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(54) Device for connecting a luminaire to a mast

(57) The device for connecting a luminaire f to a mast m has a cylindrical mast clamp (1) with ridges (3), for example dovetailed ridges, at its outer surface, and an external clamp (10) for tightly gripping a support arm a to which a luminaire f can be secured. The external clamp (10) has a ridge (13). A two-part coupling member (20) has recesses (21, 22) for a first (3) and the second ridge (13), respectively. The halves (23) of the coupling member (20) are forced towards one another by means of coupling screws (24).

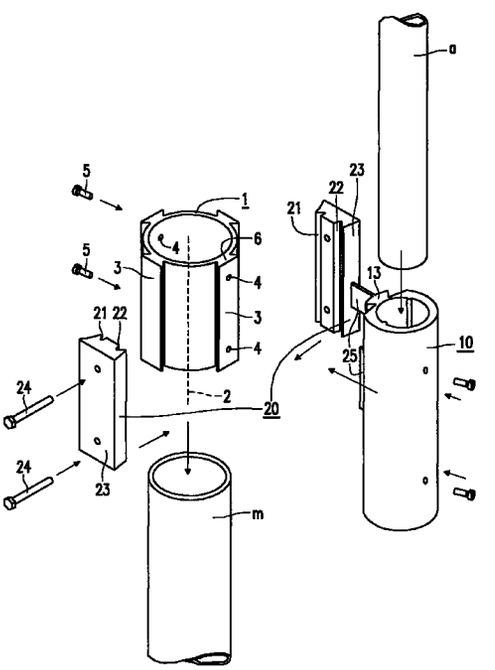

FIG. 2

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Description

The invention relates to a device for connecting a luminaire to a mast, comprising:

a mast clamp having a longitudinal axis for surrounding an axial portion of a mast with clamping force, which mast clamp is provided at an outer surface thereof with means for fastening an external clamp;
an external clamp for accommodating with clamping force a tubular support arm to which a luminaire can be mounted, which external clamp is provided at an outer surface thereof with means for fastening it to a mast clamp, fastened to said mast clamp.

Such a device is known from EP-B-0 338 959.

The mast clamp in the known device is a two-part strap whose parts are forced towards one another by means of screws after the clamp has been provided around a mast. The external clamp is a ring which also forms such a two-part strap. The mast clamp has a number of flat surfaces at its outer surface against which a respective external clamp can be urged by screws.

To improve the fastening of the mast clamp to a mast and the fastening of a support arm in the external clamp, the mast clamp and the external clamp have inwardly projecting studs which are to co-operate with recesses or holes provided in the mast and the support arm, respectively.

This is a major disadvantage, because it means that the device cannot be used for fastening to or of any mast or any support arm. It is also a disadvantage that the mast must be positioned rotated about its axis into the correct position in order to have the fastening means for the external clamp point in the correct direction. Providing recesses or holes in masts, moreover, is expensive. In addition, the mast clamp can only be assembled together from its two parts in the presence of a mast, if the latter has holes.

It is an additional disadvantage of the known device that the external clamp cannot be assembled together until after a part thereof has been fastened to the mast clamp. It is also a disadvantage when the mast clamp before being mounted to the mast has a comparatively great weight owing to the presence of the external clamps, and on the other hand it is a disadvantage that a large number of screws must not just be tightened, but also first inserted during mounting of the device to a mast.

It is an object of the invention to provide a device of the kind described in the opening paragraph which has a construction which is simple and can be quickly and easily assembled, and which renders possible a reliable mounting of a luminaire to a mast.

According to the invention, this object is achieved in that the mast clamp is a cylindrical body which is provided at its outer surface with at least one axial first ridge narrowing in cross-section from the outside to the inside for co-operating with a coupling member, and which has radially directed through holes with screws for pressing against a mast therewith,

the external clamp is a cylindrical body which is provided at its outer surface with an axial second ridge narrowing in cross-section from the outside to the inside for co-operating with a said coupling member, and
a said coupling member is present, having recesses for accommodating said first and said second ridge, which coupling member is divided in a radial plane of the mast clamp so as to form halves which are pulled towards one another by means of at least one coupling screw passed in between the first and the second ridge.

The mast clamp is one body of a simple shape which, after it has been created, need only be provided with threaded through holes for providing a possibility of fixing it around a mast. Before being secured around the mast, the mast clamp can easily be aligned as to its vertical position and rotational orientation. The screws provide a reliable fixation.

The external clamp also has a simple shape and can be easily manufactured. The clamp has the advantage over an annular clamp that it can hold on to the support arm over a chosen, comparatively great length, so that skew positions are prevented.

