



Indira Gandhi National Open University
School of Law

MIRP-001
PROJECT HAND BOOK

MIRP-001
Post Graduate Certificate in
Patent Practice
(PGCPP)

Hand Book on Project

“शिक्षा मानव को बन्धनों से मुक्त करती है और आज के युग में तो यह लोकतंत्र की भावना का आधार भी है। जन्म तथा अन्य कारणों से उत्पन्न जाति एवं वर्गगत विषमताओं को दूर करते हुए मनुष्य को इन सबसे ऊपर उठाती है।”

— इन्दिरा गांधी



“Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances.”

— Indira Gandhi



Indira Gandhi National
Open University
School of Law

MIRP-001

Project Hand Book

MIRP-001

Post Graduate Certificate in Patent Practice (PGCPP)

Hand Book on Project

Expert Committee

Dr. R.K. Gupta
Head CPIM Division, CSIR, New Delhi
Mr. N.K. Sharma,
Former Director, NRDC, New Delhi
Mr. Calab Gabriel, Patent Attorney
KNS Partners
New Delhi
Dr. K.S. Kardam
Deputy Controller of Patents
New Delhi
Mr. D.P.S. Parmar
Deputy Controller of Patents
New Delhi

Prof. S.K. Verma
Delhi University, Delhi
Dr. Shubha Gokhale
SOS, IGNOU, New Delhi
Prof. Srikrishna Deva Rao
SOL, IGNOU, New Delhi
Ms. Suneet Kashyap
SOL, IGNOU, New Delhi
Ms. Gurmeet Kaur
SOL, IGNOU, New Delhi
Mr. Anand Gupta
SOL, IGNOU, New Delhi

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Programme Coordinator: Ms. Suneet Kashyap, SOL, IGNOU, New Delhi

Block Preparation Team

Unit Writers

- | | |
|--|---|
| 1. Introduction | : Ms. Suneet Kashyap, Lecturer, SOL, IGNOU |
| 2. Reading Patent Document
Essential Elements | : Mr. DPS Parmar, Deputy Controller of Patents, Patent Office, New Delhi |
| 3. Drafting of a Patent Document | : Dr. K.S. Kardam, Deputy Controller of Patents, Patent Office, New Delhi |
| 4. Opposition and Defence of Patenting | : Mr. Calab Gabriel, Patent Attorney, K&S Partners, Gurgaon |
| 5. Conclusion | : Mr. N.K. Sharma, Former Director, NRDC, New Delhi |

Course Coordinator: Ms. Suneet Kashyap, SOL, IGNOU

Print Production

Mr. Yashpal, Section Officer (Publication)
IGNOU, New Delhi

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Message from the Project Coordinator

The PG Certificate Programme in Patent Practice aims to develop in the learner's expertise in Patent Search. This provides them with an intensive training in writing of Patent Application (with Particular emphasis on drawing up of specifications and claims). The students are encouraged to spend at least one month working on a project as an intern with the Patent firms/offices/institutes such as CSIR, ICAR etc. In case you do not attach yourself with a firm or office, you are advised to study the Course thoroughly and do the project on your own. Course III of the Programme will help you provide a comprehensive background to work in the area which you undertake as a Project.

Approval of the project proposal is mandatory to continue and submit the same. The theoretical background of the course of PGCPP has provided you with necessary foundation, principles and practices to read published Patents, do prior art search and draft patent applications. The Experience gained from the fourth course provides you with an in depth knowledge in reading/writing and defending patent claims.

The objectives of this Course is to provide you with the details of writing a patent application. Students should take the project seriously. You can choose a topic of your own interest which should be innovative. In case you are unable to select a topic, a list of related areas will be provided to you in the handbook from which you can select one. Your project should be genuine and original in nature and should not be copied from anywhere else. If found copied the project report will be forwarded to the Exam Discipline committee of the University as an unfair means case for necessary action. Students should strictly follow and adhere to the MIRP-001 Project Guidelines.

We wish you all the best

Suneet Kashyap
PGCPP Project Coordinator

INTRODUCTION

1.1 Introduction to Project Writing

The hand book has been prepared with the objective of helping you provide a road map to actually put your skills in practice through an innovative (*prima facie*) patentable invention either of your choice or the one selected from the manual. This will bring you to the threshold of becoming a patent practitioner. This Handbook contains five Chapters. The other four chapters are Reading Patent Documents, Writing Patent Documents, Opposition and Defense in patenting and Conclusion along with an annexure which includes a set of project topics for students to select in case they are unable to find one.

1.2 Nature of Project Work

A project is a method of giving you practical training so that you are able to use the textual knowledge into real life situations in the area of patents. You are expected in this project work to select a topic of your own area of interest or select one from the handbook and develop that into a comprehensive write up by detailing all the separate parts like drafting, opposition, defense etc., into a cogent single argument, the length of which may be 4000-5000 words. We reiterate that the purpose of the project work is to enable you to gain practical experience. Though the project work you will be expected to put into practice all that you have learnt during the course work in Patent studies. It is a way of applying the knowledge gained through the theory courses to patentable matters.

The project (MIRP-001) is of four credits. You are expected to spend about 120 hours of work in completing the project. We would prefer to receive a typed and bound copy of your project work. If however you find it difficult to get it typed, you can submit it in a neat and legibly hand-written only in one side of the paper. The words should be around 4000 to 5000. You should keep this in mind while choosing the project theme. However you should write your project only in English.

Project Proposal

You should start your project work soon after you enroll for the PGCPP programme. After you enroll you should attempt to select a topic for your Project Work. In this a supervisor will help you as well as guide you. Your supervisor should be familiar with the skills of working on such projects. You should choose an area which is to your liking and one which should sustain your interest.

After identifying the area of study and a topic from this area for project work, you should prepare a Project Proposal/Synopsis of not more than 400 words. Your Proposal is essentially a description of **what** you propose to do and **how** you intend to go about it. In your Proposal, you should outline the **objectives of your study**, mention the work plan that you propose to follow. You may discuss your Project Proposal with your friends and colleagues, your counselor and any experts in that field that you know.

1.3 Project Supervision

Your Project shall be guided by a supervisor recognized by the Indira Gandhi National Open

University. **All counselors are recognized as supervisors for Project.** A list of supervisors is available with the Coordinator of your Study Centre. Once you have selected a broad area for your study, please contact your Coordinator who will assign a supervisor to you, suited to your study.

You should prepare a project Proposal with the help of your Supervisor.

The supervisor will.

- approve you Project Proposal,
- acquaint you with such local groups and agencies as may be relevant to your work,
- give you letters of authorization which would enable you to make inquiry and investigations in different offices pertaining to your work,
- make accessible to you the library at the study centre for consultation purposes,
- advise you, to the best of his/her efforts, about your theme, location of your data and general work plan, and
- suggest books and articles that you may find useful in your work.

Prepare two copies of your Proposal (preferable typed), obtain the approval of your supervisor on the format given in Annexure A and send one copy on the following address:

**Programme Coordinator PGCPP
School of Law,
Zakir Hussain Bhawan
Indira Gandhi National Open University,
Maidan Garhi,
New Delhi - 110 068**

Remember to:

- Keep a copy of the Proposal with you because we shall not send your copy back.
- Ensure that your Proposal is accompanied by a letter of approval by your supervisor.
- Send your Proposal through Registered Post only, so that it reaches us for sure.
- Do not change your topic or even its wording after you have sent the Proposal to us. In other words, the topic of your Project Work should be the same as in your proposal.
- Put the name and code of your course (MIRP-001), your enrolment number, the name of your Study Centre and the Regional Centre on the first page. In other words, fill the proforma given in Annexure A very carefully.
- **Do not wait for our approval of the Project Proposal. The approval of the Supervisor is final.** We want a copy for our own records and analysis. Begin work on your proposal soon after marking a copy to us.

1.4 Writing the Project

Post Graduate Certificate Programme in Patent Practice is application oriented and should ideally be pursued at four different levels. Each level is equally important and requires you to devote sufficient attention to it. The proportion of time spent at each level, however, may vary depending on the nature of your topic and area of study.

The Project Work, you would have understood by now, passes through several stages. Each stage is important and should not be neglected. The project that you write may be divided into the following component parts:

- **Objectives:** This is the opening part of your project and explains briefly the reason for your selecting the topic.
- **Introduction:** Here you should relate the topic of your project with the area of your concern.
- **Methodology:** This will include details of the manner in which you have conducted your Project.
- **Area of Study:** This is the main body of your project where you describe at length the main findings as evident from an analysis of the data collected by you on your theme.
- **Conclusion:** Here you are expected to summarize the results of your project work. You may also indicate further lines of inquiry on related themes in the conclusion.

Identifying a Theme

A Think carefully and discuss with your supervisor before selecting a topic for your project/s. Some of the theme's that your can choose from are given at the end of the handbook.

B After choosing the project, you have to do any two of the components below:

- Draft and file a provisional patent application
- Oppose a patent application on the grounds of prior art before the grant of the patent i.e. Pre-grant opposition (after it is published in the patent Gazette)
- Oppose a patent application, after grant i.e. post-grant opposition on grounds of obviousness
- Oppose a patent application, after grant, on grounds of inadequate disclosure (insufficient description of the invention)
- Oppose a patent application, after grant, on grounds of lack of an inventive step
- Defend a patent granted on grounds of prior art
- Defend a patent granted on grounds of obviousness/lack of inventive step or its industrial application
- Defend a patent granted an account of insufficient disclosure.

Given the above outline you may like to begin/work systematically for which we have given suggestions in the Sub-sections that follow.

Prepare two copies of your Project Work and send only one to us on the following address:

**Director
SR&E Division,
Block 12,
Indira Gandhi National Open University,
Maidan Garhi, New Delhi - 110 068**

Do keep a copy of your Project Work with yourself as we shall not send it back to you. **Make sure your Project Work also has the declaration, given in Annexure C, duly signed by you and your supervisor.**

1.4 Necessary Precautions

- Take care that the material taken from the internet is not used verbatim.
- No copying should be done either from a similar project of a fellow student or from the project done by the student of an earlier batch.
- Your name, enrolment number, the address and the title of the project should be legibly and prominently written on the title page.
- The pictorial and graphic material used in the project should be properly labeled.
- We normally take about the three months time in evaluating the project. Therefore the submission of the project should be done by you as expeditiously as possible.

1.5 Evaluation

Upon its submission, your Project Work will be sent to an examiner. You must secure a minimum of 40% in your Project work in order to successfully complete your course. **Please note that the evaluation of your project will take a minimum of two months from the date of submission.**

Remember:

- Project Work should be original and should be in your own language;
- You should not copy or reproduce any published or unpublished project or else it would be cancelled.
- Arguments should be substantiated by your data;
- Information should be properly documented;
- The research methodology adopted by you should be started at the beginning of your work;
- Give a bibliography at the end. It should include all your sources like records, documents, reports, interviews, group meetings, newspapers, magazines etc, listed under separate heads.

In case you secure less than 40% marks we will inform you of the same and also send evaluator's comments. Take the following steps:

- Redo your Project Work in the light of evaluator's comments.
- Attach Annexure B (No need to attach Annexure A.)
- Attach a Demand Draft of Rs.300/- drawn in favour of IGNOU payable at New Delhi.

Project Work complete in all the above respects should be sent for fresh evaluation to:

**Director,
SR& E Division,
Block-12,
Indiran Gandhi National Open University,
Maidan Garhi,
New Delhi - 110 068**

**You must retain the
Project Guide till you have
completed the entire
programme.**

In case of any additional academic query you may write to:

**Programme Coordinator (PGCPP)
School of Law,
Zakir Hussain Bhawan,
Indiran Gandhi National Open University,
Maidan Garhi,
New Delhi - 110 068**

ANNEXURES

Annexure A : Project Proposal Proforma

Candidate's Information (to be filled by the candidate) Date _____

Name _____

Programme Code

PGCPP

Course Code MIRP-001

Enrolment No.

--	--	--	--	--	--	--	--	--

MIRP-001

Address _____

Regional Centre _____

Study Centre Name _____

Code

--	--	--	--

Title of the Project _____
(enclose the proposal/synopsis of the Project)

Certificate By the Supervisor

I hereby certify that the proposal for the Project entitled (Name of the Project) _____ by (Name of the candidate) _____ has been prepared after due consultation with me. The proposal has my approval and has, to my knowledge, the potential of developing into a comprehensive Project Work. I also agree to supervise the above mentioned Project till its completion.

Signature of the supervisor

Name _____

Designation _____

Address _____

Annexure B : First Page of the Finished Project Work

Programme Code:

PGCPP

Course Code

MIRP-001

Enrolment No.

--	--	--	--	--	--	--	--	--	--

Study Centre Code

--	--	--	--

Regional Centre

--	--	--	--

Topic of the Project Work

Project Work submitted to the Indira Gandhi National Open University in partial fulfillment of the requirements for the award of the Post Graduate Certificate in Patents Practice. I hereby declare that this is my original work and has not been submitted elsewhere.

Signature of the Candidate _____

Name of the Candidate _____

Address, if any _____

Certificate

Certified that the Project Work entitled, (Topic of the Project) _____

Submitted by (Name of the Candidate) _____

is his/her own work and has been done/redone in the light of evaluator's comments* under my supervision.

It is recommended that this Project be placed before the examiner for evaluation.

(Signature of supervisor)

Name. _____

Address: _____

Study Centre: _____

Regional Centre: _____

*Strike out the option not applicable in your case.

Summary

- 1) Read the Project Guide carefully.**
- 2) Identify a few themes for your Project.**
- 3) You are allotted a Supervisor by the Coordinator of your Study Centre. Discuss these themes with the Supervisor and pursue your Project on one of the themes.**
- 4) Prepare your Project Proposal in consultation with your Supervisor.**
- 5) Mail a copy of the Project Proposal duly approved by your Supervisor to the Programme Coordinator, PGCPP for information.**
- 6) Work on your Project as per guidelines given in the Project Guide.**
- 7) Project Work can be prepared only in English.**
- 8) Mail your Project Work to Director, SR&E Division, IGNOU.**

READING PATENT DOCUMENT -ESSENTIAL ELEMENTS

1.1 Introduction

There could be several situations when need for reading and interpreting a patent arise. A technical professional may need to read a patent document to know its content before seeking a patent himself. One of the common situations for reading a patent document is when a patent application is being drafted and subsequently prosecuted before any Patent Office by an inventor. Other situation arises when a Patent Agent or Attorney is drafting a patent specification on behalf of an applicant. Yet another situation is where one is required to meet the need for interpretation of claims in patent infringement proceedings. Whatever is the situation for reading a patent document, the reader must possess specific skill to know the structure and form of the patent in which they are written. This chapter intends to provide insight into the contents and extent of patent specification in general. It highlights the purpose for each part of the patent specification is written. These guidelines are meant for the readers to acquire and sharpen their skill for reading the patent literature. It will also help the reader to understand and interpret the contents of the patent specification.

1.2 Contents of the Patent Document

The patent document is made available to public at two stages as the patent applications are published twice during the processing of patent. First publication, popularly known as 18-month publication, occurs when the new applications are publish as filed, Second publication occurs after the grant of the patent, when they are published as granted. Both of these documents are drawn in universally agreed format for easy retrieval. Typically a patent document comprises of to two important elements. First element, which comprises of bibliographic content, is generally referred to as 'cover page'. Second element, which provides information relating to technical content, is popularly known as 'patent specification'. Every patent specification is written in the same manner and similar format irrespective of the country where the application is prosecuted. The technical content of the patent document is supported by a legal content known as claims. If the patent specification discloses the invention, the claims define the scope of the inventive concept for which the patentee has sought the patent protection.

1.3 Bibliographic content

The cover page of every patent document published before the grant or after the grant provides bibliographic information of the application as filled or as granted respectively. This information relates to details new application which includes data relating to filing date of the application and serial number, details of priority documents and date of priority, identity of the inventor/applicant, International Patent Classification, abstract and other relevant information relating to the application. Similarly this cover page information after the grant published to include the patent number and date of grant including the other information as drawn in the standard page. This also includes the amendments or changes affected during the prosecution of the application. One will observe these differences while reading the patent document relating to same invention as filed and as granted. It is pertinent to note that the bibliographic information including the abstract has no legal implications in interpreting the patent claims. It has identification value for quick and easy retrieval of the patent document during search.

1.4 Publication before the grant

A typical kind of front page of the patent document Indian, European, United State as published before the grant is produced below for reference.

Government of India
Controller General of Patents Designs and Trade Marks
Indian Patent Office
18 Months Publication



Intellectual Property INDIA
Patents Designs Trademarks and
Geographical Indications

Kind of the
publication

(12) PATENT APPLICATION PUBLICATION

Country

(19) INDIA

Local filing
date

(22) Date of filing of Application : 18/10/2000

Local filing Number

(21) Application No. : IN/PCT/2000/545/CHE

Date of
publication

(43) Publication Date : 27/04/2007
Journal No. - 17/2007

Title of invention

(54) Title of the invention : A TOY SET

International
Patent
Classification

(51) International classification : A63H 33/08

(31) Priority Document No : PCT/BE98/00043

(32) Priority Date : 26.03.1998

(33) Name of priority country : BE

(86) International
Application No : PCT/BE1999/000039
Filing Date : 22/03/1999

(87). International Publication No : WO/1999/048582

(61) Patent of Addition to Application Number : NA
Filing Date : NA

(62) Divisional to Application Number : NA
Filing Date : NA

(71) Name of Applicant : PAREIN, Eric
Address of Applicant : Boomsesteenweg 259, Bus 8,
B-2020 Antwerpen (BE).

Inventor

(72) Name of Inventor : PAREIN, Eric
Address of Inventor : Boomsesteenweg 259, Bus 8,
B-2020 Antwerpen ((BE).

(57) Abstract

Abstract

The present invention relates to a toy set comprising at least a first, second, third and fourth body provided to be mated adjacent each other and on top of each other, enabling to build a construction wherein a large number of configurations of bodies with respect to each other is rendered possible. The present invention further relates to a body for use in a toy set and use of the body as a cap of a recipient or as a recipient.



