Search Matters 2013
European Patent Office, The Hague

Searching complex applications - or when is a search not a search?

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18-19 March 2013
Who am I?

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  – 9 years at the EPO
  – technical field: H04N1/38-64 (colour correction/halftoning) and G06K9 (pattern recognition)
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Overview

• Introduction
• How did patent drafting change?
• How did we do it in the past?
• When is a search not a search?
• Legal basis
• Types of Complex Applications
• Conclusions
Once Upon a Time at the EPO

• applications - were well drafted
• few claims - to protect inventions
• completely searched
• they were examined and put into line with the EPC, then granted
• case law developed, all was well, but...
Dark Clouds were Gathering on Horizon ...
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Economics were King

• Patents used to generate revenue
• aggressive patents put prior art in domains of their competitors
• clever wording gave broader scope
• inventions could be "hidden" in applications
New and merging technologies

• e.g. biotech, computing, telecoms, nanotechnology, Audio Video Media
• often required different drafting practice for proper protection
• functional features
• definitions by parameters
• desiderata
In Short ...

patents became:
- larger
- broader
- less clear

- harder to search

- nobody lived happily ever after!
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Historically ...

- the search examiner would not have many options

- the substantive examiner possessed the tools to deal with these types of applications.
So, Search Examiners had a Problem!

• non-unity was a possibility
• some unsystematic attempts at limited searches
• messages between search and substantive examiners
• some complete searches were no longer "complete"

You RELY on the EPO search
but what happens if it is NOT complete?
... then there are **Problems**

- it is even worse when there is no indication that the search is not complete
- so, when is a search NOT a search?
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... and the Answer is ...

- when there is NO search
  
- or ...

- an incomplete or partial search issued
  
- sounds obvious but what do we mean?
Incomplete or No Search

- these are both part of the "complex applications approach" at the EPO
- since 1999
- NOT technically complex!
What is a Complex Application?

• extreme difficulties at search stage

• often very broad in scope

• a.k.a. Nasties and Super-Nasties
What does the EPO do? (I)

• invite the applicant to indicate subject-matter to be searched

• what do we restrict to?
  the heart or core of the invention
  – covering all examples
  – making an envelope of protection around the core
What does the EPO do? (II)

being aware of suitable fall-back positions in:
– dependent claims
– description
– examples
Where Can You Find the Info?

• on search report supplemental sheets
• just like non-unity

• there should be:
  – details of which claims are searched (partially)
  – reasoning stating why the search was limited
  – details of exactly what has been searched
2-SUBSTITUTED KETOAMIDES

Present claims 1-9 relate to an extremely large number of possible compounds/compositions/methods. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the compounds/products/apparatus/methods claimed. In the present case, the claims lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the compounds according to Formula (I) of claim 1 wherein Z (including V) represents a cyclopentyl or cyclohexyl group, which can be substituted, X is H (benz), W is hydrogen, X-Z is -C(O)-N- or -N-C(O)-. R6=H4-R6 represent a substituted or unsubstituted alkyl or arylalkyl group, R is (CH3)2 and R2 represents a substituted or unsubstituted phenyl, alkyl or a furyl group. It is stressed that this definition comprises all the examples of the present application.

The applicant’s attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66 (1) (e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on an application which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.
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What is the Legal Basis?

Rule 62a EPC

(1) If the European Patent Office considers that the claims as filed do not comply with Rule 43, paragraph 2, it shall invite the applicant to indicate, within a period of two months, the claims complying with Rule 43, paragraph 2, on the basis of which the search is to be carried out. If the applicant fails to provide such an indication in due time, the search shall be carried out on the basis of the first claim in each category.

(2) The Examining Division shall invite the applicant to restrict the claims to the subject-matter searched unless it finds that the objection under paragraph 1 was not justified.
What is the Legal Basis?

