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(54) **Fixing element for fixing a hinge to the jamb of a door or window frame or the like**

Befestigungselement zur Befestigung eines Scharniers am Pfosten eines Tür- oder Fensterrahmens oder dergleichen

Élément de fixation pour fixer une charnière sur le montant d'une porte ou cadre de fenêtre ou similaire

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Description

[0001] The present invention concerns a fixing element with a locking scraw for fixing a hinge to the jamb of a door or window frame or the like.

[0002] In particular, the invention is designed to fix a hinge to the fixed frame of an outward turning door, whereby the frame is traditionally formed of composed jambs that are fixed to one another which, as is known, are composed of two partial jambs, an inner and an outer jamb respectively, which are connected to one another by means of insulating jambs.

[0003] Such hinges are traditionally provided directly on the jamb and they are fixed by means of screws or the like which are screwed either directly on the outer jamb or in an insulating jamb.

[0004] We know by experience, however, that such a fastening is only appropriate for fixing relatively light doors to the above-mentioned hinges since the outer jamb is usually made relatively thick and since the insulating jamb is situated at a relatively large distance from the hinge, as a result of which the weight of the door exerts a large moment of force on the insulating jamb.

[0005] Such a direct fastening of the hinge has as an additional disadvantage that the realised fastening is in many cases unstable.

[0006] Another disadvantage is that with some aluminium jambs for outward turning doors, it is impossible to directly provide a hinge to the jamb.

[0007] From DE 15.59.983 a fixing element with a locking screw is known, wherein the fixing element is made as a pen to which the hinge is fixed or can be fixed and is locked in relation to this jamb by the locking screw protruding a through-hole in the pen and by an additional wedge element. A disadvantage is that such a fixing element is relatively complicated due to the plurality of components and that the application of it is relatively difficult.

[0008] The present invention aims to remedy the above-mentioned and other disadvantages by providing a fixing element with a locking screw for fixing a hinge to a jamb of a door or window frame or the like, wherein the fixing element is made as a pen to which the hinge is fixed or can be fixed and is locked in relation to this jamb by the locking screw protruding a through-hole in the pen and wherein the through-hole is a continuous threaded hole and that the fixing element can be provided crosswise through a passage in the jamb, which fixing element is locked in relation to this jamb by means of said locking screw which is screwed down through the through-hole which extends through the pen at an angle as of a crosscut end of the pen in relation to the axis of the pen, up to the outer wall of the pen, whereby the locking screw for fixing the hinge is screwed down until its free end makes contact with the jamb concerned.

[0009] An advantage is that the connection between the hinge and the jamb is much stronger and more stable.

[0010] Another advantage is that this fixing element can be applied to any jamb whatsoever.

[0011] Yet another advantage is that such a fixing element can be provided in a very simple manner by simply boring a passage through the jamb and by subsequently providing the pen in this passage and by finally screwing down the locking screw.

[0012] If the locking screw is provided at the far end of the pen which carries the hinge, the fixing element can also be applied to mounted jambs then, and the hinge element can be mounted in a simple manner as well.

[0013] The above-mentioned passage through which the pen is provided is preferably provided with a bore extending through one or several insulating jambs, which is advantageous in that the positioning is simple.

[0014] According to a preferred embodiment, the locking screw is made as a socket screw whose length has been selected such that the head with the socket hole, when the locking screw is locked, is entirely concealed in the threaded hole, which is advantageous from an aesthetic point of view and also in that there are no protruding parts after the mounting which could prevent the doors from being shut. Moreover, this provides more anti-burglary protection.

[0015] In an advantageous manner, the locking screw can be provided with cutting edges at the tip which cut in the wall of a partial jamb while the locking screw is being screwed down. This is advantageous in that, in this way, the hinge is fixed even better to the jamb.

[0016] In order to better explain the characteristics of the invention, the following preferred embodiments of a fixing element according to the invention are described as an example only without being limitative in any way, with reference to the accompanying drawings, in which:

figure 1 shows a section of a jamb with a fixing element for a hinge according to the invention;
figures 2, 3 and 4 show sections of three other embodiments.

[0017] Figure 1 schematically represents a section of a jamb 1 with a hinge 2 and a fixing element 3 according to the invention.

[0018] The jamb 1 is in this case composed of two partial jambs 4 which can be made of aluminium or another material.

[0019] These two partial jambs 4, an inner jamb 5 and an outer jamb 6 respectively, are connected by means of two insulating jambs 7 which can be made for example of a synthetic material.

[0020] The two partial jambs are provided with two grooves 9 on the opposite walls 8, which grooves face one another.

[0021] These grooves 9 are confined by two standing edges 10. At each groove 9, for example one of these edges 10, in particular the edges extending between the insulating jambs 7, can be made as a roll-in tooth 11 extending in the longitudinal direction of the jamb 1 which, while the jamb 1 is being put together, is externally upset, such that each insulation jamb 7 is firmly held in the

groove 9 concerned.

