

COMMISSIONER'S DECISION

Disclosure Insufficient: Gas discharge display panels for Calculations
The inventions involve the addition of Lanthamide and Actinide rare earths to the electrode insulators of gas discharge panels such as those used to display digits in electronic calculators. The disclosures described only one compound producing the effect, but claimed all rare earths in each series. The broad claims were refused as speculative, hypothetical and covetors, and that rejection was affirmed. The examiner also rejected the applications on the ground that the applicant failed to warn of dangers involved in using the invention. That rejection was reversed. The specification is addressed to one skilled in the art, who would be aware of the dangers involved.

Final Rejection: Affirmed, with modifications.

Two applications of Owens-Illinois, Inc., were rejected by the examiner under Sections 36 and 2 of the Patent Act on the ground that the disclosures are insufficient, and do not support the inventions claimed. The early application, 148,888, Class 313-1 was filed on August 8, 1972, and the later, 149636, class 313-1, on August 17, 1972. The same inventors are common to both applications, viz. Roger E. Ernsthause, Donald K. Wedding et al.

Both inventions relate to a gas discharge device used, for example, in the panels of electronic calculators which display digits to be read by the user of the device. An electrical discharge between electrodes in a gaseous medium causes numerals to light up so they become visible to the eye. Such devices are, of course, well known, and the applicants inventions are improvements thereto. To the dielectric insulators for the electrodes the applicant adds a rare earth compound of the Lanthanide series (in 148888), or of the actinide series (in 149636). Claim 1 of each application will serve to illustrate what is involved.

Claim 1 (148888): In a gas discharge device containing at least two electrodes, at least one of the electrodes being insulated from the gas by a dielectric member, the improvement wherein at least one dielectric member contains a source of at least one Lanthanide Series rare earth selected from La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Sc, and Y.

Claim 1 (149636): In a gas discharge device containing at least two electrodes, at least one of the electrodes being insulated from the gas by a dielectric member, the improvement wherein at least one dielectric member contains a source of at least one Actinide Series rare earth selected from Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, and Lw.

It is said that the addition of the rare earth compounds improves ageing and stability of the devices, permits the use of lower operating potentials, and improves the electrode discharge.

The examiner's objection in 148888 is that whereas the applicant has only shown that one compound, ytterbium oxide (Yb_2O_3), actually produces the effect desired, the claims cover innumerable other compounds and combinations thereof, of which 129 were listed in the disclosure, but none of which (other than Yb_2O_3) have been demonstrated to produce the effect desired. It is his contention that the applicants claims are speculative, hypothetical, covetous, and are an attempt to appropriate unexplored ground. He has said, inter alia, that:

...

... It is noted that applicant has given experimental data for only one single compound, i.e. for Yb_2O_3 , which is expressed in a graph at the end of the disclosure. This appears to be the only experiment on which the application is based. In a rather general way, applicant compares the advantages of sesquioxides to the dioxides (see page 12, paragraph 2), but there is no evidence of tests and experimental results to substantiate this comparison.

It must be noted, furthermore, that applicant does not say whether all the eight salts of lanthanum, for example, listed on page 7, will work in the same way, one as the other, or any of these salts in the same way, as the lanthanum oxides. Applicant does not say whether all the compounds listed on pages 7 through 10 can be applied by each of the methods proposed on page 10, lines 10 to 22, nor whether with all these compounds the "desired beneficial results" are obtained with a thickness of from 200 to 10,000 angstrom units (see page 11, lines 1 to 4). Nor is it clear from the disclosure whether all compounds listed by applicant will withstand the heat sealing cycle temperature of 600°F . In other words, while applicant is claiming a monopoly for the use of a countless number of compounds he gives no indication which of them are really operable. Though it is known that the rare-earth metals themselves have very similar properties, the same cannot be said about the large number of the different compounds, alloys and minerals containing these rare-earth metals.

It is held that the disclosure of utility based on the tests of a single compound Yb_2O_3 is inadequate proof of utility for the remaining more than one hundred compounds covered by the broad claims. This objection applies to all claims now on file. All claims are therefore refused on Section 2 of the Patent Act by reason of inutility.

While applicant cannot be expected to test all the compounds of which he has thought and which he has listed, he can be expected to test and report on a sufficient number of them to show by consistent results that it would be justified to assume that the same results can be expected with all the remaining compounds....

...

