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Remarks:

A request for correction of the English translation has been filed pursuant to Rule 88 EPC. A decision on the request will be taken during the proceedings before the Examining Division (Guidelines for Examination in the EPO, A-V, 3.).

(54) **Locking device for securing a cover to a frame**

(57) Which incorporates a handle (5) in a grating (1) hinged with respect to a drainage pipe (4) which has a wedge (6) underneath intended to be coupled in a mortise (7) of the front frame (3) of the pipe (4), and which also incorporates an elastic angular fishplate (9) which

is linked to the grating (1) and which has a horizontal fin (10) above the handle (5) which constitutes a butt which prevents the accidental opening of the handle (5), and which presents a resistance to the lifting of the handle (5) during the opening operation thereof.

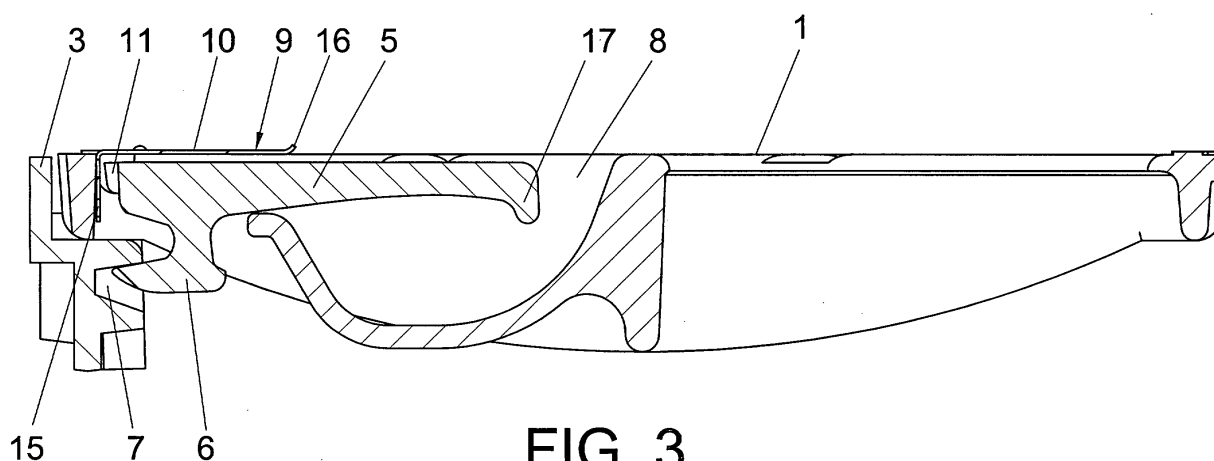


FIG. 3

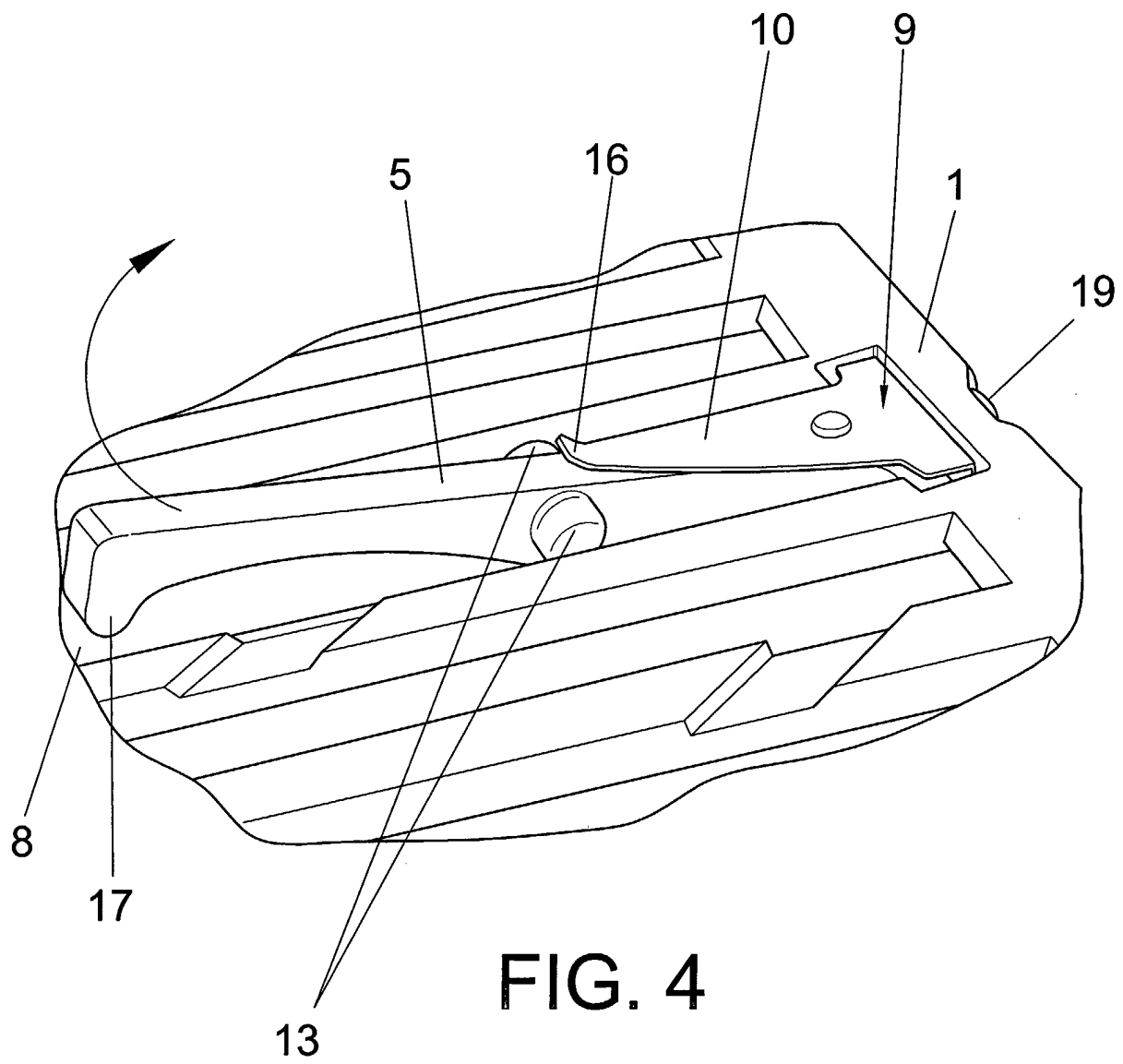


FIG. 4

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a catch for pipe gratings applicable for gratings with hinged opening which are mounted on the frame of the pipe which collects and channels rain water and other liquids, or is likewise foreseen for housing electric wiring.

[0002] The object of the invention is a simple and robust catch constituted essentially by a swivel handle which facilitates the operations of opening and closing in an effective manner having a wedge or bolt which lodges in a mortise defined in the frame of the pipe, and also forming part of this invention is the means used to guarantee the closed position of the handle consisting essentially in an elastic angular fishplate which provides a spring effect maintaining the handle depressed and consequently the wedge introduced in the mortise thereby avoiding the occurrence of accidental opening of the handle and consequently of the grating.

BACKGROUND OF THE INVENTION

[0003] The drainage gutters located in the roadway for collection of rain water or other liquids have gratings through which the liquid penetrates and is channelled toward the pipes, the gratings being usually fixed on the pipes by means of screws.

[0004] When the grating is dismounted, it is firstly necessary to undo the screws and next lift the grating up and extract it manually, resulting in an excessively tedious operation as a consequence of the difficulties that arise from undoing screws usually affected by corrosion and from the excessive weight of the grating.

