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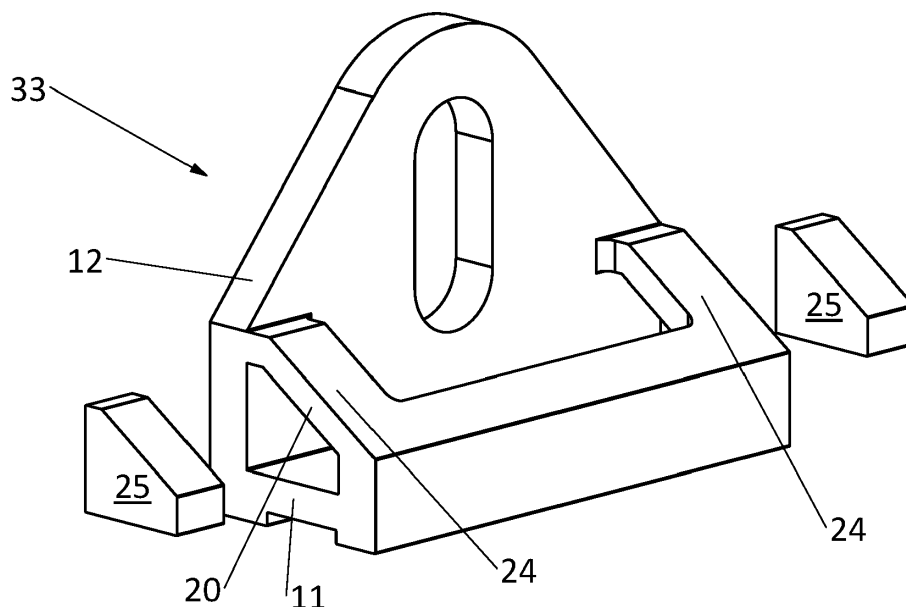
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(54) **METHOD FOR MAKING AN EXTRUDED TRANSVERSAL HINGE BRACKET FOR CONSTRUCTING A DOOR HINGE**

(57) The present invention is related to a method for making a transversal hinge bracket (33) for constructing an eye-bolt door hinge. The hinge bracket is made of an extruded profile which comprises first (11) and second planar plates (12) which are perpendicular to one another. To reinforce the hinge bracket use is made of an extruded profile which additionally comprises a longitudinally extending reinforcing plate (20) which forms a hollow channel delimited by the reinforcing plate (20), the first plate (11) and the second plate (12). At least one mounting hole which is arranged to receive a fastening

member for mounting the first plate (11) to the door is created throughout the first plate (11). To enable to insert the fastening member into the mounting hole at least a section of the reinforcing plate (20) which covers the location on the first plate (11) of said mounting hole) is removed. In this way two gussets (24) are formed between the first (11) and the second plate (12). A filling member (25) is preferably inserted into the part of the hollow channel delimited by the two gusset (24) to further increase the strength of the hinge bracket (33).

**Fig. 9****EP 3 907 362 A1**

## Description

### Field of the invention

**[0001]** The present invention is related to a method for making a transversal hinge bracket for constructing a door hinge such as in particular an eye-bolt door hinge. The invention in particular relates to a method for making a version of the transversal hinge bracket from patent publication BE1025033 B1.

### Background of the invention

**[0002]** Transversal hinge brackets and door hinges constructed therefrom, in particular eye-bolt door hinges constructed therefrom, are known for example from patent publication BE1025033 B1.

**[0003]** An eye-bolt door hinge which is arranged for hingedly connecting a door to a door support such as a door frame or a supporting pole, generally comprises a fixed hinging element arranged to be welded to the door support, a hinge pin attached to the fixed hinging element and positioned parallel but not flush with the plane of the door, an eye-bolt hingedly attached to the hinge pin such as to enable rotation around a rotating axis coincident with the hinge pin, which eye-bolt comprises an eye part connectable with the hinge pin, and a bolt part. The eye-bolt door hinge further comprises a fastening mechanism configured to attach the bolt part of the eye-bolt to the door. The fastening mechanism thereto comprises a transversal hinge bracket. The transversal hinge bracket comprises a longitudinally extruded profile comprising first and second planar plates extending in the longitudinal direction and integrally connected to each other along an intersection extending in the longitudinal direction. The first plate extends in a first transversal direction perpendicular to the longitudinal direction from a first end of the first plate, in particular coinciding with the intersection, to a second end of the first plate. The second plate extends in a second transversal direction perpendicular to the longitudinal direction from a first end of the second plate coinciding with the intersection of both plates to a second end of the second plate, with the second transversal direction being substantially perpendicular to the first transversal direction i.e. the first and second plates are arranged substantially perpendicular to each other. At least one mounting hole, in particular two mounting holes, are provided throughout the first plate at a location between the intersection and the second end of the first plate. The mounting hole is arranged to receive a fastening member such as a screw or bolt for mounting the first plate to a door, i.e. to one of the two major surfaces of the door as opposed to one of the four side surfaces. A bolt receiving hole is provided throughout the second plate. The bolt receiving hole is arranged to receive the bolt part of the eye-bolt for hingedly connecting the second plate to the door support such as the door frame or a supporting pole.

**[0004]** Because the first plate and the second plate of the transversal hinge bracket are arranged substantially perpendicular to each other, the transversal hinge bracket is connected to the door in a transversal connection, i.e. the fastening members such as the screws or bolts that are inserted into the mounting hole extend substantially perpendicular to the direction of the bolt part of the eye-bolt inserted into the bolt receiving hole. Such a transversal connection allows to make a transversal door hinge i.e. a door hinge wherein the position of the rotation axis of the door, i.e. the position of the hinge pin, is parallel to the plane of the door, but is not flush with the plane of the door, i.e. is displaced with respect to the plane of the door in a direction perpendicular to the plane of the door.

**[0005]** It has however been found that, due to the lateral connection of the transversal hinge bracket and the weight of the door, the transversal hinge bracket is subjected to increased bending moments, which may cause the transversal hinge bracket to bend out of shape, for example such that the first and second plate are no longer arranged perpendicularly, and ultimately break.

**[0006]** Another hinge bracket for an eye-bolt hinge is disclosed in patent publication DE102008056424. This hinge bracket comprises the two perpendicular first and second plates with a gusset between the two plates at both extremities of the hinge bracket. A drawback of this hinge bracket is that it cannot be produced by an extrusion process and that the two gussets have to be fixed for example by a welding process to the two plates. Such a welding process is not only time consuming but it produces a weld which is not only visible but which may not always be of the same quality.

### Description of the invention

**[0007]** It is an aim of the present invention to provide a method for manufacturing an extruded transversal hinge bracket for constructing a door hinge such as in particular an eye-bolt door hinge, which transversal hinge bracket has an increased strength.