US 20080146116A1

(19) **United States**

(12) **Patent Application Publication**
Di Lullo

(10) **Pub. No.: US 2008/0146116 A1**
(43) **Pub. Date: Jun. 19, 2008**

(54) **PULL TOY**

Publication Classification

(76) **Inventor:** **Veronica Di Lullo**, Diamond Springs, CA (US)

(51) **Int. Cl.**
A63H 3/33 (2006.01)
A63H 3/46 (2006.01)

Correspondence Address:
HICKMAN PALERMO TRUONG & BECKER,
LLP
2055 GATEWAY PLACE, SUITE 550
SAN JOSE, CA 95110

(52) **U.S. Cl.** **446/297; 446/376**

(21) **Appl. No.:** **11/942,539**

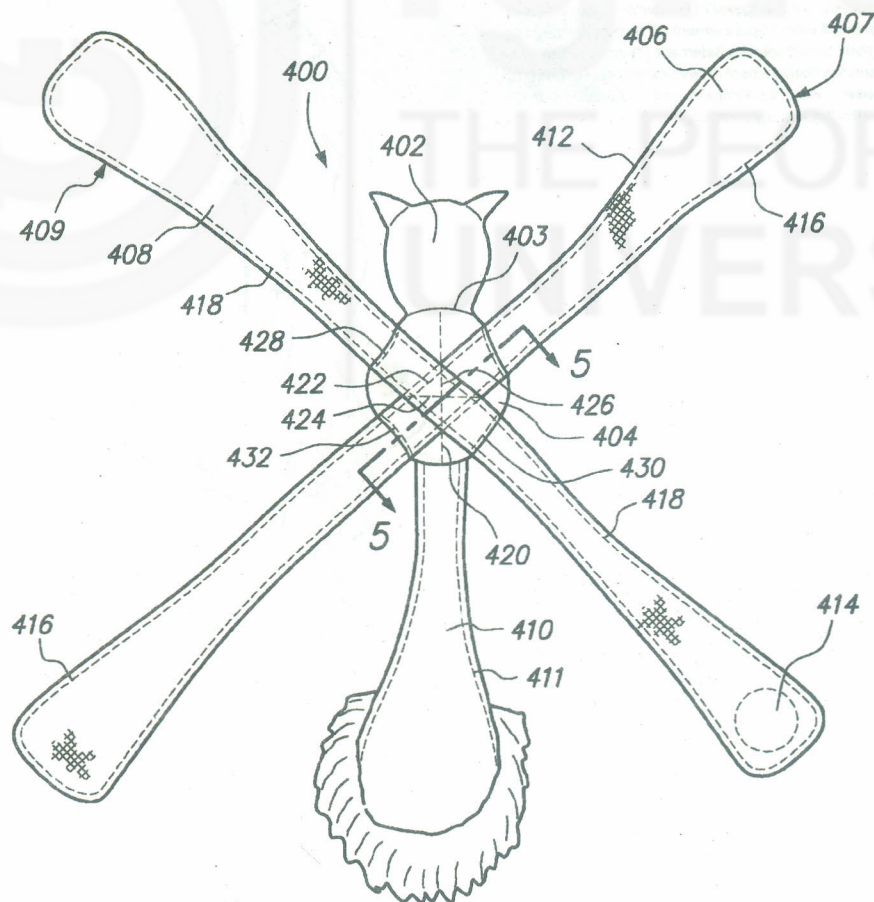
(22) **Filed:** **Nov. 19, 2007**

Related U.S. Application Data

(60) **Provisional application No. 60/875,219, filed on Dec. 15, 2006.**

(57) **ABSTRACT**

In an embodiment, a pull toy comprises a body; a first limb element that is joined to the body; a second limb element that is joined to the body at an angle with respect to the first limb element; wherein the second limb element is joined to the body at about a linear midpoint of the second limb element and wherein the first limb element is joined to the body at about a linear midpoint of the first limb element.





(11) EP 1 935 462 A1

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(22) Anmeldetag: 18.12.2007

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HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE
SI SK TR
Benannte Erstreckungsstaaten:
AL BA HR MK RS

(72) Erfinder: Klein, Claus-Dieter
67829 Landau (DE)

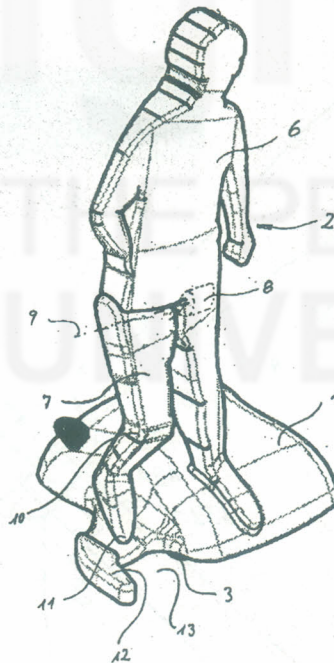
(74) Vertreter: Petersen, Frank et al
Lemcke, Brommer & Partner
Patentanwälte
Bismarckstrasse 16
76133 Karlsruhe (DE)

(30) Priorität: 21.12.2006 DE 202006019494 U

(71) Anmelder: Theo Klein GmbH
76857 Ramberg/Pfalz (DE)

(54) **Fernsteuerbare Spielzeugfigur**

(57) Die Erfindung betrifft eine ferngesteuerte Spielzeugfigur (2) mit einem dem Vortrieb dienenden Fahrgestell (1), über dem ein Figurenkörper (6) aufragt. Um ein interessantes Spielgeschehen zu ermöglichen wird vorgeschlagen, am Fahrgestell (1) oder am Figurenkörper (6) einen mit einem Spielelement zur Impulsübertragung in Kontakt bringbares Stoßelement (7) vorzusehen. Dabei kann das Stoßelement (7) wenigstens ein Gelenk (10) aufweisen, wenn die ferngesteuerte Spielzeugfigur (2) als Fußballfigur ausgeführt ist.



EP 1 935 462 A1

You may have noticed that patent document is drawn in a specific format and for the purpose of easy retrieval classified as per the standard International Patent Classification (IPC). First page of every patent documents is so standardized that every patent office use this format for publication of the new application as well as granted patents.

World Intellectual Property Organization (WIPO) has taken the initiative to standardize the appearance of first page of patent documents and standard ST 9 has been specified to identify the bibliographic contents of the patents specifications. This has been done with the help of INID codes bearing numbers that are Internationally Agreed Numbers for Identification of specific element of the bibliographic Data (INID).

1.5 INID codes

Conventionally INID codes are bracketed number placed adjacent to each bibliographic data on the first page which relates to a particular field. These codes are not only useful for internal identification of the patent documents but also assist the reader in easy retrieval of the required documents even if it is published in multiple languages. For reference some commonly used INID Code numbers are given below with subject they relate to. [For details See Annexure 1]

- (11) Number of the publication
- (12) Kind of the publication
- (19) Country
- [21] Application number, which is assigned by the patent office
- [22] Filing date of the patent application
- (43) Date of publication
- [54] Title of the invention
- [51] International Patent Classification (IPC)
- (71) Name of applicant
- (72) Name of inventor
- [57] Abstract, which is a short description of the invention
- (30) Priority details
- (31) Number assigned to priority application
- (32) Date of filing of priority application
- (33) Country in which priority application was filed
- (86) Filing data of the international application
- (87) Publication data of the international application

1.6 Benefits of the Bibliographic Contents

Bibliographic contents of a patent document allow reader to retrieve and identify the required documents quickly. Since the standardized format of first page is being used by all national patent offices it is easy to make search and retrieve the required document from millions of classified patent documents of various countries. One can make use patent number, inventors name and international classification as key resource for refining the search strategy once one document is located. It is also possible to find the English equivalent of the document in other languages once the priority details are studied. It is also an effective tool to do family search.

1.7 Contents of the Patent Specification

Just after the cover page of the patent document begins details of the invention which are described in a document popularly known as patent specification. It has two parts. First part relates to the disclosure of the technical contents of the invention and second part covers the extent of the protection it seeks. The description covering the technical subject matter is further structured to suit the form of specific pattern of patent specification writing. Typically every patent specification contains the elements that are essential to meet requirements of National Law. Although the patent specification normally uses a particular pattern and format specified by national patent office yet the contents in it are written in more or less similar fashion.

1.8 Structure of the Specification

Patent specification is a valuable instrument to aid interpretation of the scope of the claims. It is drafted to not only to satisfy the written requirements of the patentability but also to defining the limits of the protection the inventor sought. Keeping these premises in mind, we shall now examine each element of the specification and analyze its contents to know what purpose does it serves for the reader. The layout of a specification may varies from one jurisdiction to another but the structure of its contents typically covers the following major sections.

1.9 Title of invention

Every patent specification begins with a title which inventor thinks is sufficiently indicative of the subject matter pertaining to the invention. It is generally observed that the titles provided by inventors are fairly broad and not specific. They are at times too confusing for the readers to understand the actual field of the invention. These titles are invariably modified during examination. You may observe this when you will see the details of application as filled and as granted.

1.10 Preamble of the invention

Every patent specification begins with a paragraph which clearly state 'this invention relates to (What?)'. This first paragraph always brings forth the relationship of the invention to the field to which it pertains to. It is an introductory statement which clearly specifies the exact scope of the inventive concept within the field of the technology of the invention. In this section invention is described broadly to clearly indicate to the reader about the broad view of the scope of the elements of the invention. Further the information contained in this section also provides cross-references to other related applications if any. This section clearly brings out whether the invention is totally new or it is an improvement of an existing invention.

1.11 Benefits of preamble

As preamble is a statement of reflecting the broad concept of the invention, it allows the reader to gain the knowledge of the specific subject matter of the invention. This is useful as the reader can take an informed decision to read further or not depending upon the field of his interest. Reader is advised to look for key words like 'novel', 'improved', 'improvement', method, process to know the scope of the invention within the identified field. This is useful in not only identify the limit of the scope of the invention but also provides information to the reader, to identify the document for search purpose.

1.12 Background of the invention

Immediately after the preamble, section relating to the background of the inventions begins. This may be in one or more paragraphs. The disclosure in this section normally refers to the existing prior knowledge on the subject of the invention and at times contains references to earlier published patents or research papers. The inventor here also seeks to give briefly what are the short comings in the existing inventions in the related field and thus makes an effort to identify the existing problem and provide remedies to overcome these short comings through his invention. He also brings out the salient feature as to why his invention is better and more effective in providing solution to the same problem.

1.13 Benefits of reading background

Background of the Invention is typically addressed to a reader skilled in the selected art. Here the inventor explains the selected prior art in the field of his invention with laying stress on the differences with the current invention with a view to point out the need for his invention. It allows the reader to know the existing problem and solution offered by the inventor. Since it provides cross references cover the reader can independently work on the problem to provide different and distinct solution. It also provides the clear picture about the breadth of the scope of the invention. The background also act as instrument to guide the examination of the application at patent office and act as tool to prepare a reply to the observations made by Examiner at various stages of examination.

1.14 Objectives of the invention

In this section the invention is described in its broadest sense. This section clearly brings out the objectives the invention seeks to achieve. It also provides information to the reader about the broad view of the scope of the elements of the invention. This section is also being used by the inventor to describe the preferred embodiments of the invention.

1.15 Benefits of reading objectives

The description under this section serves dual purpose. At first instance, it provides a fall-back position support for description where claims have been narrow down during examination as the broader claims are found to be not patentable. Secondly, it provides information to the reader to know the limited variations of the broadest claim. In fact it also provides the disclosure support for a definition of key terms used in the claims. This is useful for the reader to interpret the terms used in the claims.

1.16 Summary of the invention

This is not mandatory requirement but the inventor invariably the summary of the invention which is distinct from the abstracts. This is being done to bring out the additional features which cannot be accommodated within the limit of 150 words abstract. The reader must understand that while summary is meant to describe the invention and scope of the protection the abstract is meant to provide disclosure of the invention as a whole. Summary of the invention in fact discusses advantages of the invention and how it solves the problems highlighted in the background of the invention.

1.17 Statement of the invention

This section begins with statement of invention like 'According to the invention'. This in fact is the repetition of the wordings of the principle claim written at the end of the specification. This statement is essential where the inventor seeks to include omnibus claim. The main purpose behind including the statement of invention is understood to provide fall-back option when main claims are found to be not patentable. The reader is benefited to the extent that he may include such statements while drafting its own specification. Though the exact purpose of this statement has not been legally tested in Indian courts however, all the Indian Patent Specification do include such statements to provide support for the omnibus claim.

1.18 Detailed description of the invention

This section is the crux of the patent document as it describes the invention in detail. Reader is required to constraint on this section of the specification as it not only provides information about all the elements of the invention but also specifically provides minute details as to how the invention will work. Undoubtedly the section is considered to be the core element of the specification of a patent. The reader is advised to carefully read the contents of the description of the invention as described by the inventor. And other point which the reader must look for is the sufficiency of the details given by the inventor for actual working of the invention. We may divide this section into two parts. Part one gives the explanation of description of the invention in general and parts two provides reference to the drawings particularly for physical products or examples for other products. For example, if the invention relates to an apparatus/ device the complete specification would have drawings supplementing the description. If the invention relates to a process/product including compositions the specification must provide the examples relating thereto.

1.19 Reference to the drawings

After the general description of the invention the inventor provides the list of drawings. Drawings are particularly essential where the invention relates to a machine or device or apparatus. It is also essential for the inventor to give drawings showing at least one 'embodiment', to serve as an example of the invention. He may at times include several embodiments showing variations. Normally the inventor gives various views of the physical product claimed by him. Such views include the sectional views of the product.

1.20 Detailed description of the drawings

In this section detailed description of each drawing is provided. Specific patterns of numbering of various elements of the drawings are being used. Reader should observe this pattern as it will be useful for him for drafting its own specification. It may be noted that the numbers are given as 10,

20, 30 and so on. Same numeral is repeatedly used to mark this element in different drawings of the same product. For representing a same elements with variations numeral and letters are used viz. 12, 12a 12b or 12, 112 212 312 Reader must note typical the reference numerals used on the drawings to link the text to the figures while reading description with reference to drawing.

1.21 Examples or illustrations

If drawings are essential to describe the inventions relating to machines or apparatus, examples are important for describing inventions relating to method, process and products. A patent application does not require examples, however in practice; examples can often assist proving the sufficiency of disclosure for defining the scope of a claim. It is not necessary for the inventor to actually perform the examples. The 'working examples' represent the completed undertakings and the "prophetic" examples' are hypothetical undertakings of the inventor for information of the general public. It is observed that the examples are always written in the present or future tense. Basically the examples demonstrate working of one or more specified embodiments of the invention. It is also pertinent to note that many readers assume that the examples set forth as to how the invention will work. Truly speaking, examples are meant only to illustrate the invention, they are in no way meant to limit the claimed invention.

1.22 Best method requirement

Apart from giving general methods of performing the invention the inventor is also required to disclose the best method of performing the invention which is known to him at the time of making the application. This is a mandatory requirement under all the national patent laws.

1.23 Benefits of reading detailed description of the invention

The description section of the specification seeks to describe invention sufficiently and accurately. Its basic purpose is to meet the requirement of sufficiency of disclosure to provide a general explanation of the invention and how it can be performed. The specific examples given in the specification gives the information to actually practice and work the invention. A reader who is specialized in a particular field invariable feels that the description in the specification is unnecessarily detailed. The reader must bear in mind that detailed description in the specification is part of the tried and tested format adopted by all patent offices. Reader will also observe that the general principle on which invention works is normally described without details of material specifications or precise dimensions. In other words the material specifications and dimensions are generally not given in the patent specifications, unless they are essential and specific for making the invention clear. The reader should analyze this section carefully to meet his requirements.

1.24 Sequence listing only where applicable

It is mandatory to provide a Sequence Listing, including every nucleic acid molecule that is at least 10 nucleotides and every disclosed protein that is at least 4 amino acids, particularly relating to the biotechnology invention involving disclosure of one or more nucleotide and/or amino acid sequences. The Sequence listing is now required to be provided in electronic format.

1.25 Claims

Every specification finally ends with preferring of claims. These claims are serially numbered paragraphs headed by a preamble 'I/We Claim'. They are the most important part of the patent document as it specifies the limits of the protection. Each claim is drafted as a single grammatical sentence, with only one full stop. Claims particularly indicates and distinctly highlights the inventive feature of the invention. The claims therefore must be definitive to provide information to the third party to able them to know the boundaries of the protection sought. In other terms it must clearly bring out what is extent of protection and what is not covered. There is no upper restriction on number of claims but every patent specification must have at least one claim. For the sake of better understanding a claim may be divided into two parts viz Preamble and the body.

1.26 Preamble

First part of the claim being the opening statement is called as preamble. It is an introductory phrase that narrates the subject that is claimed. It recites the field of the invention, including the use or properties. Some of the typical preambles are given below:-

1. An improved motor
2. An antibiotic composition
3. A therapeutic agent for treating HIV.....
4. A process of making a novel compound.....

1.27 Body

Second part of the claim referred to as the body of the claim has many transition word or phrase joined by conjunctions to link all the essential elements of the invention to complete it as one grammatical sentence. The body of a claim defines what is claimed or what are the elements of the inventions and how they are inter linked to form one inventive concept. The commonly used transition words or phrases are "comprising", "consisting of" "consisting essentially of", "preferably", and "optionally". Each of these connotations has specific legal meaning and it is used for drafting the claims to distinctly bring out the extent of protection inventor seeks.

1.28 Principle claim or First claim

Claim 1 is the main claim of the inventor and it is meticulously drawn up to set out to cover the broadest definition of the inventive concept. It specifies all the essential features of the invention in broad technical terms. If an inventor fails to give any essential feature, the invention would not work and the claim would be declared as invalid at a later date. The inventor thus takes extra precautions to draw first claim. Some of the typical examples of the first claim are given below.

Example

1. Shaving apparatus for shaving hair from human skin and for alerting the user to the continued presence of significant hair stubble on the skin comprising,
2. An antibiotic composition comprising of

3. A method of fusing lead onto iron which comprises

Depending on the linkages with any other claims, the subsequent claims are broadly classified into two categories viz dependent claim and independent claim. The claim which is dependent on the claim 1 is known as dependent claim and the claim which is not dependent on the principle claim is known as independently claim. In practice all the patent Indian patent specification have one principle and one or more dependent claims. In the patent document of the country like U.S one may come across many independent claims.

