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(54) **Clamp for fastening a device to the top of a hollow post and device fitted with such a clamp.**

(57) The clamp has a first wall portion (1) made of sheet material and provided with a conical, die-stamped portion (2) so that it can be mounted on the top (41) of a hollow post (40). The first wall portion (1) is provided with second wall portions (5, 5')

which can be moved about mutually parallel axes (10, 10'), on either side of the dye-stamped portion (2). These second wall portions (5, 5') can be clamped the post (40) with fixation means (9, 9').

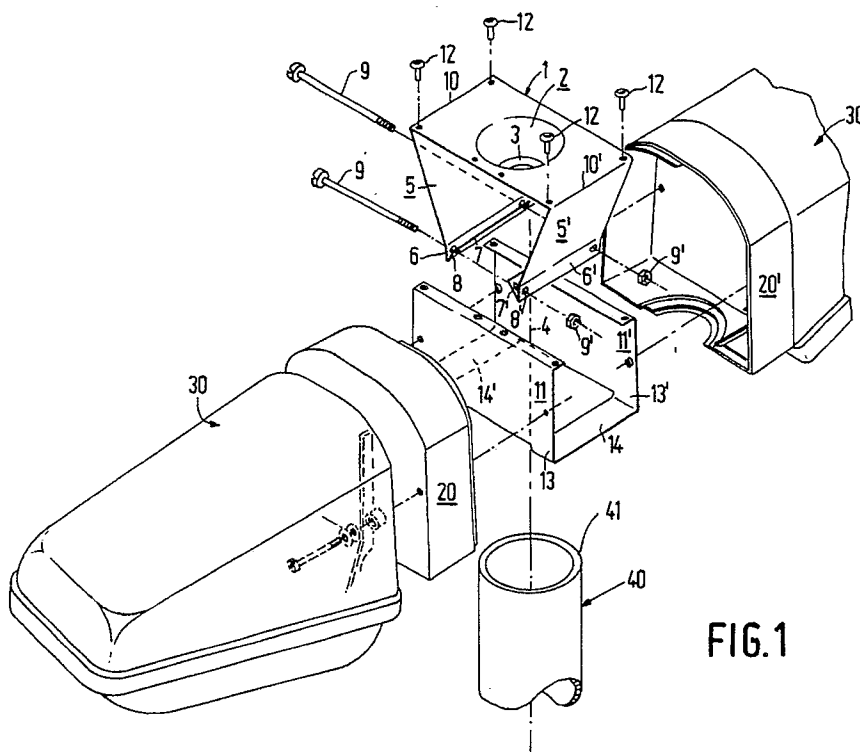


FIG.1

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CLAMP FOR FASTENING A DEVICE TO THE TOP OF A HOLLOW POST AND DEVICE FITTED WITH SUCH A CLAMP.

The invention relates to a clamp for fastening a device to the top of a hollow post, comprising

- a first wall portion provided with projections which have an outer surface which coincides with the surface of a cone having an axis,
- second wall portions extending from the first wall portion along said axis, having free end portions remote from the first wall portion, and provided with openings for accommodating fixation means. The invention also relates to a device provided with such a clamp.

A luminaire provided with such a clamp is known from US 3,696,242.

The clamp of the known luminaire has a plurality of concentric series of projections at the first wall portion, each series having a conical outer surface and a cylindrical inner surface. The object of this is to render the clamp suitable for posts having a diameter corresponding to the diameter of the cylindrical inner surface of one of the series. The conical outer surfaces facilitate mounting of the clamp in the correct position on a given post.

The known clamp has the disadvantage that it is an expensive and heavy piece of cast metal. Another disadvantage is that the clamp is only suitable for a small number of post diameters of discrete dimensions, and that the clamp with its projections runs up against posts of intermediate dimensions. Furthermore, the known clamp has the disadvantage that it has to be fixed to a post with four screws spread evenly around the post circumference, which means that the post must be accessible from all directions.

The invention has for its object to provide a clamp of the type described in the opening paragraph which, among other characteristics, is suitable for a range of posts whose diameters vary continuously and lie between wide limits, and which is of a simple construction.

