



Topic 3: **Claims: Scope of Protection and Search**

Lutz Mailänder

Head, International Cooperation on Examination and Training Section

Pretoria
14 March 2016

Agenda

- Types of claims
- Unity of patents
- Claims evolution

What is a patent claim?

- A patent is an exclusive right granted for an **invention**, i.e. the invention cannot be used by others for commercial purposes without permission of the owner
- An invention offers a **technical solution** to a **problem**

■ Each invention can be defined by the **features** that are **essential** to solve the problem

■ **Main claim** includes these features

Invention

Feature A
Feature B
Feature C
Feature D



Claim 1

Feature A
Feature B
Feature C
Feature D

Claim sample – application

Problem?

New?

1. A method of producing a soya bean product, the method including the step of **exposing soya beans to an acidic aqueous solution**.
2. A method as claimed in Claim 1, in which the acidic aqueous solution has a **pH of between about 2,0 and 5,5**.
3. A method as claimed in Claim 1 or Claim 2, in which the soya beans are **whole beans**.
4. A method as claimed in any one of the preceding claims, which includes the prior step of dissolving an **organic acid** in water to produce the aqueous acidic solution.
5. A method as claimed in Claim 4, in which the organic acid is **citric acid**.

The biological activity of the oxidizing enzymes may be at least partially decreased by exposing the soya beans to an acidic aqueous solution.

A pH of between about 2,0 and 5,5 inhibits the lipoxygenase reaction which generally causes off flavours and off colours in soya products such as soya milk. In prior art processes, soya beans have generally been processed by a wet method which involves de-hulling of the beans. Because the lipoxygenase enzyme is concentrated in the hull of the bean, it is believed that, when de-hulling and wet processing takes place, the biological activity of the enzyme is increased when it comes into contact with oxygen and water when the hull is ruptured. The enzyme then oxidizes lipids in the bean. This is believed to lead to the formation of "grassy", "beany" or "paint-like" off flavours and off odours in the soya product and particularly in the soya milk which is produced. The method of the invention requires no prior de-hulling of the beans and substantially reduces the problem of off flavours and off odours to the extent that they present little or no problem.

Claim sample – as filed

1. A method of determining the torque induced in a rotating shaft (51),
 - A the shaft (51) having a torsional oscillation frequency that is dependent on the stiffness of the shaft (51),
 - B where the torsional oscillation frequency and the stiffness are dependent upon the operating conditions of the shaft (51),characterized in that
 - C the torsional oscillation frequency of the rotating shaft (51) is measured (35);
 - D the twist induced in the rotating shaft (51) by the torque is measured (39); and
 - E the measured value of the torsional oscillation frequency and the measured value of the induced twist are used (41) to determine the torque induced in the shaft (51).

Drafting of claims

- Claims define the **scope of protection**
 - Claims have to be clear and concise
 - Claim wording should not permit ambiguous interpretation
 - > Principle of **Legal Certainty**
- Only subject matter described in claims is examined for novelty and inventive step
- Claims therefore determine the initial **scope of the prior art search**
- Effective search is not possible without clear claims
- Claims are always worded in a rather abstract way; usually as one sentence with heavy punctuation
- Need not be self explanatory; description and drawings are used to interpret the claims

Claim sample - after grant

1. A method of determining the torque induced in a rotating shaft (51),
A the shaft (51) having a torsional oscillation frequency that is dependent on the stiffness of the shaft (51),
B where the torsional oscillation frequency and the stiffness are dependent upon the operating conditions of the shaft (51),

the method comprising:

- C** measuring (35) the torsional oscillation frequency of the rotating shaft (51);
- D** measuring (39) the twist induced in the rotating shaft (51) by the torque; and
- E** using (41) the measured value of the torsional oscillation frequency and the measured value of the induced twist to determine the torque induced in the shaft (51);

F the torsional oscillation frequency of the shaft (51) and the induced twist are measured (35) at the second set of operating conditions;

the method is **characterized by**

- G** determining the torsional oscillation frequency of the shaft (51) at a second set of operating conditions at which the stiffness of the shaft (51) can be determined (33) and
- H** determining the stiffness of the shaft (51) at the second set of operating conditions;
- I** the torque induced in the shaft (51) at the first set of operating conditions is determined (41) using the measured torsional oscillation frequency and the induced twist at the first set of operating conditions, and the measured torsional oscillation frequency and the stiffness at the second set of operating conditions

Added during examination

Categories of claims

- Two categories of claims according to the two categories of inventions:
 - Claims for methods, processes (intangible)
 - Claims for products (tangible)
 - Devices, apparatus, compositions,...

