(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 453 962 A2**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **91106228.9**

(51) Int. Cl.5: **H01R 4/28**

(22) Date of filing: **18.04.91**

(30) Priority: **23.04.90 IT 2105190 U**

(43) Date of publication of application:
30.10.91 Bulletin 91/44

(84) Designated Contracting States:
AT BE CH DE FR GB IT LI NL SE

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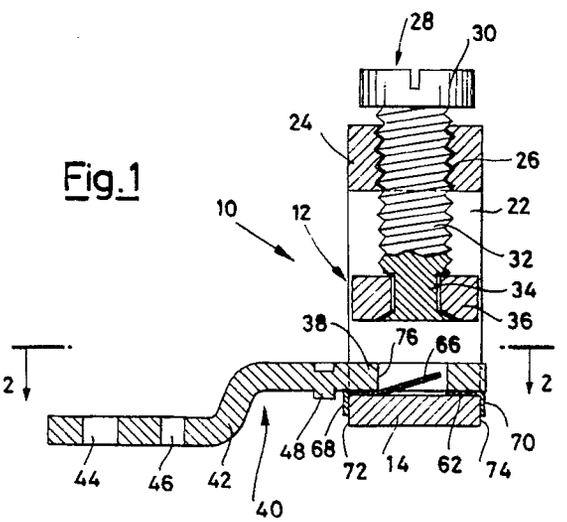
(54) Eyelet drawn clamp provided with anchoring clip for avoiding losses of pieces.

(57) Eyelet clamp, comprised of a drawn sleeve component (12) insertable on a bar (38) of a terminal (40) of an electric machine or equipment, kept anchored to the bar (38) by a clip (60) consisting of a planar metallic resilient strip (62) from which descend two legs (68, 70) substantially perpendicular to the planar strip (62) and each other parallel, to grasp two sides (72, 74) of a part of the drawn sleeve (12) in order to prevent axial sliding of the sleeve with respect to the bar (38), and provided with an anchoring tang (66) diagonally lifted for engaging a bore (76) of the bar (38) of the terminal (40), needing the tang (66) the specific intervention of a tool to be disengaged from the bore (76) of terminal bar (38).

Fig.1



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The present invention pertains to an eyelet drawn clamp provided with means to be held anchored to a terminal bar of an electric machine or device even when are released fastening means of the clamp, such as screws or bolts, preventing any possible lost of a clamp left casually released.

It is known that the terminals of electric machines or devices must be provided with means for fastening thereto conducting cables. Should the currents through the terminals be high (from tents to hundreds of amperes) there is the need to use clamps safely fastening, and with the lowest the possible contact resistances, said cables to said terminals.

The clamps can be manufactured integral with the terminals themselves, what allows particularly safe fastening and connection, but implies a very high cost, only justifiable for high cost machines and devices.

Alternatively, the clamps can be manufactured separated from the terminals at a quite lower cost, but in such a case it needs to have particular care in their manufacture to avoid danger of poor connections and relating overheatings.

One of the clamps is the so-called' "eyelet" clamp comprised of a metal sleeve shaped portion provided with a threaded fasteing member, cooperating to fasten together, inside said sleeve, a terminal and a conducting cable to be connected thereto.

A problem connected with said eyelet clamps is their mobility with respect to the terminals, with the risk of loss, occurring when said clamps are loosed.

A partial solution to this problem is to provide an insulating basis, bearing said terminals, with bracket protrusions on which can abut said clamps when they are loosed. Said solution is just partial because it can assure a gravity support of the clamps on said brackets, which owing to its nature, results rather problematic.

It would be possible to remedy this fact by shaping said bracket protrusions with seats forcely housing said clamps, but that implies a higher expense and more encumbrance of the insulating basis, what not allways is possible.

An object of the present invention is just to provide a drawn eyelet clamp provided with an anchoring clip maintaing it anchored to a terminal when it is loosed, but able to clear it by means of a specifical intervention on a member engaging said clip between said clamp and said terminal.