Rule 63 EPC

(1) If the European Patent Office considers that the application fails to such an extent to comply with this Convention that it is impossible to carry out a meaningful search, it shall invite the applicant to file, within a period of two months, a statement indicating the subject-matter to be searched.

(2) If the statement under paragraph 1 is not filed in due time, or if it is not sufficient to overcome the deficiency noted...the EPO shall either issue a reasoned declaration stating that the European patent application fails to such an extent to comply with this Convention that it is impossible to carry out a meaningful search...or, as far as is practicable, draw up a partial Search Report.

(3) When a partial search report has been drawn up, the Examining Division shall invite the applicant to restrict the claims to the subject-matter searched unless it finds that the objection under paragraph 1 was not justified.
Amended Rule 63

• applicant requested to indicate subject-matter to be searched
• where possible search based on these claims
• failure to respond in due time - search procedure as previous Rule 63
• claims restricted in examination to searched subject-matter
New Rule 137(5) EPC

(5) Amended claims may not relate to unsearched subject-matter which does not combine with the originally claimed invention or group of inventions to form a single general inventive concept. Nor may they relate to subject-matter not searched in accordance with Rule 62a or Rule 63.
Thus...

• search division decides that application doesn't comply with the convention (A83, A84, R43(2))
• meaningful search not possible
• partial or no search
Article 84

The claims shall define the matter for which protection is sought. They shall be clear, concise and be supported by the description.

Clear    Concise    Supported
Article 83

The European Patent application must disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.
Rule 43(2)

Without prejudice to Article 82, a European patent application may contain more than one independent claim in the same category (product, process, apparatus or use) only if the subject-matter of the application involves one of the following:

(a) a plurality of interrelated products,
(b) different uses of a product or apparatus,
(c) alternative solutions to a particular problem, where it is inappropriate to cover these alternatives by a single claim.
An invention is sufficiently disclosed if at least one way is clearly indicated enabling the skilled person in the art to carry out the invention.
In the Board’s judgement, the requirement of sufficient disclosure reflects the general legal principle that the extent of the patent monopoly, as defined by the claims, should correspond to the technical contribution to the art in order for it to be supported and justified.
Disclosure vs. Claimed Scope

- are the claims *commensurate* with the contribution to the art?

- is there a balance?

*EQUITY*
Exxon Waxy Fuel Oils

• Distillate fuel oil boiling in the range 120°C to 500°C which has a wax content of at least 0.3 weight% at a temperature of 10°C below the Wax Appearance Temperature, the wax crystals at that temperature having an average particle size less than 4000 nanometers.
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5 Types of Complex Application

• I : Many claims
• II : Many possibilities within 1 claim
• III : Desiderata
• IV : Parameters
• V : Novelty Overflow (chemistry)
Type I:

Too Many Claims
How Many is Too Many?

- what is an acceptable number of claims to define ONE invention?
- it clearly depends on the type of claims
  - independent / dependent
  - clear, concise
  - 3 lines, 3 pages
Long Claim
• Should there be any limit to the size of a patent application?
• should there be extra fees?

• per claims?
• per page?
• per word?
• per kilo?
What does Case Law say?

- **T246/91**: 157 claims erected a legal maze or smoke-screen.

- **T79/91**: clarity and conciseness are interlinked. 10 independent claims undue burden to define scope.
How Many is Too Many?

• what do you think the record is?
  • 19368

• Is this acceptable?
19368 claims – ok?

NO IT IS NOT !!!

• this is not a concise (Art. 84) definition of an invention

• clearly, a meaningful search across the whole of the claimed scope is not possible
What does the EPO do?

• First: send Rule 63 invitation

Then there are two options:

• "Nothing!" - No Search issued

• incomplete search if core of invention can be (quickly) identified
Type II: Many Possibilities in a Claim
Move Over Mr. Markush

- millions of different possibilities
- many of which do not work
- little "real" disclosure
- often unclear

- no one disputes the use of alternatives, but sometimes it can go too far
Example 1: in 1987

- EPO decided not to search
- WO 8704321
- 789 pages, 110 claims
- Claim 105: "A compound having the formula selected from the following:"
claim 105 continued...

