



**African Regional Intellectual Property Organization**

**WORKSHOP ON ACCESS TO SCIENTIFIC AND TECHNICAL INFORMATION  
FOR TECHNOLOGICAL CAPACITY BUILDING AND PRODUCT BRANDING  
FOR GOODS OF EXPORT INTEREST FOR ENGLISH SPEAKING LDCs**

## **INTRODUCTION TO PATENT DRAFTING**

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**Making better use of Intellectual Property for business  
competitiveness and development in Africa**

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# Introdcution

A patent not only grants an applicant an exclusive right for an invention but also publicly discloses the invention so that technical knowledge in the world is enriched.



# Introduction

To archive this application must disclose the invention in the manner which is:

- Enable skilled person in the art to carry out invention
- Application contain all technical information required to enable the PSA to put the invention into practice
- Enable the reader to understand the contribution of the invention in the art.



# Main Part of Patent Application

- **Abstract**
  
- **Description**
  - **Field of Invention**
  - **Background of invention**
  - **Summary of the Invention**
  - **Detailed description of the Invention**
  - **Drawing/Figures**
  - **Sequence List**
  
- **Claim(s)**



# Description

- Is detailed part of a patent application which contains all information to enable the person skilled in the art to carry out the invention.
- The description should:
  - provide state of the art – background information
  - State the problem in which need to be solved
  - provide a solution



# Description

- The description shall disclose the invention in a manner sufficiently clear and complete
- This means there must be sufficient information to allow the invention to be carried out by a PSA as of the international filing date, without undue experimentation



# Description

## Clear and complete

- The invention is considered to be clear and complete if the disclosure of the invention provide sufficient information to allow the invention to be carried out by PSA without undue experimentation





# Description

- The description provides clear and complete disclosure by:
  - Identifying the **essential features** of the invention
  - Describing the preferred embodiments
  - Best mode/method of performing the invention
  - Examples and drawing
  - Representative examples together with an explanation of how they can be applied

**Note:** Is not required examples to cover every possible variation of the invention



# Description

## Example:

- **Claim:** An anti-nematode agent for use in preventing nematode infestation in a plant comprising an inhibitor of the nematode secretion pathway.
- **Description:** The only compound disclosed as inhibiting a nematode secretion pathway is phenanthroline.
- To determine which compounds exhibit the desired property an extremely large number of compounds would need to be screened. Since not all possible compounds with the desired characteristic or property could be identified without undue experimentation.



# Description

- It contain **Essential features** of the invention (i.e. features that affect the way the invention work).
- It can also contain **Optional features** of the invention (i.e. features that affect the operation of the invention or contribute to it in some way but are not critical to its function).



# Description

## Essential and Optional features

➤ **Essential features:**

“..essential...”,

“The invention relate...”,

“There is need to...”

➤ **Optional features:**

“preferably”, “optionally”,

“such as”; “may”,

“could”, “for example”



# Description

## Example: Glass Window Cleaner

[0001] This invention relates to an improved method of cleaning glass windows and the like. It is frequently necessary to clean glass windows such as for example automobile windows, and in large factories, power houses and other industrial works the question of rapidly and easily cleaning windows which have become heavily coated with soot and dirt is of considerable importance.

[0002] It has been found that mineral oils do not achieve the desired result, and accordingly **it is essential that a vegetable oil be used, preferably peanut oil although olive oil will also give satisfactory results.**

[0003] The **best method of performing** the invention is to **use a mixture of peanut oil and powdered chalk in the proportion of one ounce of powdered chalk to one pint of peanut oil**, this mixture being applied to the surface to be cleaned at the rate of between 1 and 2 cubic centimetres per square foot of glass to be cleaned.



# Patent Claim - Introduction

## Patent Claims:

- Define the scope of protection
- Represent the written approximation of the abstract inventive concept created by the inventor
- Set the boundaries of the invention



# Patent Claim - Introduction

## ➤ Patent Claim(s):

- shall define the matter for which protection is sought
- shall be clear and concise.
- shall be fully supported by the description.

