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(54) **Reinforcing band**

(57) The present invention refers to a reinforcing tie, e.g. for a shutter, which could be placed between a shutter and a hinge, thus supporting the hinge and simultaneously serves as a reinforcement of a shutter frame.

The tie according to the invention consists of a reinforcing section (2; 8) and a protective section (4; 9) mutually connected by means of a snap action of cylindrical projections (5) and through-holes (3).

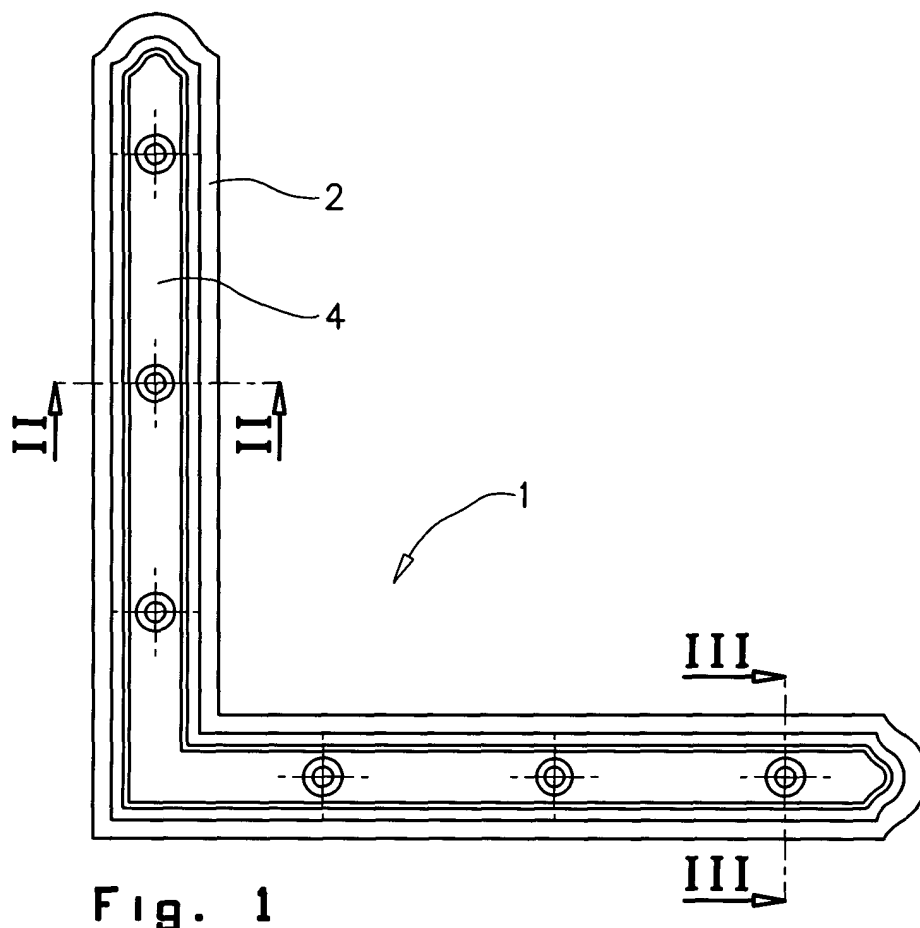


Fig. 1

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Description

[0001] The present invention refers to a reinforcing tie, e.g. for a shutter, which could be placed either between a shutter and a hinge, whereby said tie carries the hinge and simultaneously serves as a reinforcement for a shutter frame, or independently, whereby serving only as a frame reinforcement.

[0002] During assembly of a reinforcing tie by means of screws that the protective layer on the lower part of the head of the screw is very often damaged. Also, due to tightening the screws the protective layer of the reinforcing tie is damaged by the head of each screw. As a result, the anti corrosion protection is questionable with the known solutions, in particular in environments with highly corrosive air such as maritime places.

[0003] It is the object of the present invention to create a reinforcing tie that eliminates the problems of the known solutions.

[0004] The object as set above is solved by a reinforcing tie according to the invention that comprises a reinforcing section and a protective section covering said reinforcing section, said reinforcing section being formed with a plurality of preferably uniformly spaced through-holes intended for the tight accommodation of hollow cylindrical projections of the protective section. The through-holes coincide with cylindrical projections when both sections are put on top of each other. Here, the protective layer is weakened on the side facing the reinforcing section and circumferentially around at least one hollow cylindrical projection at the junction with the protective section. Said weakening is preferably formed as a notch facilitating the breaking away of the projection when a hinge is mounted on top of the reinforcing tie and a cylindrical protrusion of said hinge pierces the protective section at the location of the through-hole.

[0005] According to the invention, the protective section is provided at most with such a number of the hollow cylindrical projections that correspond to the number of the through-holes in the reinforcing section.

[0006] The diameter of the each through-hole in the reinforcing section is such a size that the cylindrical protrusion of the hinge plate, when passing through the protective section, breaks off the cylindrical projection on the location of the weakening and passes loosely through each through-hole.

