

Reading and Understanding Patent Claims

by John Dries

Patent claims are a series of sentence fragments which spell out in a logical and exact manner the structure of or actions performed by an invention. The claims define the precise legal boundaries of the monopoly the inventor is granted by the patent.

This of course makes being able to quickly read and understand patent claims vitally important to Engineers and Executives who need to insure that their own designs and new products are not in danger of infringing on existing patents.

In an area of art that is as crowded as appliances, this is particularly important. Just about any significant new design will need to be examined closely against the claims of existing patents in order to steer the project clear of trouble.

Fortunately, being able to quickly read and understand patent claims is a skill that most Engineers and Executives can become quite proficient at with some basic knowledge and practice. The very technical and precise manner in which claims are written and which make them so difficult to read and understand for the novice actually make them quite clear for someone with the proper knowledge and practice at reading them.

Broad vs. Narrow Claims

Patents are divided into two main sections, the specification and the claims. The specification can be thought of as the part of the patent that helps society benefit from the invention by making as much useful information about the invention clear and readily available to the public. The claims can be thought of as the part of the patent that primarily benefits the patent owner because their main purpose is to precisely define the essence of the invention in a compact and precise manner, thereby laying out the scope of the monopoly granted.

The claims in a patent are always narrower than the full information provided in the specification. For instance, an in-force patent for a hypothetical invention of a microwave oven that uses active noise cancellation would have a specification portion that went into great detail about how to build a microwave oven incorporating an active noise cancellation system and would include information such as microphone placements, rough part design, and everything someone with ordinary skill in designing microwave ovens and noise control would need in order build and make use of the invention.

An Engineer who is working on a design of his or her own for a microwave oven utilizing active noise cancellation might be very discouraged upon reading this in-force patent because the specification may describe pretty closely the design he or she had been planning on using. This may or may not turn out to be a problem depending on how broad or narrow the claims are. The broad information in the specification may indeed block the engineer from getting a patent on their new design, but if the claims of the existing patent are relatively narrow (which is often the case in an area of crowded art

like appliances) the new design could most likely proceed without infringing. The engineer could even stand a good chance of being awarded a narrow patent covering the unique aspects of their own approach to the design problem.

For example, after reading the claims it may turn out that the essence of the existing invention is the novel and nonobvious way in which the microphone is attached to the structure. Even though most of the new design is anticipated by the specification of the existing patent, the claims which define the actual monopoly granted to the patent owner only state the unique way of attaching the microphone as the invention. Therefore, as long as the new design does not use the same method of microphone attachment the new design will not infringe the in-force patent.

This also highlights the difference between strong patents that provide broad monopolies and weaker patents that provide much narrower monopolies. If the claims in the in-force patent had stated that the invention was simply a microwave oven incorporating a means of active noise cancellation (the original patent examiner would however most likely reject such a breathtakingly broad claim under section 103 as being obvious) then that would have been an extremely strong and valuable patent. It would block anyone from using active noise cancellation with a microwave oven until the patent expired. Such broad patents are relatively rare in appliances. Upon examining the claims closely it is often discovered that the actual invention is much narrower in scope and a new design can do without or design around the invention described by the claims of the previous patent.

If the patent is expired, any part of the previous invention can be incorporated into the new design. The new design, however, will not be able to gain a patent of its own on anything disclosed by the specification or claims of the old patent (expired patents still work as defensive weapons).

Infringing a Claim

If the language of the claim is properly understood, the process of checking for infringement of a new design against that claim is pretty straight forward. For a new design to infringe on a claim the new device must have at least all of the elements of the claim in question. That is, if it has all of the elements recited in the claim the new design will infringe. If it has all the elements recited in the claim and more it will still infringe the claim, but if the new design has less than all the elements recited in the claim it will not infringe.

A common misconception about claims is that ones which recite a large number of elements are somehow better or broader than short, simple claims which recite few elements. The actual case is that the fewer elements a claim recites, the broader that claim will be.

A design engineer working on a new device in an area of crowded art usually has little to fear from a claim which goes on and on (some can be almost a page long), but beware of the simple claims that are only a couple of lines long.

The Rules Governing the Writing of Claims

Claims are written following a series of precise rules. One of the reasons for this is to make sure that all the claims are written in the same way, making it easier for the patent examiners and judges to compare the claims of competing inventions and to insure that only the bare essence of the invention is conveyed by the claims. Because of these rules and the way in which claims are written, it can be difficult for a novice to understand them. It has been said that claims are not written to be easy to understand, they are written so that they are difficult to misunderstand.

