

Form 1

614504

COMMONWEALTH OF AUSTRALIA

Patents Act 1952

RECEIVED AT SUB-OFFICE
- 9 JAN 1988
Melbourne

APPLICATION FOR A STANDARD PATENT

(Combined Form - Convention and Non-Convention)

X/We GALLAGHER ELECTRONICS LIMITED, a company organized under the laws of New Zealand, and JOUBERT S.A., a French body corporate, of Kahikatea Drive, Hamilton, New Zealand, and Champ de Clure, 63600 AMBERT, France, respectively,

hereby apply for the grant of a Standard Patent for an invention entitled
..... FENCING TAPE

which is described in the accompanying ~~Provisional~~ Complete Specification.

2. This application is a convention application and is based on the application(s) for a patent or similar protection made -

Strike out para. 2. for non-convention

in ... New Zealand
on ... January 6, 1987, numbered 218802, and
on, numbered, and
on, numbered

3. My/Our address for service is: Care of COWIE, THOMSON & CARTER, Patent Attorneys, of 71 Queens Road, Melbourne, Victoria 3004, Australia.

DATED this 5th day of January 1988.

To The Commissioner of Patents
COMMONWEALTH OF AUSTRALIA

COWIE, THOMSON & CARTER.

By: 

Patent Attorneys for
GALLAGHER ELECTRONICS LIMITED

COWIE, THOMSON & CARTER

Patent Attorneys
71 Queens Road, Melbourne,
Victoria, 3004, Australia

and
JOUBERT S.A.

Declaration in Support of an Application for a Patent

In support of the *Convention** application made by
GALLAGHER ELECTRONICS LIMITED (jointly with JOUBERT S.A.)

for a patent for an invention entitled: FENCING TAPE

1. William Murray Gallagher Managing Director
(INSERT FULL NAME) (CAPACITY)
Gallagher Electronics Limited

of and care of the applicant company do solemnly and sincerely declare as follows:

1. ~~XXXX~~ ~~We are~~ the applicant(s) for the patent.
 I am authorized by Gallagher Electronics Limited,
a co-applicant with Joubert S.A.
~~I am authorized by the applicant~~ for the patent to make this declaration on its behalf.

Strike out Para 2. for non-convention

2. The basic application(s) as defined by section 141 of the Act ~~xxxx~~ ^{was} made
in NEW ZEALAND
on the 6th day of JANUARY 19 87, No. 218802
by GALLAGHER ELECTRONICS LIMITED, and
in
on the day of 19, No.
by
in
on the day of 19, No.
by

The basic application(s) referred to ~~xxxx~~ ^{was} the first application(s) made in a Convention country in respect
of the invention the subject of the application.

3. ~~xxxx~~ ~~We are~~ the actual inventor(s) of the invention.
or Colin Anthony STANDING
of Buckland Place, CAMBRIDGE, NEW ZEALAND

~~xxxx~~ is the actual inventor(s) of the invention and the facts upon which the applicant is entitled to make the
application are as follows:—

Gallagher Electronics Limited
~~The said company~~ is the assignee of the invention from the
said actual inventor and Joubert S.A. is assignee of a part
interest in the invention and priority right from Gallagher

(12) PATENT ABRIDGMENT (11) Document No. AU-B-10103/88
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 614504

(54) Title
FENCING TAPE

International Patent Classification(s)
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(30) Priority Data

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218802	06.01.87	NZ NEW ZEALAND

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(71) Applicant(s)
GALLAGHER ELECTRONICS LTD.; JOUBERT S.A.

(72) Inventor(s)
COLIN ANTHONY STANDING

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Carter Smith & Beadle , Qantas House, 2 Railway Parade, CAMBERWELL VIC 3124

(56) Prior Art Documents
AU 43720/85 H01B 5/10 5/12
US 4557968
FR 1416613

(57) Claim

1. A conductive tape for an electrifiable fence comprising a tape of non-conductive material of a woven or knitted structure said tape having disposed within it at least two conducting wires arranged longitudinally and integrally in the woven or knitted structure, characterised by a continuous bridging conductor carried in or on the knitted or woven structure and which is directed transversely across the two or more longitudinal conductors at intervals to make electrical contact with each of the conducting wires so that if a break occurs in one of the conducting wires current flow is capable of continuing via the bridging conductor.



