Brown & Michaels

Pitfalls and Traps in Claim Drafting, or "So you want to write your own patent?"

First, we have to give the usual disclaimers - imagine a banner is appearing across your monitor, saying *"Professional Patent Attorney on Closed Course - Kids, don't try this at home."*

In other words, writing patent claims is really a job for a professional patent attorney or agent. We strongly urge you not to write final claims, but rather to prepare the best outline of your invention you can, and let a professional write the actual claims. **If you must write claims, then at least have a professional (preferably one at Brown & Michaels) review them before you file.** The money you spend then will save you thousands later on, and might save you from having a patent declared invalid later on (or discovering that what you thought was a very broad patent was, in fact, very narrow).

That said, let's proceed with the "the Top Ten Beginner's Mistakes in Patent Drafting".

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10. Basic claim structure mistakes - violations of claim grammar

Of course, claims should be proofread for all of the grammatical rules you learned in elementary school - correct spelling, agreement of subject and verb, singulars and plurals, etc. This pitfall refers to the special rules of *claim grammar* - the legal and customary requirements of claim structure itself.

- A claim is a sentence. It must start with a capital letter, and end with a period - and those must be the *only* capital letters or periods in the claim.

Right: 1. A widget comprising a power supply, a headlamp and a flasher connecting the power supply and the headlamp.

Wrong: 1. A widget. The widget has a Power Supply and a Headlamp. A Flasher connects the power supply and headlamp. *This is three sentences, not one, and there are extraneous capital letters.*

- It is best to break the claim up into outline subsections, if at all possible. The subsections may be identified with outline letters or numbers, and usually end with semicolons. The next to last element usually has "and" at the end. Use indenting to show the levels of the outline sections.

Right:

1. A widget comprising:

a) a power supply;

b) a headlamp; and

c) a flasher connecting the power supply and the headlamp.

Wrong: (periods after sections, also periods after outline letters, misuse of "and")

1. A widget comprising:

a. a power supply.

b. and a headlamp.

c. and a flasher connecting the power supply and the headlamp.

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9. Choice of connecting words: "Comprising" vs. "consisting of" or "having"

"Connecting words" or "transition words" are the words which go between an element in a claim and the list of things which make up the element. Each has its own special meaning, and you can severely limit your claim by the choice of the wrong word.

- "comprising" or "comprises" ("open" language) - the device has at least the list of things which follow "comprising", but might have other things also. This is the preferred transitional word for most situations.
- "including", "containing" or "characterized by" are equivalent to "comprising", but are not recommended in US patent practice.

1. An improved windshield washer fluid comprising water, soap and acetic acid.

This claim would cover washer fluid with these ingredients, and anything else you cared to mix with it - coloring, alcohol to keep it from freezing, perfume to make it smell, whatever.

- "consisting of" ("closed" transition language) - the device would have *the following list of elements and nothing else*. In a chemical claim, the claimed compound has only the listed components, and no others. An accused product, method, or chemical which has additional components will not infringe.

1. An improved windshield washer fluid consisting of water, soap and acetic acid.

This claim would cover washer fluid with only these ingredients - add alcohol, and it does not infringe.

- "consisting essentially of" - the device has the following list, and possibly some unimportant other things which do not materially effect the basic and novel characteristics of the invention. This is normally only used in chemical claims, where what you mean is that there might be traces of other chemicals, but mostly the substance is made up of the recited list. Unless you really mean this limitation, it is best not to use this transitional phrase.

1. An improved windshield washer fluid consisting essentially of water, soap and acetic acid.

The scope of this claim is not really clear. It would cover washer fluid with only these ingredients, plus unimportant additives - the perfume, perhaps. Add alcohol, and it probably does not infringe, since that might change the basic characteristics of the fluid.

- "having", "composed of", - it is best not to use these transitional words or phrases, as their meaning is not clear. The USPTO rules say they "must be interpreted in light of the specification". The Examiner (and a court) may interpret them as open or closed - you won't know until it is too late.

1. An improved windshield washer fluid having water, soap and acetic acid.

It is impossible to say what this claim covers, without analyzing the entire patent application - did the specification indicate any other ingredients were possible or desirable? Were these the only ingredients ever mentioned?

