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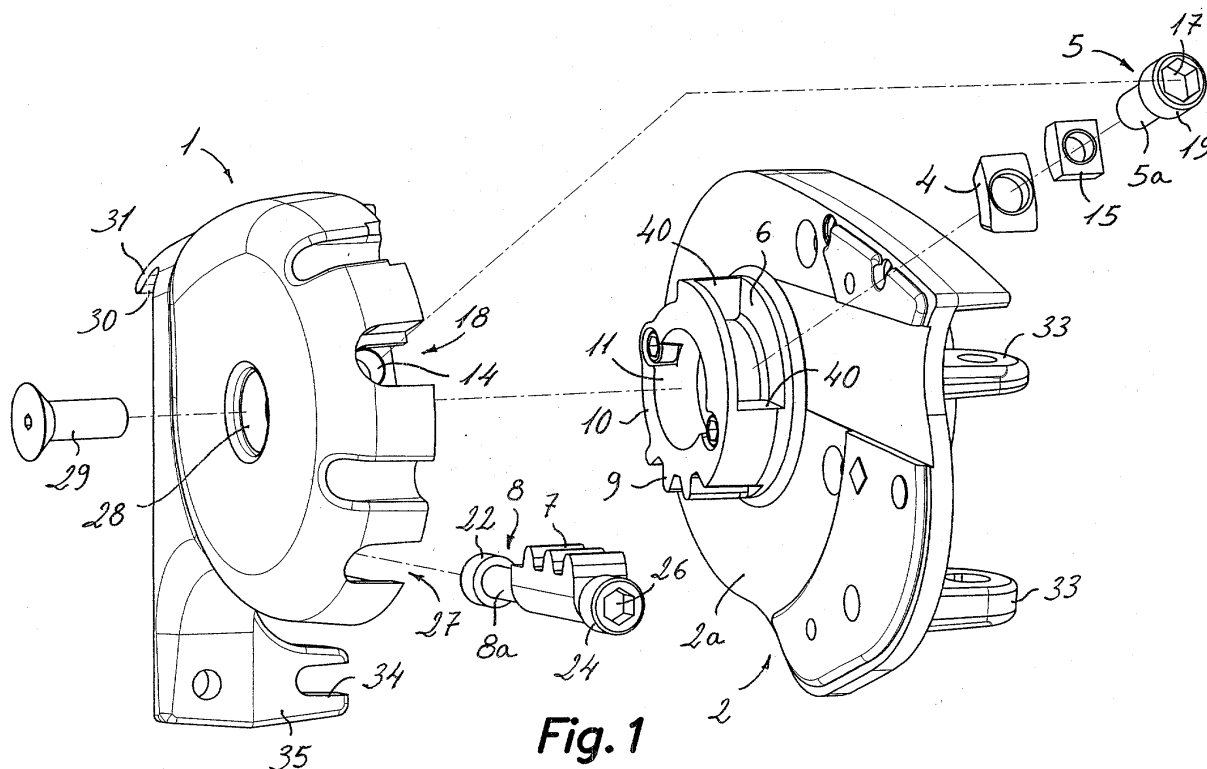
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08010 Barcelona (ES)(71) Applicant: **LLAZA, S.A.****E-43206 Reus (Tarragona) (ES)**(54) **Inclination-adjustable awning support assembly**

(57) It comprises a pair of supporting members (1) to which are rotatably coupled end plates (2) of a protecting casing which comprise supports for a winding tube for the tarpaulin and hinging brackets (33) for respective arms. A driving member (5) linked to the supporting member (1) is connected to a wedge (4) facing a recess having conjugated tilted walls (6) arranged on

the plate (2). Said driving member (5) can be driven from outside to move the wedge (4) in a direction for embedding said movable part (4) in the recess (6), thereby locking the end plate (2), or in an opposite direction to release it. Adjustable fastening means allow to fasten the supporting members (1) to anchoring members joined to a wall or structure.

**EP 1 479 846 A1**

Description

Field of the art

[0001] This invention refers in general to a supporting assembly for an adjustable tilt awning and more specifically to angular adjusting means for locating and locking at a desired angular position a box including among others, a tarpaulin winding tube and arms with respect to supporting members anchored on a wall or another structure.

Background of the invention

[0002] A kind of awning is well-known which comprises a box formed by a protecting casing closed on its sides by respective end plates on which are rotatably leaning respective axial ends of a winding tube of an awning tarpaulin and on which brackets are arranged to which are hinged respective extensible arms connected by their distal ends to a loading bar joined to the front edge of the tarpaulin. A hand or motor-powered driving mechanism allows to rotate the winding tube for stretching or withdrawing the awning tarpaulin. At a completely withdrawn position, the tarpaulin wound on the winding tube and the folded arms are arranged within said housing and the loading bar remains coupled in a longitudinal opening of the housing closing it. Said end plates of the box are coupled in a rotatably guided manner to a pair of respective supporting members fixed to corresponding anchoring members joined to a wall or another structure. The junction of said supporting members to the anchoring members is carried out by linearly adjustable fastening means and angular adjusting means are arranged for locating and locking said end plates with respect to said supporting members at a desired angular position.

[0003] The patent EP-A-0593389, to the present applicant, discloses an awning having a box device as above described in which said angular adjusting means comprise circular sector-shaped oblong holes arranged on the supporting member around the end plate rotation axis to receive through them screws screwed in the end plate. The supporting member has a circular central opening, which serves as a guideway for a cylindrical protrusion, which protrudes from the end plate, so that the box weight is supported by said circular openings, in particular while the box is being rotated to the desired angular position to adjust the tilt. Then, by screwing said screws the box rotation is locked with respect to the supporting members. In addition, the length of said oblong holes is limited to provide limits to the box rotation angle in order to prevent an unintentional rotation of the box due to the turning torque caused by the tarpaulin, arms and loading bar weight in the event of adjusting the angular position when the awning is total or partly stretched. Although this device of a box for an awning is fully operational, it can be improved, for example with

reference to the requirement of driving the several screws existing on each supporting member to adjust the position and lock the box rotation. In addition, the screws heads are very visible on the external face of the supporting member, which makes advisable to incorporate a wide embellishing cover to conceal them.