According to the invention, this object is achieved in that the first wall portion is made of sheet material and in that its projections together form a conical, die-stamped portion whose greatest diameter adjoins the first wall portion, this first wall portion having on either side of the conical, die-stamped portion second wall portions made of sheet material which can be moved about mutually parallel axes.

The conical portion of the first wall portion can be placed over a post and will sink into that post to an extent which is determined by the width of the post end. The conical portion may, for example, have diameters which range from 30 mm to 60 mm. This renders the clamp suitable for post ends

having diameters in said range, while the clamp is automatically centred on such a post end by the conical portion. Variations in wall thickness among posts of the same diameter are irrelevant for the clamp.

The conical, die-stamped portion may have an inwardly flanged rim at its smallest diameter in order to render said portion more rigid. The rim may be encased in an elastic tube so as to protect an electric cable running to a device supported by the clamp.

The second wall portions can be moved towards the post and be held against this post with clamping fit by fixation means, such as bolts and nuts, so that the clamp is fixed.

The second wall portions may be connected to the first wall portion by means of hinges. Alternatively, hinging means may be present between the first and the second wall portions. It is very favourable if the second wall portions are integral with the first wall portion and are movably connected to it along fold lines. The clamp may then be formed from one piece of sheet material, for example by punching, die-stamping and bending. In an embodiment, the free end portions of the second wall portions each have an inwardly flanged rim, which points obliquely towards the first wall portion. When the clamp is closed around a post, these rims anchor themselves in the post wall and pull the clamp tightly against the post top, so that a rigid connection is obtained.

Since the second wall portions face one another, the clamp can be very easily applied on a post if the operator takes up a central position between the axes between the first and the second wall portions. He can then apply the fixation means without having to walk around the post.

It is favourable, though not necessary, for the rims of the second wall portions each to have a recess, which two recesses face one another for enclosing the post. Thus it is achieved that the conical, die-stamped portion and the post on which the clamp is mounted assume coaxial positions. Each recess may, for example, have the shape of a trapezium which is open at its base.

The device for which the clamp is used, for example a luminaire or a video camera for security purposes, may be mounted to the first wall portion. In an embodiment, however, the clamp has third wall portions which are connected to the first wall portion and which have a free end portion facing away from it. They may extend along the conical, die-stamped portion and surround this portion together with the second wall portions. A device may

be mounted to one or both of the third wall portions, respectively. The third wall portions may be integral with the first wall portion. The third wall portions may be interconnected at their free end portions through fourth wall portions which extend, for example, parallel to the first wall portion. These fourth wall portions give a favourable rigidity to the clamp if a device is mounted to the third wall portions.

The manufacture of the clamp is made easier, however, if the third wall portions, which may be integral with the fourth wall portions and may be formed from sheet material by, for example, punching and flanging, are fastened to the first wall portion. The clamp can then consist of two parts, each of which can be easily manufactured from sheet material, for example stainless steel, galvanised iron, or other sheet metal, and which can be fastened to one another by, for example, welding or, very conveniently, by means of pop rivets.

The clamp may be accommodated in a synthetic housing, which hides the constructional parts of the clamp from view and also closes the open end of the post against rain water and dirt. It is favourable to design the housing in several parts and mount it, for example, together with one or two devices against third wall portions of the clamp.

Embodiments of the clamp and of the luminaire provided with the clamp according to the invention are shown in the drawings, in which

Fig. 1 shows an exploded view of an embodiment of a clamp with a luminaire,

Fig. 2 shows an axial cross-section of a second embodiment of a clamp, which cross-section coincides with a plane of symmetry.

In Fig. 1, the clamp for mounting a device 30 to the top of a hollow post 40 has a first wall portion 1 provided with projections 2 having a outer surface which surface coincides with the surface of a cone having axis 4. Second wall portions 5, 5' extend from the first wall portion 1 along this axis 4, which second wall portions have free end portions 6, 6', respectively, remote from the first wall portion 1 and are provided with openings 8, 8', respectively, for accommodating fixation means 9, 9', bolts with nuts in the drawing.

The first wall portion 1 is made of sheet material, while its projections together form a conical, die-stamped portion 2 whose greatest diameter adjoins the first wall portion 1. The greatest diameter exceeds the smallest diameter by, for example, 10 mm or more. On either side of the conical portion 2, the clamp has second wall portions 5, 5' made of sheet material which can be moved about mutually parallel axes 10, 10'. In the drawing the second wall portions 5, 5' are integral with the first wall portion 1 and are movably connected to the latter along fold lines 10, 10'.