Types of claims

- Independent claims
 - One part claims
 - Two part claims
- Dependent claims

Sample: Main claim & dependent claims

1. A method of producing a soya bean product, the method including the step of **exposing soya beans to an acidic aqueous solution**.
2. A method **as claimed in Claim 1**, in which the acidic aqueous solution has a pH of between about 2,0 and 5,5.
3. A method **as claimed in Claim 1 or Claim 2**, in which the soya beans are whole beans.
4. A method **as claimed in any one of the preceding claims**, which includes the prior step of dissolving an organic acid in water to produce the aqueous acidic solution.

Claims 2-4 are dependent claims since they refer to claim 1.

Dependent claims

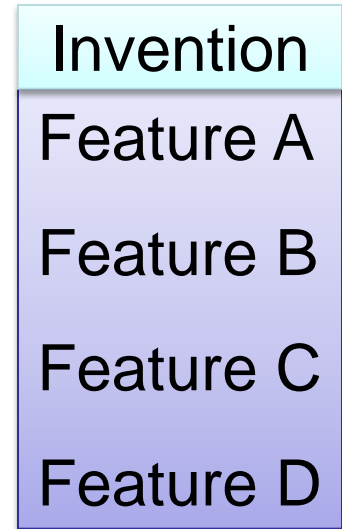
- A **dependent claim** refers to at least one other claim, e.g.
 2. Apparatus according claim 1 where
 3. Apparatus according claim 1 **or** 2 where
 6. Apparatus according claim 1 **and** 2 where
 7. Apparatus according any of the preceding claims where
- By way of reference the features/elements of the referenced claim(s) are included, i.e. combined with the other features/elements
- References are therefore admissible only to claims of **same category** (method, product)

Why dependent and independent claims?

■ Main claim (1st independent claim):

Includes **all** the features/elements of the invention which are **essential** to solve the problem, and **only** those features!

“1. Apparatus/process with {feature A}, {feature B}, {feature C}, {feature D}.”



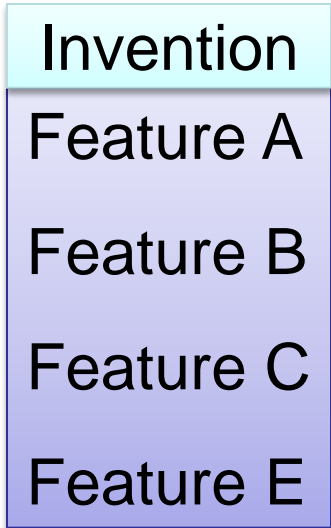
■ Dependent claims:

additional or optional features which are not essential but describe options for various embodiments, or for additional advantages

Several independent claims?

Further **independent claims** for

- Two categories: product and process
- Alternative similar solutions for **same problem** linked through the same inventive concept (**unity of invention!**)



Unity of patents

- Unity of patents: Claiming of several distinct inventions in one application is not admissible, i.e. solutions to distinct problems
- Applicants should not get protection for 2 inventions while paying only one fee !
- Several independent claims may define related inventive subject matter, e.g.
 - a product if 1st claim is process, or vice versa
- Unity is given as long as inventive subject matters are linked to **same inventive concept**, i.e. variations of solution of same problem
- Lack of unity: solvable by divisional application, or withdrawal of claims
- Unity is checked only with respect to independent claims

Unity of patents

- Unity of patents: Claiming of several distinct inventions in one application is not admissible, i.e. solutions to distinct problems
- Applicants should not get protection for 2 inventions while paying only one fee!
- However, several independent claims may define related inventive subject matter, e.g.
 - a product if 1st claim is process, or vice versa
 - a specially adapted apparatus to carry out the process
- Unity is given as long as inventive subject matters are linked to **same inventive concept**, i.e. variations of solution of same problem