**[0008]** The method of the present invention thereto comprises the following steps:

- a. Providing a longitudinally extruded profile comprising first and second planar plates extending in the longitudinal direction and integrally connected to each other along an intersection extending in the longitudinal direction. The term planar in particular refers to the fact that the plates are substantially flat, i.e. not curved. The first plate extends, in particular in addition to the longitudinal direction, in a first transversal direction perpendicular to the longitudinal direction. The first plate extends in said first transversal direction from a first end of the first plate to a second end thereof. The second plate extends, in particular in addition to the longitudinal direction, in a second transversal direction perpendicular to the longitudinal direction. The second plate extends in said sec-

ond transversal direction from a first end of the second plate to a second end thereof. The first end of the second plate coincides with the intersection of both plates, i.e. ends at the intersection of both plates. The second transversal direction is substantially perpendicular to the first transversal direction, i.e. such as to arrange the first plate and the second plate substantially perpendicular to each other.

b. Creating at least one mounting hole throughout the first plate at a location between the intersection and the second end of the first plate, wherein the mounting hole is arranged to receive a fastening member, such as a screw or a bolt, for mounting the first plate to a door, i.e. to one of the two major surfaces of the door as opposed to one of the four side surfaces.

c. Creating a bolt receiving hole throughout the second plate, wherein the bolt receiving hole is arranged to receive a bolt for hingedly connecting the second plate to a door support such as the door frame or a supporting pole.

**[0009]** The method of the present invention is characterized in that the extruded profile provided in step a further comprises a longitudinally extending reinforcing plate forming a longitudinally extending hollow channel delimited by the reinforcing plate, the first plate and the second plate and in that the reinforcing plate of the profile provided in step a comprises a cover section which covers in a direction perpendicular to the plane of the first plate the location on the first plate of said mounting hole, with the method further comprising a step of removing said cover section such as to enable the insertion of said fastening member into the mounting hole. The cover section can be removed either before step b or after step b. By removing the cover section, the fastening member can act directly onto the first plate thus providing a strong connection between the hinge bracket and the door.

**[0010]** Since the section covering the location of the mounting hole is removed, two transverse gussets are created in the profile. Notwithstanding the fact that these gussets extend in a transverse direction whilst the profile itself is extruded in the longitudinal direction, they can thus be created easily in the profile without having to fix or weld any additional parts thereto.

**[0011]** The method of the present invention is thus characterized in that the extruded profile from which the transversal hinge bracket is formed, already comprises gussets integrally connected with the first and second plates, i.e. the reinforcing plate forms the gusset. It has been found that the transversal hinge bracket that is formed in this way, is a reinforced extruded transversal hinge bracket having the required strength. No separate gussets need to be welded to the two perpendicular plates. The hinge bracket is preferably made of aluminium. Since not only the two perpendicular plates are made of extruded aluminium, but also the reinforcing plates, a strong hinge bracket is obtained since extruded

aluminium is for example stronger than cast aluminium. Moreover, no welds are required which may not only create weak spots but which may also reduce the strength of the adjacent extruded aluminium by the heat generated during the welding process.

**[0012]** According to an embodiment of the present invention, the term door not only refers to a conventional door provided in an opening of a wall, but also to other similar applications such as to a gate provided in the opening in a fence, or to a window provided in the opening of a wall etc. The terms related to a door as used in the present invention, such as a door hinge or a door support, apply mutatis mutandis to the above mentioned other applications, for example meaning a fence hinge or a fence support.

**[0013]** According to an embodiment of the present invention, the reinforcing plate is connected with the first plate at a location between the intersection and the second end of the first plate. Preferably, the first end of the first plate coincides with the intersection. The present embodiment specifies that the transversal hinge bracket, without the reinforcing plate, is substantially "L"-shaped, as opposed to substantially "T"-shaped. Providing a substantially "T"-shaped transversal hinge bracket has the advantage that the reinforcing plate can be connected to the first plate between the first end and the intersection, i.e. without covering the mounting holes. Providing a substantially "L"-shaped transversal hinge bracket has the advantage that the hinge bracket can be made with a substantially reduced dimension along the first transversal direction.

**[0014]** According to an embodiment of the present invention, said cover section of the reinforcing plate of the profile provided in step a also covers in a direction perpendicular to the plane of the second plate part of the location on the second plate where the bolt receiving hole is created in step c.

**[0015]** According to an embodiment of the present invention, the step of removing the cover section is done by punching or milling. Preferably the method comprises, prior to punching, inserting a punch guard into the hollow channel. Providing a punch guard into the hollow channel prior to punching has the advantage that whilst punching the reinforcing plate, the integrity of the extruded profile is maintained. Preferably, the covers section is partially punched and is subsequently further milled. This has the advantage that a lot of material of the reinforcing plate can be removed by the punching process, which process is better suited to remove a lot of material in a rapid manner, and that subsequently a more detailed level of material removal can be performed by the milling process.

**[0016]** According to an embodiment of the present invention, the step of removing the cover section comprises removing an enlarged section of the reinforcing plate encompassing the cover section i.e. the enlarged section is a section of the reinforcing plate that is bigger than the cover section. In the present embodiment it is however important that the removal of the enlarged section is such

that at least one gusset is formed between the first and the second plate i.e. it is important that not the entire interconnection of the reinforcing plate between the first and second plates is removed. Preferably two gussets are formed i.e. when removing the enlarged section. Providing two gussets increases the bending resistance of the reinforced extruded transversal hinge bracket. Preferably the two gussets are formed at the longitudinal extremities of the extruded profile, thereby optimally reinforcing the bending resistance of the reinforced extruded transversal hinge bracket.

**[0017]** According to an embodiment of the present invention, a filling member is inserted into the part of the hollow channel delimited by the at least one gusset. The filling member is for example made of the same material as that from which the first, second and reinforcing plates are made. The filling member preferably substantially fills the hollow channel delimited by the first plate, second plate and the gusset, and is being pressed therein, for example by providing a snug fit between the filling member and said part of the hollow channel. This embodiment has the advantage that the bending resistance of the reinforced extruded transversal hinge bracket is increased.