[0022] The insulating jambs 7 are provided with a cross passage 12 formed of two circular bore holes 13 having equal diameters.

[0023] The bore holes 13 can be provided for example right along the outer jamb 6, i.e. as close as possible to the latter.

[0024] In order to fix the hinge 2 to the jamb 1, a fixing element 3 is applied according to the invention which is formed of a pen 14 placed crosswise through the passage 12 in the insulating jambs 7 in an appropriate manner.

[0025] This pen 14 is made of metal or another material.

[0026] The length of the pen 14, measured according to the longitudinal direction of the axis, is at least as large as the thickness of the jamb 1 at the insulating jambs 7, such that a far end 15 of the pen 14 may possibly extend along one or both sides.

[0027] The diameter of the pen 14 is preferably equal to the diameter of the bore holes 13 in the insulating jambs 7, such that the pen 14 fits exactly in the formed passage 12 in the insulating jambs 7.

[0028] In this pen 14 has been provided a threaded hole 16. This threaded hole 16 extends as of the crosscut end 17 of the pen into the outer wall 18 of the pen 14. This continuous threaded hole 16 is situated at a certain angle A in relation to the axis x-x' of the pen 14.

[0029] In this threaded hole 16 is situated a locking screw 19 which has been screwed in the threaded hole 16 and which, when screwed down, makes contact with the jamb 1 with one of its free ends 20, preferably with the inner jamb 5 or the outer jamb 6.

[0030] The locking screw 19 has a screw head 21 and a tip 22, whereby the screw head 21 preferably has the same diameter as the screw thread part 23 and is provided for example with a socket hole 24, and whereby the length of the locking screw 19 has been selected such that the head 21, when locked, is entirely concealed in the threaded hole 16 of the locking screw 19.

[0031] The tip 22 of the locking screw 19 is provided with sharp cutting edges 25, which are formed for example by a conical opening 26 in this tip 22.

[0032] The position and direction of the threaded hole 16 of the locking screw 19 are preferably selected such that, when screwing down the locking screw 19, the locking screw 19 is pressed behind one of the roll-in teeth 11 of the insulating jamb 7.

[0033] The fastening of the hinge 2 to the fixing element 3 described is very simple and as follows.

[0034] The openings 13 are bored through the insulating jambs 7 so as to form a passage 12 for the pen 14.

[0035] The pen 14 is pushed in this passage 12 and may either or not already have been connected to the hinge 2.

[0036] In the given example, the hinge 2 is welded directly to the pen 14 by means of a supporting plate 27.

[0037] After the pen 14 has been placed in the passage 12 in the insulating jambs 7, the locking screw 19 is screwed down in the threaded hole 16 of the pen 14.

[0038] During this rotation, the locking screw 19 will cut with its cutting edge 25 at the tip 22 precisely alongside or even somewhat inside the roll-in tooth 11 of the wall 8 of the partial jamb 4.

[0039] The cutting tip 22 of the locking screw 19 will thus cling to a wall 8 of a partial jamb 4.

[0040] As a result, the pen 14 will thus be clamped crosswise to the walls 28 of the bored holes 13 in the insulating jambs 7.

[0041] In this way, the pen 14 is also entirely clamped and fixed in the longitudinal direction, since the locking screw 19 is situated behind the roll-in tooth 11 in one direction and is stuck in the other direction thanks to its cutting tip 22.

[0042] Figure 2 represents a section of an alternative embodiment whereby the threaded hole of the locking screw 19 is provided at the far end of the pen 29 situated closest to the hinge 2. In this case, the locking screw 19 will clasp in a similar manner behind the roll-in tooth 11 of the other insulating jamb 7.

[0043] This embodiment is advantageous in that the pen 14 can also be provided in a mounted door or window, since the pen 14 is inserted via the side of the hinge 2.

[0044] In this case, the threaded hole 16 partly extends through the supporting plate 27 of the hinge 2.

[0045] Figure 3 represents a section of an alternative embodiment whereby the pen 14 is not fixed directly to the supporting plate 27 of the hinge 2.

[0046] The far end of the pen 14 is in this case provided with a fastening plate 30, for example in the shape of a collar, having a larger diameter than the diameter of the pen. The pen 14 is hereby situated in the passage 12 of the insulating jambs 7 and is pulled tightly against the inner wall 31 of the jamb 1 by means of a similar construction with a locking screw 19, as in figure 2, by screwing down said locking screw 19.

[0047] In this alternative embodiment, the hinge 2 is screwed down on the fastening plate 30 of the pen 14 by means of the supporting plate 27.

[0048] To this end, the pen 14 is provided with an additional threaded hole 32 extending in the longitudinal direction of the pen 14, and the hinge 2 is fixed by means of a screw 33 extending through an opening 34 in the hinge into the threaded hole 32.

[0049] The threaded hole 32 of the fixing screw 33 is provided eccentrically in relation to the pen 14. In this way, the stability and strength of the connection between the hinge 2 and the jamb 1 are improved.