[0004] Patent EP-A-0499777 discloses an awning having a box device of above mentioned kind in which said angular adjusting means comprise a fastening disk provided with a perimetric step embedded in a conjugated perimetric step in a circular opening existing on the supporting member. Said fastening disk is linked to the end plate with several screws passed through corresponding holes of the fastening disk and screwed to the end plate. The embedment of said perimetric steps serves as a guideway for the box rotation and when screwing said screws it presses the step of the fastening disk against the step of the circular opening, locking the box rotation with respect to the supporting members. However, this solution, in addition to have same drawbacks as the former patent, has the risk that due to the small depth of the perimetric steps, the fastening disk gets loose of the guideway provided by the circular opening of the supporting member when the screws are loosened to carry out an adjustment. Also, said guideway has no limits as for the rotation axis allowed, thereby a brisk rotation could unintentionally occur which would exceed a reasonable limiting angle with the risk of causing damages. Another drawback common with the device of the former patent is that the access to the screws fastening the angular position is from a side position in a direction parallel to the axis of the winding tube which demands a place having a significant stock space on both sides of the box to have the possibility of access to said screws.

[0005] Patent FR-A-2665919, to the present applicant, discloses an awning having no box, in which the tarpaulin winding tube is rotatably mounted with respect to end parts including a gear wheel coaxial with the tube rotation axis. The supporting members have a circular through recess in which said gear wheel is arranged and a tangential housing in which a toothed rack meshed with said gear wheel is mounted, and which can be driven by a driving member accessible from outside. On the opposite sides of the supporting members there are external plates bearing supporting brackets for the arms, said external plates being fixedly fastened to the end plates and gear wheels. A rotation of said driving member in either sense moves the rack and this later in turn rotates the gear wheel jointly with the external plate bearing the corresponding arm to adjust the awning tilt. A drawback of said mechanism is that it does not include an additional locking means, therefore the rotation torque caused by the weight of the fully or partly stretched awning, or by the strength of the wind against the tarpaulin, is only supported by the teeth of the rack and the gear wheel which are contacting each other.

[0006] An object of this invention is to provide a sup-

porting assembly for an awning having an adjustable tilt box, which includes angular adjusting means for locating, and safely fastening said box with respect to supporting members at a desired angular position.

[0007] Another object of this invention is to provide, in addition, a single driving means at each end of the box for driving the box rotation and wherein said driving means does not support alone the rotation torque of the awning when the angular adjusting means are operating.

[0008] Another object of this invention is in addition to provide a configuration in which the angular adjusting means and the driving means are accessible for driving them from a front position in a direction significantly perpendicular to the winding tube axis.

[0009] Another object of this invention is in addition to provide a configuration in which the angular adjusting means and the driving means remain concealed making unnecessary to provide a wide embellishing cover.

Brief explanation of the invention

[0010] Above objects and others are achieved according to this invention by providing a supporting assembly for awnings having an adjustable tilt of the kind having a box comprising a pair of supporting members to which are coupled respective rotatably guided end plates which close the side ends of a protecting casing. Said end plates comprise supporting housings to rotatably support respective axial ends of a tube for winding an awning tarpaulin and supporting brackets to hingedly support respective awning arms. Said supporting members are fastened on respective anchoring members joined to a wall or another structure by linearly adjustable fastening means, and angular adjustable means are arranged to locate and fasten said end plates at a desired angular position with respect to said supporting members.

[0011] This invention is characterized in that said angular adjusting means comprise a movable part connected to a first driving means linked to one of said supporting member or end plate. Said movable part has at least a tilted surface facing a conjugated tilted surface arranged on the other of said supporting member or end plate. Said first driving means is accessible from outside to be driven and thereby move the movable part in a direction to lock said tilted surface of the movable part with said conjugated tilt surface, locking the end plate at the desired angular position or moving it in an opposite direction to release it.

[0012] In addition, the assembly comprises end stops arranged at the final ends of the conjugated tilted surface to contact the movable part in order to limit a rotation angle of the end plate with relation to the supporting member. Preferably, the movable part comprises at least two opposite tilted surfaces forming a wedge which is arranged facing a recess having conjugated tilted walls limited by said end stops and, according to an ex-

emplary embodiment of the invention, the mentioned first driving member to which the movable part is connected is linked to the supporting member while said recess having conjugated tilted walls is formed in an area of the end plate or of a part joined to it. Advantageously, the first driving member is arranged in a radial direction with respect to the rotation axis of the end plate and the recess having conjugated tilted walls is shaped as a circumferential sector.

[0013] Optionally, said angular adjusting means in addition comprise a movable rack linearly guided in a tangential direction and connected to a second driving member linked to the supporting member, and at least a sector of gear wheel integral with or joined to the end plate and meshed with said rack, said second driving member being accessible from outside to be driven and thereby linearly displacing said rack in both senses of said tangential direction to rotate the end plate with respect to the supporting member until reaching said desired angular position.

[0014] In an exemplary embodiment, said recess of conjugated tilted walls is formed on a circumferential area of a body integral with the end plate or joined to it, and said body has a revolution, central axial housing in which is housed a stud shaft which is internally protruding in a recess of the supporting member. In the case that the assembly incorporates the mentioned rack mechanism, said gear wheel sector will be advantageously formed in a circumferential area of said body opposite to said recess having conjugated tilted walls.