The first and the second ridges and the coupling member provide a reliable parallel coupling of the external clamp, and thus of the support arm, to the mast. Tightening of one or several, for example two, previously mounted coupling screws fixes the external clamp to the previously fastened mast clamp. Then a support arm may be provided and be fastened, for example with screws such as were used for the mast clamp.

The mast clamp may have several first ridges distributed over its circumference. The ridges may be constructed such that they project so little, without any loss of function, that it is no disadvantage aesthetically if one or several ridges should remain unused, indeed, this may have a decorative effect.

The first and the second ridges may be, for example, T-shaped in cross-section, but it is favorable when they are dovetailed. The coupling member in that case can exert a clamping force not only in tangential direction, but also in radial direction of the mast clamp.

In a favorable embodiment, a radial projection is present at the second ridge, abutting against the coupling screw in axial direction of the mast clamp. This embodiment makes for easy mounting. The halves of the coupling member may be united by means of a coupling screw. The external clamp may then be passed into the coupling member. The two components can now be manipulated as one part in that either the cou-

pling member is held, if the projection is above the coupling screw, or the external clamp is held, if the coupling screw is above the projection.

In a modification, a second coupling screw is present at some axial distance, and the projection is enclosed between the coupling screws seen in axial direction of the mast clamp. This modification has the advantage that the two components can be manipulated as one part irrespective of whether the coupling member or the external clamp is gripped.

In another embodiment, the projection encloses the coupling screw in axial direction of the mast clamp. The two components can again be manipulated as one part also in this embodiment, both when the coupling member is held and when the external clamp is held.

It is advantageous when the projection is so dimensioned that it is supported on an end face of said first ridge. During mounting of the device to a mast, the two coherent components can then be passed onto the mounted mast clamp and released before a coupling screw is tightened. The projection may be divided transversely to the axis of the mast clamp.

The mast clamp, the external clamp, and the coupling member may be obtained by extrusion, for example of aluminum or an aluminum alloy, and by the separation of predetermined longitudinal portions of the extrusion products, so that they have a comparatively low cost price. If the external clamp has a projection, the latter may be given its desired axial and radial dimension, for example, by means of stamping.

Alternatively, the second ridge of the external clamp may have a radial groove in which a separate projection is fixed, for example by means of cement, welding, or clamping.

After the device has been mounted to a mast, a support arm can be introduced into the external clamp, which arm may be, for example, bent or curved, while its free end may be enclosed and fixed in a clamp of a luminaire. The support arm may be fixed in the external support, for example, by means of radially directed screws. Alternatively, the coupling member may cause the external clamp to grip around the support arm with clamping force.

Embodiments of the device according to the invention are shown in the drawing, in which

Fig. 1 shows the device mounted around a mast and luminaires mounted to the device in side elevation;

Fig. 2 is an exploded view of the device of Fig. 1; and

Fig. 3 shows a modification of the device of Fig. 2 in side elevation.

Corresponding parts have been given the same reference numerals in the Figures.

In Fig. 1, luminaires f each mounted to a respective support arm a are fastened to a mast m, closed at the top with a cover c, by means of the device according to the invention.

In Fig. 2, the device for fastening a luminaire to a mast m comprises, as in Fig. 1, a mast clamp 1 having a longitudinal axis 2 for enclosing an axial portion of a mast m with clamping force, which clamp 1 is provided at an outer surface thereof with means for fastening an external clamp 10. An external clamp 10 is present for holding a tubular support arm a with clamping force, to which arm a luminaire can be mounted. The external clamp 10 is provided at an outer surface thereof with means for fastening it to a mast clamp 1.

The mast clamp 1 is a cylindrical body which is provided at its outer surface with at least one axial first ridge 3 narrowing in cross-section from the outside to the inside for co-operating with a coupling member 20, and which has radially directed through holes 4 with screws 5 which are to press against a mast m.

The external clamp 10 is a cylindrical body provided at its outer surface with an axial second ridge 13 which narrows in cross-section from the outside to the inside for co-operating with said coupling member 20. The first 3 and the second ridges 13 have a dovetail profile in cross-section in the Figure.

A coupling member 20 as mentioned above is present, having recesses 21, 22 for accommodating said first 3 and second ridge 13, respectively. The coupling member 20 is divided in a radial plane of the mast clamp 1 so as to form halves 23 which are forced towards one another by means of at least one coupling screw 24 passed in between the first 3 and the second ridge 13.

The mast clamp 1 has several first ridges 3, in the Figure four such ridges, distributed over its circumference.

A radial projection 25 is present at the second ridge 23, abutting against the coupling screw 24 in axial direction of the mast clamp 1.

