Before The Superintending Examiner.

8th December, 1955.

IN THE MATTER OF THE DOW CHEMICAL COMPANY'S APPLICATION FOR A PATENT.

Patent—Manner of Manufacture—Application for patent accompanied by a complete specification including claims for (a) a seedicidal composition containing propargyl bromide for the treatment of soil, (b) a composition comprising soil and a seedicidal amount of propargyl bromide, and (c) a method of producing an improved soil, which method comprises impregnating the soil with propargyl bromide.

Patents Act, 1949, Sec. 101.

Held, that the Application be refused unless certain claims are deleted.

Office practice in regard to applications for patents for methods of agriculture and methods of cultivating the soil discussed.


The facts are sufficiently set out in the decision dated 18th January, 1956, of the Superintending Examiner (Mr. R. D. Satchell) acting for the Comptroller-General, which is as follows:—

Application No. 21894/53 is concerned with soil treatment and is particularly directed to a composition for soil sterilization and for preventing the growth of germinative seeds. The alleged invention is based on the discovery that propargyl bromide can be used to sterilize the soil so as to kill seed of weed species which lie dormant in the soil.

The term "seed" is employed in its broad agricultural meaning and includes any propagative portion of a plant including true seeds and seed-like fruits, and tubers and bulbs. By the treatment of the soil with propargyl bromide control is obtained not only of seeds but also of soil inhabiting parasites such as nematodes, wireworms and certain fungal organisms.

The term "soil" or "growth medium" is used in the specification in its broadest sense as defined in Webster's New International Dictionary, Second Edition, and includes not only earth but also compost, manure, muck and sand adapted to support plant growth.

The propargyl bromide is distributed through the soil in the amount of from 38 to 160 parts or more by weight per million parts by weight of soil, and it is desirable that the compound be distributed to a depth of at least two inches. The treatment may be carried out in any convenient fashion e.g. by injection or drilling techniques or by introducing the propargyl bromide in the water used to irrigate the soil. It is convenient to use the propargyl bromide in the form of a concentrate made by mixing the propargyl bromide with a finely divided inert solid, a dispersing or emulsifying agent, an aqueous emulsion, a petroleum
distillate or methylene chloride. The concentrate composition so obtained preferably contains from 10 to 95 per cent. of the active ingredient. The propargyl bromide is dissipated from the soil within a relatively short period of time, so that the soil may be utilized for the raising of a crop e.g., about 10 days after the distribution of the toxicant.

In the several examples given, the toxicant is dispersed in seed beds, flats or plots, by injection or irrigation methods.

Claims 1, 2 and 5 relate to alleged novel compositions for the treatment of growth media (soil). No objection has been raised against them and I need not consider them further.

Claim 6 is a method claim, and reads in the following terms: “6. A method for producing an improved solid growth medium from a growth medium as hereinbefore defined which contains undesirable germinative seeds, which method comprises impregnating the growth medium with a seedicidal amount of propargyl bromide.”

The Examiner has objected that this claim does not relate to an invention within the meaning of Sec. 101 of the Act, on the grounds that it relates not to a manufacture, but to an agricultural process.

Claims 3 and 4 were not specifically discussed at the hearing, but as they stand to Claim 6 in the relationship of product to process, all three claims can conveniently be considered together.

The matter came to a hearing before me on the 8th December, 1955, when Mr. G. D. Everington appeared as Counsel for the Applicants.

Mr. Everington had two main lines of approach—it cannot make any difference how much soil is treated at a time, or where the soil is situated. If you have a bag of soil and treat it in a certain way to sterilize it you get a vendible product. That, in his opinion, is clearly a manner of manufacture, and it must follow that the method of producing the bag of sterilized soil is equally a manner of manufacture. He referred to Specification No. 501,642 in the name of Ellingworth and others in which a claim had been allowed by the Patent Office for a process for the manufacture of improved soil from eelworm infected soil for supply to a horticulturist or agriculturist, by treating discrete quantities of the said soil with a certain chemical. A claim was also allowed for discrete quantities of soil when so treated. In Mr. Everington’s first submission, it is just as much a manufacture whether the propargyl bromide is mixed with the soil in a mixer or in a tray or in a heap on the ground or laid out in a layer on the ground, or in its natural state as the top layer on the ground.

