

DECISION OF THE COMMISSIONER

OBVIOUS: In view of prior art.

INDEFINITE CLAIMS: Desired Result.

The claims are couched in such broad terms, in this case in terms of function or desired result, that they embody the prior art capable of performing substantially the same function or purpose and therefore fail to clearly differentiate "what is new from what is old".

FINAL ACTION: Affirmed.

IN THE MATTER OF a request for a review by the
Commissioner of Patents of the Examiner's Final
Action under Section 46 of the Patent Rules.

AND

IN THE MATTER OF a patent application serial
number 887,933 filed October 30, 1963 for an
invention entitled:

PLANT STIMULATING FLUORESCENT LAMPS

Patent Agent for Applicant:
Messrs. Gowling & Henderson,
Ottawa, Ontario.

This decision deals with a request for review by the
Commissioner of Patents of the Examiner's Final Action dated
September 14, 1970 refusing to allow application 887,933.

The refusal of the examiner to allow claims 1, 2, 5,
6 and 7 of the application was based on the grounds that the
claims are indefinite and rejected under Section 36(2) and
prior art.

The Patent Appeal Board conducted a hearing on February
9, 1971. Mr. D. Watson and Mr. D.W. Puttick of Messrs. Gowling
& Henderson represented the applicant. The facts are as
follows:

Application 887,933 was filed October 30, 1963 in the
name of C.J. Bernier and refers to Plant Stimulating Fluorescent
Lamps.

In the prosecution terminated by the Final Action dated
September 14, 1970, the examiner stated that the rejection of
claims 1, 2, 5, 6 and 7 is maintained for the following reasons:

References Applied:

Canadian Patents
461,918 Dec. 20, 1949 Cl. 313-80 Oranje
517,681 Oct. 18, 1955 Cl. 31-83 Butler (A)

R.J. Downs et al; Comparison Of Incandescent And
Fluorescent Lamps For Lengthening Photoperiods;
Proceedings Of The American Society For Horticultural
Science; Vol. 71; 1958; pages 568-578.

British Patent
869,147 May 31, 1961 Henderson et al

United States Patents
2,826,553 Mar. 11, 1958 Cl. 252-301.4 Butler (B)
2,851,425 Sept. 9, 1958 Cl. 252-301.6 Thorington

It is well known that all plants are responsive to sunlight and particularly those frequencies in the visible region of the spectrum. The red and blue bands contain most of the energy and it is therefore not surprising that plants should be stimulated to some degree by artificial light which emits these frequencies. It is also known that growth takes place by means of photosynthesis through the chlorophyll found in the leaves and stalks of plants which are invariably some shade of green. It is an elementary physical principle that colours are observed because of reflection and absorption phenomena and therefore, since plant growth takes place through the green parts it is an obvious conclusion that green band frequencies would have little influence on plant growth. It is also well known that ultra-violet radiation tends to destroy living tissue and therefore would be detrimental to plant growth.

In summary it may be stated that:

- (a) ultra-violet frequencies are not beneficial to plant growth;
- (b) red and blue frequencies are beneficial;
- (c) plants are inherently incapable of converting the green band frequencies into useful energy because of nearly total reflection.

The reference to Downs et al teaches that fluorescent lamps have previously been used to stimulate plant growth. The Bibliography in the reference also suggests that several studies have been made with respect to spectral composition and light quality and their

relation to plant growth. The reference distinctly shows that cool white lamps were used in greenhouses and also shows the relative energy curve of a cool white lamp. A study of this curve bearing in mind the terminology previously described will clearly indicate that this lamp produces radiation predominantly in the red and blue regions and somewhat less in the green. It is of course well known that all mercury vapour fluorescent lamps possess the characteristic of producing very little ultra-violet radiation.

It is therefore held that claims 1, 2, 5, 6 and 7 are substantially met by the reference to Downs et al, since they read on Downs et al due to their broad indefinite negative limitations.

The Oranje drawing depicts a light intensity curve for a warm white fluorescent lamp which is obtained by multiplication of the energy distribution curve into the sensitivity curve of the eye. This latter curve approximates a Poisson distribution (bell curve) whose limits are 400 and 700 millimicrons with a peak at 500. If the same mathematical operation was performed with the relative energy curve shown in applicant's Figure 2, the result would be a curve so similar to Oranje as to be nearly identical. It is therefore considered that the fluorescent lamps under comparison produce output energy distributions which are equivalent in the red and blue and differ only slightly in the green.

It is therefore held that claims 1, 2, 5, 6 and 7 are met by Oranje and to use such a lamp for stimulating plant growth is obvious in view of Downs et al.

The further references to Butler (A), Henderson et al, Butler (B), and Thorington have been cited to show that red and blue emitting phosphors and in particular red emitting magnesium fluorogermanate and blue emitting strontium pyrophosphate are well known in the fluorescent tube art. In addition these references show that various phosphor combinations to produce a specific light output is a matter of selecting the members and their relative proportions.

The Examiner further considers that the broad negative limitations expressed in claims 1, 2, 5, 6 and 7 are indefinite and therefore subject to rejection under Section 36(2) of the Patent Act in view of the prior art.