**[0018]** According to an embodiment of the present invention, step b comprises punching the first plate such as to create the mounting hole. Alternatively or additionally, step c comprises punching the second plate such as to create the bolt receiving hole. Punching of the holes has the advantage of being a simple and rapid process for making holes. According to an embodiment of the present invention, step b comprises creating two mounting holes, preferably positioned adjacently to each other along the longitudinal direction. Preferably, the bolt receiving hole is longitudinally positioned in between the two mounting holes. According to an embodiment of the present invention, step c comprises creating a single bolt receiving hole. According to an embodiment of the present invention, the mounting hole is provided closer to the intersection than to the second end of the first plate. Preferably, the mounting hole is provided closer to the intersection than to the position where the reinforcing plate contacts the first plate. Preferably, the mounting hole is provided adjacent to the intersection. Providing the mounting hole close to the intersection has the advantage that the bolt, when inserted into the bolt receiving hole, substantially covers the fastening members inserted into the mounting holes, thereby alleviating attempts of unauthorized removal of the reinforced extruded hinge bracket from the door. According to an embodiment of the present invention, the mounting hole is an elongated hole extending in the longitudinal direction. Alternatively, or additionally, the bolt receiving hole is an elongated hole extending in the second transversal direction. Providing elongated holes has the advantage of enabling to adjust the positioning of the door with respect to the door support.

**[0019]** According to an embodiment of the present invention, the longitudinally extruded profile provided in

step a is cut into multiple separate longitudinally extruded profiles. The steps b and c are performed for the multiple separate longitudinally extruded profiles such as to create multiple reinforced extruded transversal hinge brackets.

**[0020]** According to an embodiment of the present invention, the longitudinally extruded profile provided in step a is an aluminum-based longitudinally extruded profile. The profile is for example made from an aluminum alloy comprising mainly aluminum.

**[0021]** According to an embodiment of the present invention, the reinforcing plate is connected to the second end of the first plate. This embodiment has the advantage that the dimension of the reinforced extruded transversal bracket along the first transversal direction can be substantially reduced.

**[0022]** According to an embodiment of the present invention, the reinforcing plate is substantially planar. This embodiment has the advantage that the reinforcing plate optimally improves the bending resistance of the reinforced extruded transversal hinge bracket. The reinforcing plate being substantially planar for example means that the reinforcing plate is entirely planar, or that the reinforcing plate is mainly planar but connects to the first plate via a part extending in the longitudinal direction and the second transversal direction and connects to the second plate via a part extending in the longitudinal direction and the first transversal direction.

**[0023]** It is a further aim of the present invention to make a door hinge. The method comprises the steps of:

- applying the method to make a reinforced extruded transversal hinge bracket as described above,
- providing the door, the door support and an eye-bolt hingedly connected to the door support,
- inserting the eye-bolt into the bolt receiving opening of the second plate of the reinforced extruded transversal hinge bracket, and,
- attaching the first plate of the reinforced extruded transversal hinge bracket to the door by inserting fastening members into the mounting hole.

## FIGURES

**[0024]**

Figure 1 is a perspective view of a door connected to a door support by an eye-bolt door hinge in a transversal connection.

Figure 2 is a detailed view of the eye-bolt door hinge shown in figure 1.

Figures 3 - 10 depict steps for manufacturing a reinforced extruded transversal hinge bracket usable in the construction of the eye-bolt door hinge of figures 1-2.

## DESCRIPTION OF THE FIGURES

**[0025]** Hereinafter the invention will be described in certain embodiments and in reference to the accompanying figures. The present invention is however not limited by the following description.

**[0026]** Figure 1 is a perspective view of a door 2 connected to a door support 3 by two eye-bolt door hinges 1 in a transversal connection. The eye-bolt hinges 1 shown in figures 1 and 2 are reinforced hinges. The eye-bolt door hinge 1 is arranged for hingedly connecting the door 2 to the door support 3. As shown in figure 1, the door 2 comprises a vertically extending attachment bar 23 where to the door hinge 1 is connected. The vertically extending attachment bar 23 comprises two faces lying in the plane of the door and two faces perpendicular to the plane of the door. As shown in figure 2, the eye-bolt hinge 1 comprises a fixed hinging element 4 arranged to be welded to the door support 3. A hinge pin 5 is attached to the fixed hinging element 4 and positioned parallel but not flush with the plane of the door 2. An eye-bolt is hingedly attached to the hinge pin 5 such as to enable rotation around a rotating axis 8 coincident with the hinge pin 5. The eye-bolt comprises an eye part 6 and a bolt part 7. The eye part 6 is connectable with the hinge pin 5 by inserting the hinge pin 5 into the eye opening of the eye part 6. The eye-bolt door hinge 1 further comprises a fastening mechanism configured to attach the bolt part 7 of the eye-bolt to the door 2. The fastening mechanism thereto comprises a transversal hinge bracket 10 which is a reinforced extruded hinge bracket. The extruded transversal hinge bracket 10 comprises a longitudinally extruded profile comprising first and second planar plates extending in the longitudinal direction and integrally connected to each other along an intersection extending in the longitudinal direction. The first plate extends in a first transversal direction perpendicular to the longitudinal direction from a first end, in particular coinciding with the intersection, to a second end which is a free end. The second plate extends in a second transversal direction perpendicular to the longitudinal direction from a first end coinciding with the intersection of both plates to a second end which is a free end, and wherein the second transversal direction is substantially perpendicular to the first transversal direction. A mounting hole 18, in particular two mounting holes 18, are provided throughout the first plate at a location between the intersection and the second end of the first plate. The mounting hole 18 is arranged to receive a fastening member 34 such as a screw or bolt for mounting the first plate to the door 2, i.e. to one of the two major surfaces of the door as opposed to one of the four side surfaces. The fastening members 34 in particular mount the first plate to the vertically extending attachment bar 23, more in particular to a face of the vertically extending attachment bar 23 lying in the plane of the door. A bolt receiving hole 19 is provided throughout the second plate. The bolt receiving hole 19 is arranged to receive the bolt part 7 of the eye-bolt for hinged-

ly connecting the second plate to the door support 3. Because the first plate and the second plate of the extruded transversal hinge bracket 10 are arranged substantially perpendicular to each other, the extruded transversal hinge bracket 10 is connected to the door 2 in a transversal connection, i.e. the fastening members 34 such as the screws or bolts that are inserted into the mounting hole 18 extend substantially perpendicular to the direction of the bolt part 7 of the eye-bolt inserted into the bolt receiving hole 19. Such a transversal connection allows to make a transversal door hinge i.e. a door hinge wherein the position of the rotation axis of the door, that is the position of the hinge pin, is parallel to the plane of the door, but is not flush with the plane of the door, i.e. is displaced with respect to the plane of the door in a direction perpendicular to the plane of the door.

**[0027]** Figures 3 - 10 depict steps for manufacturing a reinforced extruded transversal hinge bracket usable in the construction of the eye-bolt door hinge of figures 1-2.