[0050] The use of this alternative embodiment is analogous to that of figure 2, with this difference that in this case, the pen 14 with the fastening plate 30 is first fixed by means of the locking screw 19, after which the hinge 2 is screwed down on the fastening plate 30.

[0051] The threaded hole 16 of the locking screw 19 is preferably provided at the crosscut end 17 of the hinge 2, which is advantageous in that the pen 14 can be put in place afterwards.

[0052] As is shown in figure 3, the threaded hole 16 of the locking screw 19 in this case extends through the threaded hole 32 of the screw 33 in order to fix the hinge 2, and the length of the locking screw 19 is short enough for the screw head 21 of the locking screw 19 to leave the threaded hole 32 of the screw 33 free in order to fix the hinge 2.

[0053] It is clear that, with this embodiment, the disassembly is very simple and in the reverse sense.

[0054] Figure 5 shows an alternative embodiment whereby the locking screw 19 meshes in a wall 8 of the inner jamb 5 instead of in a wall 8 of the outer jamb 6.

[0055] This fastening may possibly be combined with a fastening by means of an additional locking screw cutting in the outer jamb.

[0056] In the given embodiment, the grooves 9 for fixing the insulating jambs 7 are not formed by protruding edges, but rather by recessed parts in the partial jambs 4, such that no roll-in teeth 11 are present in this case.

[0057] As is clear in this embodiment, the locking screw 19 must not necessarily mesh behind a roll-in tooth 11. It is sufficient if the locking screw 19 cuts in one of the partial jambs 4 in order to obtain a rigid fastening.

[0058] In an alternative embodiment, the inner jamb 5 and outer jamb 6 may be connected by one or several insulating jambs 7.

[0059] Although in the given examples, a single fastening pin 14 was always mentioned, a hinge 2 will be usually fixed in the jamb 1 by means of two or more pins 14 in practice, irrespective of the weight of the window or door for which the hinge 2 will be used.

[0060] It is clear that such a mounting of a hinge 2, as represented in the figures, is especially useful in case of outward turning doors, whereby the eye of the hinge 2 is situated on the outside of the frame.

[0061] The present invention is by no means restricted to the embodiments described as an example and represented in the accompanying drawings; on the contrary, such a fastening element according to the invention can be made in all sorts of shapes and dimensions while still remaining within the scope of the invention.

Claims

1. Fixing element (3) with a locking screw for fixing a hinge (2) to a jamb (1) of a door or window frame or the like, wherein the fixing element (3) is made as a pen (14) to which the hinge (2) is fixed or can be fixed and is locked in relation to this jamb (1) by the locking screw (19) protruding a through-hole in the pen (14), **characterised in that** the through-hole (16) is a continuous threaded hole and that the fixing element (3) can be provided crosswise through a passage (12) in the jamb (1), which fixing element (3) is locked in relation to this jamb (1) by means of said locking screw (19) which is screwed down through the through-hole (16) which extends through the pen (14) at an angle as of a crosscut end (17) of the pen (14) in relation to the axis of the pen, up to the outer wall (18) of the pen (14), whereby the locking screw (19) for fixing the hinge (2) is screwed down until its free end (20) makes contact with the jamb (1) concerned.

2. Fixing element (3) for fixing a hinge (2) to the jamb (1) according to claim 1, **characterised in that** the jamb (1) is composed of two partial jambs (4) which are connected to one another by means of one or several insulating jambs (7) and **in that** the passage (12) through which the pen (14) is provided extends through one or several insulating jambs (7), and **in that** the locking screw (19), when being screwed down, makes contact with a partial jamb (4) with one free end (20).

3. Fixing element (3) according to claim 2, **characterised in that** one or several insulating jambs (7) are held in one or several grooves (9) of the partial jambs (4), at least one groove (9) of which is confined by a roll-in tooth (11) extending in the longitudinal direction of the jamb (1), and whereby the angle and the position of the threaded hole (16) are such that, when screwing down the locking screw (19), said locking screw (19) will clasp behind a roll-in tooth (11) of the partial jamb (4).

4. Fixing element (3) according to any one of the preceding claims, **characterised in that** the locking screw (19) is a socket screw whose length has been selected such that the head (21) with the socket hole (24), when the locking screw (19) is locked, is entirely concealed in the threaded hole (16).

5. Fixing element (3) according to any one of the preceding claims, **characterised in that** the locking screw (19) has cutting edges (25) at the tip (22) which cut in the wall of a partial jamb (4) while the locking screw (19) is being screwed down.

6. Fixing element according to claim 5, **characterised in that** the cutting edges (25) are formed of a conical opening (26) in the tip (22) of the locking screw (19).

7. Fixing element (3) according to any one of the preceding claims, **characterised in that** the pen (14) is provided with a fastening plate (30) on one far end whose diameter is larger than the diameter of the pen (14) and against which the hinge (2) is fixed by means of a screw (33) extending through an opening (34) in the hinge (2) into a threaded hole (32) extending in the longitudinal direction of the pen (14).