The best way to understand how to read and interpret patent claims is to examine some of the most important rules describing how they should be written and then look at some specific examples.

The legal requirements for claims are laid out in statute 35 USC section 112 and in the PTO's Rules of Practice. Some of the more important rules and requirements for writing claims are shown below with further comments in parentheses below the requirement unless it is completely self evident.

From 35 USC Section 112:

- A.) The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter the applicant regards as the applicant's invention.
(This is the rule that requires there be claims in patents and that they specifically point out what the invention is, over the prior art.)
- B.) A claim may be written in independent or, if the nature of the case admits, dependent form.
- C.) Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitation of the claim to which it refers.
- D.) A claim in multiple dependent form shall contain a reference, in the alternative only, to more than one claim previously set forth and then specify a further limitation of the subject matter claimed. A multiple dependent claim shall not serve as a basis for any other multiple dependent claim. A multiple dependent claim shall be construed to incorporate by reference all the limitations of the particular claim in relation to which it is being considered.

(Requirements B, C and D define what a dependant claim is and the important concept that dependent claims incorporate all of the limitation of the claim(s) on which they are based.)

- E.) An element in a claim for a combination may be expressed as a means or step for performing a specific function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

(This means that a claim that uses the concept of a means of accomplishing some function is also to be interpreted as covering the corresponding structure which is described in the specification. For example, if a claim states that the invention includes, “a means for extracting water vapor” and the specification describes the use of an axial blower for extracting water vapor, then the claim should be interpreted as covering the structure for the axial blower described in the specification.)

From the PTO’s “Rules of Practice:

- F.) More than one claim may be presented provided they differ substantially from each other and are not unduly multiplied...

(The first part of this rule is usually very loosely enforced. Many claims are quite similar to one another and still pass muster with the patent examiner. The second part of the rule about claims not being unduly multiplied is however enforced, with 3 being the normal limit for independent claims and 20 for all claims. It is possible to have additional claims but a fee must be paid for each independent claim over three and each claim over 20, and the patent examiner will still frown on the practice.)

- G.) The claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support of an antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description...

(The intent of this requirement is often restated in plainer language as: “the specification should serve as a dictionary for the claims”.)

- H.) Where the nature of the case admits, as in the case of an improvement, any independent claim should contain, in the following order:
- (1) a preamble comprising a general description of all the elements or steps of the claimed combination that are conventional or known,
 - (2) a phrase such as “wherein the improvement comprises,” and
 - (3) those elements, steps, and/or relationship that constitutes that portion of the claimed combination that the applicant considers as the new or improved portion.

(This requirement sets forth the so called “Jepson” style of drafting a claim. This style is intended to be easier to read and understand by isolating the actual invention from what is already known in the prior art. In the first part the

preamble, sets forth what is already known in the prior art and the second part, after the “wherein the improvement comprises” phrase describes the essence of the invention. Unfortunately this rule is not always enforced.)

- I.) The least restrictive claim should be presented as claim number 1, and all dependent claims should be grouped together with the claim or claims to which they refer to the extent practicable.
- J.) Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation.

Further Information About How Modern Claims are Written

In addition to the rules and statutes governing the writing of claims there is further information about how patents tend to be written in actual practice which will be very useful in helping to read and understand claims.

Because there are five statutory classes of inventions there are also five types of claims:

- 1.) Method or process claims.
- 2.) Machine or apparatus claims.
- 3.) Articles of manufacture claims.
- 4.) Composition of the matter claims.
- 5.) New use claims.

In new appliance design the Machine and Method claims are by far the most common, often with one of each type being used in the same patent to describe the same invention but in a slightly different manner.

Machine claims recite a series of hardware components with each element being further defined as operatively connected to one another. A process claim recites a series of steps or actions rather than hardware. The steps of the method claim are in the sequence they would need to be performed in order to accomplish the result of the invention.

Many patent attorneys will write multiple independent claims in order to get as much overlapping coverage for the invention as possible. Even though rule “F” from above states that the claims must differ substantially from one another, that rule is usually ignored. It is common in a patent to have three independent claims: one is a machine claim, the second being an independent machine claim worded slightly differently than the first and utilizing a “means” plus a specific function in place of the specific hardware components used in the first independent machine claim. The third being an independent method claim which will recite the steps the invention accomplishes instead of the components. Understanding this makes reading and interpreting the claims much easier.

In general, as required by rule “H”, each independent claim in a patent will start with a title or preamble which states what the invention is. The preamble is usually not

considered to be a limiting constraint on the invention. The limiting constraints appear later in the body of the claim.