[0015] With said arrangement, the supporting assembly of this invention incorporates first a stable guiding means for rotating the box, that is to say, its end plates with respect to the supporting members. The stability of said guiding means is due to the fact that said means do not depend on the locking means nor on the rotation driving means when present. For this reason, although the locking means are released, the weight of the box and the tarpaulin elements contained therein is supported by said guiding means, also allowing and guiding the box rotation. Second, the supporting assembly of this invention provides locking means for the box in a desired angular position which are secure and compact, comprising a single driving member on each supporting member and, in addition, this driving means remain discreetly concealed in a housing of the supporting member, therefore it is not necessary to incorporate a large embellishing cover. Another advantage of said locking means is that they provide a limited range of possible angular positions, preventing the risk of a brisk unintentional rotation to the lowest possible position of the awning. Last, said locking means are compatible with a conventional gear wheel and rack mechanism for driving the box rotation although said mechanism is not essential because the box can be easily hand rotated by virtue of said stable guiding means for rotating the box. The incorporation of said conventional gear wheel and rack mechanism has the additional advantage that it is capa-

ble to temporarily sustain the awning rotation torque while the angular adjusting means are released to carry out an adjustment of the tilt and, on the contrary, when the adjusting means are tightened, they release the gear wheel and rack mechanism from said effort which then acts as a safety device.

Brief description of the drawings

[0016] Above advantages and characteristics will be more apparent from following detailed description of an exemplary embodiment with reference to the accompanying drawings in which:

Fig. 1 is an exploded perspective view of the supporting assembly for the adjustable tilt awning according to an exemplary embodiment of this invention;

Fig. 2 is a perspective view of the internal face of the supporting member of Fig. 1, which is coupled to an anchoring member and with the locking means and the rotation driving means of the end plate shown exploded;

Fig. 3 is a perspective view of the assembly of Fig. 1, assembled;

Fig. 4 is a partly sectional side elevation view of the mounted assembly locked on said anchoring member; and

Figs. 5A and 5B are partly sectional side elevation views of another exemplary embodiment of the support assembly for awning of this invention assembled and locked on said anchoring plate, which is joined to an upright wall or another structure or to a ceiling or another horizontal structure, respectively, without altering the mounting position of the box.

Detailed description of exemplary embodiments

[0017] Referring first to Fig. 1, the supporting assembly for awning having an adjustable tilt according to an exemplary embodiment of this invention is shown in an exploded perspective view. The awning is of the kind that defines a box formed by a protecting casing (not shown) closed at its ends by a pair of end plates 2 (of which only one is shown in the figures). Said mentioned end plates 2 are coupled in a rotatably guided manner to respective supporting members 1 (only one of which is shown in the figures), which in turn are linearly fastened by adjustable fastening means to respective anchoring members 3 (shown in Figs. 2 and 4) joined to a wall or another structure. Each end plate 2 comprises a supporting housing to rotatably support a respective axial end of a tube for winding an awning tarpaulin (not shown) and a respective supporting bracket 33 to hingedly support a respective extensible arm of an awning connected by its distal end to a loading bar (not shown) which can close a longitudinal opening of the protecting casing when the awning is completely with-

drawn. The supporting assembly includes angular adjusting means for locating and locking said end plates 2 with respect to said supporting members 1 at a desired angular position.

[0018] The mentioned angular adjusting means comprise a movable part 4 which includes two opposite tilted surfaces forming a wedge and is connected to a first driving means 5 linked to said supporting member 1. Said movable part 4 is facing a recess having tilted walls 6, having tilts conjugated with those of said wedge opposite tilted surfaces, said tilted walls 6 being limited by end stops 40. In the illustrated example, said first driving means 5 is arranged in a radial direction with respect to the rotation axis of the end plate 2 and the recess having conjugated tilted walls 6 has the shape of a circumferential sector, although other configurations could be possible, for example, the first driving member 5 could be arranged in a direction parallel to the rotation axis of the end plate 2 and the recess having conjugated tilted walls 6 could be shaped as a circular crown sector. Also, the first driving means 5 could be linked to the end plate 2 and the recess having conjugated tilted walls 6 could be arranged in the supporting member 1 with identical result. Also, it could be sufficient that said movable part 4 has only a tilted surface facing a conjugated tilted surface arranged in the other of the mentioned supporting members 1 or corresponding end plate 2.

[0019] The first driving member 5 is accessible from outside and is arranged so that when driven in a first rotation sense, it moves the movable part 4 in a direction to embed the wedge in the recess having conjugated tilted walls 6 locking the end plate 2 in the desired angular position, and, when driven in the opposite rotation sense, it moves the movable part 4 in an opposite direction to release the possibility of rotation of the end plate 2. When the movable part 4 is in a released position and the end plate 2 is rotated, said end stops 40 arranged at the ends of the recess having conjugated tilted walls 6 contact the movable part 4 limiting a rotation axis of the end plate 2 with relation to the supporting member 1. The nature and arrangement of the first driving member 5 will be described in details below.

[0020] The recess having conjugated tilted walls 6 is formed on a circumferential area of a body 10 integral with or joined to the end plate 2 and said body 10 has a revolution, central axial housing 11 in which a stud shaft 12 (shown in Fig. 2) is housed which internally protrudes in a recess 13 of the supporting member 1. In the exemplary embodiment illustrated, the angular adjustment means in addition comprise a movable rack 7 linearly guided in a tangential direction and connected to a second driving member 8 linked to the supporting member 1. On a circumferential area of said body 10 opposite to said recess having conjugated tilted walls, 6 a sector of gear wheel 9 is formed, which is meshed with the rack 7 (see Fig. 4) so that, when said second driving means 8 is driven in either rotation sense, for which purpose it is accessible from outside, said rack 7 is linearly moved

by the second driving means 8 in either sense of said tangential direction to rotate the end plate 2 with respect to the supporting member 1 until reaching said desired angular position.

[0021] In Fig. 3 it can be noted that both the first driving member 5 and the second driving means 8 are arranged in directions perpendicular to the axis of the winding tube (not shown) and are accessible from a front part of the awning box, therefore it is not necessary to provide spaces or gaps on both sides of the supporting member 1 to have access to the angular adjustment means, as it occurs in the devices of the prior art.