The above indicated object is met by means of an eyelet clamp comprised of a drawn sleeve insertable on a terminal bar of an electric machine or device, characterized in that said sleeve comprises a seat for receiving said bar and a clip for anchoring said sleeve to said bar consisting of a metallic resilient strip engaging at a first side a wall of said sleeve and at second one a suitable seat pierced in said bar.

Preferably, said seat in said sleeve is comprised of an enlargement between two first lateral walls contiguous to a wall of said sleeve, communicating with a more restricted portion between two second walls defining, with said two first walls, two support shoulders of the sleeve on said bar.

Paritcularly, said anchoring clip is comprised of a substantially planar strip provided with two legs, substantially perpendicular with respect to said planar strip, and a tang inclined with respect to said planar strip and coming out therefrom.

Preferably, said two perpendicular legs of said clip engage two sides of the clamp wall and said inclined tang engages a seat pierced in said bar.

More preferably, said seat engaged by said tang consits of a through hole across said bar. Particularly, said bar is provided with a protrusion to limit the inside axial sliding of said sleeve.

The features and the advantages of the present invention will be more apparent from the following detailed description, given in a not limiting way, of an embodiment thereof and provided with the enclosed drawings, wherein:

- figure 1 is a lateral view, in cross-section, of an eyelet clamp according to the present invention depicted as provided with anchoring clip to avoid loss thereof;
- figure 2 is a top view, taken in cross-section along the line 2-2 of figure 1, showing the support of the eyelet clamp by the terminal bar;
- figure 3 is a frontal view of a clamp according the present invention inserted on a clamp bar and thereto anchored by a resilient clip;
- figure 4 is a sectional lateral view of a resilient clip usable in the clamp according to the present invention;
- figure 5 is a top view of the same clip depicted in figure 4.

Referring now to figures, it is seen that a drawn eyelet clamp 10, according to the present invention, consists of a sleeve 12, obtained for example by drawing, in the shape of a substantially rectangular frame, comprising a bottom wall 14, two enlarged lateral walls 16 and 18, forming two support shoulders 17 and 19 with two more restricted lateral walls 20 and 22, and a top wall 24 closing the frame of the sleeve 12. Said top 24 is provided with a threaded through hole 26 wherein a screw 28, provided with head 30 and trheaded stem 32, is inserted, ending said scerw 28 with a coupling area 34 for a clamp fastening member 36, of known kind, having the task to fasten a possible conducting cable against a planar bar 38 of a terminal 40 of an electric device or machine (not shown), con-

taining said terminal 40 a folded bar 42 provided with fastening holes 44 and 46 and a protrusion 48 on the bottom face thereof to impose axial sliding restrictions to the sleeve 12, as hereinafter explained.

To prevent the sleeve 12 from leaving the bar 38 in case of loosing, the support shoulders 17 and 19 era sufficient, while to prevent axial sliding of the sleeve with respect to the bar are provided a resilient clip 60, forming part of the present invention, and the already mentioned protrusion 48 on the bottom face of the bar 38.

Looking specifically at figures 4 and 5, it is seen that the resilient clip 60 consists of a subsantially planar strip 62, provided with an internal U shaped opening, defining a tang 66 inclined to be upward lifted, and two descending legs 68 and 70 engaging sides 72 and 74 of the lower wall 14 of the drawn sleeve 12, while said tang 66, bieng lifted, engages a hole 76 through the bar 38.

