



A DEVICE FOR FIXING A FRAME IN AN ELECTRICAL SWITCHGEAR ENCLOSURE, AND AN ENCLOSURE EQUIPPED WITH SUCH A DEVICE

BACKGROUND OF THE INVENTION



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The present invention relates to a device for fixing a frame in an electrical switchgear enclosure designed to be flush mounted in a wall or the like, said enclosure comprising a back wall and side walls, said frame comprising a rail designed to receive the switchgear apparatuses and two uprights, the two uprights being
10 respectively fixed to two opposite side walls of the enclosure by means of at least one pair of holes, each pair comprising a first hole and a second hole facing one another respectively provided in said upright and in the corresponding side wall of the frame, each pair of holes being designed to receive a fixing screw.

15 Fixing a frame in an enclosure of the kind referred to above is performed in known manner in the following way. The uprights comprise a part folded to form a bracket at their free end, in which two fixing holes are arranged. The edge of the corresponding side wall of the enclosure is also folded to form a bracket and comprises two fixing holes designed to be placed facing the above-mentioned holes of the upright when
20 the end of the upright is moved to the position where it is bearing on the edge folded to form a bracket of the corresponding side wall of the enclosure. Fixing is then achieved by means of two fixing screws passing through the holes provided in the end forming the edge of the upright and screwed into the holes forming the screw housings arranged in the free edge of the side wall concerned.

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However, performing fixing in this way requires the screw housings to be protected during the flush-mounting operation of the enclosure so as to prevent the material used for embedding the enclosure from entering said screw housings. A solution used to overcome this drawback consists in providing enclosure edges which are
5 folded towards the inside of the enclosure before the flush-mounting operation of the enclosure is performed, said edges then being folded back towards the outside of the enclosure to perform fixing of the frame on said enclosure. This results in a relatively great complexity of the shape of each edge of the side wall and in a large space being occupied by this edge inside the enclosure.

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The use of embedding lugs welded onto the side walls of the enclosures and designed to perform immobilization of the enclosure depthwise with respect to the wall is also known.

15 SUMMARY OF THE INVENTION

The present invention solves the above-mentioned problems and proposes a fixing device enabling the structure of the edge of the enclosure and therefore of the enclosure itself to be simplified.

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For this purpose the object of the present invention is to achieve a device of the previously mentioned kind, this device being characterized in that after passing through the above-mentioned first and second holes, the or each fixing screw is screwed into a third hole provided in a part forming an embedding lug designed to
25 immobilize the enclosure in its depthwise direction.

The object of the present invention is also to achieve an enclosure equipped with a device comprising the previously mentioned features taken either alone or in combination.

5 BRIEF DESCRIPTION OF THE DRAWINGS

But other features and advantages of the invention will become more clearly apparent from the following detailed description which refers to the accompanying drawings in which:

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Figure 1 is a partial perspective view, illustrating fixing of a frame on an enclosure according to the invention, by means of a device according to the invention,

Figure 2 is a perspective view, illustrating an embedding lug alone, and

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Figure 3 is a side view of said lug.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

20 In figure 1, an electrical switchgear enclosure C can be seen designed to be flush-mounted in a wall. This enclosure C is mainly formed by a back wall 1 framed by four side walls 2, 3 (only two of which are represented in the drawing). This enclosure C is designed to house one or more switchgear frames 4, each frame 4 being formed by a rail 5 and two uprights 6, 7, said uprights 6, 7 being respectively fixed to the two
25 opposite ends of the rail 5 and extending perpendicularly to said rail 5. The electrical

switchgear, in most cases comprised of circuit breakers and switches, is designed to be fixed onto the rail 5 after the frame 4 has been fixed onto the enclosure C.

For this purpose, the free end 6a, 7a of the uprights 6, 7 is folded to form a bracket
5 and comprises two holes 8, 9 called the first holes, designed to each allow a screw to pass. The free ends of the side walls 2, 3 also form edges 11 at right angles with respect to the side walls 2, 3 and also comprise two fixing holes 12, 13, called second holes, the distance between these holes corresponding to the distance separating the two holes 8, 9 provided in the upright 6.

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An embedding lug 14 is fixed, at the level of each upright 6, 7, onto the external face of the corresponding side wall 3 by clipping by means of securing elements 15 of appreciably L-shaped transverse cross-section designed to operate in conjunction with corresponding openings (not represented) provided in said wall 3. This
15 embedding lug 14 has the function in a first stage of immobilizing said enclosure C in the depthwise direction of said enclosure after the flush-mounting operation. This lug 14 is formed by a part comprising a first part 16 enabling it to be fixed to the side wall 3 and comprising two shafts 17, 18 in which tapped holes 19, 20 are arranged designed to each receive a fixing screw (not represented). The distance between the
20 holes 19, 20 of the shafts 17, 18 also corresponds to the distance separating the two holes 8, 9 of the frame 4 and to the distance between the holes 12, 13 of the edge 11. This part 14 comprises a second part 23 forming an inclined flange extending outwards from the enclosure C in a direction inclined at an angle α greater than 90° with respect to the plane of the external face of the side wall 3 involved. This part also
25 comprises three strengthening ribs 24, 25, 26 extending from the first part 16 up to the end 23a of the second part 23.

