

How to write a patent application – the task of the inventor and of the patent attorney since the beginning

PhD+: Research valorization, innovation, entrepreneurial mindset

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Summary

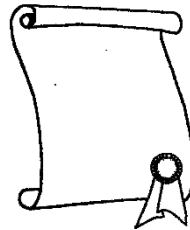
- What is a Patent
- Why File a Patent: Roles Played by Patents
- The Actor of the Patent Procedure
- The Structure of a Patent
- When to File a Patent
- Who should File a Patent
- Where to File a Patent: the Patent Procedure
- The European Patent Procedure
- The Examination of Novelty and Inventive Step
- Infringement, Patentability and Freedom to Operate

What is a Patent?



- A contract between an inventor and a state

Inventor



State

Protection for about 20 years;
Right to exclude others from
making, using, selling and
importing the invention

- *to recoup investment in R&D*
- *to strengthen market position and competitiveness*

Publication of the invention

- *to spread new technical knowledge*
- *to avoid R&D duplication*
- *to foster innovation*

Patents are granted to inventions which are **Novel**, **Inventive** (non obvious), suitable for **Industrial Application** when considered against the **Prior Art**

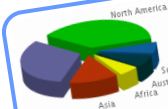
Why File a Patent

Patents define Innovation Strategy and Market Strategy and help you:

... to recover your R & D investments and to safeguard the results

... to introduce new products and processes

... to increase your market share



... to provide recognition and motivation for employees



... to retain your market position #1

... to bring together inventors and investors

Roles played by Patents

Informative Role



Defensive Role



Co-operation Role



Aggressive Role



Financial Role



Five Roles played by Patents



Informative Role



- Every patent is published in exchange to the rights conferred
- Every patent is abstracted and indexed in several databases
- Patents used to gain a reputation and promote themselves
- Patents used as proof of technical ability to encourage potential partners to form joint ventures
- Patents used to mislead competitors (disinformative role)

Five Roles played by Patents



Defensive Role



- Defensive publication: the invention of a published patent (application) **cannot be patented again**
- Publishing a patent application is easier and cheaper than publishing in a technical journal (no peer/editorial review) and its publication date is certain
- Owning many patents in many technology areas to be used against future competitors
- A large patent portfolio discourages and disorients competitors
- Patents protect a market at its outset („pioneer“ patents)
- Patents build a protective wall around a „pioneer“ patent („fence“ patents)

Five Roles played by Patents



Co-operation Role



- Patents are traded to acquire an advantage (licence) of another patent owned by competitor (cross-license) or know-how
- To create mutual respect between competitors and promote co-operation or joint-ventures

Five Roles played by Patents



Aggressive Role



(INVADERS)

- Patent used directly or indirectly to exclude others from use, produce or sell the same product
- Patent used for threatening competitors
- Patent used to prolong the domination on the market: patents for improvements
- Patent used to scare off competitors not familiar with patent system

(DEFENDERS)

- Patents used for improving a position before negotiations with owner of a master patent: dependent patents may block a master patent

A case of (too much) aggressive strategy



vs.



- Sony had a very aggressive strategy on his invention of Betamax video cassettes
- JVC was less protective on the licensing of his invention of VHS video cassettes

=> Betamax, despite a higher quality, lost the market and VHS became a standard and a great commercial success for JVC

A case of non aggressive strategy



- Philips had a free-license policy for his invention of Music Cassettes provided the mechanical dimensions were not changed by other manufactures
- MCs became standard and Philips got the “backward compatibility”, i.e. cassette from other manufacturers could be used on their music reorders/reproducers

Five Roles played by Patents



Financial Role



- Patents used in order to earn money through licensing
- Patents used as a guarantee for a loan (security)
- Patents used as an asset when founding a company
- Creation of business units using internal licensing fees
- Global tax optimisation through transfer of patent rights

Roles played by Patents

Informative Role



Defensive Role



Co-operation Role



Aggressive Role



Financial Role



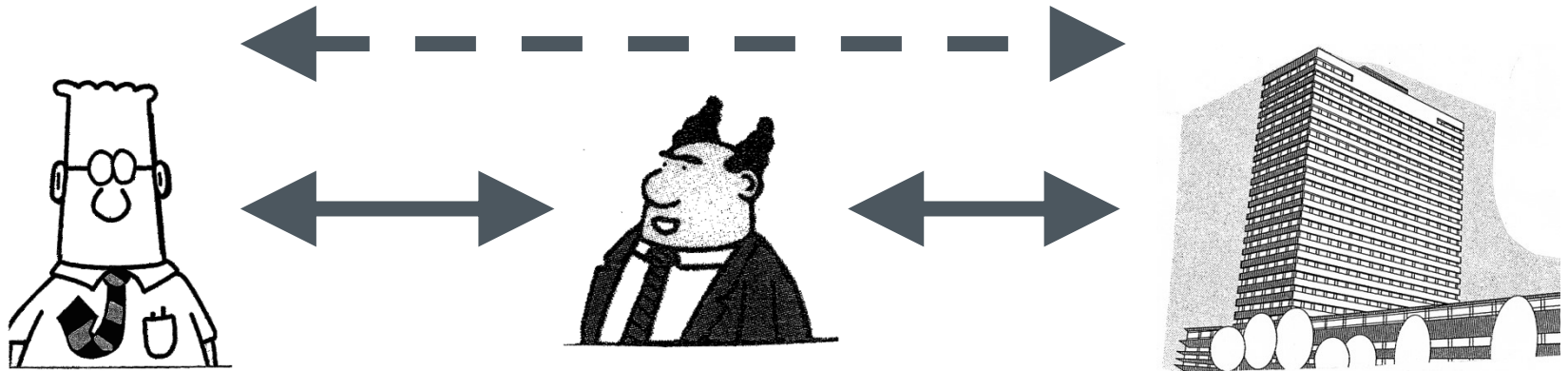
*An Example
of Patent Portfolio*

Why Really You Want to File a Patent

Maybe the questions to ask yourself are:

- 1) You may have a really great invention, but is it relevant to your business objectives?**
- 2) Would a patent give you any practical leverage over a competitor?**
- 3) Do you already have an appropriate patent portfolio?**

The Actors of the Patent Procedure



Inventor/Applicant

Representative

Patent Office

**Unexamined Patent
Applications (A)**
Contract Proposal

**Granted Patents
(B)**
Final Contract

publishes

Abstract

Front Page

- **INID codes**
(Internationally agreed Numbers for the Identification Data)
- (11) Patent publication serial number
- (19) Issuing Patent Office
- (21) Application number
- (22) Date of filing
- (30) Priority
- (43, 45) Date of publication
- (51) Int. Cl.
- (56) References cited
- (54) Title of Patent
- (57) Abstract
- Inventor, Applicant, Representative, Assignee (71-75)
more details in WIPO Standard ST.9

EUROPEAN PATENT APPLICATION

Application number: **92202354.4** Int. Cl.⁵: **B42F 1/02**
Date of filing: **29.07.92**

<p>Priority: 31.07.91 NL 9101313</p> <p>Date of publication of application: 03.02.93 Bulletin 93/05</p> <p>Designated Contracting States: AT BE CH DE DK ES FR GB GR IT LI LU MC NL PT SE</p>	<p>Applicant: MULTIBRIDGE B.V. 35, Willem de Zwijgerlaan NL-2252 VN Voorschoten(NL)</p> <p>Inventor: van Ardenne née van Rhijn, Johanna Lamberta Maria 35, Willem de Zwijgerlaan NL-2252 VN Voorschoten(NL)</p> <p>Representative: Keijser, Johannes Maurits L.F., Mr. et al EXTERPATENT B.V. P.O. Box 3241 NL-2280 GE Rijswijk(NL)</p>
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Clip for paper or other objects.

Clip for holding and/or keeping together sheets of paper or other materials, comprising two holding elements lying essentially in parallel planes and springing relative to each other, and of which the two end edges run parallel at a distance from each other or at an angle relative to each other, and form push-on edges when in use. According to the invention, the two holding elements are in the form of holding legs (1, 2) of sheet-type material, and one (2) of said holding legs is bent in such a way that a part (4, 6) adjacent to the connecting line (3) with the other leg (1) lies at a distance from said other leg, and a second part (8), essentially ending at the push-on edge (13), lies with at least a part of its inside essentially flat and resiliently against the inside of a part (9) of the other holding leg (1). The clip can also be placed on other objects of different types.

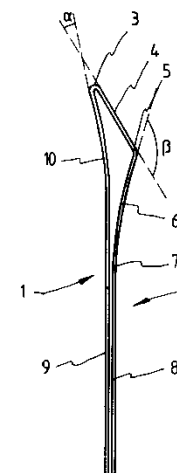


Fig. 2

A Patent

Clip for Paper

Description

•Introduction

- **Technical Field**
- **“State of the Art”**
- **Problem to be solved**
- **Proposed Solution**
- **Listing of drawings**

•Detailed description

- **Preferred embodiments**

Problem

The invention relates to a clip for holding and/or keeping together sheets of paper or other materials, or for placing on/against other objects of different types, comprising two holding legs of sheet-type material lying essentially in parallel planes and springing relative to each other, and of which the two end edges cross at an angle relative and form, when in use, with at least part of their lengths, push-on edges, defining a reverse V-shaped push-on space, at least one of said holding legs being bent in such a way that a part adjacent to the connecting line with the other leg lies at a distance from said other leg, and a second part, essentially ending at the push-on edge, lies with at least a part of its inside essentially flat against the inside of a part of the other holding leg.

A clamp of this type is disclosed in US-A-1 637 564. It has the advantage in being fit for providing information on parts of the plate material, and is also fit to hide for example staples. However, the substantially V-shaped push-on space is formed for the greater part by two points in which the foremost holding leg ends. The rear holding leg is shorter and ends in a single point in the middle of the width. In order to create a push-on facility all these points are curved rearwardly. By this, they are inclined to introduce damages, by scratches or folds, onto the paper or the other material which they hold together, or on which they have been placed, both when placing them and with removing them. Furthermore the parts of the front and rear holding legs, initially lying one against the other, will not remain flat against each other when one or several sheets of paper are inbetween them; the contact is limited to a line contact. As a result the capacity is very much limited and also the risk increases that the rear holding leg is being gripped and thereby pulled off the pile of sheets.

Also a clip for paper is known which comprises two holding elements lying essentially in parallel planes and springing relative to each other, and of which the two end edges run at an angle relative to each other, and form push-on edges when in use, which edges define a V-shaped push-on space. This is a paper clip of spring steel wire (as a variation of the most common type of paper clip with two semi-circular push-on ends lying some distance apart).

A major disadvantage lies in the thickness arising from the diameter of the steel wire from which they are made, and from the fact that the paper will bend through the gripping action. Also the deformation when pushin on is concentrated as torsion of the part of the wire which constitutes the connection between the two holding members; thereby these holding members will not lie any more parallel to each other and flatly against the paper which is being clamped, but they will stand

outwards, so that there will be no flat clamping effect. When a number of piles all containing such paper clips on the same corner, are stacked up, a thickening which is a multiple of the thickness of the whole pile of paper is very soon produced at the corner.

Ordinary and special paper clips are known (WO 81/01535) which can be provided with client-specific identification; they are expensive, however. Besides, they cannot be used together with permanent holders (e.g. staples), or at least they provide no possibilities for masking the common staple.

The object of the invention is to provide an artistically sound product which is functionally comparable to or better than the known holders, with which all disadvantages indicated above are eliminated, and with which a number of sheets of paper can be combined to one unit, without any of the materials being damaged and the artistic character of the special information being destroyed.

For this purpose, the clip according to the invention is characterised in that the bending in the at least one holding leg is realised such that the legs lie one against the other under a bias force, in that the two legs, at substantially equal distances from the connecting line, both terminate in a single point and are flat in the proximity of their extreme edges which constitute the push-on edges.

As regards holding, the clip according to the invention combines virtually all positive features of the staple and the paper clip while, in practical terms, all disadvantages of both holders are eliminated as well as those of the other clips discussed above. It provides semi-permanent holding through much greater gripping force than all known paper clips.

The broad, flat holding area between the two holding legs, which, as a result of the bias tension, will remain flat, means that the clips have a greater gripping force than the known paper clip, with the result that when a page is turned they cannot slip as easily from the paper. The basic type clips 1 to about 15 sheets of paper (approximately 80 grammes), the total thickness of the paper held by the clip increasing only by the material thickness, and thus being only negligible, in contrast to conventional paper clips and staples. Unlike all prior art paper clips, the clip also remains virtually always completely flat.

Paper clips making use of twisting techniques almost always have the disadvantage that the ends of the holding legs stand out and thus produce an additional thickening on top of the thickening resulting from the thickness of the material of the paper clip; in the case of the clip according to the invention, the ends of the holding legs cannot stand out. This means already in the case of two pages that the clip is less thick in use than staples and paper

Solution

Clip for Paper

Claims

Function:

- *Protection is conferred by the claims*
- *Define the matter for which protection is sought*
 - *clear, concise, supported by the description*
 - *in term of technical features*

Seek a Balance:

- *Differentiate the invention from the prior art.*
- *Obtain the most extensive protection possible!*

paper or the other object, following which it is slid over it, are at an angle of 45° relative to the long edges 14, 15 respectively, so that they are at right angles to each other. Other angles are also conceivable. For purposes of this pushing on, it is desirable for the edges 12 and 13 to be rounded at least at the sides of the legs 1 and 2 facing each other. They must, of course, at least be made free from burrs, but these are aspects connected with the manufacturing method, and they are problems which will be solved by the person skilled in the art.

The front and the rear holding leg are also shown to be the same shape. Here again, this is not essential. Instead of the trapezoidal shape shown, all kinds of shapes are conceivable, in which the long legs and the push-on edges run at other angles or are curved, or meander, provided that the push-on edges cross each other at one or two points, in order to make it easy to start the pushing on, while the front and the rear holding leg can also be different shapes from each other. The only important factor is that a sufficiently large contact face should remain for achieving the gripping effect according to the invention.