For his part, it is the applicant's contention that the disclosure does support the invention to the breadth in which it is claimed, and that the disclosure is sufficient. He points to the lists on pages 6-9 of the disclosure of the compounds which may be used, on the premise, presumably, that if they are referred to in the disclosure, they may be claimed. He also states that the "applicant firmly believes that all of the compounds encompassed within the scope of the claims are all operable..." (Feb. 3, 1975); and that "in the absence of prior art to the contrary, applicant believes that he is entitled to claim his inventive concept broadly." In addition he argues that there is no need to "exhaustively" test an invention.

It is thus apparent that what we must determine is whether the inventor actually made the invention to the extent to which he is claiming, and secondly, that if he did not do so, whether he is still entitled to claim broadly on the basis of the statements made in the disclosure.

We begin by noting that on page 6 of the specification, at lines 11-17, it appears that two of the elements, scandium and ytterbium, which are not members of the Lanthanide rare-earth elements, are included by the applicant on the basis that they "sometimes exhibit the same properties as the rare-earth series." We also note the statement at the bottom of page 9 that it is "contemplated" that certain of rare earth minerals "may be utilized."

At the Hearing Mr. Mace was asked if the inventors had tried out any compounds other than ytterbium oxide to see if they worked. His reply was: "I don't know. It was not necessary to test any others."

The statements in the two preceding paragraphs indicate that much of what the applicant describes is speculative at best. That conclusion is fortified by the absence of any other evidence showing that as of August 19, 1971 (the priority date of this application), or indeed subsequent to that date, it was really known by the applicant that anything other than ytterbium oxide would be effective. The applicant has referred to certain patents of a competitor (U.S. 3814970, June 4, 1974; Br. 1411297, Oct. 22, 1975 and Br. 1415779, Nov. 26, 1975) to demonstrate that compounds of other elements would also produce the same effect. All of them issued subsequent to 1971 when the applicant completed his own invention. Moreover they are not before us to assess whether the claims in them are too broad, or whether they are valid. They issued under different patent laws, whereas we are concerned with the granting of Canadian patents under Canadian patent law. We note, moreover, that all three patents are limited to oxides of the elements in question. In the present application claims are put forward to cover any source of these elements at all, and in any combination whatsoever, whether they be oxides, nitrates, sulphates, other inorganic salts, organic acid salts, complexes, alloys, or what have you. As may be seen from Mellor's Comprehensive Treatise on Inorganic and Theoretical Chemistry, Longman, (1967). Vol. V, Ch. 38, the number of these different compounds run into the thousands. If one considers the possible combinations and permutations of these compounds with each other covered by claim 1 (since it is not limited to a single source of a rare earth), the numbers involved are astronomical, running into the millions.

In his final report the examiner made a thorough examination of the jurisprudence to be considered, including Hoechst v Gilbert (1966) S.C.R. 189; Boeringer Sohn v. Bell Craig (1962) Ex. C.R. 201 and 1963 S.C.R. 410; In re May and Baker (1948) 65 R.P.C. 255; Société Rhone-poulenc v Ciba (1967) 35 F.P.C. 174 and 1968 S.C.R. 950; In re Abraham Esau et al (1936) 49 R.P.C. 85 and

Olin Matheson v Biorex (1970) RPC 157, and there is little need for us to repeat the dicta laid down in them. Since the rejection, the Federal Court of Appeal has considered the Commissioner's rejection of application 095945 in Monsanto v. Commissioner of Patents, a judgement delivered on June 24, 1977. The matter before the Commissioner and the Patent Appeal Board in that case was very similar to what is now before us. The subject matter there was not a medicine, so there is no question of any of the peculiarities attributed by the applicant to the pharmaceutical arts limiting the application of that decision to the present invention, a limitation to which in any event we do not subscribe. In the Monsanto case the applicant, having shown that one compound was useful as a rubber vulcanizer, wished to claim 128 other compounds listed in the disclosure for the same purpose. After considering the jurisprudence listed above, as well as others not used by the examiner in this case, the Patent Office found such claiming to be too broad, as going beyond the area of reasonable prediction, and as being speculative. The Federal Court confirmed the rejection. We find the present application objectionable for the same reasons and recommend that the claims be refused. The applicant is, of course, so far as we have determined, entitled to a claim limited to the use of ytterbium oxide.