8. Fixing element (3) according to claim 7, **characterised in that** the threaded hole (32) of the fixing screw (33) has been provided eccentrically in relation to

the pen.

9. Fixing element (3) according to any one of the preceding claims, **characterised in that** the threaded hole (16) for the locking screw (19) extends through the fastening plate (30) and the threaded hole (32) for fixing the fastening plate (30).

10. Fixing element (3) according to any one of the preceding claims, **characterised in that** the threaded hole (16) of the locking screw (19) has been provided at the crosscut end of the hinge (2).

Patentansprüche

1. Befestigungselement (3) mit einer Sicherungsschraube zur Befestigung eines Scharniers (2) an einem Profil (1) eines Tür- oder Fensterrahmens oder dergleichen, wobei das Befestigungselement (3) als Stift (14) ausgebildet ist, woran das Scharnier (2) befestigt ist oder befestigt werden kann, und bezüglich dieses Profils (1) durch die Sicherungsschraube (19), die durch ein Durchgangsloch in dem Stift (14) ragt, verriegelt ist, **dadurch gekennzeichnet, dass** das Durchgangsloch (16) eine durchgehende Gewindebohrung ist, und dass das Befestigungselement (3) quer durch einen Durchgang (12) in dem Profil (1) angebracht werden kann, welches Befestigungselement (3) in Bezug zu diesem Profil (1) mittels der besagten Sicherungsschraube (19) verriegelt ist, die durch das Durchgangsloch (16) festgeschraubt ist, das sich ab einem stirnseitigen Ende (17) des Stifts (14) in Bezug auf die Achse des Stifts unter einem Winkel bis zur Außenwand (18) des Stifts (14) durch den Stift (14) erstreckt, wobei die Sicherungsschraube (19) zur Befestigung des Scharniers (2) festgeschraubt wird, bis ihr freies Ende (20) mit dem betreffenden Profil (1) in Kontakt ist.

2. Befestigungselement (3) zur Befestigung eines Scharniers (2) an dem Profil (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** das Profil (1) aus zwei Teilprofilen (4) zusammengesetzt ist, die mittels eines oder mehrerer isolierender Profile (7) miteinander verbunden sind, und dass der Durchgang (12), durch den der Stift (14) angebracht wird, sich durch ein oder mehrere isolierende Profile (7) erstreckt, und dass die Sicherungsschraube (19) beim Festschrauben mit einem freien Ende (20) mit einem Teilprofil (4) in Kontakt kommt.

3. Befestigungselement (3) nach Anspruch 2, **dadurch gekennzeichnet, dass** ein oder mehrere isolierende Profile (7) in einer oder mehreren Nuten (9) der Teilprofile (4) festgehalten werden, wovon mindestens eine Nut (9) durch eine sich in der Längsrichtung des Profils (1) erstreckende Einrollrippe (11) begrenzt wird, und wobei der Winkel und die Position der Gewindebohrung (16) derart sind, dass beim Festschrauben der Sicherungsschraube (19) die Sicherungsschraube (19) hinter einer Einrollrippe (11) des Teilprofils (4) festgeklemmt wird.

4. Befestigungselement (3) nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** die Sicherungsschraube (19) eine Inbusschraube ist, deren Länge so gewählt worden ist, dass der Kopf (21) mit der Inbusöffnung (24), wenn die Sicherungsschraube (19) gesichert ist, vollständig in der Gewindebohrung (16) verborgen ist.

5. Befestigungselement (3) nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** die Sicherungsschraube (19) an der Spitze (22) Schneidkanten (25) aufweist, die beim Festschrauben der Sicherungsschraube (19) in die Wand eines Teilprofils (4) einschneiden.

6. Befestigungselement nach Anspruch 5, **dadurch gekennzeichnet, dass** die Schneidkanten (25) durch eine konische Öffnung (26) in der Spitze (22) der Sicherungsschraube (19) gebildet werden.

7. Befestigungselement (3) nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** der Stift (14) an einem Ende mit einer Befestigungsplatte (30) versehen ist, deren Durchmesser größer als der Durchmesser des Stifts (14) ist und an der das Scharnier (2) mittels einer Schraube (33) befestigt ist, die sich durch eine Öffnung (34) in dem Scharnier (2) bis in eine Gewindebohrung (32) erstreckt, die sich in der Längsrichtung des Stifts (14) erstreckt.

8. Befestigungselement (3) nach Anspruch 7, **dadurch gekennzeichnet, dass** die Gewindebohrung (32) der Sicherungsschraube (33) in Bezug auf den Stift exzentrisch angebracht ist.

9. Befestigungselement (3) nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** sich die Gewindebohrung (16) für die Sicherungsschraube (19) durch die Befestigungsplatte (30) und die Gewindebohrung (32) zur Befestigung der Befestigungsplatte (30) erstreckt.