**[0028]** A first step of the present method is shown in figure 3. In the first step, a longitudinally extruded profile is provided. The profile has a substantially elongated shape, the elongation being the longitudinal direction. The provided longitudinally extruded profile is cut into separate shorter longitudinally extruded profiles 9, wherein the longitudinal length of the separate shorter longitudinally extruded profiles 9 correspond to the desired length of a extruded transversal hinge bracket. The subsequent description of the figures is directed to one of the separate shorted longitudinally extruded profiles 9, further referred to as the extruded profile 9. The extruded profile 9 comprises first 11 and second 12 planar plates extending in the longitudinal direction and integrally connected to each other along an intersection 13 extending in the longitudinal direction. The term planar in particular refers to the fact that the plates are substantially flat, i.e. not curved. The term planar does not preclude the provision of specific structural elements onto the first 11 or second 12 planar plates. Such a specific structural element is a longitudinally extending groove 30 provided in the first plate 11, said groove 30 for example being suitable for receiving the fastening elements as described in patent publication BE-B-1907712, the mounting of which is described in incorporated patent publication BE1025033-B1. It is however desired that the first plate 11 remains suited to be mounted substantially adjacent/in contact with and parallel to the plane of the door, in particular to the face of the vertically extending attachment bar 23 lying in the plane of the door. The first plate 11 extends, in particular in addition to the longitudinal direction, in a first transversal direction perpendicular to the longitudinal direction. The first plate 11 extends in said first transversal direction from a first end 14 coincident with the intersection 13, to a second end 15 which is a free end. The second plate 12 extends, in particular in addition to the longitudinal direction, in a second transversal direction perpendicular to the longitudinal direction. The second plate 12 extends in said second trans-

versal direction from a first end 16 coincident with the intersection 13, i.e. coincident with the first end 14 of the first plate 11, to a second end 17 which is a free end. The second transversal direction is substantially perpendicular to the first transversal direction, i.e. such as to arrange the first plate and the second plate substantially perpendicular to each other. The extruded profile 9 further comprises a longitudinally extending reinforcing plate 20 connected to the first 11 and second 12 plates such as to form a longitudinally extending hollow channel delimited by the reinforcing plate 20, the first plate 11 and second plate 12. The longitudinally extending hollow channel can for example be seen as a longitudinally extending hollow tube, having in a cross section along a plane perpendicular to the longitudinal direction, at least one angle of substantially 90°. The reinforcing plate 20 is connected to the first plate 11 at a location 21 coinciding with the second end 15 of the first plate 11. The reinforcing plate 20 is connected to the second plate 12 at a location 26 between the intersection 13 and the second end 17 of the second plate 12, i.e. at approximately 1/3 of the distance between the intersection 13 and the second end 17 of the second plate 12. The reinforcing plate 20 is substantially planar. In particular the reinforcing plate 20 has a planar part 27 interconnected to the first plate 11 via a part 29 extending in the longitudinal direction and the second transversal direction and interconnected to the second plate 12 via a part 28 extending in the longitudinal direction and the first transversal direction.

**[0029]** A second step of the method comprises removing a part of the reinforcing plate 20, which part covers a part or the entirety of the location on the first plate 11 and in particular also of the second 12 plate where respectively the mounting hole 18 or the bolt receiving hole 19 is to be provided. This part of the reinforcing plate is referred to as cover section. Figure 4 shows a first embodiment of the present invention where the cover section is partially removed by punching (i.e. die cutting) the reinforcing plate 20 along the second transversal direction using a punching tool 31. Punching of the reinforcing plate 21 is preceded by inserting punching guards 22 into the hollow channel such as to prevent accidental punching of the first plate 11. The punching guards 22 are elements arranged to fit into the hollow channel in a close fitting, e.g. in a snug fit. The punching guards 22 are preferably also arranged to limit the transfer of impulse from the punching tool 31 to the first plate 11. Figure 5 shows the optional step wherein a further part of the cover section is removed by milling the reinforcing plate 20 using a milling tool 32. Alternatively, the entire cover section can be removed by milling. In figures 6 to 10 the hinge bracket the opening formed by removing the cover section is only formed by punching, i.e. without the optional milling step. The cover section may be removed over a larger area than that required for accessing the mounting hole and optionally the bolt receiving hole. At least a part of the reinforcing plate 20 has to remain interconnected

to the first and second plates 11, 12. The remaining parts of the reinforcing plate 20 form two gussets 24 interconnecting the first and second plates 11, 12.

**[0030]** In a next step as shown in figure 6, the bolt receiving hole 19 is created in the second plate 12 between the intersection 13 and the second end 17 of the second plate 12. To that end, a punching tool 33 is provided to punch the second plate 12 along the first transversal direction. The resulting bolt receiving hole 19 is a hole that is elongated along the second transversal direction. Simultaneously with creating the bolt receiving hole 19, the punching tool 33 also profiles the second plate, i.e. removes part therefrom such that the substantially rectangular cross-sectional shape of second plate 12 taken along a plane perpendicular to the first transversal direction, is transformed into a substantially triangular cross-sectional shape. By profiling the second plate 12, the position of the second end 17 of the second plate 12 along the second transversal direction is made dependent on the position along the longitudinal direction.

**[0031]** In a subsequent step as shown in figure 7, the two mounting holes 18 are created in the first plate 11 between the intersection 13 and the second end 15 of the first plate 11. To that end, a punching tool 34 is provided to punch the first plate 11 along the second transversal direction. The two mounting holes 18 are elongated along the longitudinal direction and are provided adjacently along the longitudinal direction. The resulting reinforced extruded transversal hinge bracket 33, showing in particular the gussets 24, the mounting holes 18 and the bolt receiving hole 19, is shown in figure 8. In is in particular visible in figure 8 that the bolt receiving hole 19 is provided between the two mounting holes 18 along the longitudinal direction.

**[0032]** A finishing step is shown in figure 9. In this finishing step two filling members 25 are pressed/clamped into the hollow channel delimited by the first plate 11, the second plate 12 and the two gussets 24. The resulting finished reinforced extruded transversal bracket 33, wherein the filling member 25 are in place i.e. delimited by the first plate 11, the second plate 12 and the gusset 24, is shown in figure 10.

**[0033]** In the above described method, the cover section of the reinforcing plate 20 was first removed before creating the mounting holes 18 in the first plate 11. It is however also possible to punch first the mounting holes 18 in the first plate 11. In that case, a punch guard is preferably first inserted in the hollow profile 9 before punching the mounting holes 18 therein.