The claims will not be considered to be fully supported by the description if they:

- extend beyond the disclosure
- are inconsistent with the description



# Theory of the Patent Claim

The patent agent must understand the differences between inventions, embodiments, & claims.

- An “invention” is a mental construct inside the inventor’s mind & has no physical reality.
- An “embodiment” of an invention is a specific physical form of the invention in the real world.
- The “claims” must protect at least an “embodiment” of the invention – but the best claims protect the “invention” – such that all physical embodiments infringe the claims.





# Theory of the Patent Claim *cont...*

## Example:

Inventor develops the first cup to have a handle. The physical embodiment the invention is a red clay cup with a handle.

- Does patent agent claim the physical embodiment of “a red clay cup with a handle” ? No!
- This would allow non-infringing plastic cups with handles.
- This would allow non-infringing blue clay cups, too.

If the patent agent understands the invention, then he will claim a “cup with a handle” (the invention)

- “Red cups” and “clay cups” may appear in narrower claims.



# Theory of the Patent Claim *cont...*

If the patent examiner prevents claims from exceeding the scope of the invention, then whose role is to push the claims up to their maximum breadth?

Answer -- The Patent Agent!!



# Theory of the Patent Claim *cont...*

The patent agent will usually not want all of the claims at the apparent upper limit of protection

- Because there may be unknown prior art &
- Claims can be invalidated during litigation

The patent agent will want to develop a mix of broad, medium, & narrow claims

- This provides the client with protection in depth



# Theory of the Patent Claim *cont...*

Patent claims must:

- Define the matter for which the protection is being sought in term of the technical features of the invention
- Be clear and concise
- Be supported by description



# Theory of the Patent Claim *cont...*

The patent specification must support the claims.

- A claim that is not supported by the description is invalid.
- Claims are compared against prior art(s) when considering novelty and inventive step



# Theory of the Patent Claim *cont...*

Example. If Claim 1 recites a glass table with four legs, then the patent agent must verify that the specification supports glass tables having four legs.



# Theory of the Patent Claim *cont...*

Example. If Claim 1 recites a “red” component, but the specification describes a “scarlet” component, then the patent agent should either:

- use 1 term throughout or
- amend the specification to state that “scarlet” is a subset of “red” and that any “red” component could be used (assuming this is correct).



# Patent Claim Format

A patent claim has 3 parts:

- preamble
- transitional phrase
- body

A claim is written as a single sentence.





# Patent Claim Format *cont...*

## Preamble

- Defines a category for the invention
  - Example: An electronic ...
- Often identifies the type of invention
  - Example: A method for ...
- Usually consistent with title of invention



# Patent Claim Format *cont...*

## Example:

Title of invention:

"Rice Cooking Apparatus"

Preamble might read:

1. *An apparatus for cooking rice,...*



# Patent Claim Format *cont...*

## Example *cont..*:

But suppose that the inventor knows that the apparatus could be used for cooking any type of grain, then a broader preamble might read

1. *An apparatus for cooking grains,...*



# Patent Claim Format *cont...*

## Example *cont..*:

Now suppose that the inventor knows that the apparatus could be used for cooking vegetables and melting cheese, then a broader preamble might read

1. *An apparatus for cooking,...*



# Patent Claim Format *cont...*

## **Transition Phrase**

- Open or Closed
- Follows the preamble
- May begin with a comma
  - The device, comprising



# Patent Claim Format *cont...*

## **Open Transition Phrase**

- Recited elements are the minimum needed for infringement
- The presence of other elements in an infringing device does not defeat infringement claim

## **Closed Transition Phrase**

- Recited elements are everything required for infringement
- The presence of other elements in an infringing device defeats infringement claim



# Patent Claim Format *cont...*

## **Open Transition Phrase:**

e.g. “Comprising”

- Have been construed to mean “including the following elements but not excluding others” in many jurisdictions
- A few jurisdictions have, however, found “comprising” to be a closed phrase



# Patent Claim Format *cont...*

## **Example:**

If invention relates to a pencil with an eraser and a light attached to it ...