Unity of patents

Rule 604. *Unity of Invention.* –

- (a) The application shall relate to one invention only or to a group of inventions forming a single general inventive concept (Sec. 38.1, IP Code).
- (b) If **several independent inventions** which do not form a single general inventive concept **are claimed** in one application, the Director may require that the application be **restricted** to a single invention. (by election of claims, or mandatory division)
- Unity is usually **checked only with respect to claimed subject matter**, i.e. either several independent claims, or
- If independent (main) claim includes two distinct claimed subject matters, e.g. when certain features are presented as alternatives, i.e. 'A' or 'B'

PCT Rule 13.3; EPC Rule 42(2)

Unity of patents

- Lack of unity may
 - be directly evident '**a priori**' (obvious lack of unity, prior to search; formality examination)
 - Become apparent only in comparison to prior art '**a posteriori**' (i.e. after search, during substantive examination)
- Unity is given 'when there is a technical relationship among the **claimed** inventions involving one or more of the same or corresponding special technical features'

PCT Rule 13.2; EPC Rule 44(1)

- Lack of unity: solvable by divisional application, or withdrawal of claims (election of claims to be examined)
- Disclosure as such may (intentionally) comprise several inventions

Unity of patents – generic example

(Academic) Example from PCT Examination Guidelines 10.03

- Three independent claims:
 - Claim 1: A + X
 - Claim 2: A + Y
 - Claim 3: X + Y
- 'A priori' lack of unity because claim 3 has nothing in common with claims 1 and 2
- 'A posteriori' lack of unity if search reveals that feature A which is common to Claims 1 and 2 is known; then X and Y would be special technical features describing the difference to the known prior art A, however they are distinct and have nothing in common
- See further examples and discussion in the PCT Examination Guidelines

Claim sample - one part claim

Introducing part (category, purpose) (preamble)



1. A method of producing a soya bean product, the method including the step of **exposing soya beans to an acidic aqueous solution**.

Body of claim

Claim sample – two part claim

Introducing part (category, purpose)

1. A method of determining the torque induced in a rotating shaft (51),
A the shaft (51) having a torsional oscillation frequency that is dependent on the stiffness of the shaft (51),
B where the torsional oscillation frequency and the stiffness are dependent upon the operating conditions of the shaft (51),

characterized in that

generic expression

- C** the torsional oscillation frequency of the rotating shaft (51) is measured (35);
D the twist induced in the rotating shaft (51) by the torque is measured (39);
and
E the measured value of the torsional oscillation frequency and the measured value of the induced twist are used (41) to determine the torque induced in the shaft (51).

Sequence of 5 features A – E (added)

Types of independent claims

- **One part claim:**

includes just list of the essential features

“1. Apparatus {with, where, comprising} A,B,C,D”

Invention

Feature A

Feature B

Feature C

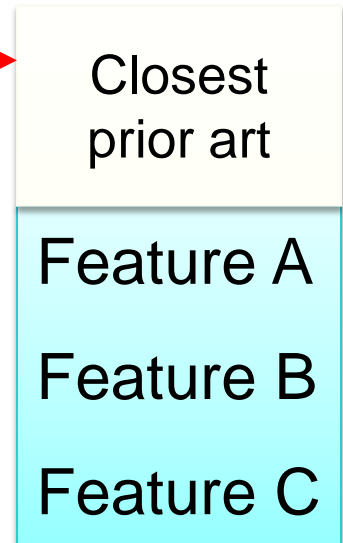
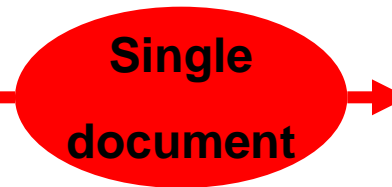
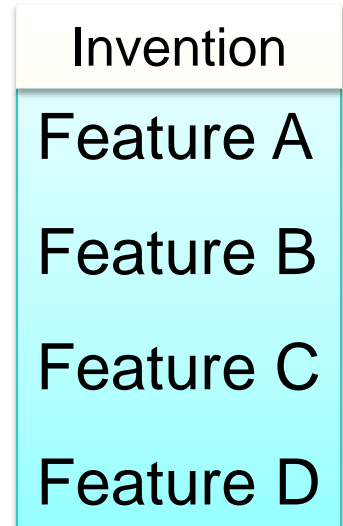
Feature D