10. Befestigungselement (3) nach einem der vorgenannten Ansprüche, **dadurch gekennzeichnet, dass** die Gewindebohrung (16) der Sicherungsschraube (19) an dem stirnseitigen Ende des Scharniers (2) angebracht ist.

Revendications

1. Elément de fixation (3) comprenant une vis de blocage pour fixer une charnière (2) à une huisserie (1) d'un encadrement de porte ou de fenêtre ou analogue, dans lequel l'élément de fixation (3) est réalisé sous la forme d'une plume (14) à laquelle est fixée ou peut être fixée la charnière (2), et est bloqué par rapport à cette huisserie (1) par le fait que la vis de blocage (19) fait saillie dans un trou de passage dans la plume (14) **caractérisé en ce que** le trou de passage (16) est un trou taraudé continu, et **en ce que** l'élément de fixation (3) peut être prévu en direction transversale à travers un passage (12) pratiqué dans l'huisserie, ledit élément de fixation (3) étant bloqué par rapport à cette huisserie (1) au moyen de ladite vis de blocage (19) qui est vissée dans le trou de passage (16) qui s'étend à travers la plume (14) en formant un angle comme celui d'une coupe transversale terminale (17) de la plume (14) par rapport à l'axe de la plume, jusqu'à la paroi externe (18) de la plume (14), la vis de blocage (19) pour fixer la charnière (2) étant vissée jusqu'à ce que son extrémité libre (20) entre en contact avec l'huisserie (1) en question.

2. Élément de fixation (3) pour fixer une charnière (2) à une huisserie (1) selon la revendication 1, **caractérisé en ce que** l'huisserie (1) se compose de deux huisseries partielles (4) qui sont reliées l'une à l'autre au moyen d'une ou de plusieurs huisseries isolantes (7), et **en ce que** le passage (12) à travers lequel passe la plume (14) s'étend à travers une ou plusieurs huisseries isolantes (7), et **en ce que** la vis de blocage (19), lorsqu'elle est vissée, entre en contact avec une huisserie partielle (4) avec une extrémité libre (20).

3. Élément de fixation (3) selon la revendication 2, **caractérisé en ce qu'**une ou plusieurs huisseries isolantes (7) sont maintenues dans une ou plusieurs rainures (9) des huisseries partielles (4), au moins une desdites rainures (9) étant confinée par une dent de roulement (11) s'étendant dans la direction longitudinale de l'huisserie (1), l'angle et la position du trou taraudé (16) étant tels que, lorsqu'on visse la vis de blocage (19), ladite vis de blocage (19) va s'accrocher derrière une dent de roulement (11) de l'huisserie partielle (4).

4. Élément de fixation (3) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la vis de blocage (19) est une vis creuse dont la longueur a été sélectionnée de telle sorte que la tête (21) avec le trou de douille (24), lorsque la vis de blocage (19) est bloquée, est entièrement cachée dans le trou taraudé (16).

5. Élément de fixation (3) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la vis de blocage (19) possède des arêtes vives (25) à l'extrémité (22), qui pénètrent par coupure dans la paroi d'une huisserie partielle (4), pendant le vissage de la vis de blocage (19).

6. Élément de fixation (3) selon la revendication 2, **caractérisé en ce que** les arêtes vives (25) prennent la forme d'une ouverture conique (26) dans l'extrémité (22) de la vis de blocage (19).

7. Élément de fixation (3) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la plume (14) est munie d'une plaque de fixation (30) à une extrémité éloignée, dans le diamètre est supérieur au diamètre de la plume (14) et contre laquelle est fixée la charnière (2) au moyen d'une vis (33) s'étendant à travers une ouverture (34) dans la charnière (2) pour pénétrer dans un trou taraudé (32) s'étendant dans la direction longitudinale de la plume (14).

8. Élément de fixation (3) selon la revendication 7, **caractérisé en ce que** le trou taraudé (32) de la vis de fixation (33) est prévu en position excentrique par rapport à la plume.

9. Élément de fixation (3) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le trou taraudé (16) pour la vis de blocage (19) s'étend à travers la plaque de fixation (30) et à travers le trou taraudé (32) pour fixer la plaque de fixation (30).

10. Élément de fixation (3) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le trou taraudé (16) de la vis de blocage (19) est prévu à la coupe transversale terminale de la charnière (2).