1.29 Dependent claim

All the subsequent claims after the claim 1 are termed as dependent claims or independent claims depending on their linkage with principle claim 1. Claim 2 or subsequent claims usually refers to 'as claimed in claim 1' or as claimed in claim are known as dependent claims. A dependent claim while giving reference to the principle claims or other claims further limits the referred claim or claims. A dependent claim typically includes all the limitations of the claim referred therein. Where claims depend on claim 1 it is interpreted to include all the elements of the principle claim in addition to another detail. Such claim always begin with a phrase "A according to claim.....". The following examples provides the illustration of the principle claim and the dependent claim of a typical patent specification.

Example :

We Claim:

-
1. **A method for fusing lead onto iron which comprises applying as a flux an aqueous solution of zinc chloride and/or nickle chloride and/or cobalt chloride with stannous chloride to the surface of the iron and fusing the lead thereon while heating.**
2. **A method according to claim 1 in which the ratio of the amount of said zinc chloride, nickle chloride and cobalt chloride to the amount of said stannous chloride is between 5:1 and 1:1 on the weight basis.**

Claim 1 in this example in this principle claim where the inventor broadly specify that method of using lead on into iron comprises applying flux of aqueous solution of zinc chloride and/or nickel chloride and/or cobalt chloride with stannous chloride. Claim 2 in this example specify the ratio of zinc chloride, nickel chloride and cobalt chloride with stannous chloride for making the flux of aqueous solution. The reader must observe that the consumption and/or is used by the inventor to provide variation in the combination of the components for making the flux.

1.30 Omnibus claim

It is also called catch all claim. The omnibus claim refers to a claim which includes a reference to the description or the drawings. In does not make any explicit reference to technical features of the product or process claimed by the inventor. It is presumed to provide a fallback option where all the proceeding claims are found to be invalid. Such claims typically read as 'A process substantially as hereinbefore described' and 'An apparatus.....as described hereinbefore and illustrated in the accompanying drawings'.

Examples of omnibus claims

3. A process for the preparation of an antitubercular antibiotic from “Streptomyces F-6” substantially as herein before described.

1.31 Meaning of the transition word

The transition words or phrases like “comprising”, “consisting of”, “consisting essentially of”, ‘preferably’ and ‘optionally’ have very distinct legal meaning. They provide clear indication to the reader about the limitation of the claims. These terms are explain below.

‘Comprising’

The word “Comprising” broadly means to encompass all the recited elements listed in the claim. It does not in any way exclude additional, unnamed elements. For instance a claim comprising of two elements ‘A’ and ‘B’ would be infringed if third party work the invention using elements ‘A’ and ‘B’ or using elements ‘A’ and ‘B’ with a new element ‘C’. In another case where third party uses element ‘A’ or ‘B’ with element ‘C’ it will not be treated as infringement.

‘Consisting of’

In contrast, the transitions “consisting of” and “consisting essentially of” have more limited scope. The word ‘Consisting of’ is used to limit the invention to the recited elements .It means that the claimed apparatus or process/method has the given elements (or steps) and no more. For instance where a claim consists of recited elements ‘A’ and ‘B’ and any person who uses only ‘A’, or ‘A’ with ‘C’ without ‘B’, or using ‘A’, ‘B’, with ‘C’, the claim is not treated as infringed.

‘Consisting essentially of’

This special expression is being used to mean to include additional elements only if they do not affect the basic and novel characteristics of the claim. In other words extent of protection provided by this phrase is anything between ‘comprising’ and ‘consisting of’.

‘Preferably’ or ‘Optionally’

Preferable is also being used as transition word. It means that at least the following elements are preferred .The word optionally is also being used to provide for the coverage of further description of the overall operation of the invention, or the objectives the invention also intend to achieve.

1.3.2 Typical examples of claims

There are several types of claims some examples are given as reference.

Product

It can be a chemical or physical product.

Example 1

1. A film comprising uniaxially oriented imidized LaRC-CPI-BTDA polyimide having a tensile modulus greater than about 0.5 to 2.0 msi and tensile strength greater than about 40 to 80 ksi.

Apparatus

A claim to a new type of physical object.

Example 1

'Shaving apparatus for shaving hair from human skin and for alerting the user to the continued presence of significant hair stubble on the skin comprising, in combination:

- (a) a safety razor having a structural frame including a razor head and an elongate handle extending therefrom;
- (b) means mounted on said structural frame for scraping hair stubble on human skin and receiving induced vibrations therefrom as the razor head is passed along the skin; and,
- (c) means responsive to said induced vibrations in the scraping means, for audibly amplifying said vibrations to alert the user to the continued presence of hair stubble'.

Example 2

'A sealing member for an electric cable having an outer relief surface formed by an array of electrical conductors concentrically laid on an insulating sheath of said electric cable, said electrical conductors being in a spaced apart relationship and defining recesses there between, said sealing member comprising a collar of flexible and resilient material including:

a plurality of elongated cavities spaced apart by a distance corresponding substantially to a spacing between electrical conductors of an array of electrical conductors; and

an outer sealing surface of a generally cylindrical configuration, said collar being capable of engaging said electric cable concentrically, whereby electrical conductors of said array are capable of entering into respective cavities of said collar which obturates said recesses and is capable of forming a non-leaking union between said electric cable and an adjacent body in a mating relationship with said collar'.

Process

Another type is a process claim which covers a process of making something that is itself known, such as a new way to make a known pharmaceutical.

Example

1. A process for the preparation of an antitubercular antibiotic which consists in fermenting a broth with a streptomyces strain which is designated by us as "Streptomyces F-6" followed by extracting with a solvent and concentrating the extract.

Method claim

Another type is a method claim which covers a method of making something that is itself known.

Example

1. A method for fusing lead onto iron which comprises applying as a flux an aqueous solution of zinc chloride and/or nickle chloride and/or cobalt chloride with stannous chloride to the surface of the iron and fusing the lead thereon while heating.

1.37 Conclusion

If writing of a patent specification requires a skillful use of technical terms, reading of this document for the purpose of interpretation of the scope and protection of the invention needs an expertise par excellence. This is all the more essential where one seeks to interpret patent claims to avoid duplication of research or possible infringement. Expert opinion on patent claim interpretation is critical when large investments are involved for introducing new products in the market

Parts of a typical Patent Specification

Preamble	This invention relates to the preparation of new antibiotic from a streptomycin strain isolated from soil. Hitherto, although antibiotic substances have been obtained from soil streptomycetes which have been useful in combating a number of diseases, toxicity and development of resistant strains have limited their use in many cases. The object of the present invention is to search for new antibiotics, especially active against tubercle bacilli in order to find out a better product.	Statement of invention	
Background	We have found that a new antitubercular antibiotic possessing antitubercular properties in addition to its action against gram positive and gram negative bacteria can be prepared from a strain of streptomycetes isolated by use from soil and designated by us as "streptomycetes F6". The preparation is active against streptomycin resistant tubercle bacilli. It is also active against some strains of <i>Pseudomonas pyocyanea</i> isolated from patients. The properties of the strain "streptomycetes F6" are as follows: Vegetative growth—good wrinkled growth on synthetic organic media white aerial mycelium brown diffusible pigments. Aerial mycelium— white to grayish spores oval to round 0.8 to 1.0μ sporulation not at all common on most of the media. Gelatin— good growth on the surface liquifaction. Synthetic agar or czapeck's agar— aerial mycelium turing wrinkled growth after five six days. Potato agar— abundant growth brown to black pigment. Glucose agar glucerol agar Nutrient agar—good growth white aerial mycelium brown diffusible pigment. Litmus milk— Turns alkaline otherwise no change. Starch agar— white growth no pigment starch hydrolysed after a week. Nitrates reduced to nitrites. Tyrosinase reaction— nagtive. Blood agar— Good growth, haemolysis. Lofferes serum— black pigment no liquifaction.	Accordingly, the preparation of an anti-tubercular antibiotic consists according to the present invention in fermenting a broth with a streptomycetes strain which has been designated by us as "Streptomycetes F-6". followed by extracting the fermented broth with a solvent and concentrating the extract. The concentrate is purified by dissolving in sodium hydroxide or petroleum ether whereby the active substance separates in the form of a white amorphous solid leaving behind a less active red viscous liquid. The following steps are involved: 1. fermenting the broth with antibiotic producing organisms; 2. extracting the fermented broth with solvents; 3. concentrating the extract to get the active substance; 4. separation of the two components of the extract into an active white amorphous wax like substance and red oil like viscous substance with less activity. A typical medium is prepared by dissolving the following ingredients in tap water-pepton; ammonium citrate, glucose sodium chloride, potassium phosphate, ferrous sulphate. An anti foam agent such as silicon oil is added. Other fermentation med a well known to workers in the field can also be used. Eight-to ten-day old culture of the antibiotic producing organisms "Strptomycetes F-6" is added to the fermentation medium. The fermentation is continued for seven days at 32-33°C, with approx. 35-43 litres/minute or air being passed. The fermented broth is extracted with 10% (of medium) of ethylene dichloride three times. Ethylene dichloride is evaporated under reduced processue and a red viscous liquid is obtained. To this 2.5 N sodium hydroxide is added, to separate white active amorphous substance from red viscous less active liquid.	Description of invention
	Example Seventy liters of the fermentation medium is prepared and inoculated with 3.5 liters of ten-day old culture of the organism	Example	

"Streptomyces". Between 35 to 43 liters/min of air is passed through the medium. The fermentation is carried on for 7 days at 32°C. Eight liters of the ethylene dichloride is added to the fermenter and stirred for 6 hours and allowed to settle overnight. The ethylene dichloride is removed and a fresh lot added. The process is repeated twice. The ethylene dichloride extracts are combined and ethylene dichloride is distilled off at 42°C. under reduced pressure. 8.70 g. of the crude red antibiotic substance is obtained.

The crude antibiotic is dissolved in 2.5 NaOH. 3.21 g. white waxy material separates. The dark brown substance weighs 5.52 g.

THE INVENTION HAS THE following advantages:-

1. The antibiotic is active against tubercle bacilli including streptomycin resistant tubercular bacilli,

2. It is active against gram positive and negative bacteria including *Ps. pyocyanea*.

We claim:

1. A process for the preparation of an antitubercular antibiotic which consists in fermenting a born with a "Streptomyces strain which is designated by us as "Streptomyces F-6" followed by extracting with a solvent and concentrating the extract
2. A process as claimed in Claim 1 wherein the concentrate is purified by dissolving in sodium hydroxide or petrol ether whereby the active substance separates in the form of a white amorphous solid, leaving behind a less active red viscous liquid.
3. A process for the preparation of an antitubercular antibiotic from "Streptomyces F-6" substantially as hereinbefore described.

Main Claim

Dependent Claim

Omnibus Claim

Advantagaes

Sd./- Illegible
Director,

INDIAN COUNCIL OF MEDICAL
RESEARCH.

Dated this 14th day of July 1962.

Typical example of a drawing

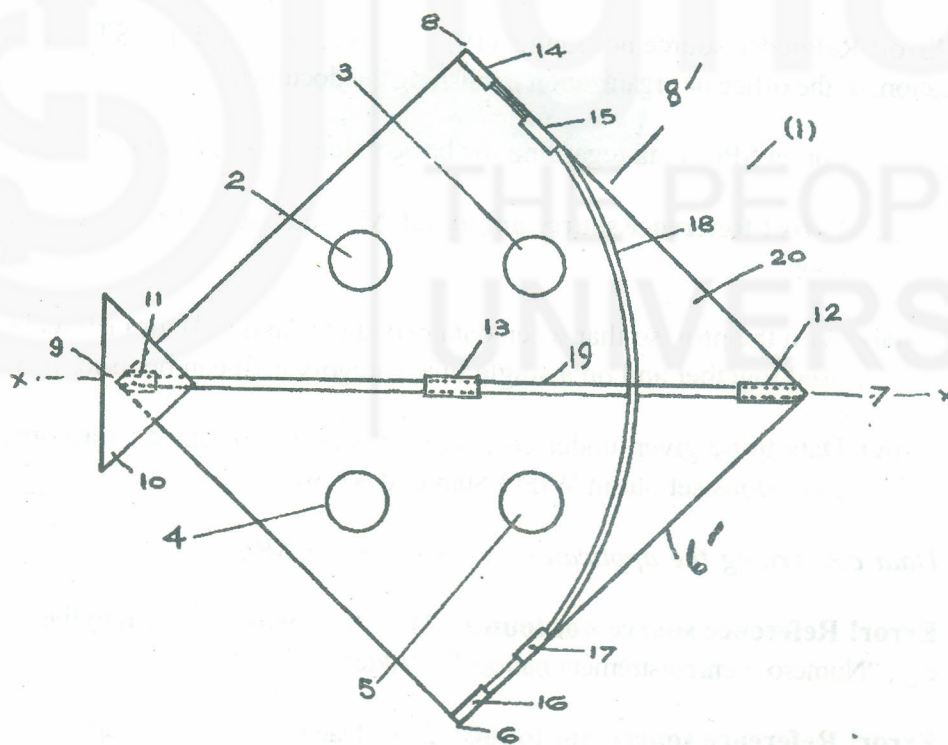


FIG-1

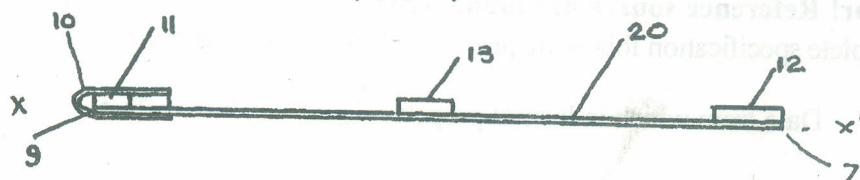


FIG-2

Annexure 1

[WIPO's Patent information and documentation handbook] full version is available online from WIPO

APPENDIX 1

INID CODES

INID CODES AND MINIMUM REQUIREMENTS FOR THE IDENTIFICATION OF BIBLIOGRAPHIC DATA ELEMENTS

(10) *Identification of the patent, SPC or patent document*

Error! Reference source not found. (11) Number of the patent, SPC or patent document

Error! Reference source not found. (12) Plain language designation of the kind of document

Error! Reference source not found. (13) Kind-of-document code according to WIPO Standard ST.16

(15) Patent correction information

Error! Reference source not found. (19) WIPO Standard ST.3 code, or other identification, of the office or organization publishing the document

Notes: (i) For an SPC, data regarding the basic patent should be coded by using code (68).

(ii) **Error! Reference source not found.** Minimum data element for patent documents only.

(iii) With the proviso that when data coded (11) and (13), or (19), (11) and (13), are used together and on a single line, category (10) can be used, if so desired.

(iv) Data to be given under code (15) should be presented in accordance with the provisions set out in WIPO Standard ST.50.

(20) *Data concerning the application for a patent or SPC*

Error! Reference source not found. (21) Number(s) assigned to the application(s), e.g., "Numero d'enregistrement national", "Aktenzeichen"

Error! Reference source not found. (22) Date(s) of filing the application(s)

Error! Reference source not found. (23) Other date(s), including date of filing complete specification following provisional specification and date of exhibition

(24) Date from which industrial property rights may have effect

- (25) Language in which the published application was originally filed
- (26) Language in which the application is published
- (27) Reference to a previously filed application

Notes:

- (i) Attention is drawn to Appendix 3 which contains information on the term of protection and on the date from which industrial property rights referred to under code (24) may have effect.
- (ii) The languages under codes (25) and (26) should be indicated by using the two-letter language symbols according to International Standard ISO 639:1988.

(30) *Data relating to priority under the Paris Convention*

Error! Reference source not found. (31) Number(s) assigned to priority application(s)

Error! Reference source not found. (32) Date(s) of filing of priority application(s)

Error! Reference source not found. (33) WIPO Standard ST.3 code identifying the national industrial property office allotting the priority application number or the organization allotting the regional priority application number; for international applications filed under the PCT, the code "WO" is to be used

(34) For priority filings under regional or international arrangements, the WIPO Standard ST.3 code identifying at least one country party to the Paris Convention or member of the World Trade Organization for which the regional or international application was made

Notes:

- (i) With the proviso that when data coded (31), (32) and (33) are presented together, category (30) can be used, if so desired. If an ST.3 code identifying a country for which a regional or international application was made is published, it should be identified as such using code (34) and should be presented separately from elements coded (31), (32) and (33) or (30).
- (ii) The presentation of priority application numbers should be as recommended in WIPO Standards ST.10/C and in ST.34.

(40) *Date(s) of making available to the public*

Error! Reference source not found. (41) Date of making available to the public by viewing, or copying on request, an unexamined patent document, on which no grant has taken place on or before the said date

Error! Reference source not found. (42) Date of making available to the public by viewing, or copying on request, an examined patent document, on which no grant has taken place on or before the said date

Error! Reference source not found. (43) Date of making available to the public by printing or similar process of an unexamined patent document, on which no grant has taken place on or before the said date

Error! Reference source not found. (44) Date of making available to the public by

printing or similar process of an examined patent document, on which no grant or only a provisional grant has taken place on or before the said date

Error! Reference source not found. (45) Date of making available to the public by printing or similar process of a patent document on which grant has taken place on or before the said date

(46) Date of making available to the public the claim(s) only of a patent document

Error! Reference source not found. (47) Date of making available to the public by viewing, or copying on request, a patent document on which grant has taken place on or before the said date

Error! Reference source not found. (48) Date of issuance of a corrected patent document

Note: Error! Reference source not found. Minimum data element for patent documents only, the minimum data requirement being met by indicating the date of making available to the public the patent document concerned.

(50) *Technical information*

Error! Reference source not found. (51) International Patent Classification or, in the case of a design patent, as referred to in subparagraph 4(c) of this Recommendation, International Classification for Industrial Designs

(52) Domestic or national classification

Error! Reference source not found. (54) Title of the invention

(56) List of prior art documents, if separate from descriptive text

(57) Abstract or claim

(58) Field of search

Notes: (i) The presentation of the classification symbols of the International Classification for Industrial Designs should be made in accordance with paragraph 4 of WIPO Standard ST.10/C.

(ii) With regard to code (56) attention is drawn to WIPO Standard ST.14 in connection with the citation of references on the first page of patent documents and in search reports attached to patent documents.

