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(54) Self-mounting hinge structure for casements, door- and window-frames and the like.

(57) The self-mounting hinge comprises a right-angled element (1) applicable at a corner region of a casement and insertable into a seat (6) defined by the profiled element (7) constituting the casement. An insertion end of a hinge element (10) is accomodatable in the seat (6), and defines, a tooth (11) engageable with one of the wings (5,12) delimiting the seat (6), a rest foot (13) associable with the outer surface of the profile element (7). The right-angled element (1) defines a first inclined plane (20) which thrusts the insertion end towards the part of the seat (6) affected by the wing (12), and a second inclined plane which thrusts the tooth (11) against the wing (12).

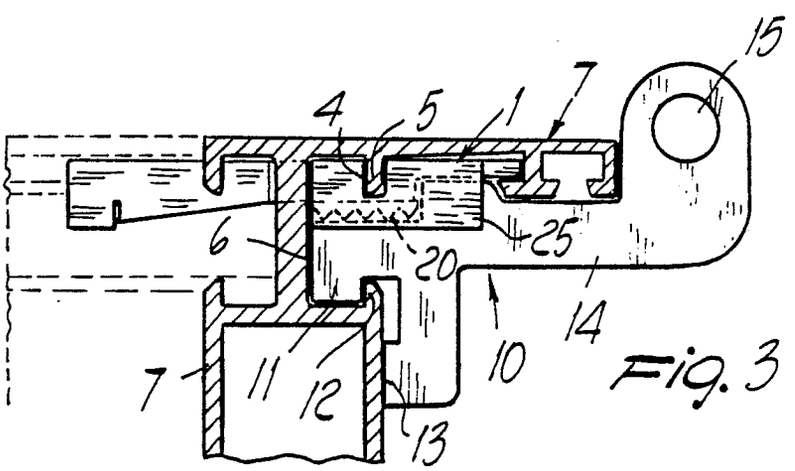

Fig. 3

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SELF-MOUNTING HINGE STRUCTURE FOR CASEMENTS, DOOR-AND WINDOW-FRAMES AND THE LIKE

The present invention relates to a self-mounting hinge structure for casements, door-and window-frames and the like.

As is known, for the coupling of hinges to casements, frames and the like, various means are currently used which generally require the provision of perforations in the profiled element of the shutter to perform the coupling of the hinge, with subsequent application of said hinge, by means of screws.

Other known solutions which do not require the provision of perforations, involve the insertion of small counterplates into seats appropriately provided on the casement and the execution of the coupling of the hinge by means of a screwing operation which in practice performs the fixing between the hinge element and the counterplate which is inserted inside the seat.

All known solutions unavoidably require the use of screw means with consequent need for screwing operations which, in many cases, may be laborious and which do not always allow rapid, precise positioning of the hinge element.

The aim proposed by the present invention is indeed to eliminate the above described disadvantages by providing a self-mounting hinge structure for casements, door-and window-frames and the like, which allows to execute the coupling of the hinge element to the casement without having to resort to perforations or to the adoption of screw means.

Within the above described aim, a particular object of the invention is to provide a self-mounting hinge structure which always allows precise positioning of the hinge element, without thereby having to resort to complicated or laborious operations.

Still another object of the present invention is to provide a self-mounting hinge structure which, by virtue of its peculiar constructive characteristics, is capable of giving the greatest assurances of reliability and safety in use.

Not least object of the present invention is to provide a self-mounting hinge structure which is easily obtainable starting from simply constructed elements and which is furthermore advantageous from a merely economical point of view.

The above described aim, as well as the objects mentioned and others which will become apparent hereinafter, are achieved by a self-mounting hinge structure for casements, door-and window-frames and the like, according to the invention, characterized in that it comprises a right-angled element applicable at a corner region of a casement and at least partially insertable in a seat defined by the profiled element constituting said casement, in said seat there being accommodatable the insertion end of a hinge element defining an engagement tooth, engageable with the inner surface of one of the wings delimiting said seat, and a rest foot associable with the outer surface of said profiled element, said right-angled element defining a first inclined plane, adapted to push said insertion end towards the part of said seat affected by said wing, and a second inclined plane adapted to push said engagement tooth against said wing.

Further characteristics and advantages will become apparent from the detailed description of a structure of self-mounting hinge for shutters of casements, door-and window-frames and the like, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a schematic exploded perspective view of the hinge structure, according to the invention, and the related casement:

figure 2 is a perspective view of the hinge, applied to the casement:

figure 3 is a sectional view taken along a line III-III of figure 2.