The operation of the invention is the following one:
while the clamp 10 is grasping the bar 38, through the thrust provided on the cable by the fastening member 36, it cannot absolutely happen that the clamp runs out from the bar 38 because the bottom wall 14 of the sleeve 12 is fastened against the bar 38 itself. When, on the contrary, the fastening of the member 36 on the cable is loosed, not only the cable is extractable out from the sleeve 12, but the sleeve itself is no more stricly fastened against the bar 38, so that other means have to operate to prevent the loss thereof from the bar 38. To this purpose, are intended the provisions of the present invention. In fact, when the clamp 10 is loosed, the internal shoulder 17 and 19 of the sleeve 12 descend to rest on the bar 38, preventing the detachment of the sleeve itself for descent, while an axial sliding thereof on the bar 38 is prevented by the protrusion 48 and by the resilient clip 60 in the herebelow depicted way. In fact, the back protrusion 48 prevents an axial backsliding of the sleeve 12, while the resilient clip 60, engaging with the descending legs 68 and 70, respectively the respective fore and back sides 72 and 74 of the bottom wall 14, prevents any substantial axial foresliding because of the engagement of the inclined tang 66 with the adjacent wall of the cylindrical hole 76.

Should be desired to disengage the clip 60 from below the bar 38, it would be sufficient to lower the tang 66 by means of some suitable tool, as a small metal rod or the blade of a screwdriver, and pull to the outside the whole sleeve 12 assembly to manage to disinsert it. Once the sleeve is out, it is extremely easy to disconnect the resilient clip 60 which normally is fastened around the bottom wall 14, being in such a case enough to lift said clip 60 by means of a screwdriver.

For assembling a clamp according to the present invention, it is sufficient to take a sleeve 12, with the respective fittings, such as the screw 28 and the fastening member 36, to provide it with a clip 60 and insert them into the bar 38, making to enter the same through the side 72 of the bottom wall 14 and the descending leg 68 of the clip 60 into the same sleeve 12 until the latter stops against the lower protrusion 48. In this case, as the bar 38 can just pass between the enlarged walls 16 and 18 under the shoulder 17 and 19, it happens that the bottom face of the bar 38 flattens the tang 66, making it to pass at the level of the strip 62, till comes under the hole 76 where it rises, taking the position depicted in figure 1, so preventing any possybility of sponaneous getting out of the sleeve 12 from the bar 38.

What has been here above disclosed is an embodiment of the invention, given in a not limiting way, so that obvious variations and alternatives which can be devised by those skilled in the art from the reading of the above specification must be meant all here covered.

Claims

1. Eyelet clamp comprised of a drawn sleeve (12) insertable on a bar (38) of a terminal (40) of an electric machine or device, characterized in that said sleeve (12) comprises a seat for receiving said bar (38) and an anchoring clip (60) of said sleeve (12) to said bar (38) consisting of a resilient strip (62) engaging, at a side, a wall (14) of said sleeve (12) and at another side a proper seat (76) pierced through said bar.

2. Clamp, as in claim 1, characterized in that said seat in said sleeve is comprised of an elargement formed by two first lateral walls (16, 18) adjacent to a wall (14) of said sleeve, in communication with a more restricted portion formed by two second lateral walls (20, 22) defining with said two first walls (16, 18) two shoulder (17, 19) for supporting said sleeve on said bar (38).

3. Clamp, as in claim 2, characterized in that said anchoring clip (60) is comprised of a substantially planar strip (62) provided with two legs (68, 70), substantially perpendicular with respect said planar strip, and of a tang (66) inclined with respect said planar strip (62) and coming out therefrom.

4. Clamp, as in claim 3, characterized in that said two perpendicular legs (68, 70) of said clip (60)

engage two sides (72, 74) of said wall (14) of the sleeve (12) and said inclined tang (66) engages a seat (76) pierced through said bar.

5. Clamp, as in claim 4, characterized in that said seat (76) engaged by said tang (66) consists of a hole passing through said bar (38).

6. Clamp, as in the preceeding claims, characterized in that said bar (38) is provided with a protrusion (48) for limiting an axial inside sliding of said sleeve (12).

