

Patentability Searching



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Introduction

Before you spend money on a patent search, opinion or application, the best course of action is to do some research on your own. Doing your own starter search will show you what you're up against, and it will arm you with education and questions for your attorney or agent. In addition, you'll see how other inventors have attempted to solve the same problem you're concerned with.

This tutorial is based on our own experience with patent research and in teaching beginners the fundamentals of good searching. We show you how to use free resources, especially Free Patents Online and the US Patent & Trademark Office website to conduct patent research using a classification-based strategy.

This tutorial teaches novelty or patentability searching, which is not the same

Before Getting Started

Before getting started, let's get the bad news and good news on patent research.

- **Bad News:** A professional searcher will have access to advanced resources like EAST, Delphion, and in our case, PSV, the most advanced research platform available. In addition, a professional searcher will have thousands of searches under his or her belt. So the pro has a big advantage over the novice. Even with this advantage, a basic mechanical search should take 4-6 hours. With free resources, such as Google patents or Freepatentsonline, the same search could take the pro 10-20 hours.
- **Good News:** In most cases, some close references can be located in the 1-2 hours of searching. This is because of the prevalence of keywords in the close references. In the following tutorial, I'll show you how to find those close references using classification searching.

In the following tutorial, it will be important to understand Patent Fields and in particular, Patent Classification before proceeding to the search.

Overview of the Patent Searching Process

1. Set your preliminaries
 - i. Develop a feature list
 - ii. Develop your keywords and synonyms
2. Broad search
 - i. Use simple keyword combinations to create a B-List, or “maybe” list of close references
 - ii. Review and record classifications on the B-List
3. Locate classifications with the highest occurrences on your B-List
4. Search the most prevalent subclasses thoroughly (completely if possible) and add the best references to the B-List
5. Repeat Step 3 as necessary
6. When you think you’ve covered sufficient ground on classifications, review the B-List and decide on the best references for your A-List of top references
7. Forward and backward citation search the A-List references

Free Search Engines and Government Agencies

Private Resources

- www.freepatentsonline.com
- www.google.com/patents

Government Agencies

- USPTO: www.uspto.gov
- US Class Schedule: <http://www.uspto.gov/web/patents/classification/selectnumwithtitle.htm>
- WIPO Patentscope: <http://www.wipo.int/pctdb/en/index.jsp>
- European Patent Office: <http://ep.espacenet.com/>
- International Classes: <http://www.wipo.int/classifications/ipc/ipc8/>

Additional General References

- www.wikipedia.org
- www.thesaurus.com
- www.freethesaurus.net

Understanding Patent Fields

There a number of fields containing searchable text on a patent document. These fields include **Title**, **Abstract**, **Description**, and **Claims**. In most cases, the searcher is most interested in fields found on the cover page, which are the title and the abstract.

For all patent search engines, the fields of a patent document can be searched separately or in combination. For example, you may look for one of your keywords in the title, while searching for a more narrow word in the description. Or you might search a certain keyword in just one patent classification.



Patent Cover Pages

A patent document contains an abstract, a brief summary, a detailed description, figures, claims, and bibliographic data. Fortunately, when conducting a basic search, the most important information is on from the cover page. A cover page is shown in **Figure 1** below. Notice that this is a US patent document. Patent documents normally have seven digit numbers in the upper right hand corner, whereas published patent applications are identified by 11-digit numbers.

Figure 1

Title
Patent Titles are meant to be descriptive of the subject matter, which makes the title an excellent first place to perform keyword searching.

References Cited
In the course of examination, the USPTO will cite other patent documents that show similar subject matter. These references are printed on the cover. Citations provide the easiest form of searching since the need only enter the number shown.