## Claims

1. A method for making an extruded transversal hinge bracket (33) for constructing a door hinge (1), the method comprising the steps of:

a. providing a longitudinally extruded profile (9)

comprising first (11) and second (12) planar plates extending in the longitudinal direction and integrally connected to each other along an intersection (13) extending in the longitudinal direction, wherein the first plate (11) extends in a first transversal direction perpendicular to the longitudinal direction from a first end (14) of the first plate (11) to a second end (15) thereof, and wherein the second plate (12) extends in a second transversal direction perpendicular to the longitudinal direction from a first end (16) of the second plate (12) coinciding with the intersection (13) of both plates to a second end (17) of the second plate (12), and wherein the second transversal direction is substantially perpendicular to the first transversal direction,

b. creating at least one mounting hole (18) throughout the first plate (11) at a location between the intersection (13) and the second end (15) of the first plate (11), wherein the mounting hole (18) is arranged to receive a fastening member (34) for mounting the first plate (11) to a door (2), and

c. creating a bolt receiving hole (19) throughout the second plate (12), wherein the bolt receiving hole (19) is arranged to receive a bolt (7) for hingedly connecting the second plate (12) to a door support (3),

**characterized in that** the extruded profile (9) provided in step a further comprises a longitudinally extending reinforcing plate (20) forming a longitudinally extending hollow channel delimited by the reinforcing plate (20), the first plate (11) and the second plate (12) and **in that** the reinforcing plate (20) of the profile provided in step a comprises a cover section which covers in a direction perpendicular to the plane of the first plate (11) the location on the first plate (11) of said mounting hole (18), with the method further comprising a step of removing said cover section such as to enable the insertion of said fastening member (34) into the mounting hole (18).

2. The method according to the preceding claim, wherein the reinforcing plate (20) is connected with the first plate (11) at a location (21) between the intersection (13) and the second end (15) of the first plate (11), and wherein preferably the first end (14) of the first plate (11) coincides with the intersection (13).
3. The method according to any one of the preceding claims, wherein said cover section of the reinforcing plate (20) of the profile provided in step a also covers in a direction perpendicular to the plane of the second plate (12) part of the location on the second plate (12) of the bolt receiving hole (19).

4. The method according to any one of the preceding claims, wherein the step of removing the cover section is done by punching or milling.
5. The method according to claim 4, wherein the cover section is removed at least partially by punching and wherein prior to punching, a punch guard (22) is inserted into the hollow channel.
6. The method according to the preceding claim, wherein the cover section of the reinforcing plate (20) is partially punched and is subsequently further milled.
7. The method according to any one of the preceding claims, wherein the step of removing the cover section comprises removing an enlarged section of the reinforcing plate (20) encompassing the cover section, and wherein the removal of the enlarged section is such that at least one gusset (24) is formed between the first (11) and the second (12) plate.
8. The method according to the preceding claims, wherein two gussets (24) are formed, preferably at the longitudinal extremities of the extruded profile (9).
9. The method according to claim 7 or 8, wherein a filling member (25) is inserted into the part of the hollow channel delimited by the at least one gusset (24).
10. The method according to any one of the preceding claims, wherein step b comprises punching the first plate (11) such as to create the mounting hole (18).
11. The method according to any one of the preceding claims, wherein step c comprises punching the second plate (12) such as to create the bolt receiving hole (19).
12. The method according to any one of the preceding claims, wherein step b comprises punching the first plate (11) such as to create two mounting holes (18), preferably positioned adjacently to each other along the longitudinal direction.
13. The method according to any one of the preceding claims, wherein the bolt receiving hole (19) is an elongated hole extending in the second transversal direction.
14. The method according to any one of the preceding claims, wherein the longitudinally extruded profile (9) provided in step a is cut into multiple separate longitudinally extruded profiles (9), and wherein steps b and c are performed for the multiple separate longitudinally extruded profiles (9) such as to create

multiple reinforced extruded transversal hinge brackets (33).

15. The method for making a door hinge, the method comprising the steps of:

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- applying the method according to any one of the preceding claims to make a reinforced extruded transversal hinge bracket,
- providing the door, the door support and an eye-bolt hingedly connected to the door support,
- inserting the eye-bolt into the bolt receiving opening of the second plate of the reinforced extruded transversal hinge bracket, and,
- attaching the first plate of the reinforced extruded transversal hinge bracket to the door by inserting fastening members into the mounting hole.