Types of claims

■ Two part claim:

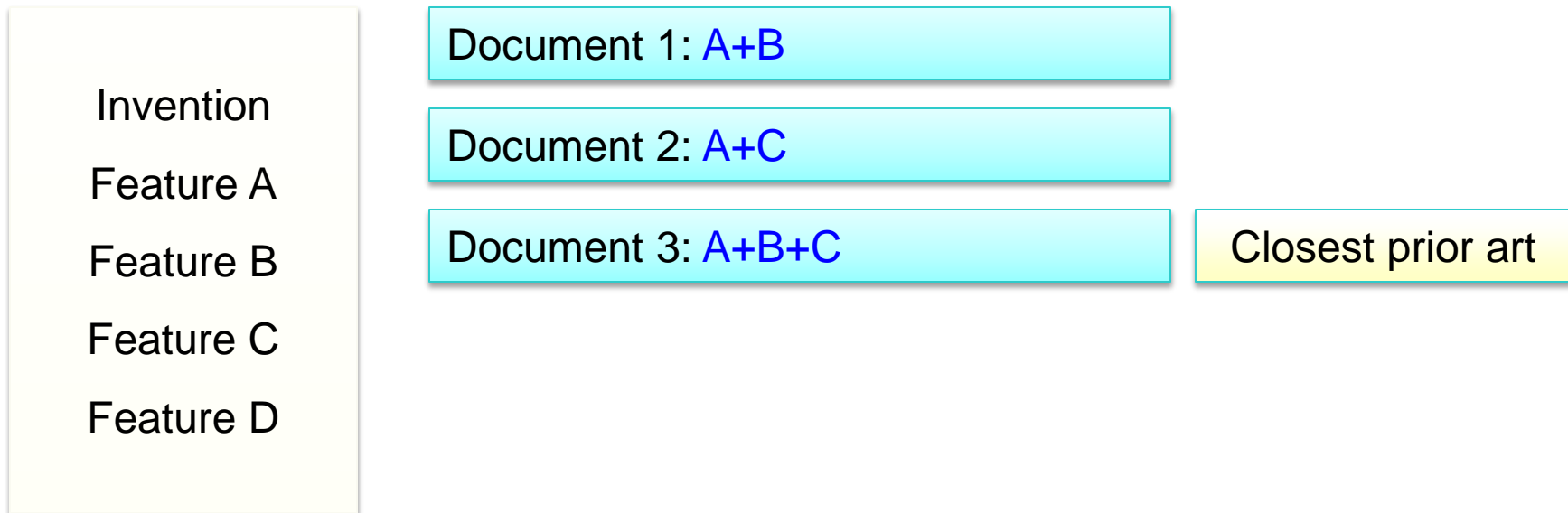
“1. Apparatus with A, B and C,
characterized in that D”

- > first part (preamble) describes closest prior art
- > second part describes difference(s) between invention and closest prior art:
 - > ‘special technical features’



