A1 differs from the solution revealed in this present invention, because, contrary to the present invention, no locking means are mentioned in WO 01/25576 A1 and moreover this prior art is applied on hinged doors nor on sliding doors systems and the frame is not a hidden one. Additionally, in the solution revealed in this present invention, 3 gears with chain and 2 guide plates are used, i.e. technical characteristics that are not revealed in WO 01/25576 A1.

[0008] The above problems are also encountered in EP 1681417 A2 featuring an uplifting sliding frame, but the new solution proposed relates to the uplifting mechanism located in the lower horizontal profile of the sash and does not concern the handle mechanism as in the present invention. EP 2315900 B1 also features an uplifting sliding frame with a lock placed only in one of the frames, which has frames embedded in the glass, while usually the opposite occurs, i.e. the frame supports the glass. However, when the frame is in closed position, a large part of the frame embedded into the glass remains outside of the case, thus compromising the user's field of vision.

[0009] The present invention solves the problem of waterproofing by adding rubber means to a hidden frame, in addition to the brushes it already has, but it also solves the problem of fully integrating the frame into the case and achieves the manufacture of a hidden uplifting sliding frame with rubber waterproofing means, thanks to an innovative locking mechanism.

[0010] The present invention briefly functions as follows:

The locking mechanism is mounted on the vertical side profile of the sash and has a long handle.

With the help of three gears located inside the mechanism and spaced apart and with a chain around them,

the rotary movement of the handle enters the mechanism from the handle gear shaft. The chain conveys the motion to a remote connection gear, the movement exits through an output shaft to the frame uplifting mechanism located inside the vertical side profile of the sash. When the sash is closed, the handle gear is located in the part of the locking mechanism remaining outside the walls (Part B of the mechanism), while the remote connection gear is located in the part of the mechanism entering the walls (Part A of the mechanism) along with the vertical side profile of the sash and the lifting/lowering mechanism of the frame. Thanks to the distance between the two gears, it is possible for the vertical side of the sash that also includes the lifting mechanism, to be inserted into the walls. In addition, due to the distance between the two gears, the handle mechanism, although located outside the walls, it "commands" the lifting mechanism that has entered inside the walls along with the vertical side profile of the sash, to lift or lower the frame.

[0011] An advantage of the present invention is that, thanks to the locking mechanism, a hidden frame is manufactured that is a sliding and uplifting frame at the same time, thus combining the maximum visibility for the user that hidden frames offer, with the maximum waterproofing capability provided by the rubber waterproofing means.

A further advantage is that this invention converts a frame into a hidden and uplifting frame, using a common lifting mechanism of current state of the art, thus keeping the total cost of manufacturing the invention low.

A further advantage is that thanks to the locking mechanism, the frame and frame profiles can be fully integrated into the case, and therefore there are no visible level differences ("steps") between the technical elements of the frame such as case, frame, glass. When the sash is closed, these technical elements enter or are integrated into the walls and the only level visible to the user is the glass level, thus offering high aesthetics and state of the art. In single-sash frames, the only technical elements in the user's field of vision are the lower frame of the frame and the handle. In two-sash frames, in addition to the above, only the seamless joining of the two sashes remains visible.

[0012] The 6 drawings accompanying the invention briefly present the following:

Drawing 1 illustrates the front view of the entire hidden uplifting frame with the locking mechanism as well as the technical components and parts of the frame that are integrated into the walls and not visible to the user. The sashes are in closed position. The points of sections A-A' and B-B' are set. Drawing 1 illustrates a two-sash typology, with one fixed sash and one moving sash bearing the locking mechanism.

Drawing 2 illustrates a horizontal section/floor plan B-B' of a two-sash hidden uplifting frame with the locking mechanism. The two sashes overlap in the section of the two "hook" profiles.

Drawing 3 illustrates a vertical section A-A' of the hidden uplifting frame.

Drawing 4 illustrates the locking mechanism separately in a three-dimensional perspective view, assembled and disassembled.

Drawing 5 illustrates the inside of the locking mechanism separately, in a frontal position.

Drawing 6 illustrates the locking mechanism components, in particular the outer guide plate (figures 6A, 6A i, 6A ii)
the inner guide plate (figures 6B, 6B i, 6B ii) and
the lid (figures 6C, 6C i, 6C ii).

[0013] There follows a detailed description of the present invention with reference to the accompanying drawings.

[0014] As illustrated in drawings 1, 2 and 3, the locking mechanism (1) is mounted on the vertical side profile (2) of the sliding sash (3). A fixed sash (3a) that does not open is also illustrated along with that.

The locking mechanism (1) has a long handle (4), like the one of the currently used technique for uplifting sliding frames. The handle (4) is vertically mounted and performs a wide 180 degree rotary movement, so that even a weak user with limited power would be capable of lifting the sash (3) (drawing 4).

[0015] As illustrated in drawings 4, 5 and 6, the locking mechanism (1) is comprised

- of a lid (6),
- of an inner guide plate (11),
- of an outer guide plate (12) and
- of three gears mounted between the inner guide plate (11) and the outer guide plate (12), i.e. the handle gear (17), the connecting gear (18) and the locking gear (19) (drawing 5).

[0016] The handle gear (17) has a rotation movement input shaft (9) of the handle (4)

The connecting gear (18) has a rotation movement output shaft (23) of the handle (4). The two gears (17 & 18) are spaced apart and are enclosed by a chain (20).

The lid (6) (drawing 4 and drawing 6 of figures 6C, 6C i, 6C ii) has a through hole (7) for the rotation movement input shaft (9) of the handle (4) and has a through hole (8) for mounting a lock (10) with a locking member (24).

[0017] The inner guide plate 11 (drawing 4 and drawing 6, figures 6B, 6B i, 6B ii) is located inside the locking mechanism (1) between the lid (6) and the outer guide plate (12). There are connecting holes (13) to the outer guide plate (12) on its surface and a through hole (8a) corresponding and coaxial to the hole (8) located on the

lid (6) for mounting the lock (10). The inner guide plate (11) has also mounting holes (14) at its end part that are used to fix the mechanism (1) to the vertical side profile (2) of the moving sash (3) with screws. It also has a through hole (7a) corresponding and coaxial to the hole (7) located on the lid (6), through which the rotary input shaft (9) for the handle (4) passes and rotates. The rotary input shaft (9) has a square cross section to a part of it, it passes through the handle gear (17) located between the inner (11) and the outer guide plate (12) and moves it. The through hole (7a) also functions as a bearing recess for the handle gear (17).

