

The Introduction of Negative Claim Limitations During *Ex Parte* Prosecution: 35 U.S.C. 112 and the Issue of Antecedent Support

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Frequently, in the course of prosecuting U.S. patent applications, the patent solicitor, in the effort to patentably distinguish claims over prior art, gives consideration to inclusion in the claims of negative limitations.

Such limitations, by expressly excluding from the scope of the claimed invention features which are taught or suggested by the prior art, provide a potentially effective means for the patent solicitor to overcome prior art rejections of anticipation and obviousness, with the appertaining argument for patentability over the prior art that "they have [or suggest] it, we exclude it."

Alternatively, a U.S. Patent and Trademark Office (PTO) Examiner, seeking to expedite the disposition of a patent application, may suggest the inclusion of negative limitations in claims under examination for the same reason, viz., that such negative limitations clearly and effectively distinguish the applicant's invention, and thus provide the Examiner with the basis for a cogent explanation of patentability in his or her statement of the reasons for allowance.

This article examines some of the problems which arise in the practice of introducing negative claim limitations during the prosecution of U.S. patent applications, in the context of PTO acceptance and case law treatment of negative claim limitations. The article then focuses on anomalies in negative claim limitation practice, relative to (i) prosecution practice involving "open ended" and "closed ended" claim language, and (ii) Markush claiming practice. A common sense synthesis of the conflicting considerations and approaches is considered, and a suggested approach is advanced for determining when and to what extent negative claim limitations should be permissible and properly employed.

I. Definition and Utility of Negative Claim Limitations

As used herein, the term "negative limitation" refers to a claim recitation which specifically excepts a particular element, composition, structure, sub-assembly, step, or other feature from the claimed invention.

Illustrative examples of negative limitations include the following:

. . .in the absence of an accelerator curingly effective for said resin...;

. . .devoid of any edge surface protrusions. . .;

. . .without annealing said alloy prior to said passivation treatment thereof. . .;

. . .said laminated web not including any embossments on marginal portions thereof. . .

It is readily apparent that negative limitations can provide a satisfactory terminology for effectively distinguishing claimed inventions from prior art, in a manner which is very specific to the prior art and thus does not otherwise excessively narrow the scope of protection obtainable on the invention.

Taking as an illustrative example the aforementioned recitation . . ."devoid of any edge surface protrusions. . . thereon," it is possible to differentiate the claimed invention from prior art structures characterized by edge surface protrusion elements, while at the same time leaving the claim open to coverage of other edge surface geometries, e.g., concavely dimpled edge surfaces, which would otherwise be outside the literal scope of the claim, if a positive limitation such as ". . . having smooth edge surface portions. . ." were instead employed.

II. Pre-Filing Incorporation of Antecedent Specification Basis for Negative Claim Limitations vs. Introduction Thereof During Ex Parte Prosecution Without Antecedent Specification Basis: Problems and Tactics

It is a fundamental requirement of claim drafting practice that the claims of a patent (application) must be consistent with and supported by the specification, in order to comply with the requirements of 35 U.S.C. 112, with regard to the so-called "enabling disclosure" and "particular pointing out and distinctly claiming" provisions of the statute.

In the circumstances where the patent solicitor is knowledgeable of pertinent art and drafts the patent specification to provide express support for a potentially distinguishing negative limitation, i.e., so that the specification contains an explicit statement of the negative limitation, then there is a direct antecedent support in the specification for appertaining negative limitation claim terminology.

In many instances, however, the patent solicitor first becomes aware of prior art which is distinguishable via negative claim limitations, during the course of prosecution, after the patent application has been filed, and without any express statement of the negative limitation in the as-filed specification.

Under such circumstances, the patent solicitor is faced with a conflict. If he or she introduces a negative claim limitation, the same may be operative on its face to clearly distinguish the claimed invention from the otherwise problematic prior art, but the Examiner may take the position that such negative claim limitation is not supported by a corresponding explicit statement of the negative limitation in the specification and thus constitutes "new matter" under 35 U.S.C. 132.

At this point, the patent solicitor typically is reduced to arguing that such negative limitation is implicit in the disclosure (adopting an "inherency" hypothesis), or else refiling the patent application, e.g., as a continuation-in-part (CIP), to expressly set forth in the specification the negative limitation sought to be included in the claims.

Both of these courses are fraught with potential risks. In the former case, the Examiner may remain unpersuaded that the negative limitation sought to be introduced into the claim(s) is adequately supported in the specification in compliance with §112 and §132 requirements. In the latter case, there is, in the act of refiling to include the express statement of the negative limitation to the specification, a tacit admission that the negative limitation is not "inherent" in the originally filed disclosure, and the accompanying risk that intervening prior art or "statutory bar" events may come into play.