United States Patent [19] Patent Number: **6,065,592**
Wik [45] Date of Patent: **May 23, 2000**

[54] **ARTICLE FOR ASSISTING PERSONS TO QUIT SMOKING AND METHOD FOR SAME** 5,011,018 4/1991 Kelleher 220,534
 5,810,164 9/1998 Reascomp 206,256
 5,938,017 8/1999 Wik 206,256

[70] Inventor: **Dennis Ole Wik**, Box 298, Potter Valley, Calif. 95469

[21] Appl. No.: **09/317,491**

[22] Filed: **May 24, 1999**

Related U.S. Application Data

[63] Continuation of application No. 09/073,200, May 4, 1998, Pat. No. 5,938,017

[51] Int. Cl.⁷ **B65D 85/10**

[52] U.S. Cl. **206/256; 220/507; 220/524; 220/528; 131/270**

[58] Field of Search **206/242, 248, 206/256, 257, 258, 264, 265, 267, 270; 131/329, 270; 220/524, 528, 507**

[56] **References Cited**
U.S. PATENT DOCUMENTS
 5,903,076 12/1998 Todor 206,256

Primary Examiner—Jacob K. Acken
 Attorney, Agent, or Firm—Pattis/Pro

[57] **ABSTRACT**
 An article for assisting persons to quit smoking and a method for doing same comprising a cigarette case, an insert located within said cigarette case and dividing its interior into a plurality of spaces, each sized to hold a single cigarette, and a plurality of closure devices, each of which can be used to seal one such space as the smoker gradually tapers daily cigarette consumption downward. A preferred embodiment includes a clear plastic shell covering the outside of said cigarette case, behind which shall such inspirational and motivational materials as photographs, other images, and/or handwritten or printed matter may be positioned in such a way as to be visible to the user each time the cigarette case is accessed.

2 Claims, 5 Drawing Sheets

U.S. Classifications
The significance and meaning of classification will be discussed in detail in the next section. Notice that all classifications are shown with two fields – Class and Subclass. Moreover, the first listed Class/Subclass is referred to as the Primary Classification. The remaining classifications will be just as important as the primary in the Search Tutorial.

Abstract
Abstracts are typically less than 150 words, and can be rich with keywords, making them the second field to search, should the title search come up empty.

Front Page Figure
The USPTO typically selects the front page figure from the figures submitted by the applicant. It is normally the best representation of the subject matter contained in the reference. Additional figures are shown in the pages immediately the bibliographic data.

Beyond the Cover Page

Inside the patent document, you will find the rest of the figures, a description, and claims - which are the inventor's legal claim to the invention. As mentioned previously, in basic research, much of the most important information can be taken from the cover page and figures. Following are short summaries of the other main fields.

Description

The description is a written description of the invention and the manner and process of making and using it. The description often includes a description of the prior art, a brief summary of the invention, and a detailed description of the invention¹. The description usually starts with a brief summary and then into describing the invention in detail. This detailed description of the invention is your most keyword-rich section of the patent document because it is much longer and in-depth than the title or abstract. The length of the description causes many irrelevant references to turn up in normal keyword searching. If you initially search for your keywords in the description field you may find that you pull in too many references that are unrelated to what you are looking for. This is why we will focus on searching shorter fields.

Claims

In utility and design patents, the specification concludes with the Claim or Claims, which distinctly claim the subject matter the applicant regards as his or her invention or discovery. Claims can be very difficult for the lay person to understand, so we do not recommend spending any time on them in your search. In addition, the subject matter covered in the claims should be covered in other areas of the document, and in easier to understand language.

Though you may want to try searching for keywords in the description fields, we recommend spending most of your search time actually looking at cover pages and only going beneath the cover pages when you get to your narrow search phase.

¹ The prior art is a brief rundown of earlier patents, applications and non-patent references that may have attempted to solve the same problem the inventor is solving. The aim is to show that, although attempts have been made to solve the problem, nothing has succeeded yet.

Patent Classification

Classifications are categories into which patents are placed based on their features. Every patent document contains at least one, and in most cases, 3-4 classifications. There are just under 500 main classes, which are subdivided into several hundred subclasses each, adding up to over 100,000

classifications. Notation for class and subclass is written class/subclass. The home page for the US Class schedule is shown in **Figure 2**, and can be found at:

<http://www.uspto.gov/web/patents/classification/>.