[0005] In another alternative solution to the employment of screws, mention is made of the French patent FR 1599317 which discloses a grating with some extraction handles which are prolonged underneath in some pawls which when rotated disengage from the frame of the pipe. Once the handles have been disengaged, if it is intended to gain access to the interior of the pipe it will be necessary to proceed to the total extraction of the grating with the inconvenience which this operation involves, particularly for the excessive weight of the said grating.

[0006] With the object of facilitating the manipulation and closing of pipe gratings, the applicant of the present invention has developed a drainage pipe with hinged grating or cover which constitutes the object of the European application EP 98941430.5 and which resolves the aforementioned problem satisfactorily facilitating in a simple manner the assembly and dismounting of the grating. Contrary to other systems, it provides the possibility of being hinged between the horizontal closed position and an open position of approximately 135° guaranteeing accessibility to the interior thereof, as well as incorporating means of closing consisting essentially

in a horizontal pin or bolt which is inserted in a hole defined in the frame of the pipe.

[0007] The frame of the pipe has a stepped configuration with a fin projected inwardly which together with a hinge leaf stop define a space through which the axle of the hinge of the grating is introduced, which can only be extracted or inserted in the frame of the pipe when the grating is positioned vertically upward. For any other position of the grating between the closed horizontal position and the position of maximum opening at 135° the hinge of the grating cannot be extracted from the frame.

[0008] Moreover it has to be pointed out that this type of hinged gratings incorporates in some cases catches which are not suitable for all applications, since for example when they are fitted in airports, the extra pressures produced in their surroundings by aircraft turbines can cause the undesired opening of the catches and therefore the detachment of the gratings from the pipe.

[0009] The development of a catch mechanism, of special application for hinged gratings which assures reliably the closed position of the grating with respect to the pipe are made feasible by the invention which is disclosed below.