(60) *References to other legally or procedurally related domestic or previously domestic patent documents including unpublished applications therefor*

Error! Reference source not found. (61) Number and, if possible, filing date of the earlier application, or number of the earlier publication, or number of earlier granted patent, inventor's certificate, utility model or the like to which the present patent document is an addition

Error! Reference source not found. (62) Number and, if possible, filing date of the earlier application from which the present patent document has been divided up

Error! Reference source not found. (63) Number and filing date of the earlier application of which the present patent document is a continuation

Error! Reference source not found. (64) Number of the earlier publication which is "reissued"

(65) Number of a previously published patent document concerning the same application

(66) Number and filing date of the earlier application of which the present patent document is a substitute, i.e., a later application filed after the abandonment of an earlier application for the same invention

(67) Number and filing date of a patent application, or number of a granted patent, on which the present utility model application or registration (or a similar industrial property right, such as a utility certificate or utility innovation) is based

(68) For an SPC, number of the basic patent and/or, where appropriate, the publication number of the patent document

Notes: (i) Priority data should be coded in category (30).

(ii) Code (65) is intended primarily for use by countries in which the national laws require that re-publication occur at various procedural stages under different publication numbers and these numbers differ from the basic application numbers.

(iii) Category code (60) should be used by countries which were previously part of another entity for identifying bibliographic data elements relating to applications or grants of patents which data had initially been announced by the industrial property office of that entity.

(70) *Identification of parties concerned with the patent or SPC*

Error! Reference source not found. (71) Name(s) of applicant(s)

(72) Name(s) of inventor(s) if known to be such

Error! Reference source not found. (73) Name(s) of grantee(s), holder(s), assignee(s) or owner(s)

(74) Name(s) of attorney(s) or agent(s)

Error! Reference source not found. (75) Name(s) of inventor(s) who is (are) also applicant(s)

Error! Reference source not found. (76) Name(s) of inventor(s) who is (are) also applicant(s) and grantee(s)

Notes: (i) **Error! Reference source not found.** For patent documents for which grant has taken

place on or before the date of making available to the public, and gazette entries relating thereto, the minimum data requirement is met by indicating the grantee, and for other documents by indication of the applicant.

- (ii) Codes (75) and (76) are intended primarily for use by countries in which the national laws require that the inventor and applicant be normally the same. In other cases codes (71) or (72) or (71), (72) and (73) should generally be used.

(80) (90) *Identification of data related to International Conventions other than the Paris Convention, and to legislation with respect to SPCs*

(81) Designated State(s) according to the PCT

(83) Information concerning the deposit of microorganisms, e.g., under the Budapest Treaty

(84) Designated Contracting States under regional patent conventions

(85) Date of commencement of the national phase pursuant to PCT Article 23(1) or 40(1)

(86) Filing data of the PCT international application, i.e., international filing date, international application number, and, optionally, the language in which the published international application was originally filed; or, in the case of design patents, registration data of the Hague Agreement international application, i.e., international registration date and international registration number

(87) Publication data of the PCT international application, i.e., international publication date, international publication number, and, optionally, the language in which the international application is published

(88) Date of deferred publication of the search report

(91) Date on which an international application filed under the PCT no longer has an effect in one or several designated or elected States due to failure to enter the national or regional phase or the date on which it has been determined that it had failed to enter the national or regional phase

(92) For an SPC, number and date of the first national authorization to place the product on the market as a medicinal product

(93) For an SPC, number, date and, where applicable, country of origin, of the first authorization to place the product on the market as a medicinal product within a regional economic community

(94) Calculated date of expiry of the SPC or the duration of the SPC

(95) Name of the product protected by the basic patent and in respect of which the SPC has been applied for or granted

(96) Filing data of the regional application, i.e., application filing date, application number, and, optionally, the language in which the published application was originally filed

(97) Publication data of the regional application (or of the regional patent, if already granted), i.e., publication date, publication number, and, optionally, the language in which the application (or, where applicable, the patent) is published

Notes: (i) With regard to patents for invention, the codes (86), (87), (96) and (97) are intended to be used:

- on national documents when identifying one or more of the relevant filing data or publication data of the PCT international application or of the regional application (or of the regional patent, if already granted), or
- on regional documents when identifying one or more of the relevant filing data or publication data of the PCT international application or of another regional application (or the regional patent, if already granted).

(ii) All data in codes (86), (87), (96) or (97) should be presented together and preferably on a single line. The application number or publication number should comprise the three basic elements as shown in the examples in paragraph 17 of WIPO Standard ST.10/B.

(iii) When data to be referenced by codes (86), (87), (96) or (97) refer to two or more PCT international applications and/or regional applications (or regional patents, if already granted), each set of relevant filing or publication data of each such application (or granted patent) should be displayed so as to be clearly distinguishable from other sets of relevant data, e.g., by presenting each set on a single line or by presenting the data of each set grouped together on adjacent lines in a column with a blank line between each set.

(iv) The languages under codes (86), (87), (96) and (97) should be indicated by using the two-letter language symbols according to International Standard ISO 639:1988.

(v) The country of origin in code (93), if mentioned, should be indicated by using the two-letter code according to WIPO Standard ST.3.

(vi) Attention is drawn to Appendix 3 which contains information on the term of protection and on the date from which SPCs referred to under code (94) may have effect.

DRAFTING OF A PATENT DOCUMENT

1.1 Introduction

Any invention which needs to be patented, one needs to describe its all details in a patent document. Such document is technically known as patent specification. The patent document normally contains the name and address of the inventors, applicant, and assignee. This also contains the title of the invention. In India the patent specification contains the preamble of the invention. However after the grant of patent to a particular invention, it also contains additionally the international patent classification, details of corresponding application filed abroad and the abstract of the invention apart from other bibliographic data.

1.2 Patent specification

A patent specification is a document which describes the technical details of the invention. This may include the detail of the technical field of the invention, details of prior art available in the field of invention, details regarding the problems faced in that field of the invention, the details of the solution offered by the invention, advantages or the objectives achieved by the invention and full details of the invention including its working manner or manner in which it is to be performed and details with respect of the drawing and working examples. A patent specification is considered the heart and soul of a patent since the scope, validity and rights conferred by patent largely depend on the specification accepted during prosecution of the patent application. Therefore, the patent specification is a technical as well as a legal document.

1.3 Kinds of patent specification

The patent laws of most countries allow the patent applications to be filed either with a provisional or complete specification. Therefore, the patent specification is of two kinds: one being a provisional specification and the other being a complete specification.

(A) Provisional Specification: The provisional specification is a document which describes the nature of the invention or the process involved in the invention. One needs not to describe the invention in greater detail in the provisional specification. The title of the invention in the provisional specification generally gives a fair indication of the art or subject to which the invention relates. By submitting the application for patent with provisional specification the inventor/applicant gets not only application number and filing date for his application but at the same time gets time to work further his invention. Sometimes the applicant is not in position to work his inventive idea due lack of finance. By filing the provisional specification he has no danger in disclosing his invention to third party in order to secure finance as he has already obtained the priority date by filing the application in the patent office. The time period availed off after filing the provisional specification, the inventor or the applicant can complete his invention. He can also approach some good patent attorney for advice as to how to protect best his invention and sometimes he can also approach someone who can commercially exploit his invention. In addition to these benefits, the applicant or the inventor also gets 12 months time to file the complete specification wherein he is required to describe his invention in the form of claims which would ultimately define the scope of protection sought by him. Another important point is that it is not necessary for the applicant to include in the claims in the provisional specification.

(B) Complete specification: The complete specification is a document which is filed after the provisional specification. However the invention described in the complete specification is substantially the same as that which is described in the provisional specification. The complete specification is generally and must be written in greater details and with clarity. In case the invention is illustrated on the drawing sheet or sheets, then clear and complete details are required to be given the complete specification and all the parts of the invention indicated by numerals in the drawing are required to be given and described in the body of the complete specification. In case such drawings have already been furnished to illustrate the invention with the provisional specification, it is unnecessary to file again a further set of the same drawings with the complete specification if the article or device remains same as was at the time of filing of the provisional specification. Under such situation, it would be sufficient to refer in the complete specification to the drawings enclosed with the provisional specification. However, in case there is any further modification or some other view of the invention is to be illustrated in order to explain it in a better way than what was illustrated earlier then in that situation, the applicant is free to attach more number of drawings along with the complete specification.

A complete specification, filed after a provisional specification, does not replace the latter. Both are independent documents. Thus, a complete specification furnishes complete and detailed description of the invention, even though such identical description might have already been furnished in the provisional specification. However one of the important requirement for the patent document in order to qualify as complete specification is to have at least one or more claims for the invention at the end. Where there is more than one provisional specification, a single complete specification for two or more provisional specifications can be filed by cognating them together. Some times if the patent law of some countries permits, then, on the request of the applicant the complete specification can be converted into a provisional specification and allow the applicant to file fresh complete specification. Moreover the applicant sometimes may have right to cancel the provisional specification and get the application post-dated to the date of filing of the complete specification.

Parts of the complete specification:

The complete specification must have the following ingredients in its body. They are namely-

Title of the invention

Field or preamble of the invention

Prior art description in the field of the invention

Drawbacks of the prior art

Solution offer or problem solved by the invention

Objects of the invention

Summary of the invention

Statement of invention

Detailed description of the invention

Detailed description of the invention with reference to drawing if any

Embodiments of the invention

Examples (if any)

Claims

Drawings (if any)

Abstract

1.4 Title

The title of the specification indicated the nature of invention. For example, if an applicant intends claim three aspects of his invention namely a product, a process for preparing the product and an apparatus to perform the process then the title must give clue of all these three aspects of the invention in the title.

1.5 The preamble of the invention

The field or preamble of the invention provides more details of the invention than the title. In fact, the opening description of the specification gives the background, summary and usefulness of the invention in a brief manner. Therefore it is very important for the applicant to give the field and preamble of the invention very clearly in the beginning of the description of the invention in the specification

1.6 Prior art references

Subsequent to the description of the field or preamble of the invention, the applicant is required to give the relevant prior art references in the specification. This means, the applicant may provide a brief write-up of what is disclosed or known before the present invention. In addition, most importantly, the applicant should clearly distinguish each prior art cited by him from the present invention. In other words, the applicant should clearly bring out what is known and what is unknown (present invention) with regard to each and every prior art reference made in the specification.

1.7 Drawbacks of the prior art

While giving the prior art reference in the specification, it is always important to clearly analyze the drawbacks of the prior art. In other words it is important as to why the prior art failed to solve the problem faced by the applicant or as to why the applicant could not solve the technical problem by using the prior art technical details or the solutions offered by the prior art.

1.8 Solution offer or problem solved by the invention

After analyzing the drawbacks of the prior art, the applicant should elaborately provide the solution offered by his invention. In other words the applicant must disclose as to how he has solved the problem faced by him which could not be solved by the prior art. While doing so the applicant must point out the various differences involved between such known art and the present invention to increase the credibility of the specification. In case where the invention is an improvement, the

applicant ought to provide the closest prior art references so as to distinguish his invention from that of the known ones. However where an invention is a new one (first of its kind) then it is not necessary for him to provide prior art reference in the specification.

1.9 Objects of the invention

The intention or purpose of the invention must be stated briefly in the specification. To start with, the objects of the invention should state the main object or essential objects of the invention and thereafter the ancillary objects of the invention in separate paragraphs may be given if so desired.

1.10 Statement of invention

The applicant is also expected provide statement of invention in the specification which would support the omnibus claims if so claimed. If there is no omnibus claim(s) incorporated in the claims, in that situation, it is not necessary to provide statement(s) of invention in the description. However it is always better to provide the statement of the invention in the body of the specification as it would enable the applicant to incorporate the omnibus claim not already claimed by him.

1.11 Detailed description of the invention

For detail description of the invention, the applicant is expected to describe the invention in more detail and while doing so the applicant must keep it in mind that the specification of a patent is not addressed to the general public or a layman but to a skilled person in the art. In other words, the description of the patent has to be sufficient enough to enable the skilled person to put the invention into practice without making further experimentation. Therefore, the description of the invention as contained in the specification should be independently sufficient to enable a person having average skill in the field of technology to which the invention pertains, and average knowledge of, the art to which the invention relates, to work the invention. If the specification fails to meet this important requirement the, the patent application can be opposed on the ground of insufficiency or if patent is granted already then it can be invalidated due to insufficiency of the description. Hence, two conditions are necessary to meet the sufficiency of the description of an invention. The first being that the complete specification must describe the embodiment of the invention claimed in each and every claims and that the description must be sufficient to enable those in the industry concerned to carry it into effect by reading the direction or information contained therein without their making further experimentation, and the second condition is that the description must be fair, i.e. it must not be unnecessarily too difficult to follow or in other words the description of the invention should not be ambiguous to understand for achieving what the applicant intended to achieve.

It is also very important note that every specification should fully and particularly describe the invention and its operation or use and the method by which it is to be performed; and disclose the best method of performing the invention which is known to the applicant and for which he is entitled to claim protection. This requirement is there almost in all the patent law globally in form or other. In India however the preamble given on the first page of complete specification incorporates the words "The following specification particularly describes and ascertains the nature of this invention and the manner in which it is to be performed". Therefore the complete specification describes the invention in the best possible manner. The applicant is expected to disclose the best possible method known to him and not otherwise. In short, the applicant must always keep in mind the three expressions namely "fully and particularly describe the invention", "sufficiently and fairly describe the invention" and "sufficiently and clearly describe the invention" while drafting the patent document.

If the nature of an invention is such which requires to illustrate the device, apparatus machines, articles of manufacture, and certain processes or any part of the invention by drawings it becomes important to describe them fully in the body of the specification. In the drawings, if dimensions or spatial relationships are important, these should be explicitly stated in the specification and/or on the drawings themselves. The drawings itself must also be described in the specification. There are some very specific rules in the patent law of each country or under the regulations of Patent Cooperation Treaty (PCT) with respect to the size and type of paper, the margins, and the cross-hatching to be used in all such drawings must be followed carefully. In other words, the detailed description should illustrate the invention with reference to examples and/or accompanying drawings. It is always important to add tables, graphs, and charts to clearly exemplify the invention. If the applicant intends to add any drawings, a brief description of the drawings with reference to the various figures should be provided before the detailed description of the drawing. The figures of the drawings should be serially arranged and each parts/means of such figures should be serially numbered.

1.12 Claims

It is requirement of most countries that every complete specification be accompanied by at least one claim or more claims defining the scope of the invention for which protection is claimed. The claim or claims of a complete specification define the monopoly or protection which the patentee claims as his exclusive right. In other words, the claim demarcates the boundary of the patent right of the patentee from other information or knowledge available in the world in the field of the invention. The function of the claims is to show with conciseness, precision, and accuracy as to what the invention in respect of which monopoly is sought means to show how much of what is described in the specification constitutes the invention and to show what is not claimed and therefore open to public use. In other words the claims of a patent can be viewed as the word fence surrounding the invention. There can be independent or independent claims. The claims one is known as principal claim. The subsequent claims can be dependent claims. The subsequent claims may be multiple dependent claims. The claims may be independent also. However all the independent claims must form or constitute the single inventive concept. In other words the independent claims must not be distinct defining the multiple inventions. In this situation they can not be allowed in single application and therefore the applicant may be asked to divide his application to file the divisional application for distinct invention.

1.13 Divisional applications

As mentioned above, the provision of the Patent Law requires that the invention or group of inventions so disclosed in the patent document (specification) should form a single inventive concept. Accordingly, if such inventions are to be claimed in a single application, they must fulfill those requirements of the law. However, in case such inventions or group of invention do not form a single inventions concept and are in nature of distinct invention, in such situation either the applicant himself or on the direction of the Patent Office, can file a divisional application dividing out the parent application and claim the priority of the parent application. Under such circumstances, the complete specification so filed in respect of divisional application should not include any matter which has not been disclosed in the parent application. It should also be ensured that the claims in the parent application should not be included in the divisional application or vice versa. The divisional application will be considered as a substantive and independent application for all purpose and is entitled for examination separately.

2.14 Patent of addition

The Indian Patent Law and the Patent Law in some other country provide provisions for filing application for patent of addition in respect of the improvement or modification made over those inventions which have already been patented earlier. However, such application for patent of addition can be filed only by the same applicant. The grant of patent of addition on the application so filed cannot be refused on the ground that invention claimed in the patent specification does not involve any inventive step having regard to the prior publication or uses of the invention described in the specification of the main application. While considering the novelty of the invention claimed in the application for patent of addition, the invention described in the specification of main patent will also be considered. The only disadvantage in getting the patent of addition is that the term of such patent expires concurrent to the term of main patent. Therefore, the patent of addition does not enjoy the full 20 term years as provided usually. However, the patentee does not require to pay the renewal fee for patent of addition since this patent is automatically renewed on the basis of main patent renewal.

2.15 Format of the claims

The following are the standard or model format of the claims in order to claim the invention in the patent specification.

(I) Example of Engineering inventions

- (i) An exhaust or ventilator fan comprising a fan unit including an electrical motor having fan blades secured to its shaft or spindle and mounted within a cylindrical casing of light weight material, an inner annular clamping ring having a gasket on one of its faces and an outer clamping ring having a gasket on its inner face, the gaskets on the two clamping rings having keys and keyways engaging the two clamping rings which are secured to each other around a window or hole in a wall or partition, and disposed on opposite sides of the wall or partition, and the fan unit being carried by the inner clamping ring.**
- (ii) A fan drive for an internal combustion engine including an engine drive, a fan, and a liquid supply system including a high pressure pump outlet and a low pressure pump return, the said fan drive comprising: a clutch means between the engine drive and the fan, the clutch means including a pressure chamber and being adapted, when engaged, to couple the engine drive to the fan and, when disengaged, to uncouple the engine drive from the fan; a feed path and return path through the fan drive; means for connecting the said feed and return paths respectively to the pump outlet and the pump return for continuously circulating liquid through the feed path and the return path during engine operation; a control path connected to the pressure chamber; a first valve means connected in the control path and having an open position and a closed position, the first valve means being adapted to place the pressure chamber in liquid flow communication with the pump outlet when in the said open position; and the first valve means being adapted to close the said control path to liquid flow when in said closed position; and a second valve means between the pressure chamber and the return path responsive to liquid pressure in the pressure chamber, the second valve means being adapted to be closed to liquid flow at high pressure and open to liquid flow at reduced pressure, whereby when the**

first valve means is opened the said liquid pressure appears in the pressure chamber and when the second valve means is opened the said liquid pressure is released from the pressure chamber.