I am unable to accept this submission. I do not for one moment believe, because it is an invention to mix soil in a mixing machine with a chemical (assuming for the moment that it is), that it necessarily follows that it is also an invention to apply the same chemical to the land by agricultural techniques.

Mr. Everington’s second submission is that the intention as to the ultimate use of the soil is also quite irrelevant. If the top soil of a plot of land is treated with propargyl bromide, it can then either be removed and put in a bag and sold, or it can be left where it is and used to grow crops. It would be quite illogical to say that the treatment is a manner of manufacture if the soil is removed but not if it is merely left where it is.

I accept Mr. Everington’s second submission, but I do not think it will help me in deciding the present case.
Claim 6 of the Applicants' specification relates to a method for treating soil containing undesirable germinative seeds to produce an improved soil, and comprises impregnating the soil with a sufficient amount of propargyl bromide to suppress the germination of the seeds. The claim has the form of a method of impregnating soil, but no novelty is alleged in the method of impregnation itself. The methods of impregnation described in the specification are the methods commonly used to introduce chemicals into the soil, namely, mixing, injection, drilling and irrigating. The invention is founded upon the discovery of the seedicidal action of propargyl bromide when distributed in soil in close proximity to the seeds, and the claim, in effect, appears to be a claim for the use of propargyl bromide as a seedicide in the treatment of seed-infected soils.

In B.A.'s Application (1915) 32 R.P.C. 348, the Solicitor-General rejected a claim in the form “The herein described process of fertilizing the ground consisting in applying urea nitrate thereto” on the grounds that it was nothing but a claim for a new use of an old substance. There are many points of similarity between B.A.'s Application and the Application in suit. Instead of fertilizing the soil the present Applicants are destroying undesirable seeds present in the soil. Instead of urea nitrate they are using propargyl bromide.

B.A.'s Application was decided in 1915 and I must consider whether, in view of several more recent judgments which were referred to at the hearing, it is still good law. The most relevant cases are Cementation Coy. Ltd.'s Application (1945) 62 R.P.C. 151, Bovingdon's Application (1947) 64 R.P.C. 20 and Standard Oil Development Coy.'s Application (1951) 68 R.P.C. 114. Alsop's Patent (1907) 24 R.P.C. 733 also was referred to, but only to show that a process may be good subject matter of Letters Patent if the result of a new process is a new article, or a better article, or a cheaper article than that produced by old methods, provided that it required an exercise of the inventive faculty to arrive at it. The learned Judge observed that “a process to be patentable must be a process which leads to some result and the result arrived at must be useful, though “it need not be an article at all; for example, a new process for chemically “cleaning dirty linen would be good subject matter ...”. The Application in suit, according to Mr. Everington, is an application for cleaning dirty soil, that is, infected soil.