614504

Form 10

PATENTS ACT 1952

COMPLETE SPECIFICATION

(ORIGINAL)

FOR OFFICE USE

Short Title:

Int. Cl.:

Application Number:

Lodged:

Complete Specification—Lodged:

Accepted:

Lapsed:

Published:

Priority:

Related Art:

TO BE COMPLETED BY APPLICANT

Name of Applicant: GALLAGHER ELECTRONICS LIMITED, a company organized under the laws of New Zealand, and JOUBERT S.A., a French body corporate, of Kahikatea Drive, Hamilton, New Zealand, and Champ de Clure, 686600 AMBERT, France, respectively.

Address of Applicant:

Actual Inventor: COLIN ANTHONY STANDING

Address for Service: Care of: COWIE, THOMSON & CARTER,
Patent Attorneys,
71 Queens Road,
Melbourne, Vic., 3004,
Australia.

Complete Specification for the invention entitled:

FENCING TAPE

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

-1-

* Note: The description is to be typed in double spacing, pica type face, in an area not exceeding 250 mm in depth and 160 mm in width, on tough white paper of good quality and it is to be inserted inside this form.

FIELD OF THE INVENTION

This invention concerns fencing tapes in particular those which contain conducting elements for use with electrifiable fences.

BACKGROUND OF THE INVENTION

5 We have experimented with a woven tape wherein the warps and weft are made of narrow plastic ribbon. The tape is rendered electrically conductive by the incorporation among the warps of several side by side fine gauge stainless steel wires. While this tape is an excellent conductor and offers good visibility to stock confined within a fence of which the tape is a part, faulty straining procedures or collisions
10 between stock animals and the tape can spoil the conductivity of the tape and it is not unusual when testing the tape to find non conducting gaps in the fence which the animals subsequently find and exploit.

SUMMARY OF THE INVENTION

This invention provides a conductive tape for an electrifiable fence comprising
15 a tape of non-conductive material of woven or knitted structure having disposed within it at least two conducting wires arranged longitudinally and integrally in the woven or knitted structure characterised by a continuous bridging conductor carried in or on the knitted or woven structure and which is directed transversely across the two or more longitudinal conductors at intervals to make electrical contact with each of the
20 conducting wires so that if a break occurs in one of the conducting wires the current flow is capable of continuing via the bridging conductor.

The tape warps may be made of polyolefin for example polyethylene. The warps may include fine gauge stainless steel wires. There may be five such wires arranged equally across the width of the tape namely 20mm. Alternatively polyester
25 yarn such as polyethylene terephthalate may be used. Other non conductive materials may be used.

The weft may be the same material as the warps.



The bridging conductor may be a single wire strand which is inserted as a weft pick every 500mm or so. The bridging conductor would therefore pass from selvedge to selvedge for one pick and travel down one selvedge as an extra
5 conducting warp strand. Alternatively the bridging conductor may be a conductor strand which is sewn into the tape in a serpentine path so as to cross from selvedge to selvedge in a continuous undulating pathway. In another application a continuous line of metallic composition
10 is deposited on the face of the tape by a jet nozzle.

DESCRIPTION OF THE INVENTION

Embodiments of the invention are now described with reference to the accompanying drawings in which:

Figure 1: is a plan of a fragment of one embodiment
15 of the tape, and

Figure 2: is a plan of a fragment of another embodiment of the tape.

Figure 3: is a plan of a fragment of yet another embodiment of the tape.
20

DESCRIPTION OF THE EMBODIMENT

In a preferred embodiment, a tape is woven from polyethylene monofilaments and stainless steel wires in a weaving machine fed and controlled in such a manner
25 that :

- the warp is made of a number of polyethylene monofilaments, and of a number of stainless steel wires equally spaced across the tape and all able to conduct current when incorporated into an electric fence;
30
- the weft is a polyethylene monofilament;
- one or several of the warp steel wires periodically becomes a weft wire, crossing with electrical contact the other warp steel wires.