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8. Inconsistent terminology

We all learned in Junior High not to use the same word over and over again when we're writing. When you are writing claims *forget this rule!* Always use the same word to refer to the same thing. Use of alternative words or synonyms might please a literary critic, but a patent examiner or court will take it as implying that you meant different things by the different words. In patent work a foolish consistency is *not* the hobgoblin of small minds (with apologies to Emerson).

Right:

1. A chainsaw comprising a bar, a motor driving a sprocket having a plurality of teeth, and a chain, the bar being mounted to the motor, the chain being wrapped around the bar and having teeth meshing with the teeth of the sprocket, such that the motor drives the chain around the bar.

Wrong:

1. A chainsaw comprising a bar, a motor driving a sprocket having a plurality of teeth, and a chain, the chain support being mounted to the engine, the cutter being wrapped around the chain guide and having tangs meshing with the protrusions of the gear, such that the power source drives the knives around the slots.

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7. Claiming a result

This is a difficult concept for most inventors to grasp, but it is very important. You may have had the result in mind when you made the invention, but it's the invention on which you get the patent, not the result.

That is to say, you cannot claim a result. You can only claim an apparatus or method which accomplishes the result.

For example: You have had a problem removing the lug nuts from automobile wheels. You discover that if you smear a mixture of axle grease and graphite on the threads before you put the nuts on, they're easier to take off the next time.

You *cannot* claim:

1. An anti-seize mixture which allows lug nuts to be removed without seizing.

or

1. A method of removing lug nuts more easily than before.

You *can* claim:

1. An anti-seize mixture comprising axle grease and graphite.

or

1. A method of preventing nuts from seizing to the threads of wheel lugs comprising the steps of removing the nuts, smearing a mixture of axle grease and graphite to the threads, and threading the nuts onto the threads.

If you need to mention the result to make the novelty or application clearer, you do it by defining the invention first, perhaps defining the application in the claim preamble, then saying "such that..." or "wherein..." and giving the result, defined in terms of the invention.

1. An anti-seize mixture for application to the threads of wheel lugs, comprising axle grease and graphite, such that when the mixture is applied to the threads, nuts are prevented from seizing to the threads.

Use this approach sparingly, however. If the mixture were novel, in and of itself, it is much better simply to claim the mixture and omit the "such that" clause entirely.

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6. Too little detail in claims

Don't leave anything out of a claim which is necessary to distinguish the claim from the prior art.

Basically, you should ask yourself, "have I included in the broadest claim every part of my invention which makes my invention new, as compared with what went before"?

This is a bit of a tightrope walk, because you also do not want to include anything in the broadest claim which is not necessary (see the next section).

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5. Too much detail in claims, claiming elements too specifically, overuse of adjectives

Look at every single word in the claim and ask, "is this really necessary to describe my invention in its broadest sense?" If the answer is, "no", drop it. If the answer is "no, but the invention works better with this element or limitation", put it in a dependent claim.

Remember that under the "all elements rule", in order to infringe a patent a product has to include every element (item or limitation) in at least one claim. Therefore, every element you put in your broadest claim is one more opportunity for an infringer to escape liability by leaving it out.

a. Too Much Detail - claiming outside of the invention

Be particularly sensitive to elements which are included because the *device* needs them, rather than the *invention*. For example, suppose your invention is an improved spring for an automobile suspension, in which the novelty is that the spring is made of reticulated turbonium (an imaginary substance having superior qualities). Certainly the car needs tires, and the spring needs to attach to a frame, but you would not want to positively claim the tires or the frame in the broadest claim.

Wrong:

1. An automotive suspension, comprising two axles, two wheels on each axle, a tire on each wheel, a frame, and four springs made of reticulated turbonium, each spring being mounted to the frame and to an axle.

Right:

1. A spring for an automobile suspension, made of reticulated turbonium.

Note: sometimes you may want to include claims to a larger assembly including the invention, so as to possibly have a larger base on which to calculate royalties. The first claim above might be worth including for this purpose, but not as the broadest claim.