Although the applicant may, consistent with the position that the negative limitation is inherent in the prior disclosure, file a "continuation" application as opposed to a CIP, and identify the purpose of the continuation as "merely making express what is implicit in and intrinsic to the prior disclosure," the effect of such action, even if successful in the Patent and Trademark Office, may be nullified in subsequent litigation by a finding that the negative limitation was in fact "added" and not "inherent."

On balance, if refiling is resorted to, it would appear to be the better strategy to denominate the refiled application containing the express statement of negative limitation as a "continuation" and to make the appertaining inherency argument, if this is in fact a reasonable and tenable position.

III. PTO Acceptance and Case Law Treatment of Negative Claim Limitations

The reported cases which have construed the validity of claims in which a negative limitation was introduced during prosecution of a patent application are comparatively few in number and not at all coherent, insofar as the ability to extract a bright line demarcation of the law from them is concerned.

Historically, the Patent and Trademark Office disfavored the use of negative limitations in claims. The major criticism of negative limitations has been that they fail to meet the requirements of 35 USC 112. In one case the Court of Customs and Patent Appeals stated that negative limitations are an attempt to claim an invention "by excluding what [applicant] did not invent rather than by particularly and distinctly pointing out what [applicant] did invent."

Some typical reasons why negative limitations are frequently criticized and rejected for failing to meet the requirements of 37 USC 112 are as follows: (1) the negative limitation is seen to potentially prevent a person skilled in the pertinent art from making or using the invention; (2) the negative limitation makes the claim indefinite or too broad; or (3) the exception associated with the negative limitation is not disclosed in the specification as required by Patent Office Rule 75(d) (1).

There are situations, however, when negative limitations are the only way to describe the invention. For example, the omission of an element may in fact be the invention. Perhaps for this reason the Patent and Trademark Office has not made the use of negative limitations entirely impermissible. The Manual of Patent Examining Procedure §706.03(d) states that "the inclusion of a negative limitation shall not, in itself, be considered a sufficient basis for objection to or rejection of a claim". This MPEP section states, however, that a negative limitation may be rejected on 35 USC 112 grounds.

Although the use of negative limitations is permissible, claims which include them often do not survive rejection by Examiners and frequently fail on appeal. The cases dealing with rejections of claims on the basis of negative limitations are broadly categorizable into three general subject matter areas. These three areas are separately discussed below.

Lack of Basis in the Invention Itself for the Negative Limitation

Claims fail in cases where the negative limitation is seemingly an overt attempt to avoid prior art when no patentable reason for the exclusion exists. One of the most often cited cases regarding negative limitations involving such a problem is *In re Langdon*. The applicant in that case attempted to avoid a prior art reference by excluding nickel from a named group of metals claimed for a metallic protective coating. The court rejected the negative limitation claim "excepting nickel" because there was no distinguishable (patentable) reason to exclude nickel from the named group.

Lack of Proper Breadth and Specificity in Claims Containing the Negative Limitation

Claims which include negative limitations often fail because the claims are too broad and too indefinite. While seeming to exclude certain elements from a claim (and thus apparently narrowing the scope of the claim), some negative limitations effectively broaden the claim. In actuality, the negative limitation may have the effect of giving the applicant an exceedingly broad scope of protection in the claimed subject matter.

Three cases illustrate this point.

The Court of Customs and Patent Appeals rejected claims containing negative limitations in *In re Schechter*. The claims in the application at issue in that case included two negative limitations.

The first negative limitation in *Schechter* referred to an organo substituent (R group) in a chemical formula as follows: "R is an alkenyl radical other than a 2-butenyl and 2,4-penta-dienyl". The C.C.P.A. upheld the Examiner's rejection of this claim on the basis that the negative limitation made the claim indefinite, since the applicant sought to claim what was not invented, rather than "particularly and distinctly pointing out" what was invented. The court stated that the applicant was seeking to establish a monopoly to all such compounds "whether known or unknown", excepting the two prior art compounds in the claim.

The second negative limitation in *Schechter* was, "R is a hydrocarbon radical taken from the group consisting of those having less than four and those having more than five carbon atoms". The court stated that this recitation, while it positively stated the boundaries of the claim, was negative in substance. Under the same rationale as applied to the alkenyl substituent negative limitations, the court upheld the rejection of the claim containing this second negative limitation claim.

The primary reason the two claims in *Schechter* were rejected was the purported failure of the claims to meet the statutory requirement to "particularly point out and distinctly" claim the invention.