The free end portions 6, 6' each have an inwardly flanged rim 7, 7', which points obliquely towards the first wall portion 1, and which is to anchor itself in the post 40 when the fixation means 9, 9' are tightened, and thus is to pull the first wall portion 1 tightly against the top 41 of this post.

The first wall portion 1 is mounted to third wall portions 11, 11' by means of screws or pop rivets 12. The third wall portions 11, 11' have free end portions 13, 13' facing away from the first wall portion 1 and extending along the conical, die-stamped portion 2. They surround this portion 2 together with the second wall portions 5, 5'.

The free end portions 13, 13' of the third wall portions 11, 11' are interconnected by fourth wall portions 14, 14', which are integral with them, so that a rigid box is created with movable end faces 5, 5'. Its parts 1, 5, 5' and 11, 11', 14, 14', respectively, can be easily manufactured and assembled together.

The conical, die-stamped portion 2 of the first wall portion 1 has on its smallest diameter an inwardly flanged rim 3, which renders the die-stamped portion rigid.

A two-part plastics housing 20, 20' may be mounted against the third wall portions 11, 11' together with a device, a luminaire 30. The housing 20, 20' surrounds the clamp and covers the top 41 of the post 40.

Corresponding parts in Fig. 2 have reference numerals which are 50 higher than those in Fig. 1.

The third wall portions 61, 61' are integral with the first wall portion 51. The conical, die-stamped portion 52 in the latter has a conical outer surface 65.

The second wall portions 55 (55') are connected to the first wall portion 51 through hinging means 60 (60').

The inwardly flanged rims 57 (57') of the second wall portions 55 (55') have recesses 66 (66') for enclosing the post 90.

Claims

1. A clamp for fastening a device (30) to the top (41) of a hollow post (40), comprising
 - a first wall portion (1) provided with projections (2) which have an outer surface which coincides with the surface of a cone having an axis (4),
 - second wall portions (5, 5') extending from the first wall portion (1) along said axis, having free end portions (6, 6') remote from the first wall portion, and provided with openings (8, 8') for accommodating fixation means (9, 9') characterized in that the first wall portion (1) is made of sheet material and in that its projections together form a conical, die-stamped portion (2) whose greatest

diameter adjoins the first wall portion, this first wall portion (1) having on either side of the conical, die-stamped portion (2) second wall portions (5, 5') made of sheet material which can be moved about mutually parallel axes (10, 10').

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2. A clamp as claimed in Claim 1, characterized in that the second wall portions (5, 5') are integral with the first wall portion (1) and are connected to the latter along fold lines (10, 10').

3. A clamp as claimed in Claim 1 or 2, characterized in that the free end portions (6, 6') of the second wall portions (5, 5') each have an inwardly flanged rim (7, 7') which points obliquely towards the first wall portion (1).

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4. A clamp as claimed in Claim 3, characterized in that the rims (57) each have a recess (66), which recesses face one another for enclosing a post (90).

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5. A clamp as claimed in Claim 1, 2 or 3, characterized in that the first wall portion (1) is connected to third wall portions (11, 11'), which have free end portions (13, 13') facing away from the first wall portion, extend along the conical, die-stamped portion (2), and surround the latter portion together with the second wall portions (5, 5').

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6. A clamp as claimed in Claim 5, characterized in that the free end portions (13, 13') of the third wall portions (11, 11') are interconnected by fourth wall portions (14, 14').

7. A clamp as claimed in Claim 6, characterized in that the third wall portions (11, 11') are fastened to the first wall portion (1).

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8. A clamp as claimed in Claim 7, characterized in that the fourth wall portions (14, 14') are integral with the third wall portions (11, 11').

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9. A clamp as claimed in Claim 1, 2 or 3, characterized in that the conical, die-stamped portion (2) has an inwardly flanged rim (3) on its smallest diameter.

10. A clamp as claimed in Claim 1, 2 or 3, characterized in that the clamp is accommodated in a plastics housing (20, 20').