Mr. Everington relied upon the Cementation Company's case. There were two applications by the Cementation Coy. Ltd. and others. The first was for “A method of preventing subterranean fires” and the second for “Improvements in or relating to the extinction of subterranean fires.” The first claim of the former reads as follows—“Method of treating a subterranean formation containing material liable to combustion, which consists in drilling holes extending down into such formation and introducing through such holes a material of such a nature that it will dissociate upon the initiation of combustion with liberation of carbon dioxide.” The method described involves (quoting from line 29 on p. 152 of the reported decision) “impregnation of the subsoil or subterranean “formation” by means of specially designed pipes or tubes, suitably disposed, with a chemical compound such that in the presence of a certain degree of heat CO₂ is released and at the same time, by the application of water, the residuary compound swells and seals all interstices. The method also involves “or may involve the isolation of the area to be treated.” The second application, to which I need not refer in detail, is for a method of extinguishing subterranean fires. The applications were refused by the Superintending Examiner, acting for the Comptroller-General, on the grounds that the formation to which the treatment is applied, although vendible, is not a product. Mr. Justice Evershed, as he then was, confirmed the judgment in the well-known G.E.C.'s Application (1943) 84288-A.
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60 R.P.C. 1 and reversed the Superintending Examiner's decision since, in his judgment, the word "product" used by the Lord Justice in the G.E.C. case is a convenient and compendious term to indicate the article or material resulting from the activities of (a) production, (b) improvement or restoration, and (c) prevention from deterioration; and it cannot be asserted that the material or formation resulting from either of the Cementation Coy.'s processes is beyond reasonable doubt not a "product" within the terms of Morton, L.J.'s rule. Mr. Everington argued that if the treatment of a subterranean formation is a manner of manufacture, so also must be the treatment of the surface soil.

Bovingdon's Application relates to improvements in or relating to the production of fumigating materials, and includes claims for methods of fumigating enclosed spaces to control pests therein by treating the said spaces with an aerosol containing benzene hexachloride. At the hearing before the Superintending Examiner, the following amended claim was proposed—"A method of treatment of building " and other structures capable of being closed and liable to infestation by insects, "which comprises introducing into the structure, when substantially closed, an "aerosol containing benzene hexachloride having a substantial portion of gamma-"isomer." These claims, together with the proposed amended claims, were refused by the Superintending Examiner on the grounds that, although the building or structure is a vendible product within the rule laid down in G.E.C.'s Application, supra, considered in the light of observation of the Patents Appeal Tribunal in Cementation Coy., Ld. and others' Applications, the treatment did not result in any improvement in or alteration of the structure itself. The Superintending Examiner's decision was upheld by the Patents Appeal Tribunal.

The next case to which I must refer is the Standard Oil Development Coy.'s Application. The first claim in the specification reads as follows—"A method for "the production of an improved tract of arable land from a tract which "contains growing vegetables of the Umbelliferae family, together with weeds "of the type of grasses and/or clover, which comprises applying to the land "and to the vegetation therein a herbicidal composition comprising predominantly "alkane and alkene hydrocarbons boiling within the temperature range of 325 "degrees F. to 425 degrees F., and substantially free from aromatic hydrocarbons, "in such amount that the weeds are substantially completely killed while the "vegetable are substantially unharmed, whereby there is obtained an improved "tract of substantially weed-free vegetable-containing land." The Superintending Examiner refused the grant on the grounds that the application was of the kind to which the judgment of the Master of the Rolls, in the case of Bovingdon's Application is applicable, and did not comprise a manner of new manufacture. The decision was upheld by the Patents Appeal Tribunal.

Mr. Everington quoted the words of the learned Judge (from line 14 on p. 115 of the reported Standard Oil judgment)—"Assuming, as I do, the novelty of the "alleged method, the question is: Does the specification disclose that the applicant "is possessed of an invention, that is, of any manner of manufacture the subject "of Letters Patent and grant of privilege within Sec. 6 of the Statute of "Monopolies? The reference to the Statute of Monopolies incorporates certain "limitations in type of new manufacture appropriate for the grant of Letters "Patent which are not here relevant, and the question for decision is whether "or not the method of applying the specified materials as selective plant destroyers "to growing crops is a manner of manufacture." Lloyd-Jacob, J., affirming the decision of the Superintending Examiner, observed that (from line 10 on p. 116) "the expression 'a manner of manufacture' directs attention to the end product "of the alleged invention, and, although natural as well as artificial substances
"may be utilized as ingredients, the 'article' or 'material' resulting from the operation must derive from the exercise of the invention. In the present case, "the land remains unaltered. Some of the herbs in or upon it are affected. "The land is merely the carrier both of crop and herbage and plays no part in the operation by which they are selectively affected".