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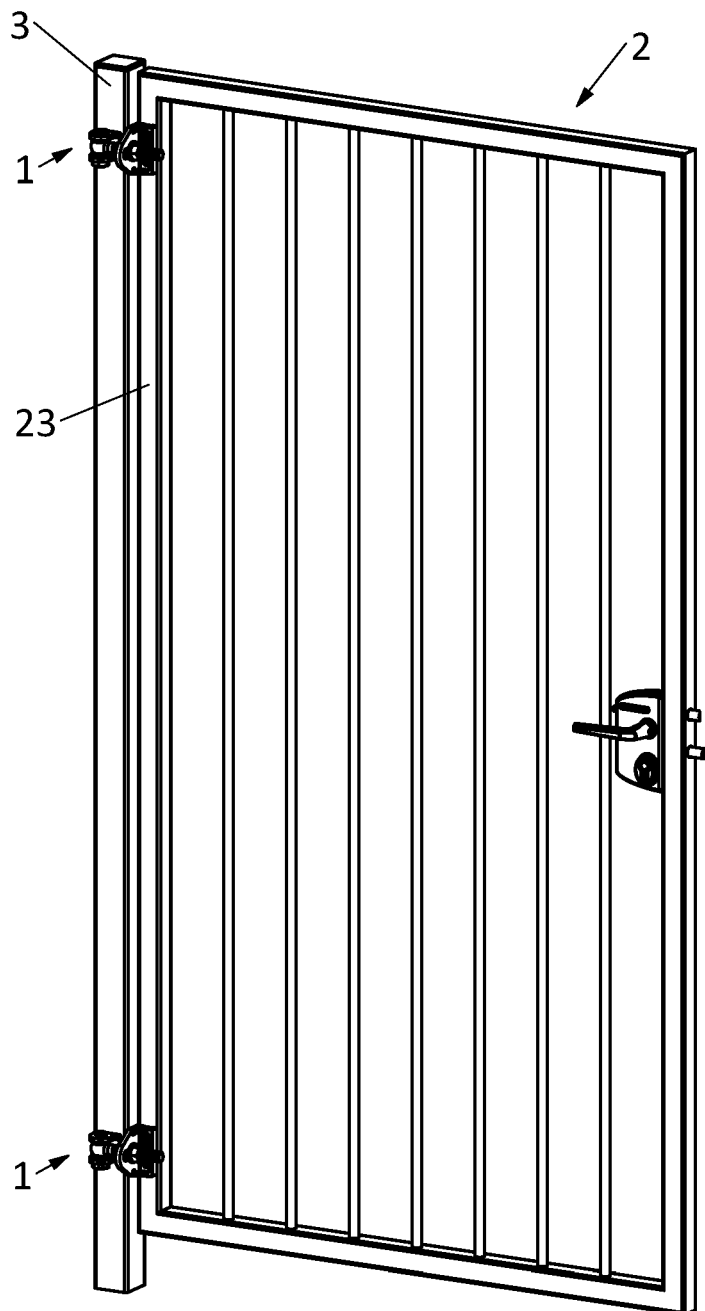
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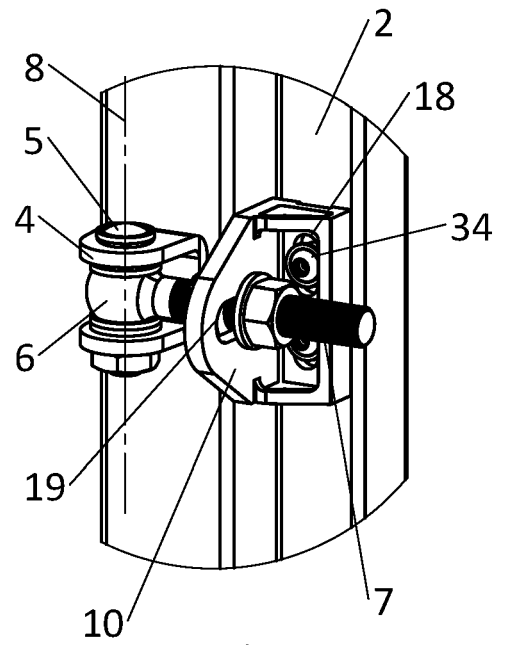
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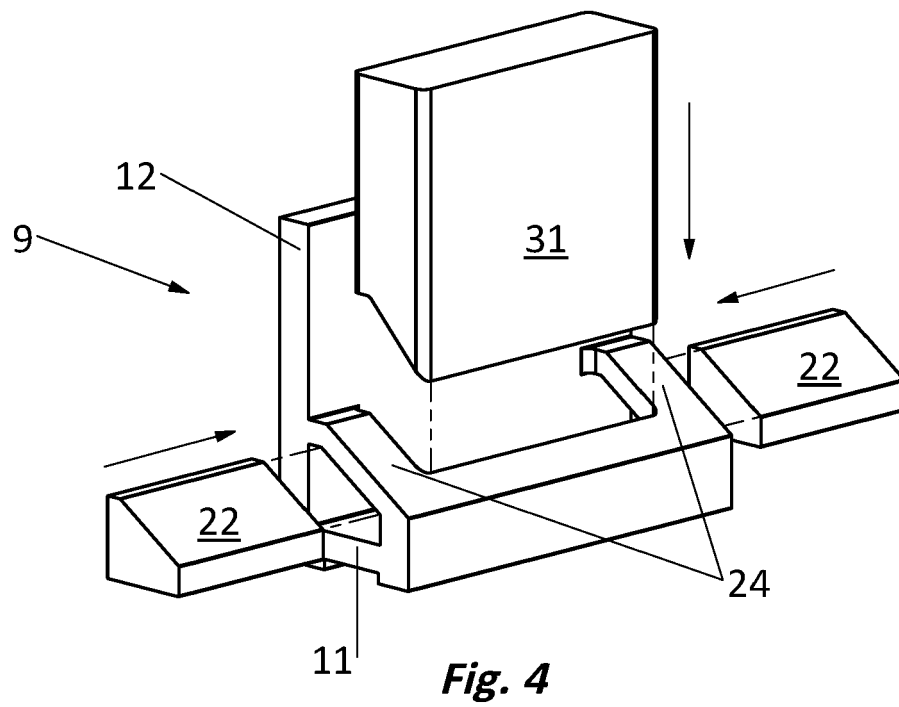
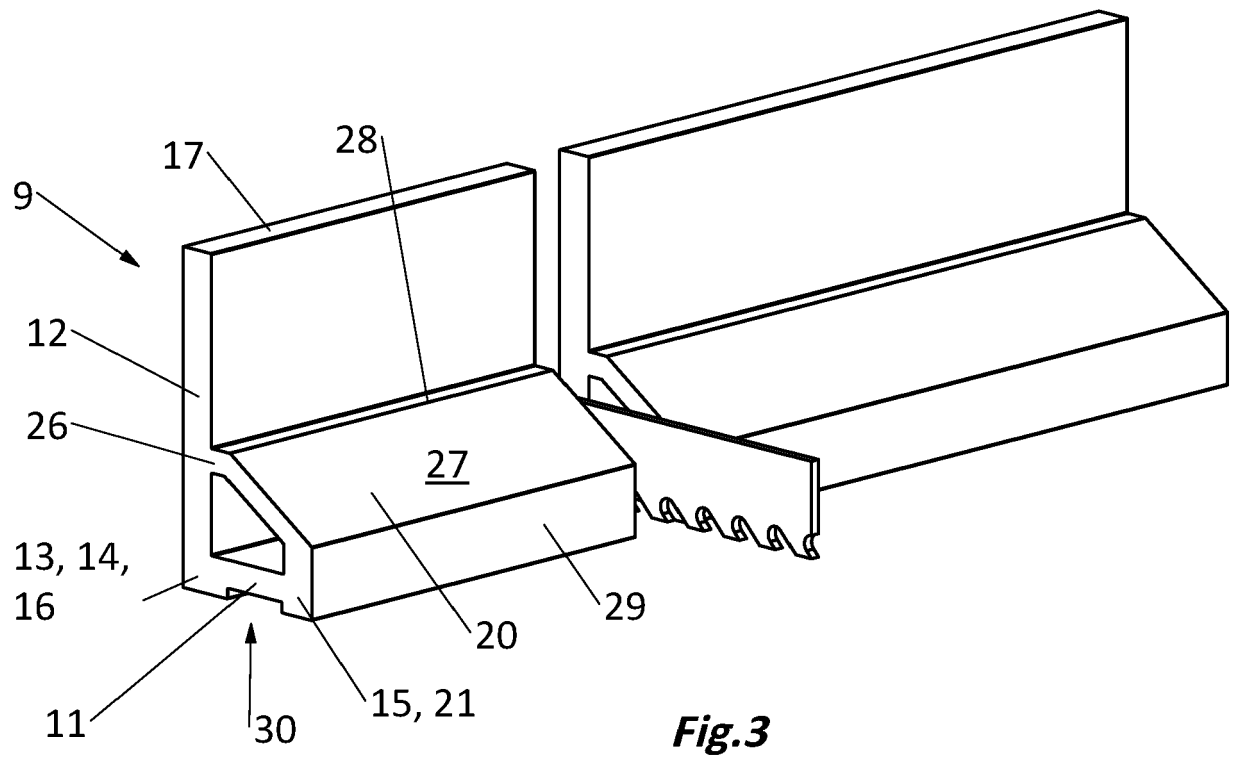