35 For instance as schematically shown in figure 1, there are 24 warp polyethylene monofilaments 1 each 0,38 mm in diameter, 5 warp steel wires 2_a to 2_e each

0,15 mm in diameter and 1 weft polyethylene monofilament 3 having 0,30 mm in diameter and the width of the tape is about 14 mm. For the convenience of the drawing, only the two selvedge polyethylene warps 1_e, 1_x are shown
5 whereas the five steel wires 2_a to 2_e are shown.

Outermost steel wire 2_a is controlled to become at regular intervals a weft wire crossing the tape up to the opposite selvedge, the distance between two successive picks P,P' of such weft steel wire is about
10 65 mm and there are about 24 picks T of the polyethylene weft between the picks P,P'.

The numerical features are optional and may change according to the various embodiments.

Referring now to figure 2, the tape is woven
15 without a bridging conductor. Instead the woven tape is fed into the path of a sewing machine (not shown) which inserts a bridging wire 4 in a serpentine path across the five warp wires. This can be arranged by placing the needle head between two pairs of laterally oscillating
20 feed rolls. Alternatively the needle head can be oscillated.

Referring now to figure 3, the tape is knitted along with twenty three others on a warp knitting machine which utilises fifteen polyethylene warps of equal count
25 and five stainless steel warp wires together with a bridging wire. During knitting the bridging wire passes down one selvedge crosses to the opposite selvedge in a diagonal path and travels along the opposite selvedge until it returns across a complimentary diagonal. This
30 creates a modified saw tooth wave path in the ribbon and allows the bridging wire to contact each conductor as it traverses from selvedge to selvedge.

The intervals between the diagonals are adjusted according to the intended end use of the tape. The
35 interval may vary from 250-1250mm but the general purpose interval would be 500-750mm.

The tape is coloured orange, yellow, banded black and yellow but white is preferably. Our work indicates

that white tape is more visible than tapes of other colours, moreso than we would have expected having regard to the contrast against the backgrounds of trees, grass, sky and water wherein the tape is likely to be used.

5 We have found the advantages of the above embodiment to be:

1. The tape offers good visibility
2. The tape retains electrical conductivity despite breaks in the warp wires.

10

The claims defining the invention are as follows:-

1. A conductive tape for an electrifiable fence comprising a tape of non-conductive material of a woven or knitted structure said tape having disposed within it as least two conducting wires arranged longitudinally and integrally in the woven
5 or knitted structure, characterised by a continuous bridging conductor carried in or on the knitted or woven structure and which is directed transversely across the two or more longitudinal conductors at intervals to make electrical contact with each of the conducting wires so that if a break occurs in one of the conducting wires current flow is capable of continuing via the bridging conductor.
- 10 2. A conductive tape as claimed in claim 1 wherein the tape is woven and the bridging conductor is incorporated as an intermittent weft pick.
3. A conductive tape as claimed in claim 1 wherein the tape is warp knitted and the bridging conductor is incorporated as a warp thereof.
4. A conductive tape as claimed in claim 3 wherein there are two outermost
15 conducting wires and at least one intermediate conducting wire and the bridging conductor extends at least from one outermost conducting wire to the opposite outermost conducting wire.
5. A conductive tape as claimed in claim 1 wherein the bridging conductor is incorporated as a warp which becomes periodically a weft.
- 20 6. A conductive tape as claimed in claim 1 wherein the bridging conductor is sewn into the tape in a serpentine path so as to cross from one outermost conducting wire to another outermost conducting wire.
7. A conductive tape as claimed in claim 1 wherein the bridging conductor is a continuous line of metallic composition deposited on a face of the tape by a jet nozzle.



8. A conductive tape as claimed in claim 3 or 4 wherein the bridging conductor defines a square wave path in the tape.

9. A conductive tape as claimed in any one of the preceding claims wherein the bridging conductor crosses the tape every 250-1250mm.

5 10. A conductive tape as claimed in any one of the preceding claims wherein the bridging conductor is a wire.

11. A conductive tape as claimed in any one of claims 1 to 8 wherein the bridging conductor is a ribbon of electrically conductive plastic.

10 12. A conductive tape as claimed in any one of the preceding claims wherein the non-conducting material of the tape is white.