DESCRIPTION OF THE INVENTION

[0010] The catch for pipe gratings which constitutes the object of the present invention facilitates in a simple and effective manner the engagement between the grating and the frame of the drainage pipe in the closed position, by means of incorporating in the grating a swivel handle which has a lower wedge or bolt which is coupled in a mortise implemented in the frame of the pipe, with the special particularity of incorporating an elastic angular fishplate linked to the grating by a vertical fin from which in turn extends a horizontal fin arranged above the handle and slightly separated from the former in order to avoid the accidental disengagement of the handle and assure the closed position.

[0011] The pipe is of the type of those which preferably have a back frame intended to receive the hinge of the grating which will swivel around this, and a front frame which will have a mortise in which the wedge of the handle is inserted in its closed position.

[0012] The handle is configured by means of a body of elongated general configuration which lodges in a holder implemented in the upper surface of the grating, which holder is prolonged in one of its ends in individual lateral mortises in which are supported corresponding lateral projections which extend from the front end of the body of the handle, and also the handle has in its middle sector, corresponding protuberances which extend to both sides and which together with the lateral projections constitute the surface supporting the handle on the holder in its closed position, with its lower wedge inserted in the mortise defined in the frame of the pipe.

[0013] For the purpose of assuring the closure of the handle, the latter has an elastic angular fishplate which

produces a spring effect, the vertical fin of which fits in a housing of coinciding dimensions, which is extended underneath from the base of the lateral mortises described above.

[0014] From the vertical fin of the fishplate, a horizontal fin extends which is arranged above and slightly separated from the body of the handle so that it impedes the swivelling of the handle and therefore the egress of the wedge from the mortise foreseen in the frame avoiding its accidental opening.

[0015] When it is intended to open the grating, the handle must therefore be pushed upward by its foremost end endeavouring to overcome the resistance presented by the horizontal fin of the fishplate until the disengagement of the wedge is achieved, so that once the wedge is released from the mortise of the frame, it will allow the grating to swivel.

DESCRIPTION OF THE DRAWINGS

[0016] To complete the description that is being made and for the purpose of assisting in a better understanding of the characteristics of the invention, in accordance with a preferred example of practical embodiment of the same, said description is accompanied, as an integral part thereof, with a set of drawings which illustrates in a non-restrictive manner the following:

Figure 1 shows a view in perspective of the pipe and grating in which the location of the handle is observed.

Figure 2 shows a view in perspective of the grating with the closing handle and the securing fishplate, in the closed position.

Figure 3 shows a cross-sectional view of the grating in the closed position in which the catch is observed constituted by the handle and the wedge thereof inserted in the mortise defined in the frame of the pipe, and also the fishplate is observed.

Figure 4 shows a view in perspective of the grating with the handle tilting against the fishplate during the opening of the handle.

Figure 5 shows a plan view of the grating in which the handle is observed without the securing fishplate, the lateral prolongations of the handle being appreciated in detail housed in the mortises defined in the surface of the grating, as well as the housings implemented in the mortises for the insertion of the vertical fin of the fishplate not shown.

Figure 6 shows a view in perspective of the handle.

Figure 7 shows a view in perspective of the fishplate.

PREFERRED EMBODIMENT OF THE INVENTION

[0017] In the light of the figures the catch is described for pipe gratings which is of preferred application in gratings (1) with hinged opening which swivel with respect to a rear frame (2) which delimits above next to a front frame (3) a drainage pipe (4) to conduct water or also foreseen to house electric wiring.

[0018] The catch for gratings consists fundamentally in a handle (5) of elongated body, located in a holder (8) defined in the grating (1), which shows a wedge (6) underneath intended to be coupled in a mortise (7) which is defined in the front frame (3) of the pipe (4), and also it comprises an elastic angular fishplate (9) linked by its vertical fin (15) to the grating (1) and from which projects a horizontal fin (10) which extends in an upper and slightly separated arrangement in correspondence with the handle (5) constituting a butt which prevents the undesired opening of the handle (5) presenting a resistance to the lifting of the handle (5) during the egress of the wedge (6) from the mortise (7) for subsequent opening of the grating (1).

[0019] The handle (5) incorporates individual lateral projections (11) on its frontal extremity which lodge in corresponding lateral mortises (12) defined in the holder (8) of the grating (1), and also it has some protuberances (13) on both sides of the body in its middle area, which protuberances (13) rest on the walls of the holder (8) in their horizontal closed position.

[0020] In the aforementioned lateral mortises (12) of the holder (8) of the grating (1), some grooves (14) are prolonged underneath from its base and in correspondence with the front wall which delimits the lateral mortises (12), which grooves (14) constitute the lodging of the vertical fin (15) of the fishplate (9).

[0021] The handle (5) moreover shows a promontory (17) on the rear end, from which the inferior surface of the body is prolonged, curved in order to facilitate the insertion of a finger for the purpose of lifting the handle (5).

[0022] The fishplate (9) has on its horizontal fin (10), a slightly upwardly inclined lip (16) for the purpose of facilitating the progressive inclination of the handle (5) in contact with the fishplate (9) during the swivelling movement corresponding to the opening operation.