- wherein:
- $R_{24}$ represents unsubstituted or substituted phenyl, 1- or 2-naphthyl or heteroaryl:
- $X_{10}$ represents 0, S, SO, SO$_2$, NH, -CH$_2$O-, -CH$_2$S-, -CH(CH$_3$)$_2$O-, -CH(CN)$_2$O-, -CH=NO-, -C(CH$_3$)=NO-, -CH$_2$CH$_2$O-, -CH$_2$CH$_2$S-, -CC-, -CH$_2$SO-, -CH$_2$SO$_2$-, -OCH$_2$CH$_2$O-, -CH(alkyl)- or -CONH-;
- $j$ is a value of 0 or 1;
- $a$ is a value of from 2 to 4 inclusive; and
- $Y_{19}$ is the same or different and represents halogen, alkyl, cyano, polyhaloalkyl, alkoxy, polyhaloalkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, nitro, acyl or polyhaloalkylsulfonyl provided that (i) at least two ring position pairs selected from 2 and 4, 2 and 6, 2 and 3, and 3 and 4 are substituted with the same or different halogen; (ii) when ring positions 2, 4 and 6 are substituted with chlorine and $j$ is a value of 0 and $X_{10}$ is SO$_2$, then $R_{24}$ is not unsubstituted phenyl; and (iii) when ring positions 2, 3 and 5 are substituted with chlorine and $j$ is a value of 1 and $X_{10}$ is S, then $R_{24}$ is not unsubstituted phenyl;

- wherein:
- $R_{25}$ represents unsubstituted or substituted phenyl, 1- or 2-naphthyl or heteroaryl: $X_{11}$ represents 0, S, SO, SO$_{2a}$ # NH,
- CH$_2$, a single covalent bond, -CH$_2$O-, -CH$_2$S-, -CH(CH$_3$)$_2$O-, -CH(CN)$_2$O-, -CH=NO-, -C(CH$_3$)=NO-, -CH=NO-, -C(CH$_3$)=NO-, -CH=NO-, -C(CH$_3$)=NO-, -CH=NO-, -C(CH$_3$)=NO-;
- $b$ is a value of 2 to 3: and
- $Y_{20}$ is the same or different and represents halogen, alkyl, cyano, polyhaloalkyl, polyhaloalkoxy, alkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, nitro, acyl or polyhaloalkylsulfonyl provided that at least two of $Y_{20}$ are halogen:
claim 105 continued...

• wherein:
  • $R_{26}$ represents unsubstituted or substituted phenyl, 1- or 2-naphthyl or heteroaryl;
  • $X_{12}$ represents 0, S, SO, SO$_2$, NH,
  • CH2. a single covalent bond. -CH2O-. -CH2S-
  • -CH(CH3)O-. -CH(CN)O-. -CH=NO-. -C(CH3)=NO-
  • -CH2CH2O-. -CH CH -. -C-C-. -CH
  SO-. -CH2SO2-. -OCH2CH2O-. -CH(alkyl)- or -CONH-
  • $Y_{21}$ and $Y_{22}$ are independently the same or different halogen; and
  • $Y_{23}$ represents hydrogen, halogen, alkyl, polyhaloalkyl, alkoxy. polyhaloalkoxy. cyano.
  alkylthio alkylsulfinyl, alkylsulfonfonyl, nitro, acyl or polyhaloalkylsulfonyl;
• wherein:
  • $R_{27}$ represents unsubstituted or substituted phenyl, 1- or 2-naphthyl or heteroaryl;
  • $X_{13}$ represents O. S. SO, SO$_2$, NH,
  • CH2. a single covalent bond. -CH2O-. -CH2S-. -CH(CH )O-. -CH(CN)O-. -CH=NO-. -C(CH3)=NO-
  • 3 3 -CH2CH2O-. -CH2CH2-. -C#C-. -CH2SO-.
  • -CH2SO2-. -OCH2CH2O-. -CH(alkyl)-or-CONH-
  • $Y_{24}$ represents halogen: and
  • $Y_{25}$ and $Y_{26}$ independently represent hydrogen, halogen, alkyl, polyhaloalkyl, alkoxy.
  • polyhaloalkoxy, cyano, alkylthio, alkylsulfinyl, alkylsulfonfonyl, nitro, acyl or polyhaloalkylsulfonyl provided that at least one of $Y_{25}$ and $Y_{26}$ is halogen and further provided that when $Y_{24}$, $Y_{25}$ and $Y_{26}$ are chloro and $X_{13}$ is O. then $R_{27}$ is not unsubstituted phenyl:
claim 105 continued...