Mr. Everington distinguished the Standard Oil case from the application in suit, emphasizing that in the Standard Oil case one is concerned with the natural growth of a crop, and in order to get the ultimate result, one relies on nature doing its work and producing the crop in the improved circumstances brought about by the weed-free land. The "Poinsettia" case, N.V. Philips Gloeilampenfabrieken (1954) 71 R.P.C. 192 was referred to in this connection. In the present case one is not concerned with any growing crop at all.

That, of course, is true, but I am impressed more by the similarities between the two cases than by the dissimilarities. Whereas the herbicide used in the Standard Oil case kills the weeds while they are growing, the seedicide used in the application in suit kills the weeds before they start to grow, i.e. it prevents germination of the seeds. In both cases, the land (or soil) is merely the carrier for the seeds or seeds and plays no part in the operation. In the Standard Oil case, weed-free vegetable-containing land is obtained, and in the present case it is seed-free soil, that is to say, soil which contains no germinative seeds. In both cases, it is hoped that nature will provide an improved ultimate crop in the absence of competing weeds.

There is admittedly a difference between the ways the two inventions are claimed. One involves a growing vegetable crop and the other does not; but the herbicide does not directly affect the growing crop—only the weeds. In the Standard Oil case (at p. 115, lines 42 to 44) the learned Judge held that the improvement is in the cultivation of the crop, which improved cultivation, it is hoped, will be ultimately reflected in the quality and condition of the crop itself.

It is abundantly clear that the ultimate object of the treatment of the soil in the present case is to grow crops. One of the declared advantages of the invention is that the propargyl bromide is dissipated from the growth media within a relatively short period of time so that such media may be utilized subsequently for the raising of a desired crop (p. 3, lines 32 to 36 of the specification). I am, therefore, not convinced that the judgment in the Standard Oil case is irrelevant to the present issue. Killing the seeds of weeds before they germinate seems to me to be as much a method of cultivation as is killing the weeds after germination and during growth. The soil, as in the Standard Oil case, is merely the carrier for the seeds and is itself unaffected. The seeds which are carried in the soil are no longer able to germinate. In the same way, the soil inhabiting parasites, formerly living in the soil, are still there but are now dead. As in Bovingdon's Application, where the treatment of the building or structure with insecticide does not result in any improvement in or alteration of the structure itself, so also in the present case, the treatment of the soil with a seedicide does not result in any improvement in or alteration of the soil itself. The immediate product on the one hand, is a building with dead insects, and on the other, soil with dead seeds and parasites. By dead seeds I mean, of course, seeds which are no longer able to germinate.

I ought, at this stage, to refer to several patents which have been granted in recent years and which, according to Mr. Everington are relevant to these proceedings. The first is Alexander's Patent No. 669,990. It is for "A method of producing an improved grass turf which comprises covering a sown seed bed with a layer of granular material and covering that layer with a layer of 84288—A 2".
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"bitumen impervious to moisture both from above and below and of such
"thickness and physical characteristics as will permit the grass, when long enough
"to pass through the granular material, to grow through the bitumen". The
product is an improved grass turf consisting of layers of soil, granular material
and bitumen, in and through which the grass is growing.

Then there are the Monsanto cases, of which Specifications 730,463, 730,464
and 731,052 were specifically referred to. I need only refer to 730,463 which is
typical of them all. It is entitled "Improvements in or relating to a method of
"improving Soil Structure", and the invention aims at soil improvements for
increasing crop yields and preventing natural erosion. Claim 1 is long and com-
plicated in its definition of the material used, and it is unnecessary for me
to repeat it in full. It is a claim having the form: A method of improving the
structure of soil which comprises incorporating in the soil a small amount not
exceeding 2 per cent. by weight of the weight of the soil of a (specified) water-
soluble high molecular weight copolymer. A soil having a good structure is
defined as one which contains small bodies formed by the agglomeration of soil
particles with a substantial volume of intersticial spaces. The purpose of the
invention is to improve soil structure and thereby to increase the agricultural
yield of the soil and to prevent erosion of exposed soil surfaces.