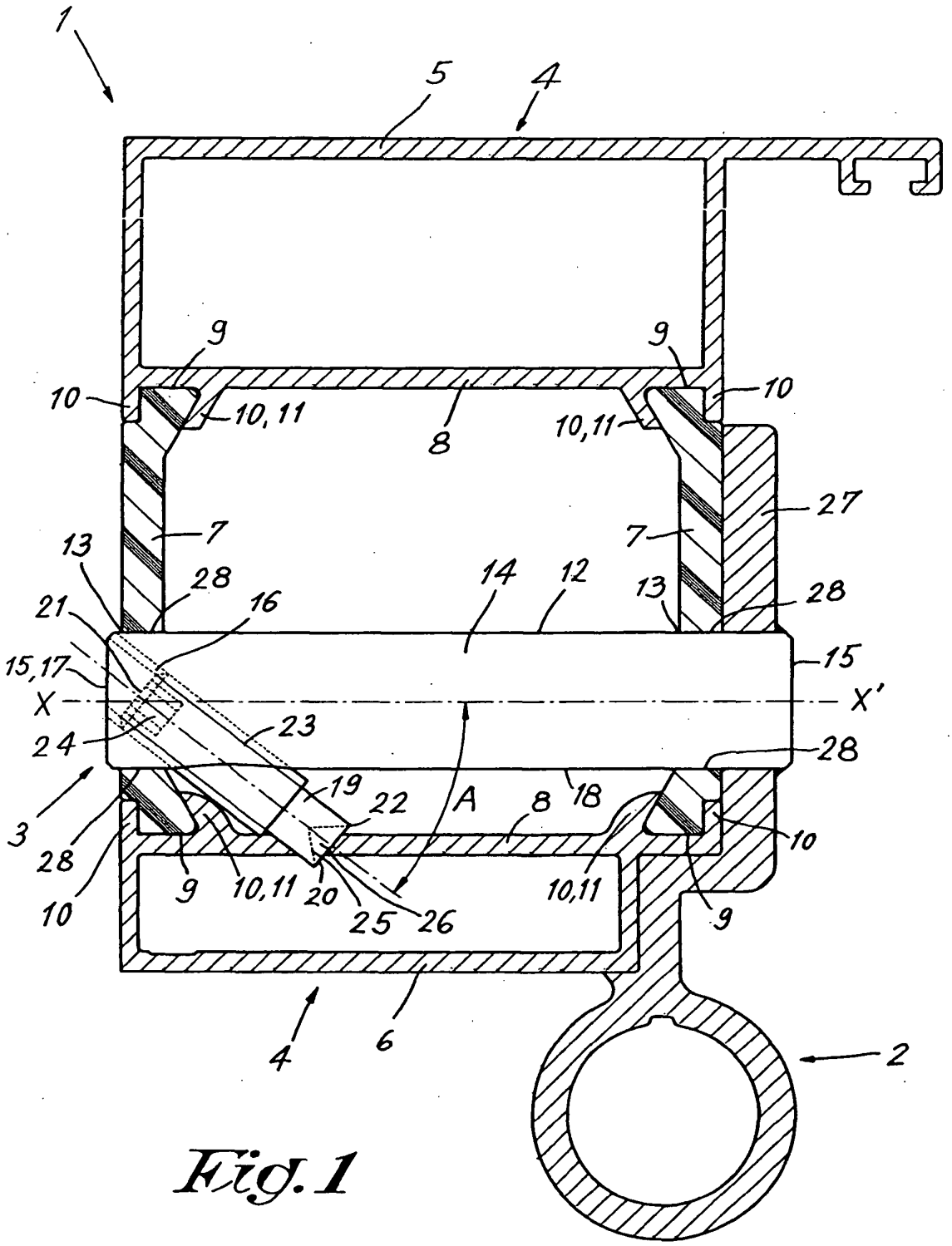
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Fig. 1