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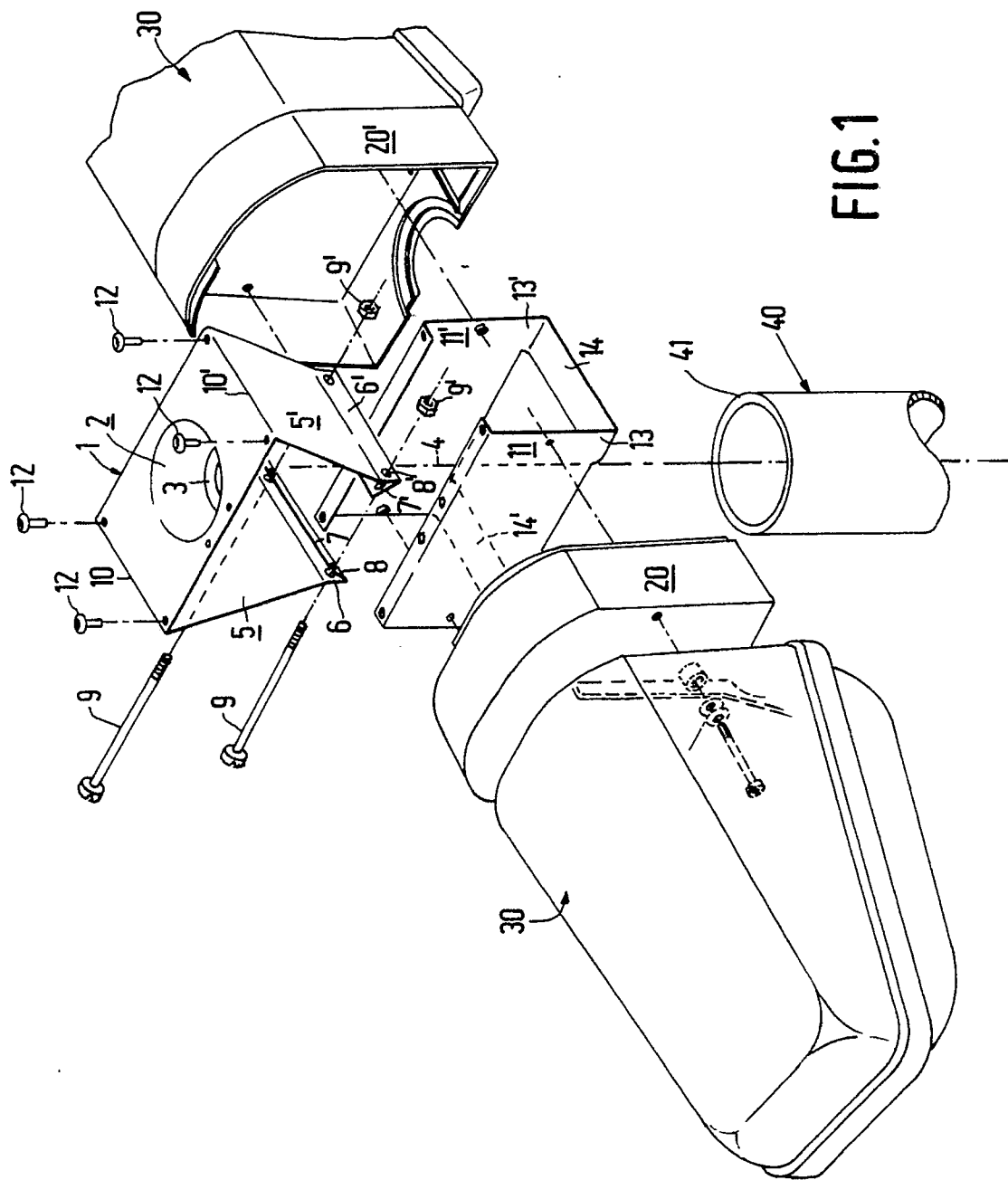
11. A clamp as claimed in Claim 5, characterized in that the clamp is accommodated in a plastics housing (20, 20') which is mounted to the third wall portions (11, 11').

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12. A luminaire provided with a clamp as claimed in any one of the Claims 1-11.