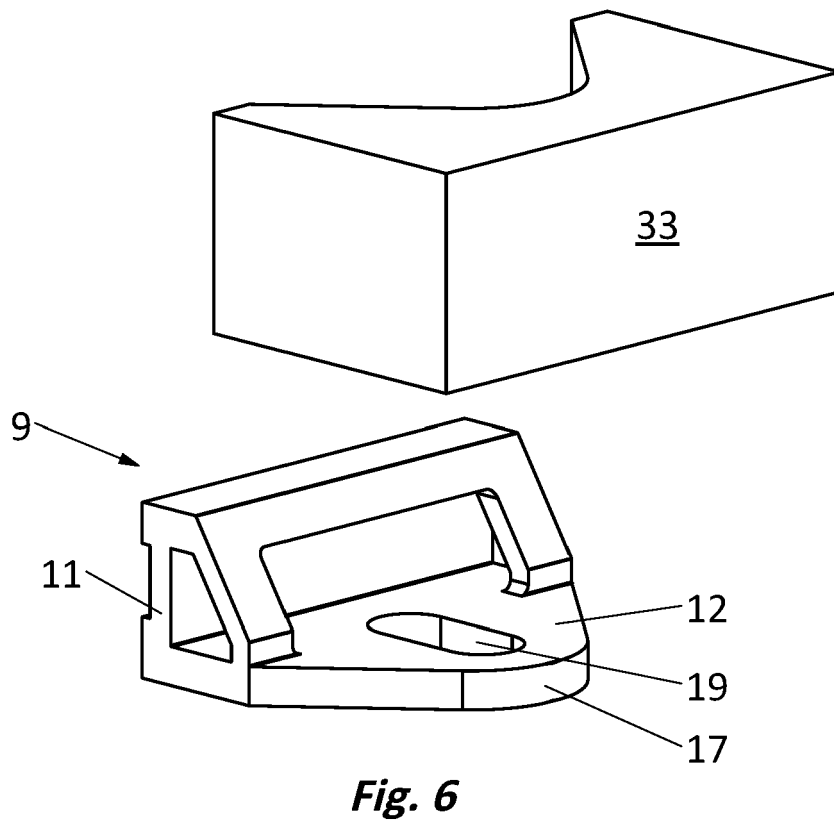
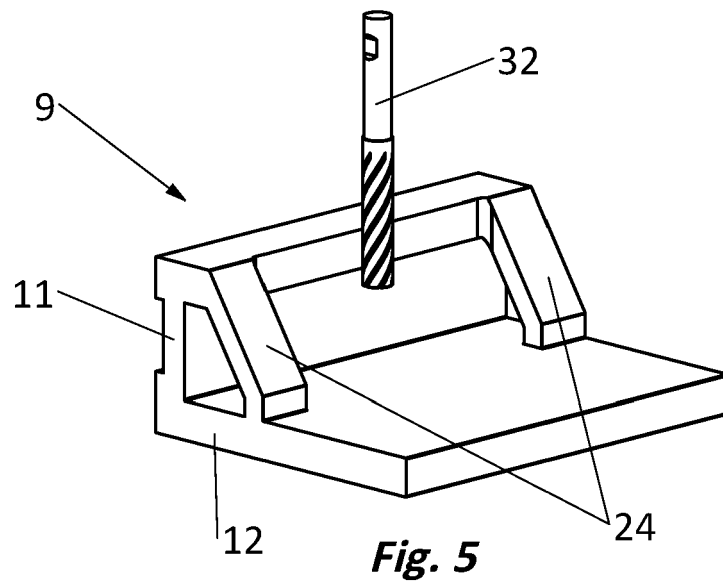


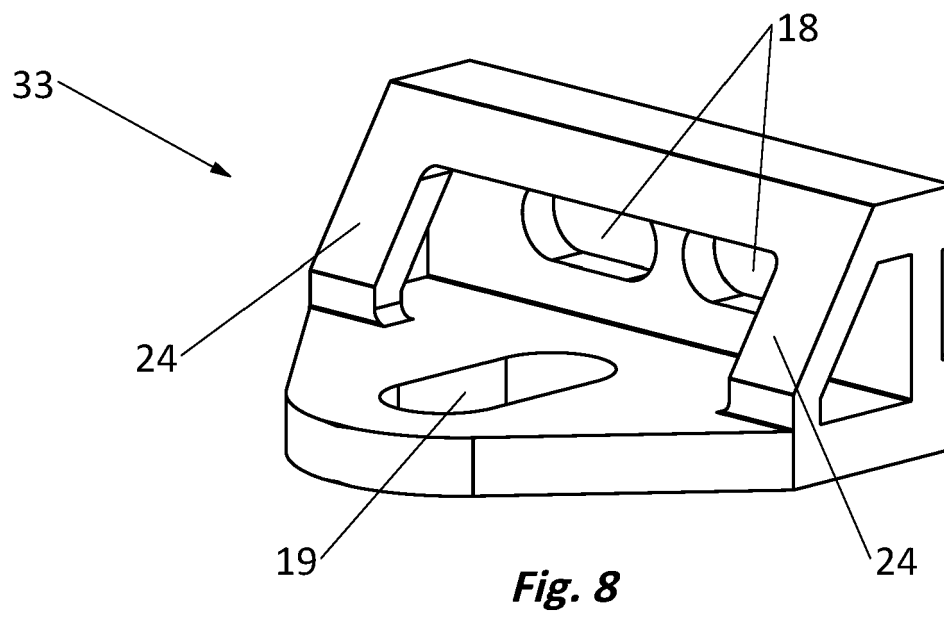
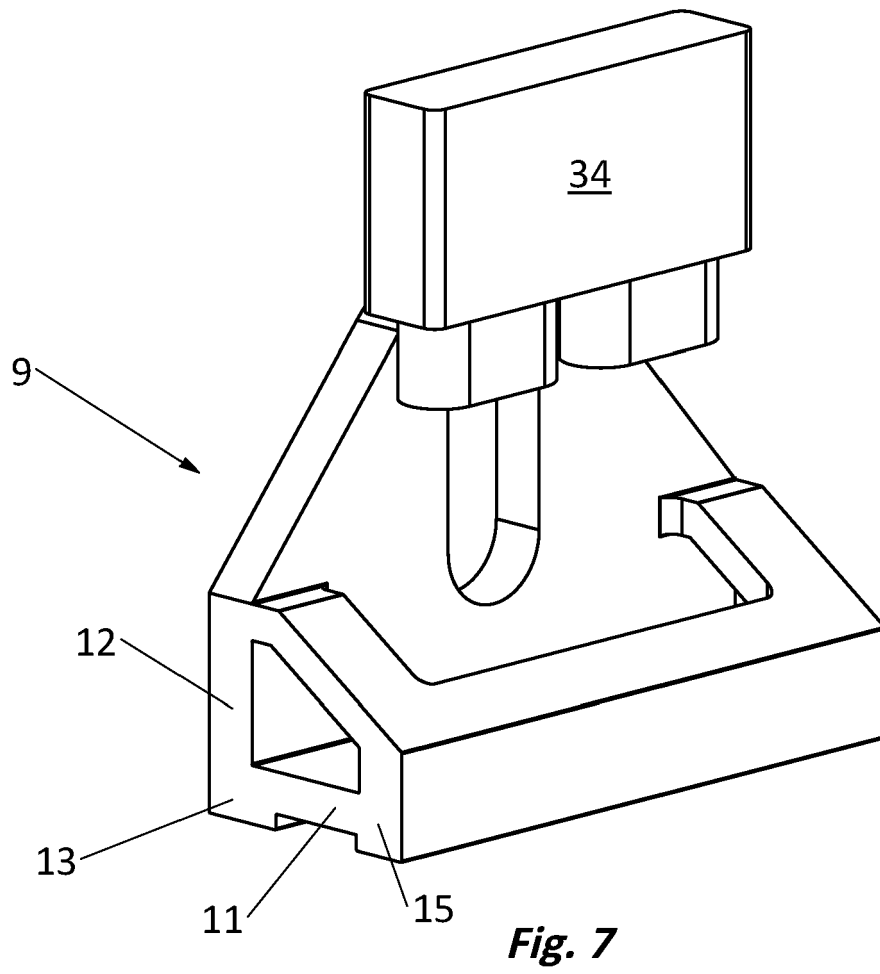
**Fig. 1**