Omit standard environmental parts - cases, covers, frames, batteries or power supplies, on/off switches, indicator lights or readouts (unless essential to the novelty), feet or mounting brackets, wheels, etc.

b. Too Much Detail - claiming inside the invention

Avoid positively claiming conventional elements which are part of the invention, where the "person having ordinary skill in the art" would be able to instinctively insert the element, even if it is unstated.

For example, avoid claiming fasteners, hinges, latches, nuts, bolts, screws, glue, etc. Incorporate these minor elements, if you must, through the linking words between the necessary claim elements.

Wrong:

1. A medicine cabinet, comprising: a box, a mirror, and two hinges connected to the mirror and the box.
2. A box having four sides and a bottom attached to the four sides with two-part epoxy glue.

Right:

1. A medicine cabinet comprising a box, and a mirror pivotally connected to the box.
2. A box having four sides attached to a bottom.

c. Claiming elements too specifically, overuse of adjectives

Resist the temptation to overdescribe, unless the specificity is essential to the patentability of the invention.

Wrong:

1. A widget comprising a cylindrical shaft gronkheiser and two polypropylene portoflan armatures connected to the gronkheiser by number four Fahnstock clips.

Right:

1. A widget comprising a plurality of portoflan armatures connected to a gronkheiser.

Note: Only indicate how many of an element you need if you really need that number, and no other. Otherwise, use "at least one..." (that is, one or more) or "a plurality of..." (which means two or more).

Of course, any detail you removed as a result of this analysis might be a good candidate for claiming in a dependent claim.

2. The widget of claim 1 in which the portoflan armature is made of polypropylene.

3. The widget of claim 1 in which the gronkheiser is a cylindrical shaft gronkheiser.

4. The widget of claim 1, further comprising a plurality of Fahnstock clips connecting the gronkheiser to the portoflan armatures.

Be suspicious of any adjective in a claim - must a shaft be "cylindrical", or would a square or flat one work? Sure, the hinge you're using is rectangular, but there are lots of very nice looking bat-wing hinges which would work as well.

Is there a generic term for the word - "plastic" instead of "polyethelene", "metal" in place of "aluminum", "fastener" in place of "screw", etc.? If the metal must be steel, must it be "stainless steel", or would just "steel" work?

Can you claim the element in terms of its properties rather than its composition? For example, "resilient material" in place of "rubber", or "non-conductive spacer" instead of "nylon rod", and so on.

Try not to use specific numbers in claims, if at all possible, or claim a range or minimum/maximum instead of a number. For example, if all you need is a saline solution, say so, not "2% saline". If your preferred embodiment uses 10% sodium, but the invention will work with 2%-20%, use the range in the broad claim and the specific number in a dependent claim (but be sure there is wording in the specification to back up any numbers or ranges you use). If a given chemical is present in concentrations of "0-10%", this really means you don't need it at all (because a concentration of 0% means "none"), so move it to a dependent claim.

Avoid relative terms, unless absolutely necessary. Even if the Examiner will allow you to get away with them (many won't), they add an element of uncertainty to the claim. What

is "large" to you might be "small" to someone else. How many is "many", how few is "few"? How close is "close"?

Never use "larger", "smaller", "heavier", etc., unless you are specifically comparing two elements in the claim. That is, it's OK to claim "... a first flange, a second flange smaller than the first flange ...", but not "A camera having a lens with a filter ring, in which the filter ring is smaller."

Unless your invention must always be built and used in a specific orientation, avoid absolute positions - "above", "below", "right", "left". One recent case turned on whether it really mattered if a claim element which was claimed as "below" another element really had to be below, or if it could be above it. Needless to say, it's hard to argue that "below" means "above", and the patentee lost. Generally, saying one element is "adjacent" to another will work in most cases. In fact, don't list position at all if you don't have to - just say how the elements relate, not how they're located.

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4. Dependent claims which broaden or contradict independent claims

The function of a dependent claim is to narrow the claim upon which it depends. Therefore, be sure that all dependent claims introduce *additional restrictions* or add *additional elements* or *define terms in a narrowing way* from their parent claims.

Example: Assume the main claim is:

1. A widget comprising at least three gronkheisers, a portoflan armature having a length of 3-5 meters coupled to the three gronkheisers, and a nylon webbing surrounding the gronkheisers.