Claim might be:

*1. An apparatus, comprising:*

*a pencil;*

*an eraser attached to an end of the pencil;*

*and*

*a light attached to a proximal center of the pencil.*





# Patent Claim Format *cont...*

## **Closed Transition Phrase**

e.g. "Consisting of"

- Has been construed to mean that the claim covers only the elements named & nothing more
  - The claim is “100%” of everything protected



# Patent Claim Format *cont...*

## Other phrases and their construction

e.g. “For”, “For use”, “used to”, “used for”

- Means suitable for the specified purpose/use
- But not limiting to that purpose/environment

**Example 1:** A shovel **for use** as a snake killing instrument → **Shovel per se**



## Patent Claim Format *cont...*

“When Used”, “Use of X for”, “Use of X to”

- These phrases limit the scope of the claim to applications, environment or timing
- These are generally construed as disguised **process claim**

***Example:***

A rope when used for leading a horse



# Patent Claim Format *cont...*

- Some words have special meanings when applied to patent claims.
- Some words may further define a structure or provide a function associated with a given structure.
  - “wherein,”; “whereby,”; “such that,” & “so as to”
- The patent agent must know how the courts in the jurisdictions of interest interpret these words, and then use them appropriately.



# Patent Claim Format *cont...*

Example: “**Wherein**” clause

- Used to describe function, operation, or result that flows from previous structure
- Used where the result follows recited structure or function

**Example:**

- “A folder for keeping files, wherein the folder is configured to receive the files ...”



# Patent Claim Format *cont...*

## **Claim Body:**

- Follows the transitional phrase
- Recites the limitations of the claim
- Explains how different limitations exist in relationship to one another



# Patent Claim Format *cont...*

## **Example:**

The body of an apparatus claim on a table might read:

- 1. An apparatus for holding items, comprising:  
a top; and  
at least one leg configured to support the top.*



## Patent Claim Format *cont...*

- A patent claim cannot typically be a mere list of parts.
- The recited elements must usually relate to each other in some way.





# Patent Claim Format *cont...*

This claim would most likely not be allowed:

*1. An apparatus for holding items,  
comprising:*

*a top; and*

*at least one leg.*

Because no relationship is provided between (or among) the recited limitations.



# Patent Claim Format *cont...*

## Claim punctuation:

- A comma appears at the beginning of the transitional phrase
- A colon appears at the end of the transitional phrase
- A semi-colon appears between each limitation
- End the claim with a period.



# Patent Claim Format *cont...*

## Punctuation Example:

1. A device, comprising:
  - a first part;
  - a second part; **and**
  - a third part.



# Patent Claim Format *cont...*

Provide proper antecedent basis

- Introduce a new element by referring to it with the indefinite article
  - “a truck”
- In subsequent references refer to the element using the definite article
  - “**the** truck” or “**said** truck”



# Patent Claim Format *cont...*

## Antecedent Example:

1. A device, comprising:

**a** thing;

**a** part glued to **the** thing; and

a ..... bolted to **the** part.



# Patent Claim Format *cont...*

Provide proper antecedent basis

–If the claim recites two or more identically named parts, then the claim must distinguish between the two parts

- Use “first” and “second” or
- Use “a” and “another”



# Patent Claim Format *cont...*

Antecedent Basis Example –

1. A device, comprising:
  - a **first** part;
  - a **second** part attached to the **first** part; and
  - a **third** part fastened to the **second** part.



# Patent Claim Format *cont...*

## Reference Numerals

- In some jurisdictions, claims may need reference numerals that match corresponding elements in the patent application's drawings.