A few examples of main classes are: Class 2 – Apparel; Class 220 – Receptacles; and Class 362 - Illumination. Subclasses are listed in a tree structure, where each subclass further narrows a another subclass. To see this tree, look at **Figure 3**. Here we see the class schedule open to the top of main class 2 - Apparel. As, seen, a few subclass examples from Class 2 are:

- **2/456** - Apparel/Guard or Protector/ Body Cover
- **2/457** - Apparel/ Guard or Protector/ Body Cover/ Hazardous Material Body Cover
- **2/458** - Apparel/ Guard or Protector/ Body Cover/ Thermal Body Cover

The screenshot shows the USPTO website's 'Classification Main Menu'. It includes a search bar for entering a US Patent Classification (Class/Subclass) and several radio button options for selecting the type of information to view, such as Class Schedule (HTML), Printable Version of Class Schedule (PDF), Class Definition (HTML), and US-to-IPC8 Concordance (HTML/PDF).

Figure 2

In **Figure 3**, notice how the previously named subclasses are listed in the tree. Notice that both 2/457 and 2/458 are indented under 2/456. And 2/456 is indented under 2/455. Patent references dealing with protective garments covering the entire body

could be in 2/456. If that protective covering is specific to HAZMAT, it could be located in 2/457. If the protective garment is specific to fire fighting, it could be located in 2/458.

Any class schedule for any class/subclass can be found by navigating class schedule. Navigating this page is important since the cover pages of patent documents

The screenshot shows a tree structure of patent subclasses. The root is '1 MISCELLANEOUS', followed by '455 GUARD OR PROTECTOR'. Under 455, there are several subclasses, including '456 Body cover', '457 Hazardous material body cover', and '458 Thermal body cover'. The tree continues with more subclasses like '2.11 Astronauts body cover', '2.12 Having relatively rotatable coaxial coupling component', etc.

1	MISCELLANEOUS
455	GUARD OR PROTECTOR
456	Body cover
457	Hazardous material body cover
458	Thermal body cover
2.11	Astronauts body cover
2.12	Having relatively rotatable coaxial coupling component
2.13	Having convoluted component
2.14	Aviators body cover
2.15	Underwater divers body cover
2.16	Having an insulation layer
2.17	Having a garment closure (e.g., zipper, fabric with hooks and latches)
459	Shoulder protector

Figure 3

only show the codes, and not even the professional searcher knows the codes by heart.

Getting Started

Included at the end of this tutorial are worksheets for your search. These include:

- **Preliminary Worksheets**
 - **Invention Description** – where you'll set down the basics of your invention.
 - **Features, Benefits and Keywords** – where you'll refine the basics into the primary points where you see novelty and then turn the Features into keywords and synonyms.
- **Search Worksheets**
 - **Initial References & Classifications** – where you'll track references and associated classifications.
 - **Classification Counting** – where you'll further process the classifications to show classifications of the highest relevance.
 - **Final References** – where you'll track and comment on your final selections.

Before proceeding, make copies of all the worksheets mentioned above. Make multiple copies of the **Classification Counting** worksheet since this is used extensively.

Example Invention: StopSmoke

In this tutorial we will use an example invention called the "StopSmoke." It is a basic mechanical device that aids a smoker in kicking the habit. See **Figure 4** for a possible embodiment of StopSmoke.

How StopSmoke Works The device is a cigarette containing package with a hinge attached closure that locks in the closed position. The closure unlocking system is controlled by a programmable timer. Initially, the timer permits access to the contents once per hour. The device progressively lengthens the amount of time between dispensations of the contents, until the user ultimately kicks the habit. The user is able to program both the initial timing, and the progression of the time

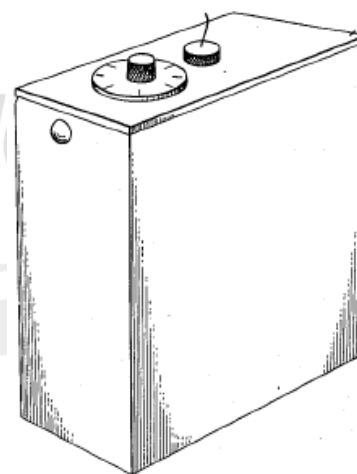


Figure 4 delay.