Tav I

Fig.1

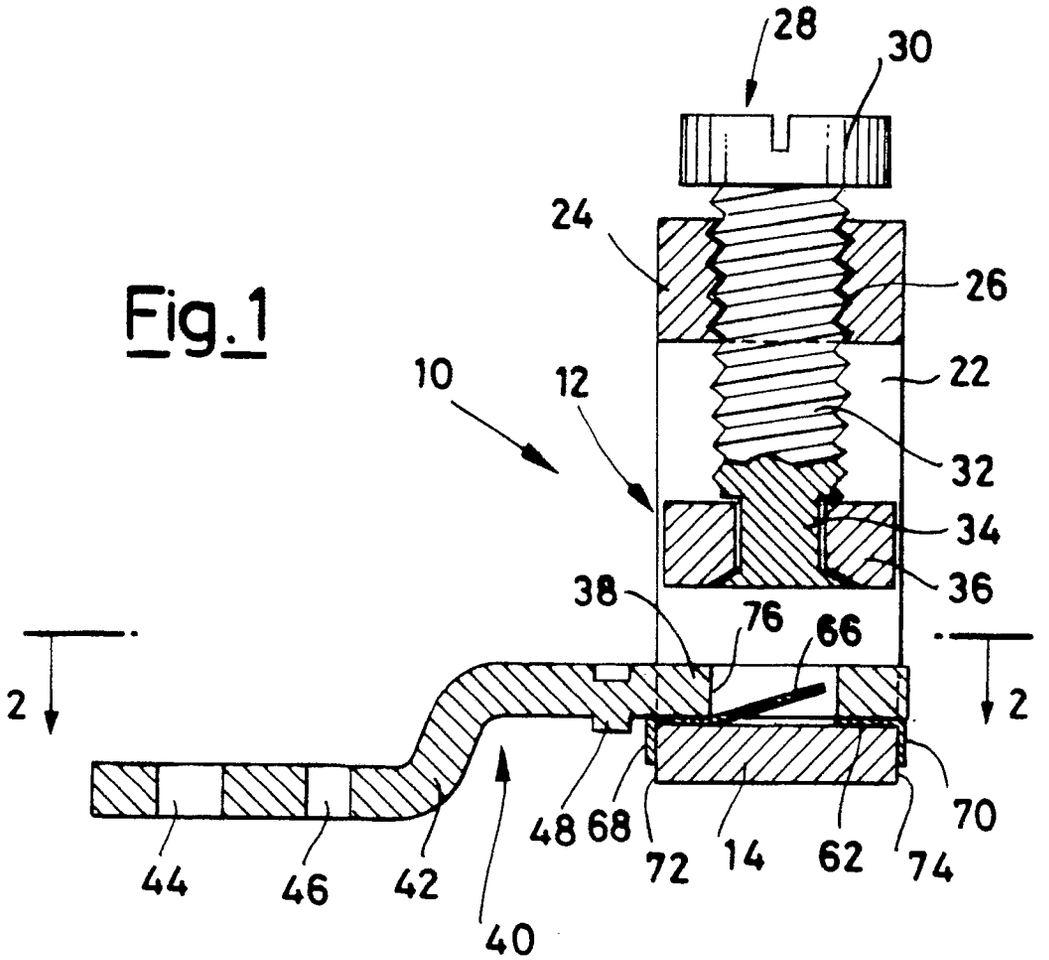
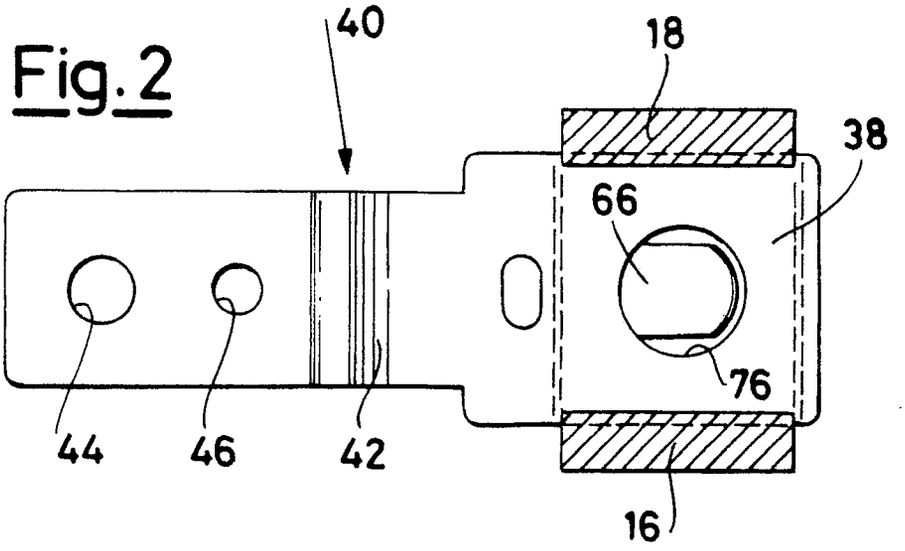


