FORM 2

THE PATENTS ACT, 1970
(39 of 1970)
&
The Patent Rules, 2003

COMPLETE SPECIFICATION
(See Section 10 and Rule 13)

SUPERCONDUCTIVE CONTACTS IN BULK OXIDE SUPERCONDUCTORS FOR HIGH-CURRENT APPLICATIONS AND METHOD FOR FORMING THE SAME

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH,
Rafi Marg, New Delhi – 110 001, India, an Indian Registered Body incorporated under the Registration of Societies Act (XXI of 1860).

The following specification particularly describes and ascertains the nature of the invention and the manner in which it is to be performed:
SUPERCONDUCTIVE CONTACTS IN BULK OXIDE SUPERCONDUCTORS FOR HIGH-CURRENT APPLICATIONS AND METHOD FOR FORMING THE SAME

Abstract

The invention provides a superconductive contact structure comprising a bulk oxide superconductor and a strip or rivet of a superconducting tape, the latter fixed and bonded on the former by mechanical and thermal treatments, provides extremely low specific contact resistance of the order of nano ohm cm$^2$ and excellent adhesive strength. The invented contact enables bulk oxide superconducting devices to minimize the end heating during operation at very high currents and allows to carry significantly larger critical currents compared to conventional contacts. The invention also provides a method for forming the invented contact.
## FORM 1
THE PATENTS ACT 1970
(29 of 1970)
&
The Patents Rules, 2003
APPLICATION FOR GRANT OF PATENT
(See section 7, 54 & 135 rule 26)(1)

### 1. APPLICANTS

<table>
<thead>
<tr>
<th>Name</th>
<th>Nationality</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUNCIL OF SCIENTIFIC &amp; INDUSTRIAL RESEARCH</td>
<td>an Indian registered body incorporated under the Regn of Soc. Act (Act 34 of 1956)</td>
<td>Anusandhan Bhawan, Rafi Marg, New Delhi - 110 001, India.</td>
</tr>
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### 2. INVENTORS (Name, Nationality and Address)

<table>
<thead>
<tr>
<th>Name</th>
<th>Nationality</th>
<th>Address</th>
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</thead>
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<tr>
<td>THENNARADAIAN SUBRAMANIAM</td>
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<tr>
<td>ALOYSIUS RAJAPAN PADMAVATHY</td>
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<td>GURUSWAMY PERUMAL</td>
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<tr>
<td>NVAMAPRASAD PENDRAN</td>
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### 3. TITLE OF THE INVENTION:
SUPERCONDUCTIVE CONTACTS IN BULK OXIDE SUPERCONDUCTORS FOR HIGH-CURRENT APPLICATIONS AND METHOD OF FORMING THE SAME

### 4. ADDRESS FOR CORRESPONDENCE OF APPLICANT IN INDIA

Head, IPI Division, CSIR-NICAR Building, 14 Safdarjung Vahu Marg, New Delhi - 110007

Telephone No. : 2696-2560; 2696-5613
Fax No. : 2696-8819
Email: ipmrd@csirnet

### 5. PRIORITY PARTICULARS OF THE APPLICATION(S) FILED IN CONVENTION COUNTRY

<table>
<thead>
<tr>
<th>Country</th>
<th>Application Number</th>
<th>Filing Date</th>
<th>Name of the Applicant</th>
<th>Title of the Invention</th>
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### 6. PARTICULARS OF THE FILING PATENT COOPERATION TREATY (PCT) NATIONAL PHASE APPLICATION

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<tr>
<th>International application number</th>
<th>International filing date as allotted by the receiving office</th>
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### 7. PARTICULARS FOR FILING DIVISIONAL APPLICATION

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<th>Date of filing of Original (first) application</th>
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### 8. PARTICULARS FOR FILING PATENT OF ADDITION

<table>
<thead>
<tr>
<th>Main application / patent Number</th>
<th>Date of filing of main application</th>
</tr>
</thead>
</table>

### 9. DECLARATIONS

(1) Declaration by the inventor(s)

I/We, the above named inventor(s) state the true & first inventor(s) for this invention and declare that the applicant(s) herein is/are my/our assignee or legal representative.

Dated the day of

[Signature of the true and first inventor(s)]

THENNARADAIAN SUBRAMANIAM
ALOYSIUS RAJAPAN PADMAVATHY
GURUSWAMY PERUMAL
NVAMAPRASAD PENDRAN

Dated the day of

[Signature of the true and first inventor(s)]
(ii) Declaration by the applicant(s) in the convention country:
If we, the applicant(s) in the convention country declare that the applicant(s) herein iv/are my/our assignee or legal representative.

a) Date

b) Signature(s)  (c) Name(s) of the signatory.  