Invention Description Worksheet

Before starting your search, you will need to set down your preliminaries, which are made up of your invention description, features, and keywords. The first job is to fill out the ***Invention Description*** worksheet. Simply answer the questions as thoroughly as possible. If you keep an inventor notebook, it should be easy to translate your notebook entries into an invention description. The answers will feed into feature and subsequent keyword development.

Features & Benefits Worksheet

Next, use the **Invention Description** worksheet to fill out the **Features & Benefits**. This will assist in organizing the next step, which is the development of keywords. By listing out the features and benefits you are abstracting and organizing the information in your invention description into something like an outline. Try to make the descriptions as concise as possible. One word answers are often best because features should be boiled down to their simplest form. And if you find yourself writing long feature descriptions, then you likely have multiple features on a single line. In addition to features, you should feel free to list benefits provided by a feature. This will assist in developing keywords. In **Figure 5**, you can see that we have developed a very tight list of features for StopSmoke.

Features & Benefits
Package
Hinged Closure
Lock
Timer
Programmable

Figure 5

Keywords Worksheet

Next, create a list of keywords on your **Keywords** worksheet. Separate the list into a primary keyword alongside a list of synonyms or other related words. Review your features to ensure that each feature is represented by at least one row of keywords. Also, add rows for keywords that relate to the **use of the invention**. For example, if the intended user is a child then add a row of keywords describing children. If the intended user

Keywords	
Keyword	Synonyms
smoking	smoke, smoker, tobacco, nicotine, cigarette, cigar
pack	package, box, container, receptacle, carton
timer	time, timing, minute, hour
quit	cease, cessation, stop
lock	clasp, bolt, catch

Figure 6

is a dog, then add a row of words describing dogs. The patent office requires a patent application to show how to make **and use** an invention, so an application writer will likely use keywords describing a certain user. To locate related words, use sites such as www.thesaurus.com and www.wikipedia.org.

In **Figure 6**, you can see that we have synonyms addressing both the physical features of the invention and its use, for example, "quick."

Now you have a set of keywords you can plug them into a search engine in various combinations. As you go through your search, you'll discover more keywords to add to your list. And since searching is an iterative process, you can continuously develop your list, and then plug your new words in as you go.

Searching Basics

Now it's time to start patent searching. There are several useful free sites on the internet where anyone can search the US patent database. The two free resources that we recommend are Google Patents, which we'll call **GP**; and FreePatentsOnline, which we'll call **FPOL**. These sites can be found at <http://www.freepatentsonline.com/search.html> and <http://www.google.com/patents>. GP is great for initial searching since it shows you images right away. However, GP falls short in the area of classification-based searching, which is why we'll focus on FPOL for the remainder of the tutorial. Also, GP's text searching is somewhat unreliable.

Boolean Query Language

When using FPOL, you'll be using a Boolean Query language. As with many languages, it can be complex, however you only need to know a few details to be effective here.

1. **AND** is the word that forces the search engine to return both words in a specified field. For example the search statement: **pot AND pan** will return references having both words. If a reference contains just one of the words, it will not be returned by the server.
2. **OR** is the word that allows the search engine to return references having either word. So, **OR** is much less restrictive than **AND**. It is common to use **OR** when connecting synonyms such as **clothing OR apparel**.
3. (...) Parenthesis are used to enclose words when both **AND** and **OR** are used. For example **(clothing OR apparel) AND dog** would return references that must have dog and must have either clothing or apparel. Notice that parenthesis normally surround the **OR** connected words.
4. "..." Quotation marks are necessary if you're looking for phrases that contain a space. For example, if you're looking for the exact phrase **rescue official**. You must enclose it in quotation marks, or else the search engine will be confused. So you could enter: **"rescue official" AND (clothing OR apparel)** if you were interested in clothing worn by rescue officials.

There are many other common terms used in Boolean, such NOT and ~. For the purposes of keeping this tutorial simple, we will omit usage of additional operators.