(II) Example of Chemical and pharmaceutical inventions

- (i) An antifouling composition for inhibiting the growth of organisms on a surface, wherein the composition comprises (a) a menthol, a capsaicin-containing agent and tea tree oil or (b) pomegranate extract, grapefruit seed extract and at least one protease or (c) any combination thereof.
- (ii) The composition as claimed in claim 1 wherein the polymer base is selected from a UHMW polyethylene, VHMW polyethylene and a latex-based compound or wherein the biocidal composition comprises one or more biocidal phytochemical agents isolated from a grapefruit seed extract or a pomegranate extract or further comprising one or more biocidal phytochemical agents, wherein the biocidal phytochemical agent is an anti-bacterial; an anti-viral; an anti-fungal; an anti-crustacean; a larvicidal; an insecticidal; a molluscicidal or an anti-nematodal biocidal phytochemical or further comprising one or more biocidal phytochemical agents, wherein the biocidal phytochemical agent is an anti-bacterial; an anti-viral; an anti-fungal; an anti-crustacean; a larvicidal; an insecticidal; a molluscicidal or an anti-nematodal biocidal phytochemical.
- (iii) A pharmaceutical composition for oral dosage comprising a first layer of a first composition and a second layer of a second composition, each composition comprising a drug, wherein the drug is 5-[4-[2-(N-methyl-N-(2 pyridyl)amino)ethoxy]benzyl] thiazolidine-2,4-dione, or a pharmaceutically acceptable salt or hydrate thereof, and a pharmaceutically acceptable carrier therefor, wherein the first and second compositions are arranged to release the drug at differing release rates on administration.

(III) Example of Biotechnology inventions

- (i) A cDNA encoding a polypeptide that comprises the amino acid sequence shown in SEQ ID NO: X, the amino acid sequence shown in SEQ ID NO:Y, the amino acid sequence of residues 1 to 392 of SEQ ID NO:X or the amino sequence of residues 1 to 398 of SEQ ID NO:Y, or an amino acid sequence having at least 95% homology with the amino acid sequence shown in SEQ ID NO:X the amino acid sequence shown in SEQ ID NO:Y, the amino acid sequence of residues 1 to 392 of SEQ ID NO:X, or the amino acid sequence of residues 1 to 398 of SEQ ID NO:Y.
- (ii) A replication or expression vector carrying a cDNA encoding a polypeptide that comprises the amino acid sequence shown in SEQ ID NO:X, the amino acid sequence shown in SEQ ID NO:Y, the amino acid sequence of residues 1 to 392 of SEQ ID NO:X, or the amino sequence of residues 1 to 398 of SEQ ID NO:Y, or an amino acid sequence having at least 95% homology with the amino acid sequence shown in SEQ ID NO:X, the amino acid sequence shown in SEQ ID NO:Y, the amino acid sequence shown in SEQ ID NO:Y, the amino acid sequence of residues 1 to 392 of SEQ ID NO:X, or the amino acid sequence of residues 1 to 398 of SEQ ID NO:Y.
- (iii) A method for producing a polypeptide that comprises the amino acid sequence shown in SEQ ID NO:X or Y, or that comprises an amino acid sequence that is at least 95% homologous with the amino acid sequence shown in SEQ ID NO:X or Y, which comprises culturing a host cell transformed with the replication or expression vector carrying cDNA encoding a polypeptide that comprises the amino acid sequence shown in SEQ ID NO:X or Y, or that comprises an

amino acid sequence that is at least 95% homologous with the amino acid sequence shown in SEQ ID NO:X or Y, under conditions effective to express said polypeptide, and recovering the polypeptide so expressed.

- (iv) A polynucleotide selected from the group consisting of: (a) poly-nucleotides encoding a polypeptide comprising the amino acid sequence according to SEQ ID NO: X;(b) poly-nucleotides comprising the nucleotide sequence according to SEQ ID NO: Y; (c) poly-nucleotides comprising a nucleotide sequence obtainable by nucleic acid amplification such as polymerase chain reaction, using genomic DNA from a 5 microorganism as a template and a primer set according to SEQ ID NO: Z and SEQ ID NO: AZ;(d) poly-nucleotides comprising a nucleotide sequence encoding a fragment or derivative of a polypeptide encoded by a polynucleotide of any of (a) to (c) wherein in said derivative one or more amino acid residues are conservatively substituted compared to said polypeptide, and said fragment or derivative has the activity of a PQQ biosynthesis protein;(e) poly-nucleotides the complementary strand of which hybridizes under stringent conditions to a polynucleotide as defined in any one of (a) to (d) and which encode a PQQ biosynthesis protein; and(f) poly-nucleotides which are at least 70%, such as 85, 90 or 95% identical to a polynucleotide as defined in any one of (a) to (d) and which encode a PQQ biosynthesis protein or the complementary strand of such a polynucleotide.

(IV) Example of Computer or business method related inventions

- (i) A computer implemented method for prioritizing orders; the computer 'implemented 20 method comprising: prioritizing one or more business factors to form a set of prioritized business factors; receiving one or more orders for entities; retrieving data about the entities; determining build sequences for the entities; evaluating the build sequences based on the set of prioritized business factors to form evaluated business sequences; and selecting a business sequence from the evaluated business sequences.
- (ii) A method for evaluating the quality of a computer program that, during execution, the input data and the output data of an integrated circuit are influenced, the said method comprises .(a) preparing a mutated integrated circuit which is obtained by incorporating one or more functional mutations into the (unmutated) integrated circuit; (b) influencing the input data and the output data of the mutated integrated circuit during which the output data of the mutated integrated circuit are recorded; (c) comparing the hereby obtained output data obtained of the mutated integrated circuit with the output data that are expected when influencing the unmutated integrated circuit by the computer program, and; (d) evaluating the quality of the computer program on basis of the comparison results.
- (iii) An image forming apparatus comprising, a display part; an input part, an interface part to receive transmission data including reference domain information; and a controller to access a server using server information contained in the reference domain information and download a reference document corresponding to the reference domain information, if the reference domain information is detected in the received transmission data, wherein, if the reference domain information is detected, the controller controls the display part to display the reference domain information on a screen, and if a print command for the displayed reference domain information is input through the input part, the controller accesses the server to download the reference document corresponding to the reference domain information.

OPPOSITION AND DEFENCE OF PATENTING

1.1 Introduction

The basic principles of monopolies such as patents were developed centuries before the existing Patent systems. The principles are developed to serve and to promote the development of useful arts. Supporters of monopolies such as Patents argue that inventions in all areas of technologies should be provided in order to encourage investments, research and development in creating new products and to meet the various challenges of the society. However these monopolies such as patents are not free from challenges. Since the monopolies are quiet powerful rights, an opportunity for the trade and the public should be given to challenge the granting of monopolies if such monopolies are against law of the nation and public policy. Even granted patents can be revoked if found to be invalid. Development of new ideas is therefore not blocked by bad patents, and therefore the proposed negative effects of patents are moot. For example, if members of the public find a patent application or the granted patent, lacks novelty or inventive step, they can file a opposition application before the patent office or a law suit to cancel the patent.

1.2 Opposition to Grant of Patent

In general, Patent applications or Patents are opposed for many reasons. Patent applications are opposed mainly with a belief that filed application may infringe their own Patent or may give undue protection for a process or product which they are using for a long time. Patents may be opposed by the infringer himself; when the patentee tries to restrict the infringer with his Patent.

It is also important to submit the expert evidence in oppositions/defence to establish a particular fact. In this proceedings the evidence are to be in the form of affidavits. It is always preferred to have such expert evidence from a third party.

Several changes are introduced in the *Patents Act, 1970* by *Patents (Amendment) Act, 2005* to meet the requirements of *Trade Related Aspects of Intellectual Property Rights* (TRIPS) and the *Patent Cooperation Treaty* (PCT). One of the most important changes of the recent amendments is the introduction of the two-stage opposition, i.e., pre-grant opposition and post-grant opposition. The procedure of the grant of patents has been completely refurbished by *substitution of Sections 25 and 26* in the amended Act. Now, there can be substantive opposition even before the grant of a patent.

1.3 Pre-grant opposition [or] Opposition before Grant of Patent

After the publication of the patent application by the Controller any person can file the application of opposition of the grant of patent under section 25 (1). The pre-grant can be filed by any person who need not be an interested person in the subject matter of the application. Therefore the opponent need not establish his interest in opposing the application. The notice of Opposition can be filed from the date of publication of an application till it is granted. In other words, pre-grant opposition can be filed before the grant of the application and once the application is granted the pregrant opposition cannot be launched. To encourage public and to avoid frivolous patents to be granted, patent office has waived the fee for launching pre-grant opposition.

1.4 Post-grant opposition [or] Opposition after Grant of Patent

Any interested person, who is in the same business or performing research in the same field, can file an opposition *after the grant of patent but before the expiry of a period of one year* from the date of publication of grant of patent under Section 25(2).

The introduction of the two-stage opposition of patents has stirred different types of consternation in the pharmaceutical industry. But this introduction is unavoidable, which India, as a founding member of the WTO, had agreed to introduce ten years ago. *Section 25 (1)* allows a person to oppose a patent application before the grant of patent on grounds, which are identical to the grounds of a post-grant opposition.

The pre-grant opposition has aroused dissatisfaction in the pharmaceutical industry. Once the first pre-grant filings made by a competitor has been ended with, second opposition by another competitor, can be filed so long the patent is not been granted.

The post-grant opposition also does not prevent a person, who had filed a pre-grant opposition, but failed in the procedure. This sequential pre- and post-grant oppositions lead to a relay of continuous and repeated opposition proceedings against the same (single) patent/ patent application. Such delays are big problem for the patentee or the patent applicant, because the patent terms starts running from the date of filing of the application.

Under the new regime of Patents, pharmaceutical companies have gone into a frenzy of pre-grant oppositions. According to a recent news report in the daily Economic Times of New Delhi, domestic pharmaceutical companies have filed 148 pre-grant oppositions to patent applications. Another source has placed about 40 pre-grant oppositions in Delhi Patent office alone. This flurry of oppositions has the beneficial edge of minimizing a patient's burden of high-cost drugs. It is unreasonable on all counts, to make a patient to bear the peak cost of drugs that are not truly inventive.

1.5 Rights of the opponent

The rights of the opponent in opposition proceedings are certainly limited; they are laid down by S.25 in quite clear and explicit terms. There is a statutory prohibition against an opponent taking any ground other than those which are set out in said section.

1.6 Grounds for Pre-grant Opposition U/S 25(1)

- a) Wrongfully obtaining
- b) Prior publication / prior claiming
- c) Prior claiming in India
- d) Prior public knowledge or public use in India
- e) Obviousness and lack of inventive step
- f) Not an invention or the invention not patentable
- g) Insufficient description of the invention

- h) Failure to disclose information or furnishing false information relating to foreign filing
- i) Convention application not filed within the prescribed time
- j) Incorrect mention of source/geographical origin of biological material
- k) Invention anticipated with regard to traditional knowledge of any community, anywhere in the world

No ground **other** than the statutory grounds as above can be taken for opposing the Grant of Patent under section 25(1).

- a) *Wrongfully obtainment*; if a patent application is filed by a wrong person, the opponent can point out this fact to the controller and cancel the application. The invention is basically made by human beings who are called 'inventors' in other words, the source and origin of an invention are human mind and skills. When an inventor invents an invention and he is entitled to have a patent for his invention. However, generally the inventors are employed or contracted to invent by the company or organization and once an invention is made by the inventor, by virtue of the contract the invention automatically get transferred to the company or organization. In this case the applicant for the patent could be the company and the inventor would be referred as the 'first and true inventor' of the invention. In USA, the patent applications are to be filed in the name of the inventors and a patent is always referred by it's number and the inventor's name. Therefore if a party 'A' makes an invention and other party 'B' steals the invention from 'A' and files a patent application in his own name, 'A' can file an opposition against the granting of a patent for his invention to party 'B' and under section 26, party 'A' can request the controller to grant the patent to the rightful owner 'A'.
- b) *Prior publication/prior claiming*; if an invention is published before the date of the priority [if there is no priority- before the date of filing] in any prior claims of a patent or any document in the public domain, the patent application can be opposed successfully.
- c) *Prior claiming in India*; the invention so far claimed in any claims of the complete specification is claimed in a claim of the complete specification published on or after the priority date of the applicant's claim and filed in pursuance of an application for a patent in India, being a claim of which priority date is earlier than that of the applicant's claim.
- d) *Prior public knowledge or public use in India*; this ground can be invoked, where there is no prior publication available but the claimed invention is used/available or known before the date of the priority [if there is no priority- before the date of filing] for example, samples of the product covered in a patent application has been distributed before the priority date [if there is no priority- before the date of filing] this fact could be brought before the controller to cancel the patent application.
- e) *Obviousness and lack of inventive step*; if an invention is obvious by the way of prior publication or prior use then the patent application can be canceled. The difference between the lack of novelty and obviousness is that, in case of lack of novelty the opponent should cite a single document such as single patent for a citation against the entire invention. On the other hand, in case of obviousness/ lack of inventiveness the opponent can cite two or more documents against an invention. The more number of documents the opponents combine to show the obviousness against an invention, the less chance of succeeding the opposition. In addition, the cited documents should have logical link between one another and all the cited documents under

obviousness should fall within the specific area of technology in which the patent application has been filed. In opposition proceedings under section 25(1)(e) and 25(2)(e) it must be shown that the invention "clearly" does not involve any inventive step while there is no such qualification under s. 64(1)(f). This shows that if the matter is in doubt, the controller may allow the grant leaving the question to be finally decided, when an occasion arises, by the IPAB or at courts. If the question of obviousness is doubtful, such doubt should be resolved in favour of the applicant

- f) *Not an invention or the invention not patentable*; this ground covers sections 2(1) (j), 3 and 4. Section 2(1) (j) defines the term 'invention' and sections 3 and 4 define the artificial exclusion for patentability. Hence, if an invention is not patentable under section 3 such as method of treating human beings or a mere admixture, this can be raised at the time of opposition to cancel the patent application.
- g) *Insufficient description of the invention*; every specification should describe that invention in a best mode known to the inventor. In other words, when a skilled person in the art reads the description, he should be in a position to understand the invention without any difficulty. If it falls short of this standard, it can be opposed under this ground.
- h) *Failure to disclose information or furnishing false information relating to foreign filing*; the details such number, country, date of filing, date of acceptance etc of any corresponding application filed in other country should be disclosed to the controller by filing form 3. If it is not done, could be a ground for opposition.
- i) *Convention application not filed within the prescribed time*; if an applicant claims priority from a Paris convention country and the Indian application is not filed within 12 months from the date of the first filed application, the application can be opposed. In this case, the applicant can disclaim the priority and request the controller to proceed with this application. The only risk in disclaiming the priority is that, if there is a publication before the actual date of filing such publication will destroy the novelty of the Indian application.
- j) *Incorrect mention of source/geographical origin of biological material*; this ground relates to the inventions involving biological material. This is a requirement under section 10(4) (ii) D. However this requirement is not very clear in the absence of proper definition of term "source/origin".
- k) *Invention anticipated with regard to traditional knowledge of any community, anywhere in the world*: if it is in the public domain, practiced by any tribes or other natives or any communities in a particular country or elsewhere in the world cannot be patented. If it is claimed in any patent, then the details should be brought to the notice of the controller with evidence and can be successfully opposed. Even oral evidence (sec 79) can be accepted by the controller.

Let us have a few case studies for better understanding of section 25(1).

CASE 1: "P" successfully made a pre-grant opposition for a patent for a **nimesulide** preparation. 'S' filed an application for "a process for the preparation of a therapeutic anti-inflammatory and analgesic composition containing nimesulide for use transdermally". This application was opposed by "P" which filed a notice of opposition on February 01, 2000 against the grant of patent.

The grounds on which the Controller of Patents allowed the opposition for the above case are –

- (i) prior publication [section 25 (1)(b)];
- (ii) prior public knowledge or prior public use in India [section 25(1)(d)];
- (iii) obviousness; and
- (iv) Lack of inventive step [section 25 (1)(e)].

The opponent stressed on the Patent Application filed in Sri Lanka having Patent No. 11012 granted on September 20, 1996. The opponent compared the document procured from Sri Lanka and the patent application.

The Controller of Patents took the test of anticipation, which is that the antecedent statement must be of such nature that a person of ordinary knowledge of the subject would be able to perceive and understand at once and be able to practically apply the invention without further experiments.

The Controller made a comparative table of the impugned application and the Sri Lankan patent and held that the impugned application did not pass the test of novelty. The Controller was also brought to notice, the presence of the product relating to Nimesulide gel/ tropical and transdermal composition in the Indian market since July 1996, also held that the impugned invention was publicly known and used in India. For the reasons of prior publication, the Controller also held that it was very obvious and there was no inventive step.

CASE 2: A patent application which was under opposition related to a process for extracting neem oil from neem seeds comprising the steps of (a) treating crushed neem seeds in a soxhlete solvent extraction containing polar solvent at a temperature between 40°C and 60°C to obtain an oil cake free from bitter and odoriferous constituents (b) drying the oil cake by solvent extraction using hexane wherein the ethanol has 80-90% concentration. The opponent filed an opposition on the basis of prior published documents from the book entitled the Oil Extraction disclosing therein extraction of kernels (seeds) with 70% of alcohol to remove bitter and odiferous compounds followed by hexane extraction to recover good quality of oil. The argument of opponent based on the evidence of the expert who had worked in the field of extraction for 30 years was that such type of extraction is always done between 40°C and 60°C.

The invention was held obvious, on the basis of the expert opinion as the person skilled in that art can carry out extraction as use of soxhlet apparatus at 40°C to 60°C was very common in the oil extraction industry.

CASE 3 :R's patent application titled "A Mosquito/Insect Repellant Device" was challenged by opponents on various grounds of section 25 of the Act including lack of inventive step. The issue in this case was, "whether the applicant's devices involve any inventive step and the opponents has lead any evidence as to patentability". It was held that the alleged device was obvious and clearly did not involve any inventive step. Further the opponents had not adduced any evidence regarding grounds of patentability. So, it was construed that opponents had dropped the aforesaid grounds.

As the opposition had been successful on the ground of section 25(1)(e), the ground 25(1)(a), i.e. wrongfully obtained was not discussed and the grant of patent was refused.