[0022] Referring specially to Figs. 2 and 4, the first driving member 5 comprises a screw rod 5a coupled to a nut 15 and it has an internal end rotatably connected to the wedge 4 and an external end in which is located a gripping configuration 17. Said screw rod 5a is arranged in a radial passageway 14 communicating said recess 13 of the supporting member 1 with the exterior, said nut 15 remaining housed in a broadening 16 of said radial passageway 14 and the movable part 4 partly introduced in the recess having tilted walls 6 of the end plate 2 (Fig. 4). Said gripping configuration 17 of the screw rod 5a remains in a position, which is accessible by means of a tool through an external opening 18 of the radial passageway 14. Advantageously, a portion 39 of the passageway 14 adjacent to said external opening 18 is broadened to house a thickened head 19 of the screw rod 5a, so that the first catching means can be, for example, an "Allen" screw available in the trade at a low cost, said gripping configuration 17 being formed in the thickened head 19 having the shape of an hexagonal cross sectional recess adapted to be driven with a simple standard key.

[0023] In a similar way, said second driving means 8 can be an "Allen" screw with a screw rod 8a arranged on a tangential portion 13a of said recess 13 of the supporting member 1, said screw rod 8a being screw coupled in a threaded hole 21 arranged lengthwise through the movable rack 7. The screw rod 8a is trapped in said tangential portion 13a of the recess 13 with an internal end rotatably connected to a cup 22 fully housed in an end housing 23 of the tangential portion 13a, an external end of the screw rod 8a having a thickened head 24 in which a gripping configuration 26 is formed being housed in an initial housing 25 of the tangential portion 13a. The gripping configuration 26 has the shape of an hexagonal cross sectional recess and is accessible by means of a tool through an external opening 27 which communicates with said initial housing 25 of the tangential portion 13a through a tangential passageway 20.

[0024] As it is shown in Figs. 2 and 4, the supporting member 1 has a generally flat internal face 1a in which are laterally open the recess 13, the tangential portion 13a thereof, the radial passageway 14, said broadening 16 and portion 39 thereof, the mentioned end and initial housings 23, 25 of the tangential portion 13a and said tangential passageway 20, all of them being accessible

from said generally flat internal face 1a to install the components when the assembly is dismounted. Said components are the first driving member 5, with the nut 15 and the wedge 4 and the second driving member 8, with the rack 7 and the cup 22. The end plate 2 has generally flat surfaces 2a (Fig. 1) which, when the assembly is mounted, as it is shown in Fig. 3, remain leaning against said generally flat internal face 1a of the supporting member 1, laterally closing said recesses, housings and passageways, so that the components housed within it are trapped. At same time, said stud shaft 12 remains inserted in said revolution, central axial housing 11, the gear wheel 9 sector remains meshed with the rack 7 and the recess having tilted walls 6 facing or partly inserted in the movable part 4. The supporting member 1 has a central hole 28 through which is passed a set-screw 29 screwed in corresponding threaded central hole of the end plate 2 or in a nut or similar, so that it keeps the end plate 2 and the supporting plate 1 joined with the respective generally flat surfaces 2a and generally flat internal face 1a in contact without preventing their relative rotation.

[0025] According to another exemplary embodiment, not shown, the assembly includes a second recess having conjugated tilted walls formed on another circumferential area of the body 10 and a second gear wheel sector is formed in other opposite circumferential areas of the body 10. Thus, in the body 10 there is a first set of a recess having tilted walls and a sector of gear wheel and a second assembly of a recess having tilted walls and a sector of gear wheel, said first and second sets being arranged so that the supporting members 1 can be selectively joined to a wall or another upright structure or to a ceiling or another horizontal structure without altering the mounting position of the box.

[0026] Same can be achieved, as shown in Figs. 5A and 5B, providing said recess having tilted walls 6 and said gear wheel sector 9 with lengths encompassing sufficiently long arches and arranging them in perimetric areas of the body 10 so that the supporting member 1 can be selectively joined to a wall or another upright structure (Fig. 5A) or to a ceiling or another horizontal structure (Fig. 5B) without altering the mounting position of the end plate 2 and therefore of the body 10 and the box. It will be noted that in Figs. 5A and 5B, the body 10 is exactly in same position, with the wedge 4 and the rack 7 coupling in different portions of said recess having tilted walls 6 and gear wheel sector 9, respectively.

[0027] Referring now, once more to Figs. 2 and 4, the mentioned linearly adjustable fastening means to fasten the supporting member 1 to said anchoring member 3 joined to a wall or another structure are of a conventional kind and comprise an open face down groove 30 arranged in a back top wing 31 of the supporting plate 1 to be hooked to a top longitudinal rib 32 of the anchoring member 3 and an opening 34 arranged in a lower appendage 35 of the supporting member 1 for the passage of an anchoring screw 36 screwed in a nut 37 trapped

in a lower longitudinal guideway 38 of each anchoring member 3. Said lower longitudinal guideway 38 is parallel to said top longitudinal rib 32 and the anchoring member 3 is installed so that both remain significantly horizontal, so before the screw 36 is tightened in the nut 37, the supporting member 1 admits an horizontal linear travel along the supporting member 3 while the weight thereof and eventually of the whole of the awning is supported by the top longitudinal rib 32 of the anchoring member 3 fixed on the wall or another structure.

[0028] The exemplary embodiments illustrated herein are for simple illustration and do not limit the scope of this invention, said scope being defined in appended claims.