13. A conductive tape substantially as herein described with reference to and as illustrated in Figure 1 or as modified by Figure 2 or 3.

DATED this 26th day of June, 1991.

GALLAGHER ELECTRONICS LIMITED & JOUBERT S.A.



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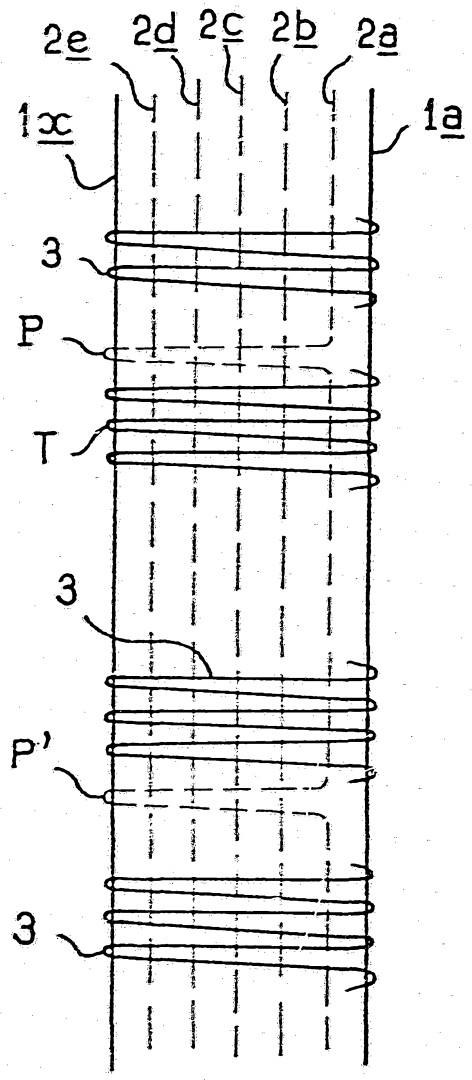


FIG. 1

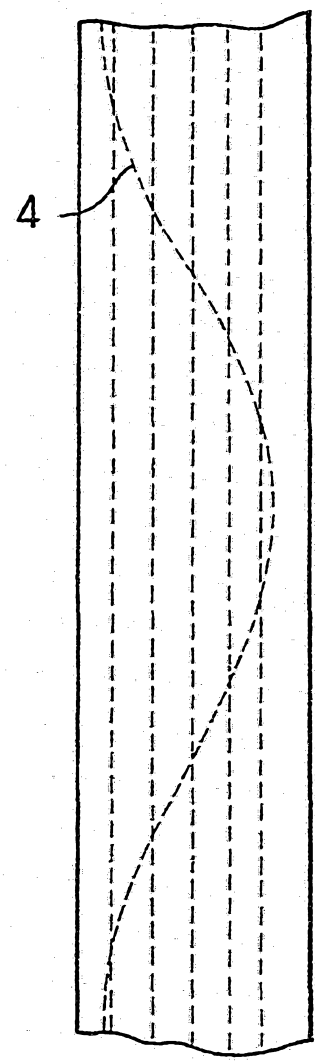


FIG. 2

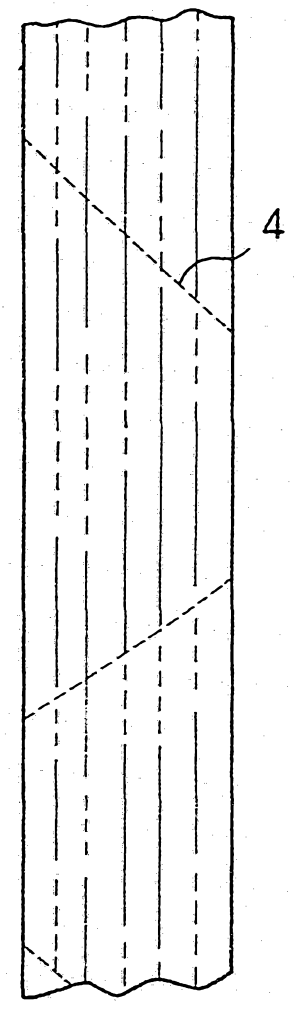


FIG. 3

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