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Genus, Species and the Patent Law*

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INTRODUCTION

MANY VEXING PROBLEMS regarding genus and species have confronted the U.S. patent applicant whose invention resides in the chemical field. Two recurring problems involve the questions of (1) adequacy of supporting disclosure¹ and (2) antedating prior art references.^{2, 3}

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¹ 35 U.S.C. 112.

² In *In re Stempel*, 241 F. 2d 755, 113 USPQ 77 (CCPA 1958), the court defined a reference:

What is a "reference"? It is nothing more than a patent or publication cited to show that all or part of the invention for which a patent is sought was in the prior art, either more than a year before the filing date to which the applicant is entitled, in which case it is a "statutory bar" and cannot be sworn back of, or before the date of invention. When a reference is not a statutory bar, Rule 181 provides a procedure by which the applicant is permitted to show, if he can, that his date of invention was earlier than the date of the reference.

³ For a thorough discussion of prior art see V. Woodcock, "What is Prior Art," Ch. 3, p. 87-221 in *The Law of Chemical, Metallurgical and Pharmaceutical Patents*, (H. Forman Ed., Central Book Co., 1967).

A typical example of a genus which can present such difficulties is "lower alkyl." The first question presented by such a genus is, of course, what are the metes and bounds of the genus itself? That is to say, what is the maximum number of carbon atoms a species can contain and still be classified within the genus "lower alkyl"?

Let us assume that the genus is restricted to lower alkyl groups having from one to six carbon atoms. Even with such a limitation, many possible species exist which would fall within the genus. Thus, the inventor could have in mind both linear alkyls and branched alkyls. With the latter subgenus, the number of combinations increases greatly. Assuming the inventor wishes to claim this latter genus, the patent draftsman must decide how many individual species must be disclosed in the application to adequately support the claim to the genus. This question frequently arises and unfortunately the only definite answer which can be given is, "the more the better."

Let us further assume that the desired generic coverage is more limited, e.g., linear lower alkyls having one to six carbon atoms and that species containing one carbon, four carbons and six carbons are disclosed in the specification. Suppose further that the examiner cites a reference disclosing one of the following: (1) the four carbon atom species; (2) the five carbon atom species; or (3) both the four and five carbon atom species. Assuming that the reference can be antedated, as by "swearing back," the question arises as to what must our inventor show in terms of prior preparation of specific species within the claimed genus in order to overcome each of the references.

The foregoing are but a few of the difficulties which arise in the genus-species area. In recent years, judicial construction has significantly clarified many of these problems. This discussion will examine the development and the current status of the patent law regarding this complex area of patent practice.

THE PROBLEM OF THE UNSUPPORTED GENUS

As a hypothetical situation, let us assume that the applicant has disclosed species A, B, and C and the claims are directed to the genus of A, B, C, D, E, and F.

The question that arises in this situation is whether the disclosure of the three species is sufficient to support a claim to the genus. As the court indicated in *In re Steenbock*,⁴ the number of species required to

⁴ 83 F. 2d 912, 30 USPQ 45 (CCPA 1946). See also *In re Shokal*, Devlin and Winkler, 242 F. 2d 771, 113 USPQ 283 (CCPA 1957) and *In re Kyrides*, 159 F. 2d 1019, 73 USPQ 61 (CCPA 1947).

support a given genus depends on the nature of the genus. Generally, the naming of one member of a generic group is not, in itself, an adequate basis for a claim to the entire group. However, it may not be necessary to enumerate a plurality of species if the genus is sufficiently identified by other appropriate language.⁵ The question of what constitutes "other appropriate language" depends on the circumstances of the particular case.⁶ Thus, if the claimed group involves compounds radically different from each other, it probably would not be sufficient to broadly identify the group and identify one or two compounds in it. For example, identifying the group "azo dyestuffs" and then disclosing only a few species would not be sufficient to support a claim to "azo dyestuffs." If, however, the group were small and closely related, e.g., alkali metals, the naming of the group may well be sufficient, since no significant disclosure would be added by further specifying of the well-known members of the group.⁷

This raises a particularly interesting situation with respect to interferences. Suppose the count is to a genus and that each of the parties has disclosed one or more species. In such a case, the right of priority would go to the party who first discovered a species.⁸ However, the winning party can obtain the genus claim only if his application has sufficient disclosure to support the genus.⁹ The reason for this is that while possession of a single species before another is considered sufficient to show priority, it is not necessarily sufficient to show possession of the claimed genus.