wherein:

- $R_{28}$ represents unsubstituted or substituted phenyl, 1- or 2-naphthyl or heteroaryl:
- $X_{14}$ represents 0, S, SO, SO$_2$, NH,
- CH$_2$, a single covalent bond, -CH$_2$O-, -CH$_2$S-,
- -CH(CH$_3$)O-, -CH(CN)O-, -CH=NO-, -C(CH$_3$)=NO-,
- -CH$_2$CH$_2$O-, -CH$_2$CH$_2$-. -C#C-. -CH$_2$SO-.
- -CH$_2$SO$_2$-, -OCH$_2$CH$_2$O-, -CH(alkyl)- or -CONH-:
- $Y_{27}$ and $Y_{28}$ are independently halogen: and
- $Y_{29}$ represents hydrogen, halogen, alkyl.
- polyhaloalkyl, alkoxy, polyhaloalkoxy, cyano, alkylthio. alkylsulfinyl, alkylsulfonyl, nitro, acyl or -polyhaloalkylsulfonyl
claim 105 continued...

- wherein:
  - $R_{29}$ represents unsubstituted or substituted phenyl, 1- or 2-naphthyl or heteroaryl;
  - $X_{15}$ represents O, S, SO, SO$_2$, NH, CH$_2$, a single covalent bond, -CH$_2$O, -CH$_2$S, -CH(CH$_3$)O, -CH(CN)O, -CH=NO, -C(CH$_3$)=NO.
  - -CH$_2$CH$_2$O, -CH$_2$CH$_2$S, -C#C, -CH$_2$SO.
  - -CH$_2$SO$_2$, -OCH$_2$CH$_2$O, -CH(alkyl) or -CONH.; and
  - $Y_{30}$, $Y_{31}$ and $Y_{32}$ independently represent hydrogen, halogen, alkyl, cyano, polyhaloalkyl, alkoxy, polyhaloalkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, nitro, acyl or polyhaloalkylsulfonyl provided that at least two of
  - $Y_{30}$, $Y_{31}$ and $Y_{32}$ are halogen;

- wherein:
  - $R_{30}$ represents unsubstituted or substituted phenyl, 1- or 2-naphthyl or heteroaryl;
  - $X_{16}$ represents O, S, SO, SO$_2$, NH, CH$_2$, a single covalent bond, -CH$_2$O, -CH$_2$S, -CH(CH$_3$)O, -CH(CN)O, -CH=NO, -C(CH$_3$)=NO.
  - -CH$_2$CH$_2$O, -CH$_2$CH$_2$S, -C#C, -CH$_2$SO.
  - -CH$_2$SO$_2$, -OCH$_2$CH$_2$O, -CH(alkyl) or -CONH.; and
  - $Y_{33}$, $Y_{34}$ and $Y_{35}$ independently represent hydrogen, halogen, alkyl, cyano, polyhaloalkyl, alkoxy, polyhaloalkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, nitro, acyl or polyhaloalkylsulfonyl provided that (i) at least two of $Y_{33}$, $Y_{34}$ and $Y_{35}$ are halogen, (ii) when $Y_{34}$ and $Y_{35}$ are both chloro and $X_{16}$ is 0, then
  - $R_{30}$ is not unsubstituted phenyl.
  - when $Y_{33}$ and $Y_{34}$ are both chloro and $X_{16}$ is 0, then
claim 105 continued...