Keyword/Classification Searching

You will be using classification-based searching. The goal is to use classification either by itself or in combination with keywords to find the best references. Classification is more complicated than straight text based searching. However, it is worth the effort. Consider the following:

If I used straight text searching for the StopSmoke invention, I might use the following statement to retrieve references having all of the concepts: **(smok* or tobacco or nicotine or cigar*) and (package or box or container or receptacle or pack or carton) and (time* or timer or timing) and (cease or cessation or stop or quit) and (lock or clasp or bolt or catch)**. With this statement, the server will return between five and ten thousand references, depending upon my date range. It is not possible to weed

through this many references. Server weighting won't help much because we can be certain that relevant references may lie in the bottom tiers.

In this tutorial, we'll locate highly relevant classifications such as:

131/270 - TOBACCO/ANTISMOKING PRODUCT OR DEVICE; I.E.; DETERENT and **221/15 ARTICLE DISPENSING/WITH TIMING OR DELAY MECHANISM**. These classifications have only a few hundred references, and based on the names, I have a guarantee that multiple relevant concepts are present in each reference located in these classifications.

Search Areas

Most online search services, including Free Patents Online and Google, give you the option to search both US patents and published patent applications². We recommend including US patent applications in your search because although they are not yet patents, applications are still part of the public record, and anything in the public record can be used as prior art to reject your own application.³

One additional note on application searching, the USPTO does not remove applications from their records, regardless of whether or not an application turns into a patent. This means you may run across seeming redundancies in instances where both the application and patent are in the database. The inclusion of these two search areas, US patents and US patent applications, will get you a higher rate of certainty on what you're up against. However, because the US remains the world's largest and most desirable market, the US patent and application database is the most inclusive. In our experience, the US search covers enough ground for the preliminary patent work. Only about 10% of basic mechanical patent applications are rejected based on art from a foreign reference.

² The USPTO normally publishes applications 18 months after filing. This means that there are 18 months worth of disclosures that you will not be able to see.

³ the total public record includes US patents and patent applications, foreign patents and patent applications, as well as non-patent literature, which can be literally anything in the public record, from websites to trade publications to books and catalogs, that may describe an invention.

Using Free Patents Online

You should create a user account at FPOL so that you can more easily access patent images, and save your searches. After you have created your account, navigate to the Search Patents Tab and the **Quick Search** sub-tab (see **Figure 7** for an image of this page). At the bottom, you can specify patents and patent applications in your search query.

FPOL gives you the option to search patents from the US, Europe, and Japan, as well as US applications and applications filed with the World Intellectual Property Office (WIPO). As mentioned above, we recommend focusing on US patents and applications.

Remember, when you're searching on FPOL, and you use the back button on your browser, be sure to clear any fields from the previous search that you don't intend to search in the next submission.

Figure 7

Broad Searching

It's important to start broad and progressively narrow your search. **When you start a search, don't read the documents too closely; just scan them.** You should be scanning them and recording any references that have any resemblance to the features of your invention. So, initially, we'll be using text searching to locate references having reasonably close classifications. To start, take a few of your keywords, and try searching **titles only**. Use only your primary keywords for now, and don't worry about your synonyms. As discussed previously, FPOL uses Boolean search logic, which is a language where keywords are connected by words

like "and", "or", "not". As seen in **Figure 8**, we've connected the keywords with the AND operator. This will force the search engine to return only references having both keywords in the **Title** of the reference. Remember, the title is a very short field. If nothing comes back, try moving the same search statement to the Abstract. If that produces nothing, then try moving the same search statement to Description.

In our initial query, FPOL returned several references, and some appear to relate to smoking cessation combined with timers.

Although the references don't appear to involve packages, we still add them to our list. Remember, we're looking for classifications right now and our initial mission is accomplished if we come up with classifications related to timers and smoking cessation. And if we find references that involve both smoking and timers, the classifications should relate to these concepts. Continue searching by adding different combinations of keywords to the Title and Abstract field. If the search engine returns thousands of references, then narrow the search by adding words from different keyword groups. If no references return, then move your keyword search to progressively larger fields such as the Abstract and then the Description. The description is a very large field, so keyword searching the description without classification will likely return many irrelevant references. Try to stick with Title and Abstract searching in the initial broad search phase.

