#### UNITED STATES PATENT AND TRADEMARK OFFICE



### Search like an examiner



### **Overview**

- Benefits of a complete & thorough search
- Guidelines for a complete search
- Identifying what to look for
- Formulating your search
  - Where should you look
  - What tools are available for searching
  - Conducting a search with Patent Public Search
- Evaluating the results of your search



### Benefits of a complete and thorough search

- A complete search allows the best references to be found as early as possible
- The easiest Office Action to write is the one with the best references
- A complete search will help avoid allowance of unpatentable claims



## Guidelines for a complete search: what should be searched?

- When determining the field of search, three reference sources must be considered:
  - Domestic patent documents (including patents and patent application publications)
  - Foreign patent documents
  - Non-patent literature (NPL)
- None of these sources can be eliminated from the search unless the examiner has and can justify a reasonable certainty that no references, more pertinent than those already identified, are likely to be found in the source(s) eliminated



See MPEP § 904.02

## Guidelines for a complete search: what should be searched? (cont.)

- The search should cover related patents and applications
  - Both foreign and domestic patents and applications filed by applicant or the assignees of the application should be considered
  - In all continuing applications, the parent application should be reviewed by the examiner for pertinent prior art

See MPEP § 904



### **Identifying related documents**

- To identify related applications, patents, or NPL, answer these questions:
  - Who is the inventor?
  - Who is the assignee?
  - Is there a family of related patents and/or applications?
  - Are any relevant copending applications and/or related patents and/or NPL identified in an Information Disclosure Statement (IDS) or in the Background of the Invention?



### Identifying the inventor

- Once inventor's identity is determined, one can determine if the inventor:
  - Has filed any other related patent applications
  - Has published any NPL such as conference proceedings, books, articles, web pages
  - Has written a dissertation for a PhD or Master's degree



## Identifying related patents or applications

- Knowledge of related patents or applications will allow you to:
  - Review references cited in applications/patents which disclose related subject matter that may also be pertinent to your application
  - Review classification information of the related applications/patents to help plan a classification search.
  - Make appropriate double-patenting rejections



### One way to help plan a search...

- First, identify the problem(s) the applicant attempts to solve
- Then, identify the features of the invention, claimed or not, that solve this problem(s)\*
- Construct a sentence or two that relate to these features
- Use the sentences to help determine your classification search as well as your text search

\*Note, the claimed invention must always be searched but the search must also include areas relevant to the invention as it is described in the specification in order to find the best art

### Patent Public Search

### The newest patent search tool

- Patent Public Search is a new patent search tool available for free from the U.S. Patent and Trademark Office's website (<u>www.uspto.gov</u>)
- It has many new customer friendly features that help it stand out from previous patent search tools



### **How to access Patent Public Search**

The quickest way to access Patent Public Search is from the Find It Fast menu on the USPTO home page



### Welcome page



https://ppubs.uspto.gov/pubwebapp/static/pages/landing.html

### Three databases, one search tool

- Patent Public Search is a search tool used for searching up to three databases at the same time:
  - US-PGPUB: U.S. pre-grant publications (published patent applications) since 2001
  - USPAT: all issued U.S. patents since 1790
  - USOCR: text of issued U.S. patents from appx. 1830's to 1970 scanned by OCR (optical character recognition)



Patent Public Search

### Search syntax

### Search syntax used in Patent Public Search

- Just like written languages, search tools have their own syntax
- With Patent Public Search, if you want to search a number or word in a specific field index, you need to let the search tool know it. For example, the title index abbreviation is "ti". To search for the word "golf" in the title field, type: golf.ti
- The index abbreviation should have **a period on both sides** (an alternative is to use brackets on both sides: **golf[ti]**)

### Is there a list of Searchable Index abbreviations?

A list of the most commonly used Searchable Index abbreviations is found in the Help gadget tab. It also links to a comprehensive list.

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APP	Searches the abstract text of the patent. Searches the application filing date of the patent. Searches the application number of the patent (must use with slash).	amethyst.ab. 20120616.ad. 10/501576.app. or (12/123456).app.		
APP AS	Searches the abstract text of the patent. Searches the application filing date of the patent. Searches the application number of the patent (must use with slash). Searches the assignee name text of the patent.	Example amethyst.ab. 20120616.ad. 10/501576.app. or (12/123456).app. microsoft.as.		1
APP AS AY	Searches the abstract text of the patent. Searches the application filing date of the patent. Searches the application number of the patent (must use with slash). Searches the assignee name text of the patent. Searches the application filing year of the patent.	Example amethyst.ab. 20120616.ad. 10/501576.app. or (12/123456).app. microsoft.as. 2006.ay.		