The dependent claims are:

2. The widget of claim 1, in which there are two gronkheisers. *Wrong - the main claim says there have to be at least three gronkheisers, so two is broader.*

3. The widget of claim 1, in which the nylon webbing is plastic. *Wrong - "plastic" is a generic term for the specific "nylon" - these two claims should be swapped, with "plastic" in claim 1, and "nylon" in claim 3*

4. The widget of claim 1, in which there is no webbing. *Wrong - dependent claims must add elements. not remove them. This claim would be broader than claim 1, since it would define a widget with only four elements instead of five.*

5.The widget of claim 1, in which the length of the portoflan armature is 9 meters. *Wrong - claim 1 said the length is between three and five meters, and 9 meters is more than five, so no armature could fit into both this claim and its parent.*

6. The widget of claim 1, in which there is a mounting bracket in place of the webbing. *Wrong - you can't substitute elements this way. You should pick a generic term which encompasses both options, and make each a dependent claim, instead.*

7. The widget of claim 5, in which the mounting bracket is 1 meter in length. *Wrong - there is no mounting bracket in claim 5, it's added by claim 6. This claim should be dependent on claim 6, or be changed to read "further comprising a mounting bracket 1 meter in length" so that it both adds and defines the bracket.*

8. The widget of claim 1, further comprising a mounting bracket attached to the webbing. *Right - this adds an element, so it is narrower than claim 1.*

9. The widget of claim 1, in which the portoflan armature is made of ferrous metal. *Right - this further narrows the construction of the armature.*

10. The widget of claim 1, in which the length of the portoflan armature is between 3.5 and 4 meters. *Right - this range narrows the range in the main claim. BUT - be sure that somewhere in the specification it says that 3.5-5 meters is preferred, or explains why this range has significance.*

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3. Not claiming the invention

This should be fairly simple, but it is amazing how often claims miss the point entirely. Don't get so carried away by the art of writing claims that you lose sight of the goal - describing your invention.

Is the invention a method, but you've written apparatus-type claims, or vice versa?

Have you spent so much time defining how each of the parts of the device interconnects, that you have forgotten to claim the reason for the interconnection?

For example, your invention might be using a spool valve in a particular way to control an automatic transmission - say, when you push the spool valve all the way in, it shifts the transmission into Park. You might write a very involved claim, something like:

1. A control system for an automatic transmission, comprising:

a spool valve having a spool and a sleeve, the spool having four lands ... (etc.) ... the sleeve having five ports, the first port located ...

the spool having a first position, a second position ...

a first passage connecting the first port of the sleeve to... (something in the transmission)

a second passage connecting the second port of the sleeve to ... (something else)

... and so on defining all the passages...

That's all fine, but in the end, you might discover you had been so wrapped up in describing all the lands on the spool valve and the passages between them, that you forgot to see if all of this structure really accomplishes the invention. Is there anything in the claim which says that when the valve is moved to one end, the transmission shifts into Park? If not, you've missed the point.

It would have been much better claiming:

1. A control system for an automatic transmission comprising a spool valve having a spool and a sleeve, the valve being coupled to a supply of fluid and at least a transmission park input which shifts the transmission into Park, wherein when the spool is moved to an end of travel in the sleeve, hydraulic fluid is routed to the park input, shifting the transmission into Park.

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2. Claiming too broadly, so that claims read on known prior art

You want your claims to be as broad as possible, but not *too* broad. You don't want the claim to be so broad that it applies to other devices or methods which are old (prior art).

If your invention is an improved monkey wrench using a rack-and-pinion arrangement to adjust the jaws, be sure that is what the claim says. It might seem broader in the short run to claim "a rack and pinion", instead of "a monkey wrench comprising a movable jaw with a rack, and a rotatable pinion gear engaging the rack," but that would be counterproductive.

Your invention really isn't a rack and pinion, as such. Rack and pinion gear sets have been known for many decades. By claiming the invention in that way, you have asked for broader claims than you are entitled to. The Examiner will almost certainly cite automotive steering against your invention, and he would be right. Claiming a wrench using the rack and pinion would have properly narrowed the field of search to tools, and the claim would have been allowable.