[0023] Also the fishplate (9) incorporates in its vertical fin (15) individual holes (18) intended to receive means of union (19) which link it to the grating (1).

Claims

1. Catch for pipe gratings of preferred application for gratings (1) with hinged opening which swivel with respect to a rear frame (2) which delimits above next to a front frame (3) the drainage pipe (4), essentially **characterised in that** it consists of a handle (5) of elongated body, located in a holder (8) de-

finned in the grating (1), which shows a wedge (6) underneath intended to be coupled in a mortise (7) which is defined in the front frame (3) of the pipe (4), and also it comprises an elastic angular fishplate (9) linked by its vertical fin (15) to the grating (1) and from which projects a horizontal fin (10) which extends in an upper and slightly separated arrangement in correspondence with the handle (5) constituting a butt which prevents accidental opening of the handle (5) by presenting a resistance to the lifting of the handle (5) during the egress of the wedge (6) from the mortise (7) for subsequent opening of the grating (1).

2. Catch for pipe gratings according to claim 1 **characterised in that** the handle (5) incorporates individual lateral projections (11) in its front extremity which lodge in corresponding lateral mortises (12) defined in the holder (8) of the grating (1), and also it has on both sides of the body in its middle area some protuberances (13) which rest on the walls of the holder (8) in its horizontal closed position. 15 20
3. Catch for pipe gratings according to previous claims **characterised in that** in the lateral mortises (12) of the holder (8) of the grating (1), some grooves (14) are prolonged underneath from its base and in correspondence with the front wall which defines the lateral mortises (12), which grooves (14) constitute the housing of the vertical fin of the fishplate (9). 25 30
4. Catch for pipe gratings according to previous claims **characterised in that** the handle (5) has on the rear extremity a promontory (17) from which the lower surface of the body is prolonged, curved in order to facilitate the insertion of a finger for the purpose of lifting the handle (5). 35
5. Catch for pipe gratings according to previous claims **characterised in that** the fishplate (9) has on its horizontal fin (10), a slightly upwardly inclined lip (16) for the purpose of facilitating the progressive inclination of the handle (5) in contact with the fishplate (9) during the swivelling movement corresponding to the opening operation. 40 45
6. Catch for pipe gratings according to previous claims **characterised in that** the fishplate (9) incorporates in its vertical fin (15) individual holes (18) intended to receive means of union (19) which link it to the grating (1). 50

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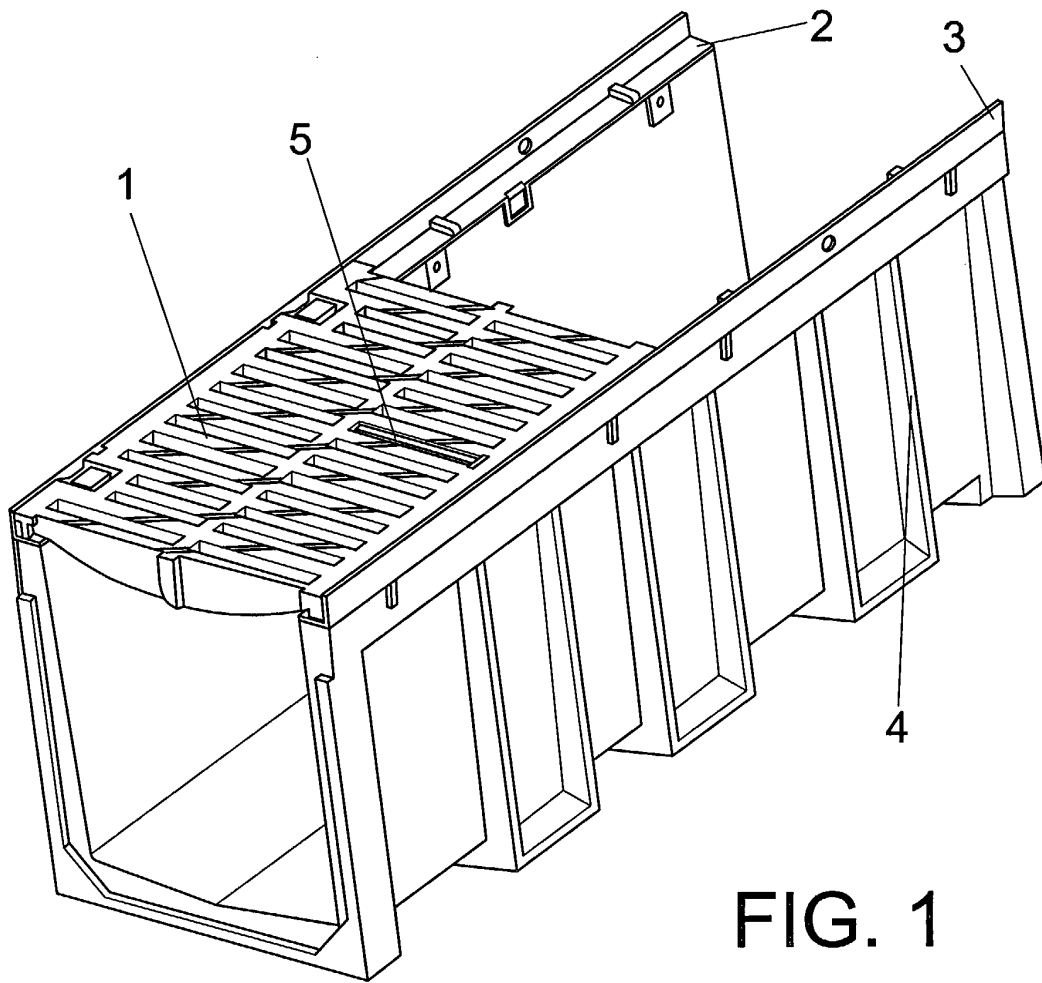