- **R30** is not unsubstituted phenyl or 4-methoxyphenyl;

- wherein:
  - d is a value of from 0 to 4 inclusive;
  - e is a value of 1 or 2 provided that d + e are not greater than 5;
  - R31 is the same or different and represents unsubstituted or substituted aryl provided that when R31 is 2- or 4-aryl then d is not 0: aralkyl provided that when R31 is 4-aralkyl then d is not 0: alkoxy, cycloalkoxy, aryloxy.
  - aralkoxy provided that when R31 is 4-aralkoxy then d is not 0: arylaryloxy, aralkoxyaralkyl, arylaralkoxy, aryloxyaralkyl, aryloxyalkyl, aralkoxyaryloxy, aralkoxygenoxy, alkylthio, alkenylthi, arylthio, aralkylthio, arylthioaralkyl, arylsulfonylaryl sulfonyl, alkylamino, dialkylamino, acyloxy, aroyloxy, alkoxycarbonyloxy, phenylazo provided that X17 is
  - O or S: naphthylazo, or -OCHR2O- or -OCHR2CH2O- which join adjacent carbon atoms to form a five- or six-membered ring;
  - Y36 is the same or different and represents halogen, alkyl, alkenyl, alkynyl, -CH=CHCH=CH- which joins adjacent carbon atoms to form a six-membered ring, -(CH2)4, nitro, cyano.
  - haloalkyl, or polyhaloalkyl:
  - X17 represents 0, S, NH, CH2, -CH2O-, -CH25- or -OCHR 0-: 2 22
  - Y37 represents halogen: and
  - Y38 represents halogen, alkoxy, alkylthio, alkylsulfonyl, polyhaloalkoxy, polyhaloalkyl.
  - cyano, nitro or unsubstituted or substituted arylthio, aryloxy or arylsulfonyl:
wherein:

• $f$ is a value of from 0 to 5;
• $R_{32}$ is the same or different and represents halogen, alkyl, alkenyl, alkynyl, polyhaloalkyl, cyano, nitro, alkylamino, dialkylamino, alkoxy, polyhaloalkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, polyhaloalkylsulfon 1.
• acyl, C02(alkyl), CONH(alkyl), CON(alkyl)2, SO2N(alkyl) 2', alkylcarbonyloxy, alkoxy carbonyloxy, or unsubstituted or substituted aryloxy, arylthio, arylsulfonyl or aroyl;
• $X_{18}$ represents 0, S, CH2, a single covalent bond or -C#C-;
• $Y_{39}$ represents halogen, polyhaloalkoxy, polyhaloalkyl, cyano, alkylsulfonyl, alkylsulfonyloxy, polyhaloalkylsulfon or polyhaloalkylsulfonyloxy; and
• $Y_{40}$ represents haloalkyl, polyhaloalkyl, alkoxy provided that $X_{18}$ is not S or a single covalent bond; polyhaloalkoxy, cyano, alkylthio provided that $X_{18}$ is not 0 or a single covalent bond; alkylsulfonyl, nitro, dialkoxyphosphinyl or trialkylammonium:
claim 105 continued...

- wherein:
  - $Y_{41}$ is the same or different and represents halogen;
  - $Y_{42}$ is the same or different and represents halogen, alkoxy, alkylthio or polyhaloalkoxy; and
  - $X_{19}$ represents 0, -S-S-, -P(=O)(O-alkyl)-, -P(alkyl)-, -P(O-alkyl)-, sulfinyl, sulfonyl, thiosulfanyl, a single covalent bond, carbonyl, aminocarbonylamino, aminooxalylamino, aminocarbonylalkylenecarbonylamino.
  - aminoalkyleneamino, unsubstituted or substituted oxyaryloxy provided that 1,3-arylenebis(oxy) is substituted with at least one substituent: oxyarylalkylaryloxy, oxyarylthioaryloxy, oxyarylsulfonoforylaryloxy and oxyaryloxy.