Not Applicable

(iii) Declaration by the applicant(s):
If we, the applicant(s) hereby declare (s) that:

☐ I am / We are in possession of the above-mentioned invention

☐ The provisional/ complete specification relating to the invention is filed with this application.

☐ The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by me/us before the grant of patent to me/us.

☐ There is no lawful ground of objection to the grant of the Patent to me/us.

☐ I am/We are the assignee or legal representative of true & first inventors.

☐ The application or each of the applications, particulars of which are given in Para 5 was the first application in convention country/countries in respect of my/our invention.

☐ I/We claim the priority from the above mentioned application(s) filed in convention country/countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/We derive the title.

☐ My/our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Para 6.

☐ The application is divided out of my/our application particulars of which are given in Para 5 and pray that this application may be treated as deemed to have been filed on under sec.16 of the Act.

☐ The said invention is an improvement in or modification of the invention particulars of which are given in Para 5.

10. Following are the attachments with the application:

(a) Provisional specification / Complete specification.
(b) Complete specification (in conformation with the international application) as amended before the International Preliminary Examination Authority (IPQA), as applicable (2 copies), No. of pages .

(c) Drawings (in conformation with the international application) as amended before the International Preliminary Examination Authority (IPQA), as applicable (2 copies), No. of sheets .
(d) Priority documents.
(f) Statement and undertaking on Form 3.
(g) Power of Authority.
(h) Declaration of inventorship on Form 5.
(i) Sequence listing in electronic form.

Fee Rs.………..in Cash/Cheque/Bank Draft bearing no……………………………..

Date ………………………………..in ………………………………..Bank.

I/We hereby declare that to be 1. of our knowledge, information and belief the fact and matters stated herein are correct and I/We request that a patent may be granted to me/us for the said invention.

Executed this ………….day of ………………………………..2001.

To, 

Scientist

The Controller of Patents

The Patent Office, New Delhi

Intellectual Property Management Divison

Council of Scientific and Industrial Research.

Note: *Repeat boxes in case of more than one entry.

✓ To be signed by the applicant(s) or by authorized registered patent agent otherwise mentioned.

✓ Mark (✓) only where applicable/not applicable in declaration in para 9.

✓ Name of the inventor and applicant should be given in full, family name in the beginning.

✓ Complete address of the inventor and applicant should be given stating the postal index no., code, state and country.

✓ Strike out the column which was not applicable. *For see See First Schedule.
SECTION-B

1. Has the matter covered in the patent proposal been made public (including publication, seminar, etc.)?  
   Yes/No

2. Is the laboratory level work complete?  
   Yes/No

3. Has the write-up and drawings, if any, and six (6) numbers patent application form 1 been prepared as per the "Guidelines for preparing a patent proposal"?  
   Yes/No

4. Has the patent proposal been checked for novelty and inventive step(s), as compared to the prior art knowledge available throughout the world?  
   Yes/No

5. Has a survey been done of prior art literature and information available in the public domain?  
   Yes/No

6. Has a prior art patent search (covering Indian and Foreign patents) been done?  
   Yes/No

7. Has the relevant prior art details as obtained in items 5 & 6 above (reference, brief description and drawbacks) been included in the patent write-up?  
   Yes/No

8. Has the novelty and inventive step(s) of the invention been clearly brought out in the write-up for patent proposal?  
   Yes/No

9. Has the approval of the Director/Scientific Authority been taken for this patent proposal?  
   Yes/No

10. Is this patent proposal to be filed as a joint patent application (i.e., the joint assigns being CSIR and another organization)?  
    Yes/No

We have answered all the questions in both Section-A Items 1 to 21 and Section-B Items 1 to 10 after careful consideration.

We hereby confirm that to the best of our knowledge and belief this patent proposal is novel (i.e., having novelty on a world-wide basis) and is our original work.

INVENTOR(S):  

THENNARAJAN SUBRAMANIAN  
ALOYSIUS RAJAPPAN PADMAVATHY  
GURUSWAMY PREMIMAL  
SYAMAPRASAD UPENDRAN

SIGNATURE(S):  

[Signatures]

NAME & SIGNATURE  
LABORATORY HEAD/COORDINATOR  
LABORATORY NAME: REGIONAL RESEARCH LABORATORY, TRIVANDRUM
The patent filed in INDIA