[0007] The reinforcing tie according to the invention is formed as an angle bar when used e.g. in the comers of the shutter, while according to another embodiment it is provided for the reinforcing tie to be oblong as being of particular relevance with relatively high shutters or frames where more than two hinges are to be mounted.

[0008] The reinforcing section of the tie according to the invention is preferably made of metal, while the protective section is preferably made of plastic. The use of other materials, however, is not excluded.

[0009] The present invention will become more fully understood from the detailed description given herein-

after and the accompanying drawings, wherein

- Fig. 1 shows a reinforcing tie according to the invention viewed from above,
 Fig. 2 shows a section through the line II-II of Fig. 1,
 Fig. 3 shows a section through the line III-III of Fig. 1, and
 Fig. 4 shows another embodiment of a reinforcing tie according to the invention.

[0010] Reinforcing tie 1 according to the invention consists of a flat reinforcing angle bar 2 each leg thereof being formed with a plurality of preferably uniformly spaced through-holes 3. Diameter of said holes 3 is selected in a manner that when a hinge (not shown) is fixed on top of the reinforcing tie according to the invention, a cylindrical protrusion of a hinge plate passes loosely through the particular through-hole 3. The reinforcing angle bar 2 is covered on the outer face thereof i.e. on the side facing away from the shutter, with a flat protective angle bar 4 comprising on the lower side thereof, i.e. on the side facing the reinforcing angle bar 2, at most such a number of hollow cylindrical projections 5 that corresponds to the number of through-holes 3 in the reinforcing angle bar 2. The screws for fixing the reinforcing tie pass through said hollow cylindrical projections 5. Said projections 5 and said holes 3 form a tight fit. through-holes 3 and cylindrical projections 5 coincide when both angle bars are placed on top of each other. Said reinforcing angle bar 2 is preferably made of metal, while said protective angle bar 4 is preferably made of plastic.

[0011] The protective angle bar 4 is provided with a notch 6 on the side facing the reinforcing angle bar 2 and at least about the hollow cylindrical projection 5 located at the place of penetration e.g. of a cylindrical protrusion of a hinge plate through the angle bars 2, 4, said notch 6 facilitates the breaking off the projection 5 when e.g. said cylindrical protrusion of said hinge plate is pressed through the angle bars 2, 4. The remaining hollow cylindrical projections 5 are intended for accommodation of screws for fixing said angle bars e.g. to the shutter.

[0012] If needed, said angle bars 2, 4 assembly could also be used where only a corner reinforcement of a frame or a shutter is required. In the case, however, when the shutter is relatively high so that more than two hinges are necessary, an additional hinge is mounted on top of a flat reinforcing tie 7 between both corner reinforcing ties 1. Design of said tie 7 differs from the aforementioned embodiment with angle bars 2, 4 in that the reinforcing tie 7 is longitudinally extensive and comprises a flat reinforcing strip 8 and a protective strip 9 is placed on top of it. Said reinforcing strip is formed with a plurality of preferably uniformly spaced through-holes 3 intended for the tight accommodation of the hollow cylindrical projections 5 of the protective strip 9. Also with this embodiment the protective strip 9 is provided with

a notch 6 on the side facing the reinforcing strip 8 and at least around the hollow cylindrical projection 5 located at the place of penetration e.g. of a cylindrical protrusion of the hinge plate through the strips 8, 9, said notch 6 facilitates the breaking off of projection 5 when e.g. said cylindrical protrusion of said hinge plate is pressed through the strips 8, 9. The remaining hollow cylindrical projections 5 are intended for accommodation of screws for fixing said strips e.g. to the shutter.

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Claims

1. A reinforcing tie, e.g. for a shutter, which could be placed either between a shutter and a hinge, whereby said tie carries the hinge and simultaneously serves as a reinforcement for a shutter frame, or independently, whereby serving only as a frame reinforcement, **characterised in that** it comprises a reinforcing section (2; 8) and a protective section (4; 9) placed on top of it, said reinforcing section (2; 8) being formed with a plurality of preferably uniformly spaced through-holes (3) intended for tight accommodation of hollow cylindrical projections (5) of the protective section (4; 9), said protective section (4; 9) is formed, on the side facing the reinforcing section (2; 8) and circumferentially around at least one hollow cylindrical projection (5) at the junction with the protective section (2; 8), with a notch (6) facilitating breaking away the projection (5).
2. A reinforcing tie according to claim 1, **characterised in that** the protective section (4; 9) is provided at most with such a number of the hollow cylindrical projections (5) which corresponds to the number of the through-holes (3) in the reinforcing section (2; 8), said holes (3) and said projections (5) coincide when both sections are placed on top of each other.
3. A reinforcing tie according to claims 1 and 2, **characterised in that** the diameter of each through-hole (3) is such that a cylindrical protrusion of a hinge plate, when passing through the protective section (4; 9) breaks away the cylindrical projection (5) in the location of the weakening, and easily passes through the through-hole (3).
4. A reinforcing tie according to claims 1 to 3, **characterised in that** the reinforcing section (2) and the protective section (8) comprise the shape of an angle bar.
5. A reinforcing tie according to claims 1 to 3, **characterised in that** the reinforcing section (4) and the protective section (9) comprise the shape of a longitudinally extensive strip.