The inner guide plate (11), on the side that is fitted with the lid (6), has shaped recesses (16) contacted with the hole (7a) through which the square cross section rotary input shaft (9) of the handle (4) passes. Sheets (25) are placed in the recesses (16) formed, enabling the rotary movement of the handle (4) by 90° + 90° total 180 degrees.

Also, the inner guide plate (11) (drawing 6, figure 6B), on its side fitted to the outer guide plate (12), has:

- a seating hole (15) for supporting and rotating the connecting gear shaft (18) located between the inner (11) and the outer guide plate (12). The seating hole (15) may be through or not
- a seating hole (26) for supporting and rotating the locking gear shaft (19) located between the inner (11) and the outer guide plate (12). The seating hole (26) may be through or not and
- a special formation for positioning a drive chain (20) around the handle gear (17) and the connecting gear (18).

[0018] The outer guide plate 12 (drawing 4, drawing 5 and drawing 6, figures 6A, 6A i, 6A ii) bears the connecting holes (13a) on its surface that are corresponding, coaxial to and facing the connecting holes (13) on the inner guide plate (11) for assembling the two plates (11 & 12). The holes (13a) are threaded to allow screw connection. It also has mounting holes (14a) at its end part, corresponding, coaxial to and facing the mounting holes (14) on the inner guide plate (11), for fixing the mechanism (1) by means of screws to the vertical side profile (2) of the moving sash (3). It also has a bearing hole (7b) corresponding and coaxial to the holes (7 and 7a) located respectively on the lid (6) and on the inner guide plate (11), with a formation suitable for the handle gear's (17) rotation and support.

The outer guide plate (12) has also a recess on its surface, where the connecting gear (18) is mounted and has a through hole (15a) corresponding and coaxial to the hole (15) of the inner guide plate (11). The rotary output shaft (23) of the handle (4) that has a square cross-section to a part of it and passes through the connecting gear (18) and moves it, is seated in the hole (15a). The shaft (23) has a square cross-section and is connected with the lifting mechanism (21) of the frame (drawings 1 and 2). The lifting mechanism (21) is located inside the side vertical profile (2) of the sash (3) and inside the lower horizontal profile (27) of the sash (3) and is of the current state of the art.

The outer (12) guide plate has a recess on its inner side, specially shaped for the operation of the drive chain (20) that surrounds the handle gear (17) and the connecting gear (18). The locking gear (19) is not surrounded by the drive chain (20), but is connected to the outer side of the chain (20) and moves in the rotary movement of the chain (20). The chain (20) is pressed by the locking gear (19), so its trajectory at the point of contact with the gear (19) is curved (drawing 5).

[0019] The outer guide plate (12) has also a bearing hole (26a) for supporting and rotating the locking gear shaft (19) (drawings 4, 6). The bearing hole (26a) may be through or not. There is a recess (8b) formed in the bearing hole (26a), corresponding and coaxial to the through holes (8a and 8) inside the inner guide plate (11) and the lid (6) respectively, through which the locking mechanism (10) passes. When the lock (10) of the frame is locked, a locking member (24) of the lock (10) passing through the hole (8a) on the inner guide plate (11) enters the recess (8b) formed in the bearing formation (26a) of the outer guide plate (12) and immobilises the locking gear (19) (drawings 4, 5).

[0020] The outer guide plate (12) has mounting through holes (14a) on its outer side, through which the locking mechanism (1) is fixed to the vertical side profile (2) of the sliding sash (3) (drawing 6, figure 6A). Finally, the outer guide plate (12) has a through hole (15a), from which the square-section rotary output shaft (23) of the handle (4) exits, connected to the lifting mechanism (21) of the frame. The lifting mechanism of the frame (21) is located inside the side vertical profile (2) of the sash (3) and inside the lower horizontal profile (27) of the sash (3) (drawings 1-3).

[0021] During operation of the invention, the sliding sash (3) moves as follows:

To close the sliding sash (3) the user initially pulls it by means of the handle (4) towards the wall in direction H'-H, until the side vertical profile (2) of the sash (3) enters the case (5) that is located inside the wall. In addition to the vertical profile (2), the end part of the locking mechanism (1) bearing the mounting holes (14) also enters the case (5) and screws onto the vertical profile (2) that contacts Part A of the mechanism (drawings 2 and 4). Therefore, the part of the mechanism where the connecting gear (18) and the rotary output shaft (23) of the handle (4) are located, forming together "Part A" of the mechanism (drawings 2 and 4), enters the walls and stops along with the vertical profile (2). Only the part of the mechanism bearing the lock (10) and the handle (4) in vertical position, the handle gear (17) and the locking gear (19), forming all together "Part B" of the mechanism (drawings 2 and 4), remain outside the walls and are visible to the user. In this position, the frame meets the characteristics of a "hidden" frame.

[0022] Then the user moves the handle (4) with a rotary movement of 180 degrees, in direction R-R' towards the floor, in order for the frame to decent and partially enter the case (5) located in the floor. Rotating the handle (4) towards the floor rotates the square cross-section rotary input shaft (9) of the handle (4). The shaft (9) passes through and moves the handle gear (17) which in turn moves the chain (20). The chain (20) surrounds and moves the connecting gear (18). The connecting gear (18) rotates the rotary output shaft (23) of the handle (4), which is connected and operates a lifting mechanism (21) located within the side vertical profile (2) of the sash (3); and into the lower horizontal profile of the sash (27). The lifting mechanism (21) lowers the sash (3) in direction E'-E, the sash (3) presses the rubber waterproofing means (29) mounted all around the sash (3) and especially at the lower horizontal profile. At the same time, it also presses the brushes (28) inside the case (5) of the frame (drawing 3). Due to the pressure with the rubber waterproofing means (29) the sash is now closed and immobilised within the lower horizontal guide. The combination of the rubber waterproofing means (29) and the brushes (28) offers two waterproofing zones to the frame. In this position, the frame meets the characteristics of an uplifting frame.