Two later cases followed a rationale similar to the one used in *Schechter*. The application in *In re Spangler* claimed an insulating material which was described as "...being in a non-moldable state. . ." . The court in that case stated that the term "non moldable" was not sufficient to "lend patentability to any of the claims". A consideration which strongly influenced the court's decision in *Spangler* was the fact that the applicant had argued that many materials were tried but only the material specifically named in the specification was successful. The court therefore concluded that only the named material should be claimed and given protection ("[i]t logically follows that patent protection should not be extended beyond the particular materials found to work")."

Another case in which a claim containing a negative limitation was rejected as overbroad is *In re Rose*. The claim in that case included the recitation, ". . . said means including a moveable non-resilient abutment". The PTO examiner, whose action the court affirmed, rejected the claim on the basis that the applicant attempted with the negative limitation to distinguish his claim over a prior art reference, when the negative limitation was not coextensive with the disclosure of the application. The examiner stated, "it is improper to permit claims which recite all means for accomplishing the result except the one shown in prior art . . . The applicant should not be permitted [when he has only specifically disclosed one form] to draw claims couched in such broad terms as to read on all forms of such means whether known or unknown".

Lack of Adequate Supportive Basis in the Application's Disclosure for the Negative Limitation

Claims including negative limitations are often rejected if the negative limitation introduces "new matter" not adequately disclosed in the specification.

A case which illustrates this position is *Ex parte Grasselli* in which the court rejected the negative claim limitation because it lacked description in the specification. The claim recited ". . . said catalyst being free from uranium, and the combination of vanadium and phosphorus". The court determined that "the negative limitation recited in the present claims, which did not appear in the specification as filed, introduce new concepts and violate the description requirement of the first paragraph of 35 U.S.C. §112". The court further held that the exclusion of certain elements implied the inclusion of all other

elements not expressly excluded, "clearly illustrating that such negative limitations do, in fact, introduce new concepts.

If anything can be concluded, about when negative limitations are likely to be rejected, it is clear that when the limitation overtly attempts to distinguish over a prior art reference, and there is no patentable basis for doing so, the claim containing this negative limitation is more likely to be rejected, than if a plausible basis for the negative limitation can be advanced. It is also likely that a claim containing a negative limitation will be rejected when the negative limitation effectively substantially broadens rather than narrows the scope of the claimed invention.

There are, of course, numerous cases where claims containing negative limitations have been allowed.

When negative limitations have been successfully employed, it generally has been in circumstances where the negative limitation in the claim very distinctly describes the applicant's invention.

In *In re Bankowski* the claim described a medium as ". . .an artificial medium containing living bovine kidney cells, but devoid of avian tissues. . .". The court allowed this claim, stating that it "affirmatively specified the constitution of the culture media". The court, however, readily rejected a similar claim in the same application which recited, "an artificial tissue culture medium devoid of avian tissue." This claim was rejected as being too broad and indefinite, and as including "all other culture media".

In *In re Duva* a claim was allowed which recited, ". . .absent sufficient CN ions to prevent deposition induced by said palladous salt". The court, although deciding the case on the issue of nonobviousness, addressed the negative claim limitation and stated that the claims "affirmatively specify the constitution of the bath and the positive steps required for the claimed process".

Negative limitations have also been allowed when no prior art exists to raise an issue of why a certain element should be excluded. This was found to be the case, for example, in *Ex parte Hradcovsky*. The claim in that case recited the invention as being, ". . .characterized by the absence of tetragonal lattice structure. . ." The Board of Appeals stated that this negative limitation did not cause the claim to be indefinite, because there was no prior art over which to distinguish the claimed invention. The Board of Appeals also stated that it was "unaware of any requirement, in the absence of any prior art, which necessitates that the claims restrict the ingredients to encompass only those which produce unexpected results". The Board concluded that the claim met all the definitional and enabling requirements of 35 USC 112 and thus that there was no reason to disallow the claim.

It would appear that when the requirements of 35 USC 112 are satisfied, there is no real reason to reject a claim which includes a negative limitation. Although the PTO rejection of various claims in *In re Marosi* was upheld on other grounds, the court found that the

negative claim limitation (to a mixture which was "essentially free of" a particular substance) was not violative of §112 and therefore was permitted. In that case, the negative limitation embodied the invention. Initially rejected because of indefiniteness, the court stated that this claim limitation should be allowed because it was definite in that any "person of ordinary skill in the art" could make and use the invention.