- wherein:
  - $Y_{52}$ and $Y_{53}$ are independently halogen;
  - $g$ is a value of from 0 to 5 inclusive;
  - $R_{33}$ is the same or different and represents halogen, alkyl, alkenyl, alkynyl, polyhaloalkyl, cyano, nitro, amino, alkylamino, dialkylamino, alkoxy, polyhaloalkoxy, alkylthio, alkylsulfinyl, alkylsulfonyl, polyhaloalkylsulfonyl, alkoxy carbonyl, alkylaminocarbonyl, aminocarbonyl, dialkylaminocarbonyl,
What does the EPO do?
and then...

- send Rule 63 invitation
- incomplete search restricted to the core of the invention
- restriction to the examples only is a rare case
- clear statement of the scope of the search
Type III:

Desiderata

- free beer claims
What is a Desideratum?

• goal
• wish
• aim
• statement of problem
• something everyone wants

• BUT ... there is no indication how the desideratum is carried out
Example

an applicant finds a compound which is quite effective in treating the common cold

claim 1 reads:
a compound for curing the common cold

is this scope justified?
A Cure for the Common Cold

- the claim does not set out how the goal is achieved
- it lacks essential features
- the support in the description is only for one way of carrying out the claim, and does not substantiate the aim across the whole scope
What do we do at the EPO?

- make an incomplete search
- search for the (group of) compound(s) which give rise to the technical effect - i.e. treat cold
- at the examination stage restrict the scope of protection to something more commensurate
Example

• Claim 1:
A pencil with a device attached to its top wherein, when said device is brought into close sliding contact with pencil markings on a sheet of paper, said device will wipe out said pencil markings.
Example

• Claim 1: Distillate fuel oil boiling in the range 120°C to 500°C which has a wax content of at least 0.3 weight% at a temperature of 10°C below the Wax Appearance Temperature, the wax crystals at that temperature having an average particle size less than 4000 nanometers.
Example

• Claim 1:

  Claim 1: ‘A golfbag comprising a pocket for storing golfballs, the pocket having closing means for closing the pocket’. Specific but well known examples of closing means are disclosed in the description, like Velcro and a zipper.
Type IV:

Parameters

- We're not all Einsteins
When is a Parameter Acceptable?

- Guidelines F-IV 4.11

- where the invention relates to a product it may be defined in the claim ...

- ... exceptionally by its parameters
The Guidelines continue ...

• characterisation of product solely by parameters: generally not be allowed
• may be allowable when:
  • the invention cannot be adequately defined in any other way
  • provided that the parameters can be clearly and reliably determined
Example

an absorbent product comprising an absorbent structure, characterized in that said absorbent product has a Rate of Dispersibility of about 60 seconds or less and a Strikethrough Resistance of at least 2 seconds.
What do we do at the EPO?

• NOT just enter the parameter in the database
• search for the technical features which give rise to the parametric value
• limit the search to these technical features
Type V:

Novelty Overflow

• claims drafted too broadly
• search would not be meaningful, would not serve any useful purpose
• there are countless possibilities for the applicant to amend the claims
• Applicant is invited to limit claims to what he believes his contribution to the art is
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What are YOUR Guarantees?

• that the core/heart of the invention is still searched
• that there is an explicit statement of what has been searched
• Rule 63 invitation will be sent
• reasoning in opinion based on A83, A84
• incomplete search only if severe difficulties and no obvious fallback identifiable

• that the eventually granted patent will NOT include non-searched subject-matter
Thank you for your attention!

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