In this example, you would be too broad if you left out the word "pinion" -"a monkey wrench comprising a movable jaw with a rack, and a rotatable gear engaging the rack". Monkey wrenches with worm gears were known before your invention, so you need the narrowing word "pinion" to make your wrench patentable.

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1. Not seeing past the preferred embodiment

It is tempting to take your invention as it presently exists, and describe every element in extreme detail - as a proud inventor, you spent lots of time polishing your invention, and making sure it was just as good as it could be. It took you months or years of trial and error to figure out that the portoflan armature works best if it's made of polypropylene instead of bakelite (or the even more generic "plastic"), or that the cheapest fastener is a number four Fahnstock clip, or that two armatures are better than one or three, so you really want to say these things in the broadest claim. That invention is your baby, and it just couldn't be improved upon. Any variation would just not be worth considering... *BUT*... When you're writing your claims you have to see beyond the perfected prototype you have sitting in your garage, to make sure that the patent you will eventually get will not be easily evaded.

For every element, you need to ask yourself, "How could this be changed, and it would still be my invention?" Think "changed" rather than "improved" - for an infringer may well choose to do something less well to avoid your patent claims. Push the limits - how big a change could you make to each element, before you would look at the result and say, "that is no longer my invention, I don't care if someone else makes that."

For example, suppose you invented a new lathe with an improved jaw design.

- The best way to build your invention would have adjustable legs, so that you could easily level the lathe and set it at any height. What if your competitor built it with fixed-length legs? Sure, that wouldn't be as good - but would it still be your invention? Yes, it would - the legs don't really affect the novelty of the invention, and you can always put a book under the short leg. Therefore, your broadest claim shouldn't include the adjustable legs. Put them in dependent claims.
- Your prototype has a motor with a geared transmission to vary speed - could you do the same thing with a belt drive and selectable pulleys? With electronic speed control? Just claim a "variable speed motor drive", and put the variations in dependent claims.
- Your design was made for chair legs, so the jaws have a range of one to three inches - would the lathe work if it were scaled up for fenceposts or down for clockworks? Probably. Don't claim dimensions unless they're essential.
- For that matter, does the fact that you made the lathe for chair legs matter? Probably not. Don't claim "A lathe for turning chair legs..." when just "A lathe..." will do.

There is a good reason this is the Number One Mistake - more than any other, this is why so many self-prepared patents are much narrower than they need to be. This is one of the best reasons for having a patent attorney review your claims at the very least - better yet, to have a patent attorney write them in the first place. Your attorney will not have the same attachment to your baby as you will, and he or she will be able to take a fresh look at the invention and say, "what if we did this...?"

And a few bonus points...

- **Don't use Trademarks in claims**

Always use generic descriptions rather than trademarks in claims. A trademark is a manufacturer's indication that a particular product is his, not a description of the product. Therefore, you don't want to refer to an element in your claim by its trademark name because:

1. The composition of a product made under a given trademark may change over time - remember "New Coke®"? Today's Kodachrome® film bears little resemblance to the Kodachrome® of the 1960's, and the same is true of many products, while the generic description would remain the same. If your claims depend upon a particular formulation of a product, you're better off specifying it by description, rather than run the risk of having your claim become inoperable by an unpredictable change by the trademark owner. Many Examiners object to the use of trademarks in claims for just this reason.
2. Your patent will live for twenty years from your filing date. During that time a company might go out of business, or change the name of the product, or the original manufacturer might abandon the mark and another pick it up for a completely different product. In such a case, your claim would become essentially meaningless - an infringer might not be able to figure out what "Xardoz®" was fifteen years ago, or might be misled into believing it is something completely different because someone else is making something unrelated today.
3. Others may make the same product under different names - do you want to give your competitor an opening to argue he's not using Velcro®, but Hammerloc® or GripIt® or the generic "hook-and-loop fastener material"? Sure, the argument could be made (and might win) that the terms are all equivalent products, but why offer the opportunity?

Our website has more information on trademarks here.

- **Keep claims directed to different invention types (method, apparatus) separate**

It is possible to write claims which are a mixture of method and apparatus:

10. A widget made by the method of claim 1.

11. A method of using the widget of claim 10, comprising the steps of...

Many Examiners will not accept mixed apparatus and method claims, others will. It's best not to confuse things.