Perhaps the broadest judicial statement regarding the validity of negative limitations appears in *In re Barr et al.* In that case, the negative claim limitation at issue, "incapable of forming a dye with said oxidized developing agent," was held to set forth definite boundaries, so that the requirements of 35 USC 112 were satisfied. The court stated that the real issue is . . . whether the recital sets definite boundaries on the patent protection sought—that is, whether those skilled in the relevant art can determine what the claim does or does not read on.

Regardless of what can be drawn from the case law concerning specific guidelines for the allowance of negative limitations, it is true that "negative or exclusionary language is not easy to deal with".

IV. Anomalies: Negative Claim Limitation Practice; "Open-Ended" vs "Closed'Ended" Claim Language; and Markush Claiming

In respect of the foregoing considerations governing the use and acceptance of negative claim limitations, there is a seemingly curious anomaly, relative to the use of "open-ended" versus "closed-ended" claim language.

By "open-ended" claim language is meant claim terms such as "comprising", "including", "subsuming", "comprehending", and the like, which are construed to be inclusive of any other components, elements, aspects, or features, which do not render the claimed subject matter inoperative or non-useful for its intended purpose.

By contrast, "closed-ended" claim language restricts the scope of the claim with references to the claim elements expressly recited. This closed-end language includes the terminology "consisting of" and "consisting essentially of", which finds common usage in composition of matter cases, but appears with some regularity in general, mechanical, and electrical patents and patent applications as well.

The term "consisting of" is generally taken to mean that the invention as claimed is limited to the claim elements specifically recited (and their equivalents, insofar as the doctrine of equivalents is applicable), and that any practice of the subject matter which includes the elements recited in the claim in combination with additional (non-equivalent) functional elements is not covered by such claims.

Thus, for example, if a chemical composition claim recites a water treatment composition consisting of alum and a specified cationic polymer, then a water treating composition containing alum, the specified cationic polymer, and a dewatering aid which is not an

"equivalent" of alum or the specified cationic polymer (insofar as the doctrine of equivalents is concerned), would avoid the claim.

For this reason, the protection afforded by "fully closed-ended" claims utilizing terminology such as "consisting of" is very narrow in scope, and such claims are easily avoided. Thus, they are generally not desirable, unless one is forced by prior art or other factors to prosecute or accept such claims.

The "intermediate closed-ended" claim terminology includes terms such as "consisting essentially of", which is generally held to mean that the claimed invention is open to the inclusion of other elements which do not materially alter the claimed invention.

Given that the foregoing claim terminology is in common usage, it is notable that open-ended claim language is frequently converted to closed-ended or partially closed-ended language in the course of prosecution by amendment of claims to change the term "comprising" to "consisting of" or to "consisting essentially of", in order to patentably distinguish a claim from prior art which is located by or brought to the attention of the patent solicitor for the first time during the prosecution of the patent application.

Such restricting changes in claim terminology are generally introduceable by the solicitor without objection from the Examiner, and frequently are even proposed by an Examiner to place an application in condition for allowance.

In the context of the foregoing discussion of negative claim limitations, the practice of narrowing "comprising" claims to "consisting of" or "consisting essentially of" claims is notable for the typical lack of resistance on the part of examiners to allow such amendatory changes, even where the specification discloses the invention solely in open-ended terms, without any express antecedent basis in the specification for language such as "consisting of" or "consisting essentially of".

This is remarkable from the standpoint that the effect of "consisting of" or "consisting essentially of" language is to import negative limitations into the claim, i.e., such language, in the case of "consisting of" excludes everything other than the recited elements and their equivalents from the scope of the claim, and the language "consisting essentially of" excludes from the scope of protection anything which materially alters the claimed subject matter of specifically recited elements.

It is the habit of some patent practitioners, and a practice recommended by this author, to utilize where appropriate a catch-all phraseology in the specification describing the invention, to the effect that "[t]he present invention may suitably comprise, consist of, or consist essentially of, the elements [A, B, C, . . . etc]." This of course provides an express antecedent basis for the narrowing of claims from open-ended to closed-ended or partially closed-ended claim terminology, with respect to the appertaining elements described in the specification.

Thus, there is an inconsistency between the typical PTO practice of allowing closed-ended or partially closed-ended claim language to be introduced during patent prosecution without challenging the basis thereof under 35 USC 112, and the frequent occurrence of claim rejections premised on 35 USC 112 in respect of negative limitations which are introduced into patent application claims during *ex parte* prosecution.

One solution, analogous to that suggested above to provide an antecedent basis for introducing closed-ended or partially closed-ended claim terminology during prosecution, is to draft the specification to include a statement such as the following:

The invention illustratively disclosed herein suitably may be practiced in the absence of any element which is not specifically disclosed herein.