The screenshot shows a search interface with two tabs: 'Expert Search' and 'Quick Search'. Below the tabs are 'Search' and 'Reset' buttons. The interface is divided into two sections: 'Number Fields' and 'Common Fields'. Under 'Number Fields', there are input boxes for 'Document Number' and 'Application Number'. Under 'Common Fields', there are input boxes for 'All', 'Title', 'Abstract', 'Claim(s)', and 'Description/Specification'. The 'Title' field is highlighted in yellow and contains the text 'smoking and timer'.

Figure 8

Initial References & Classifications		
Reference Number	All Listed Class/Subclass combinations	Moved?
4595905	340/309.7 , 131/238, 131/231, 340/527, 340/309.5	
6125082	368/10 ,221/15, 221/2, 221/255, 206/249, 221/88, 131/270	
6606997	131/270, 131/328	
6839305	368/109, 131/270, 368/10, 368/223, 368/278	
20060180165	131/270	

Figure 9

As references of interest turn up, add them to the **Initial References & Classifications** worksheet as shown below. Don't worry about finding exact match references and

don't perform in-depth analysis of references right now. If something looks relevant on the cover page (ie. Title, Abstract, and Front Page Figure), just write down the number and the classifications as shown in **Figure 9**. Continue this process until you have 7-10 references selected and loaded into the worksheet. Try to make sure that all of the Features of your invention are represented by at least 1-2 references. Leave the third column blank until you get to the next step. And again, do not read reference beyond Abstracts right now. Patent searching is a long process, and you can't afford to get bogged down with reading references in this initial phase.

Once you have 7-10 references jotted down in your worksheet, you can start the process of transferring the classification codes from the **Initial References & Classifications** worksheet to the **Classification Counting** worksheet. You will need the <http://www.uspto.gov/web/patents/classification/> site to properly transfer the codes.

Go to the first line of the **Initial References & Classifications** worksheet, and retrieve all of the subclasses. Make a new section in the **Classification Counting worksheet** for each main class represented. Then look up the codes at USPTO, and find the schedule name for each of the subclasses. Add the subclass code and schedule name in the appropriate field of the **Classification Counting worksheet**. Place one X in the far column to

Class Number 340 Class Name COMMUNICATIONS- ELECTRICAL		
Subclass Number	Subclass Name	Quantit
309.7	SYSTEMS/Timer Control/Reminder device with built-in timer	X
527	CONDITION RESPONSIVE INDICATING SYSTEM/With particular system function (e.g.; temperature compensation; calibration)/Time delay	X
309	or sequentially actua	

Figure 10

indicate that this subclass is on the list once. For StopSmoke, the first listed class/subclass is 340/309.7. So we added a 340 section, and then filled out the schedule on the first line as shown in **Figure 10**. Next, since 131/238 showed up, we added a 131 main section, and then retrieved the schedule name for subclass 238. Continue this process until all classification codes are moved to a **Classification Counting** worksheet. Be careful not to add multiple rows for the same code.

If a code appears twice, simply add another “X” to the third column. See, for example 131/270, shown in **Figure 11**, which has four “X” marks. This means that 131/270 has already developed dominance over the other classifications, which means that we’ve likely located a relevant subclass. This is the

Class Number 131 Class Name TOBACCO		
Subclass Number	Subclass Name	Quantity
238	TOBACCO USERS' APPLIANCE/With ash receiver/And devices for other use	X
231	TOBACCO USERS' APPLIANCE/With ash receiver	X
270	ANTI-SMOKING PRODUCT OR DEVICE; I.E.; DETERENT	XXXX

Figure 11

preliminary objective of patent searching. Remember, when you move the codes from the **Initial References & Classifications** to the **Classification Counting** sheet, you should indicate this by putting a “YES” in the Moved column of

Initial References & Classifications sheet, and an “X” in the Quantity column of the **Classification Counting** sheet. If you find the process of locating, and copying schedule names to be too tedious, feel free to use short hand. For example, in Figure 10 line 1, we might just write “reminder devices with timer”. This is good enough for our purposes, since the last line of the class schedule is normally enough to convey the concept.

And we are more interested in the Quantity column than the name column.