Claims

1. Supporting assembly for an adjustable tilt awning of the kind comprising a pair of supporting members (1) to which are coupled, rotatably guided, respective end plates (2) closing side ends of a protecting casing and which comprise supporting housings for rotatably support respective axial ends of a winding tube of an awning tarpaulin and supporting brackets (33) to hingedly support respective awning arms, linearly adjustable fastening means being arranged for fastening said supporting members (1) on respective anchoring members (3) joined to a wall or another structure, and angular adjusting means for locating and locking said end plates (2) with respect to said supporting members (1) in a desired angular position, **characterized in that**, said angular adjusting means comprise a movable part (4) connected to a first driving member (5) linked to one of said supporting member (1) or end plate (2), said movable part (4) having at least a tilted surface facing a conjugated tilt surface (6) arranged on the other of said supporting member (1) or end plate (2), said first driving means (5) being accessible from outside to be driven and thereby move the movable part (4) in a direction to lock said tilted surface of the movable part (4) with said conjugated tilted surface (6) locking the end plate (2) at the desired angular position, or in an opposite direction to release it.
2. Assembly, according with claim 1, **characterized in that** it comprises end stops (40) arranged at final ends of the conjugated tilted surface (6) to contact the movable part (4) in order to limit a rotation angle of the end plate (2) with relation to the supporting plate (1).
3. Assembly, according to claim 2, **characterized in that** said movable part (4) comprises at least two opposite tilted surfaces forming a wedge facing a recess having conjugated tilted walls (6) limited by

said end stops (40).

4. Assembly, according to claim 3, **characterized in that** said first driving means (5) to which the movable part (4) is connected is linked to the supporting member (1) and said recess having conjugated tilted walls (6) is formed in an area of the end plate (2) or of a part joined to it.
5. Assembly, according to claim 4, **characterized in that** said first driving member (5) is arranged in a radial direction with respect to the rotation axis of the end plate (2) and the recess having conjugated tilted walls (6) has the shape of a circumferential sector.
6. Assembly, according to claim 5, **characterized in that** said recess having conjugated tilted walls (6) is formed in a circumferential area of a body (10) integral with or joined to the end plate (2), said body (10) having a revolution, central axial housing (11) in which a stud shaft (12) is housed which internally protrudes in a recess (13) of the supporting member (1).
7. Assembly, according to claim 6, **characterized in that** said angular adjusting means in further comprise a movable rack (7) linearly guided in a tangential direction and connected to a second driving means (8) linked to the supporting member (1) and at least a gear wheel sector (9) integral with or joined to the end plate (2) and meshed with the rack (7), said second driving means (8) being accessible from outside to be driven and thereby linearly moving said rack (7) in either sense of said tangential direction to rotate the end plate (2) with respect to the supporting member (1) until reaching said desired angular position.
8. Assembly, according to claim 7, **characterized in that** said gear wheel sector (9) is formed in a circumferential area of said body (10) opposite to said recess having conjugated tilted walls (6).
9. Assembly, according to claim 8, **characterized in that** a second recess having conjugated tilted walls is formed in another circumferential area of the body (10) and a second gear wheel sector is formed in another opposite circumferential area of the body (10), said first and second recesses having tilted walls and first and second sectors of gear wheel being arranged so that the supporting members (1) can be selectively joined to a wall or another upright structure or to a ceiling or another horizontal structure.
10. Assembly, according to claim 8, **characterized in that** said recess having tilted walls (6) and said gear

wheel (9) sector encompass sufficiently long arches and are arranged in such a perimetric area of the body (10) that the supporting members (1) can be selectively joined to a wall or another upright structure or a ceiling or another horizontal structure.

11. Assembly, according to claim 8, **characterized in that** said first driving member (5) comprises a screw rod (5a) arranged in a radial passageway (14) communicating said recess (13) of the supporting member (1) with outside, said screw rod (5a) being coupled to a nut (15) housed in a thickening (16) of said radial passageway (14) and the screw rod (5a) comprising an internal end rotatably connected to the wedge (4) and an external end in which a gripping configuration (17) is located, being accessible by means of a tool through an external opening (18) of the radial passageway (14).

12. Assembly, according to claim 11, **characterized in that** a portion (39) of the passageway (14) adjacent to said external opening (18) is broadened to house a thickened head (19) of the screw rod (5a) in which said gripping configuration (17) is shaped as a recess having a polygonal cross section.

13. Assembly, according to claim 8, **characterized in that** said second driving member (8) comprises a screw rod (8a) arranged in a tangential portion (13a) of said recess (13) of the supporting member (1), said screw rod (8a) being screwed in a threaded hole (21) arranged lengthwise through the movable rack (7), the screw rod (8a) being trapped in said tangential portion (13a) of the recess (13) with an internal end rotatably connected to a cup (22) fully housed in a end housing (23) of the tangential portion (13a) and an external end housed in an initial housing (25) of the tangential portion (13a), at said external end of the screw rod (8a) a gripping configuration (26) being formed which is accessible by means of a tool through an external opening (27) which communicates with said initial housing (25) of the tangential portion (13a) through a tangential passageway (20).

14. Assembly, according to claim 13, **characterized in that** said external end of the screw rod (8a) defines a thickened head (24) in which is formed said gripping configuration (26) shaped as a polygonal cross sectional recess.

15. Assembly, according to claim 8, **characterized in that** the supporting member (1) has a generally flat internal face (1a) in which are laterally opened and accessible the recess (13), the tangential portion (13a) thereof, the radial passageway (14), said broadening (16) and portion (39) thereof, said end and initial housings (23, 25) of the tangential portion

(13a) and said tangential passageway (20), while the end plate (2) has generally flat surfaces (2a) leaning against said generally flat internal face (1a) of the supporting member (1) laterally closing said recesses and passageways with the first driving member (5), the nut (15), the wedge (4), the second driving member (8), the rack (7) and said cup (22) enclosed therein.

16. Assembly, according to claim 15, **characterized in that** the supporting member (1) has a central hole (28) through which a setscrew (1) is passed, said setscrew (1) being screwed in a corresponding central threaded hole of the end plate (2), thereby keeping said generally flat surfaces (2a) of the end plate (2) in contact with said generally flat internal face (1a) of the supporting member (1) without preventing its relative rotation while said stud shaft (12) is inserted in said revolution, central axial housing (11), the wedge (12) is at least partly inserted in said recess having conjugated tilted walls (6) and the gear wheel sector (9) is meshed with the rack (7).