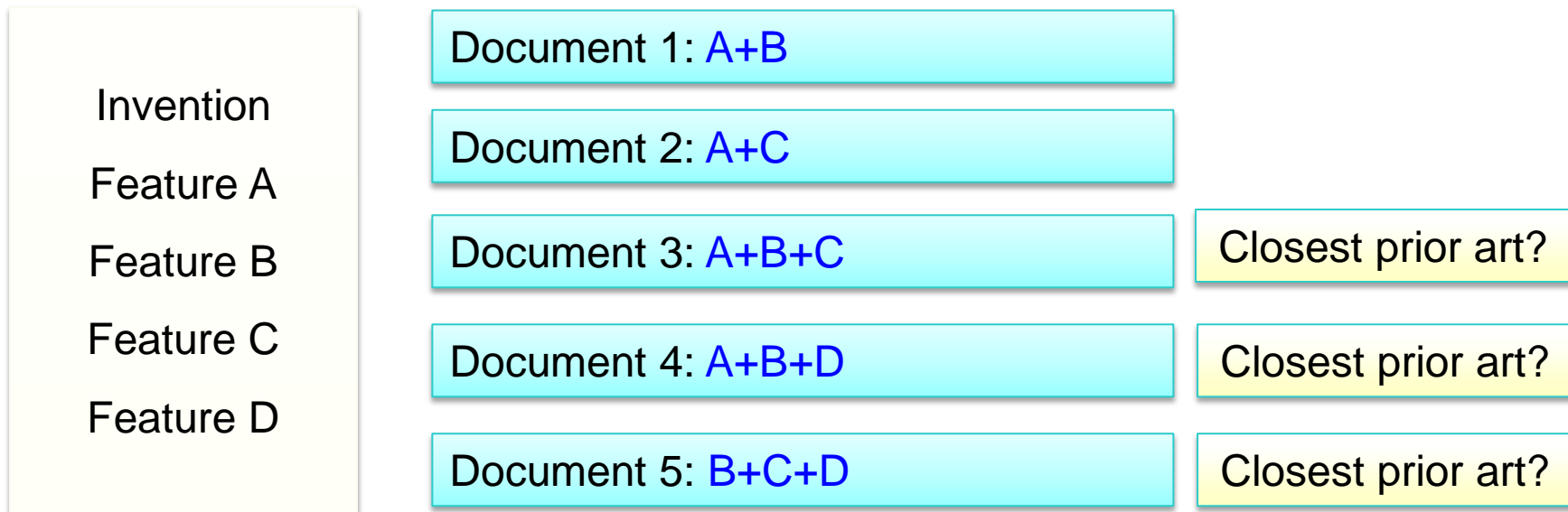
Closest prior art

- ▶ State of the art published prior to filing/priority date



Closest prior art ?

- ▶ State of the art published prior to filing/priority date



Apparatus with A, B and C, characterized in that D

Apparatus with A, B and D, characterized in that C

Apparatus with B, C and D, characterized in that A

Deconstruction of claim wording

- Deconstruction of claim wording, i.e. structuring/sorting the subject matter of a claim into distinct features/elements facilitates:
 - Understanding of the subject matter
 - Checking the clarity of the claim wording
 - Searching of prior art
 - Assessing of novelty by comparing the distinct features with the prior art
 - Determination of the closest prior art
 - (Determination of the difference to the closest prior art)
 - Comparison of claims subject to examination at different IPOs (claims of different members of the patent family)

Drafting claims

■ Do not

- include process steps in product/device claims
- mention benefits, advantages, alleged positive effects
- mention the problem that was solved
- refer in a general way to the description or drawings ('as shown in Fig. 1')
- (include in the main claim optional features)
- use ambiguous expression (about, nearly, perfectly, almost,...)

■ Do

- Include in main claim **only** essential features but **all** essential features to solve the problem, to achieve the benefits, advantages of the invention
- Refer to elements in drawings by using reference numerals in brackets

Samples

What's wrong with the following claim?

1. An apparatus for harvesting corn, comprising:

a thrasher for cutting corn;

moving the cut corn into a hopper; and

a rotating pivot attached to the thrasher.

Samples

What's wrong with the following claim?

1. An apparatus for harvesting corn, comprising:

a thrasher for cutting corn;

moving the cut corn into a hopper; and

a rotating pivot attached to the thrasher.

Process step!

Evolution of claims

- Claims related to a patent application are usually different at different publication and prosecution stages
- Independent claims in applications before examination have a broader scope because applicants seek to get as much protection as possible.
- Claims of granted patents are, in comparison to the initially filed claims,
 - Usually narrower, i.e. include additional features
 - May be totally different
- Claims after opposition have often narrower scope than claims after grant

Claim sample – as filed

1. A method of determining the torque induced in a rotating shaft (51),
 - A the shaft (51) having a torsional oscillation frequency that is dependent on the stiffness of the shaft (51),
 - B where the torsional oscillation frequency and the stiffness are dependent upon the operating conditions of the shaft (51),characterized in that
 - C the torsional oscillation frequency of the rotating shaft (51) is measured (35);
 - D the twist induced in the rotating shaft (51) by the torque is measured (39); and
 - E the measured value of the torsional oscillation frequency and the measured value of the induced twist are used (41) to determine the torque induced in the shaft (51).