As for the applicant's contention that he is entitled to claim an invention as broadly as the prior art permits, such a proposition holds only when the invention has both been made and disclosed. No one is entitled to claim something he did not invent merely because it is not in the prior art, and we must consequently take the applicant's comments to have been made with those limitations in mind. On this point we refer to three remarks made in Van Heusen v Tooke Bros. 1929 Ex. C.R. 89 at 96 and 97:

- ...The patentee must not throw his net too wide, but must claim clearly what he has invented, but not more than he has invented, that is something which is the mere subject of his speculation of his endeavour to grasp more than he is entitled to.
- ...It is not sufficient that a patentee's utterance springs from his imagination, he must need carry with it the immediate warrant showing that what he has done was done in a manner new to the specific art.
- ...Invention must not be of questionable import. To constitute invention it is not enough to disclose something but dimly visualized.

The rejection of application 149636 was for similar reasons. In this application the applicant claims the addition of an actinide rare earth or a compound thereof to the dielectric members of the electrodes. In this case, however, there is no illustration of the use of any member of the actinide family in the gas discharge devices. For that reason the examiner has said

that the applicant is attempting to patent an idea which he has not reduced to a practical invention, and that he has provided no evidence that any of the large number of compounds covered by the claims possess the utility that he attributes to them. In his view:

...

It is obvious that not all of the very large number of actinide elements and compounds will lower the operating potential, improve the thermostability, decrease the aging time etc.... Applicant apparently has given no thought to what compounds will be operable, and which ones will be inoperable. No information to that effect is contained in the disclosure. After the expiration of the term of the patent the public would have to do extensive testing to find out what compounds will work, if at all. Applicant is apparently more concerned to get as wide a protection as possible, even for several members of the actinide series which have not yet been isolated, and those which have "a very small half-life", than to give some consideration to the public which involves running some tests, disclosing the results, and telling, at least what members or compounds have been found to be operable.

The examiner also contended that having found ytterbium oxide produces useful results, the applicant speculates not only that other members of the lanthanide series would be effective, but also conceived the idea of obtaining patent protection for the similar actinide series, and compared the two applications to show how this "paper inventioning" was carried out. He said:

It then appears to the examiner, as at the time of writing the first report, that sometimes after the filing of the copending application 148,888, which claims the use of the complete lanthanide series, applicant must have conceived the idea of obtaining patent protection also for the other similar series of the actinides and their compounds which could, according to that conceived idea, produce some "potential beneficial results" if applied in "predetermined beneficial amounts" in the same manner as the elements and compounds of the lanthanide series. Applicant then prepared the present application by copying, practically without change the first five pages from the disclosure of the copending application, then listing all elements and compounds of the actinide series known to him, and then as the third step, copying further appropriate portions from the copending application, inserting occasionally the word "Actinide", to complete the last two pages of the present disclosure. The new Abstract and the claims were produced from those in the copending application by only replacing the lanthanide elements by the actinide elements. There is no evidence whatsoever that applicant has done anything else before the filing of the present application to perfect his alleged invention or to give consideration to the public. The disclosure thus does not contain the necessary ingredients of a true invention.

It has been said before that, in effect, proof of utility depending on a few members of a large family is inadequate proof of utility for the remaining members. How much less justification is there in the present case to grant a monopoly covering the whole large family of elements and compounds without having the proof of utility of even a single member of that family.

and rejected the application as a whole in these terms:

...

As the result of the above detailed analysis, the present application is refused as a whole for the following reasons:

- A. The present disclosure is inadequate in that it does not contain any patentable subject matter as compared to applicant's copending application 148,888, and therefore does not satisfy Section 36(1) of the Patent Act.
- B. The application is based only on a pure untested idea, which is contrary to Section 28(3) of the Patent Act, and
- C. In general, there is no evidence that applicant has made a bona fide invention.
- D. The disclosure contains no proof of utility for even a single member of the family of elements and compounds for which patent protection is sought, so that Section 2 of the Patent Act is not satisfied.

In the Final Action of July 21, 1975, the examiner elaborated in detail upon the reasons for his rejection. He said inter alia:

It should be noted that in both Office Actions of September 19, 1973 and November 7, 1974 the examiner pointed out the apparent lack of any experimental basis whatsoever for the present application. It is conspicuous that in neither of the two replies was applicant able to say that he did run at least a single test, or to produce a single proof of a solid experimental result. This obvious lack of solid evidence only confirms the assumptions that not a single test had been made before the application was prepared and filed.