The above cases illustrate the *effectiveness* of patent opposition. The issue of patentability is significant in importance as it limits the scope of invention for which a patent can be claimed. Anything claimed beyond the scope of the invention disclosed in the specification can be opposed.

It can be observed that the examination procedure followed by the Patent Office brings to the knowledge of the Controller even rare information pertaining to traditional medicinal knowledge. It limits the scope of patentability of an invention, which is anticipated, in so far as claimed in the complete specification, as there might be knowledge, oral or otherwise, available within any local or indigenous community in India or elsewhere [section 25(1)(k)]. The opposition of patents at the pre-grant stage helps in accretion of information, which otherwise, the patent examiner would not have been aware of. The competitors, acting as active participants in the pharmaceutical industry, can provide crucial information/evidence with regard to prior publication, prior use and lack of inventiveness.

CASE 4: “A” has filed a Patent application related to a polymorph (β form) of Imatinib Mesylate an anticancer compound. This application was opposed by many generic companies, on the ground this polymorph was disclosed in the applicants own patent filed about five years back in many countries. Therefore, this application lacks novelty; they also objected that this polymorph is not patentable under section 3(d) since it does not show any substantially enhanced efficacy. After hearing the parties, and thorough scrutiny of the evidence filed by the opponents and applicants the controller came to the conclusion that the β form is inherently known in the earlier patent application, which was not filed in India. The only feature missing in the prior art was that the polymorph was named as β form. For merely naming a known product, a patent cannot be granted. In addition the Controller came to the conclusion that the polymorph did not show any enhanced efficacy when compared with the prior art, which was also admitted by the applicant in their specification and hence, rejected the application as not patentable U/s 3(d). The applicant has filed an appeal to IPAB challenging the controller’s order, which appeal is pending. Meanwhile “A” filed a writ in Chennai High court challenging the validity of section 3(d) since it violates TRIPS and article 19 of the Indian constitution. The court after the detailed and patient hearing of both the parties dismissed the writ; by pointing out that if any violation of TRIPS by a municipal law cannot be challenged in a local court rather it should be taken up at dispute settlement forum established under WTO. The judges also pointed out that, section 3(d) does not violate Article 19 of the constitution.

1.7 Post-grant opposition U/S 25(2)

At any time after the grant of patent but before the expiry of a period of one year from the date of publication of grant of a patent, any person interested may give notice of opposition to the Controller in the prescribed manner on any of the following grounds, namely:-

- a) Wrongfully obtaining
- b) Prior publication / prior claiming
- c) Prior claiming in India
- d) Prior public knowledge or public use in India

- e) Obviousness and lack of inventive step
- f) Not an invention or the invention not patentable
- g) Insufficient description of the invention
- h) Failure to disclose information or furnishing false information relating to foreign filing
- i) Convention application not filed within the prescribed time
- j) Incorrect mention of source/geographical origin of biological material
- k) Invention anticipated with regard to traditional knowledge of any community, anywhere in the world

1.8 Procedure for opposition

Filing of notice of opposition (Rule 55A)

The notice of opposition to be given under sub-section (2) of section 25 shall be made in Form 7 and sent to the Controller in duplicate at the appropriate office.

Constitution of opposition board and its proceedings (Rule 56)

- (1) On receipt of notice of opposition under rule 55A, the Controller shall, by order, constitute an Opposition Board consisting of three members and nominate one of the members as the Chairman of the Board.
- (2) An examiner appointed under sub-section (2) of section 73 shall be eligible to be a member of the Opposition Board.
- (3) The examiner, who has dealt with the application for patent during the proceeding for grant of patent thereon shall not be eligible as member of Opposition Board as specified in sub-rule (2) for that application.
- (4) The Opposition Board shall conduct the examination of the notice of opposition along with documents filed under rules 57 to 60 referred to under sub-section (3) of section 25, submit a report with reasons on each ground taken in the notice of opposition with its joint recommendation within three months from the date on which the documents were forwarded to them.

Filing of written statement of opposition and evidence (Rule 57)

The opponent shall send a written statement in duplicate setting out the nature of the opponent's interest, the facts upon which he bases his case and relief which he seeks and evidence, if any, along with notice of opposition and shall deliver to the patentee a copy of the statement and the evidence, if any.

Filing of reply statement and evidence (Rule 58)

- (1) If the patentee desires to contest the opposition, he shall leave at the appropriate office a reply

statement setting out fully the grounds upon which the opposition is contested and evidence if any, in support of his case within a period of two months from the date of receipt of the copy of the written statement and opponent's evidence if any by him under rule 57 and deliver to the opponent a copy thereof.

- (2) If the patentee does not desire to contest or leave his reply and evidence within the period as specified in sub-rule (1), the patent shall be deemed to have been revoked.

Filing of reply evidence by opponent (Rule 59)

The opponent may, within one month from the date of delivery to him of a copy of the patentee's reply statement and evidence under rule 58, leave at the appropriate office evidence in reply strictly confined to matters in the patentee's evidence and shall deliver to the patentee's a copy of such evidence.

Further evidence to be left with the leave of the controller (Rule 60)

No further evidence shall be delivered by either party except with the leave or directions of the Controller: Provided that such leave or direction is prayed before the Controller has fixed the hearing under rule 62.

Copies of documents to be supplied (Rule 61)

- (1) Copies of all documents are referred to in the notice of opposition or in any statement or evidence filed in connection with the opposition and authenticated to the satisfaction of the Controller, shall be simultaneously furnished in duplicate unless the Controller otherwise directs
- (2) Where a specification or other document in a language other than English is referred to in the notice, statement or evidence, an attested translation thereof, in duplicate, in English shall be furnished along with such notice, statement or evidence, as the case may be.

Hearing (Rule 62)

- (1) On the completion of the presentation of evidence, if any, and on receiving the recommendation of Opposition Board or at such other time as the Controller may think fit, he shall fix a date and time for the hearing of the opposition and shall give the parties not less than ten days' notice of such hearing and may require members of Opposition Board to be present in the hearing.
- (2) If either party to the proceeding desires to be heard, he shall inform the Controller by a notice along with the fee as specified in the First Schedule.
- (3) The Controller may refuse to hear any party who has not given notice under sub-rule (2).
- (4) If either party intends to rely on any publication at the hearing not already mentioned in the notice, statement or evidence, he shall give to the other party and to the Controller not less than five days' notice of his intention, together with details of such publication.
- (5) After hearing the party or parties desirous of being heard, or if neither party desires to be heard, then without a hearing, and after taking into consideration the recommendation of Opposition Board, the Controller shall decide the opposition and notify his decision to the parties giving reasons there for.

Determination of costs (Rule 63)

If the patentee notifies the Controller that he desires to withdraw the patent after notice of opposition is given, the Controller, depending on the merits of the case, may decide whether costs should be awarded to the opponent.

Section 150

If any party by whom notice of any opposition is given under this Act or by whom application is made to the Controller for the grant of a licence under a patent neither resides nor carries on business in India, the Controller may require him to give security for the costs of the proceedings, and in default of such security being given may treat the opposition or application as abandoned.

1.9 Post-grant opposition proceedings

- i. Any interested person can oppose the grant of Patent under section 25(2) by giving a notice to the Controller, within one year from the date of publication of grant of a patent in the official journal. Person interested [section 2(1) (t)] includes a person engaged in, or in promoting research in the same field as that to which the invention relates. Any person including an organization that has a manufacturing or trading interest in the goods connected with the patented article or who has a financial interest in manufacturing such goods or who possesses patents relating to the same subject, is considered as person interested
- ii. The notice of opposition is to be made in Form 7 and sent to the Controller in duplicate at the appropriate office along with the prescribed fee given in first schedule. The notice of opposition should be accompanied by a written statement (in duplicate) stating out the nature of opponent's interest, the facts upon which he bases his case and the relief which he seeks and evidence, if any, in duplicate in support of his case. **(Rule 57)**. The opponent should deliver to the patentee a copy of the statement and the evidence, if any, filed by him along with the notice of opposition.
- iii. The Controller should notify the patentee regarding the filing of the opposition.
- iv. **Opposition Board:** On receipt of the notice of opposition under rule 55A, the Controller, by order, should constitute an Opposition Board which would consist of three examiners as members, other than the examiner who has examined the application. The Controller should nominate one of the members as the chairman of the Board
- v. If the patentee desires to contest the opposition, he should send the reply statement at the appropriate office giving grounds for contesting the opposition and evidence, if any, in support of his case within a period of 2 months from the date of receipt of a copy of the written statement and opponent's evidence by him [Rule 58]. The patentee shall deliver to the opponent a copy of reply statement and evidence. (Rule 58).
- vi. If the patentee does not desire to contest or fails to send his reply and evidence within the specified period as above, the patent should be deemed to have been revoked [Rule 58 2)].
- vii. The opponent could file the evidence in reply within one month from the date of delivery to him a copy of reply statement and the evidence by the patentee; such a reply evidence by the opponent must be strictly confined to the matters in the patentee's evidence (Rule 59). Also, the opponent should deliver to the patentee a copy of his reply evidence.

- viii. No further evidence could be delivered by either party except with the leave or direction of Controller (Rule 60). Such a leave or direction should be prayed before the date of the hearing has been fixed by the Controller.
- ix. The Opposition Board would examine the notice of opposition and documents filed under Rules 57 to 60 and submit a report with reasons on each ground within 3 months from the date on which the documents were forwarded to them with its joint recommendation.
- x. On receipt of the recommendations of the opposition board along with all evidence filed by both the parties, the Controller will fix a hearing but at least ten days notice should be given to both the parties (Rule 62). The Controller may require members of the Opposition Board to be present in the hearing.
- xi. If any party desires to be heard he should make a request to the Controller along with prescribed fees given in first schedule.
- xii. After hearing and taking into account the recommendations of opposition board, the Controller will decide whether costs should be awarded to the opponent.

Let us have a glimpse of few case studies for the better understanding of the Post grant opposition under section 25(2) of the Indian Patents Act 1970.

CASE 1: In the matter of Patent No.187163, (581/BOM/1999), the opposition was lodged on the ground of obtaining and request was made to mention the opponent's name as an inventor. The opponents who were working as a Research Assistant and whose job was that of laboratory technician and not of a scientist, did not produce any substantial evidence or witnesses to substantiate his claim as an inventor. For naming the inventor, he should have provided ideas to produce 'germ of invention' and made intellectual contribution in achieving the final result of research leading to a patent. One or more person involved to arrive at the conception or realization of the final product or process or merely involved in carrying out experiments does not mean that they are inventors. The inventor for the purpose of Patents law is the actual deviser of what is being claimed. So the opponent failed to prove the ground of wrongfully obtaining a patent.

CASE 2: In the matter of Patent No.173953 (223/BOM/1991), the invention related to "Process for making a soap composition containing glycerol". The opposition was lodged on the ground of prior publication u/s 25 (1)(b), prior public knowledge u/s 25 (1)(d), obviousness, u/s 25 (1)(e), not an invention within the meaning of the Act u/s 25 (1)(f) and not sufficiently defining the invention u/s 25 (1)(g). It was held that the ingredients recited in the principal claim had a very specific and narrow range of proportions, which were not taught by cited documents. Cited document also did not teach how to obtain the right balance of salt and glycerol in order to avoid a soap which is too hard or too soft and also did not mention about balancing quantities of glycerol or salt against the quantities of total fatty matter. The alleged invention mentioned the prior art, problems associated with it, results of various experiments, and best method of working examples. Considering all these factors it was judged that the opponents had failed to establish the above grounds and opposition was rejected.

CASE 3: In the matter of Patent No.- 183458 (454/BOM/1998), the invention related to "A process for the preparation of a therapeutic Anti-inflammatory and analgesic composition containing Nimesulide for use transdermally" Opposition was lodged on the ground of prior publication Under

Section 25 (1)(b), prior public knowledge Under Section 25(1)(d), Obviousness Under Section 25 (1)(e), not an invention within the meaning of the Act Under Section 25 (1)(f). Comparison of the alleged invention 183458 with the Sri Lanka's Patent 11012 & Nigerian Patent RP 12829 clearly showed that it did not pass the test of novelty. It is sufficient to destroy the novelty of the claimed process that this process and the known process are identical with respect to the starting material and reaction condition since process as identical in these features must inevitably yield identical products. It was held that in view of the cited Sri Lankan and Nigerian patents the alleged invention stood anticipated as cited document has disclosed the invention or disclosed information in such a way as to make it part of the state of the art. Grant of Patent was refused on these grounds.

CASE 4: In the case of Gujarat Reclaim & Rubber Products Ltd vs. Kamani Metallic Oxides Ltd 1983 (3) PTC 105 (PO), a notice of opposition to the grant of a patent to M/s. Kamani Metallic Oxides Ltd., Bombay, for their patent No. 145917, application number 43/Bom/1976, for an invention titled "A process for separation of rayon or nylon fibres from cracked waste tyres and an apparatus thereof" was filed by M/s. Gujarat Reclaim & Rubber Products Ltd., Bombay, on 15th June, 1979 having regard to the prior art citations JP-8059512 published on 5th March, 1996 and US Patent 5,885,617 published on 23rd March, 1999. Opposition to grant of patent was on the grounds of prior publication, prior public knowledge and prior public use, lack of inventive step and insufficiency of description. The opponents being engaged in the manufacture of reclaimed rubber in which cracked waste of automobile tyre and such other rubber waste were used and had a manufacturing unit, the opponent was held as 'persons interested' as stipulated in section 25 of the Act. Opponents deposed that the types of standard machineries used for carrying out the process of separating the rubber particles from fibrous materials and the alleged invention disclosed in the applicants' complete specification was anticipated by the Exhibits. In the circumstances, a rubber technologist would know its application to cracking of rubber for separation of fibre from rubber and particularly from waste tyres and in fact it had been used for said purpose for many years.

Applicants contested all the arguments of opponents and argued that the opponents have confused the issue by saying that something used in some point of time in the reclamation industry had been claimed by the applicants. They said that applicants' invention related to in the process and apparatus for the separation of fibre from cracked tyres waste i.e. a narrow aspect of dealing with the wider subject of rubber reclamation. So far as the document relating to reclaim from natural and synthetic rubber scrap is concerned, the original which was a confidential document, and therefore, it has not been published and which is not open to public. On a scrutiny of this document the court observed that the disclosure related to the general process for reclaiming of rubber from natural and synthetic rubber scrap and slow grinder discs for pre cracking.

The process consisting of three stage viz. cracking, fabric separation and grinding the details given there are applicable generally in a rubber reclaiming process. The invention disclosed in the applicants' specification related to an improved process for the removal of fibre from cracked automobile tyre wastes i.e. the second aspect of the above said three stages process. The steps involved in the process claimed in the complete specification are not found in the said document. No details have been given in the publication about the process and apparatus for removal of fibre from tyre wastes, as has been disclosed in the applicants' specification. Accordingly, the disclosure contained in the said document, even if it is considered to have been published before the priority date of the applicants, the application does not anticipate the applicants' process and apparatus.

Hence, the opponents failed to establish the ground of prior publication. Similarly the opponents also failed under the ground of prior public knowledge and prior public use as the documents relied upon

by the opponents are not relevant as they do not anticipate the applicant's invention. The opponents' failure to provide any other evidence in support of their contention as to obviousness and lack of inventive step failed them on this ground also.

Hence, there being no force in their other grounds of opposition, the opposition is dismissed.

It was held for the ground under section 2(1)(j) that "the selection of particular range of ingredients from the ranges already known in the prior art in this case cannot amount to establish the inventive step and variations in the amounts of the known ingredients appear merely workshop improvements achieved by a person skilled in the art without performing any substantial experiments and can not be said a technical advancement of an existing knowledge which is required by the definition of the "inventive step" as mentioned in section 2(1)(ja) of the Patents Act, 2005."

1.10 Patent [Infringement] defense

Once, you own a patent, to establish your rights provided by the claims of the Patent Document against infringer, a defence is needed.

Patent provide you legal rights over your invention (either product or process). Upon infringement, you are entitled to sue the infringer. However, a few principles of patent infringement litigation that is helpful to know.

Protection

- Organizations should be able to protect their intellectual property.
- Some aspects of are also covered by copyright law, but those are largely different than the protection of ideas and innovation in the useful arts provided by patent law.
- Protection for by patents is already sufficiently limited.
- Inventions can only be patented if they are non-obvious. This reduces the chance of patents being granted on mere algorithms with no technical effect or the granting of "trivial" patents with no inventive step.

Economic benefit

- Patents resulting from the production of patentable ideas can increase the valuation of small companies. Patent lawsuits are one of the only tools available to combat large players in the marketplace (e.g. Microsoft) and allow innovative small companies to build a market of their own or at least receive fair compensation for their investment.
- Small companies can normally afford to patent the innovations they may have, as a patent costs, on average Rs: 50,000/- and then many banks and other investors are available to help with litigation costs.

Among the most helpful to understand in building your defenses to patent infringement are most often used in patent infringement cases. The two basic defenses to a patent infringement lawsuit are (i) non-infringement and (ii) invalid patent.

(i) Non-infringement lawsuits:

In the first, the defendant tries to prove that their product or process does not infringe upon the existing valid patent for one or more reasons. It is usually the first line of defense to be considered. There is an infringement upon a patent, when each "claim" in the patent is matched by an element of the infringing product. If the item that is claimed to be infringing does not match each of the claims in the patent, then the case may be dismissed because no infringement exists.

In order to prove whether a device or process infringes upon the named patent, the judge or other examiner will first do a careful reading of the claims of the patent. For example, A patent is granted for a device that has the purpose of extending the waistband of a skirt by means of an extension of fabric that is fitted with a buttonhole on one end of the extension and a button on the other.

A second company produces a product which consists of a fabric extension that has a buttonhole on one end, and three buttons at various points on the extension so that it can be adjusted to fit the waistband more accurately. The examiner must examine each of the "claims" made in the patent and then match them to the elements of the device in question. In this case, the examiner may find that *patent infringement does exist* because each of the claims in the patent is matched to an element in the infringing device, which is actually a modification of the patented process.

(ii) Invalid patent defense lawsuits:

The other most common tack in patent infringement lawsuits is an attempt to invalidate the patent on one or more grounds. In order for there to be a judgment of infringement, there must exist a valid patent; it must be in force at the time of the alleged infringement; and it must meet all the conditions for obtaining a valid patent.

While one might assume that the very issuance of a patent would substantiate its validity, that's often not the case. There are a number of things that might invalidate an existing patent.