It is also advantageous to make an embodiment which in front view is the mirror image of that of Fig. 1. When the embodiment of Fig. 1 is pushed onto the top edge of a pile of sheets near the left corner, a fold line around edge 12 is automatically obtained on turning over. If the clip is pushed on along the left side, e.g. especially in order to cover a staple inserted parallel to that left edge, one has to fold round one point, which could cause tilting of the clip, with the risk of it cutting into the paper, and the paper can be more easily pulled out of the clip. This is prevented by a mirror image embodiment, for we then again have a fold line running at 45° relative to the top edge and left edge.

It will be clear that the holding legs of the clip according to the invention have all kinds of surfaces on which information can be placed, either by printing, or by stamping or cutting out. This is indicated by way of example by information faces 16 and 17 at the front side of the front leg, but also by a face 18 which is situated on the visible side, but is in fact on the inside of the rear leg 2. The invention is not, however, restricted to the places to which this information is applied, and it is, of course, equally not restricted to the way in which said information is placed on the clip. A further variant of this is the provision of holes of a certain shape. If these holes are too large, the gripping force could be reduced at the position of the contact faces 8 and 9, but in particular at the position of the face 16 shown, thus in the top part 10 of the front holding leg, holes of different shapes can be

cut out, or can be made by, for example, laser cutting, without reduction of the gripping surface. It must be remembered here that too extensive removal of material could result in a reduction of the gripping force of the whole product.

Printing with ink which can be written on, or printing with a bar code are particularly advantageous.

The clip can be designed in such a way that it is provided with a hanging device in the form of a cord or wire loop threaded through the space present in the top part of the clip, or with a stamped-out hanging eyelet near the fold line 5 in holding leg 2. It is also advantageous if a number of clips are fixed permanently or by adhesive on an elongated carrier. The clip can also be provided with a layer of adhesive on the rear side 2, either for permanent fixing or for temporary fixing.

Claims

1. Clip for holding and/or keeping together sheets of paper or other materials, or for placing on/against other objects of different types, comprising two holding legs of sheet-type material lying essentially in parallel planes and springing relative to each other, and of which the two end edges cross at an angle relative and form, when in use, with at least part of their lengths, push-on edges, defining a reverse V-shaped push-on space, at least one of said holding legs being bent in such a way that a part adjacent to the connecting line with the other leg lies at a distance from said other leg, and a second part, essentially ending at the push-on edge, lies with at least a part of its inside essentially flat against the inside of a part of the other holding leg, **characterized in that** the bending in the at least one holding leg (2) is realised such that the legs (1, 2) lie one against the other under a bias force, in that the two legs, at substantially equal distances from the connecting line (3), both terminate in a single point and are flat in the proximity of their extreme edges (12, 13) which constitute the push-on edges.

2. Clip according to claim 1, **characterised in that** the bend in the one leg (2) is in the form of a fold region (5) at a distance from the abovementioned connection (3).

3. Clip according to claim 2, **characterised in that** the fold region (5) is in form of a fold line.

4. Clip according to claim 3, **characterised in that** the abovementioned fold line (5) lies at a distance which is approx. a quarter of the

A Patent

EP 0 525 909 A1

Clip for Paper

Drawings

- ***No scale***
- ***No dimensions/values***
- ***No proportion***

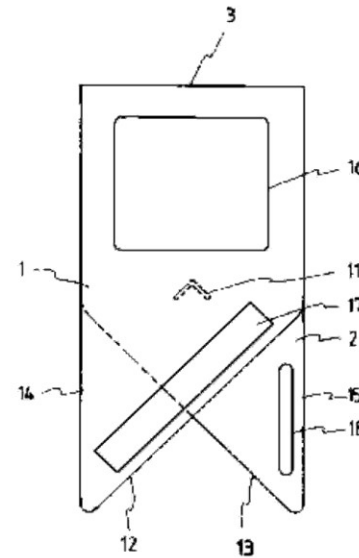
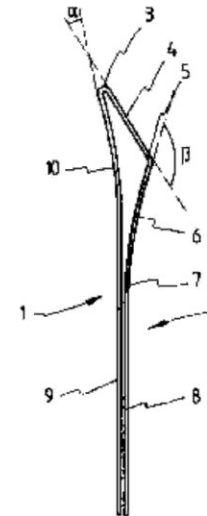


Fig. 1

 $\overline{\text{Eq}}: \mathbb{Z}$

Clip for Paper Search Report

Category X, Y, A

Cited documents

Relevant to Claim

Technical Fields Searched

Represents what is already known
“in the technical field” of the patent
application and is an indication on
whether the invention “as claimed in
the application as filed” is novel and
inventive

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-1 493 072 (FRICKER) * the whole document *	1-3	B42F1/02
Y	---	8-10	
Y	NL-A-8 601 431 (MOONS & VAN HOOFF) * the whole document *	9,10	
Y	US-A-4 563 796 (KETTLESTRINGS) * column 3, line 3 - line 53; figures 1-4 *	8,10	

			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B42F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 03 NOVEMBER 1992	Examiner LONCKE J.W.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological disclosure O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

A closer look

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN PATENT APPLICATION

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Clip for paper or other objects.

Clip for holding and/or keeping together sheets of paper or other materials, comprising two holding elements lying essentially in parallel planes and springing relative to each other, and of which the two end edges run parallel at a distance from each other or at an angle relative to each other, and form push-on edges when in use. According to the invention, the two holding elements are in the form of holding legs (1, 2) of sheet-type material, and one (2) of said holding legs is bent in such a way that a part (4, 6) adjacent to the connecting line (3) with the other leg (1) lies at a distance from said other leg, and a second part (8), essentially ending at the push-on edge (13), lies with at least a part of its inside essentially flat and resiliently against the inside of a part (9) of the other holding leg (1). The clip can also be placed on other objects of different types.



Fig. 2

A closer look

Function of a Patent Application

1. Proposal for the “contract”

2. Disclosure of the invention

in a manner sufficiently clear and complete in order to allow a person knowing everything publicly disclosed at the time of the invention to reproduce or carry out the invention without any additional creative activity (enabling disclosure).

- **Description**
- **Claim(s)**
- **Drawing(s)**
- **Abstract**

A closer look

Description

1. Discuss the Prior Art

- indicate the background art useful to understand the invention
- (mis)-lead the search and the examination

2. State and explain the problem(s)

- all possible **subjective** problems, i.e. problems the inventor believes were never solved in the prior art
- some possible **objective** problems, i.e. those problems not solved in the prior art and which will be the bases for submission of amended claims
- explain the inventive solution(s)

3. Provide support for the claims as drafted

- explain at least one way of carrying out the invention **as claimed**
- give the technical information necessary to the skilled person
- disclose in detail the essential features, i.e. the features solving the problem

4. Disclose all possible embodiments

- not only those depicted in the drawings
- disclose all possible materials, shapes, dimensions, ranges, sequences,.....

5. Provide support for future amended claims

- Disclose as many alternatives as possible
- Avoid sentences limiting the scope of the application
- Never state that a feature is essential

A closer look

Claims: Function

1. Confer to the applicant/proprietor the **broadest protection possible**
2. Put the applicant/proprietor in the **best condition** to enforce his patent against infringers so as to obtain the best results in case of an infringement procedure is started
3. Drafted in term of essential technical features, i.e. those features which solve the problem addressed by the patent

A closer look

Claims: Form and Contents

Independent Claim

- used to define the broadest scope of protection
- meaning of broadest protection possible: is there any modification, variations, application or use of invention not covered by an independent claim or do not fall within the scope of the claim?
- broad claims strategic during the examination procedure in the case of amendments
- the extent of the protection conferred is determined by the terms of the claims and the terms of the claims have to be understood in the light of the description and with the knowledge when the patent application was filed
- not only the characterizing features determine the protection conferred, but all features defined therein (preamble and characterising part)
- it should not define any **superfluous feature** which will deprive the applicant/proprietor of the protection to which he is entitled

A closer look

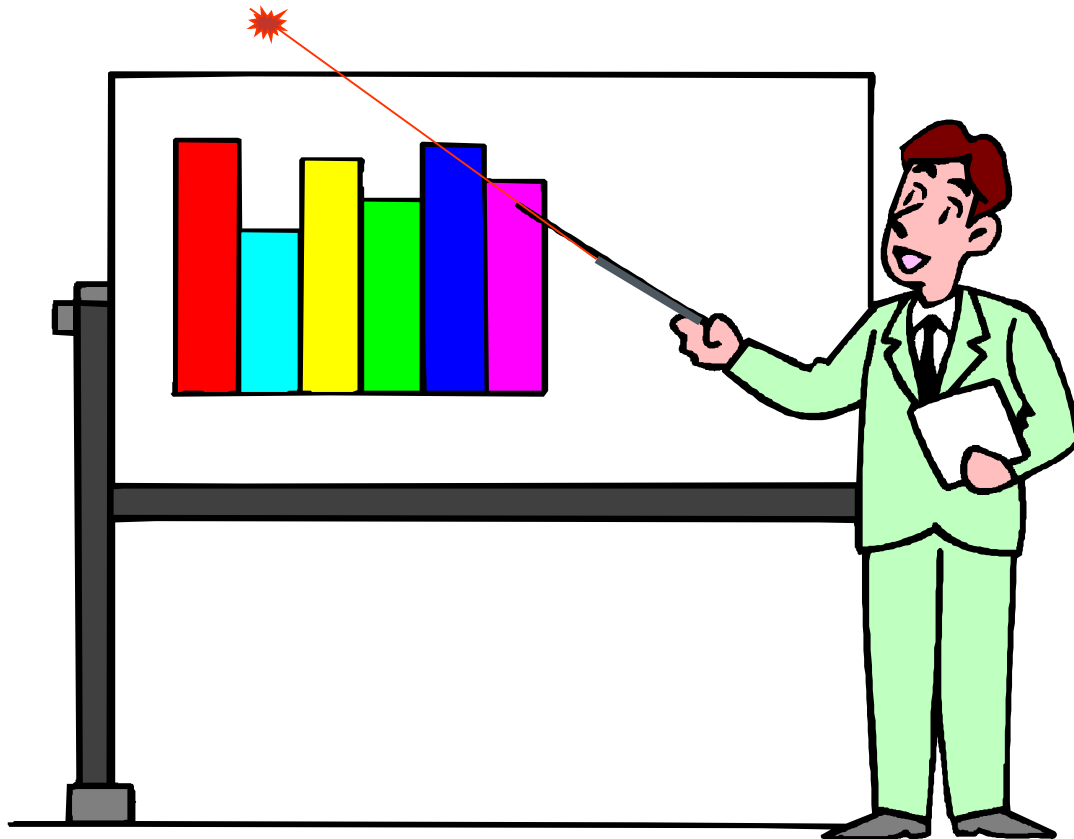
Claims: Form and Contents

Dependent Claims:

- to defend the application during the granting procedures (fall back positions)
- to defend the patent during post granting procedures (Oppositions, Appeals, Invalidations)
- to allow better enforcement of the patent, a dependent claim may be closer to the infringing item
- the protection is gradually and not unduly limited
- each claim confers a protection which is broader than the one conferred by the next claim
- at least one claim relates to the embodiment exploited by the potential infringer

Claim: a BAD one?

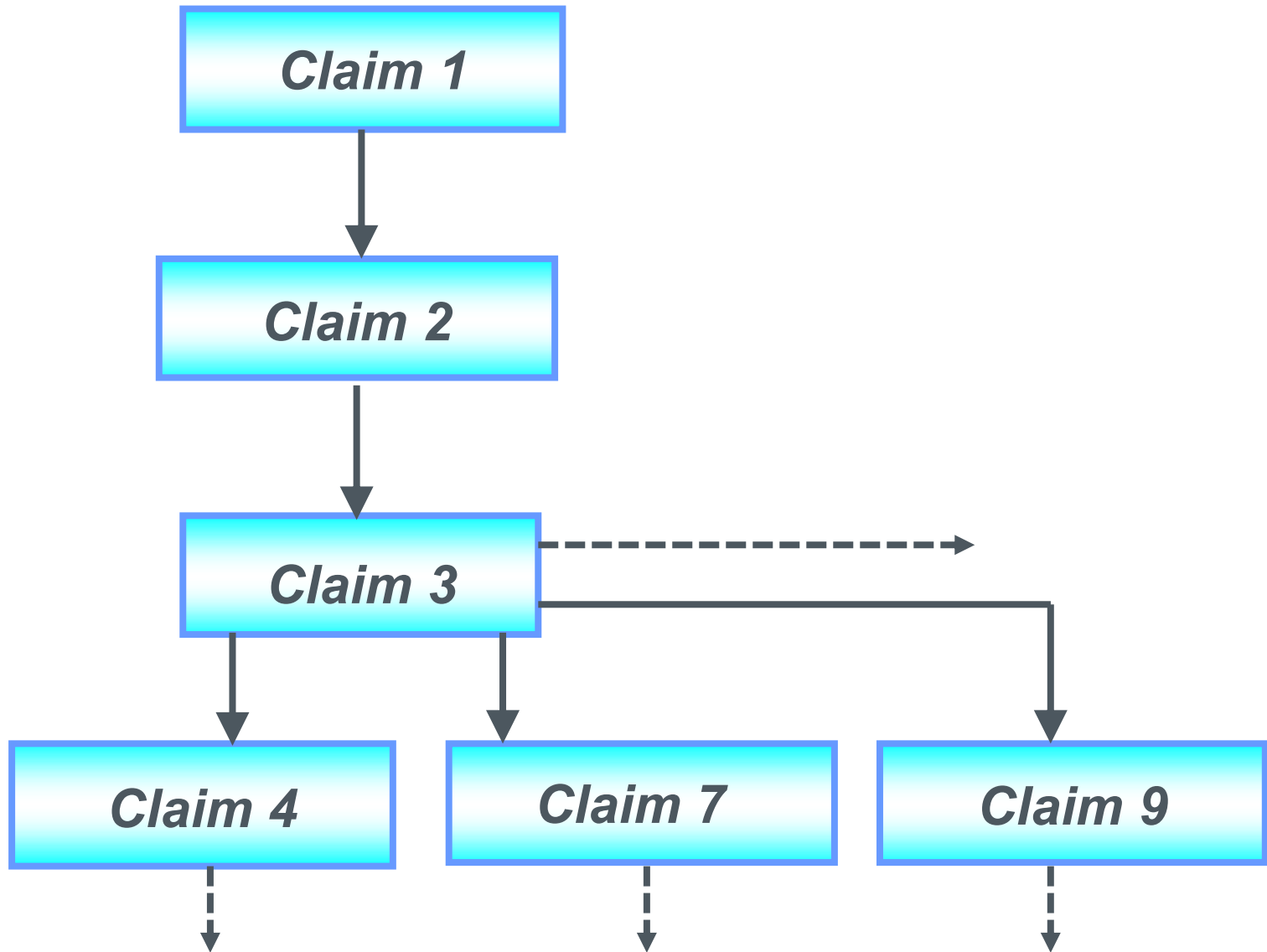
1. A laser pointing device comprising an elongated body, an electronic circuit, a battery, a button and a laser source



Claim: a GOOD one?