17. Assembly, according to claim 1, **characterized in that** said linearly adjustable fastening means for fastening the supporting members (1) to said anchoring members (3) joined to a wall or another structure comprise an open face down groove (30) arranged in a back top wing (31) of each supporting plate (1) to be hooked to a top longitudinal rib (32) of each anchoring member (3) and an opening (34) arranged in a lower appendage (35) of each supporting member (1) for the passage of an anchoring screw (36) screwed in a nut (37) trapped in a lower longitudinal guideway (38) of each anchoring member (3), said lower longitudinal guideway (38) being parallel to said top longitudinal rib (32).

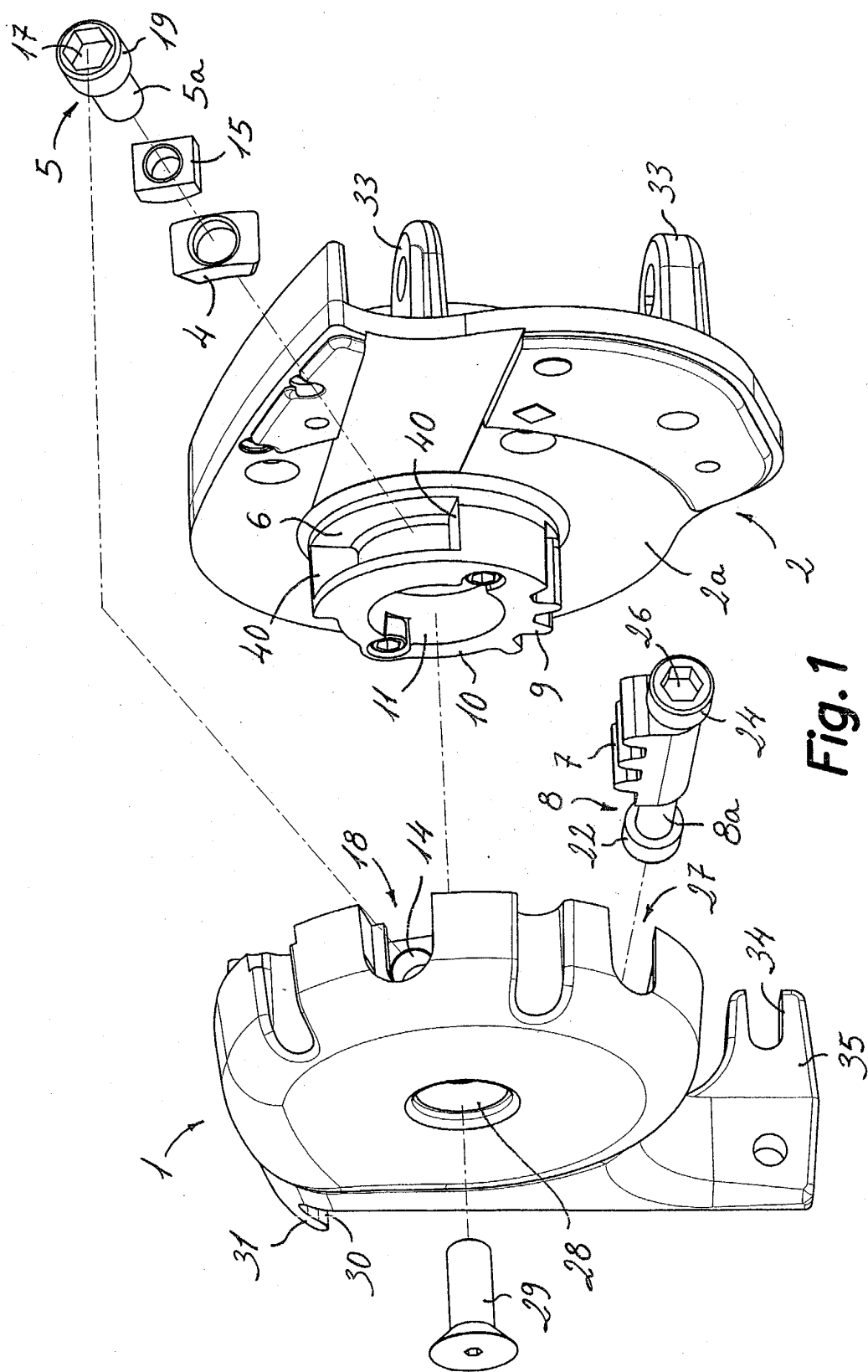
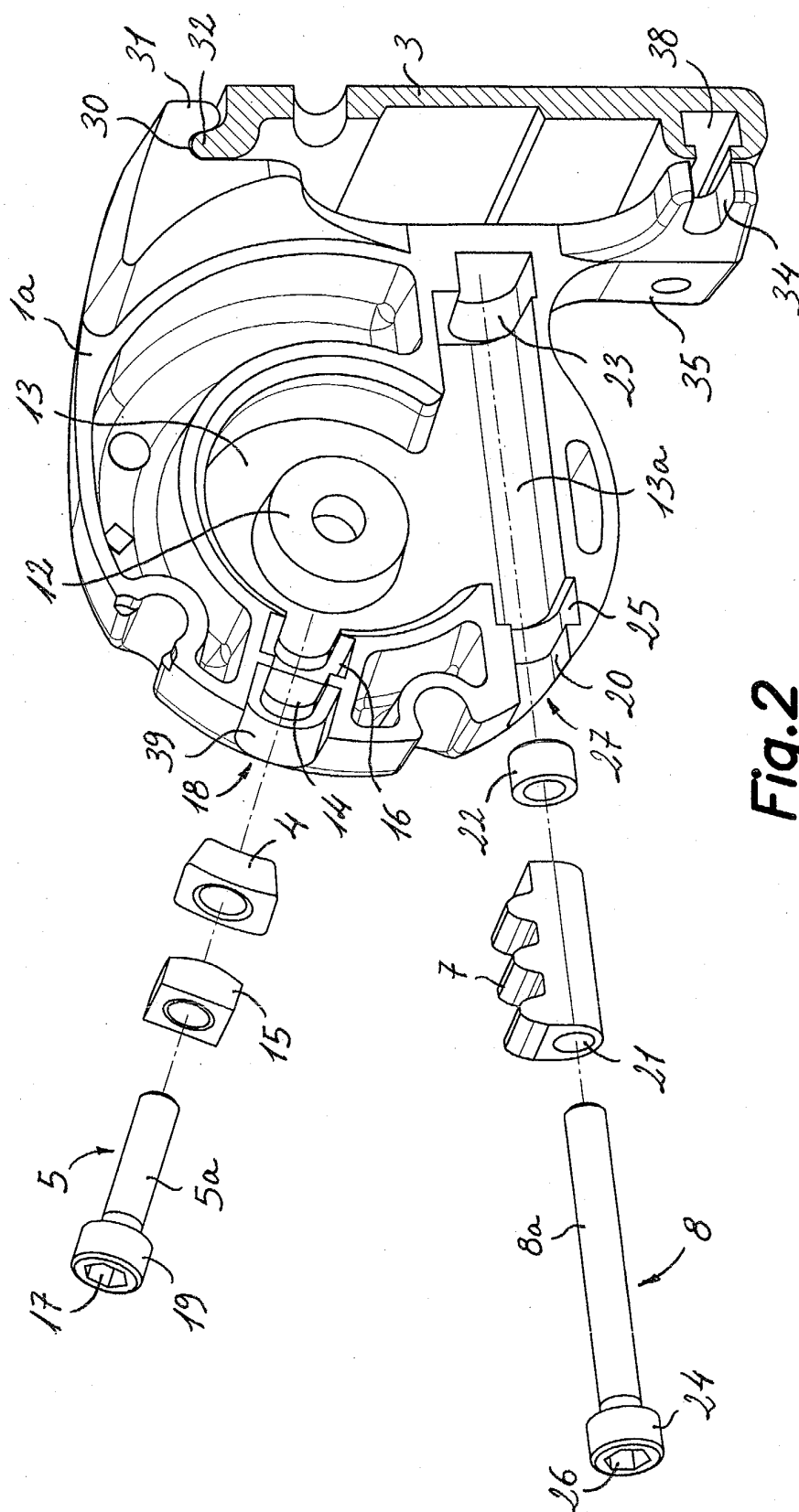


