

TITLE OF THE INVENTION

An electric connection terminal with braked screw.

5 BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a connection terminal for an
10 electric apparatus comprising, on the one hand, a
conducting part which is associated with an insulating
support and which has a tapped opening and, on the other
hand, a clamping screw which passes through a clamping
bridge connector and which is engaged in this opening,
15 means being provided on the support for limiting the
movement of the head in the unscrewing direction.

2. Description of the Prior Art

The very frequent use of this type of terminal, as well
20 as the time which must be spent on clamping the conductors
which they receive, have led electric equipment
manufacturers to take an interest in the different
problems with which the user or the maintenance staff are
confronted.

25 In a first approach, the screws of such apparatus
terminals, unprotected in the unscrewing direction, were
locked at the time of their manufacture, so as to prevent
accidental unscrewing thereof during transport, as well as
the loss which resulted therefrom.

30 When it was discovered that the staff was compelled to
spend a not inconsiderable time in unscrewing these screws
so as to fit conductors under their connector bridges, at
the time of wiring up, measures were then taken so that
the body of the electric apparatus concerned, or the walls
35 of this body close to the terminals, had shapes adapted
for preventing these screws from falling which were

partially screwed into the conducting part; this approach, which has the advantage of making already open terminals available to the user, does not however prevent untimely screwing up of the screw, which is caused by vibrations which may be met with for example during transport of apparatus thus equipped.

SUMMARY OF THE INVENTION

10 Consequently, the invention proposes improving a terminal such as the one whose construction is mentioned above so that a terminal screw partially screwed into the conducting part may be prevented from being accidentally screwed in or screwed out, while only opposing a very
15 small resistant torque at the time when it is tightened on the conductors to be connected.

According to the invention, this object is reached because the terminal screw has a length such that, when it is in its maximum unscrewed position, an end portion
20 opposite the head projects from the tapped opening by an amount sufficient to bring this portion in contact with a resilient transverse tongue which is directly or indirectly secured to the insulating support.

Advantageously, said tongue may belong to a coil
25 carcass of an electromagnet of a contact-maker and may cooperate with a terminal connecting this coil.

BRIEF DESCRIPTION OF THE DRAWINGS

30 The invention will be better understood from the following description and from the figures which illustrate such terminals :

in a partial sectional view in elevation in figure 1;
and respectively in a bottom view in figure 2;

35 Figure 3 showing a partial section of an apparatus with two superimposed terminals.

DESCRIPTION OF THE PREFERRED EMBODIMENT

An insulating support 1, belonging for example to an electromagnet coil carcase 2, which is partially shown and 5 made from a molded plastic material, comprises an upper portion 3 in which are formed, for example, a groove 4 and a cavity such as 5 for receiving and holding a conducting part 6 of terminal 10 which is engaged and fastened therein; this part has, at one of its ends, a connection 10 portion 7 in which a boss and a tapped opening 8 have been provided for receiving a clamping screw 15 passing further through a bridge connector 9, see figure 1.

When this bridge connector is in its open condition giving it a position sufficiently removed from the 15 connection portion so as to be able to receive a conductor of large diameter (not shown), a threaded end portion 11, opposite head 12, projects from the tapped opening 8 by a certain amount -d-.

In this position in which the opening of the terminal 20 is at its maximum, head 12 of the screw meets a wall 16 belonging either to the support 1 or to a subsidiary part of the contact-maker apparatus receiving the coil.

This threaded portion is then in contact with the edge 13 of a resiliently deformable tongue 14.

25 This tongue, which is under transverse compression with respect to the axis XX' of the screw, may advantageously form part of the insulating support 1 and communicate in all cases to this terminal screw a slight braking torque which is sufficient to prevent it being screwed in or 30 screwed out in the absence of conductors, see also figure 2.

It is clear that the presence of wall 16 of apparatus 18 normally prevents unscrewing when the apparatus is assembled, so that protection against unscrewing here 35 concerns the period of manufacture during which the coil is not yet mounted.

This braking torque is sufficiently reduced so as to oppose only a negligible resistance when screwing in and locking the screw, so as to provide mechanical holding and electric connection of the conductors placed between the 5 bridge connector 9 and the connection portion 7.

In another embodiment using the same principal and shown in figure 3, the tongue 19 for locking a screw 20 of a power terminal 21, having the same function as tongue 14, forms part of a terminal cover 17 which is associated 10 with the apparatus 18 for fulfilling other functions such as that of protecting the staff against accidental contact with other terminals, or that of providing guidance of conductors such as 22 towards the inlet of terminal 21 by surface 26.

15 It will be noted that this insulating and removable terminal cover 17 also concerns a second coil terminal 23 similar to terminal 10 and to the screw of which access may be had through an opening 24 whose end has a wall 16' such as mentioned above.



CLAIMS:

1. A connection terminal for an electric apparatus comprising, on the one hand, a conducting part which is
5 associated with an insulating support and which has a tapped opening and, on the other hand, a clamping screw which passes through a bridge connector and which is engaged in this opening, means being provided on said support for limiting the movement of the head in the
10 unscrewing direction, wherein said terminal screw has a length such that, when it is in its maximum unscrewed position, an end portion opposite the head projects from the tapped opening by a sufficient amount to bring this portion in contact with a transverse resilient tongue
15 which is directly or indirectly secured to said insulating support.

2. The terminal as claimed in claim 1, wherein said tongue belongs to a coil carcass of the electromagnet of a contact-maker and cooperates with the connection terminal
20 of said coil.

3. The terminal as claimed in claim 1, wherein said tongue belongs to a terminal cover which is removably fixed on a contact-maker body.

4. The terminal as claimed in claim 3, wherein said
25 terminal cover further includes at least one opening giving access to a terminal screw and guide surfaces for conductors connected to terminals.

5. A connection terminal substantially as described herein with reference to the accompanying drawings.