1. A pointing device comprising a laser device
2. A pointing device according to claim 1 further comprising an elongated body.
3. A pointing device according to claim 2 further comprising an electronic circuit means.
4. A pointing device according to claim 3 further comprising power supplying means.
5. A pointing device according to claim 4 wherein said power supplying means is a battery means.
6. A pointing device according to claim 4 wherein said power supplying means is a rechargeable battery means.
7. A pointing device according to claim 3 further comprising switching means.
8. A pointing device according to claim 7 wherein said switching means is a slide button or a touch sensitive button or a push button.
9. A pointing device according to claim 3 further comprising a laser source.
10. A pointing device according to claim 9 wherein said laser source emits red light.
11. A pointing device according to claim 9 wherein said laser source emits blue light.
12. A pointing device according to claim 2 wherein the elongated body has an ergonomic shape.
13. A pointing device according to claim 2 wherein the elongated body has a cylindrical cross section.

Claims: Claim Tree



A closer look

Claims: Form and Contents

Claim Categories

- Claims defining a **physical entity**
 - Product
 - Device
 - Apparatus
 - System
 - ...
 - Claims directed to an **activity**
 - Process
 - Method
 - Use
 - ...
-
- The diagram illustrates the legal consequences of different claim categories. It features three vertical columns. The first column, under 'Narrower Scope', has a red arrow pointing down to 'Broader Scope'. The second column, under 'Higher Protection', has a red arrow pointing up to 'Lower Protection'. The third column, under 'Lower Compens.', has a red arrow pointing down to 'Max Compens.'. The words 'vs.' are placed between the first and second columns, and between the second and third columns, indicating a comparison or trade-off between these factors.
- | Claim Category | Scope | Protection | Compensation |
|-----------------------------------------------------------|----------------|-------------------|----------------|
| Physical Entity (Product, Device, Apparatus, System, ...) | Narrower Scope | Higher Protection | Lower Compens. |
| Activity (Process, Method, Use, ...) | Broader Scope | Lower Protection | Max Compens. |

A closer look

Claims: Form and Contents

Claim Categories

- Category should be the one corresponding to the invention as put on the market
- Category should help in the detection of infringers (infringement of a process may be difficult to demonstrate, whereas a product is visible)
- Category should help to maximize the compensation from infringers (infringement of a process lead to an estimate for the damages, products are countable and damage exactly quantifiable)
- Compensations vary depending on uses and applications of the invention

Claims: example of categories of claims la

- **Compensation** is based on the **estimated Economic Advantage** obtained by the infringer
- You own a patent **claiming** a “**Camera Chip**” which is used in a **Smartphone** produced by an infringer
- The infringer is “copying” your invention, i.e. the Camera Chip:
Compensation 3-5 % of the **Economic Advantage**
- **Economic Advantage** = Number of **Smartphone** sold x (Price of a single **Camera Chip**)
- Number of **Smartphone** sold = 1.000.000
- Price of a **Camera Chip** = 10 Euro
- **Economic Advantage** = 10.000.000 Euros
- **Compensation** = 3-5% of **Economic Advantage** = **300.000 – 500.000** Euros

Claims: example of categories of claims Ib

- **Compensation** is based on the **estimated Economic Advantage** obtained by the infringer
- You own a patent **claiming** the “**Camera Chip**” and in addition **claiming** a “**Smartphone**” comprising the **Camera Chip**.
- An infringer is also producing a smartphone including the “copy” of your Camera Chip.
- Infringement is directed to a claim for whole Smartphone, however the Camera Chip is only a part of the Smartphone:
Compensation 1 % of the Economic Advantage
- Number of **Smartphone** sold = 1.000.000
- Price of an **Smartphone** = 400 Euros
- **Economic Advantage** = 400.000.000 Euros
- **Compensation** = 1% of **Economic Advantage** = **4.000.000** Euros

!!! Claiming the Smartphone in addition to the Camera Chip device allows for a larger compensation for damages !!!

Claims: example of categories of claims II

- The protection conferred by a process claim shall extend to the products **directly** obtained by such process.
- But you cannot have an independent claim defining the product without reference to the new and inventive process if the product is not **per se** novel and inventive *i.e. a new and inventive process for Aspirin does not give the right to have a stand-alone Aspirin claim.*

Therefore you have only a process claim:

- In many states the potential infringer is not obliged to give information about the processes carried out
- In many states it is assumed that the process is carried out (and therefore the patent infringed) **ONLY** if **the product** is per se patentable
- It will be difficult or impossible to prove the infringement and even in the successful case the compensation will be only partial.

A closer look

Search Report



- *Represents what is already known “in the technical field” of the patent application*
- *Documents cited with reference to the claims*
- *Indication on whether the invention “as claimed in the application as filed” is novel and inventive*
- *Category of documents X, Y, A, ..., indicates “relevance” to the claims*
- *Documents cited are a source of additional information*
- *Indicates the classes where the search was performed*

A closer look

Language of Search Report

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "X" document of particular relevance; the claimed invention cannot be considered **novel** or cannot be considered to involve an **inventive step** when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an **inventive step** when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- ...



A closer look

Language of the Search Report

- **"O"** documents which refer to a non-written disclosure, "O, X", "O, Y", ...
- **"P"** intermediate documents, "P, X", "P, Y", ...
- **"T"** documents relating to the theory or principle underlying the invention
- **"E"** potentially conflicting patent documents
- **"D"** documents cited in the application
- **"L"** documents cited for other reasons



How Patents are Written

- „Pioneer“ (Basic) Patents are intended to protect inventions possibly for the life of the patent and cover as many of the applications of the invention as possible.
 - Obtaining the broadest protection possible can slow down the granting procedure
 - The provisional protection is often not enough to stop an infringement and to obtain damages
 - A quickly-granted patent (conferring a smaller protection) allows earlier action against an infringer
- „Fence“ Patents are intended to protect a specific version and narrowly cover it without covering the fundamental principles behind it.

How Patents are Written

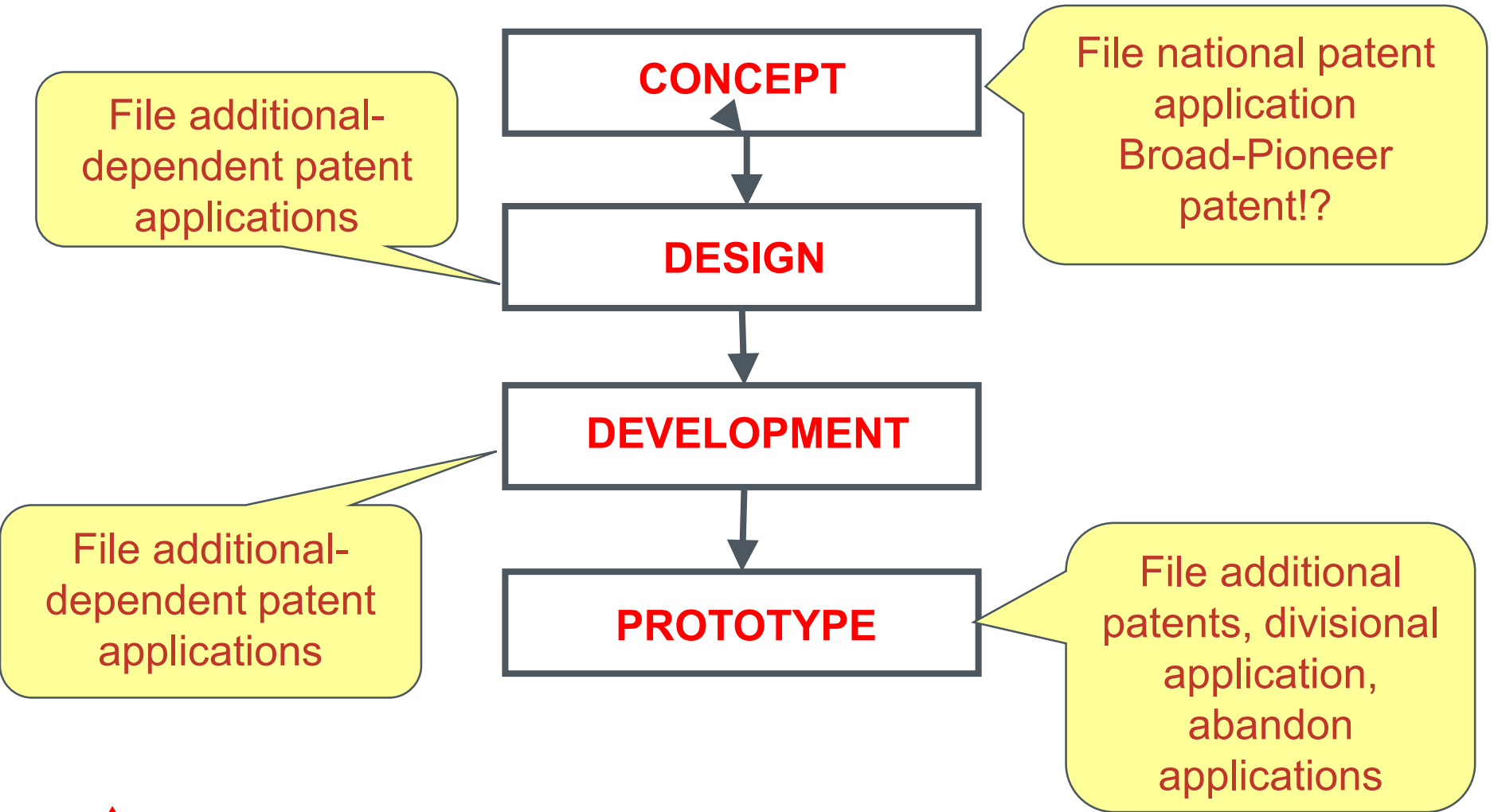
1. Understand the disclosure of invention as submitted by the inventor
2. Identify the problem solved
3. Identify the features which really solve the problem
4. Understand whether these features can support patentability
5. Draft the application including description, claims and drawings

... having in mind the **exploitation** of the patent!

Sequence to be followed

1. **Drawings**: they usually depict all embodiments and uses of the invention
2. **Claims**: because the description is directed to the invention(s) **as claimed** you cannot draft the description if you do not know number and categories of claims
3. **Description**

When to File a patent



File a patent before you disclose your invention !!!

When to File a patent

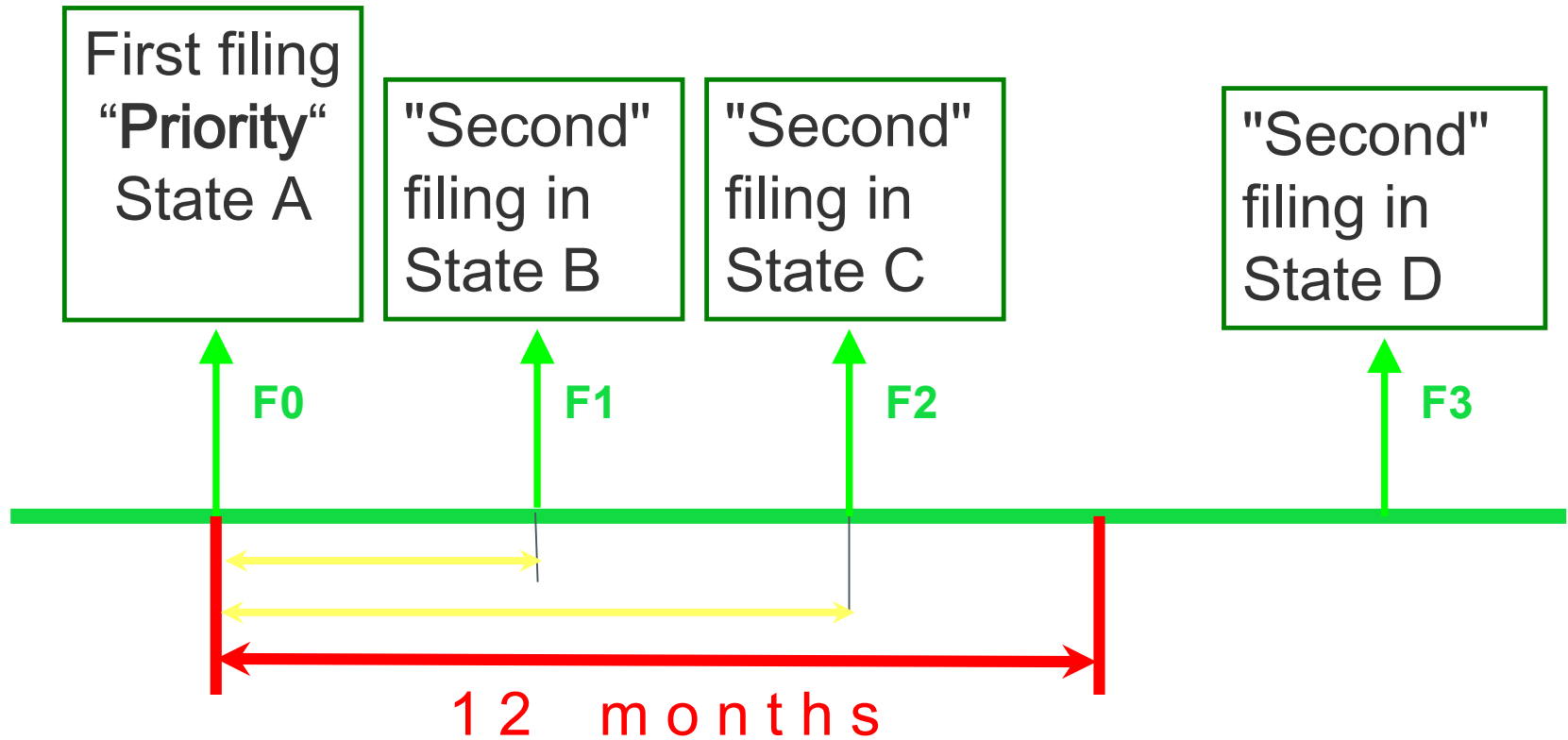
Paris Convention for the Protection of Industrial Property (1883)