A second coupling screw 24 is present at some axial distance, and the projection 25 lies enclosed between the coupling screws 24 as seen in axial direction of the mast clamp 1, compare Fig. 3.

In the modification of Fig. 3 the projection 25 encloses the coupling screw 24 in axial direction of the mast clamp 1, so that the coupling member 20 and the external clamp 10 form a unit which can be manipulated with one hand.

The projection 25 bears on an end face 6 of said first ridge 3, so that the unit formed by the coupling member 20 and the external clamp 10 can be released the moment it has been passed over the mast clamp 1.

The projection 25 is divided transversely to the axis 2 of the mast clamp 1 so as to offer more space to the relevant coupling screw.

Claims

1. A device for connecting a luminaire f to a mast m,

comprising:

a mast clamp (1) having a longitudinal axis (2) for surrounding an axial portion of a mast m with clamping force, which mast clamp (1) is provided at an outer surface thereof with means for fastening an external clamp (10);
an external clamp (10) for accommodating with clamping force a tubular support arm a to which a luminaire f can be mounted, which external clamp is provided at an outer surface thereof with means for fastening it to a mast clamp (1), fastened to said mast clamp,
characterized in that the mast clamp (1) is a cylindrical body which is provided at its outer surface with at least one axial first ridge (3) narrowing in cross-section from the outside to the inside for co-operating with a coupling member (20), and which has radially directed through holes (4) with screws (5) for pressing against a mast m therewith,
the external clamp (10) is a cylindrical body which is provided at its outer surface with an axial second ridge (13) narrowing in cross-section from the outside to the inside for co-operating with a said coupling member (20), and
a said coupling member (20) is present, having recesses (21, 22) for accommodating said first (3) and said second ridge (13), respectively, which coupling member (20) is divided in a radial plane of the mast clamp (1) so as to form halves (23) which are pulled towards one another by means of at least one coupling screw (24) passed in between the first (3) and the second ridge (13).

2. A device as claimed in claim 1, characterized in that the mast clamp (1) has several first ridges (3) distributed over its circumference.

3. A device as claimed in claim 1 or 2, characterized in that a radial projection (25) is present at the second ridge (23), which projection abuts against the coupling screw (24) in axial direction of the mast clamp (1).

4. A device as claimed in claim 3, characterized in that a second coupling screw (24) is present at some axial distance, and the projection (25) is enclosed between the coupling screws (24) in axial direction of the mast clamp (1).

5. A device as claimed in claim 3, characterized in that the projection (25) encloses the coupling screw (24) in axial direction of the mast clamp (1).

6. A device as claimed in claim 5, characterized in that the projection (25) is supported on an end face (6) of said first ridge (3).

7. A device as claimed in claim 5 or 6, characterized in that the projection (25) is divided transversely to the axis (2) of the mast clamp (1).