Thus, one of the major problems confronting the chemical inventor is to decide how many species should be prepared in order to provide the desired breadth of coverage in the patent application. Usually, it is not practical to prepare all of the compounds which the patent attorney would like disclosed. Consequently, the usual situation is a compromise between the inventor and the patent attorney as to the number of compounds disclosed in the application.

Moreover, the case law provides little help in this situation, since even on the most detailed analysis, one invariably reaches the same conclusion: The more species disclosed in the specification, the better the support for the genus.

⁵ *In re Dreshfield*, 110 F. 2d 225, 45 *USPQ* 36 (CCPA 1940).

⁶ *Id.* 45 *USPQ* at 41.

⁷ *In re Grimme, Keil and Schmitz*, 274 F. 2d 949, 124 *USPQ* 131 (CCPA 1960).

⁸ *Kyrides v. Andersen, Grenquist and Ball*, 121 F. 2d 514, 50 *USPQ* 131 (CCPA 1941).

⁹ *In re Kyrides*, *supra* note 4.

THE PROBLEM OF THE "KILLING" REFERENCE

The court in *Steenbock*¹⁰ further held that while a single species may not be sufficient to support a claim to the genus, the disclosure of a single species in a reference does in fact anticipate the genus.

The question now arises as to what the applicant can do, when confronted with such a situation, to overcome the reference. Several possibilities present themselves depending upon the issue or publication date of the reference and upon where the invention was made.

More Than One Year Between the Issue or Publication Date of the Reference and Applicant's Filing Date

Where the reference issue or publication date is more than one year prior to the applicant's filing date, there is a statutory bar present under 35 U.S.C. 102 (b) and the reference cannot be overcome by antedating. This can be particularly troublesome in situations involving CIP applications containing claims to a genus where the parent case disclosed one or more species and where foreign applications corresponding to the parent case have issued more than one year prior to the filing of the CIP. In *In re Ruscetta and Jenny*,¹¹ the CCPA upheld the examiner's position that applicants' issued British patent, which disclosed a single species, constituted a statutory bar to the expanded genus claimed in the CIP.

One reason why the *Ruscetta* decision is particularly troublesome is that it is the general practice to file foreign and U. S. applications within 12 months of each other in order to take advantage of the priority afforded by the international convention. (See 35 U.S.C. 119.) Consider a U. S. applicant. It frequently happens that such an applicant will discover, after the U. S. filing, that the scope of the invention is somewhat broader than originally contemplated and disclosed in his first U. S. application, and thus a CIP directed to a broader genus is filed.¹² The prosecution time in many foreign countries is substantially less than that in the U. S. Also, some countries make all applications available to the public after a relatively short period of time. For example, in West Germany and the Netherlands, patent applications are made available to the public 18

¹⁰ *In re Steenbock*, *supra* note 4.

¹¹ 255 F. 2d 687, 118 USPQ 101 (CCPA 1958).

¹² See, for example, *Fijitsu Ltd. v. Sprague Electric Co.*, 264 F. Supp. 930, 153 USPQ 168 (S.D.N.Y. 1967). *Ex parte Julius*, 154 USPQ 485 (P.O. Bd. App. 1967).

months after the application date. The general practice is to file Convention applications just within the one year priority time limit. In such a situation, the U. S. applicant must file his CIP within about two and one-half years of the filing of the U. S. parent application, inasmuch as, after the period, the *Ruscetta* doctrine will come into operation as a result of the foreign publication.

Note that the foreign applicant whose priority date is his filing date in a country that makes the application public after 18 months faces an even greater dilemma, inasmuch as he would have only about six months from the filing date of the U. S. parent application (assuming it was filed within the one-year priority period) to file a CIP.

*Less Than One Year Between the Issue or Publication
Date of the Reference and Applicant's Filing Date*

If the date of the reference is within one year of the filing date of the application, then the reference may be antedated, as by a showing under Rule 131,¹³ since a statutory bar would not be present. The question then arises as to what the affidavit must show in order to overcome the reference.

In *Ex parte Fryling*,¹⁴ the appealed claims called for a generic series of monomers, designated for convenience B₁, B₂, B₃, . . . et cetera. The reference cited disclosed species B₃ and a Rule 75 affidavit (now a Rule 131 affidavit) was submitted showing completion of B₁ prior to the effective date of the reference. Here, however, the Board concluded that inasmuch as the affidavit was not directed to the same species as the reference, it would not serve to overcome the reference. A second affidavit was submitted showing that B₃ had been conceived but not reduced to practice prior to the effective filing date of the reference. The Board held that the combination of the first and second affidavits did overcome the reference inasmuch as the combined affidavits showed completion of a generic invention prior to the effective date of the reference.