After filing a patent application (**priority document**) in a state at a certain date (**priority date**) the applicant can file:

- other patent applications (**family member**) **based on the same subject-matter** of the priority document
- at any time (**filing date**) in the next 12 months
- in any state member of the Paris Convention
- while maintaining the same priority date (**priority rights**)

When to File a patent

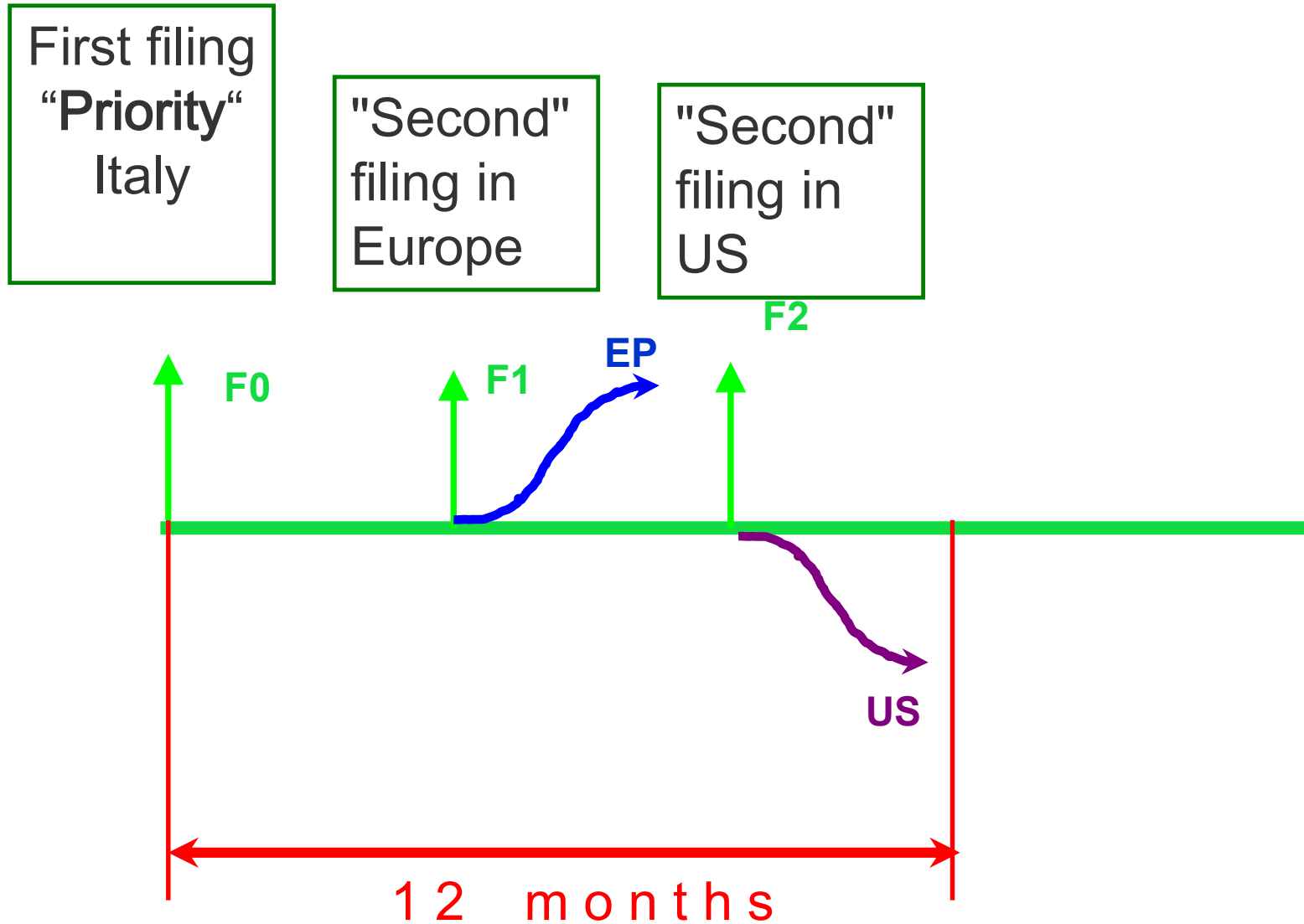
Paris Convention



Second filings of an application based on the first filing **F0**
F1 and **F2** entitled to use the "priority date" as the first filing date
F3 **NOT** entitled to use the "priority date" as the first filing date

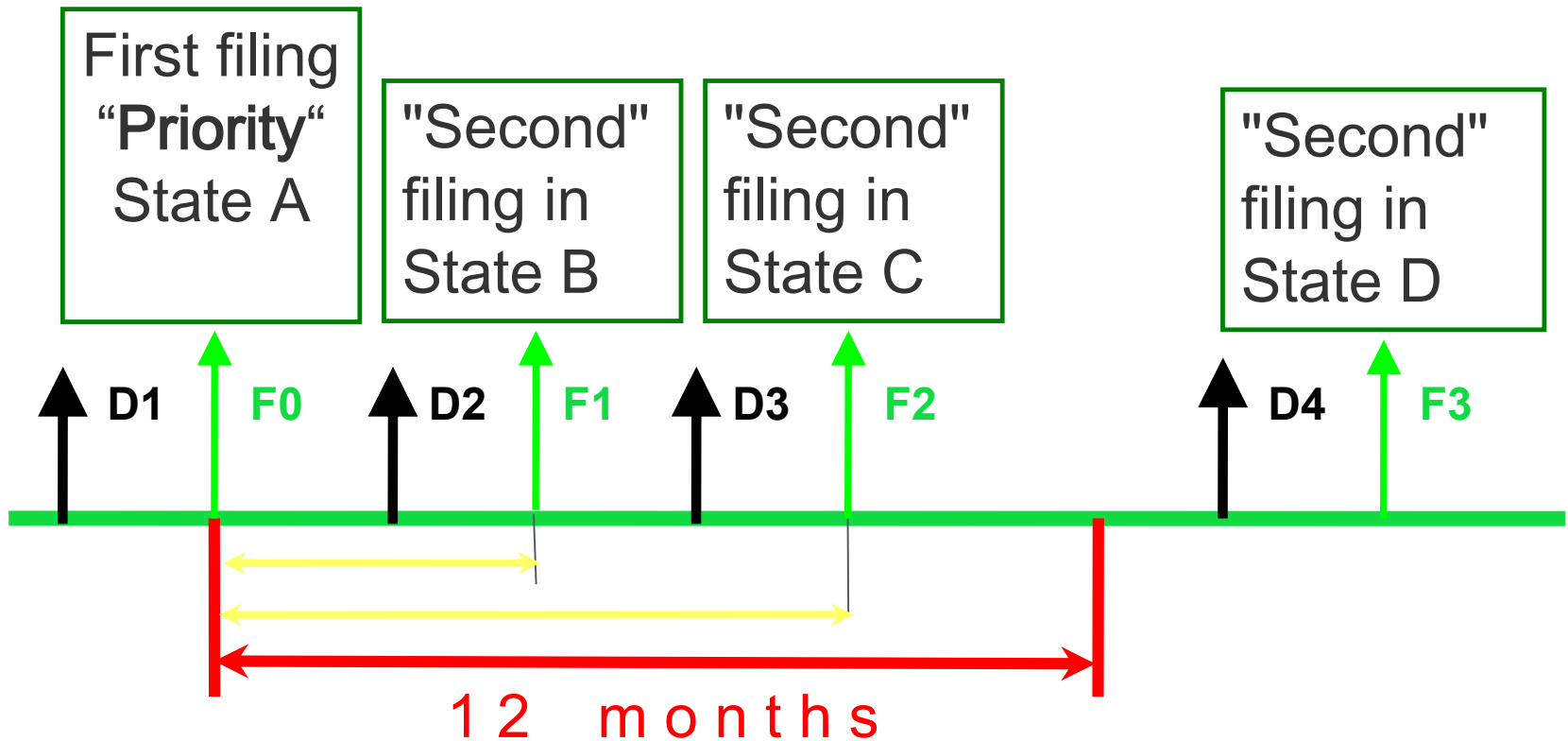
When to File a patent

Paris Convention



When to File a patent

Paris Convention



D1 prior art for all filings

D2, **D3** and **D4** **NOT** prior art for **F0-F2**

D2, **D3** and **D4** prior art for **F3**

If **F0**, or **F1** or **F2**, is published before the filing of **F3**, it will anticipate the application **F3**.



Who should File a (European) patent

- Application may be filed by any natural or legal person, or any body equivalent to a legal person
- Application may also be filed by joint applicants
- Application must designate the inventor

Who should File a patent

PATENT ATTORNEYS (not mandatory but it may help)

- They know the formal requirements and the procedure
- They know the language of patents
- They can advise on the appropriate patent strategy and on the general Intellectual Property Rights (IPRs)



Where to File a patent

Patent Offices in those **Countries**:

- **where** the invention can be **produced**

and/or

- **where** the invention can be **used**

and/or

- **where** the invention can be **sold**

*by the **inventor** (patentee) or by **others** (infringers)*

*Check the compatibility of your invention with the
Technical Standards in use in a specific country:
your invention may be of no interest there!*



Where to File a patent

*As it would be improbable
to sell a fridge to an Eskimo ...*



*... it would be equally pointless
to patent a fridge in the circumpolar countries !!!*

Where to File a patent

There are different routes to patent protection:

- **National patent offices**
 - National patent valid only in that country
 - Non-nationals can apply for a patent
 - 12-month right of "priority" for international applications (Paris Convention)
- **Patent Cooperation Treaty (PCT)**
 - Just one initial application for 141 contracting states
 - After the international phase, the international application leads to multiple national patent examination procedures
 - Costly patenting decisions can be delayed by up to 30-31 months after filing
 - No international patent, but an international patent application procedure
 - PCT application can be filed at a national patent office, EPO or WIPO
- **European Patent Office (EPO)**
 - A "European patent" is equivalent to national patents in the countries for which it was granted
 - the applicant chooses the countries
 - the cost depends on the number of countries designated
- **European Patent with unitary effect (probably as of 2018 or later)**

Where to File a patent

National Patent Application

- ➔ *one application for each state*
- ➔ *one procedure for each state*
- ➔ *one patent for each state*

Where to File a patent

European Patent Application at the EPO

- ➡ one application filed at one Office for 38 contracting states
- ➡ one procedure (in one language) for all 38 states
- ➡ one EP patent for all 38 states
- ➡ Cost –Effective (costs less than 3 national patents)

A centralised procedure up to the grant stage
Post-grant phase (Validation and Litigation) remain decentralised

Where to File a patent

European Patent with Unitary effect (**probably as end of 2018 or later**)

- ➡ one application filed at one Office for 38 contracting states
- ➡ one procedure (in one language) for all 38 states
- ➡ one EP patent for all 38 states
- ➡ Cost –Effective (costs less than 3 national patents)