Claim sample – as granted

1. A method of determining the torque induced in a rotating shaft (51),
A the shaft (51) having a torsional oscillation frequency that is dependent on the stiffness of the shaft (51),
B where the torsional oscillation frequency and the stiffness are dependent upon the operating conditions of the shaft (51),

the method comprising:

- C** measuring (35) the torsional oscillation frequency of the rotating shaft (51);
- D** measuring (39) the twist induced in the rotating shaft (51) by the torque; and
- E** using (41) the measured value of the torsional oscillation frequency and the measured value of the induced twist to determine the torque induced in the shaft (51);

F the torsional oscillation frequency of the shaft (51) and the induced twist are measured (35) at the second set of operating conditions;

the method is **characterized by**

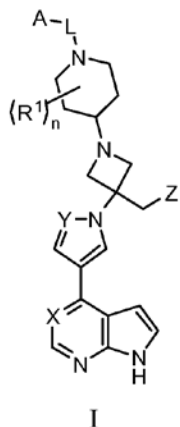
- G** determining the torsional oscillation frequency of the shaft (51) at a second set of operating conditions at which the stiffness of the shaft (51) can be determined (33) and
- H** determining the stiffness of the shaft (51) at the second set of operating conditions;
- I** the torque induced in the shaft (51) at the first set of operating conditions is determined (41) using the measured torsional oscillation frequency and the induced twist at the first set of operating conditions, and the measured torsional oscillation frequency and the stiffness at the second set of operating conditions

Added during examination

Claim sample – as filed

WHAT IS CLAIMED IS:

1. A compound of Formula (I):



or a pharmaceutically acceptable salt thereof; wherein:

X is N or CR²;

Y is N or CR³;

Z is H, cyano, halo, C₁₋₃ alkyl, or C₁₋₃ haloalkyl;

L is C(R⁴)₂, C(=O), C(=O)N(R^{4a}), C(=O)C(R^{4b})₂, S(=O)₂, C(=O)O, C(=O)OC(R^{4b})₂ or C(=O)N(R^{4a})C(R^{4b})₂;

A is C₁₋₆ alkyl, C₃₋₁₄ cycloalkyl, C₂₋₁₃ heterocycloalkyl, C₆₋₁₄ aryl, or C₁₋₁₄ heteroaryl; wherein said C₁₋₆ alkyl, C₃₋₁₄ cycloalkyl, C₂₋₁₃ heterocycloalkyl, C₆₋₁₄ aryl, and C₁₋₁₄ heteroaryl are each optionally substituted with 1, 2, 3, 4, 5, or 6 independently selected R⁵ groups;

each R¹ is, independently, C₁₋₄ alkyl, hydroxyl, C₁₋₄ alkoxy, fluoro, hydroxyl-C₁₋₄

Claim sample – as granted

What is claimed is:

1. A compound, which is {1-{1-[3-Fluoro-2-(trifluoromethyl)isonicotinoyl]piperidin-4-yl}-3[4-(7H-pyrrolo[2,3-d]pyrimidin-4-yl)-1H-pyrazol-1-yl]azetidin-3-yl}acetonitrile, or a pharmaceutically acceptable salt thereof.

2. A salt, which is {1-{1-[3-Fluoro-2-(trifluoromethyl)isonicotinoyl]piperidin-4-yl}-3-[4-(7H-pyrrolo [2,3-d]pyrimidin-4-yl)-1H-pyrazol-1-yl]azetidin-3-yl}acetonitrile adipic acid salt.

Admissible claim amendments

Applicant may usually amend/narrow claims anytime during examination, e.g. if originally filed claims are not patentable:

- Adding further features taken **from description** or other claims
- Replacement of features
- Completely reworded claims

- All features have to be **supported by the original description**

- Features from drawings not supported by the description are not permitted, i.e. they have to be mentioned explicitly in description

- Examiner to check whether amended claims are within initial disclosure

Amending of claims of PCT applications

- Amend claims after receipt of ISR (amendments **before IB**; **Article 19**)
- Amend claims, description, drawings **before DO** (**Article 28**), ie in national phase
- Request IPE
 - Amend claims, description, drawings **before IPEA** (**Article 34**)
 - Request hearing before issuing of IPRP (chapter II)
 - Respond to 2nd and further WOs
 - **Further amendments** during IPE (**Article 66.4**)
- Amend claims, description, drawings **before EO** (**Article 41**), i.e. in national phase
-

Thank you

lutz.mailander@wipo.int