The user can lock the frame with a key (30) entering the lock (10) and actuating the member (24) of the lock (10). The locking member (24) enters the formation (8b) of the outer plate (12) and immobilises the locking gear (19). Then the locking gear (19) immobilises the drive chain (20), along with the handle (17) and connecting gears (18). The handle (4) is immobilised and the sash (3) is locked (drawings 4, 5).

[0023] To open the sliding sash (3), the user unlocks and turns the handle (4) counter clockwise by 180 degrees, rotating it in direction R'- R. The movement of the handle (4) initially lifts the sash (3) in direction E-E' from the case (5) located inside the floor, and then the sash (3) is pulled in direction H-H' by means of the handle (4).

[0024] Thanks to the distance between the two gears (17 & 18), it is possible for the vertical side (2) of the sash (3) that also includes the lifting mechanism (21), to be inserted into the walls.

[0025] In addition, due to the distance between the two gears (17 & 18), the handle mechanism (4), although located outside the walls (drawings 2 and 4, Part B of the mechanism (1)), it "commands" the lifting mechanism (21) that has entered inside the walls along with the vertical side profile (2) of the sash, to lift or lower the frame.

[0026] As illustrated in drawing 2, the opening between the two sides of the walls is L. When the frame is closed, the two sashes (3 and 3a) overlap only in the vertical "hook" profiles at L1 length. Thanks to the locking mechanism from the entire L opening of both sides of the wall, the user's field of vision is compromised only by L1 section, i.e. the two vertical side frames and the top horizontal one are not visible, as part A of the locking mechanism of the frame that enter the walls. Only pat B of the locking mechanism bearing the handle and the lower horizontal guide (drawings 2 and 4) remain visible outside the walls.

[0027] The present invention can be applied in all door openings covered by sliding frames, whether bypass or not.

Claims

1. Hidden uplifting frame with a lifting mechanism (21) located in the vertical side (2) and in the lower horizontal profile (27) of the sash (3), with a handle (4) vertically arranged to make a 180° degree rotary movement and with a locking mechanism (1), **characterised by** the fact that it is comprised:

   - of rubber means (29) in addition to brushes (28) to the hidden frame, rendering the frame waterproofing,
   - of a lid (6) that bears a hole (7) for a shaft (9) with square cross-section to a part of it of it, rotating the handle (4), and a locking hole (8) for mounting the lock (10),
   - of an inner guide plate (11) bearing a through hole for lock (8a) corresponding and coaxial to the hole (8) of the lid (6), bearing a through hole (7a) corresponding and coaxial to the hole (7) and having seating holes (15 & 26) for seating and rotating the connecting gear shaft (18) and the locking gear (19), respectively,
   - of an outer guide plate (12) with a bearing hole (7b) corresponding and coaxial to the holes (7 & 7a) for seating the handle gear (17), bearing a through hole (15a) corresponding and coaxial to the hole (15) of the inner guide plate (11) for seating and exiting the shaft (23) -with square cross-section at a part of it-to rotate the handle (4), which is connected to a lifting mechanism (21) of the frame, with a bearing hole (26a) for seating and rotating the locking gear shaft (19) and a recess formation (8b) corresponding and coaxial to the through holes (8a and 8) of the inner guide plate (11) and the lid (6), respectively.
   - of a handle gear (17) with a rotary input shaft (9) -with square cross-section to a part of it, of the handle (4), the shaft (9) passing through the coaxial through holes (7 & 7a),

   a connecting gear (18) with a rotary output shaft (23) -with square cross-section to a part of it-, of the handle (4), with the two gears (17 & 18) spaced apart and

   a locking gear (19) connected to the outer side of the chain (20), which is immobilised by a member (24) of the lock (10) passing through the hole (8a) of the inner guide plate (11) and entering the recess formation (8b) on the bearing formation (26a) of the outer guide plate (12),

all three gears (17, 18, 19) are positioned between the inner guide plate (11) and the outer guide plate (12).
- a lock (10) located within the coaxial holes of the lock (8 & 8a) and having a locking member (24) entering the recess formation (8b) of the outer guide plate (12),
- a chain (20) surrounding the two gears (17 & 18).

2. Hidden uplifting frame according to claim 1, **characterised by** the fact that the inner guide plate (11) is located between the lid (6) and the outer guide plate (12).

3. Hidden uplifting frame according to claims 1-2, **characterised by** the fact that the inner guide plate (11) has connecting holes (13) with the outer guide plate (12) and mounting holes (14) at its end part, for fitting the mechanism (1) to the vertical side profile (2) of the moving sash (3).

4. Hidden uplifting frame according to claims 1-3, **characterised by** the fact that the outer guide plate (12) has threaded connecting holes (13a), corresponding, coaxial to and facing the connecting holes (13) of the inner guide plate (11) and mounting holes (14a), corresponding, coaxial to and facing the mounting holes (14) of the inner guide plate (11) for fitting the mechanism (1) to the vertical side profile (2) of the moving sash (3).

Patentansprüche

1. Versteckter Hubrahmen mit einem Hebemechanismus (21), der sich in der vertikalen Seite (2) und im unteren horizontalen Profil (27) des Flügels (3) befindet, mit einem Griff (4), der vertikal angeordnet ist, um eine 180° gradige Drehbewegung durchzuführen, und mit einem Verriegelungsmechanismus (1), **gekennzeichnet durch** die Tatsache, dass es Folgendes umfasst:

- Gummimitteln (29) zusätzlich zu den Bürsten (28) zum versteckten Rahmen, wodurch der Rahmen wasserdicht wird,
- Deckel (6), der ein Loch (7) für eine Schaft (9) mit quadratischem Querschnitt zu einem Teil davon trägt, wobei der Griff (4) gedreht wird, und ein Verriegelungsloch (8) zur Montage des Schlosses (10),
- eine innere Führungsplatte (11), die ein Durchgangsloch für die Verriegelung (8a) trägt, das dem Loch (8) des Deckels (6) entspricht und koaxial ist, der ein Durchgangsloch (7a) trägt, das dem Loch (7) entspricht und koaxial ist, mit Sitzlöcher (15 und 26) zum Sitzen und Drehen der Verbindungszahnradschaft (18) bzw. des Verriegelungszahnrads (19),
- einer äußeren Führungsplatte (12) mit einem Lagerloch (7b) entsprechend und koaxial zu den Löchern (7 und 7a) zum Aufsetzen des Griffzahnrads (17), das ein Durchgangsloch (15a) entsprechend und koaxial zu dem Loch (15) der inneren Führungsplatte (11) trägt, zum Einsetzen und Verlassen der Schaft (23) - mit quadratischem Querschnitt an einem Teil davon - zum Drehen des Griffs (4), verbunden mit einem Hebemechanismus (21) des Rahmens mit einem Lagerloch (26a), zum Aufsetzen und Drehen der Verriegelungszahnradschaft (19) und einer Aussparungsformation (8b), die den Durchgangslöchern (8a und 8) der inneren Führungsplatte (11) bzw. des Deckels (6) entspricht und koaxial ist.
- Griffzahnrad (17) mit einer drehbaren Eingangsschaft (9) - mit quadratischem Querschnitt zu einem Teil davon - des Griffs (4), wobei die Schaft (9) durch die koaxialen Durchgangslöcher (7 und 7a) verläuft,
ein Verbindungszahnrad (18) mit einer drehbaren Abtriebsschaft (23) - mit quadratischem Querschnitt zu einem Teil davon - des Griffs (4), wobei die beiden Zahnräder (17 und 18) voneinander beabstandet sind und
ein Verriegelungszahnrad (19), das mit der Außenseite der Kette (20) verbunden ist und durch ein Element (24) des Schlosses (10) immobilisiert ist, das durch das Loch (8a) der inneren Führungsplatte (11) verläuft und in die Aussparungsformation (8b) an der Lagerformation (26a) der äußeren Führungsplatte (12) eintritt,
alle drei Zahnräder (17, 18, 19) sind zwischen der inneren Führungsplatte (11) und der äußeren Führungsplatte (12) positioniert.
- eine Verriegelung (10), die innerhalb der koaxialen Löcher der Verriegelung (8 und 8a) angeordnet ist, mit einem Verriegelungselement (24), das in die Aussparungsformation (8b) der äußeren Führungsplatte (12) eintritt,
- eine Kette (20), die die beiden Zahnräder (17 und 18) umgibt.

2. Versteckter Heberahmen nach Patentanspruch 1, **gekennzeichnet durch** die Tatsache, dass sich die innere Führungsplatte (11) zwischen dem Deckel (6) und der äußeren Führungsplatte (12) befindet.

3. Versteckter Heberahmen nach Patentanspruch 1-2, **gekennzeichnet durch** die Tatsache, dass die innere Führungsplatte (11) Verbindungslöcher (13) mit der äußeren Führungsplatte (12) und Befestigungslöcher (14) an ihrem Endteil hat, zum Anbringen des Mechanismus (1) am vertikalen Seitenprofil (2) des beweglichen Flügels (3).

4. Versteckter Heberahmen nach den Patentansprüchen 1 bis 3, **gekennzeichnet durch** die Tatsache, dass die äußere Führungsplatte (12) Verbindungslöcher (13a) mit Gewinde aufweist, entsprechend, koaxial und gegenüber den Verbindungslöchern (13) der inneren Führungsplatte (11) und den Befestigungslöchern (14a), entsprechend, koaxial, und gegenüber den Befestigungslöchern (14) der inneren Führungsplatte (11), zum Anbringen des Mechanismus (1) am vertikalen Seitenprofil (2) des beweglichen Flügels (3).

Revendications

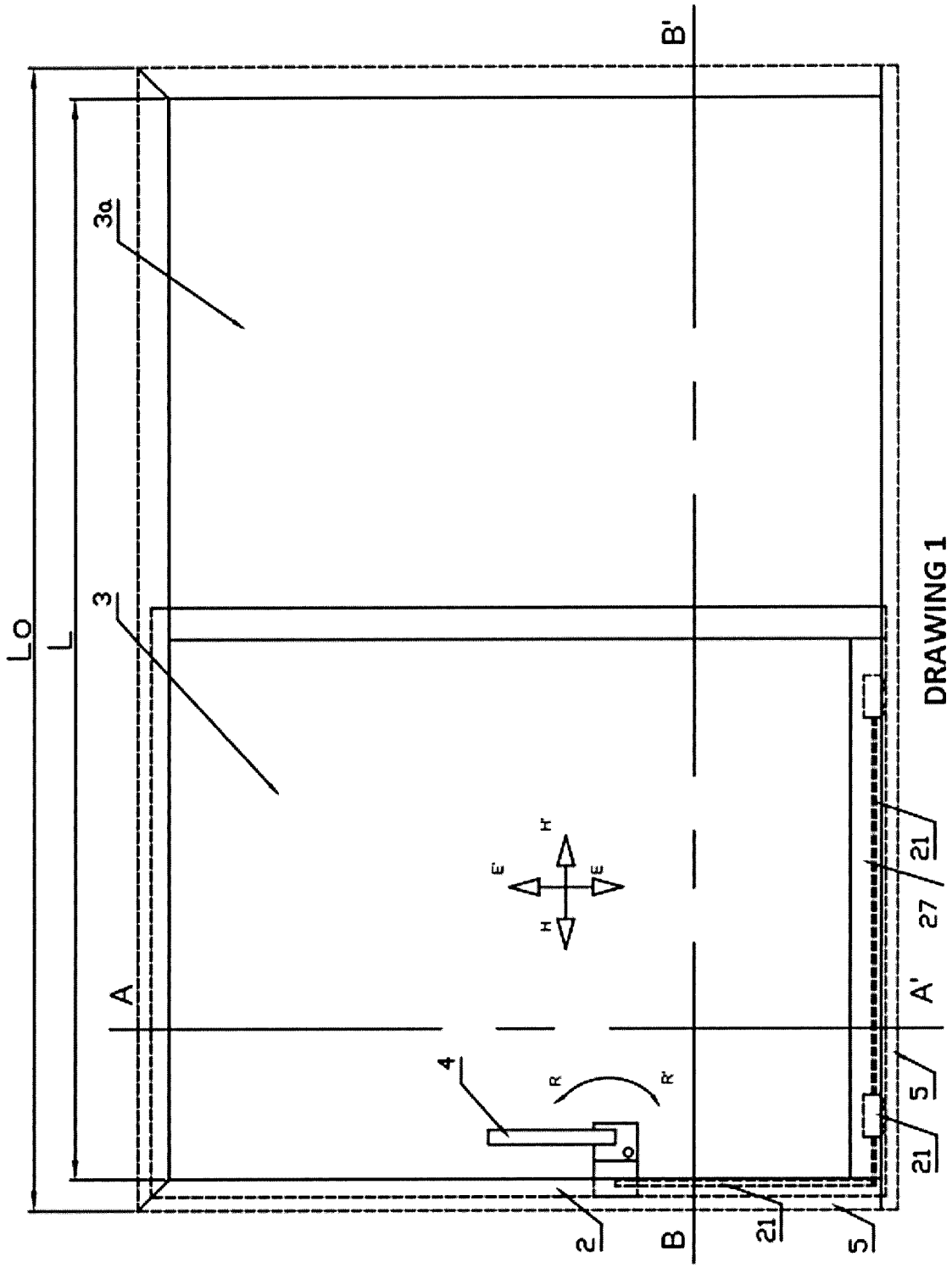
1. Cadre caché de fenêtre à guillotine, avec un mécanisme de levage (21) situé sur le côté vertical (2) du profilé horizontal inférieur (27) de l'ouvrant (3), avec une poignée (4) disposée verticalement pour faire un mouvement rotatif à 180° degrés, et avec un mécanisme de verrouillage (1), l'ensemble étant **caractérisé par** les éléments constitutifs suivants:

- joints en caoutchouc (29), en plus des brosses (28), dans l'isolation du cadre caché pour le rendre étanche à l'eau,
- boîtier (6) avec un orifice (7) pour l'arbre (9), qui est de section carrée sur une partie de sa longueur et transmet le mouvement rotatif de la poignée (4), et avec un autre orifice (8) pour l'arbre de la serrure (10),
- plaque de guidage intérieure (11), avec l'orifice de la serrure (8a) exactement en face et dans l'axe de l'orifice (8) du boîtier (6), avec l'orifice (7a) exactement en face et dans l'axe de l'orifice (7), et avec les orifices de fixation (15 & 26) pour fixer et laisser pivoter l'arbre de l'engrenage de liaison (18) et l'arbre de l'engrenage de verrouillage (19), respectivement,
- plaque de guidage extérieure (12), avec un palier (7b) exactement en face et dans l'axe des orifices (7 & 7a) de l'engrenage de poignée (17), avec un orifice (15a) exactement en face et dans l'axe de l'orifice (15) de la plaque de guidage intérieure (11) pour fixer et laisser sortir l'arbre (23), qui est de section carrée sur une partie de sa longueur et transmet le mouvement rotatif de la poignée (4) au mécanisme de levage (21) du cadre, et avec un palier (26a) avec un renfoncement (8b) pour fixer et laisser pivoter l'arbre de l'engrenage de verrouillage (19) exactement en face et dans l'axe des orifices (8a et 8) de la plaque de guidage intérieure (11) et du boîtier (6) respectivement
- engrenage de la poignée (17) avec un arbre rotative (9), qui est de section carrée sur une partie de sa longueur entrant dans la poignée (4), et cet arbre (9) passe à travers les orifices (7 & 7a), situé dans le même axe, engrenage de liaison (18) avec un arbre de sortie rotative (23), qui est de section carrée sur une partie de sa longueur entrant dans la poignée (4), avec une distance entre les engrenages (17 & 18), et engrenage de verrouillage (19) connecté au côté extérieur d'une chaîne (20), qui s'immobilise par la languette de verrouillage (24) de la serrure (10) qui passe à travers l'orifice (8a) de la plaque de guidage intérieure (11) et entre dans le renfoncement (8b) du palier (26a) de la plaque de guidage extérieure (12),
tous ces trois engrenages (17, 18, 19) se trouvent entre la plaque de guidage intérieure (11) et la plaque de guidage extérieure (12).
- serrure (10) située dans l'axe des orifices (8 & 8a), avec une languette de verrouillage (24) qui entre dans le renfoncement (8b) de la plaque de guidage extérieure (12),
- chaîne (20) autour des deux engrenages (17 & 18).

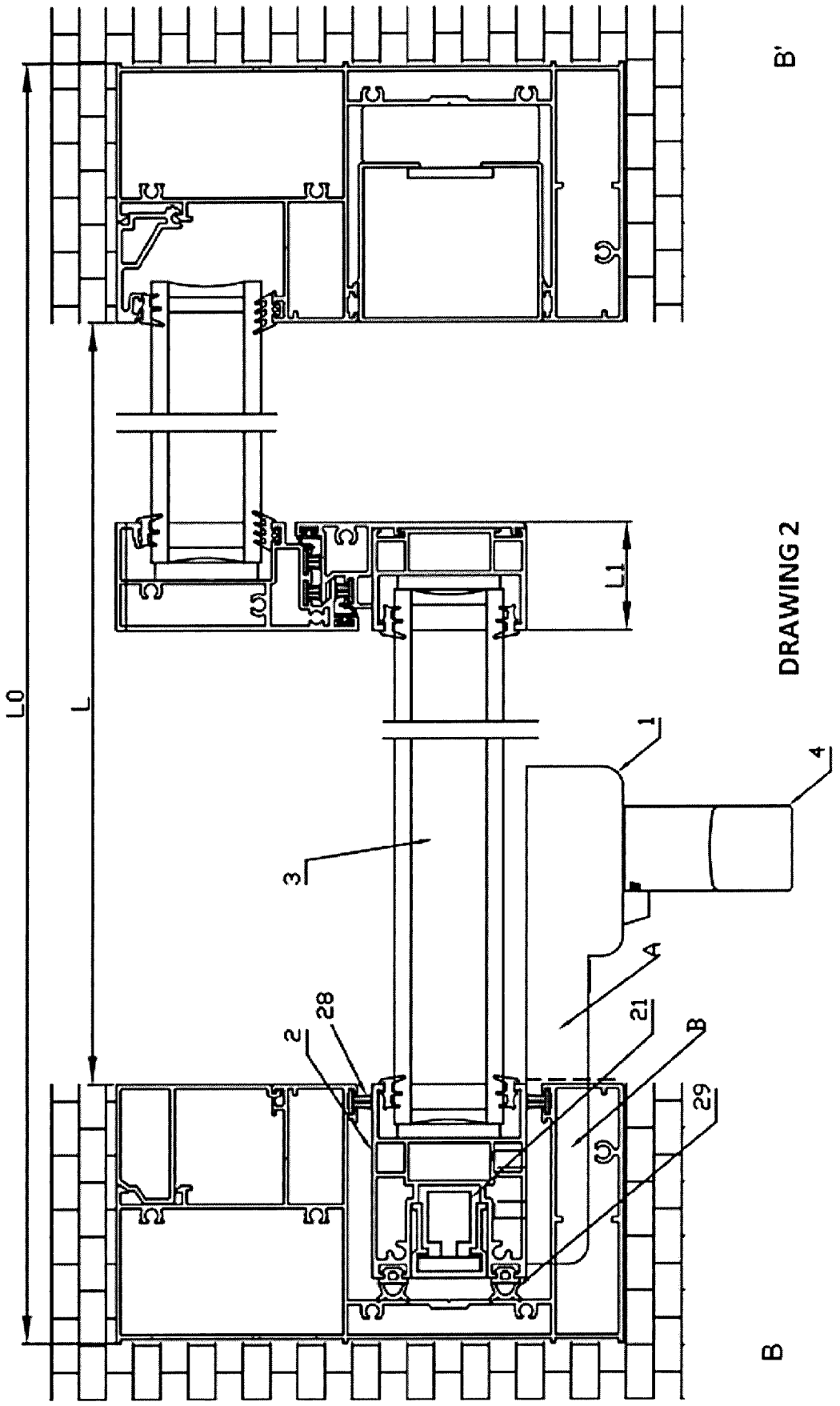
2. Cadre caché de fenêtre à guillotine selon la revendication 1, **caractérisé par le fait que** la plaque de guidage intérieure (11) est située entre le boîtier (6) et la plaque de guidage extérieure (12).