In applicant's response of December 14, 1970 he stated that:

The Examiner has made statements as to what is well known without substantiation of those statements. With reference to the paragraph in the middle of page 2, while it may be considered that "it is well known that all plants are responsive to sunlight", the Examiner has not established that all of his statements as to the exact manner in which plants are stimulated are well known. In particular, he has not established that such knowledge, even if it exists, has been brought together without previous knowledge of applicant's invention.

The Examiner is in error in concluding that the claims are substantially met by the reference to Downs et al. The mere fact that fluorescent lamps have previously been used to stimulate plant growth does not mean that lamps of the particular characteristics of applicant's lamp have been used. Someone following the teaching of Downs would use cool white lamps with wasted energy and indeed including a green component which would actually be undesirable. It is pointed out in the present application on the first page in paragraph 2 that "green light produces an adverse effect on cell division". Applicant tenders as Exhibit "A", attached hereto, a graph superimposing the spectra of Downs et al and Oranje (and including the definitions of "blue" and "green" cited by the Examiner) upon applicant's Figure 2. Downs et al show radiation in the green portion of the spectrum increasing almost continuously to its maximum. There is nothing remotely resembling the two distinctive maxima in the "blue" and "red" portions of applicant's relative energy curve (Curve A).

The Examiner has also erred in his rejection of the claims as met by Oranje. Applicant submits an Affidavit, identified as Exhibit "B", showing that the subjective sensation is that green is much reduced or eliminated. The teaching of Oranje is the providing of a warm white light which gives vivid colours. There is a slight dip in the distribution curve shown in Figure 1 of the drawings, but this dip is still a highly substantial value between two maxima both of which (to choose the definition "assumed by the Examiner") are clearly either in the "green" portion or adjacent thereto. No one following the teaching of Oranje would eliminate the green component. Since the object of Oranje is to obtain vivid colours it would be entirely inconsistent with such object to adopt a light distribution which would make all green coloured objects appear dark (some almost black) and thus completely distort the colour rendering of an object.

It is submitted that it is fundamental that the whole of a reference must be considered and one is not at liberty to take things out of context, to disregard the entire context of the teaching and make changes with foreknowledge of some subsequent invention. Applicant has been unable to obtain a lamp similar to Oranje as an article of manufacture for comparison purposes.

The examiner has erred in characterizing applicant's invention as a discovery lacking an inventive step. It is well established that a discovery can help supply the inventive merit and the mere fact that applicant has made a discovery does not prevent the applicant from obtaining protection for inventions resulting from such discoveries. The claims are one of two types. One group of claims is for fluorescent lamps of certain characteristics. There is also a claim for a method of treating plants. Both these claims clearly fall within the wording of Section 2(d) and define inventions and not mere discoveries.

After careful study of the examiner's actions and the written and oral arguments presented by the applicant I am satisfied the rejection is well founded.

This application refers to Plant Stimulating Fluorescent Lamps. Claim 1 reads as follows:

A lamp suitable for stimulating plant growth comprising a sealed envelope, a filling of mercury vapor and inert gas therein, a fluorescent coating and means for stimulating the coating to fluorescence predominance in the red and blue, the resultant light being characterized by emission predominantly in the red and blue spectral regions, the emission being substantially free from ultra-violet emission below 3500 Angstrom Units and the green emission portion of the characteristic being relatively insubstantial.

At the hearing the Patent Agent reviewed the stand of the applicant and stressed the point that in his opinion the rejected claims were in fact proper subject matter and should be allowed. The demonstration at the hearing using different lamps did not prove much more than the fact that the emissions from the lamps were different.

On page 1, line 13 applicant states: "I have discovered that a fluorescent ...". Applicant also stated in his action of December 14, 1970: "It is well established that a discovery can help supply the inventive merit and the mere fact that

applicant has made a discovery does not prevent the applicant from obtaining protection for inventions resulting from such discoveries". The court was held, Continental Soya v. J.R. Short (1942) 2 C.P.R. 1, "The difference between discovery and invention has been frequently emphasized, and it has been laid down that a patent cannot be obtained for a discovery in the strict sense. If, however, the patented article or process has not actually been anticipated, so that the effect of the claims is not to prevent anything being done which has been done or proposed previously, the discovery which led to the patentee devising a process or apparatus may well supply the necessary element of invention required to support a patent." I note the words "a process or apparatus may well supply the necessary element of invention ...". Therefore claims which do not comply with this may not be allowed. A claim which only claims a desired result must be refused.

The court also held, Bergeon v. De Kermor 1927, Ex. C.R. 181, "The function or operation of a device as distinguished from a device itself cannot be made the subject of a patent."

The reference to Oranje teaches a mercury vapour fluorescent lamp of the wrm white type. It explicitly teaches a three phosphor composition whose parts radiate red, blue and green. It should be noted that the green phosphor is a very small part of the total.

The reference to Downs et al teaches that fluorescent lamps have previously been used to stimulate plant growth. The Bibliography in the reference also suggests that several studies have been made with respect to spectral compositions and light quality and their relation to plant growth.