FIG. 1

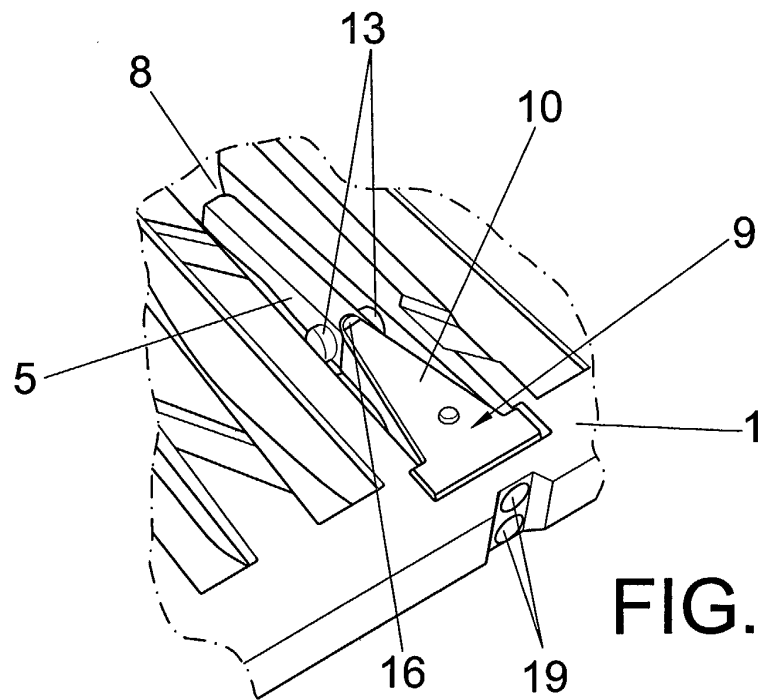


FIG. 2

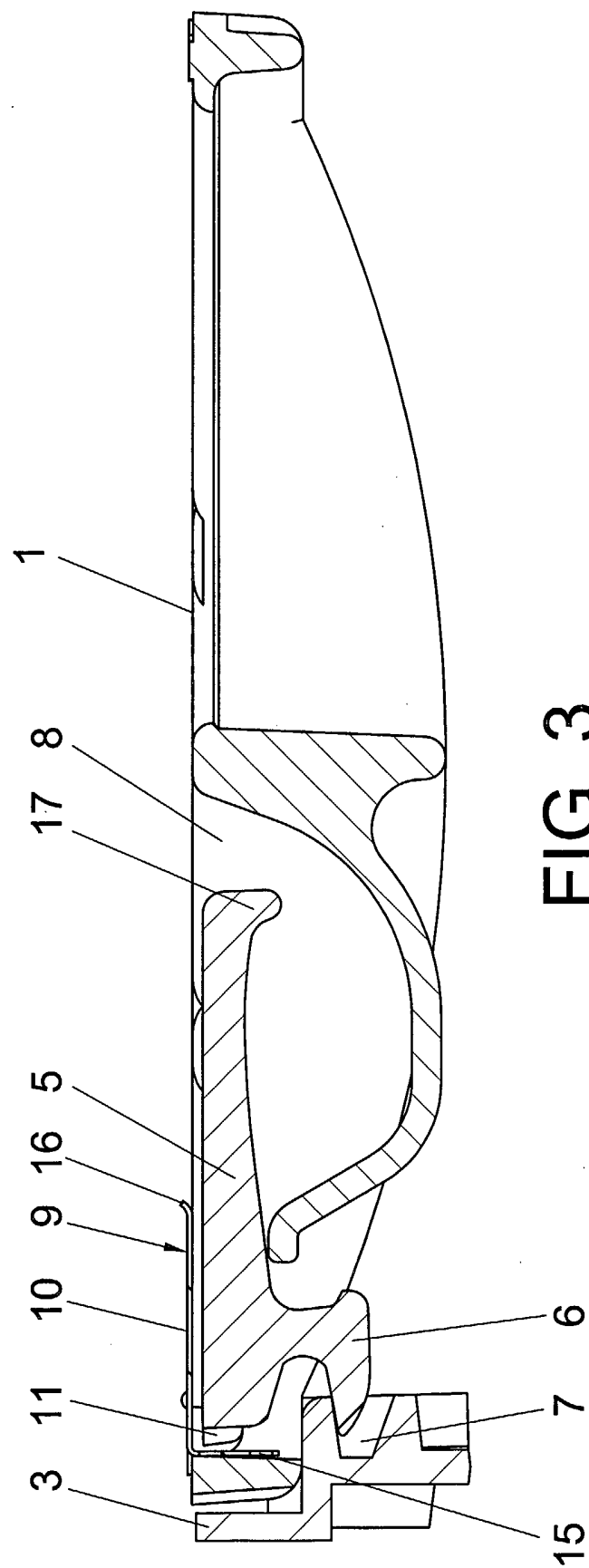


FIG. 3

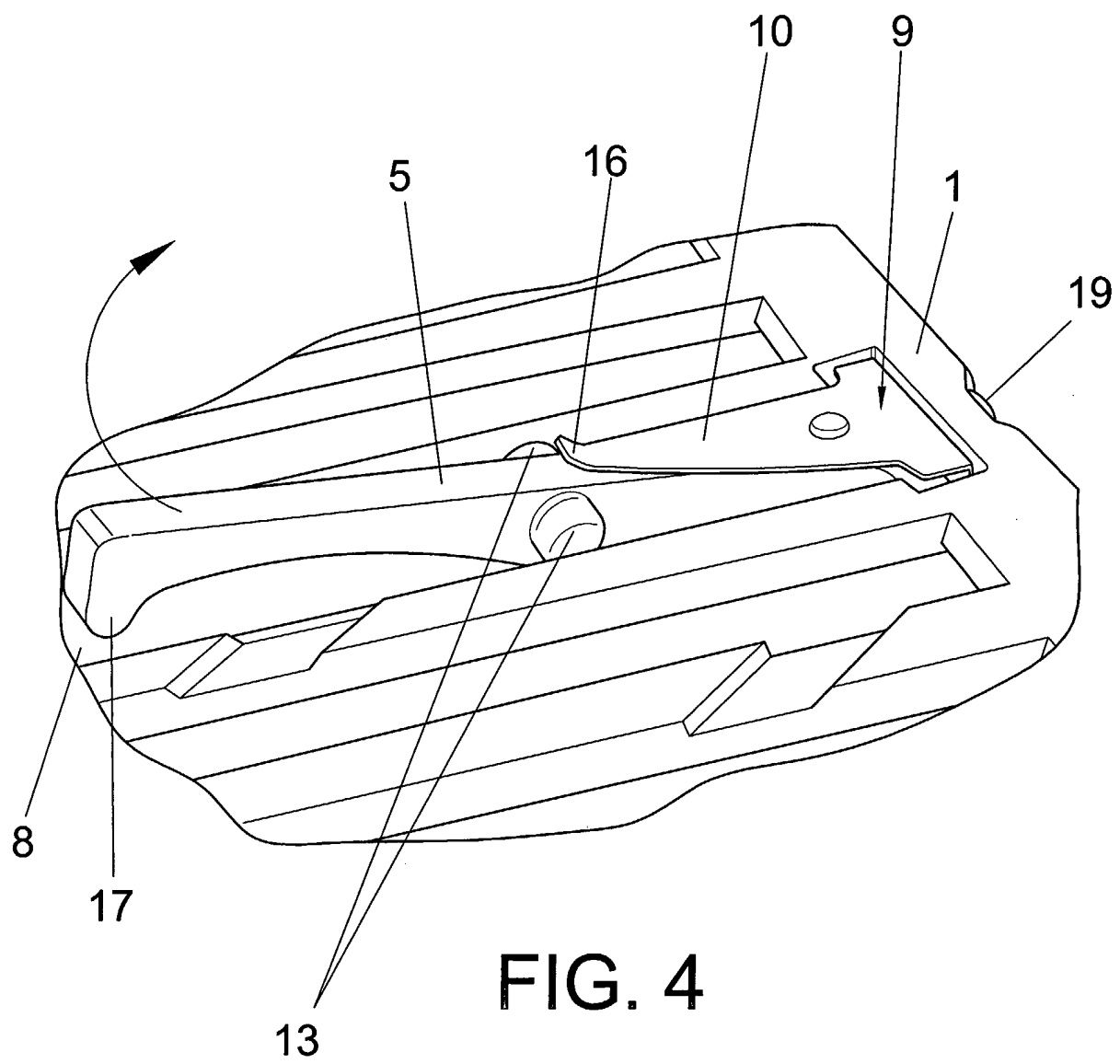


FIG. 4

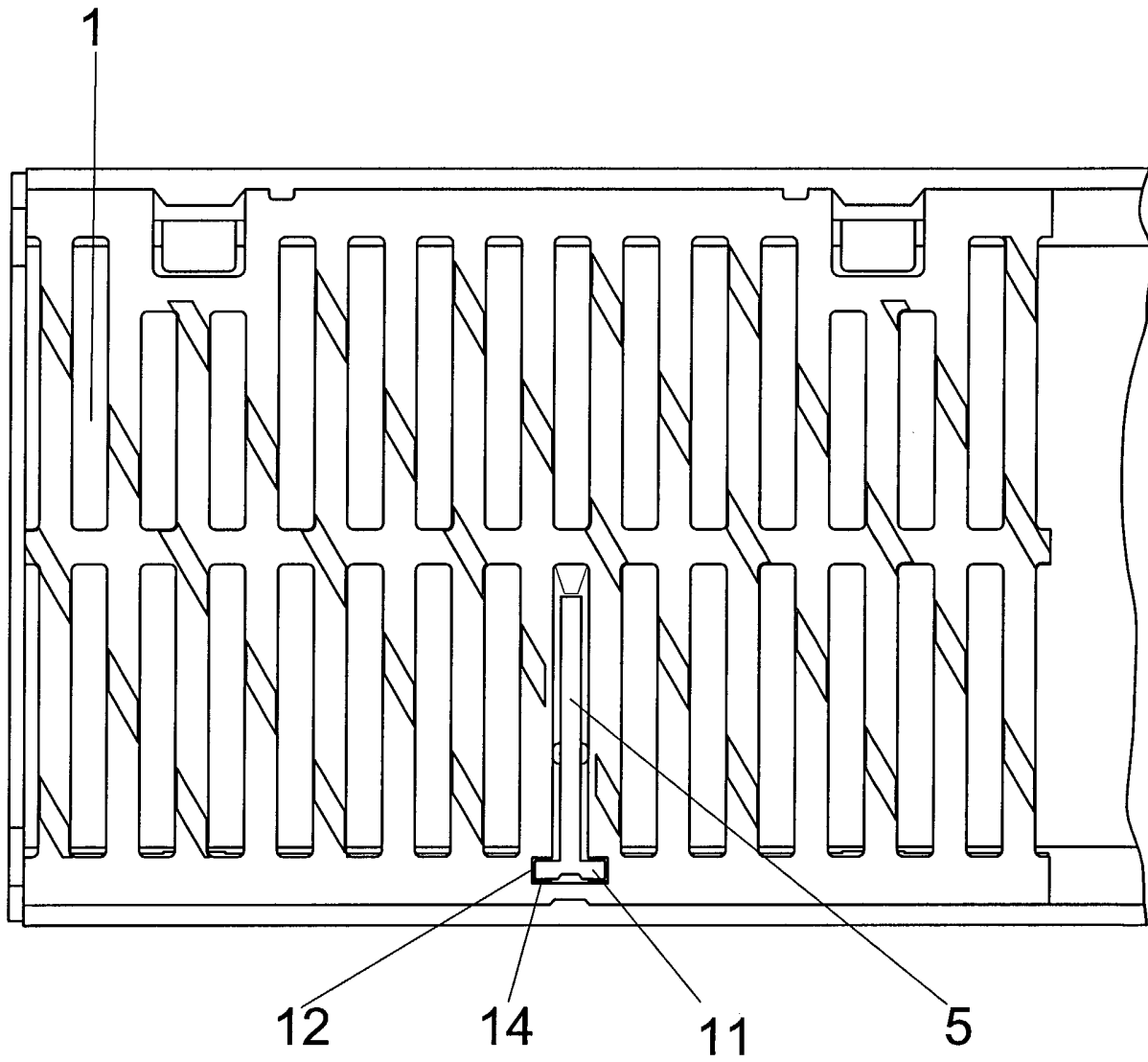
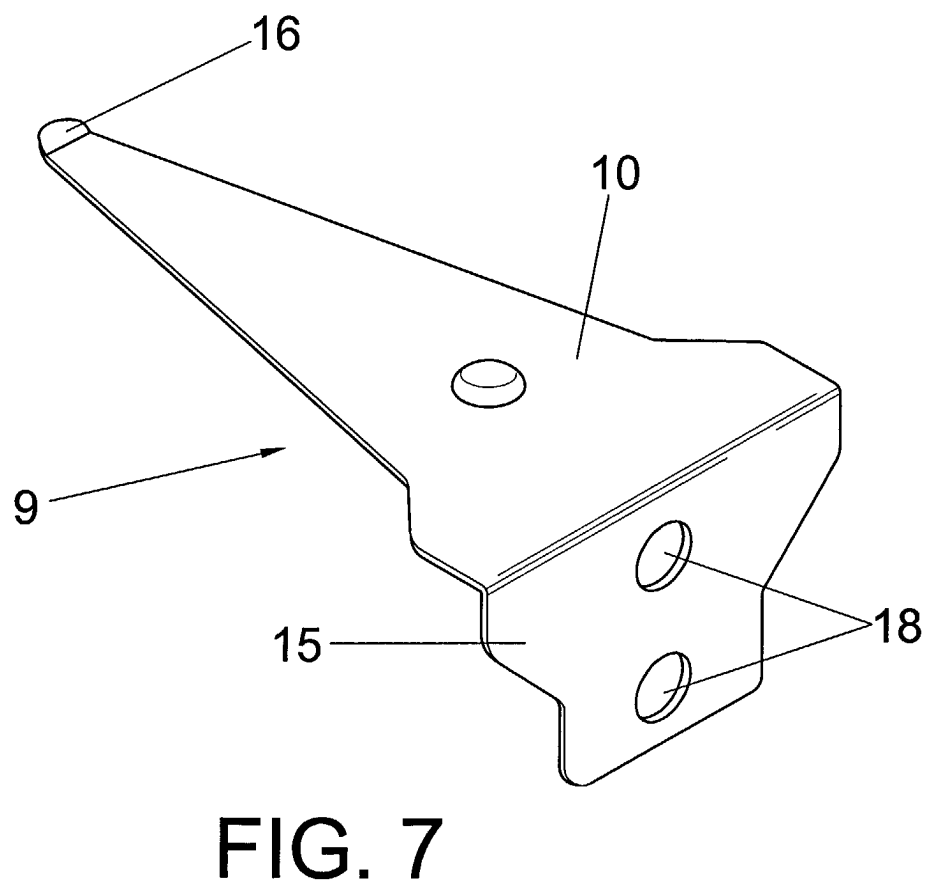
