

FORM 1

609593

COMMONWEALTH OF AUSTRALIA

PATENTS ACT 1952

APPLICATION FOR A STANDARD PATENT

I\We,

LA TELEMECANIQUE ELECTRIQUE

of

33 BIS AVE. DU MARECHAL JOFFRE
92000 NANTERRE CEDEX
FRANCE

hereby apply for the grant of a standard patent for an invention entitled:

AN ELECTRIC CONNECTION TERMINAL WITH BRAKED SCREW

which is described in the accompanying complete specification

Details of basic application(s):

Number of basic application	Name of Convention country in which basic application was filed	Date of basic application
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8804991

FR

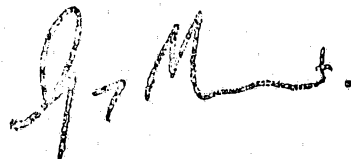
15 APR 88

My/our address for service is care of GRIFFITH HACK & CO.,
Patent Attorneys, 601 St. Kilda Road, Melbourne 3004,
Victoria, Australia.

DATED this 29th day of March 1989

LA TELEMECANIQUE ELECTRIQUE

GRIFFITH HACK & CO.



TO: The Commissioner of Patents.

APPLICATION ACCEPTED AND AMENDMENTS

ALLOWED 8.2.91

MO07715 29/03/89

GRIFFITH HACK & CO.

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Australian Patent Declaration Form

Forms 7 and 8

AUSTRALIA

Patents Act 1952

**DECLARATION IN SUPPORT OF A CONVENTION OR NON-CONVENTION
APPLICATION FOR A PATENT OR PATENT OF ADDITION**

Name(s) of
Applicant(s)

In support of the application made by LA TELEMECANIQUE ELECTRIQUE

Title

for a patent for an invention entitled AN ELECTRIC CONNECTION TERMINAL WITH BRAKED SCREW

Name(s) and
address(es)
of person(s)
making
declaration

I/We, Alain Carias
c/o La Telemecanique Electrique
33, bis, Avenue du Marechal Joffre
9200 Nanterre, France

do solemnly and sincerely declare as follows:—

1. I am/we are the applicant(s) for the patent, or authorised by the abovementioned applicant to make this declaration on its behalf.
2. The basic application(s) as defined by Section 141 of the Act was/were made in the following country or countries on the following date(s) by the following applicant(s) namely:—

in France on 15th April 19 88
by La Telemecanique Electrique
in _____ on _____ 19 _____
by _____

3. The said basic application(s) was/were the first application(s) made in a Convention country in respect of the invention the subject of the application.

4. The actual inventor(s) of the said invention is/are

Philippe MARIE, 10, Cavee Saint Gervais 76000
ROUEN, FRANCE and
Puerre-Jean DECELLE, 1, voie des Cottages 27100
VAL DE REUIL, FRANCE

5. The facts upon which the applicant(s) is/are entitled to make this application are as follows:—

The said applicant is the assignee of the actual
inventors

DECLARED at Nanterre this _____ day Propriété Industrielle
this 10 day of March 1989

33 bis. av. du Marechal-Joffre
92002 NANTERRE Cedex FRANCE

Alain CARIAS

This form may be completed and filed after the filing of a patent application but the form must not be signed until after it has been completely filled in as indicated by the marginal notes. The place and date of signing must be filled in. Company stamps or seals should not be used.
No legalisation is necessary.

(12) PATENT ABRIDGMENT (11) Document No. **AU-B-32247/89**
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. **609593**

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AN ELECTRIC CONNECTION TERMINAL WITH BRAKED SCREW
- International Patent Classification(s)
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- (71) Applicant(s)
LA TELEMECANIQUE ELECTRIQUE
- (72) Inventor(s)
PHILIPPE MARIE; PUERRE-JEAN DECELLE
- (74) Attorney or Agent
GRIFFITH HACK & CO, GPO Box 1285K, MELBOURNE VIC 3001
- (56) Prior Art Documents
GB 1387426
GB 1247790
- (57) Claim

1. A connection terminal for an electric apparatus comprising, a conducting part which cooperates with an insulating support and which has a tapped opening and, a terminal screw which passes through a clamping means and which is engaged in this opening, means being provided on said support for limiting the movement of a head of the terminal screw in the 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 such that this portion contacts a transverse resilient tongue which is directly or indirectly secured to said insulating support, whereby, in use, contact of said end portion of the terminal screw with said transverse resilient tongue tends to prevent screwing or unscrewing of the terminal screw.

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AUSTRALIA

PATENTS ACT 1952

Form 10

COMPLETE SPECIFICATION

(ORIGINAL)

FOR OFFICE USE

Short Title:

Int. Cl:

Application Number:
Lodged:

Complete Specification-Lodged:
Accepted:
Lapsed:
Published:

This document contains
amendments made under
Section 49 and is correct for
printing

Priority:

Related Art:

TO BE COMPLETED BY APPLICANT

Name of Applicant:

LA TELEMECANIQUE ELECTRIQUE

Address of Applicant: 33 BIS AVE. DU MARECHAL JOFFRE
92000 NANTERRE CEDEX
FRANCE

Actual Inventor:

Address for Service: GRIFFITH HACK & CO.,
601 St. Kilda Road,
Melbourne, Victoria 3004,
Australia.

Complete Specification for the invention entitled:
AN ELECTRIC CONNECTION TERMINAL WITH BRAKED SCREW

The following statement is a full description of this invention
including the best method of performing it known to me:-

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

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 small resistant torque at the time when it is tightened on the conductors to be connected.

According to the invention there is provided a connection terminal for an electric apparatus comprising, a conducting part which cooperates with an insulating support and which has a tapped opening and, a terminal screw which passes through a clamping means and which is engaged in this opening, means being provided on said support for limiting the movement of the head in the unscrewing direction, wherein said terminal screw has a length such that, when it is in its maximum unscrewed position, an end portion opposite a head of the terminal screw projects from the tapped opening by a sufficient amount such that this portion contacts a transverse resilient tongue which is directly or indirectly secured to said insulating support, whereby, in use, contact of said end portion of the terminal screw with said transverse resilient tongue tends to prevent screwing or unscrewing of the terminal screw.

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

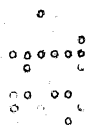
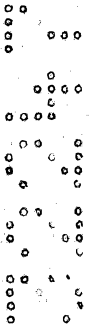


BRIEF DESCRIPTION OF THE DRAWINGS

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;

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 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 portion 7 in which a boss and a tapped opening 8 have been provided for receiving a ^{clamping means or} 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 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 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.

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 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 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.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A connection terminal for an electric apparatus comprising, a conducting part which cooperates with an insulating support and which has a tapped opening and, a terminal screw which passes through a clamping means and which is engaged in this opening, means being provided on said support for limiting the movement of a head of the terminal screw in the 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 such that this portion contacts a transverse resilient tongue which is directly or indirectly secured to said insulating support, whereby, in use, contact of said end portion of the terminal screw with said transverse resilient tongue tends to prevent screwing or unscrewing of the terminal screw.

2. A connection 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 of said coil.

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

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

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

Dated this 31st day of January, 1991.

LA TELEMECANIQUE ELECTRIQUE
By It's Patent Attorneys:

GRIFFITH HACK & CO.
Fellows Institute of Patent
Attorneys of Australia.