### **Boolean set operators**

Patent Public Search also uses Boolean set operators in its search syntax

Operator	Description	Example
AND	Two terms, joined by "AND" must occur within the same document.	photographic AND noodle
OR	Two terms, joined by "OR" means at least one of the terms must occur in the document.	dog OR cat
NOT	The first term must occur, the second term must not.	cardboard NOT box
XOR	Two terms, joined by "XOR" means at least one of the terms must occur in the document, but not both terms	pipe XOR ptfe

### **Proximity operators**

Operator	Description	Example
ADJ	Two terms must occur directly next to each other, and in order. ADJ is the only ordered operator.	oxidizing ADJ bacteria
ADJ[n]	Two terms must occur within [n] terms of each other, in order, and within the same sentence.	wet ADJ4 silicon
NEAR	Two terms must occur directly next to each other, and in any order.	electrospray NEAR ion
NEAR[n]	Two terms must occur within [n] terms of each other within the same sentence, but order is not relevant.	cyclotron NEAR7 magnetic
WITH	Terms joined with pate must occur within the same sentence.	detect WITH light
WITH[n]	Terms joined with WITH[n] must occur within n sentences of each other.	detect WITH10 light
SAME	Terms joined with SAME must occur within the same paragraph.	synthesizing SAME tomography
SAME[n]	Two terms must occur within n paragraphs of each other.	wheel SAME3 wood

### Allow for variant spellings

- If the default setting for "Plurals" is ON, when a search term is entered in singular form, the plural form will automatically be searched (e.g., if "mirror" is entered the plural form "mirrors" will also be searched)
- To allow for different beginnings (or endings) for word strings, use **truncation symbols or wildcards**

Wildcard	Description	Example
?	Matches any single character, can occur at the beginning, middle or end of a word.	m?cro
\$[#]	Matches up to the given number of characters.	micro\$3
* or \$	Matches any number of characters.	micro* or micro\$

### The classification search

### **Classification searching**

- It is **rare** that a text search alone, or a classified search alone, will constitute a thorough search of patent documents. Some combination of text search with other criteria, in particular classification, would be a normal expectation in most technologies
- Browsing all patent documents in one or more classifications is important when it is difficult to express search needs in textual terms (e.g., in mechanical arts)

### **Classification searching (cont.)**

- A proper field of search normally includes the classification locations in which the application would be properly classified
- Search areas should be prioritized so that the areas most likely to produce relevant prior art are searched first

See MPEP § 904.02(a)



### **Classification searching (***cont***.)**

- The invention must be searched in both its classification area and all analogous arts
   See MPEP § 904.01(c)
- Note: Search needs in some technologies (e.g., chemical structures, DNA sequences) are very specialized and can be met only through additional use of specific search tools specially maintained to respond to those needs

See MPEP § 904.02



### **Searching CPC symbols**

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### How to access Classification Resources

The quickest way to access Classification Resources is from the Find It Fast menu on the USPTO home page



### **CPC resources**

• CPC website:

www.cooperativepatentclassification.org

• CPC training materials:

www.cooperativepatentclassification.org/Training

• Guide to CPC:

www.cooperativepatentclassification.org/sites/default/files/attachments/212f75e9-e9d4-4446-ad7f-b8e943588d1b/Guide+to+the+CPC.pdf

• Classification resources webpage:

www.uspto.gov/patents/search/classification-standards-and-development

• Espacenet classification search:

https://worldwide.espacenet.com/patent/cpc-browser#



### **CPC Essentials computer based training**

#### CPC Essentials I Parts A-C: Patent Classifications Systems and CPC Scheme

- CPC Essentials I Part A: Introduction to CPC Essentials and Patent Classification Systems and CPC Scheme
- CPC Essentials I Part B: <u>CPC Scheme</u>
- CPC Essentials I Part C: <u>CPC Definitions</u>

#### **CPC Essentials II Parts A-E: CPC Classification**

- CPC Essentials II Part A: Introduction
- CPC Essentials II Part B: What to Classify Identifying Subject Matter to be Classified
- CPC Essentials II Part C: <u>Where to Classify Identifying Appropriate Subclasses</u>
- CPC Essentials II Part D: Where to Classify Identifying Appropriate Subgroups
- CPC Essentials II Part E: <u>Good Classification Practices</u>

#### **CPC Essentials III: CPC Search Strategies**

CPC Essentials III CBT: <u>CPC Search Strategies</u>



### Generating a text search strategy

### Generating a text search strategy

- Make a list of text search terms obtained from the description, claims, the inventive concept(s), other relevant prior art, & your technical knowledge
- Develop "synonyms" for terms, concepts, and themes
  - Note that phrases or acronyms can be used as synonyms in addition to single word synonyms
- Use proximity operators to relate these concepts