# Patent Claim Format *cont...*

## Reference Numerals

- Assume Figure 1 of the application shows a teapot, and this teapot is labeled “123.”
- If the claims recite this particular teapot, then the teapot element may need to be followed by the reference number “123”
  - a teapot (123)



# Patent Claim Format *cont...*

## Reference Numerals

1. A book, comprising:
  - a plurality of printed pages (11);
  - a binding (14) configured to moveably attach the printed pages (11); and
  - a cover (21) attached to the binding (14).



# Patent Claim Sets

- A patent application normally includes at least one patent claim set.
- Each patent claim set comprises
  - One Independent (main) claim and
  - Dependent (sub) claims
- Patent claims appear at end of application



# Patent Claim Sets *cont...*

## Independent Claims

- Stand alone
- Contain all claim limitations
- Always broader than dependent claims
- One independent claim may be broader than another independent claim

## Dependent Claims

- Reference a specific independent claim
- Include all limitations of the recited independent claim
- Add more limitations to the independent claim
- Immediately follow the independent claim



# Patent Claim Sets *cont...*

## **Example:**

- An inventor has created a pencil with a light attached to it which can be used to write in complete darkness



# Patent Claim Sets *cont...*

Claims might be:

1. A device, comprising:
  - a pencil; and
  - a light attached to the pencil.
2. The device recited in claim 1, wherein the light is removably attached to the pencil.
3. The device recited in claim 2, wherein the pencil is red in color.



# Patent Claim Sets *cont...*

Claim 1 (independent) sets out the invention in its broadest form

Claim 2 (dependent) depends from claim 1

- Incorporates by reference all of the limitations recited in the parent claim
- Adds limitations to independent claim

Claim 3 (dependent) depends from claim 2

- Incorporates by reference all the limitations of claim 2 and claim 1
- Adds limitations to the parent claim (claim 2)



# Patent Claim Sets *cont...*

A dependent claim can only add and not subtract limitations from the parent claim.

For example, dependent claim 2 cannot read as follows:

2. *The device recited in claim 1, wherein the light is not attached to the pencil.*





# Patent Claim Sets *cont...*

## Multiple dependent claims

- Dependent on more than one claim in the alternative
- Preamble refers to more than one claim

### **Example:**

4. A device as recited in **claim 1 or 2**, further comprising an eraser attached at an end of the pencil.



# Categories of Claims

## Apparatus claims

- Protect an apparatus or a device
- Recite in preamble what the apparatus “is” and/or “does”
- Recite in the claim’s body the essential inventive elements



# Categories of Claims *cont...*

## Example:

1. An apparatus for supporting a camera, comprising:
  - a pivotal mounting configured to hold the camera; and
  - a set of legs arranged to support the pivotal mounting.



# Categories of Claims *cont...*

Should you claim a novel component or a product containing the component?

- The component should generally be claimed
  - Because the component may be applicable to more than a single product
- The product should also be claimed if possible
  - Because it may be easier to license/exploit



# Categories of Claims *cont...*

## **Example.**

A invents novel Component X which will replace Component Y in Product Z

1. A component X, comprising:

...

&

2. A product Z, comprising:

A component X, and ...



# Categories of Claims *cont...*

## **Method OR Process claims:**

- Recite a sequence of steps that complete a task or accomplish a result
- Steps may be recited in order of performance, but are usually interpreted as being performed in any order unless otherwise specified



# Categories of Claims *cont...*

## **Example:**

1. A method of making tea, the method comprising:
  - boiling water;
  - adding sugar to the boiling water;
  - adding tea leaves to the boiling water to form a mixture;
  - filtering the mixture; and
  - adding milk to the mixture.