Since we are still in the broad search phase, the most important item to notice is the title of the main classes. With StopSmoke, we found

classes like Horology, Tobacco, Article Dispensing, and Special Receptacle. These topics represent all of the features of the StopSmoke invention. In the next step, we’ll search inside the main classes using the keywords. (We won’t start using the subclasses until the final step of searching.)

Class Number 368 Class Name : HOROLOGY: TIME MEASURING SYSTEMS OR DEVICES		
Subclass Number	Subclass Name	Quantity
10	COMBINED WITH DISPARATE DEVICE	XX
109	TIME INTERVAL/Electrical or electromechanical/For predetermined interval/Including alarm means	XX

Figure 12

Narrowing the Search

Now, we narrow the searching such that we hunt inside the main classifications. By doing this, we close down the possible result set from 10,000,000 to something more manageable, like 100,000. A hundred thousand is still a big chunk of data, but by adding keywords, we'll be able to get the queries down to a reasonable number. At this point we will use the same type of Boolean statements as before. But now, we'll replace keywords with classifications.

An example of keyword replacement is shown in **Figure 13**. Here we've put main class 131 (Tobacco) into the Current US classification field, and we have **not** put any words related to tobacco in the Abstract field. Since 131 relates to tobacco, it makes no sense to search for tobacco related references in this main class because everything in 131 will relate to tobacco. We continue to put keywords into fields like Title, Abstract and Description until we've located a few more references, and loaded them into the **Initial References & Classifications worksheet**.

All	<input type="text"/>
Title	<input type="text"/>
Abstract	(pack or container) and time
Claim(s)	<input type="text"/>
Description/Specification	<input type="text"/>
Date Fields	
Filing Date	<input type="text"/>
Publication Date	<input type="text"/>
Foreign Priority	<input type="text"/>
Classification	
Current US Classification	131

Figure 13

Next, we move to the other main classes, and search for the unrelated keywords. For example, as seen in **Figure 14**, we search for packages and smoking in the Horology class 368. Again, there's no need to search for timers in Horology, since all of the references in Horology should relate to time. Notice also that synonym groups are separated by the word "or" and have parenthesis around the group. When combined with other groups, the word "and" is between them. In the search shown, the word "pack" or the word "container" should appear along with the word "smoking" in the abstract. And since we're searching in 368, all of the results should relate to the concept of time.

All	<input type="text"/>
Title	<input type="text"/>
Abstract	(pack or container) and smokin
Claim(s)	<input type="text"/>
Description/Specification	<input type="text"/>
Date Fields	
Filing Date	<input type="text"/>
Publication Date	<input type="text"/>
Foreign Priority	<input type="text"/>
Classification	
Current US Classification	368

Figure 14

Try moving words around between Title and Abstract. If the server returns 0 hits, then move your words to abstract or try adding synonyms or move the words to the description. Also, if the server returns thousands of responses, then the search should be narrowed. You can narrow a search by adding word groups with the word “and” or by moving the existing words to a smaller field, like the Title. Other main classes can be addressed as well. For example, if we haven’t seen anything related to packages, we might search inside class 206 (Special Receptacles) for words like “smoking” combined with “timer”.

Remember to always add references to the **Initial References & Classifications** worksheet as shown.

Notice in

Figure 15 that

the new references are shown at the bottom. And since the classifications have not been moved to the next worksheet, the third column is left blank. Also, do **not** add

Initial References & Classifications		
Reference Number	All Listed Class/Subclass combinations	Moved?
4595905	340/309.7 , 131/238, 131/231, 340/527, 340/309.5	Yes
6125082	368/10 ,221/15, 221/2, 221/255, 206/249, 221/88, 131/270	Yes
6606997	131/270, 131/328	Yes
6839305	368/109, 131/270, 368/10, 368/223, 368/278	Yes
20060180165	131/270	Yes
20020170566	131/271, 131/270	
6693850	368/10 ,206/242, 206/86, 368/276	
5127543	221/97, 221/281, 221/266, 221/258, 221/151, 221/4	
5938017	206/256, 131/270, 206/276	

Figure 15

the same reference repeatedly if it continues to appear in your searching. Once you’ve completed some searching in all of the main classes that showed up during broad searching, you should start moving classifications to the **Classification Counting** worksheets in the same manner that you did previously. Be sure to watch for repeats. Don’t enter the same classification codes on different rows. Simply enter another “X” so that you’re running a tab on each classification. Once you’ve found another 10-20 references, try moving to narrow searching. Keep in mind, that you can’t hurt yourself by going backwards, and making the search broad again. It may be necessary to go backwards into broad searching if one of your features is not represented by a classification. Remember to continue entering the classification codes on your worksheets.