Note: in the 2007 rules changes, which would have become effective November 1, 2007, the USPTO changed the rules to explicitly state that claims of this kind are to be considered independent claims, rather than dependent claims. Thus, the inclusion of this kind of claim would have put you over the three independent claim limit (for the purposes of filing fees). These rules were rescinded on October 8, 2009. Nonetheless, clearly the USPTO does not like this sort of claim and intends to do something about them at some point. It's best to avoid them.

- **Claim elements in a product or apparatus claim must be *things*. Claim elements in a method claim must be *steps*. Don't mix them up.**

This is best explained by bad examples. The following are **wrong**:

1. *(mix of things and step)* A widget comprising:

a portoflan armature; *(thing)*

a gronkheiser containing methylene blue;*(thing)*

threading the portoflan armature and inserting it into the gronkheiser; *(step)*

spreading the methylene blue through the portoflan armature. *(step)*

2. *(apparatus claim described as method)* A method of spreading methlyene blue comprising:

a portoflan armature;*(thing)*

a gronkheiser containing methylene blue; *(thing)*

wherein the methylene blue is spread through the portoflan armature. *(result of using the thing)*

These claims would be acceptable:

1. *(apparatus claim)* A widget comprising:

a portoflan armature;

a gronkheiser containing methylene blue, threaded to the portoflan armature;

wherein the methylene blue passes through the portoflan armature for dispensing.

2. *(method claim)* A method of spreading methlyene blue comprising the steps of:

threading a portoflan armature onto a gronkheiser;

filling the gronkheiser with methylene blue;

spreading the methylene blue through the portoflan armature.

- **Use of "means plus function..." language**

The patent law (section 112, sixth paragraph) specifically permits you to describe an element in a claim not in terms of its structure, but in terms of what it does:

An element in a claim for a combination may be expressed as a means or step for performing a specified 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 is called "means plus function" (or "step plus function", in method claims). Once upon a time, we patent attorneys liked "means plus function" language in claims because it seemed to allow us to claim all possible variations on an element without having to come up with some generic word or think of every variation and name it separately. For example, you could claim "a power supply", but would that cover a battery? If you called it "means for supplying electrical power", then that seemed to cover both (and a solar panel, steam-powered generator, and so on).

Then, after everyone spent many years of writing everything in "means plus function" form, a court changed the rules - it said that a "means plus function" element covers *only those means which were described or shown in the patent.* In most cases, you wouldn't have bothered to explicitly show the power supply, battery, solar panel, etc., so that very broad "means plus function" now meant only those means you specifically called out - maybe the power supply and battery, but not the solar cell or steam generator. "Means plus function" went from broad to narrow, overnight.

Now, it is best to avoid "means plus function" language if at all possible. If you do use it, be sure to list every possible variation on the "means" in the specification, and maybe include one or more dependent claims listing them, too.

- **Words to avoid:**
  - "predetermined" - this implies that the quantity is determined before you start the method. What if it can be calculated "on the fly?" What if it can be just picked randomly? If you must use an adjective at all, use "selected" or "calculated".
  - "exactly" - how exact is "exact"? Don't give an infringer room to wiggle if his element is very slightly different.
  - "adapted to" - this is used in claims, but often it is objected to by examiners, for good reason. Just how is the element "adapted" to perform the function? Maybe it would be better to spell that out instead, or leave out the function from the claim. Phrases such as "can be used for", or "could be" or "might be" or "is made to" have the same problem.

    - "eliminate" and similar absolute statements - for example, "the widget being mounted so as to eliminate vibration." What if an infringer doesn't quite "eliminate" the vibration, but only limits it severely? At what point is it "eliminated" so as to infringe the claim? Say "limit" or "reduce" instead.
- **Avoid Alternatives**

Many Examiners object to claims written in the alternative -

12. The widget of claim 1, further comprising a portoflan armature made of metal or plastic.

These claims are best written as a number of different dependent claims, or as a Markush Group. If you haven't defined the element yet, it should be in its own claim, with the alternatives in claims dependent upon it.

12. The widget of claim 1, further comprising a portoflan armature.
13. The widget of claim 12, in which the portoflan armature is metal.
14. The widget of claim 12, in which the portoflan armature is plastic.