1. A prior art or novelty search may turn up descriptions or depictions of the patented application that existed before the date of invention. In this case, the patent may be invalidated because the application or item was not the first depiction of the device. The description or depiction must give enough detail that a person of "reasonable skill" could make or work the device based on that description.
2. The defense may hold that the patent is for a use or device that would have been obvious to anyone with reasonable knowledge or skill. If obviousness can be proved, then the patent may be invalidated and no infringement can have taken place.
3. The defense may charge that the patent holder did not exercise diligence in pursuing the patent application process. Most often, this charge will be brought if the patent's original application was outside the grace period allowed after publication of the patented idea or device.
- ✓ 4. The defense may argue that the subject of the patent is not a suitable subject for patenting. Those are the most commonly claimed grounds to invalidate a patent in patent infringement cases, but there are many other grounds which could be used to defend against a charge of patent infringement.

In addition, the interpretation of patent law and the definitions of the elements of *patent law* frequently undergo changes during the course of court cases. As the number of patent infringement cases continues to mount, new defenses are being tried and old ones struck down.

Final say over defence

A company accused of patent infringement hires a law firm to defend them before the court. But the vast majority of patent cases are settled out of court, before trial. That is because the merits of a case become clear, and one party backs down. The quicker those facts come to light, the lower the legal fees. The more compelling the evidence of invalidity or non-infringement, the lower the settlement figure.



For opposing

BEFORE THE CONTROLLER OF THE PATENTS
PATENT OFFICE

IN THE MATTER OF THE PATENTS (AMENDMENT) ACT, 2005

AND

IN THE MATTER OF
an application for the grant of a patent

No. _____ dated _____ filed in the
name of _____,
_____,

... Applicant

AND

IN THE MATTER OF pre-grant representation filed
to the grant of patent on subject application
under Section 25(1) of said Act by

...Opponent

STATEMENT OF CASE AGAINST THE GRANT OF APPLICATION

We, _____ (hereinafter referred to as "Opponent"), submit our submission against the grant of the application _____ by way of representation.

DETAILS OF THE OPPONENT

DETAILS OF THE PATENT APPLICATION/INVENTION

CLAIMS TO BE OPPOSED

GROUND OF OPPOSITION

DETAILED SUBMISSIONS OF THE EACH GROUND OF OPPOSITION ALONG WITH EVIDENCE SUCH AS PRIOR ART DOCUMENTS, EXPERT EVIDENCE, ETC

PRAYER

In the above premises, the Opponent prays that –

- i) the Indian Application No. _____ filed by Applicant should be rejected under Section 25(1) by the Learned Controller of Patents;
- ii) the Opponent be allowed to file further evidence as may be necessary to comply with the provisions of the Patents Act, 1970;
- iii) Any costs in rejection of the patent and for engaging in this representation be awarded to the Opponent;
- iv) Any other relief or reliefs as the Controller may deem fit may be granted in favour of the Opponent.

Dated this _____ day of _____ 20__.

ATTORNEY FOR THE APPLICANT

The Controller of Patents
The Patent Office,

(Response to Opposition)

**BEFORE THE CONTROLLER OF THE PATENTS
PATENT OFFICE**

IN THE MATTER OF THE PATENTS (AMENDMENT) ACT, 2005

AND

IN THE MATTER OF
an application for the grant of a patent

No. _____ dated _____ filed in the

name of _____,

... Applicant

AND

IN THE MATTER OF pre-grant representation filed
to the grant of patent on subject application

under Section 25(1) of said Act by

... Opponent

STATEMENT OF CASE IN SUPPORT OF APPLICATION

We, _____ (hereinafter referred to as "Applicant"), submit our reply to the pre-grant representation.

PRELIMINARY SUBMISSIONS

DETAILS OF THE INVENTION

REPLY ON MERITS REGARDING EACH GROUND OF OPPOSITION ALONG WITH EVIDENCE SUCH AS EXPERT EVIDENCE, GRANT OF PATENT IN OTHER COUNTRIES, ETC

PRAYER

In the above premises, the Applicant prays that –

- v) the representation filed by Opponent under Section 25(1) rejected by the Learned Controller of Patents and Indian Application No. _____ be allowed to proceed to grant;
- vi) the Applicant be allowed to file evidence as may be necessary to comply with the provisions of the Patents Act, 1970;
- vii) Costs of delays in grant of the patent and for engaging in this representation be awarded to this Applicant;
- viii) Any other relief or reliefs as the Controller may deem fit may be granted in favour of the Applicant.

Dated this _____ day of _____ 20__.

ATTORNEY FOR THE APPLICANT

The Controller of Patents
The Patent Office,

CONCLUSION

1.1

You have gone through the three important modules; namely -

1. Reading a Patent Document
2. Drafting of a Patent Document and
3. How to proceed for Opposition or Defense of a Patent.

The first module "Reading a Patent Document" would have given you the broad aspects of what is contained in the first page of the patent document. While the actual layout of the first page of a patent document may differ from one country to another, due to harmonization in patent laws by WIPO and the TRIPS. Agreement, it provides the basic bibliographic details, such as the patent number, which is classified in different ways, depending on the country, the identity of the inventor(s), the assignees, if any, the date of filing, the publication date and most important the abstract of the invention.

The second most important aspect covered by the patent document is to identify the bibliographic contents of the patent specifications in a standard ST9 format as specified by the WTO, as per the INID codes, which would provide you a basis for conducting prior art searches.

As a student you have to appreciate that you have to do a comprehensive prior art search whether you intend to, draft a patent for an inventor(s), or whether you want to oppose the grant of the patent on the behest of your client (who is not the patent applicant but whose interests are jeopardized if a patent is granted) or to defend the grant of the patent.

Immediately, after the cover page of the patent document are given the patent specifications. These are in two parts, the first part relates to the disclosure of technical contents of the invention, such as the Title of the Invention, the preamble of the invention to indicate the scope of the elements of the invention, whether it is totally new or is an improvement of an existing patented or non patented invention, the background of the invention, which clearly brings out the short comings / problems in the existing products / inventions and how these are overcome by the new invention.

The second section deals with the statement of the invention, this statement is essential, where the inventors seek to include omnibus claims.

The third section deals with the detailed description of the invention, particularly with regard to full disclosure on the actual working of the invention. In the case of mechanical/technical products such as toys, gadgets, appliances etc, it is necessary to provide drawings, numbered in a systematic manner, of the product, the electrical layout circuit; the details of the materials used, the surface finishes, etc.

In the case of new chemical or pharmaceutical products, it is necessary to provide the drawings of the molecular structure, details of the process of manufacture in sufficient clarity for a person skilled in the field to be able to replicate the process and manufacture the new product, the advantages of the new product over existing products and details of the analytical or clinical tests carried out.

The most important section of a patent document is the one relating to the claims. These claims are serially numbered, each paragraphed headed by a preamble “I / we claim —“.

The Principal claims is given as the first claim, all the subsequent claims are termed as dependent claims.

Reading a “Patent Document” is an important activity before one takes up the task of drafting a patent application for a new invention on behalf of inventor(s). The student has to look for exiting products similar to the one, for which the inventor(s) propose to file the application, documentation pertaining to the invention which may be in the public domain, Internet search, Intentional patent search on various patent sites such as EPO, USPTO, Australian Patent Office, WIPO, etc.

You may also do an advanced search through dedicated sector specific search engines such as patent drug.com. You will have to analyze the related patent documents to fine tune the claims of the new invention of your client. Often it may turn out that the new invention after all, is not new, as some one has already patented it or a similar product already exists in the market.

1.2 Selecting a Project for yourself

Having gone through the course modules and the first four sections of this hand book, it is now the appropriate time for you to select a project which will help you in developing practical training skills.

If you have been able to find a Host Organization, such as a Patent Attorney firm or an R&D Institute which has a patenting cell, where you can get practical training (with the help of your family contacts / friends, etc), the task of selecting the project is much easier for the Host Organization may already have actual cases on which you can work upon.

The basic type of projects, that you can choose for your practical training are, as follows:

1. Drafting and filing a provisional patent application.
2. Opposition of a patent application on the grounds of prior - art before the grant of the patent i.e. Pre-grant Opposition (after its published in the Patent Gazette).
3. Opposition of a patent application, after grant, i.e. Post-grant Opposition on grounds of obviousness.
4. Opposition of a patent application, after grant, on grounds of inadequate disclosure (insufficient description of the invention).
5. Opposition of a patent application, after grant, on grounds of lack of an inventive step

(Note: you could select your project on the basis of pre-grant opposition or post-grant opposition).

6. Defense of a patent granted on grounds of prior-art.
7. Defense of a patent granted on grounds of obviousness / lack of inventive step or its industrial use
8. Defense of a patent granted on account of insufficient disclosure

It is pertinent, to note that, it would be best if you choose any one of the above projects but

pertaining to the industrial sector of your interest for example; biotechnology, chemicals, pharmaceuticals, electronic embedded products, gadgets / toys / devices, etc.

In case you are own your own and have not been able to find a Host Organization for your practical training, you can choose a case from the list given in Annexure 1.

After you have chosen an industrial sector of your interest on the basis of your technical background, you have to decide what kind of legal project that you would like to concentrate on based on the above eight options (in fact you can consider many other options relating to post grant legal, particularly, if you are a qualified lawyer).

This selection has to be made either on the recommendation of your Host Organization, i.e. the R&D Institution, Patent Attorney, or Multinational firm, and in the absence of this support of any meaningful Host Organization, you can select the sector specific case from Annexure 1 , and then fine tune the actual patent specific task that you want to select for your practical exercise.

Once you have identified a specific project, it is necessary for you to prepare a Project Data Sheet (PDS). The PDS which has to be submitted to IGNOU for approval, before the project is approved, should generally be in the prescribed form given below:

1. Details of the student: Name, address, telephone, mobile, e-mail address, etc.
2. Title of the Invention
3. Brief details of the invention
4. Brief details of the Specific Patent Project. Relating to the invention
5. Details of Host Organization - Name of contact person, telephone numbers, e-mail address etc.
6. In case the student has been unable to find a Host Organization to assist him, he has to specify the title of the project (case study) that he has selected from the list in Annexure 1, or the details of his own project, his own invention or that of his friends or relatives.
7. Select and specify the specific practical patent project relating to the case study or the Invention.
8. Summary.

Describe in 100 words, why you have selected this Specific Patent Project for the practical exercise.

1.3 Steps to be taken after having obtained approval of the project from IGNOU

1. Confidentiality Issues

In practical training, particularly when you are undergoing training in an R&D Institute/University or in a patent attorney firm or in an industry, you must realize that the information that you obtain in your practical training is highly valuable, that the Host Organization wants to protect it by filing patents, and therefore they may insist on your signing a Confidentiality / Non disclosure Agreement. Don't be afraid, sign it. But, please ensure that you do not disclose information relating to the invention to any other party.

2. You have to earn your credentials, as a serious student, who is ready to help the Host Organization. Therefore,
 - Carry out an international patent search/Internet search.
 - Analyze similar patents.
 - Interview the inventor, to get as much information as possible, perhaps in a structured questionnaire, which you can design for your project.
3. Participate in the meetings that are organized by the inventor(s), in-house or external and analyze the impact that it could have on the project.
4. Once again carefully go through the modules / units specifically relating to the legal aspects of your project, drafting, defense etc.
5. Prepare a draft project report based on the data collected, data analysis and proposed recommendations and actions.
6. Discuss the draft report with the concerned persons of the Host Organization. If you are not attached to a host organization, send the draft report to your coordinator in IGNOU, for comments.
7. Finalize your Project Report.

Remember that you could have made some mistakes, as a beginner, in one of the most important emerging professions of a patent consultant; therefore you should follow up on the case, as to what actually happened, the aftermath, of the actual court case or verdict. Unfortunately in India in the patent related cases, the court verdicts are often delayed indefinitely. It is a matter of fact that only half a dozen cases have ever been decided in the courts of India, the Sessions courts, the High Courts and ultimately the Supreme Court. Why? Because, often the Judges do not know the complex laws of IPR, they therefore tend to delay the proceedings and ultimately pass on the case to their successors, but by that time the very relevance of the patent has either expired or it has become in the public domain internationally. In both the circumstances, the inventor is left in the lurch.

LIST OF CASES

Case No. 1: Electronic Nose

For Ages, the human nose has been an important tool in assessing the quality of many products, food product being good example. While all other part of production processes, including those of the food industry, were getting more and more automated, there were still no "objective" means for using the "subjective" information confined in the smell of products. This changed in 1982, when Persaud and Dodd introduced the concept of an electronic nose. They proposed a system, comprising an array of essentially non-selective sensors and an appropriate pattern recognition system. Much research was done in order to find new and to date there are several companies offering ready-to-use electronic noses.

An "electronic or artificial nose" is an instrument, which comprises a sampling system, an array of chemical gas sensors with different selectivity, and a computer with an appropriate pattern-classification algorithm, capable of qualitative and/or quantitative analysis of simple or complex gases, vapours, or odours. An "electronic tongue" uses an array of liquid sensors. The artificial "chemical" senses include taste and olfaction.

This write-up is about the electronic nose and specifically about electronic noses based on electrochemical sensors (electrochemical nose), the class with which we are most experience. The entire genus of electronic noses includes those with conductive polymer, polymer composite, quartz microbalance, surface acoustic wave, calorimetric, and other classes of sensors. In this discussion we will simply refer to an "E-nose" to indicate artificial olfaction, since many modern E-noses are constructed with more than one class of sensor in them. These latter instruments are said to employ "heterogeneous" sensors arrays. Many sources of multi-parameter chemical data including infrared spectrometers, gas chromatographs, and mass spectrometers have been used to identify odors and therefore called E-nose. So, even though the above definition is board, it may not be board enough to describe this entire field of technology.

Biological Nose

One cannot discuss the "electrochemical nose" without first discussing the human or biological olfaction technology nose and the factors that led to the development of artificial nose.

Of all the five senses, olfaction uses the largest part of the brain and is an essential part of our daily life. Indeed, the appeal of most flavours is more related to the odor arising from volatiles than to the reaction of the taste buds to dissolved substance. Our olfactory system has enveloped not only to enhance taste but also to warn us of dangerous situation. We can easily detect just a few parts per billion of the toxic gas hydrogen sulfide in sewer gas, an ability that can save our life. Olfaction is clearly related to the limbic or primitive brain, and odors can elicit basic emotion like love, sadness, or fear. In fact life- saving nauseous revulsion is universal in the mammalian world as the animal that takes exquisite advantage of its existence, *Mephitis mephitis*, the striped skunk!

How does it work?

The operation of the devise pumps the sample and records the signals from four electrochemical

sensors at four-inlet operating conditions over about a minute. This produces 16 responses and these are recorded for four substance; methyl isocyanine, hydrogen cyanide, nitrogen dioxide, and carbon monoxide. These signals, were records at several different concentration in the working range of the sensors (about 0 to 1000 parts per million). One can tell the amount of the material by the strength of the signals, the stronger the responses, the higher the concentration.

E-nose sensors

1. Amperometric.
2. Chemoresistor
3. Chemocapacitor
4. Optical
5. Gravimetric
6. Polymer

Applications

1. Medical: To detect lung cancers, vaginal infections TB detection
2. Scientific: To detect ammonia gas leakage on space board station.
3. Military: To detect land mines.
4. Industrial: To detect freshness of fish, food quality.
5. Others

Advantages of zNose

- The zNose is fast able to speciate and measure the chemical composition collected vapours in 10 seconds.
- Easy to learn and use Windows® software.
- The zNose is sensitive, part per billion and even parts per trillion for certain aromatic compounds.
- zNose provides 2-dimensional high-resolution olfactory images based upon product chemistry.
- Principal component analysis, virtual chemical sensors.
- New biofeedback tool and documentation for sensory panels.

The electronic nose is a prime example of successful application of neural network technology. It used many of the rudimentary concepts from biological olfaction including the sniffing, chemical detection and odor recognition process. The range of simple gas sensing devices available is already quite diverse.

Case No. 2: Balloon Wind Mill for Advertising in the Night

1. Background

While looking at an airborne balloon in the evening, just before sunset, on the marine drive in Mumbai, advertising the brand of a popular motor bicycle manufacturer; Dr. A. Rao, an individual inventor gets an idea. How much better the impact would be, if this type of advertisement was done in the night sky, of course, there was the problem of how to take electricity to the balloon, may be, he could use batteries.

Dr Rao decided to carry out a structured patent search on the US and EPO patent sites. The results were very interesting.

There were a number of patents on the functional design of the shape of the balloon that would enable one to launch the balloon like a kite. It would float on its own. Thus hydrogen gas for filling the balloon would not be required. This would facilitate the use of the balloon in remote places, like in villages, or on lakes, seashores, etc., where it is difficult to procure hydrogen gas. Further, since the balloon launch was using natural hot air, it would be much more cost effective - there would be no wastage of hydrogen gas each time, when the balloon was deflated for pulling it down.

There was another patent on the valve used on the nozzle of the balloon to deflate it, by pulling a small chord, which accompanied the main tethering nylon rope of the balloon.

There was also a patent on using the balloon as a windmill to generate electricity. But there was no patent on using a balloon at night for advertisement purposes.

The patent search enabled him to examine the state of the art technologies, relevant to his idea, and to crystallize his thoughts of what features his new invention should have.

2. Obtaining finances for converting his idea into a prototype and protecting it

Fortunately, Dr Rao was able to obtain financial assistance from the most innovative financing scheme of the government, i.e. is the TEPP Programme of the Department of Science & Technology (DST) for the project, as an individual inventor. TEPP, sanctioned Rs. 10 lakhs (the maximum amount permissible under the scheme) as grant, for the development of a prototype, filing the Indian Patent and PCT applications and for demonstrating the invention at the various Fairs in India.

3. IPR Strategy used by Dr. Rao for the project

First of all, he combined the above three known patented inventions to come up with an entirely new product.

The basic concept was that it would be a balloon, which was shaped like an aeroplane, but fitted with a newly designed propeller to generate electricity when the wind speeds are low i.e. 10 to 30 km/hr. (this was an essential design to be tackled, for at higher wind speeds, the balloon would in any case, have to be pulled down).

The second feature that Dr. Rao added, was a small directional sensor operated by a small 12-volt battery that would enable the balloon to float in such a way that the propeller was always facing the wind at 90 degrees.