It is normal in Canadian patent practice to include in the disclosure the description of several representative examples of tests, giving the exact compounds, percentages, process steps, temperature ranges used, and the attained experimental results. The examples yielding the best results represent then the best mode as contemplated by applicant and also required by Section 36(1) of the Patent Act. The examiner found, furthermore, that whenever the question as to proof of operability arises, the applicant, particularly a large, well-established enterprise, who rarely files an application for an untested idea, invariably produces some proof of practical tests to convince and satisfy the examiner. Needless to say, in the present case, it would have been so much simpler and convincing to file concrete experimental data, if there had been any, instead of the arguments based on the questionable page 10 of the disclosure.

and:

The present disclosure is defective and does not satisfy the requirement of Section 36(1) because it does not give any preferred embodiment of the alleged invention. The pertinent part of that section reads: "in the case of a machine he shall explain the principle thereof and the best mode in which he has contemplated the application of that principle" (emphasis added). In the present case, the "preferred embodiment" or "best mode" would be the compounds of actinides, or combination of compounds, which had produced the best results or at least good acceptable results. To disclose this preferred embodiment is simply an elementary part of the consideration applicant is expected to give to the public in return for the broad monopoly which he is seeking.

It should be noted that in the disclosure applicant names a large number of actinide elements and compounds. Besides the fifteen elements of the series itself, pages 6 through 8 of the disclosure list 54 compounds and derivatives of rare-earth metals, which amount to a total of about 60. At the end of the disclosure, applicant proposes that each rare-earth source may be combined with one or more compounds of the Group IIA elements, a total of 6 being listed. Thus the total number of possible combinations equals the number of the rare-earth sources times the number of Group IIA elements i.e. 60 x 6, which amounts to more than 350. According to applicant's last letter page 6, lines 19 and 20, all of these combinations are operable. It is quite impossible that all of these combinations are operable to the same degree, and with the same efficiency.

and:

In Steel Co. of Canada v. Sivaco Wire and Nail Co., 11 C.P.R. (2d) 153, at page 195 we find the expression "mere paper suggestion" applied to patents for inventions which have not been developed. In Hoechst v. Gilbert (1964) Vol. 1, Ex. C.R. 710 and 1966 S.C.R. 189, the Supreme Court adopted the view that "no one could obtain a valid patent for an unproved and untested hypothesis in an uncharted field." The dangers of overclaiming were also explored in Société Rhone-Poulenc v. Ciba (1967) 35 F.P.C. 174 at 201-205 and 1968 S.C.R. 950 in which a broad claim was found invalid because the majority of the substances of the class had never been made or tested by anyone. It may be noted, furthermore, what were the reasons leading to the introduction of both Section 41 into the Canadian Patent Act in 1923, and Section 38A into the British Patent and designs Act in 1919. Section 38A came into being to remedy an abuse which led to the domination of the British dye industry by foreign interests who obtained broad chemical claims covering substances which they had never made or tested, and who subsequently used such claims to restrict the activities of their competitors (Transactions of the Chartered Institute of Patent Agents, vol. 62, p.92).

In this case the examiner has rejected the whole application. We find the examiner's arguments persuasive. For the reasons advanced above against the earlier application we believe there has not been a sufficient disclosure of any invention made, that Section 36 is not satisfied, and on the basis of the evidence before us that all the applicant has done is speculate about a possible invention. We recommend that the application be refused.

The examiner also objected that the applicant failed to include sufficient warning of the dangers involved in using his alleged invention, and of the precautions necessary. Since the specification is addressed to one skilled in the art who, in this instance at least, would be aware of the radioactive hazards involved, and how to handle them, we are inclined to the view that this requirement of the examiner is unnecessary. Since, however, we have found the application unallowable on other grounds, we need not develop this conclusion in detail.

Our recommendations, therefore, are that the present claims of application 148,888 should be refused, and that application 149,636 should be rejected in its entirety.



Gordon Asher,
Chairman,
Patent Appeal Board, Canada

Having considered the prosecution of this application, I now reject application 149,636 and the claims of application 148,888 for the same reasons as were advanced by the Patent Appeal Board. The applicant has six months within which to appeal this decision or, in the case of application 148,888, to restrict the claims to the subject matter found allowable by the Board.



J.H.A. Gariepy
Commissioner of Patents

Dated at Hull, Quebec

this 19th. day of January, 1978

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