The only other case is No. 501,642 in the name of Ellingworth and others, to
which I have already referred, wherein a patent was granted for a "Process
"for the manufacture from quantities of eelworm infected soil, tubers and seeds,
"of improved soil, tubers and seeds, for supply to a horticulturist or an agri-
culturist, which comprises treating discrete quantities of the said soil and
"which comprises treating in bulk the said tubers and seeds with an isothiocyanate
"of the benzene or naphthalene series, whereby the said materials are freed from
"or substantially freed from the eelworm infection". The specification relates,
among other things, to a process for the treatment of discrete quantities of infected
soil by means of an insecticide, which is clearly very similar to the process of
the application in suit. There is, however, one notable difference—the former
process is restricted to the treatment of soil in discrete quantities for sale to
horticulturists or agriculturists whereas the latter is clearly concerned with the
treatment of soil constituting the land and soil in the form of a prepared seed
bed. The examples in the Applicants' specification all relate to the application
of the propargyl bromide composition to a prepared seed bed or to a plot of land.

Specification 501,642 was accepted in 1939, which was well before judgments
were given in the Bovingdon Application (1946) and the Standard Oil Application
(1951). I cannot accept 501,642 as a reliable guide in deciding whether I ought
now to allow a process for treating soil with an insecticide or seedicide, particularly
when the treatment takes place on the land or on a prepared seed bed.

The present case is not an easy one to decide. The dividing line between what
is, and what is not, a manner of manufacture within the meaning of the Statute
is not clearly defined, and I must consider the present Application against the
background of past and present Office practice with such assistance as I am able
to get from reported decisions which have the sanction of a higher authority.

Mr. Everington pointed out that established practice is not overriding in deciding
whether or not a claim is allowable, as a matter of law, under the Act. Of course,
I accept this—individual cases must be treated on their merits, but the fact that
a practice has not been effectively challenged over a number of years provides
prima facie evidence that the practice is not flagrantly in error. It has never
been the practice of the Office to grant patents for methods of agriculture or
for methods of cultivating the land.
In deciding this application, I am assisted mainly by B.A.'s Application, Bovingdon's Application and Standard Oil Development Coy.'s Application. The main authority which has been argued in favour of the Applicant is Cementation Coy. Ld.'s Application, but this case is distinguished by the fact that the product, i.e. the subterranean formation, has a modified or improved structure, whereas in the present application the soil structure is unchanged—all that has happened is that the seeds and parasites have been rendered harmless. I have not overlooked the fact that the soil may also contain a small amount of the seedicide, but soil containing seedicide cannot be used for growing crops and is not an improved growth medium until the seedicide has been allowed to disperse. The seedicide is applied to the seed infected soil in the same way as the insecticide is applied to the insect infested buildings in Bovingdon's Application, without in any way modifying or altering the soil apart from killing the seeds therein. The present case, to my mind, is closer to Bovingdon’s Application and Standard Oil Development Coy.’s Application than it is to Cementation Coy. Ld.’s Application.

Finally, I must refer again to the Monsanto and the Alexander patents. The processes of the Monsanto patents produce a change in the physical structure of the soil whereby the physical appearance is changed, and the drainage, aeration, and erosion resistance are improved. The Alexander patent No. 669,990 also relates to an improved physical structure, which in this case consists of layers of soil, aggregate and bitumen in and through which grass is caused to grow. This change in physical structure—large scale structure in the case of the Alexander patent (and also in the Cementation case), and fine structure in the case of the Monsanto patents—sufficiently distinguishes these cases from the present application.

I decide therefore, not to allow the Application to proceed to acceptance with the present Claims 3, 4 and 6.