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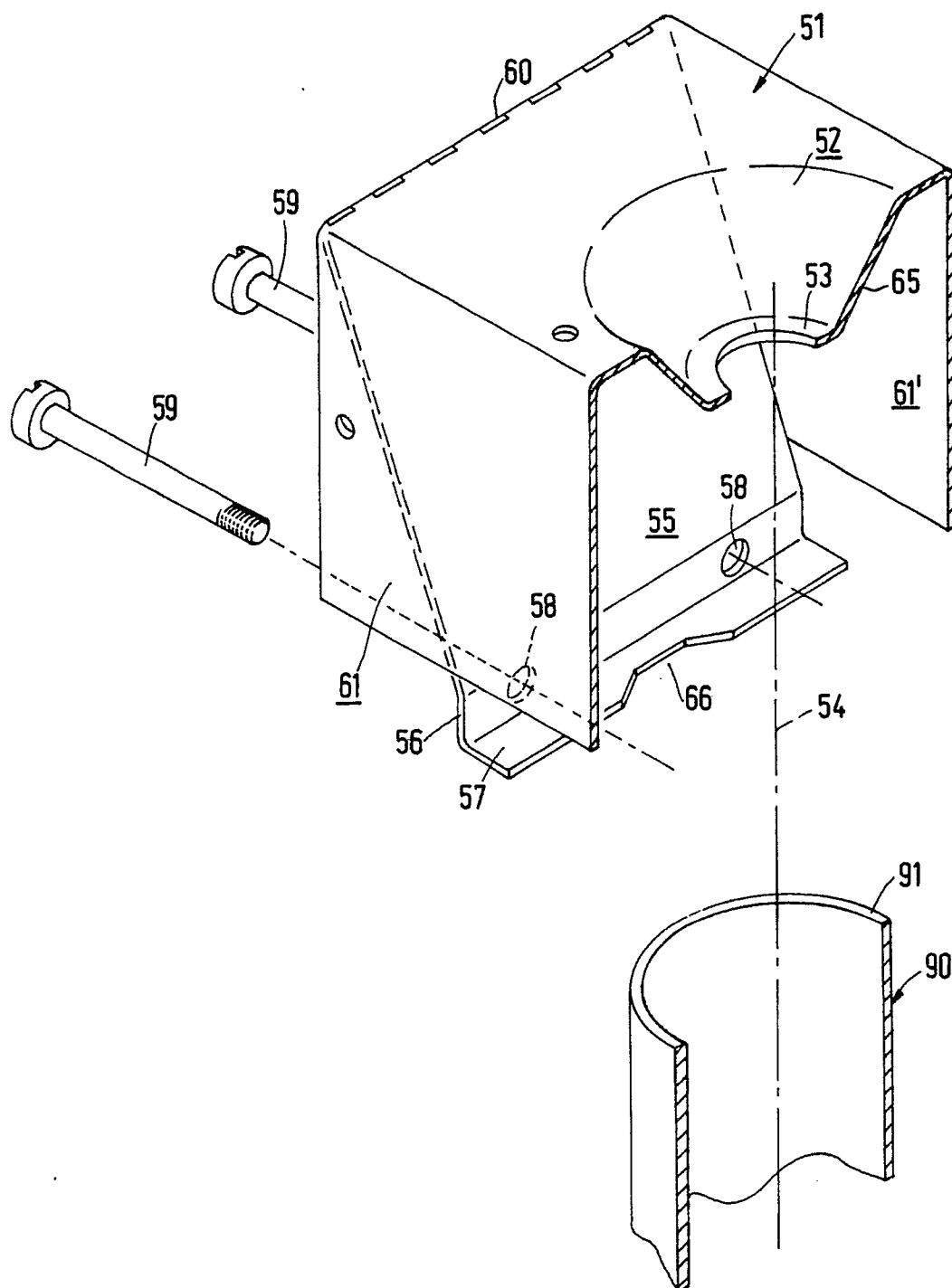


FIG. 2



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EUROPEAN SEARCH REPORT

Application Number

EP 90 20 2834

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.5)
A	CH-A-5 369 79 (SIEMENS) * page 1, lines 57 - 65; figures 1, 2 * - - -	1,10	F 21 V 21/10
A	US-A-3 556 452 (RAMSEY) * the whole document * - - - - -	1,2,10	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			F 21 V F 21 S
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of search 09 January 91	Examiner VAN OVERBEEKE J.J.
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			