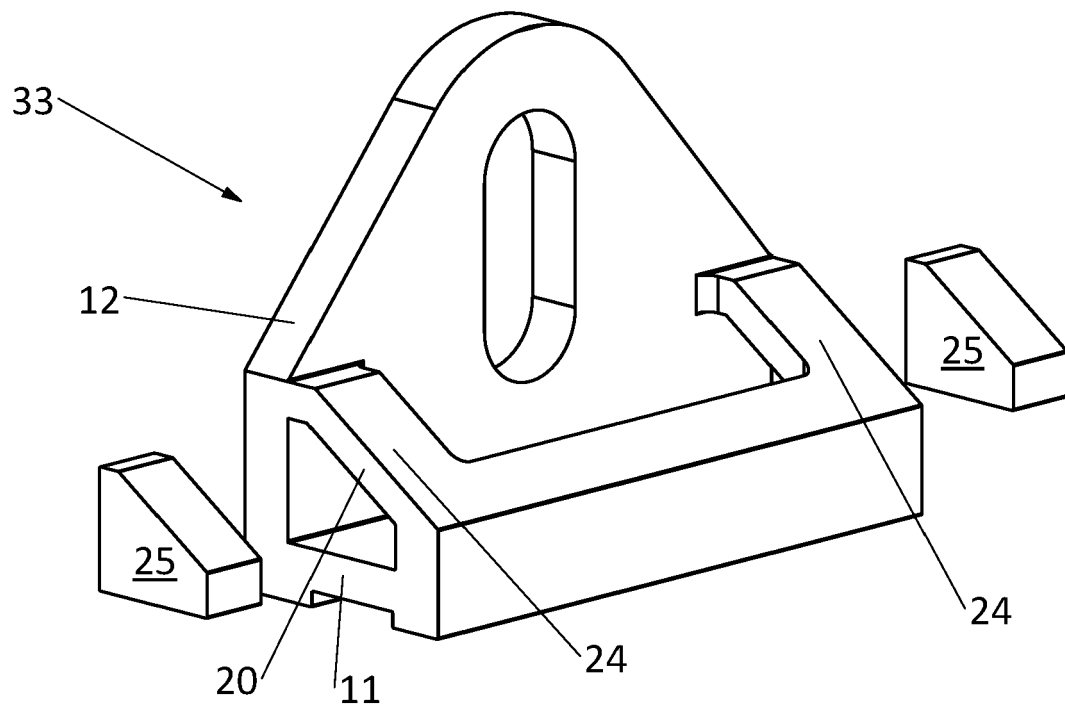


**Fig. 2**

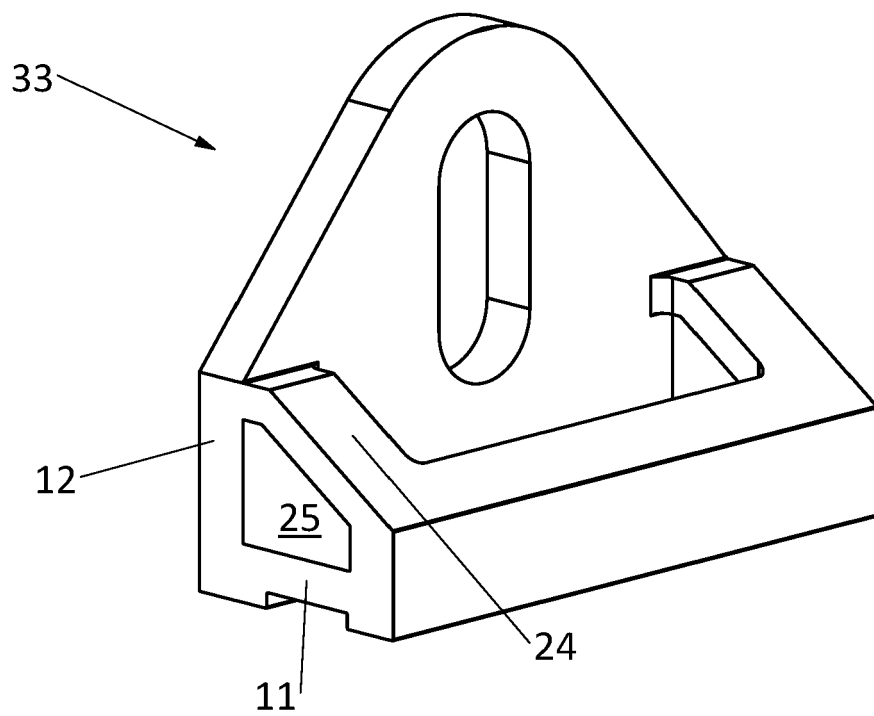








**Fig. 9**



**Fig. 10**



## EUROPEAN SEARCH REPORT

Application Number  
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Place of search		Date of completion of the search	Examiner
The Hague		14 October 2020	Boufidou, Maria
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