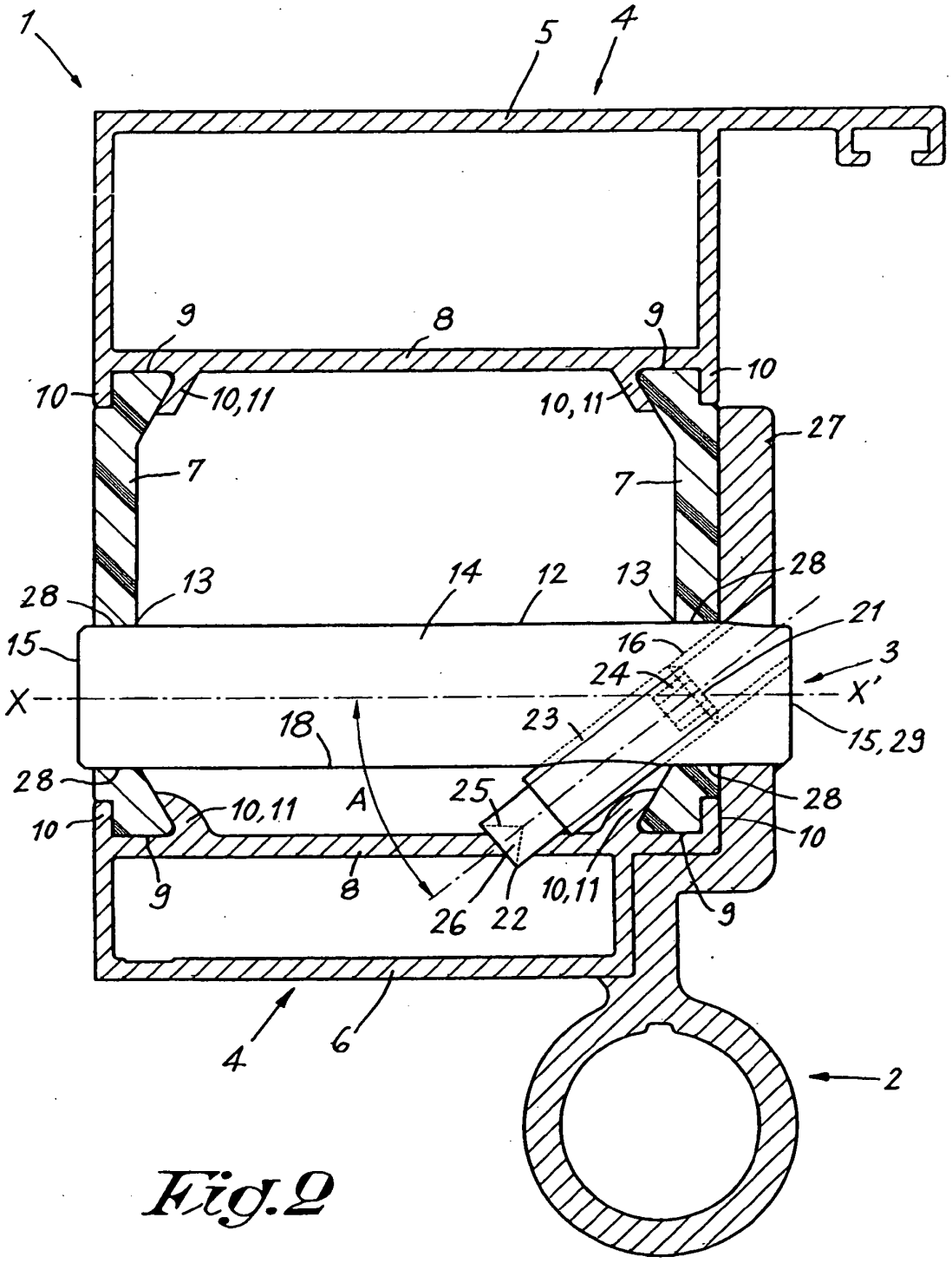
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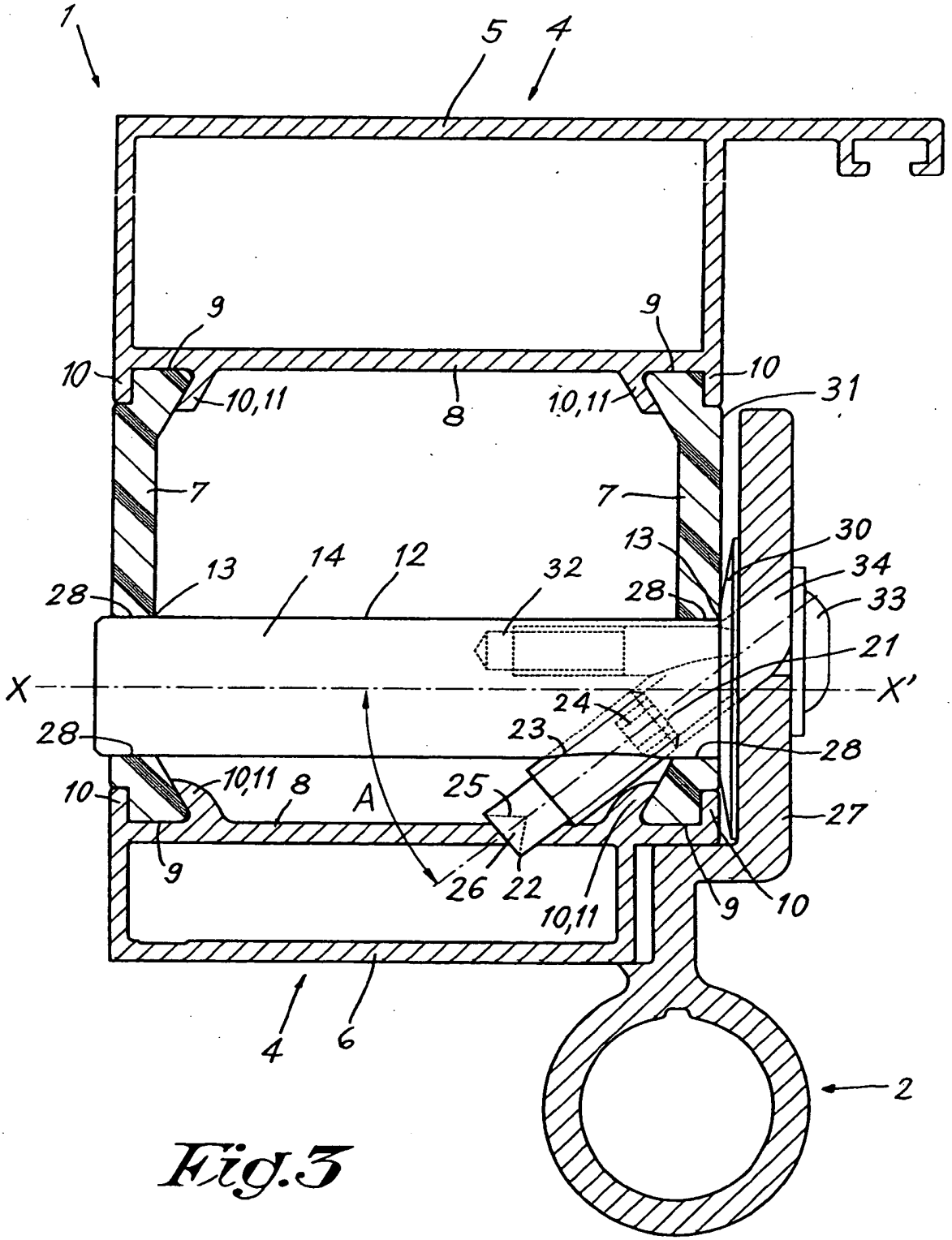
Fig.2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X
X'
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A
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Fig.3