With reference to the above described figures, the self-mounting hinge structure for casements, door and window-frames and the like, according to the invention, comprises a right-angled element, generally indicated by the reference numeral 1, which preferably but not necessarily is manufactured in plastic material.

The right-angled element 1 substantially has an L-shaped configuration and defines a planar wing 2 which, at the inner edge, has an expansion 3 which also extends in the shape of an L and defines a front surface 3a, arranged parallel to the plane of arrangement of the wing 2, and a lateral surface 3b which is perpendicular to the plane of arrangement of the wing 2.

At the expansion 3, on the rear face of the right-angled element 1, a groove 4 is defined which is insertable astride a counter-wing 5 which delimits the seat 6 in which said right-angled element is partially insertable.

The seat 6 is defined by the profiled elements 7 which are used for the production of the frame of the casement.

The hinge furthermore has a hinge element, generally indicated by the reference numeral 10 and preferably but not necessarily obtained from a portion of an extruded element, said hinge element defining an insertion end which is at least partially accommodatable within the seat 6.

At the insertion end, said hinge element 10 has an engagement tooth 11 which is adapted to engage with the lateral wall of the seat 6 and with the

inner surface of a wing 12 arranged opposite the counter-wing 5.

The insertion end has a rest foot 13 which couples by contact with the outer surface of the profiled element 7 in a lateral region with respect to the area where the seat 6 is defined.

The hinge element 10 furthermore has an arm 14 ending in a pivoting hole 15 for the insertion of the rotation pivot, coupled to the part of the hinge connected to the frame.

An important peculiarity of the invention resides in the fact that said right-angled element defines a first inclined plane 20 and a second inclined plane 21 which have the function of pushing the insertion end of the hinge element towards the part of the seat opposite to the counter-wing 5 and furthermore to push it against the inner surface of the engagement tooth, thus performing the locking.

More in detail, the first inclined plane 20 is defined as a wedge-shaped element which extends on the front surface 3a of the expansion 3 while the second inclined plane 21 is obtained as a wedge-shaped element which extends from the lateral surface 3b of the expansion 3.

The inclined planes 20 and 21 are divergent from the vertex of the right-angled element, that is to say they increase in thickness as one moves further away from the center of the right-angled element 1.

Furthermore, the inclined plane 20 preferably has a knurled surface which better facilitates its coupling deformation.

A locking protrusion, indicated at 25, is provided at the end of the inclined planes, and the axial end of the insertion end of the hinge element abuts against it.

Said inclined planes 20 and 21 act by contact on a square-shaped recess 30 defined by the hinge element, which has, in greater detail, a surface 30a which performs the thrust towards the lateral part of the seat where the lateral wing 12 is provided, and a second surface 30b perpendicular thereto on which there acts the second inclined plane 21, which in practice thrusts against the inner surface of the wing , thus performing the locking.

In mounting, after applying the square element in the corner region, the insertion end of the hinge element is inserted in the seat 6 at the region of the expansion 3 not having the inclined planes; then a translatory motion of the hinge element is performed so as to obtain the forcing against the inclined planes which perform locking of the hinge element against the profiled element.

From what has been described it can thus be seen that the invention achieves the intended aim and objects, and in particular the fact is stressed that a hinge structure is provided which is applied without having to use screws and always having the certainty of a precise and correct positioning.

In practice, the materials employed, so long as compatible with the specific use, as well as the contingent shapes and dimensions, may be any according to the requirements.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. Self-mounting hinge structure for casements, door and window-frames and the like, characterized in that it comprises a right-angled element (1) applicable at a corner region of a casement and at least partially insertable in a seat (6) defined by the profiled element (7) constituting said casement, in said seat (6) there being accommodatable the insertion end of a hinge element (10) defining an engagement tooth (11), engageable with the inner surface of one (12) of the wings (5,12) delimiting said seat (6), and a rest foot (13), associable with the outer surface of said profiled element (7), said right-angled element (1) defining a first inclined plane (20), adapted to thrust said insertion end towards the part of said seat (6) affected by said wing (12), and a second inclined plane (21) adapted to thrust said engagement tooth (11) against said wing (12).

2. Hinge structure, according to claim 1, characterized in that said right-angled element (1) has a substantially L-shaped configuration with a planar wing (2) and an expansion (3) at the inner edge, said expansion defining a frontal plane (3a) substantially parallel to the plane of arrangement of said planar wing (2) and a lateral plane (3b) substantially perpendicular to the plane of arrangement of said planar wing (2).