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6. A reinforcing tie according to claims 1 to 5, **characterised in that** the reinforcing section is made of metal.

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7. A reinforcing tie according to claims 1 to 5, **characterised in that** the protective section is made of plastic.

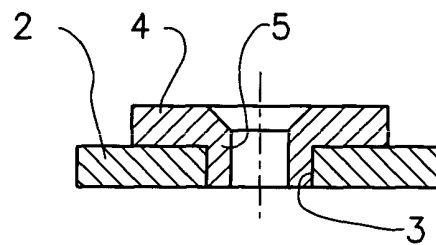
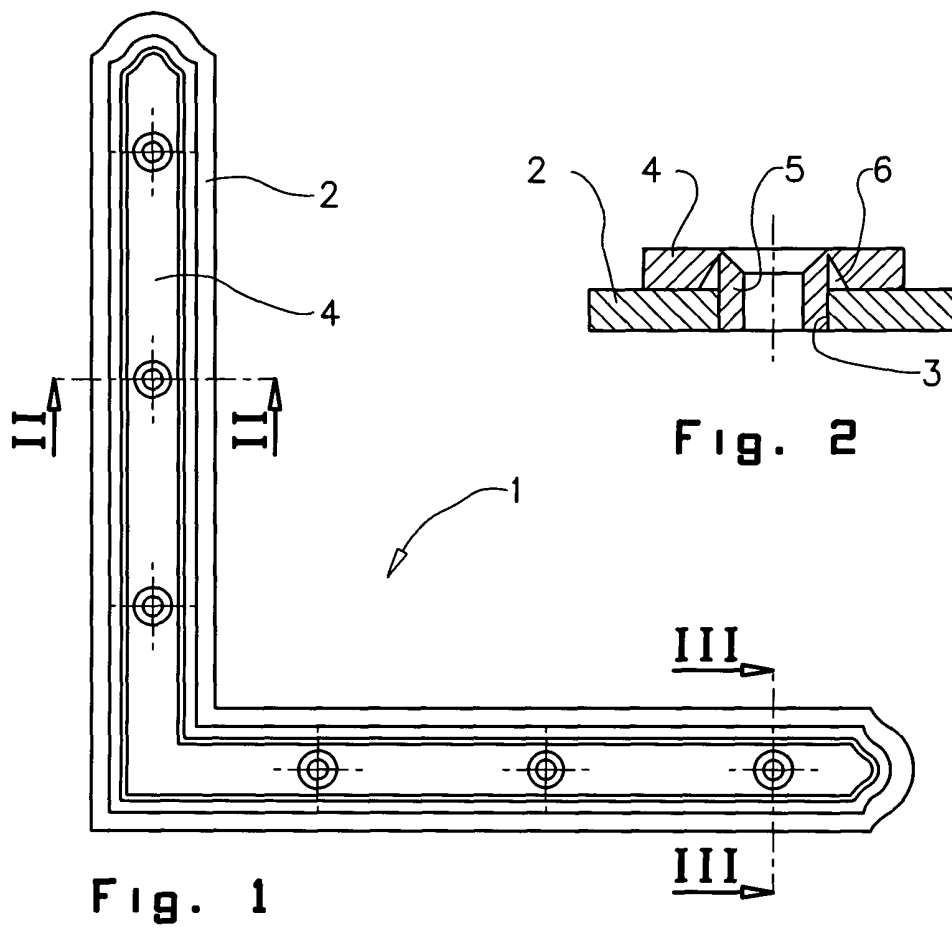


Fig. 3

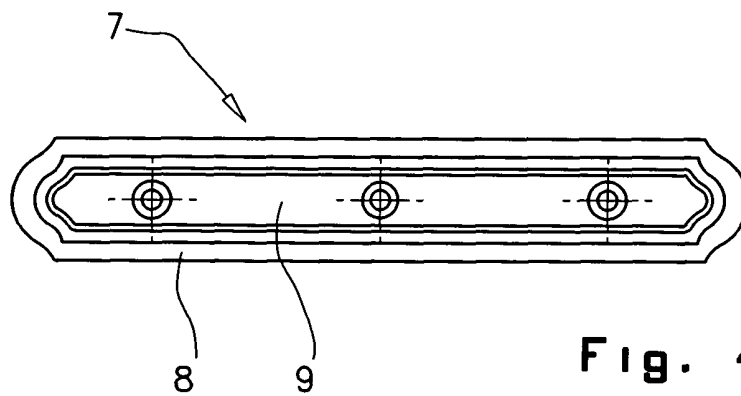


Fig. 4



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EUROPEAN SEARCH REPORT

Application Number
EP 03 46 8013

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 24 May 2004	Examiner Di Renzo, R
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82