3. Cadre caché de fenêtre de fenêtre à guillotine selon les revendications 1-2, **caractérisé par le fait que** la plaque de guidage intérieure (11) a des orifices (13) pour être fixée à la plaque de guidage extérieure (12), et des orifices (14) à son extrémité pour fixer le mécanisme (1) sur le côté du profilé vertical (2) de l'ouvrant coulissant (3).

4. Cadre caché de fenêtre à guillotine selon les revendications 1-3, **caractérisé par le fait que** la plaque de guidage extérieure (12) a des orifices de fixation filetés (13a), exactement en face et dans l'axe des orifices de fixation (13) de la plaque de guidage intérieure (11), et des orifices de montage (14a), exactement en face et dans l'axe des orifices de montage (14) de la plaque de guidage intérieure (11) pour fixer le mécanisme (1) sur le côté du profilé vertical (2) de l'ouvrant coulissant (3).



DRAWING 1



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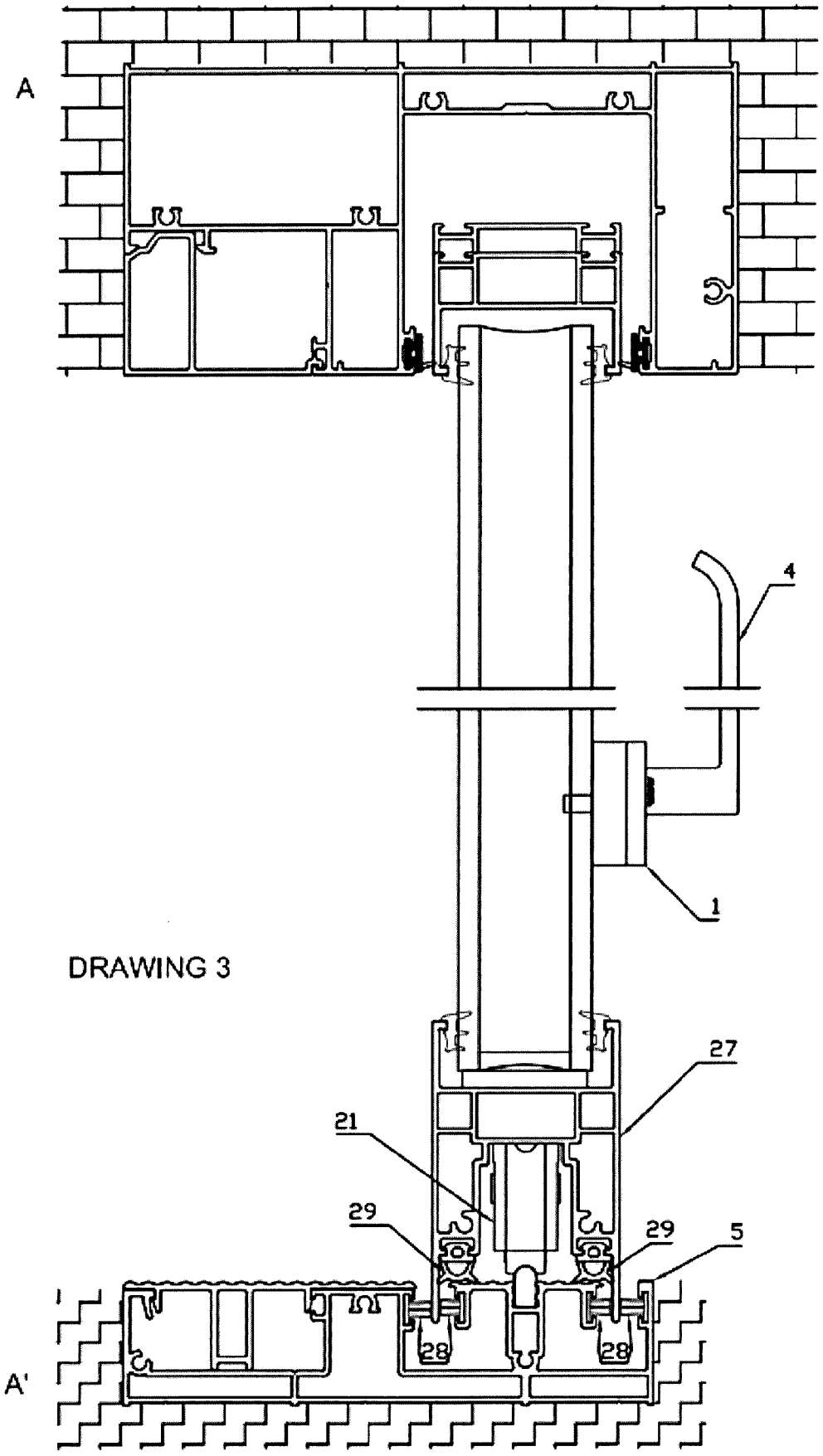
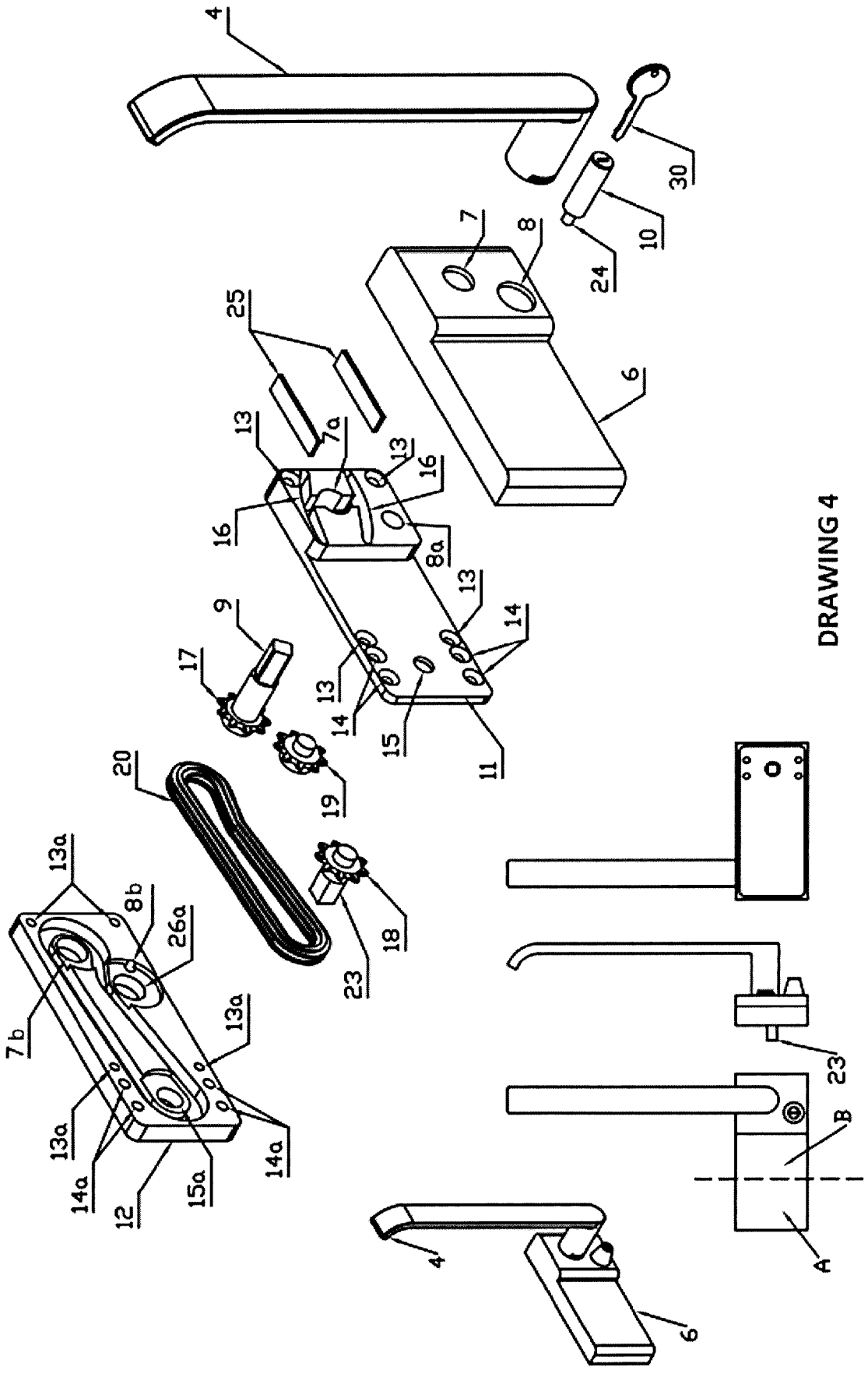
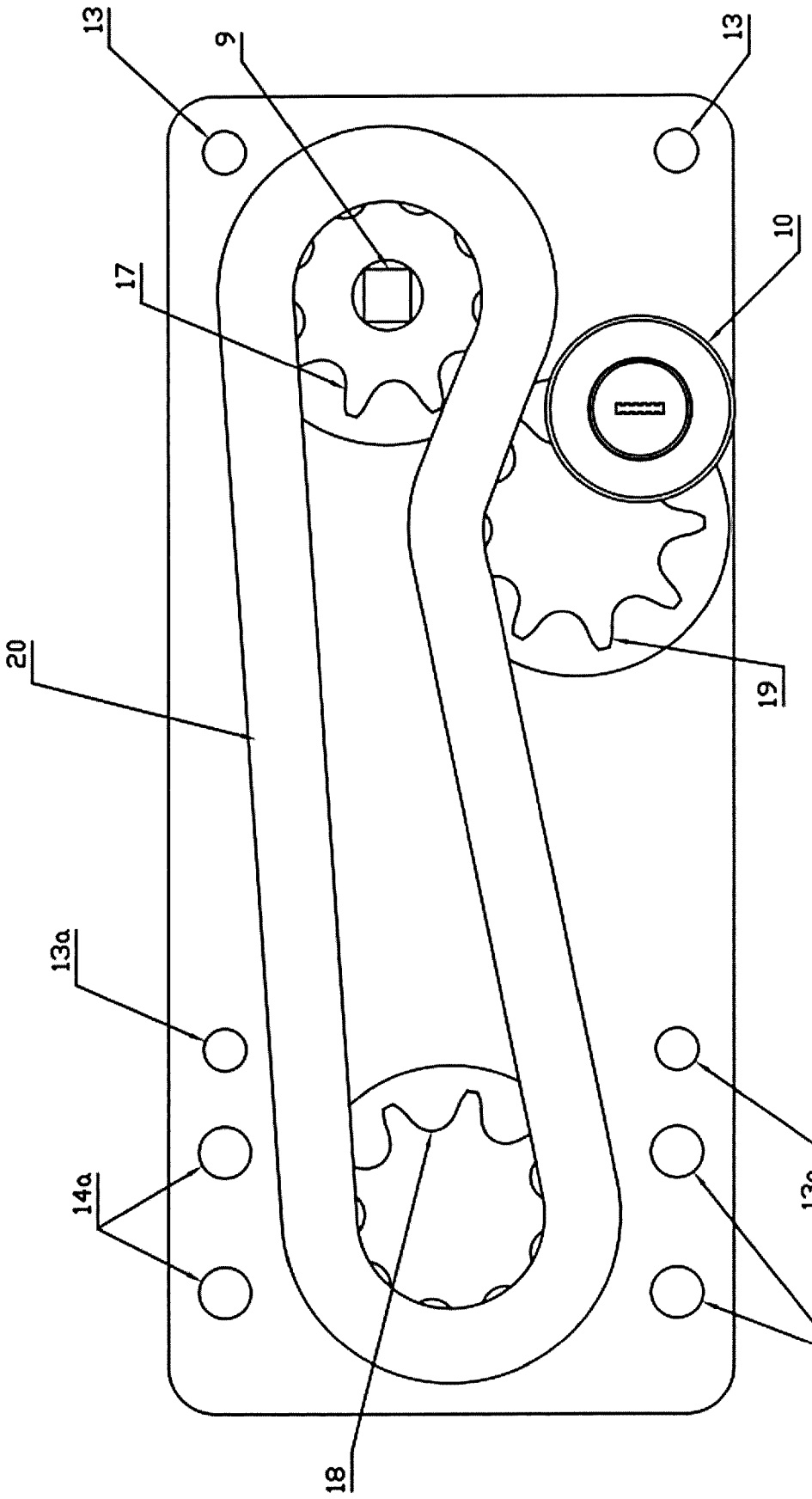