3. Hinge structure, according to the preceding claims, characterized in that said right-angled element (1) has a groove (4), at the rear face of said right-angled element (1), associable astride a counter-wing (5) delimiting said seat (6).

4. Hinge structure, according to one or more of the preceding claims, characterized in that said first inclined plane (20) is defined as a wedge-shaped element on said frontal wall (3a) of said expansion (3) and said second inclined plane (21) is defined as a wedge-shaped element on said lateral wall (3b) of said expansion (3).

5. Hinge structure, according to one or more of the preceding claims, characterized in that it comprises on said inclined planes (20,21) knurlings adapted to facilitate deformation of said right-angled element (1).

6. Hinge structure, according to one or more of the preceding claims, characterized in that it comprises a locking wing (25) provided at the free ends of said right-angled element (1).

7. Hinge structure, according to one or more of the preceding claims, characterized in that said hinge element has a recess (30) defining mutually perpendicular abutment surfaces (30a, 30b) respectively associable with said first inclined plane (20) and with said second inclined plane (21).

8. Hinge structure, according to one or more of the preceding claims, characterized in that said right-angled element (1) has a first inclined plane (20) and a second inclined plane (21) on each of its arms.

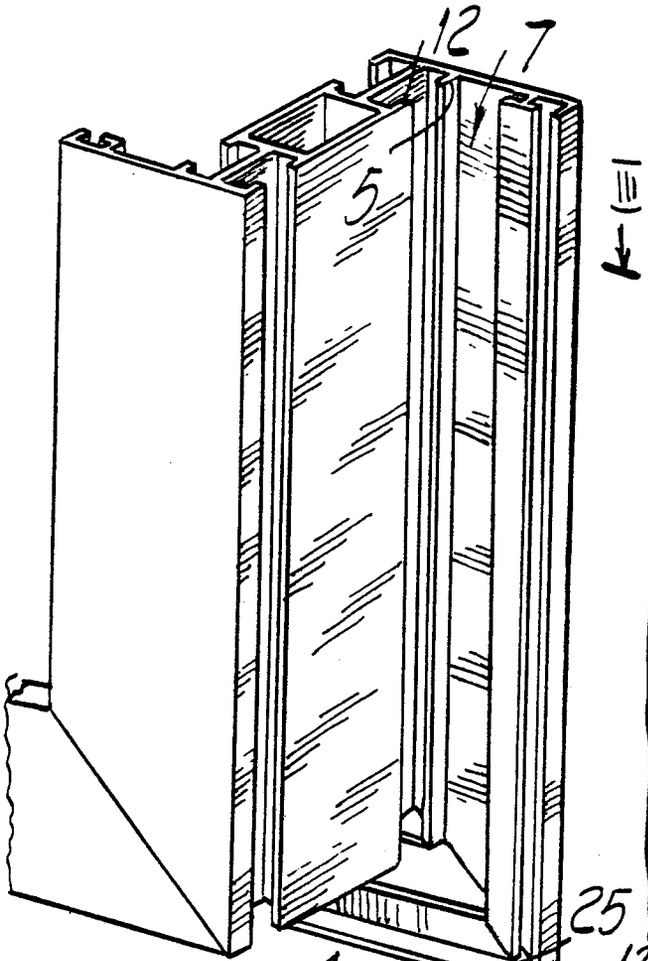


Fig. 1

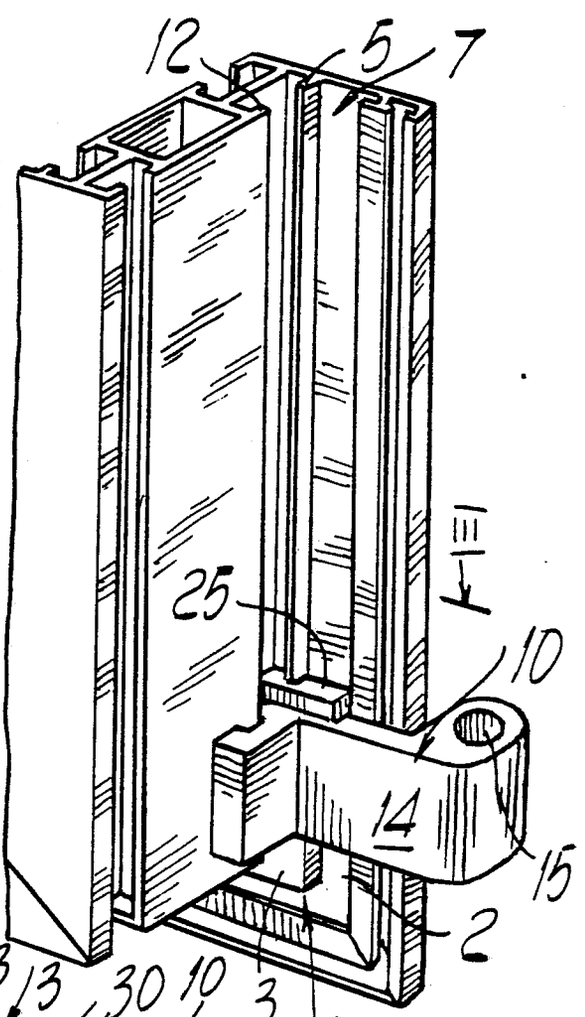
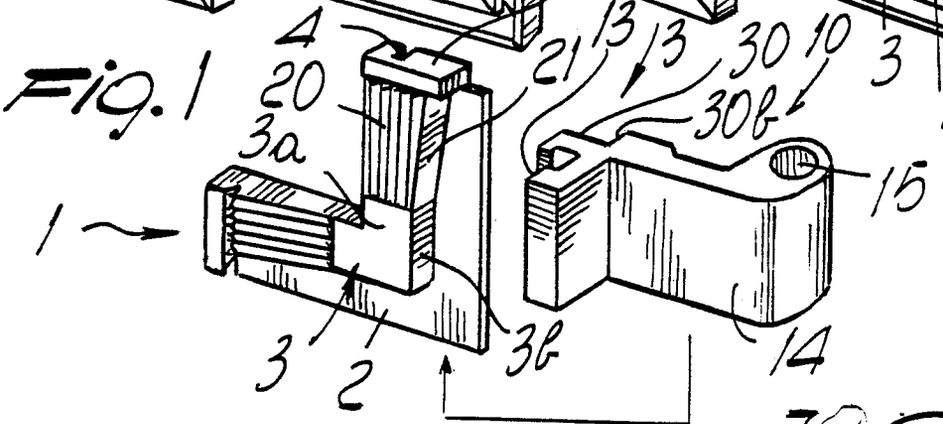


Fig. 2



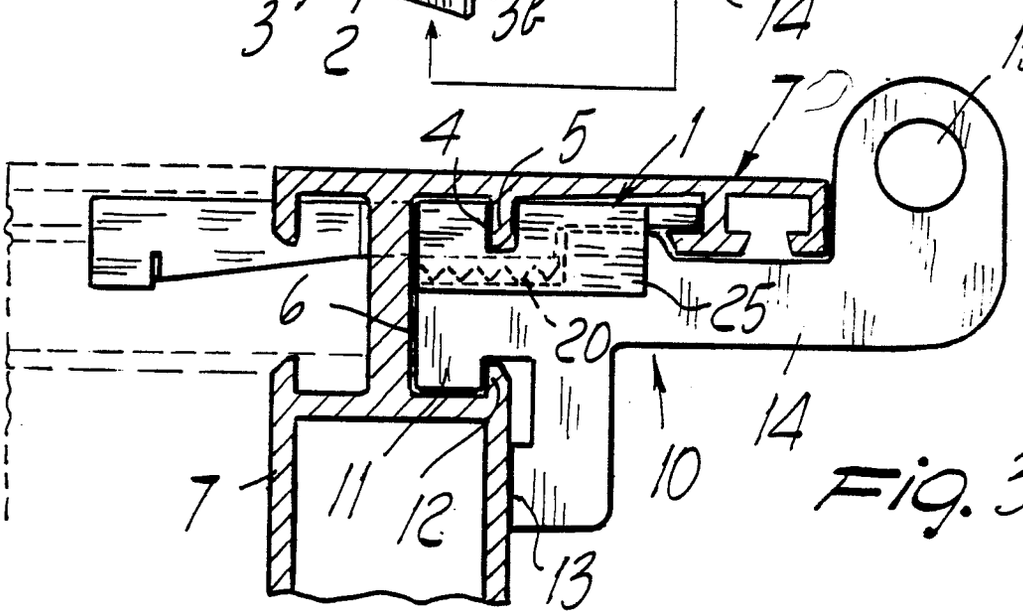


Fig. 3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 88 10 4443

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.4)
A	DE-A-2 516 264 (SIEGENIA-FRANK K.G.) * Figures 1-3; page 5, last paragraph - page 8, paragraph 3 *	1,2,4,7	E 05 D 5/02
A	GB-A- 871 304 (V. GRAJECKI) * Figures 1-4; page 2, lines 27-50 *	1,8	

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

E 05 D
E 06 B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	24-06-1988	SCHEIBLING C.D.A.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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