The third and last innovation feature that Dr. Rao added, was to install highly efficient string lights (developed by the Chinese to decorate on festival like Christmas, Diwali, etc.), on which the patent had already expired; to form any type of logo, sign, name, or a picture of the product, on the periphery of the balloon by use of these string lights, which would be lighted in the night, by the electricity generated by the tiny D.C. wind mill motor mounted in the balloon.

Dr Rao. realized that as an individual inventor, (for that matter even the R&D Institutions, universities, etc) he could not afford the cost of filing patent applications even in ten major countries, such as USA, EPO countries, China etc. The cost would be upwards of Rs. four million. Dr. Rao realized that would have had 42 months of protection for his invention, after filing of the Indian Patent and PCT applications. That in this period he would be able to find a licensee who would and could bear the forthcoming expenditure on filing the patents and other related IPR's for the product, such as the Industrial Design on the shape and aesthetics of the balloon, registration of the electronic circuits, a catchy brand name, to serve as the Trademark, copy right for the software programme used in displaying up to twenty products in the same balloon, periodically, at intervals of five seconds, in the major countries. Dr. Rao deployed a marketing consultant to prepare and launch a marketing strategy for his invention on a cost-sharing basis.

Therefore even, before the development work started, Dr. Rao filed a provisional patent application for his invention in India and 11 months later, a PCT application, so as not to lose the opportunity of filing international patent applications in other countries. He had to incur an expenditure of around Rs. 200,000 for filing the Indian Provisional and the PCT applications; which he met from the grant that he had received from DST.

4. R& D development strategy

As the financial resources available with Dr. Rao were limited, keeping in view that he had got only Rs. 10 lakhs under the Scheme and his own technical abilities were also limited in spite of his being an aeronautical engineer, he used the strategy, to identify potential partners who could help him in the development of the prototype, its testing, and demonstration to potential licensees.

Who could be the partners?

Dr. Rao identified the following:

- The National Aeronautical Laboratory (NAL) for testing the balloon in the windmill for stability, etc.
- An existing balloon manufacturer for fabricating the balloon, as per his design; with a view that after all he could be the first licensee to commercialize the invention.
- An existing valve manufacturer for making the deflating valve.

He also signed confidentiality agreements with the aerospace consultant who designed the aero profile and the above mentioned partners, who would assist him in making the proto type, like the balloon fabricator, the supplier of the D.C. motor and the fabricator of the valve used to deflate the balloon by pulling a chord from the ground, to ensure that they would not have any claims to the IPR's.

5. Add on Patents

During the testing stage in the laboratory windmill at the Aeronautical Development Agency (ADA), Dr. Rao found that there were some difficulties in attaining the best optimum height of 200 meters for the balloon from the ground due to the weight of the lighting strings.

He came up with an alternative idea of using illuminatable plastic strips that shine when even a small intensity light is aimed at them, which are used on the back of cars, on highway signboards, on children's footwear, etc. The problem was how to deflect light on these plastic strips. There were two alternatives that came to his mind, one to shine a torch on to the balloon from the ground by a volunteer or by using a search light at night, which avoid the need to generate electricity by the wind mill motor in the balloon. This innovation, made the balloon not only much lighter but also much less costly.

For this innovation of using illuminatable plastic strips, Dr. Rao filed an Add – on – Patent, thus protecting his invention further.

Dr. Rao also identified various trademarks, such as “aero light”, “sky light”, “ad light”, “Ad night”, etc which he could register, so that his licensees could use the same in combination with their own trade mark such as, “SONY-ADLIGHT”, BPL - Aero Light, etc.

In respect of the test data on the prototype, which he conducted at the National Aeronautical Laboratory (NAL), under a confidentially agreement with them, as a simulator testing model in the wind mill - he decided to keep it a **trade secret**—because it could be used by others to quickly design a slightly different profile of the windmill aerofoil.

He also filed a copyright of the engineering drawings for the strips used in making the patterns, generated in the CAD- CAM design for the fabrication of the balloon.

6. Licensing strategy

Having protected his invention, Dr. Rao formulated a licensing and marketing strategy for his invention.

The primary basis of his strategy was to license the IPR's on his invention on an exclusive basis to a major client in India: a major balloon or advertising agency for the whole of India, who could, if they wish, have sub licensees in the 45 major cities in India, because the product required not only on-line demonstration but operational support to be successful. But in respect of other countries, Dr. Rao kept his options open, to license the whole range of his IPR's, on an exclusive basis to a single licensee, in those countries where an important client showed interest, perhaps after two to three years, an eventuality that could arise after the product became famous in the home market.

This was based on the reasoning that: “It would be cheaper to manufacture, market and maintain the product in the location where it was to be installed” — the manufacturing process being simple: the only machines required to manufacture the product being a plastic cutting and a welding machine. The other components/subassemblies required, such as the light chord, or illuminating plastic strips, the D.C. motor, could be easily procured by the Licensee from the local market as off the shelf items. The other two components of the product, the patented plastic deflating valve, and the simple aluminum framework for supporting the balloon, could be outsourced to small injection molding plastic units and to local fabricators of aluminum products, respectively.

Since, no major MNC had shown interest in the unique product, even after 10 months of filing the PCT Application, in spite of the fact that Dr. Rao had sent hundreds of e-mails to all the major MNC's in the world. His strategy was justified. In any case, if a major MNC showed interest in the product, he could revise his marketing strategy to "An exclusive license", but it appeared unlikely since MNC's (other than in the advertising sector) would find it difficult to market the product.

7. Identifying Potential Licensees

Dr. Rao being an individual inventor could not afford to advertise in newspapers, or magazines or T.V. He used the following strategy:

- Get free publicity by demonstrating his prototype live on the Marina Drive in Mumbai – displaying his chosen trademark "Ad night". The press and TV covered it.
- He posted details of his invention on the web, under the head, new ways of advertising, which is today the method of advertising a new product at the lowest cost and with the maximum retentively.
- He prepared a brief preliminary technical note, highlighting the features of the invention and indicating how the IPR's related to the invention were protected and e-mailed it to all the major prospective licensees.
- Within 9 months of his submitting the PCT application, he participated in three major international exhibitions, in India, at the IITF, the International Plastics Trade Fair in Mumbai, and at the International Fair held in Hyderabad.

The response was tremendous; he received over 1500 enquiries within 9 months of filing the PCT application. He had to design a strategy of selecting the most interested and most capable first licensee (in terms of finances, brand name, technical skills, etc.), who could take on the burden of bearing the enormous IPR costs in protecting the invention in at least 30-40 major countries. This licensee, in all probability would, demand an exclusive license?

The additional strategy he adopted was to identify the most promising licensees in the major countries, and as a part of the licensing arrangement, make them bear the further IPR costs in filing the patent application in their country—with one condition that while the IPR's for that country would be licensed to that party, Dr. Rao would continue to retain the ownership rights to the IPR in all other countries.

Dr. Rao prepared the list of all the parties who had responded, scrutinized and selected 50 prospective licensees worldwide (20 parties from India).

Case No. 3: Example of Combinational Technologies

"A device to disperse eagles from the airport landing area"

1. Background

In the tropical countries like India, Indonesia, the Philippines, the high altitude flying birds, basically the eagles are a major hazard to the aircraft during take off and landing. Millions of dollars are lost due to bird hits- sometimes the birds hits also leads to catastrophic accidents- resulting in the death of innocent passengers.

How to avoid this? A scientist working in ERDA comes up with the idea that rodents are annoyed by a particular sonic boom; the eagles would also be susceptible to some ultra sonic to be determined, perhaps the wave length would be in

The second concept that he considered was that eagles have the sharpest eyes; could one frighten them with an array of laser pencil thin lights- like laser pointers used in conference rooms.

What about a combination of these two concepts, ultrasound plus laser lights.

The scientist got in touch with the airport Authority of India, with a view to seek not only financial assistance but also to involve them in the practical trials- which was crucial for the success of the project.

International Patent Search

First of all the scientist carried out an International patent search, free of cost on the USPTO & EPO patent sites to find the state of the art technologies in these two fields. There were many patents on rodents- to drive them away from the house by means of ultra frequency sonic beams and also on laser beams. He gathered all the data, analyzed it. He was confident that if could get the requisite funds for research, he would be able to develop a device to drive away eagles, the high flying birds that were the cause of 98% of the bird hits on aero planes.

Financial assistance

He decided to submit a proposal under the PATSER program of DSIR for financial assistance amounting to Rs. 50 lakhs. The proposal was rejected at the first instance, since as per the PATSER scheme the proposal has to be submitted by a commercial organization- preferably by an industry.

Partnerships

He realized that he has to get an industrial partner who would not only be interested in commercializing the project but also in financing at least 50 % of the cost of R&D. Moreover the industry partner should have the necessary technical expertise in terms of manpower and equipment. The industry partner should also be in a position to not only interact with the Airport Authority of India, but also convince them that since they would be beneficiaries, to agree to provide the necessary infrastructure to test the product, to fine tune the frequencies at which eagles were susceptible to the ultra frequency noise, and to examine as to how do eagles react to the array of laser lights.

Confidentiality agreements

The scientist realized that to develop a working prototype he had to seek the assistance of specialized agencies such as the manufacturers of rodent repellents and laser lights. Therefore he entered into a confidentiality agreement.

Download appropriate non- disclosure agreements in a box.

IPR protection

It was apparent from the International patent search that there were no products in the market to drive away eagles hovering over airports- particularly in the cities located in the tropical region. After the development stage, he filed two international patent applications in India and a PCT application before the expiry of 12 months.

Market potential

There are over 40 airports located in the tropical region of Asia itself which have been experiencing bird hits on aero planes— while landing or on take off— that have cost the airlines millions of dollars besides endangering the life of the travelers. Over 5% of all aero plane accidents have been attributed to bird hits.

Therefore there was a definite international demand for the product, but it was limited to perhaps 50 airports.

Each system when fully developed and deployed would cost around Rs. 20 lakhs. Therefore the demand and the market potential was limited, it may not be possible to attract major MNC companies in the technology.

Identifying potential Licensees

He listed the following:

- Organizations that manufacture and supply electronic equipment to the airport authorities such as security equipment manufacturers, wireless and radar such as BEL, ECIL.
- Organizations who already have the necessary infrastructure in terms of equipment, testing tools and highly skilled technicians such as the anti rodent device manufacturers, and laser pointer manufacturers.

Marketing strategy for technology

- He used T.V. media, through an interview (free of cost) to highlight his development.
- He also used the news media, again free of cost, to highlight the invention.
- He e-mailed to the potential licensees identified, and those who contacted him, the Preliminary Technical Note (PTN) on the technology.
- He participated in the DSIR/NRDC stalls at the India International Trade Fair.
- The most effective free publicity, he received was by demonstrating the prototype at the Zoo enclosure where all the five eagles in that enclosure were driven away to an adjacent enclosure due to combinational effect of the ultrasonic beam and the array of laser beams – as he had invited the media, the officials of the Airport Authority and the senior Air Force Officials to witness the demonstration.

As a result he received over 30 requests from various parties and after preliminary discussions, it transpired that three medium sized companies having turnover of over 5 crores were keenly interested in taking the license for the technology- but all of them were insisting on getting an exclusive license for at least 7 years.

Case No.4: Microwave Clothes Drier

The principal of microwave heating using dielectric energy is now well known. The electric Power Research Institute (EPRI) awarded a contract to M/s Gerling Applied Engineering, Inc in 1997 to

develop a compact over the counter top Microwave Clothes Drier by merging metal detection technology with the well established microwave oven heating technology.

The problem of preventing a potentially hazardous condition due to the abnormal heating of metal objects which were either inadvertently..... left in the clothes, or due to metallic buttons in jeans, etc. or woven metallic threads into the clothes, such as in silk saris embroidered with zari, was solved by developing a system of gas sensors to detect minute amounts of pre- combustion vapours in the exhaust system – to shut down the drying cycle.

A second inventor solved the problem of detecting metal objects by using the existing security system used at airports for detecting arms by scaling it down and combining the same, with a microwave oven.

Case 5: Invert Sugar

A considerable change in the market of sweetening of foods has been observed and the dominance of sucrose as a major carbohydrate sweetener has been challenged. A wide range of new and more desirable carbohydrate-based sweeteners have emerged on the scene to keep pace with the advances in food technology. These sweeteners have wide applications in the food and pharmaceutical industries. The most important among them is Invert Sugar, an equimolecular mixture of glucose and fructose. Invert sugar is a valuable sweetener in food and pharmaceutical application because of its functionally more desirable properties i.e. high osmotic pressure, high solubility and humid nature.

Some of the important applications of Invert Sugar are :

- Sweet-meat, bread, biscuits, chocolates, condensed milk, jams, jelly etc.
- Syrups in the pharmaceutical industry.
- Beverages including aerated beverages.
- As a substitute for honey.
- Infant foods.
- Intravenous injectables for treatment of certain pathological conditions such as diabetes.
- In paper and tobacco industries because of its humectancy.

Process

The conventional method of manufacturing **Invert Sugar** involves acid hydrolysis of sucrose, the popular and cheap sweetener. However, such acid hydrolysis has low conversion efficiency, high energy consumption and thus cost of production is high. The acid-hydrolysed product also contains impurities introduced by uncontrollable parameters during inversion. The said conversion can also be achieved by enzymatic action of invertase on sucrose with a conversion efficiency of almost 100% without the inherent disadvantages of acid hydrolysis. The key to the process developed is a specific enzyme for the continuous production of concentrated **Invert Sugar** using immobilised yeast cells in an inorganic insoluble matrix.

SPECIFICATIONS	
Description	Pale straw colour, Transparent syrup with no free suspended particle
Taste	2 times sweeter than sugar
Concentration	97% Total Reducing Sugar
	pH 6.2
	Optical rotation Laevorotatory

Invert sugar is sometimes referred to as artificial honey since its composition and properties are nearly same. In the developed nation, all sweetening in confectionery, beverages and other industries as are mentioned above is done by Invert sugar or High fructose syrups for distinct advantages like taste, flavour and texture. The concept has not picked up in the developing nation mainly due to lack of knowledge and poor availability. As the price of invert sugar is only marginally higher than normal sugar, the demand picks up phenomenally in its easy availability.

Case 6: Zeolite -A

Zeolite-A Powder (Detergent Grade)

Zeolite-A Powder is an eco-friendly substitute of commonly used phosphate builders in detergent industry – Sodium Tri-Polyphosphate (STPP), which has become an environmental hazard. The technology for the manufacture of Zeolite-A from Sodium Aluminate Liquor available in aluminium manufacturing industry, has been developed by Central Salt & Marine Chemical Research Institute, Bhavnagar. The Corporation has licensed the technology to M/s National Aluminium Company Limited (NALCO) who has set up a 10,000 tonnes per annum capacity plant at an estimated project cost of Rs.25 crores at Damanjodi. The plant is proposed to provide the need of the detergent industry not only in India but also in the South East Asian countries and thus will remove the environmental hazards arising out of using the common detergents.

Case 7: Rice Husk Particle Board

Rice growing nations all over the world face monumental problems in disposal of rice husk waste, which is a serious environmental hazard, if it is burnt. The technology for manufacture of Rice Husk Particle Board, developed at the Indian Plywood Industries Research Institute, Bangalore, has emerged as one of the best solutions to this problem as it helps to maintain the ecobalance and preserves the eco-system. Patents have been filed in India and many other rice growing countries.

This board has emerged as a versatile substitute for wood in a wide range of applications. Moreover, these boards can also be made decorative. The process has been licensed to several firms in India and a turnkey plant has been set up in Malaysia. The firm has also produced floor tile (out of rice husk), fire resistant doors, etc. having granite like finish. What is more, the licensee of the technology has helped to build up a large number of low cost houses after the Gujarat earthquake.

Case 8: Herbal Beer

The National Botanical Research Institute, Lucknow one of the constituent laboratory under CSIR

has developed a health drink utilizing fruits and herbs, which are abundantly available through out India. The herbal drink, so developed has been extensively tested for its useful properties. The herbal drink has also been field tasted it taste like beer. The medicinal plant gives bitterness as 'Hops' in any beer. Medicinal plants used in preparation of herbal health drinks are reported to be good for liver.

Advantages

- Fruit based herbal drink with non-toxic, antioxidant, containing plants reported to be good for liver and increase immunity and diuretic properties having aroma and refreshing property, with an ability to quench thirst. Provides instant energy and fights fatigue.
- No. of ingredients – 4
- Purely natural ingredients. Medicinal plants having health promoting properties.
- No chemical preservative
- Plants are common and abundant
- Hops replaced with indigenous plant.
- Colours from yellow to orange
- Bitterness can be altered
- Has self generated alcohol (2%)
- Has attractive attributes - good taste, aroma and refreshing properties with an ability to quench thirst
- Provides instant energy and fights fatigue
- Purely natural

This herbal health drink froths on carbonation however, it does not contains any frothing agents like salts of lead and nickel. The lab has confirmed antioxidant activity in the drink, the test report and related literature will be provided at the time of transfer of technology.

PATENTS- patent application for the Herbal health drink has been applied through PCT and US Patent No. 6,616,950.

PRODUCT

NBIRA (a regd name)– fermented health drink with an alcohol percentage of around 2%

The concentrated health drink has following characteristic.

Test	Herbal health drink
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Bitterness value	180-201
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Alcohol 2%

Viscosity 1.5 cp

SHELF LIFE - The concentrate has shelf life of Two years

Process

1. Peeling of the Mango fruit and preparation of juice.
2. Crush the cleaned medicinal plants and mix with water in the specified quantity to get the plant juice; prepare the bitter powder by separating the layers of the said juice then concentrate and dry.
3. Prepare the base material by mixing fruit juice, water, sugar, crushed barley, bitter powder and Autoclave the mixture.
4. Inoculate the mixture with fermentation agent in a fermentor;
5. Collect the final product after complete fermentation (Approx. 72 hrs) and pasteurisation. Centrifuge and fill in bottles as concentrate.

Pharmacological testing Immunomodulation – swim test

Antioxidant – Significant activity- Super Oxide dismutase mimetic and lipid peroxidation.

Hepatoprotective

Diuretic

Cytotoxicity studies – no cytotoxicity in NBIRA as compared to reputed market samples in L- 929 cell.

Patents can be filed for both inventions.

NOTE



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