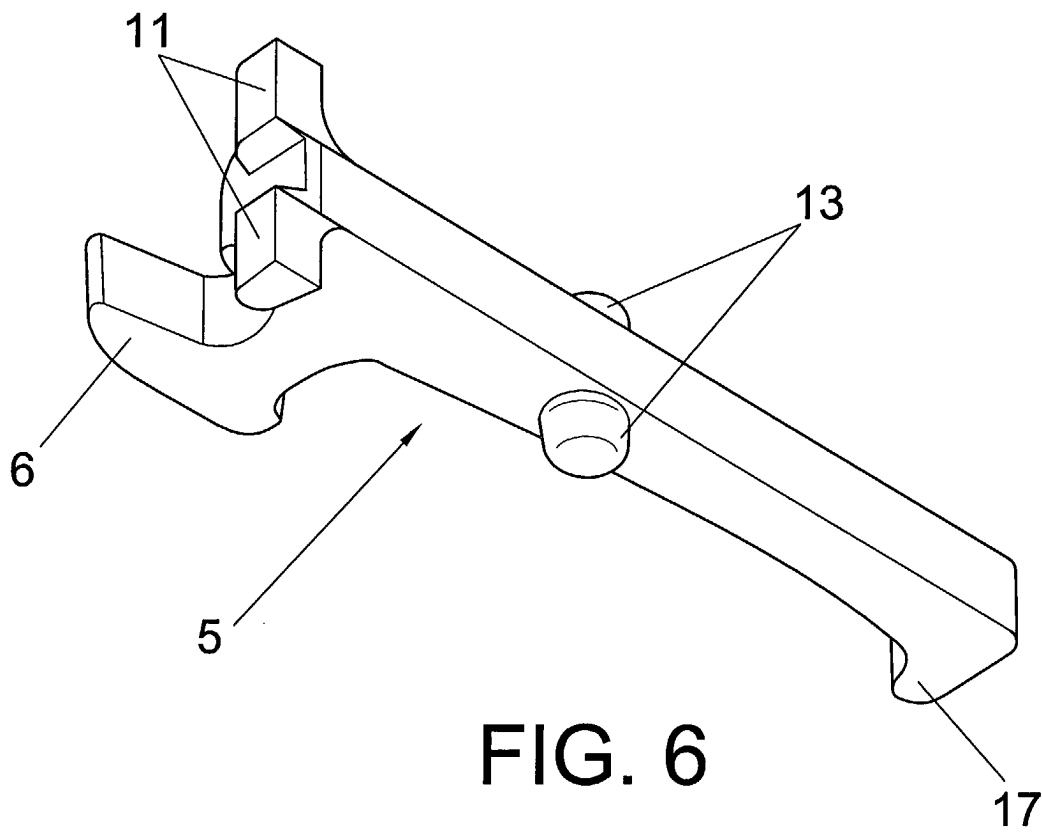


FIG. 5





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 03 38 0111

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	US 3 201 161 A (CASTLE ALFRED B) 17 August 1965 (1965-08-17) * column 2, line 63 - column 7, line 27; figures 2-5 *	1-6	E02D29/14 E03F5/06
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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 18 November 2003	Examiner Geiger, H
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			

EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 38 0111

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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