This lug 14 is fixed onto the side wall 3 so that the two holes 19, 20 of the first part 16 are located facing the holes 12, 13 provided in the edge 11 of the side wall 3, the upper wall of the shafts 17, 18 pressing against the lower face of said edge 11.

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Advantageously, there is one embedding lug 14 associated to each upright 6, 7, so that each upright 6, 7 can be fixed in an embedding lug 14.

The operations to fix the enclosure in the wall and to fix the frame onto the enclosure
10 will be described briefly by means of the following:

The embedding lugs 14 are first of all fixed to the external face of the corresponding side wall 3 of the enclosure C by clipping by means of the securing elements 15. The assembly formed by the enclosure C and the lugs 14 is then flush mounted in the
15 opening of a wall and sealed in the wall by means of a suitable binder. After this, each upright 6, 7 belonging to a frame 4 is fixed to the corresponding wall 3 of the enclosure C by inserting screws in the corresponding openings. Thus, for each upright 6, 7, two screws are each inserted in three facing holes 8, 12, 19 and 9, 13, 20 respectively provided in the end 6a of the upright 6, 7, in the edge 11 of the side
20 wall 3 and in one of the two shafts 17, 18.

It can be seen that according to this fixing mode, the bottom part of the holes 19, 20 has not been able to be blocked up by the binder, as these holes are not emergent. It should be noted that the enclosure C being made of sheet metal, the embedding lugs
25 14 will preferably be made of plastic. It should also be noted that the front panel of

the enclosure (not represented) can be fixed at the same time as the frame, each screw then passing through four successive holes.

Fixing of the frame is then performed without complicating the shape of the edges of
5 the side walls and enables the maximum amount of space to be made available
inside the enclosure. Only two simple drillings have to be made in the edges of the
side walls instead of the screw housings previously required.

It is therefore no longer necessary to provide an independent embedding lug
10 designed to be welded onto the side wall, which results in the saving of a part and of
implementation thereof.

The invention is naturally in no way limited to the embodiments described and
illustrated which have been given for example purposes only.

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Thus other types of fixing means could have been provided to perform fixing of the
lugs, or the number of holes associated to each upright could be different.

On the contrary, the scope of the invention encompasses all the technical equivalents
20 of the means described as well as all combinations thereof if the latter are performed
in accordance with the spirit of the invention.

CLAIMS

1. A device for fixing a frame in an electrical switchgear enclosure designed to be flush mounted in a wall or the like, said enclosure comprising a back wall and side walls, said frame comprising a rail designed to receive the switchgear apparatuses
5 and two uprights, the two uprights being respectively fixed to two opposite side walls of the enclosure by means of at least one pair of holes, each pair comprising a first hole and a second hole facing one another respectively provided in said upright and in the corresponding side wall of the frame, each pair of holes being designed to
10 receive a fixing screw,

characterized in that after passing through the above-mentioned first (8, 9) and second (12, 13) holes, the or each fixing screw is screwed into a third hole (19, 20) provided in a part (14) forming an embedding lug (14) designed to immobilize the enclosure in its depthwise direction.

15 2. The device according to claim 1, characterized in that the or each upright (6, 7) of the frame (4) comprises a free end (6a, 7a) folded to form a bracket designed to press against the free end (11) also folded to form a bracket forming an edge of the corresponding side wall (3) of the enclosure C, the two parts folded to form a bracket
20 (6a, 11) respectively of the frame (4) and of the enclosure C respectively comprising the above-mentioned first (8, 9) and second (12, 13) holes.

3. The device according to claim 1 or 2, characterized in that the or each upright (6, 7) comprises two fixing holes (8, 9) operating in conjunction on the one hand with two
25 holes (12, 13) provided in the edge (11) of the corresponding side wall (3) and on the other hand with two holes (19, 20) provided in the embedding lug (14).

4. The device according to any one of the claims 1 to 3, characterized in that the or each embedding lug (14) comprises a first part (16) pressing on the side wall (3) of the enclosure C and a part forming a flange (23) inclined at an angle α greater than
5 90° with respect to said side wall (3).

5. The device according to any one of the foregoing claims, characterized in that the or each lug (14) comprises two shafts (17, 18) each housing a tapped hole (19, 20) designed to each receive a screw.

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6. The device according to any one of the foregoing claims, characterized in that, prior to fixing to the frame (4), the embedding lug (14) is clipped onto the corresponding side wall (3).

15 7. The device according to claim 6, characterized in that the embedding lug (14) comprises at least one securing element (15) of appreciably L-shaped transverse cross-section designed to operate in conjunction with an opening provided in the corresponding side wall (3) so as to perform fixing of the lug (14) to said wall (3).

20 8. The device according to any one of the foregoing claims, characterized in that the embedding lug (14) is made of plastic.

9. The device according to any one of the foregoing claims, characterized in that fixing of the front panel of the enclosure C is also performed by means of the above-
25 mentioned holes (8, 9, 12, 13, 19, 20) and of the embedding lug (14).

10. An electrical switchgear enclosure comprising a back wall (1) and side walls (2, 3), said enclosure C being designed to house at least one frame (4) for support of one or more electrical switchgear apparatuses, said frame or frames (4) being fixed to said enclosure C by means of a device according to any one of the foregoing
- 5 claims.