- There are two basic techniques for searching:
  - A. Narrow to broad approach
    - Including a home run search
  - B. Broad to narrow approach



#### A) Narrow to broad approach

- You may first decide to go for a matching 102 reference by searching for a reference that discloses the claimed invention exactly (i.e., a home run)
- Advantages:
  - Useful in arts with established buzzwords
  - May find a good primary reference in less time
- Disadvantages:
  - Limited applicability
  - Low chance of success
  - Not comprehensive

Note: While a narrow to broad search is acceptable, a complete search must still be performed

B) Broad to narrow approach:

- Start with a basic concept associated with the disclosed invention, with specific and generic synonyms, to capture concepts in your art as well as analogous areas
- Narrow the concept with successive **Line Numbers** (L#s), adding additional concepts and details, modifying proximity operators, and deleting synonyms
  - ADVANTAGES:
    - A comprehensive search will capture art in diverse areas
    - Will reduce the amount of searching required if applicant amends to overcome a rejection
  - DISADVANTAGES:
    - May include subject areas applicant has no intention of claiming

- There are several secondary search strategies usable in conjunction with either strategies A) or B):
  - i. Building blocks
  - ii. "Problem solved" environment
  - iii. Limited classification search (classification and text mix)

### i. Building blocks:

- Isolate important concepts in L#s, then combine in various combinations and proximities
- Identify teachings from L#s for possible 103 rejections
  - ADVANTAGES:
    - Flexible, easy to modify and correct
  - DISADVANTAGES:
    - May be slow, as each concept may produce large numbers of hits

#### ii. "Problem solved" environment:

- Use search terms related to the environment or problem solved by your applicant
  - ADVANTAGES:
    - Useful when concepts in claims are difficult to express
    - Useful when environment is very specific
  - DISADVANTAGES:
    - Limited applicability
    - May be unfocused



#### iii. Limited classification search

- Sometimes you may want to combine classification searches with limited numbers of key words related to a claimed feature
  - ADVANTAGES:
    - Useful to filter a large subclass
    - Useful when claims require features found in different main groups and subgroups (CPC)
  - DISADVANTAGES:
    - May miss references in a subgroup that uses different terminology
    - Will miss older references that do not have an associated full text file

### iii. Limited classification search

 You will find that as you search, classified searches suggest new text searches and text searching suggests new classified searches.\* An interactive mixing of the two techniques has proven in many cases to yield the most effective results

\* You may also learn new terminology to use as search terms



- Searching is a DYNAMIC and ITERATIVE process:
  - Most of the time all pertinent references will not be found on the first try, and certain art may point the search in a direction not previously considered
  - Technology changes and with it so do the "buzzwords" used by the industry to describe specific elements of an invention

### Mouse trap example

### Mouse trap example









## Sensors open trap doors between lure and detention compartments

Applicant describes a trapping device having a first trapdoor that is pivotally turned from a horizontal to a vertical position to confine a rodent entering an upper space of the trapping device and past ultrasonic sensors provided in the upper space, and a second trapdoor that is correspondingly turned from a horizontal to a vertical position to open a lower space of the trapping device to trap the rodent in the lower space

### Claim

1. A trapping device for trapping an animal or insect, comprising:

a main body divided into at least an upper compartment and a lower compartment, the upper compartment being connected to the lower compartment through an opening, the upper compartment having a front side with an entrance that allows an animal or insect to enter the main body;

a bait compartment opposite to the front side;

a first trapdoor for trapping the animal or insect in the upper compartment;

a second trapdoor positioned in the opening between the upper compartment and the lower compartment;

a control circuit; and

a sensor for sending a signal to the control circuit

wherein the control circuit receives said signal to control opening or closing movements of the second trapdoor

### The classification search

### **Searching CPC symbols**

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6	1,442	A01M23/08.cpc.	US-PGPUB USPAT USOCR F	OR	<b>III</b> 🛍	Show Errors     Plurals     Plurals     Prior Art     O     Interference	
L3	1,119	A01M23/04.cpc.	US-PGPUB USPAT USOCR F	OR	<b>I</b>		
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### **Selecting subgroups to search**