Such "weasel language", while appearing somewhat teleological in character, may be of value if a negative limitation not expressly stated in the specification is introduced into a claim during its prosecution, or if such a negative limitation-containing claim is issued and later subjected to judicial scrutiny in the face of an attack based on lack of antecedent support in the specification under 35 USC 112.

Another curious anomaly in the realm of claim drafting and prosecution practice, which has a relationship to negative limitation claim language similar to that of the above-described closed-ended and partially closed-ended language, related to Markush practice, in which the subject matter of a claim involves elements of sufficiently disparate character as to warrant their recitation in a "menu" format or non-generic listing in the claim.

This practice, given recognition in *Ex parte Markush* has come into widespread usage, particularly in chemical practice where chemical substituents, compounds, alloy constituents, and the like are not capable of generic categorization. The language typically employed for such Markush listing of features in a claim is of the following form: "a [member, element, substituent, etc.] selected from the group consisting of . . . (species A, species B, species C, etc. . .)."

The prosecution anomaly in Markush practice is that since there is by definition no generic category, only a listing of elements without amenability to common characterization, it has become an established practice, when the applicant is faced with prior art which is anticipatory of, or renders obvious, one or more, but less than all, members of the Markush group, to amend the claim to simply delete the Markush species in question, in order to overcome or preclude a rejection under 35 U.S.C. 102 or 35 U.S.C. 103. In other words, the Markush group is regarded as divisible with respect to its individually recited species, rather than an inseparable whole which must stand or fall *in toto* insofar as its patentability (or validity relative to the prior art) is concerned.

Extending this line of thought even further, we are brought back to the "normal" situation where the scope of claims originally filed in an application may be substantially restricted in scope by narrowing amendments in the course of prosecution. Such restricted claims

thus may cover only a very small subset of what is affirmatively represented in the specification of the patent application as "the invention."

The resulting inconsistency, between the scope of the invention as described in the specification, and the scope of the invention as recited in the claims, is taken as a fact of life, and there is generally no requirement nor action taken to conform the specification to the allowed or issued claims; indeed, to do so may constitute an unwarranted waiver and abandonment of the right to claim the invention more broadly, if a situation otherwise justifying broadening by patent reissue proceedings were later to ensue.

V. Conclusion

Having thus come full circle through an analysis of exclusionary claim techniques and terminology, what can be said as to the propriety of introducing negative limitations in the course of patent prosecution?

The answer, it would appear, is that consistent with Markush claiming practice, and with the introduction of closed-ended and partially closed-ended claim terminology in place of open-ended claim terminology during prosecution, and with garden variety amendment of claims during prosecution, all of which may be employed to reduce the scope of the claimed invention from that more broadly recited in the claims as originally filed, the practitioner should be permitted to readily employ negative claim limitations in the course of prosecution, to "patentably exclude" from the scope of claim coverage that which is not fairly taught or suggested by the as-filed disclosure of the application, when the effect of the added negative claim limitation is indeed to limit the scope of the claim rather than to broaden it.

Such a rule should be broadly construed, so that what is taught or suggested can be properly used as an antecedent support basis for limitingly and non-arbitrarily excluding what is not.

An example is the use of drawings, which as well established have status as "disclosure." Thus, a drawing showing an element with a smooth surface should be able to be effectively relied on as an antecedent supporting basis for claim terminology such as "devoid of surface roughness," "having no local surface concavities thereon," and the like, to exclude structural features of prior art references including non-smooth surfaces and features inconsistent with smooth surfaces, where such smooth surface feature is functionally significant to the invention.

Such a broad construction and view of the nature of "disclosure" and proper support in a patent application takes cognizance of the real life difficulties faced by the patent practitioner during prosecution, in adequately dealing with the appearance of more relevant prior art than previously was recognized to exist at the time of filing of the patent application.

Any other approach requires the applicant to provide an express statement in the specification to support negative claim limitations and effectively penalizes the applicant for not expressly excluding, in so many words in his or her specification, those particular aspects, elements or features which may afford a basis for distinguishing claims in subsequent prosecution over prior art which discloses such features. To ask this is to ask the impossible.

In a world in which the inventor is held to the standard of one of ordinary skill in the art who is charged with the full and complete knowledge of all extant "prior art," and in which even an obscure Ph.D. thesis known only to a handful of people in the entire world may be held to constitute prior art because of its theoretical availability to the public, the policies supporting the advancement of progress of science and the useful arts militate in favor of permitting the applicant to flexibly craft the scope of a claimed invention in the course of prosecution, and to use negative limitations for such purpose.