Narrowest Searching

Once you have 20-50 references in the **Initial References & Classifications** worksheet, and all of the classifications have been moved to the **Classification Counting** worksheet, then you'll likely have over 100-200 classifications. Look through your subclasses to find instances with the greatest number of X's in the right hand column, and isolate those classifications. In the StopSmoke example, 131/270, 221/15 and 70/273 were the winners. So now we'll start looking for references to add to the **Final References** worksheet by searching inside these subclasses.

Just as we did in the class based searching we only search for unrelated words inside each subclass. Since 131/270 relates to tobacco and quitting smoking, we don't need to search for "tobacco" or "quitting" here. We search here for packages combined with timers. See the example search in Figure 16. As another example, since classification 70/273 relates to both locks and timers, we could search for packages, tobacco and quitting in this classification. And since locks and timers will be inherent to references here, we have found a way of conducting a fairly narrow search. This is narrow because 70/273 only

All	
Title	
Abstract	(pack or container) and (time)
Claim(s)	
Description/Specification	
Date Fields	
Filing Date	
Publication Date	
Foreign Priority	
Classification	
Current US Classification	131/270

Figure 16

has about 160 references in it, so keyword searching will cause a very small number of references to return. In fact, you might even consider looking at the entire subclass by entering no keywords. It would only take about 10 minutes to read the titles of all 160 references to see if anything jumps out.

Final References

As references of interest show up, write down the reference number, Title and any comments you have. In the comments, try to note similarities and differences between the reference and the features of your invention. This will practice will keep you organized. In addition, it can give your patent agent

Final References		
Reference Number	Title	Comments
5203472	Timer Controlled Cigarette dispenser	This has the timer and it is a cigarette case, but it does not have the hinged closure.
6125082	Timed cigarette dispenser	This has the timer and it is a cigarette case, but it does not have the hinged closure. In addition, it has extraneous items, such as a LCD display

Figure 17

or attorney a head start in navigating your application around the references. Keep in mind, the patent attorney will be most concerned with **differentiation** over prior art references. Your invention may involve lots of details, but when the attorney writes, he or she will be making a case for differentiation over the prior art references.

Citation Searching

Fortunately, the final step is the easiest. Citations are the patent references considered to be relevant by the patent examiner who issued the patent. Citations are only listed on issued patents, and not on patent applications. (Recall that patents have 7-digit numbers, and patent applications have 11-digit numbers.) You can search for both forward and backward citations. The backward citations are shown on the face of each patent document, and the forward citations can be accessed with a simple search. The beauty of the forward and backward citation searching is that they are easy to perform, and they will uncover similar, or possibly even closer references. An example of the forward search is shown in Figure 18. Be sure to

References	
Domestic References	6125082 or 5203472
Foreign References	
Other References	

Figure 18

clear out your other search fields, such as the classification and the abstract before running the search. Load all of your final patent reference numbers in the above field, and separate each number with an **OR**. When the results are returned, add any close references to your **Final References** worksheet.

Conclusion

The above tutorial should assist in locating the correct search areas, and hopefully some close references. We still recommend using a professional searcher to finalize the search, and we recommend using an agent or an attorney for writing and filing an application.

Work Sheets



Invention Description	
Invention Title	
Witness Name	
Date of Conception	
Main Idea	
How It Works	
Size & Materials	
Problems Solved	
Unique Features	

Features & Benefits	

Keywords	
Keyword	Synonyms

Classification Counting

Class Number ____ Class
Name _____

Subclass Number	Subclass Name	Quantity

Class Number ____ Class
Name _____

Subclass Number	Subclass Name	Quantity

Class Number ____ Class
Name _____

Subclass Number	Subclass Name	Quantity

Final References		
Reference Number	Title	Comments