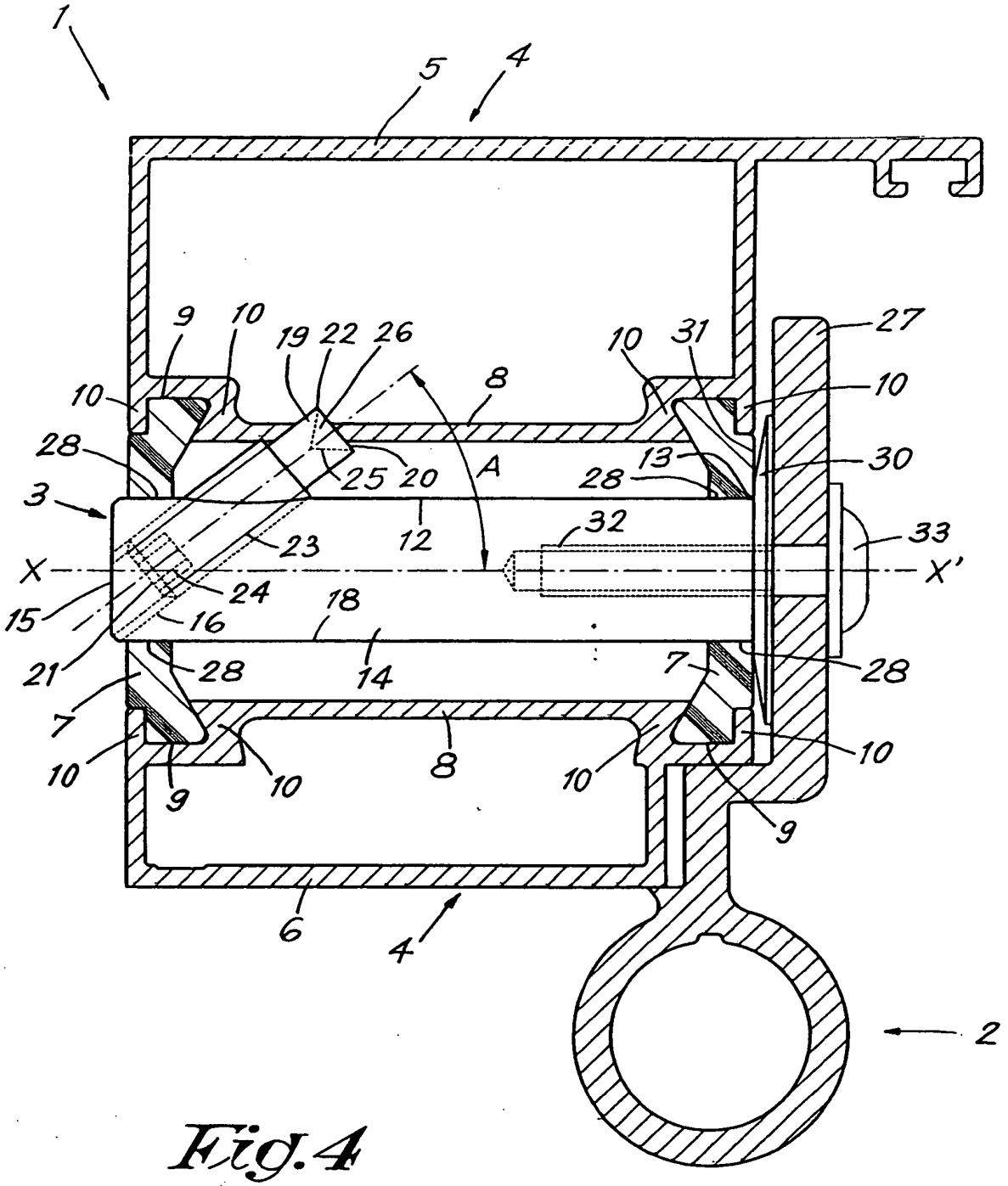
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Fig.4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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