¹³ 37 C.F.R. 1.131. This rule, insofar as applicable here, reads:

When any claim of an application is rejected on reference to a domestic patent which shows or describes but does not claim the rejected invention, . . . and the applicant shall make oath or declaration to facts showing completion of the invention in this country before the filing date of the application on which the domestic patent issued, . . . then the patent shall not bar grant of a patent to the applicant, . . .

(Emphasis added.)

¹⁴ *Ex parte Fryling*, 175 USPQ 9 (P.O. Bd. App. 1947).

The Board in *Ex parte Burt*¹⁵ appeared to liberalize the *Fryling* criteria. In this case the applicant, in order to support generic claims, filed a Rule 75 affidavit showing completion of the same species disclosed by the reference before the effective date of the reference. The Board of Appeals reversed the examiner, holding that it was not the purpose of a Rule 75 affidavit to show that the invention as claimed had been reduced to practice prior to the effective date of the reference. Rather, it is sufficient if the affidavit shows that as much as the claimed invention as is taught by the reference was reduced to practice by the appellant prior to the date of the reference.

The question was apparently laid to rest (at least it was thought so at the time) by the decision in *In re Stempel*.¹⁶ In that case, applicant's U. S. application contained a generic claim to certain isopropyl benzenes, which claim was rejected on a reference having an effective date less than one year prior to applicant's filing date. The reference disclosed a species falling within applicant's generic claim. Applicant filed a Rule 131 affidavit which showed reduction to practice of the species of the reference prior to its effective date. Notwithstanding their decision to the contrary in *Ex parte Burt*,¹⁷ the Patent Office Board of Appeals held that it was well settled that a showing under rule 131 establishing priority as to a common species is not necessarily sufficient to obtain allowance of a generic claim.

The CCPA reversed the Board, deciding that not only was this construction of the rule too literal, but also, it was not in accord with the past practice of the Patent Office. Thus the court held that the affidavit had only to show the species of the reference in order to remove the reference.¹⁸

Note, however, that shortly thereafter, the CCPA, in *Ruscetta*¹⁹ clearly limited *Stempel* to those situations wherein the effective date of the reference and the filing date were less than one year apart.

The Combination-Genus-Species Distinction

The case of *In re Tanczyn*,²⁰ further clarified and, as so often happens with such clarification, also limited the *Stempel* holding. In

¹⁵ 89 USPQ 186 (P.O. Bd. App. 1950).

¹⁶ *Supra* note 2.

¹⁷ *Supra* note 16. See also *Ex parte Clark*, 60 USPQ 72, 73, (P.O. Bd. App. 1943).

¹⁸ See also *In re Blake and Hammann*, 358 F. 2d 750, 149 USPQ 217 (CCPA 1966).

¹⁹ *In re Ruscetta and Jenny*, *supra* note 11.

²⁰ *In re Tanczyn*, 347 F. 2d 830, 146 USPQ 298 (CCPA 1965).

Tanczyn, the applicant filed a U. S. application claiming a steel composition containing both nitrogen and molybdenum. The examiner rejected the claim on the combination of a reference which disclosed steel plus molybdenum (but no nitrogen) and a second reference which disclosed steel plus nitrogen (but no molybdenum). Applicant submitted a Rule 131 affidavit showing reduction to practice of the teaching of the second reference (steel plus nitrogen) however, not showing possession of his own claimed invention (steel plus nitrogen plus molybdenum). The court held that the affidavit did *not* dispose of the second reference, inasmuch as it did not show that applicant possessed his invention prior to the effective date of the reference. Thus, the CCPA stated, at 146 *USPQ* 301:

The primary consideration is whether, in addition to showing what the reference shows, the affidavit also establishes possession of either the *whole* invention claimed or something falling *within* the claim, in the sense that the claim as a whole reads on it. (Court's emphasis.)

Thus arises one of the major distinctions between the genus-species situation, i.e., X or Y, and one involving an improvement, i.e., X + Q, in that in the former, possession of a species (X) is construed as possession of the genus invention, i.e., X or Y, whereas in the latter, possession of X alone cannot give one possession of the invention (X + Q).