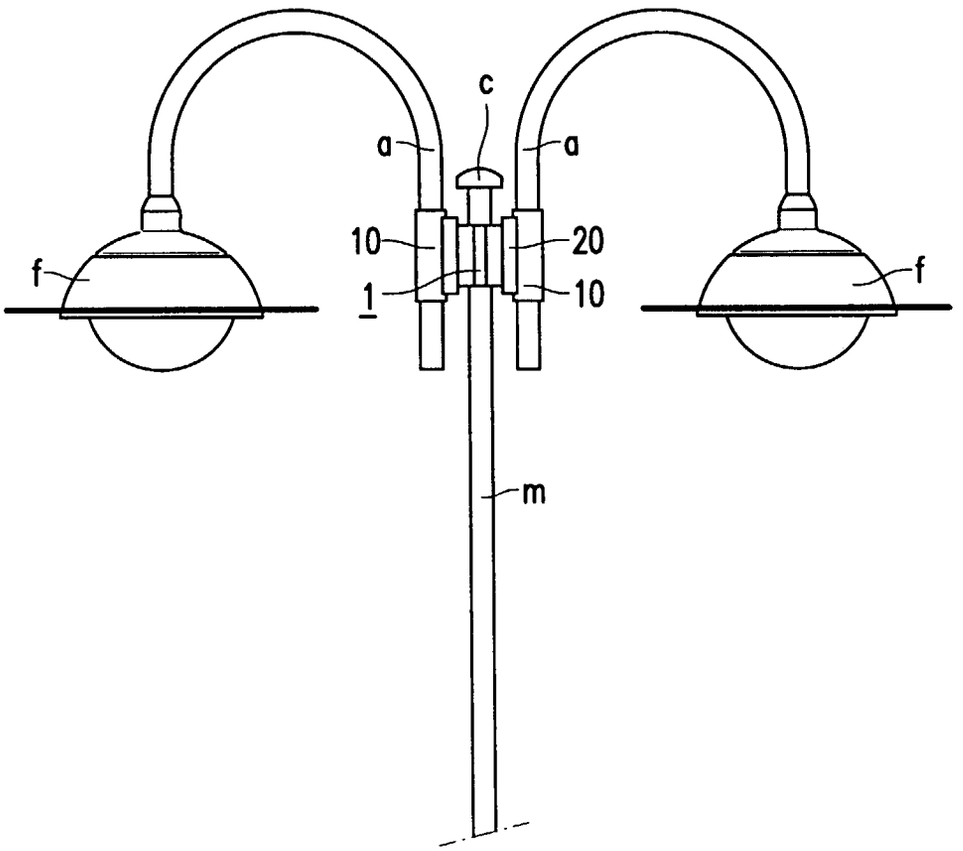

FIG. 1

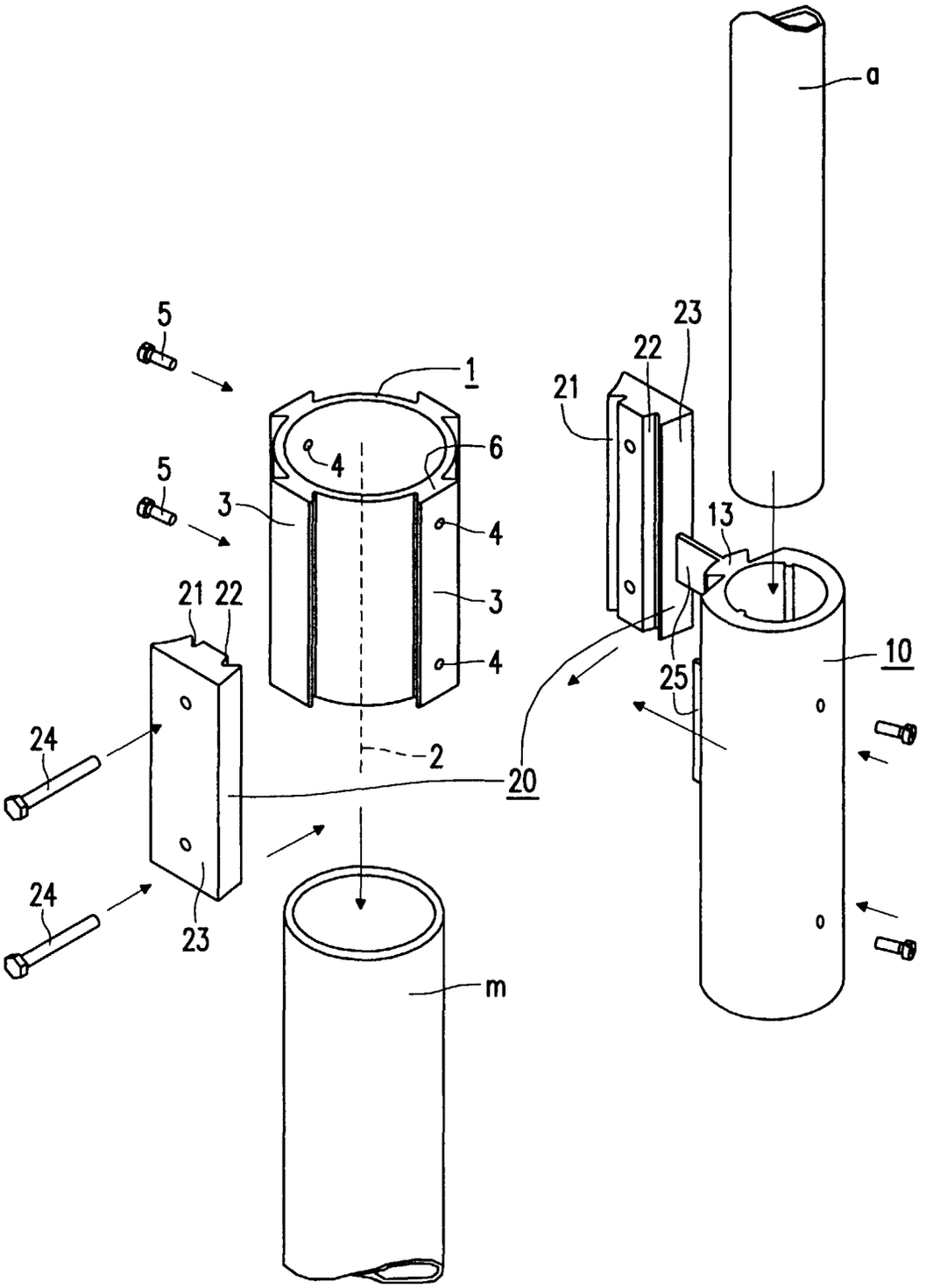

FIG. 2

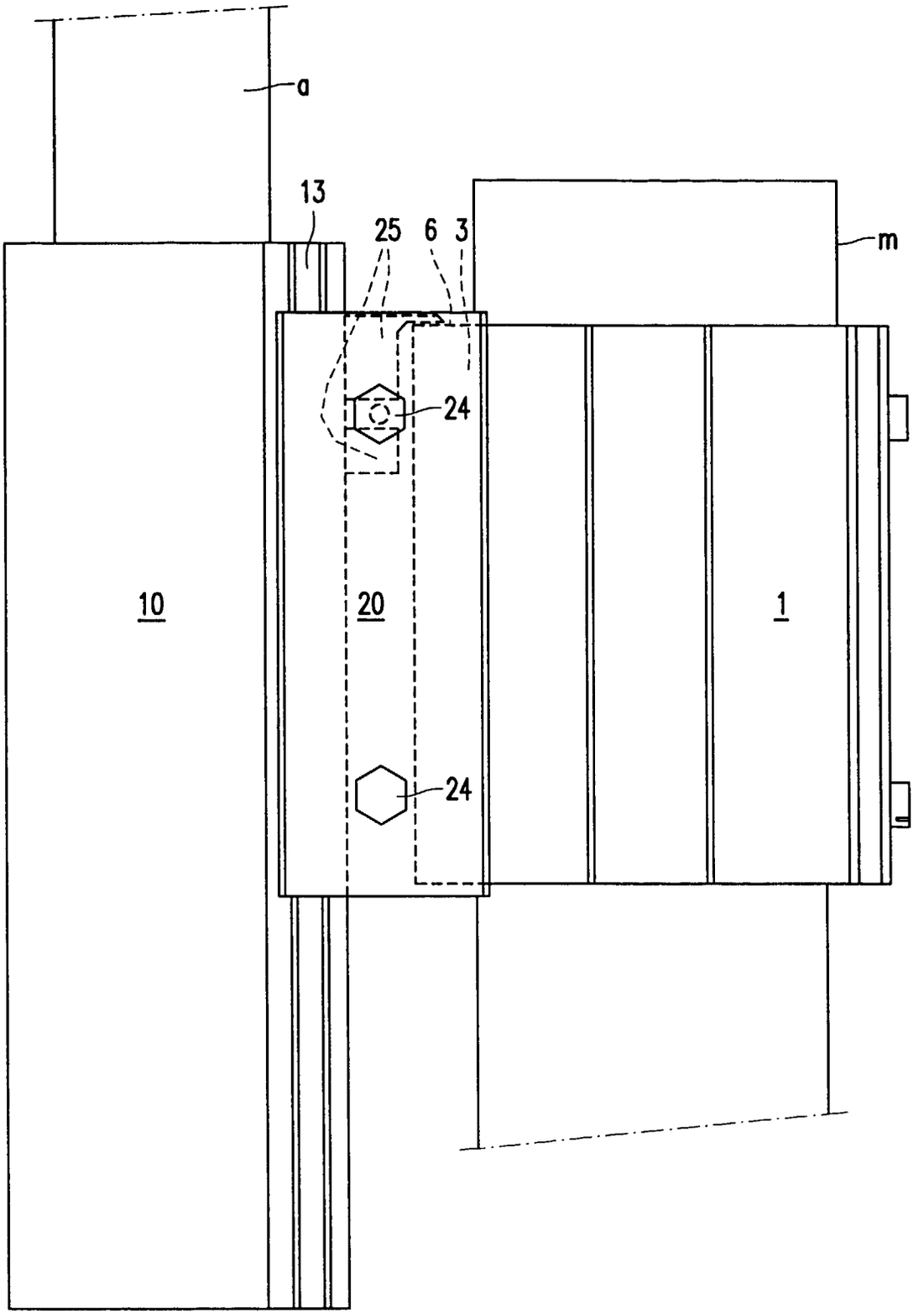

FIG. 3

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EUROPEAN SEARCH REPORT

Application Number
EP 98 20 0695

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.6)
A,D	EP 0 338 959 A (3E INTERNATIONAL) 25 October 1989 * the whole document * -----	1	F21V21/10
			TECHNICAL FIELDS SEARCHED (Int.Cl.6) F21V F21S

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	26 May 1998	De Mas, A

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