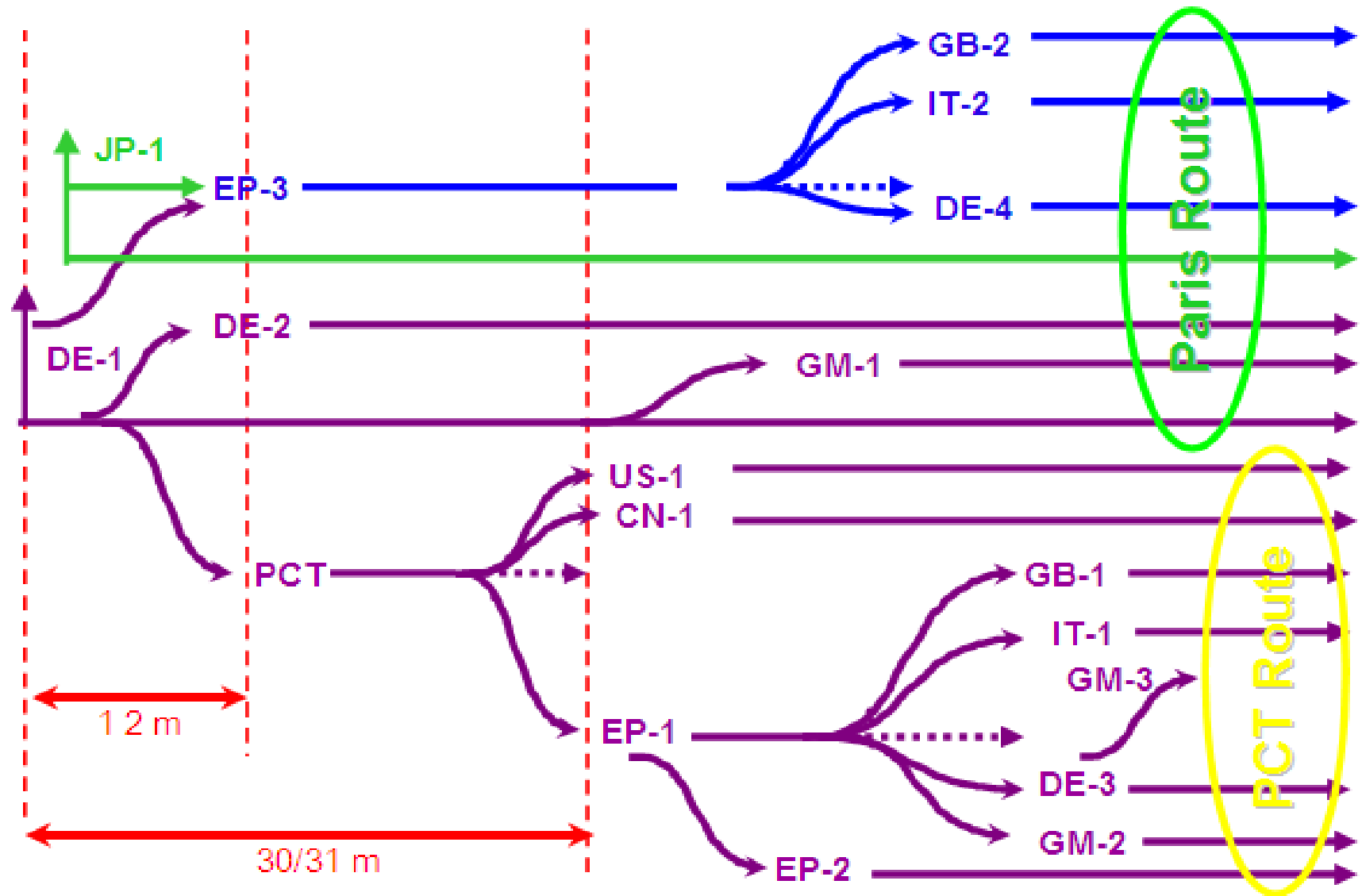
but also:

one litigation procedure (Unified Patent Court)
simplified linguistic regime after grant

will be administered by the European Patent Office

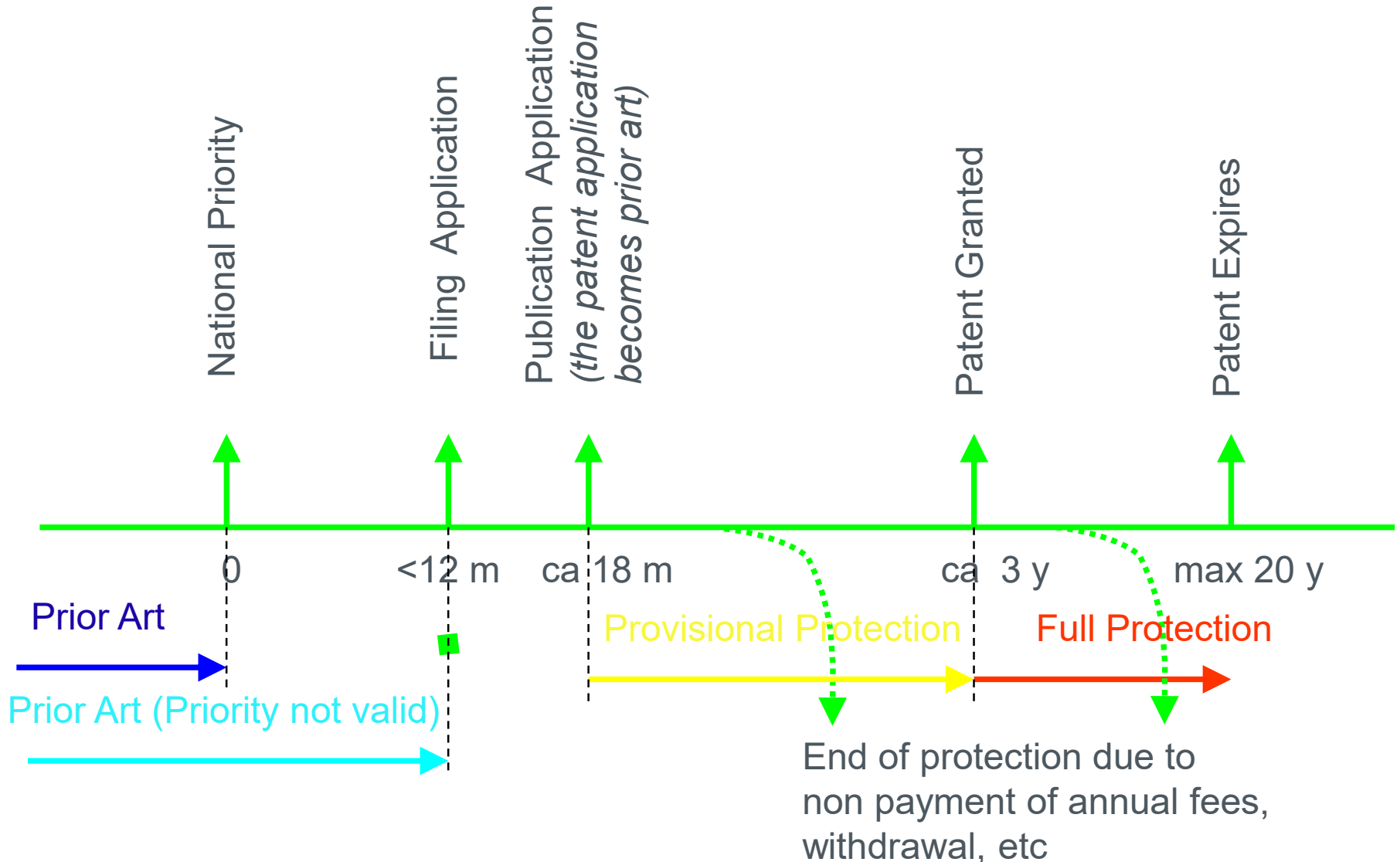
Where to File a patent

Paris Convention: Multiple Priorities - A non improbable example

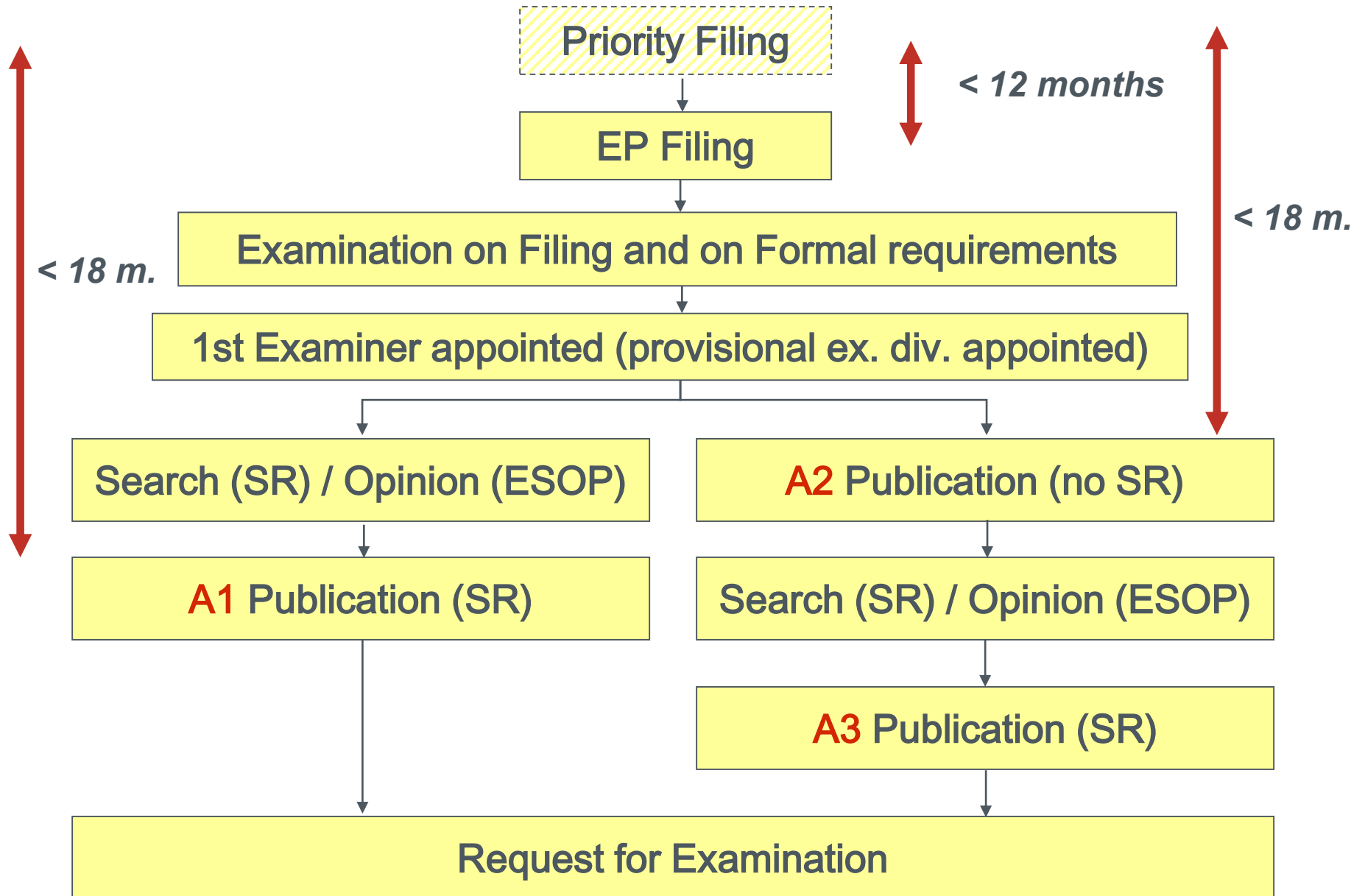


Where to File a Patent

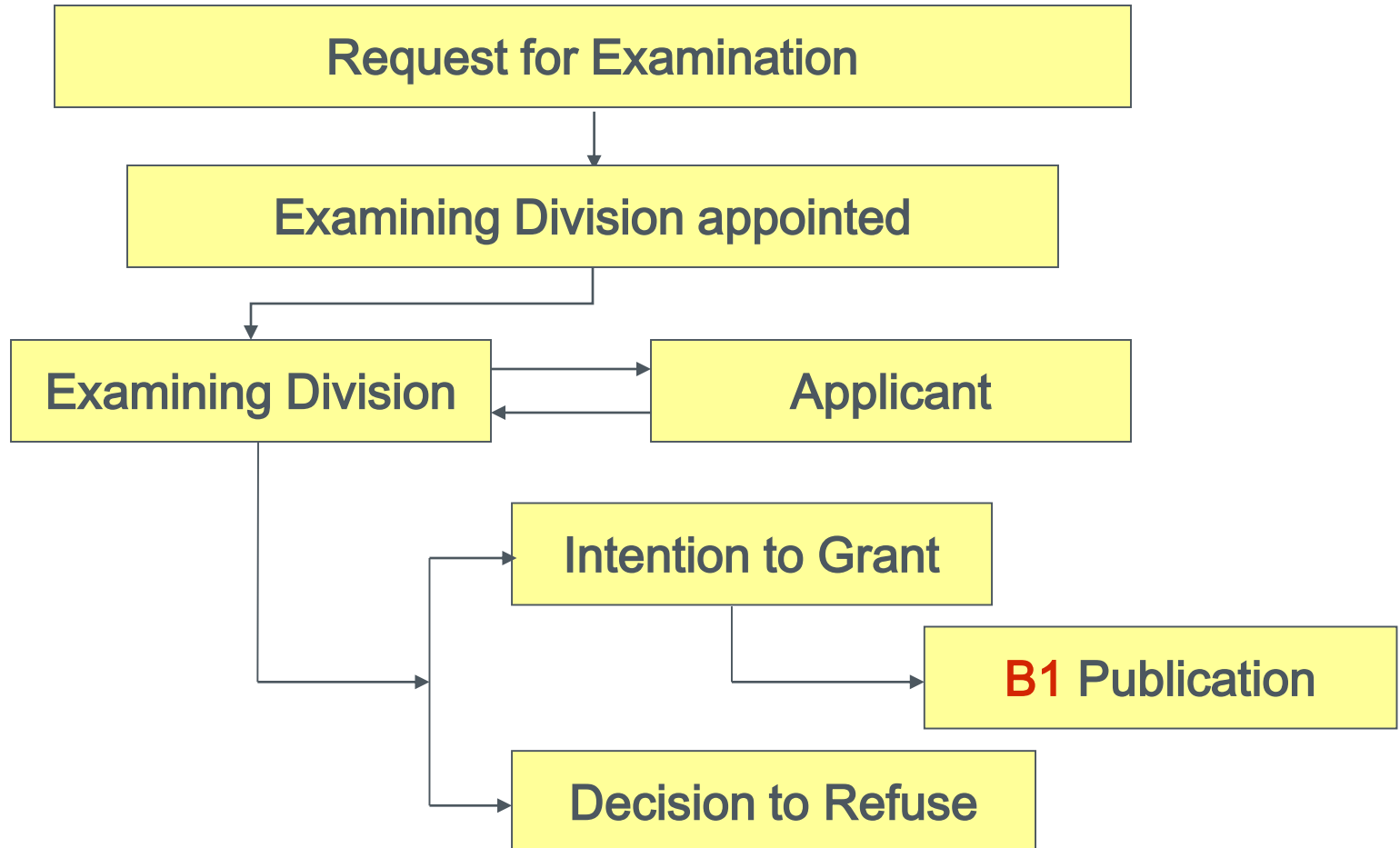
Patent Life Cycle European Patent Application