The further references to Butler (A), Henderson et al, Butler (B) and Thorington show that red and blue emitting magnesium fluogermanate and blue emitting strontium phyrophosphate are well known in the fluorescent tube art.

The applicant stated that the Examiner has given a meaning to the word "insubstantial" which is far from the normal meaning of the term. I agree with the applicant and the normal dictionary meaning is: nonsubstantial or lacking substance or reality. The court has held, Imperial Chemical Industries v. Commissioner of Patents (1966) 51 C.P.R. 102 - that a normal meaning of the words should be used and not some unusual definition.

Applicant stated that there is no substantiation for the statement "with respect to plant response to sunlight". The reference to Downs et al is replete with knowledge about plant response to sunlight and various frequencies in the visible spectrum.

Applicant has argued that the claims do not have objectional negative limitations. I find the rejected claims are in fact broad and indefinite, and in view of this they envelope the teachings of the prior art. It is well established that a claim must clearly differentiate what is new from what is old. The claim must avoid the mistake of being couched in such broad terms that it will embody both the principle of the improvement and the prior art (see Bergeon v. De Kermor (1927) Ex. C.R. at 198). I find that applicant is defining a light distribution in terms of the presence of certain desirable components and the elimination of undesirable and wasteful components. Such characteristics are mere function or desired result and do not define invention. It is clear that the claims not merely claim the solution to a problem present in the prior art, but must explicitly show some real structure which solves the problem itself. In the present case general fluorescent lamps do not possess the required output characteristics (a desired result) and the Inventor has offered a new fluorescent lamp with a particular phosphor composition which is a real structure which possesses substance. This is the subject matter which must be claimed.

Applicant argued that the reference to Oranje is not pertinent and supplied an exhibit showing that the green region is much reduced or eliminated. He also compared the curve of Oranje to the curve of Figure 2 of this application and deduced that there is a substantial difference in the lamp outputs. I find the argument of the applicant to be erroneous with respect to the curves in that a valid comparison may only be made when comparing curves defined by the same units. In order to do this the curve of Oranje must be treated to a division by the relative intensity curve of the human eye to obtain a relative energy curve which may then be validly compared with Figure 2 of the disclosure.

I find that translating the relative intensity curve of Oranje into a relative energy curve would produce a curve similar to Curve B of Figure 2. This curve would then have a distinct maximum centered in the blue with another maximum centered in the red and with the green region substantially suppressed; this I submit would meet the conditions as set out by the applicant when he states, "the green emission portion of the characteristic being relatively insubstantial". It is this translated curve which is applied against the claims and in view of this I do not see how the subject matter of the claims is inventive thereover.

Applicant desires to have claims in terms of characteristics and feels he should not be restricted to a phosphor combination. The object of any lamp is to produce a light output and a claim solely defining an output is a functional statement and if this occurs at the point of invention then the claim may be rejected under Section 36(2).

In my view, to stimulate plant growth by artificial light is not novel (Downs et al); it is also shown that the frequency distribution is not novel, (the translated curve of Oranje) and I therefore hold that the claims under consideration are too broad in view of the prior art and do not comply with Section 36(2) of the Patent Act.

I also find that the method claims (6 and 7) may only be implied from the disclosure and they are broader than the invention disclosed and are therefore subject to further rejection under Rule 25.

While it is not incumbent on me to consider claims which were presented at the hearing, I note that they are objectionable for the same reasons used for rejecting claims of this application.

I recommend that the decision of the examiner to refuse claims 1, 2, 5, 6 and 7 be upheld.

R.E. Thomas,
Chairman,
Patent Appeal Board.

I concur with the findings of the Patent Appeal Board and confirm the Final Action refusing to allow claims 1, 2, 5, 6 and 7 of this application. The applicant has six months in which to appeal this decision in accordance with Section 44 of the Patent Act.

Decision accordingly,

A.M. Laidlaw,
Commissioner of Patents.

Dated at Ottawa, Ontario,
this 15th day of March 1971.

This is an addendum to the Commissioner's Decision on application number 887,933 dated March 15, 1971.

On page ~~2~~³ add the following paragraph before the ~~second~~ last paragraph:

Since claim 3 does not recite a selected range of materials, it includes all combinations as well as the condition where the amount of one phosphor is very large with respect to the other or vice versa. It is therefore rejected as obvious in view of Oranje and prior common knowledge in the art due to phosphors and plant growth use.

In view of this the ~~second~~^{third} last paragraph on page 2 will now read:

It is therefore held that claims 1, 2, ~~3~~³, 5, 6 and 7 are met by Oranje and to use such a lamp for stimulating plant growth is obvious in view of Downs et al.

The second paragraph on page 8 will be changed to read:

I recommend the decision of the examiner to refuse claims 1, 2, ~~3~~³, 5, 6 and 7 be upheld.

R.E. Thomas,
Chairman,
Patent Appeal Board.

Decision accordingly,

A.M. Laidlaw,
Commissioner of Patents.

Dated at Ottawa, Ontario,
this 19th day of March 1971.