Fig.2



Tav II

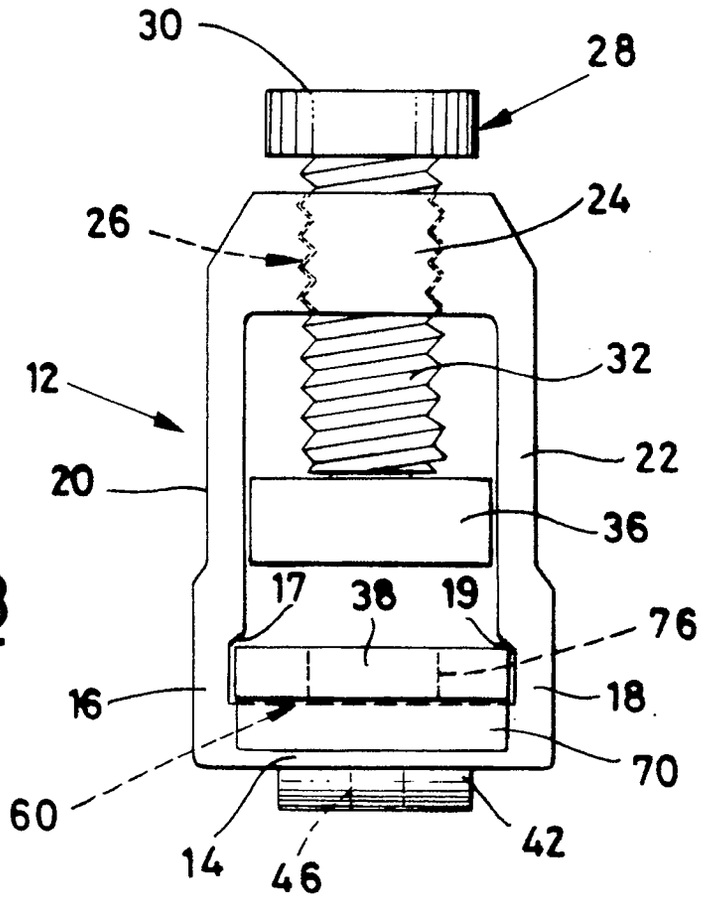


Fig.3

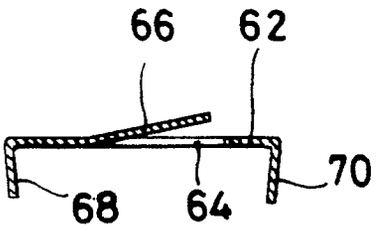


Fig.4

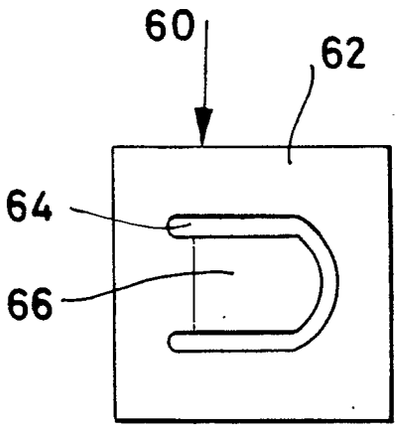


Fig.5