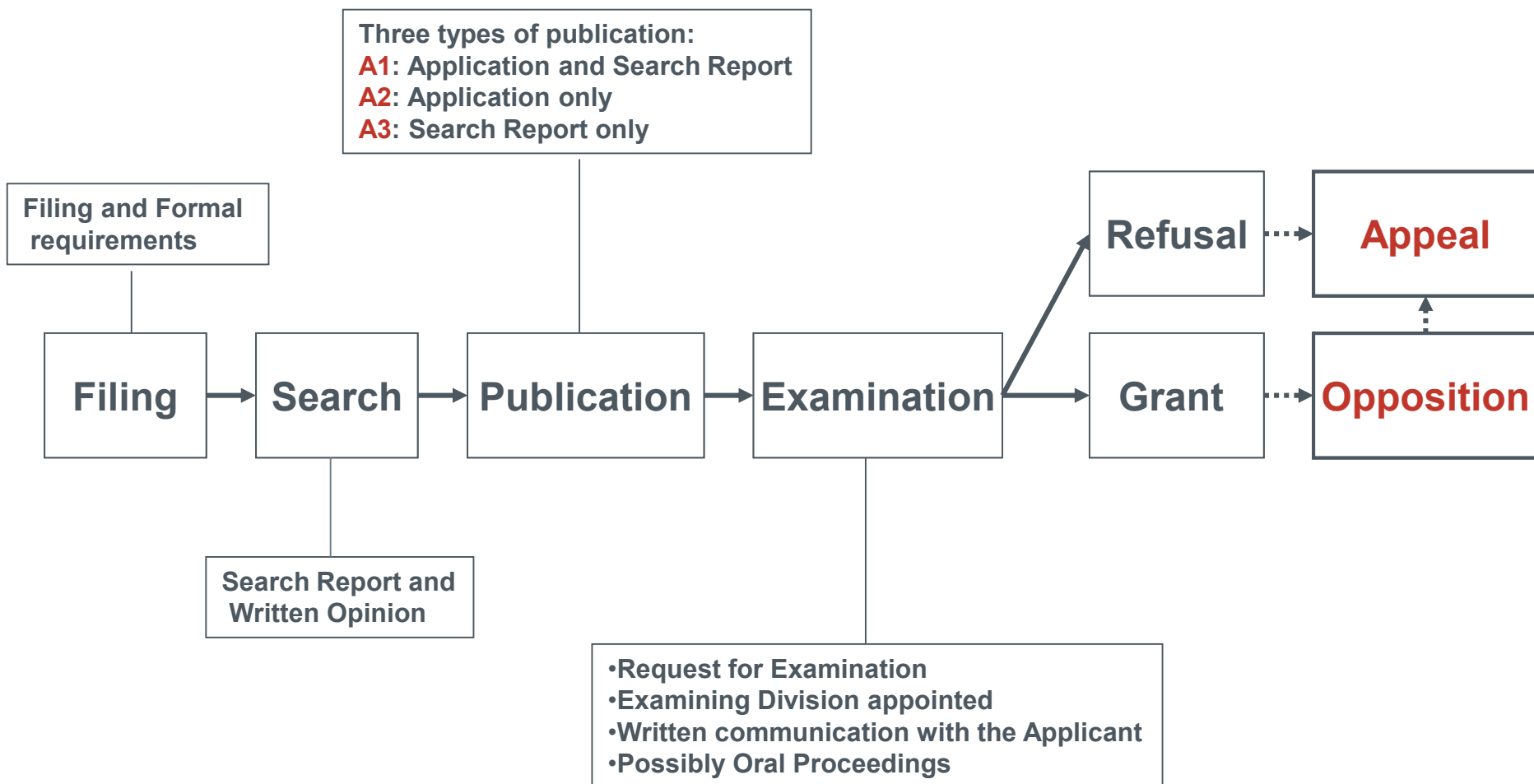
Overview of the European Patent Search and Examination Procedure



Overview of the European Patent Search and Examination Procedure



The European Patent Procedure: From filing to grant or refusal

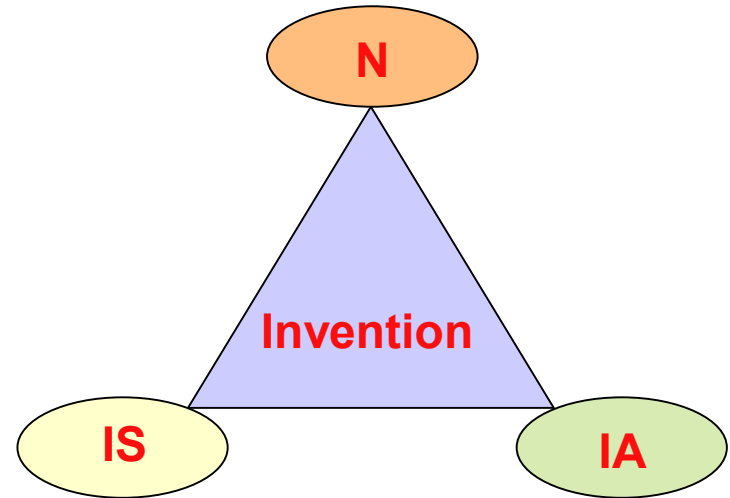


The European Patent procedure: From filing to grant or refusal

- Limitation/revocation
- Renewal fees
- Invalidity proceedings (under national law)
- Infringement proceedings (under national law)

Points of Examination

- **Invention**
- **Novelty**
- **Inventive Step**
 - Problem Solution Approach
- **Industrial Application**
 - It should have the **possibility** of industrial application, not necessarily the **probability**,...



Whether the invention is actually produced/used is up to the market not to the patent office!

- **Prior art:** EVERYTHING made available to the public, by any means, e.g. oral or written description, use etc **before the filing date** of the application.

What is a "new" invention?

- New **at the date of filing** the patent application
- New if it does not form part of the "state of the art"
(Article 54(1) EPC)
- "State of the art" means **everything made available to the public before the filing date of the European patent application**
(Article 54(2) EPC)
- There must have been no public disclosure of an invention before the filing date of the patent application

Inventive Step

Article 56 EPC

An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not **obvious** to a **person skilled in the art**.

Person Skilled in the Art

- Ordinary practitioner, no specific inventive ability
- General knowledge in the art
- Knows everything from the state of the art
- Uses normal experimentation means
- Might be a team

Obvious:

- Not beyond normal progress of technology
- Follows plainly or logically from the prior art
- Does not require any skill or ability beyond that one may expect from the person skilled in the art

When is an Invention Obvious

- If the solution to a particular technical problem with respect to the **closest prior art** is also known from prior art and the teaching of that prior art **would** prompt the **skilled person**, faced with that particular technical problem, to modify or adapt the closest prior art according to the teaching of that prior art.
- If the skilled person would thereby arrive at something falling within the terms of the claims, and thus achieves what the „claimed invention“ achieves, the „claimed invention“ is considered „obvious“.

What can be patented (In Europe)?

Under the European Patent Convention (EPC), patents are granted for:

- any inventions in all fields of technology (Article 52(1) EPC)
- provided that they are:
 - **new** (defined in Article 54 EPC)
 - **involve an inventive step** (defined in Article 56 EPC) and
 - susceptible of industrial application (defined in Article 57 EPC)

What cannot be patented? (1)

The following are **not** considered to be inventions for the purposes of granting European patents:

- Discoveries, scientific theories and mathematical methods (Article 52(2)(a) EPC)
- Aesthetic creations (Article 52(2)(b) EPC)
- Schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers (Article 52(2)(c) EPC)
- Presentations of information (Article 52(2)(d) EPC)

What cannot be patented? (2)

- However, the above exclusions only **apply if the patent claim relates to that subject-matter or activities "as such"** (see Article 52(3) EPC), meaning that...
- A patent claim that includes a mix of both patentable, technical, and excluded, subject-matter can be regarded as an invention and may be patentable after all.

Programs for computers (1)

- Program for a computer "as such" is excluded from patentability (Article 52(2)(c) EPC), but...
- Not excluded from patentability if, when running on a computer, it causes a "further technical effect" going beyond the "normal" physical interaction between the program (software) and the computer (hardware)
- Programs for computers are therefore not automatically excluded from patentability

Programs for computers (2)

Allowable

- **Example 1:** A program for controlling an x-ray apparatus having instructions adapted to carry out the following steps:
Step 1, Step 2, ..., Step n

Further effect generated by the program running on a computer: Control of the x-ray apparatus
This further effect is **technical**.

- **Example 2:** A program for checking the spelling of a word having the following instructions:
Instruction 1, Instruction 2, ..., Instruction n

Further effect generated by the program running on a computer: Decision of orthographic correctness
This further effect is **not technical**.

Not Allowable

What cannot be patented? (3)

- Inventions whose commercial exploitation would be contrary to **"ordre public"** or **morality** (Article 53(a) EPC)
- **Plant or animal varieties** or essentially biological processes for the production of plants or animals (Article 53(b) EPC)
- **Methods for treatment** of the human or animal body **by surgery or therapy** and **diagnostic methods** practised on the human or animal body (Article 53(c) and Article 54(4)-(5) EPC)

Patentability, Infringement and Freedom to Operate

Infringement

- An infringement occurs when the patented invention is used, produced, imported without the authorization of the patent owner
- The scope of the invention is solely defined by the claims. Other aspects of the invention which are not covered by the claims are not considered to be patented. However the interpretation of the claims and the information contained in the description and in the figures of the patent may lead to a different appreciation of the infringement.
- The patent must be **in force at the time of infringement**. It should not have expired because the maximum life span (20 years) has lapsed or it should not have been abandoned failing to pay maintenance or renewal fees.
- The patent must be in **force in the country** where the infringement allegedly occurs

Patentability, Infringement and Freedom to Operate

Novelty

A Claim is novel if its features are not disclosed together in a single prior art document, object, activity, etc

Infringement

An entity infringes on a valid patented claim if the entity shows all the features defined in that claim

An activity **infringes** on a valid patented claim if the activity shows all the features defined in that claim

If your entity or activity does not infringe on a existing valid patent you have **Freedom to Operate**.

If that entity/activity is also **novel** you may **seek for patent protection**, if you can prove is not obvious.

Patentability, Infringement and Freedom to Operate

Some jargon

In the following example **A**, **B**, **C**, **D**, ... represent generalisation of technical features comprised in a claim or constituting an object.

Claim: A mobile telephone handset (**A**) comprising a casing (**B**)
characterised in that it comprises an extensible antenna (**C**).

becomes:

Claim: **A B C**

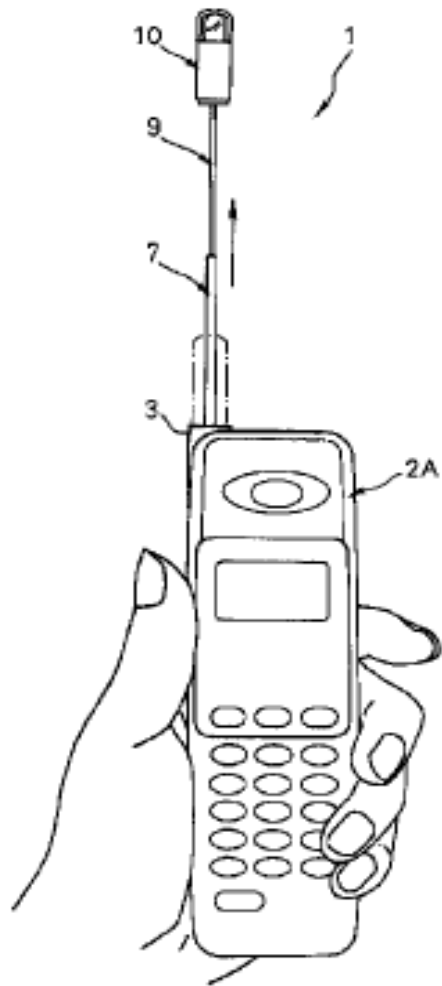
The corresponding object, i.e. a telephone (**A**) with a case (**B**) and extensible antenna (**C**).

becomes

Object: **A B C**

Infringement, Novelty and Patentability

Your Invention



A possible Claim formulation:

Claim: A mobile telephone handset comprising a casing and an extensible antenna characterised in that the extensible antenna is telescopic.

Features in the Claim:

A: *mobile telephone handset*

B: *casing*

C: *extensible antenna*

D: *telescopic*

Symbolized Claim:

Claim: A B C D

Novelty (Are Claim 1 to 5 Novel?)

Prior art (object, disclosure, use, ect)	Claim 1	Claim 2	Claim 3	Claim 4	Claim 5
A	A	A	A	A	A
B	B	B	B	B	B
C	C		C	C'	
			D		D
	Not Novel	Not Novel	Novel	Novel	Novel

Remember: A Claim is novel if all its features are not disclosed together in a single prior art document or object

Infringement (Are Products 1 to 5 Infringers?)

Valid Patent Claim	Object 1	Object 2	Object 3	Object 4	Object 5
A	A	A	A	A	A
B	B	B	B	B	B
C	C		C	C'	
			D		D
	<i>Infringes</i>	<i>Does Not Infringe</i>	<i>Infringes</i>	<i>Does Not Infringe</i> <i>??</i>	<i>Does Not Infringe</i>

Remember: An object infringes on a patented claim if it shows all the features defined in that claim

Patentability and Freedom to Operate

A patented invention featuring A,B,C exists and is in force in a certain country

You want to enter that market with a similar product and, possibly, you would like to patent it:

1.Is your product **Infringing** on the valid patent, i.e. on Claim ABC? If not you have Freedom to Operate

2.Is the claim defining your product **Novel and Patentable** in view of the prior art defined by the existing patent?

3.Can you **Patent** your product and at the same time having **Freedom to Operate**?