# Categories of Claims *cont...*

## Use Claims

- Similar to method claims
  1. The use of substance X as an insecticide  
...
  2. The use of a transistor in an amplifying circuit ...
- May be interpreted as method claims
- Not allowed in all jurisdictions





# Categories of Claims *cont...*

## Second Medical Use Claims:

– Suppose chemical compound XYZ is already known, and has been used to treat diabetes. Assume that Inventor A discovers that compound XYZ is an effective medicament for the treatment of malaria:

1. *The use of compound XYZ in the manufacture of a treatment for malaria.*



# Categories of Claims *cont...*

## **Second Medical Use Claims:**

- Use claims - also known as Swiss-type claims – are helpful when substance is already known in the art
- Not all jurisdictions permit such types of claims



# Categories of Claims *cont...*

## Composition claim

- Used where claimed invention pertains to the chemical nature of the materials or components used
- Claims a “thing” like a device claim



# Categories of Claims *cont...*

## **Example:**

Claim for a zinc electroplating solution might be:

1. *A copper electroplating solution comprising:*
  - *an alkaline solution of copper sulfate, from 30-50 grams per liter;*
  - *sulphuric acid, from 2-4 times the copper acetate solution; and*
  - *an aqueous solution of a PH-modifying substrate in an amount sufficient to adjust the pH to a value of from 3.5-5.*



# Categories of Claims *cont...*

## Product-by-Process Claims

- Claims a product defined in terms of a process of manufacture
- Some jurisdictions treat as product claims
- Other jurisdictions treat as method claims
- Verify that a product-by-process claim is the best approach for protecting an invention before employing this type of claim



# Categories of Claims *cont...*

## Example

1. A metallic salt obtained by a process comprising the steps of ...



# Categories of Claims *cont...*

## **Biotechnology claim**

- relates to all practical uses of living organisms
- either commercial or therapeutic uses
- may include c DNA, recombinant DNA, DNA fragments, protein, monoclonal antibodies, anti sense DNA and RNA, Recombinant vectors and Expression vectors



# Categories of Claims *cont...*

Claim for invention related to nucleic acids and encoded proteins might be:

1. An isolated polynucleotide comprising a member selected from the group consisting of:
  - (a) a polynucleotide encoding a polypeptide comprising amino acid 1 to amino acid 255 as set forth in SEQ ID NO:2; and
  - (b) a polynucleotide which hybridizes to and which is at least 95% complementary to the polynucleotide of (a).
2. The polynucleotide of claim 1 comprising the polynucleotide of (a).
3. The polynucleotide of claim 2 comprising nucleotide 1 to nucleotide 1080 of SEQ ID NO: 1.





# Specific Claim Types

- Where an invention involves a biological material, and the material has been deposited, then the patent agent may often claim the material deposited.

- Example:

- 1. 1. A seed of cotton cultivar designated PHY 78 Acala, wherein a representative sample of seed of said cultivar was deposited under ATCC Accession No. PTA-5666.**

- The Budapest Treaty requires signatory countries to recognize a deposit with any depository which has been approved by WIPO.



# Categories of Claims *cont...*

## Software claims

- Used where the claimed invention pertains to computer software and/or hardware
- Can use device and method claims to cover software inventions
- Can also use specialized claim formats to provide an additional scope of protection



# Categories of Claims *cont...*

## Software claim type – “computer readable media” format

1. A computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for using a computer system to [a specified function], the method comprising:  
[list the inventive method steps].



# Categories of Claims *cont...*

## Software claim type – “data structure” format

1. A memory for storing data for access by an application program being executed on a data processing system, comprising:

a data structure stored in the memory, the data structure including information resident in a database used by the application program and including:

a first data object configured to ...

a second data object configured to ...; and

a third data object configured to ....



# Categories of Claims *cont...*

- Omnibus Claims

- Refer to the description or the drawings without providing any specific limitations.

- Simple to write:

1. An apparatus for harvesting corn as described in the description.
2. A juice machine as shown in Figure 4.

NB: Not all patent offices allow omnibus claims.



# Thank You



Making better use of Intellectual Property for business competitiveness and development in Africa



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