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#### Traps for animals

- . {with sticky surfaces (for insects A01M 1/14)}
- . Collecting-traps
- . . with tipping platforms
- . . . with locking mechanism for the tipping platform
- . . with approaches permitting entry only
- . . with rotating cylinders or turnstiles
- . . with devices for throwing the animal to a collecting chamber
- . . Other traps automatically reset
- . Box traps
- . . with pivoted closure flaps
- . . with dropping doors or slides
- . . with dropping covers
- . {Spring traps, e.g.} jaw or like spring traps
- ... {Auxiliary devices for spring traps, e.g. attaching systems}
- . . of the double-jaw or pincer type
- . . . {of the pincer type}
- . . . Jaw trap setting-devices



### **CPC: Maingroup G08B - Signaling or Calling Systems;...Alarm Systems**

# G08B 13/16 G08B 13/1609 G08B 13/1618 G08B 13/1618 G08B 13/1627 G08B 13/1636 G08B 13/1645 G08B 13/1654 G08B 13/1663 G08B 13/1663 G08B 13/1681 G08B 13/169 G08B 13/18 G08B 13/181

- . Actuation by interference with mechanical vibrations in air or other fluid
- . . {using active vibration detection systems (active detection systems per se G01S)}
- ... {using ultrasonic detection means}
- .... {using Doppler shift detection circuits}
- .... {using pulse-type detection circuits}
- ... {using ultrasonic detection means and other detection means, e.g. microwave or infra-red radiation}
- . . {using passive vibration detection systems}
- ... {using seismic sensing means}
- ... {using sonic detecting means, e.g. a microphone operating in the audio frequency range}
- ... {using infrasonic detecting means, e.g. a microphone operating below the audible frequency range}
- . . . {using cable transducer means}
- Actuation by interference with heat, light or radiation of shorter wavelength; Actuation by intruding sources of heat, light
  or radiation of shorter wavelength {(signalling devices using photo-electric devices in general G09F)}
- . . using active radiation detection systems



### **CPC: Definitions**

G08B 13/16
G08B 13/1609
G08B 13/1609
G08B 13/1618
G08B 13/1627
G08B 13/1636
G08B 13/1645
G08B 13/1654
G08B 13/1663
G08B 13/1663
G08B 13/1681
G08B 13/169
G08B 13/18

- G08B 13/181

- Actuation by interference with mechanic:
  . {using active vibration detection system
  . {using ultrasonic detection means}
  . . {using Doppler shift detection circuition
  . {using pulse-type detection circuition
  . {using ultrasonic detection means an
  . {using ultrasonic detection means an
  . {using passive vibration detection system
  . {using seismic sensing means}
  . {using sonic detecting means, e.g. and
  . {using cable transducer means}
  . Actuation by interference with heat, light or radiation of shorter wavelength {(sign)
- . . using active radiation detection system

- Provides information for clarifying the scope of subclasses, main groups, or subgroups.
- Provides instructions on classification and searches in specialized technical areas.
  - May provide additional information as to what is, or is not, included in the CPC area.



Generating a text search strategy for the mousetrap example

### Generating a text search strategy

- Make a list of text search terms obtained from the description, claims, the inventive concept(s), other relevant prior art, and your technical knowledge
- Develop "synonyms" for terms, concepts, and themes
  - Note that phrases or acronyms can be used as synonyms in addition to single word synonyms.
- Use proximity operators to relate these concepts



- "Synonyms" should include:
  - Words which have the same or nearly the same meaning;
  - More specific examples of a broad term; or
  - Phrases should be considered as well as single words.
- For the Mousetrap application:
  - Rodent(s), or insect(s), or mouse, or mouselike, or "mouse-like", or mice, or cockroach(es) or critter(s), or vermin
  - Trap, or cage, or mousetrap, or "mouse trap"
  - Trapdoor(s), or "trap door(s)", or "false floor"
  - Sensor(s), or ultrasonic, or "ultra sonic"

#### Can you think of other synonyms?

- Examples of proximity operators:
  - OR; AND; SAME; WITH; NEAR; ADJ
- For synonyms use the "OR" operator
  - -L1: mouse or "mouse-like" or mice
  - -L2: trapdoor\$1 or trap ADJ door\$1
  - Other operators are used as necessary
    - -L1 ADJ\$ L2 -L1 NEAR\$ L2 -L1 WITH L2 -L1 SAME L2
    - -L1 AND L2



A) Narrow to broad approach – mouse trap

- Use sensors and trapdoors to trap mice or cockroaches
  - When going for the matching 102 reference, search for the specific manner in which the applicant solves the problem
  - In this example that would be: A rodent or insect trap utilizing bait with a plurality of trapdoors that confine the vermin in a lower space which are actuated by ultrasonic sensors

### B) Broad to narrow approach:

 Instead of limiting the search to a rodent or insect trap, search for other traps for a variety of animals. The type of animal disclosed in the preamble of claim 1 only sets forth a minimum size for the trap, not a maximum





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