At the end of the preamble there is a “transitional” word or phrase. The transitional word or phrase is usually separated from the preamble by a comma. There are basically three transitional phrases:

1.) “comprising” or “which comprises”

This is known as an open term. Using an open transitional word or phrase is a condensed way of saying “including the following elements but not excluding others”. Open terms are used to allow the claim to recite the minimum number of elements that will function but to still cover the invention as broadly as possible.

2.) “consisting of”

This is known as a closed term. For example, the combination A + B does not cover the combination A + B + C. Closed transitional phrases are usually found in chemical composition patents and are not usually encountered in appliance work.

3.) “consisting essentially of”

This is a combination of a closed and open transitional phrase. This is also mainly found in chemical composition patents.

The transitional phrase is then usually separated from the body of the claim by a colon.

The next section is the body which lists the elements or steps of the invention. It is in the body that the invention is particularly claimed. For a machine invention, for example, the body lists the parts of the machine in logical order so as to recite the mechanical interrelationship of the parts of the machine. A method claim will list the method steps in the general order in which they would be carried out by the invention. Each of the elements of the invention in the body of the claim are usually in separate paragraphs, which are set apart from each other by semi-colons.

At the end of the claim there can be a “whereby” section which is intended to make the benefit of the invention more clear to an examiner or judge, but does not help define the scope of monopoly and is therefore not required.

Another unusual characteristic of claims writing is the very precise use of the antecedents, “a”, “the” and “said”. The first time an element is recited in a claim the indefinite article “a” is used to introduce it. If the element is referred to later in the claim in exactly the same way the very definite article “said” is used. If the element is referred to again except with slightly different wording the definite article “the” is used.

The following example of a claim from a patent for a syringe with a needle safety device shows the generally accepted structure, punctuation and use of antecedents.

What is claimed is:

1. *A safety needle device, comprising:
a barrel having an inside surface defining a chamber, an open proximal end, a distal end having a needle cannula attached thereto, said needle cannula having a lumen therethrough in fluid communication with said chamber, the needle projecting distally outwardly from said distal end of said barrel and terminating in a distal tip;
a safety shield mounted on said barrel for movement relative to said barrel from a retracted position in which said safety shield does not materially obstruct access to said distal tip of said needle cannula and an extended position in which said safety shield obstructs access to said distal tip;
means for repeatedly latching and unlatching said safety shield in said extended position;
whereby said safety shield may be conveniently and repeatedly engaged and disengaged by a healthcare worker in order to prevent or allow access to said distal tip of said needle cannula as required by a given medical procedure.*

Taking a look at this claim it can be seen that the preamble of this independent claim is “*A safety needle device*”. The preamble is then separated from the open transitional word “*comprising*” by a comma. The transitional word then being separated from the body by a colon.

The first element recited in the body is “*a barrel*” which because this is the first time it is recited in the claim it is introduced by the indefinite article “*a*”. Notice that the second time the element “*barrel*” is mentioned it is introduced by the definite article “*said*”.

The third element recited in the body is a means followed by function. Remember that the structure for this means must be defined in the specification in order for this claim to be valid.

In this example the claim concludes with a “*whereby*” statement which is intended to make it more clear to the examiner or judge the function and benefit of the invention.

So, to restate this claim in plainer English, it defines an invention for a syringe with a sliding safety shield which can be repeatedly extended over the needle, latched in place and then retracted again. The body of the claim recites three elements:

A.) A syringe body with a needle protruding from the closed end;

B.) A safety shield which slides over the body of the syringe and can protect the user from the sharp end of the needle when extended, and can be placed in a retracted position where the needle can then be used.

C.) A means for latching and unlatching the shield in the extended position. The structure of this means is defined in the specification.

Although this claim may appear a bit confusing at first glance, after learning how claims are commonly structured and with some practice reading them the important elements of this claim be very quickly and precisely identified. An engineer working on his or her own safety syringe which incorporates a safety shield that rotated into place, or locked permanently into place would know right away that they would be in no danger of infringing on this claim of this patent.

Conclusion

Because of the great number of existing appliance patents it is important for Engineers and Executives who introduce new products or improve existing ones to be well acquainted with the patents in the same field of art. Being able to quickly read and understand the patent claims of existing patents will not only speed the review of the existing patents but will greatly lessen the possibility of infringement, help the engineer recognize patentable aspects of their own designs, and by virtue of learning lessons from the prior art, result in better product designs. Fortunately, with some basic knowledge of the patent process and claims writing, and use of the patent offices' online patent database these goals have never been more attainable.