Fig. 1



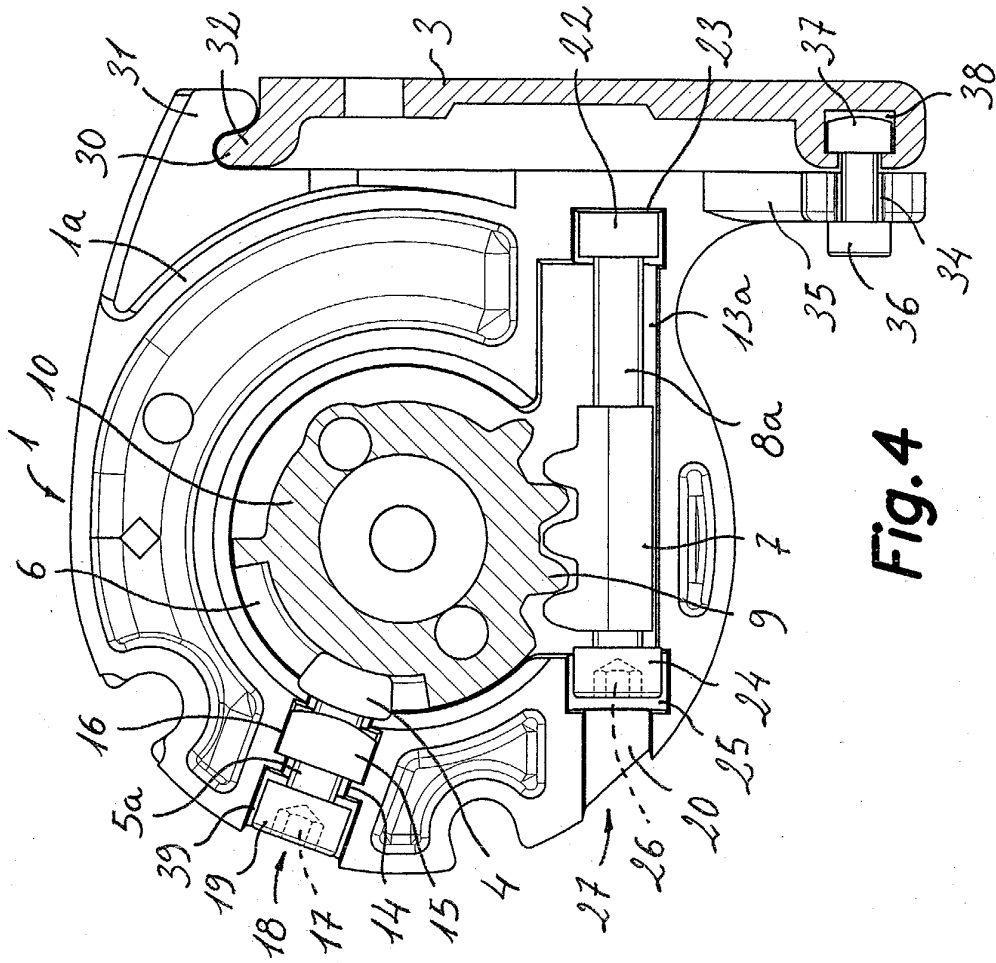


Fig.4

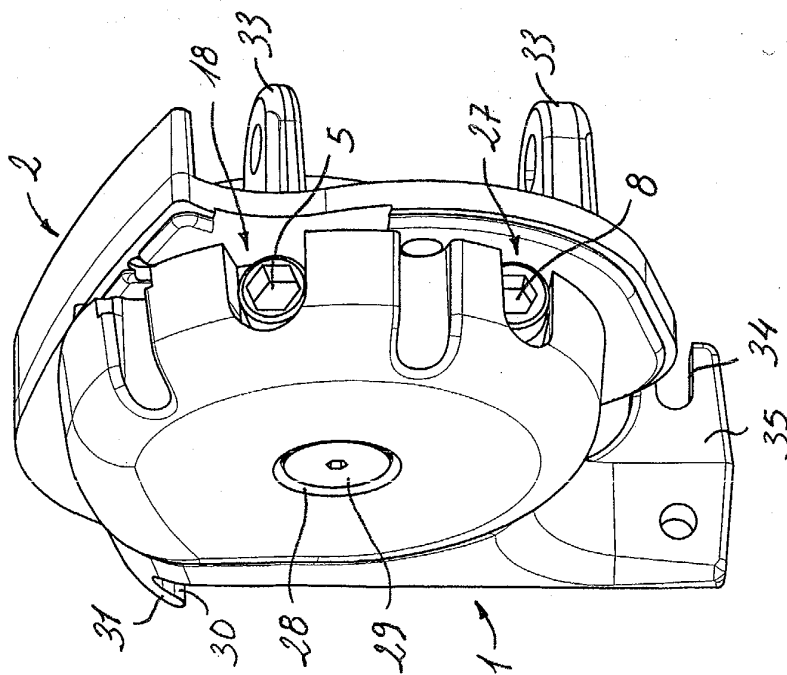


Fig.3

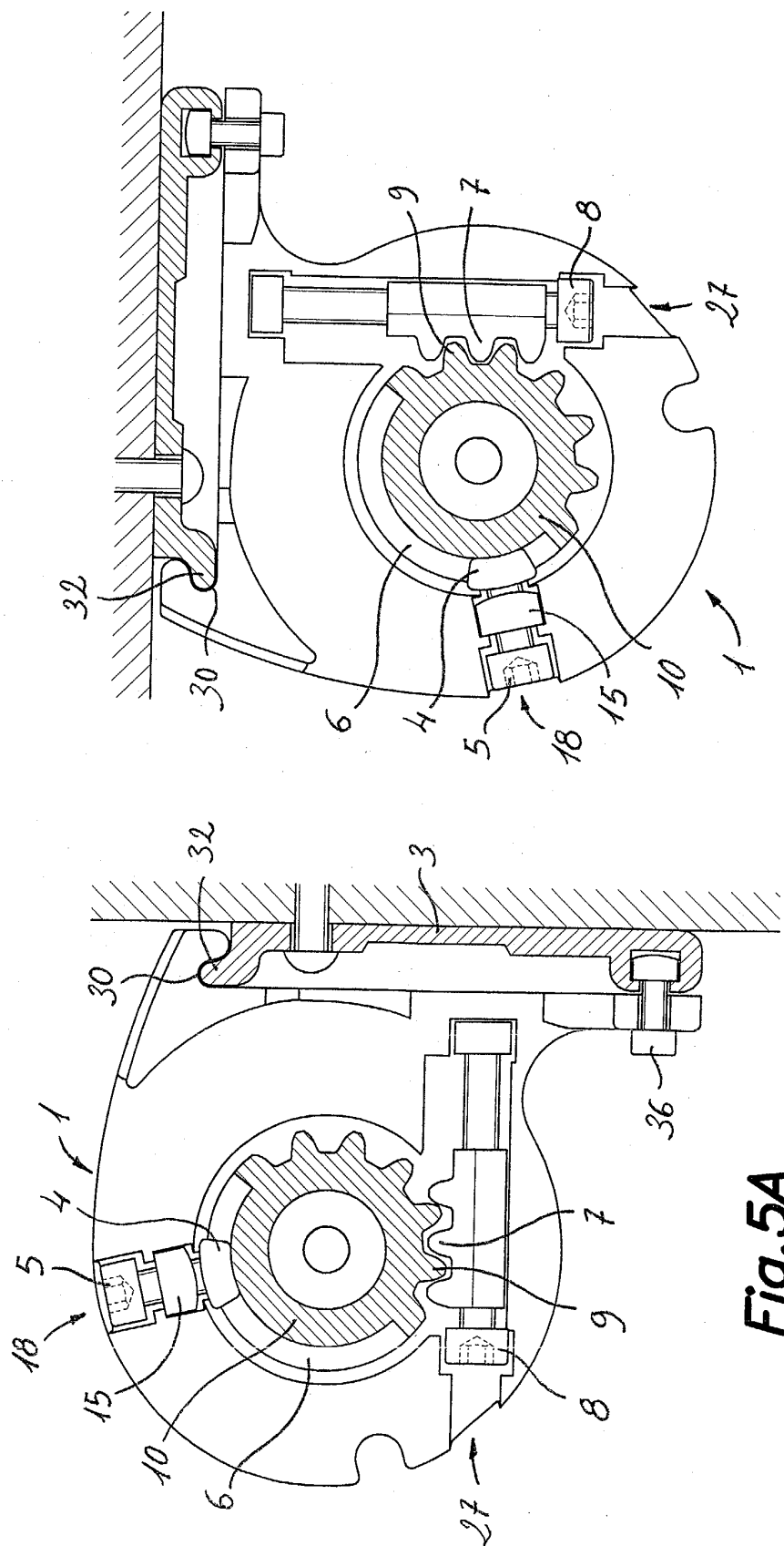


Fig. 5B

Fig. 5A



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 38 0120

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	DE 201 20 786 U (SCHOENE KG ROBERT) 8 May 2003 (2003-05-08) * page 9, paragraph 2 - page 10, paragraph 2; figures 1-4 *	1	E04F10/06
A	FR 2 341 018 A (SCHON SIEGFRIED) 9 September 1977 (1977-09-09)		
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E04F
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 20 October 2003	Examiner Peschel, G
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