It is not always necessary, however, in order to establish "possession of the whole invention" to demonstrate that the embodiment or species disclosed by the reference was "possessed" by the applicant prior to the effective date of the reference. Thus, in the *Hostettler* case,²¹ the claim on appeal was directed to a process for producing a polymer by reacting a compound having one or more reactive groups A with a compound having one or more reactive groups B in the presence of catalyst X. The cited reference disclosed the reaction of two compounds in the presence of catalyst X, each of the compounds being polyfunctional with respect to the reactive group. Applicants submitted a Rule 131 affidavit establishing that they had carried out the reaction with the respective *mono*-functional compounds prior to the effective date of the reference. Both the examiner and the Board of Appeals concluded that the affidavit was not effective since it neither showed the reaction of the species which the reference disclosed, nor did it show possession of the claimed invention, i.e., producing polymers by reacting mono- or poly-functional compounds.

²¹ *In re Hostettler and Cox* 356 F. 2d 562, 148 *USPQ* 514 (CCPA 1966).

The CCPA reversed, holding that applicants had shown that they had discovered that catalyst X was suitable for reacting compounds having reactive groups A and B and that one of ordinary skill in the art would know that the catalyst would operate independently of the number of reactive groups. The court stated that applicants should not be required to submit facts under Rule 131 showing that they reduced to practice that which is obvious in addition to those facts offered as showing a completion of the invention, for the purpose of overcoming a reference.

Shortly after the *Hostettler* decision, the CCPA further clarified its position regarding Rule 131 showings in *In re Clark*.²² In that case, the applicant submitted a Rule 131 affidavit which showed reduction to practice of species A and B of the genus A, B and C. The reference, however, disclosed species C. The Patent Office contended that the affidavit was insufficient since it did not directly antedate the species of the reference. The CCPA reiterated the rule that a proper showing can overcome a reference which discloses a species within a generic claim, even though completion of that species prior to the effective date of the reference is not shown. Although the CCPA decided that the appellants' showing in this specific case was not sufficient, it did clearly state that the Patent Office position as to Rule 131 was incorrect and enunciated the correct rule as follows:

The rule for antedating references is not limited to fact situations where the inventor can show priority as to the identical compounds described in the references. . . . In an appropriate case an applicant should not be prevented from obtaining a patent to an invention where a compound described in a reference would have been obvious to one of ordinary skill in the art in view of what the affiant proves was completed with respect to the invention prior to the effective date of the reference. This is particularly true where the inventor had already appreciated that the invention was generic in nature from his works on diverse species and was endeavoring to determine by reasonable diligence the precise scope of the invention . . . antedating affidavits must contain facts showing a completion of the invention commensurate with the extent of the invention as shown in the reference, whether or not it be a showing of the identical disclosure of the reference.²³

The CCPA further indicated that where the affidavit would persuade one of ordinary skill in the art to a reasonable certainty that the applicant possessed so much of the invention as to encompass the reference disclosure, the showing was sufficient to antedate the reference. The court even went so far as to indicate that in an appropriate

²² 356 F. 2d, 987, 148 USPQ 665 (CCPA 1966).

²³ *Id.* at 145 USPQ 669.

case, a single species could be sufficient to antedate indirectly a *different* species of a reference.²⁴

Judge Almond, in a concurring opinion in the *Clarke* case noted that a "commensurate" showing must include a showing of a common utility or property which would serve to link together the compounds prepared prior to the effective date of the reference in order to evidence "possession" of the compounds by the applicant.²⁵

It would appear from the foregoing that the requirements for antedating a prior art reference have undergone some degree of liberalization over the years.

Today, to antedate a reference, it is necessary only to show, prior to the effective date of the reference, possession of either (1) the same species as disclosed in the reference or (2) one or more species (not including the species of the reference) sufficient to delineate a group in which the reference species obviously would be included, coupled with knowledge of a common characteristic or property possessed by each species in the group. Showing (2) is essentially tantamount to showing possession of the genus prior to the effective date of the reference.

The Problem When the Invention Is Made Abroad

While the *Clarke* decision has greatly clarified the problems of antedating references for U. S. applicants, the law is somewhat more indefinite as regards applicants whose inventions were made abroad, inasmuch as they are prohibited, except in certain circumstances, from submitting Rule 131 affidavits.²⁶ How can such an applicant antedate a reference? A foreign applicant can, of course, rely on a Convention priority date.²⁷ But considering the genus-species situation, the question again arises as to what the priority document must show in order to antedate the reference.