Patentability and Freedom to Operate

Valid Patent Claim	Product I	Claim Product I	Product II	Claim Product II	Product III	Claim Product III	Product IV	Claim Product IV	Product V	Claim Product V
A	A	A	A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B	B	B	B
C	C	C			C	C	C'	C'		
					D	D			D	D
	I	NN	NI	NN	I	N	NI	N	NI	N
	NF	NP	FO	NP	NF	P	FO	P	FO	P

I = Infringing ; **NI** = Not Infringing; **N** = Novel ; **NN** = Not Novel;
P = Patentable ; **NP** = Not Patentable ; **FO** = Freedom to Operate;
NF = No Freedom to Operate

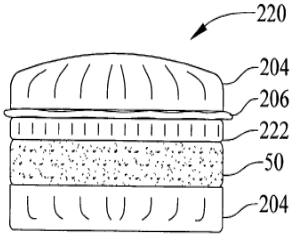
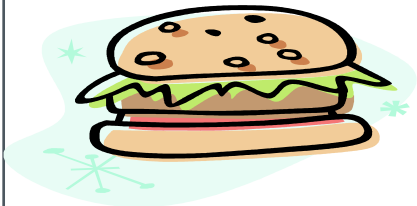
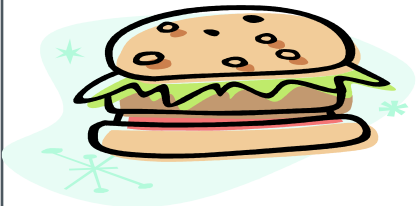
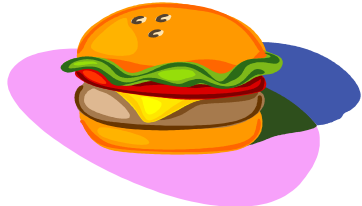
Patentability and Freedom to Operate (The Hamburger case)

A patented invention featuring a Hamburger exists and is in force in a certain country

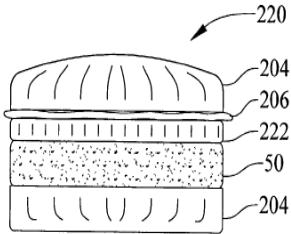
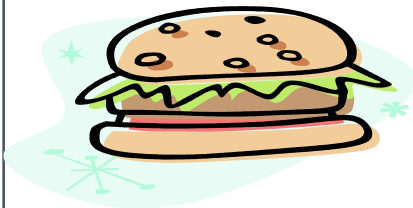

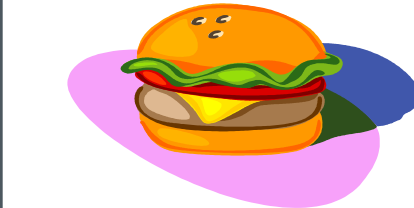
You want to enter that market with a similar Hamburger and, possibly, you would like to patent it:

1. Is your Hamburger **Infringing** on the valid patent, i.e. on Claim ABC? If not you have Freedom to Operate
2. Is the claim defining your Hamburger **Novel and Patentable** in view of the prior art defined by the existing patent?
3. Can you **Patent** your Hamburger and at the same time having **Freedom to Operate**?

Infringement (The Hamburger case)

Valid Patent Claim	Hamburger 1	Hamburger 1'	Hamburger 2
			
Two Slices of Bread (204)	Two Slices of Bread	Two Slices of Bread	Two Slices of Bread
Cheese (206)		Cheese Flavoured Dressing	Cheese
Meat product (50)	Meat product	Meat product	Meat product
Lettuce (222)	Lettuce	Lettuce	Lettuce
	Tomato slice	Tomato slice	Tomato slice
	Does Not Infringe	EQUIVALENT??	Infringes

Novelty (The Hamburger case)

Valid Patent Claim	Claim for Hamburger 1	Claim for Hamburger 1'	Claim for Hamburger 2
			
Two Slices of Bread (204)	Two Slices of Bread	Two Slices of Bread	Two Slices of Bread
Cheese (206)		Cheese Flavoured Dressing	Cheese
Meat product (50)	Meat product	Meat product	Meat product
Lettuce (222)	Lettuce	Lettuce	Lettuce
	Tomato slice	Tomato slice	Tomato slice
	Novel	Novel	Novel

Patentability and Freedom to Operate (The Hamburger Case)

- **Hamburger 1:** Novel; if the new characteristics, i.e. absence of cheese and addition of tomato not obvious, is also inventive and therefore **patentable**; **No infringement** on existing patent, **Freedom to Operate**
- **Hamburger 1':** Novel, i.e. absence of cheese and addition of tomato not obvious, is also inventive and therefore **patentable**; **No infringement** on existing patent depending on the degree of "equivalence" attributable to the cheese flavoured dressing
- **Hamburger 2:** Novel, if the new characteristics, i.e. addition of tomato not obvious, is also inventive and therefore **patentable**; **Infringement** on previous patent, **No Freedom to Operate**

Infringement, Novelty and Patentability

An existing Patent

1. A mobile telephone handset comprising a casing **characterised in that** it comprises an extensible antenna.
2. A mobile telephone handset according to claim 1 wherein the antenna is made of a single element.
3. A mobile telephone handset according to claim 2 wherein the antenna is mounted on the right side of the casing.
4. A mobile telephone handset according to claim 2 wherein the antenna is mounted on the left side of the casing.
5. A mobile telephone handset according to claim 1 wherein the antenna has a circular cross section.

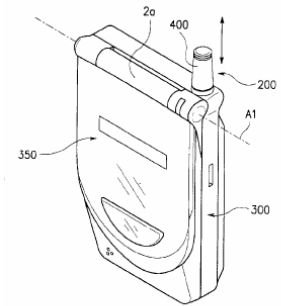


FIG. 1

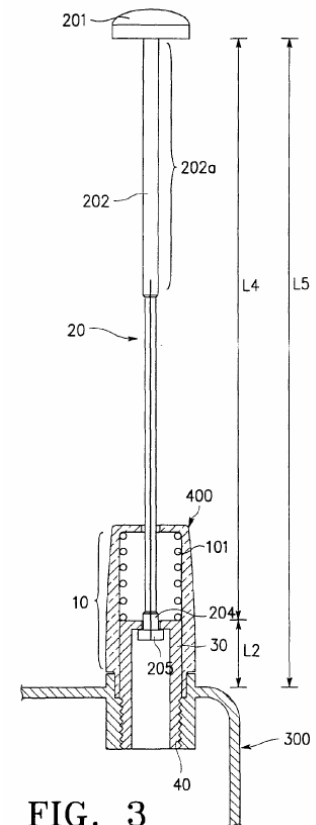


FIG. 3

Infringement, Novelty and Patentability

Your invention: telephone with a telescopic antenna

Does it infringe on the patent in the previous slide?

Can you patent your invention?

Your invention is for mobile telephone handset, with a casing and a telescopic antenna.

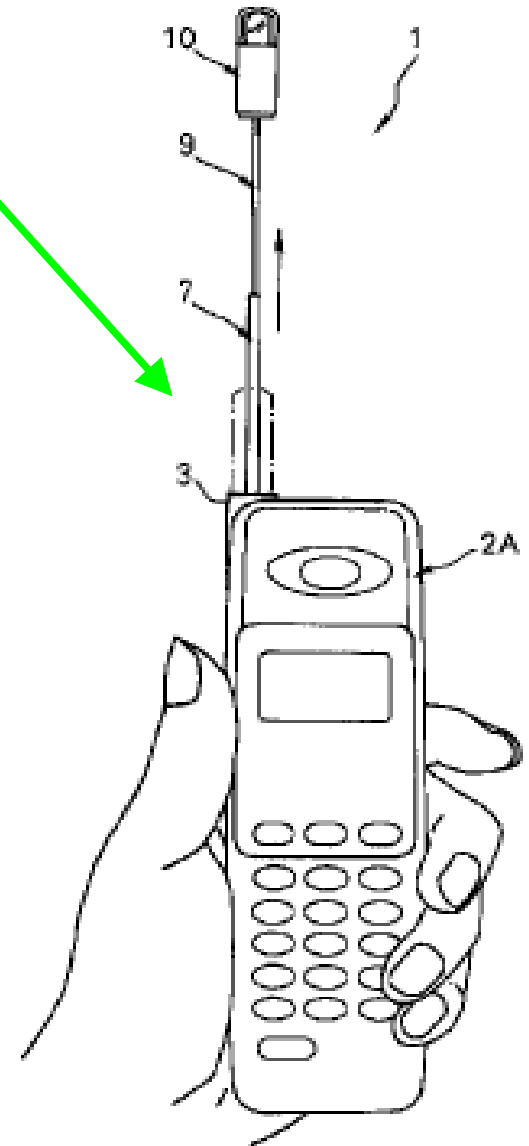
A prior patent defines in the claim: A **mobile telephone handset** comprising a **casing** characterised in that it comprises an **extensible antenna**.

The description, the drawings and the dependent claim in this patent indicates that the extensible antenna is a one-piece rod.

Is your invention infringing on the patent?

You have filed a patent application where the independent claim defines: *A mobile telephone handset comprising a casing and an extensible antenna characterised in that the extensible antenna is **telescopic**.*

Is this claim patentable?



Infringement, Novelty and Patentability

Does your invention infringe on the previous patent?

Read your invention into the prior patent claim:

A **mobile telephone handset** comprising a **casing** characterised in that it comprises an **extensible antenna**.

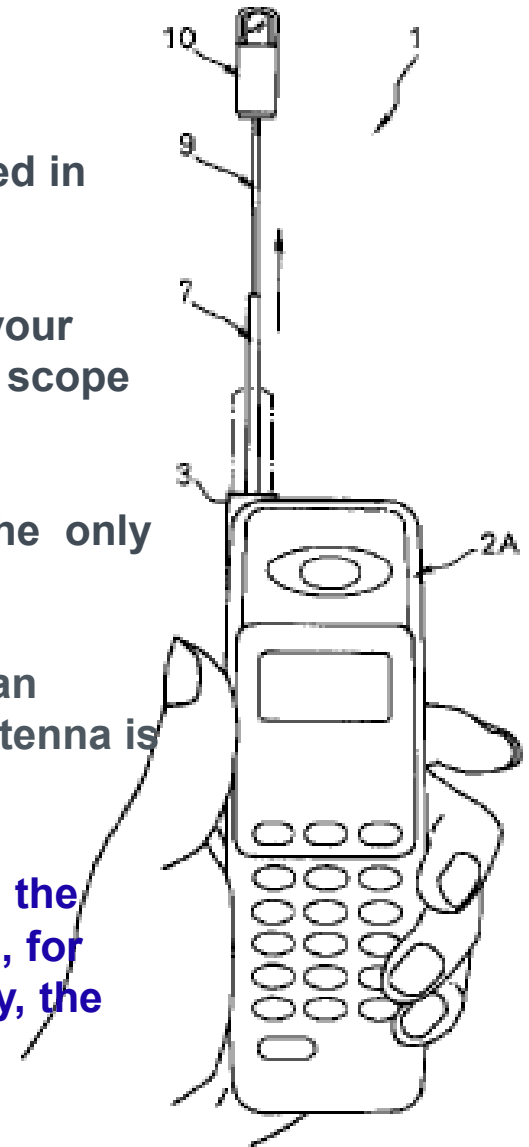
Since your telescopic antenna is “extensible” by definition, your invention has all the features of the patent and falls in the scope of the patent: **it is infringing!**

Can you patent your claim assuming the previous patent is the only available prior-art?

Claim: A mobile telephone handset comprising a casing and an extensible antenna characterised in that the extensible antenna is **telescopic**.

Telescopic is a feature not disclosed in the previous patent: the claim is **novel** and if you identify a problem and a solution, for instance a telescopic antenna allows for more extensibility, the claim is patentable, **i.e. novel and inventive**.

But your patent "depends" on the previous one!



Infringement, Novelty and Patentability

Your **invention**: a mobile telephone where the two parts of the body are joined by one hinge.

A **previous patent** claims "A mobile telephone where the two parts of the casing are joined by two hinges"

Does your invention infringe on the patent?

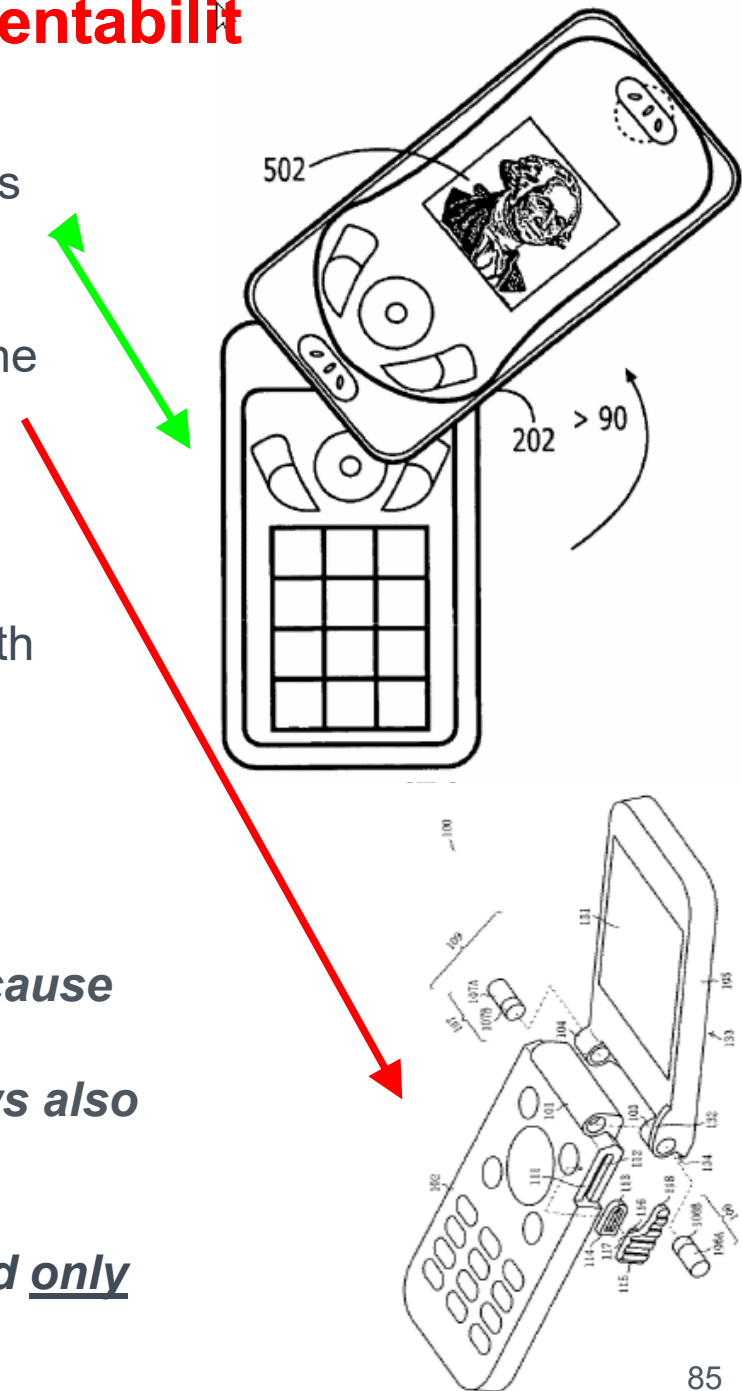
You claim "A mobile telephone comprising a casing with two parts and one hinge"

Is your claim novel?