DRAWING 3


4
30
10
24
7
8
6
25
13
7a
16
8a
9
17
19
20
18
23
11
15
14
13a
8b
26a
7b
12
15a
14a
23
B
A

DRAWING 4



DRAWING 5

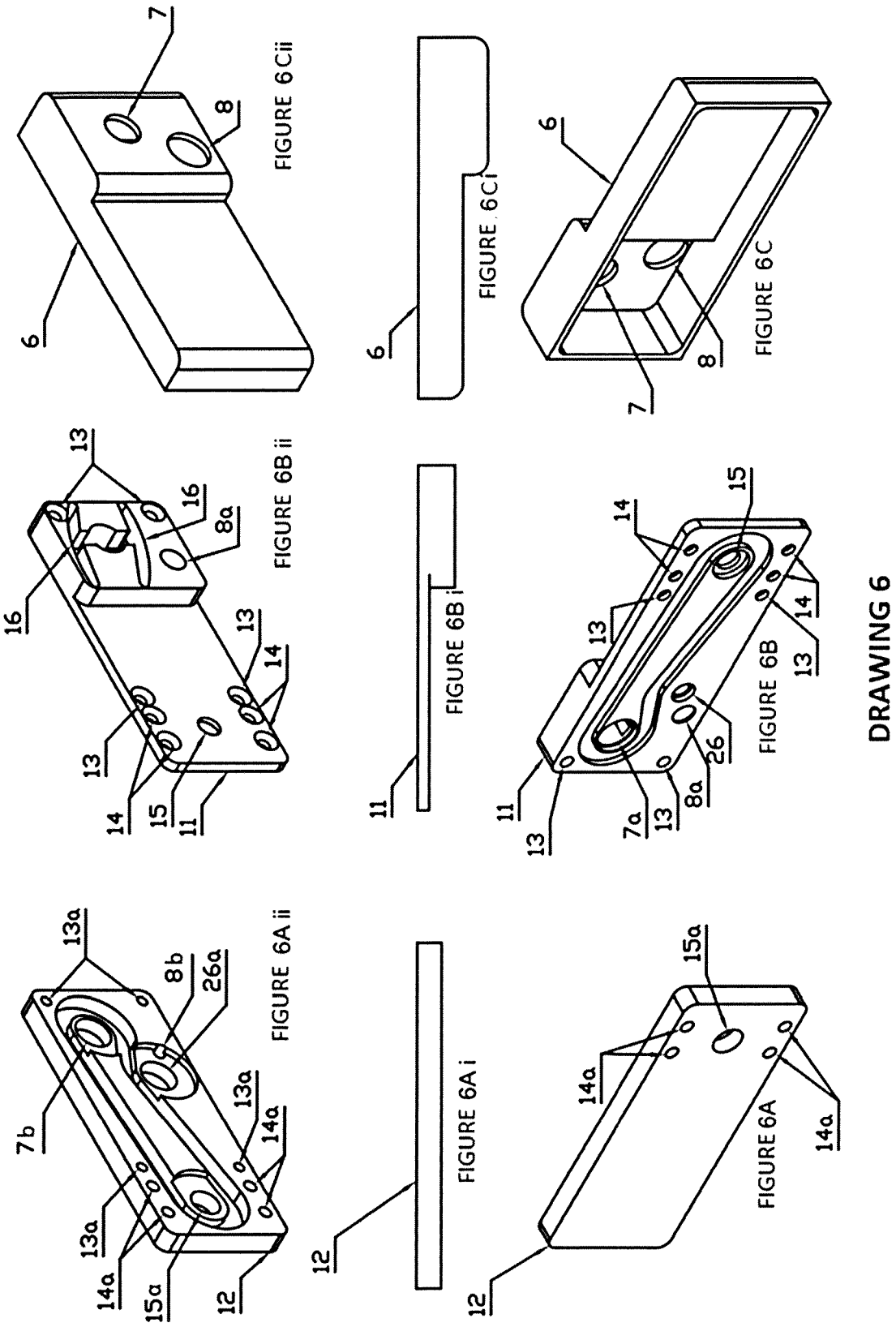


FIGURE 6Cii
FIGURE 6Ci
FIGURE 6C
FIGURE 6Bii
FIGURE 6Bi
FIGURE 6B
FIGURE 6Aii
FIGURE 6Ai
FIGURE 6A
DRAWING 6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 2141314 B1 **[0003]**
- US 20090013605 A1 **[0003] [0004]**
- DE 1808276 A1 **[0004]**
- EP 2921624 A1 **[0007]**
- WO 0125576 A1 **[0007]**
- EP 1681417 A2 **[0008]**
- EP 2315900 B1 **[0008]**