²⁴ This situation occurred in *In re Fano*, 392 F. 2d 280, 157 USPQ 192 (CCPA, 1968).

²⁵ See also *In re Rainer, Hilton, Redding, Sloan and Stewart*, 390 F. 2d 771, 156 USPQ 334 (CCPA 1968), and *In re Fong*, 288 F. 2d 932, 129 USPQ 264 (CCPA 1961).

²⁶ 35 U.S.C. 104. An applicant cannot establish a date of invention by reference to acts in a foreign country unless the invention was made by a person, civil or military, while domiciled in the United States and serving in a foreign country in connection with operations by or on behalf of the United States.

²⁷ 35 U.S.C. 119.

This question was recently considered in *In re Ziegler, et al.*²⁸ This case involved a situation wherein a CIP containing a broadened genus claim was filed, and the priority document on which the U.S. patent case was based disclosed the species of the reference. The Patent Office contended that, even so, the priority document failed to show that the applicants were in possession of the generic invention claimed in their U. S. CIP. The CCPA overruled the Patent Office, holding that the logic of the *Stempel* case was clearly applicable and that the Convention application gave a right of priority of invention as to everything pertinent that the references showed as of a date prior to the effective date of those references. This holding is of particular importance in situations where, as described previously, the reference to be antedated is the applicant's published foreign case.

If, however, a priority document does not exist, it may still be possible for such an applicant to antedate the reference even though he cannot prove *acts of invention* abroad, by showing that the reference patentee derived his own invention, or disclosure of applicant's invention, from the applicant. Thus, it would appear that a foreign applicant may circumscribe 34 U.S.C. 104, at least to some extent, by submitting affidavits of such derivation.²⁹ Proof of such derivation is applicable in situations wherein the claims are rejected under 35 U.S.C. 102 (e) which requires that (1) the application for the reference patent must have been by one who is legally "another" and (2) the filing date must be "before the invention . . . by the applicant. . . ." If it can be shown that the 102 (e) reference patentee obtained knowledge of the applicant's invention from him, and thereafter described it, he necessarily filed the application after the applicant's invention date. *In re Land and Rogers*,³⁰ the CCPA specifically held that "evidence of such a state of facts, (of derivation) whatever its form, must be considered."³¹ See also the cases of *Blout and Rogers*³¹ and *Limieux*.³²

CONCLUSION

The CCPA over the past 10 to 15 years has resolved many of the problems which arise regarding patentability in the genus-species

²⁸ *In re Ziegler, Breil, Holzkamp and Martin*, 347 F. 2d 642, 146 USPQ 76 (CCPA 1965).

²⁹ *In re Land and Rogers*, 368 F. 2d 866, 151 USPQ 621 (CCPA 1966).

³⁰ *Id.* 151 USPQ at 683.

³¹ *In re Blout and Rogers*, 333 F. 2d 928, 142 USPQ 173 (CCPA 1964).

³² *Ex parte Limieux*, 115 USPQ 148 (P.O. Bd. App. 1957).

situation and has greatly clarified many of the questions which applicants encountered. Still remaining, however, are the questions arising in the situation where the invention is made abroad.

Thus it would appear that the major expansion of this body of law should come in the area of foreign priority and proof of derivation of invention, inasmuch as 135 U.S.C. 104 will most likely still be operative for some time to come.³³ Thus, it seems likely that the *Ziegler et al.* and *Land and Rogers* rulings could be further extended to encompass the more liberal concepts of *In re Clarke* and *In re Hostettler et al.* In a situation, for example, wherein the Convention application does not disclose the exact species of the reference but the reference species clearly would be obvious to the skilled art worker in view of the disclosure of the Convention application, then the Convention application should suffice to antedate the reference as to a claim to a genus.

Or, in the derivation situation, it should be sufficient to show that the information given by the applicant to the reference patentee, while not identical with the disclosure thereof, would have made such disclosure obvious so that clearly applicant also possessed the knowledge prior to the reference patentee.

Clearly, such decisions would tend to make the law more equitable towards those whose inventions are made abroad.

³³ S. 2756, 91st Cong., 1st Sess. § 104 (1969). Although it was initially intended to delete § 104 from the new patent bill, it was decided to retain this section. See 115 Cong. Rec. 8954 (daily ed., Aug. 1, 1969—Remarks of Senator McClellan).