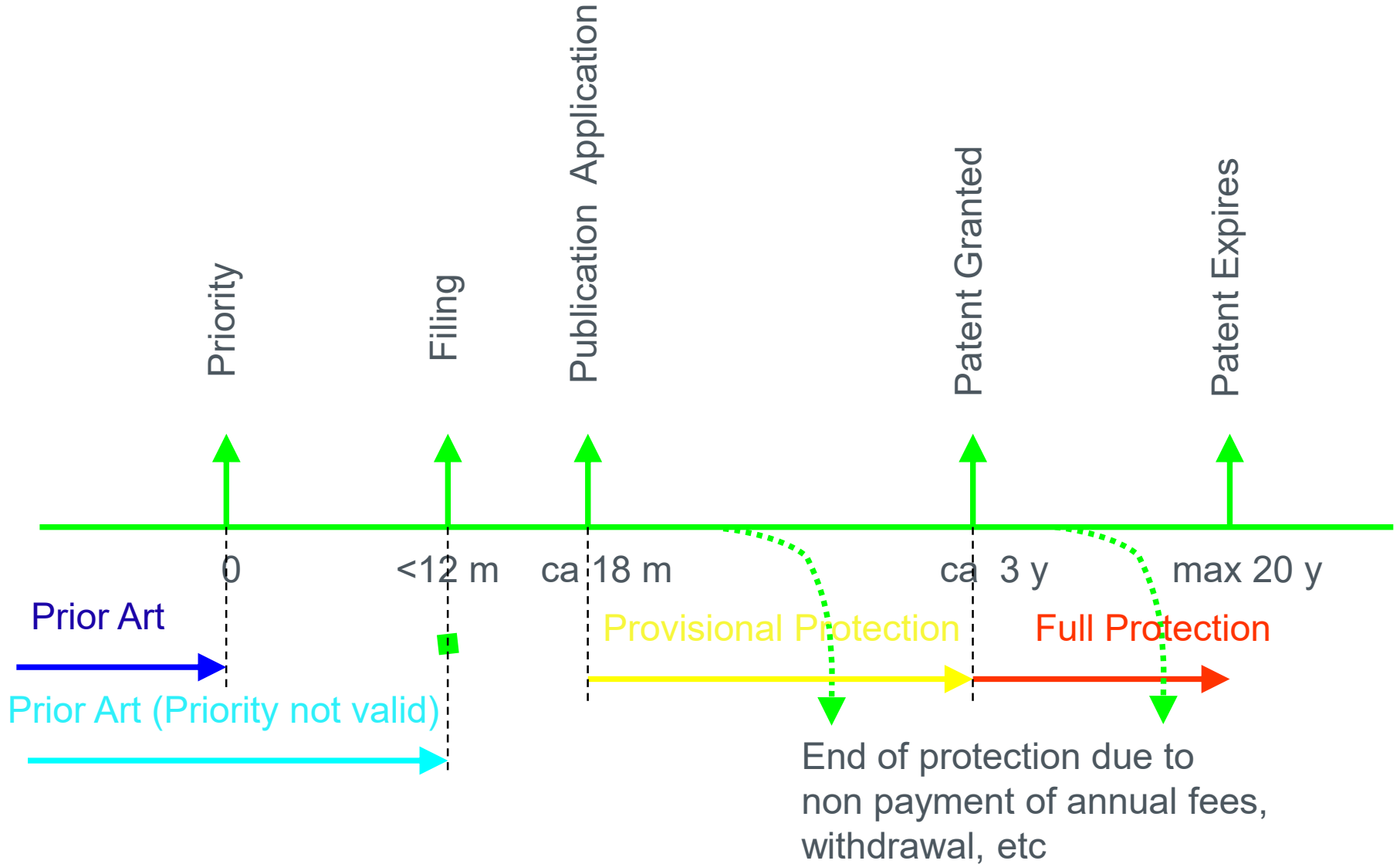
Your invention *does not infringe* on the claim because has only one hinge.

The claim is *not novel* because the prior art shows also one hinge.

The claim should be redrafted as e.g. A mobile telephone comprising a casing with two parts and only one hinge



Patent Cycle



Patent Cycle: Prior art

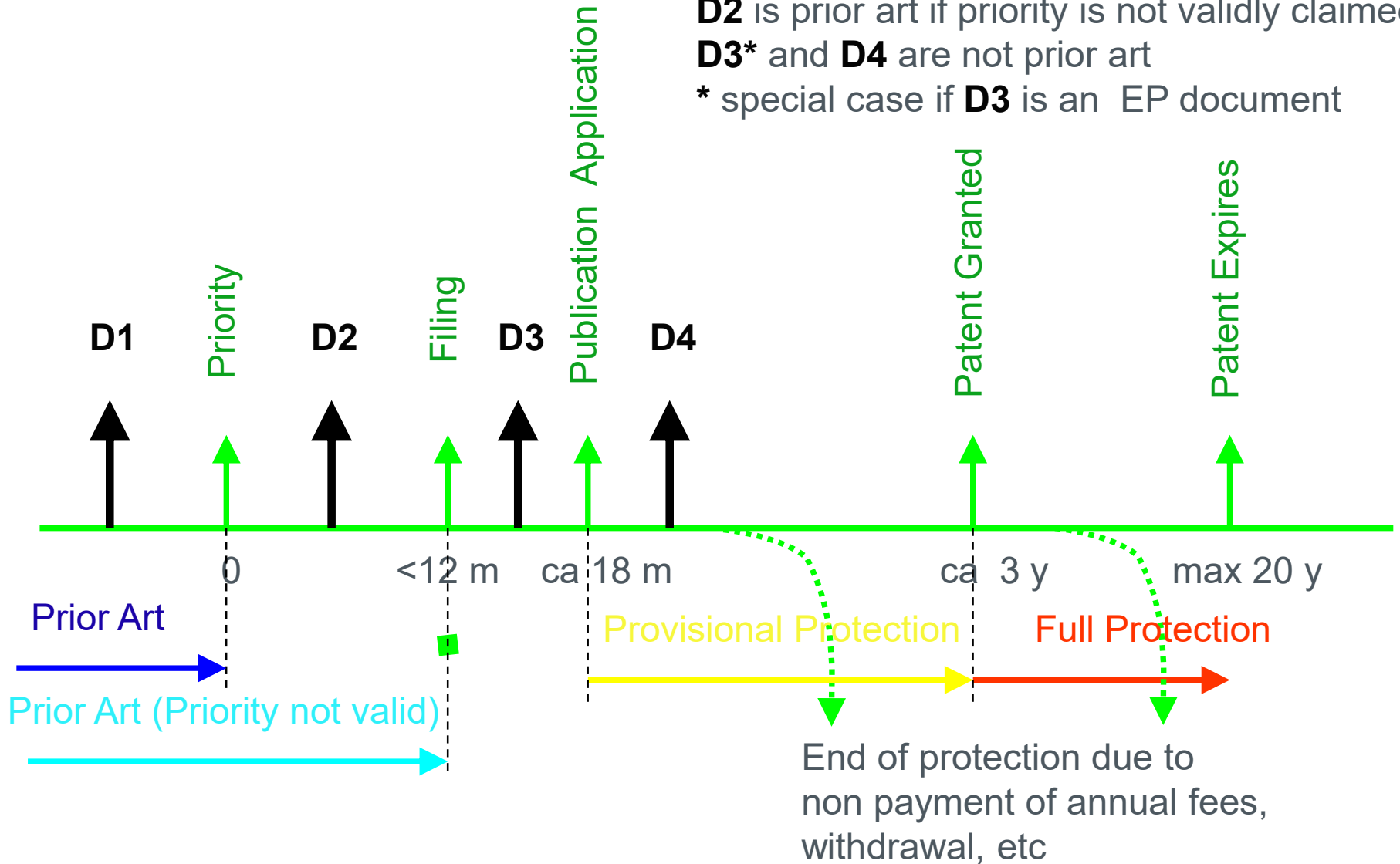
D1 a (patent) document, a prior use is prior art

D2 is not prior art if priority is validly claimed

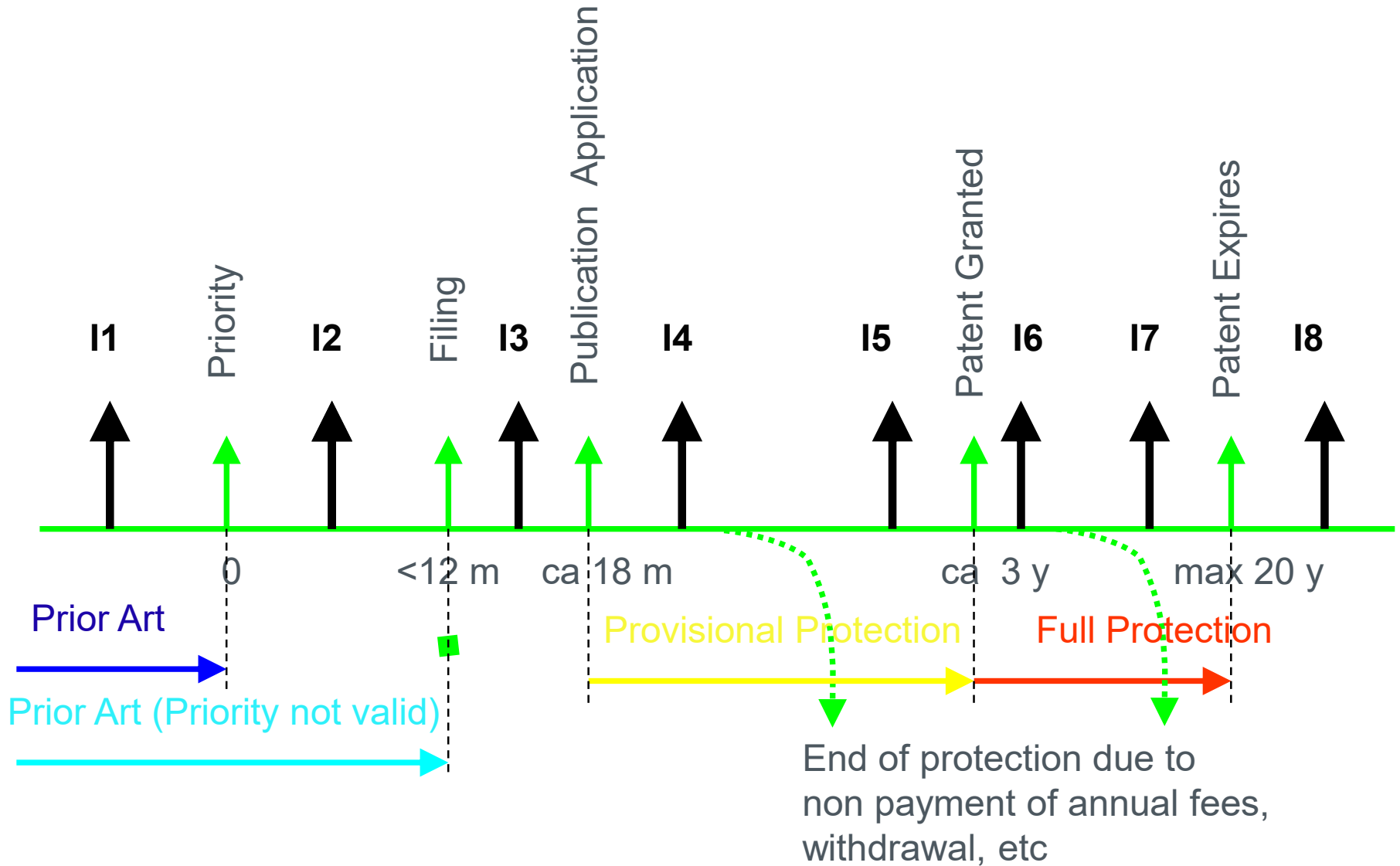
D2 is prior art if priority is not validly claimed

D3* and **D4** are not prior art

* special case if **D3** is an EP document



Patent Cycle: Infringement



Patent Cycle: Infringement

I1 a prior use of the invention is not infringing and may be used to invalidate the patent (if it has been granted)

I2 if the priority is valid it cannot be used as prior art to invalidate the patent once granted. It does not constitute an infringement because the patent application has not been published yet. Once the patent application is published or the patent is granted provisional and full protection can be exercised against **I2**

I2 if the priority is **not** valid same as for **I1**

I3 same as **I2** with valid priority

In the case **I2-I3**, because the patent application was not public, compensation may be limited.

I4 the patent application is now public and provisional protection may be exercised. However the patent has not been granted yet so the right does not exist and the infringement is provisional

I5 patent application has been abandoned no rights in place

I6 patent is now granted: the infringement now is full

I7 granted patent has been abandoned and is public domain: rights do not exist anymore, **I7** is not an infringer.

I8 granted patent expired after 20 years from the priority date and is public domain: rights do not exist anymore **I8** is not an infringer.



**More questions?
Please consult
www.epo.org
or
write to
dgolzio@epo.org**

Thank you!!

