BETWEEN:

THE B.V.D. COMPANY, LIMITED....PLAINTIFF;

AND

CANADIAN CELANESE, LIMITED...DEFENDANT.

1936
Jan. 8-10, 13-17.
Mar. 26.

Patents — Impeachment — Anticipation — Prior publication — Specification — Patent Act, s. 61 (1) ss. (a) — Ambiguity — Sufficiency of specification — Novelty — Subject-matter — Invention — Infringement.

Defendant is the owner by assignment from the patentee, of two Canadian patents, one of which, No. 265,960, is for a process for making a composite sheet material by heat and pressure in which one fabric at least contains a "thermoplastic derivative of cellulose," or "an organic derivative of cellulose," or a "cellulose ester," or a "cellulose acetate," and contains a claim for the product.

The second patent in suit, No. 311,185, states that the object of the alleged invention is to produce a fabric containing organic derivatives of cellulose that is suitable for use as a stiffening material wherever such a fabric is necessary.

Plaintiff's action is one to impeach both patents.

Held: That a prior published patent must be read as it would have been read without the knowledge of subsequent researches or improvements disclosed in subsequent patents or publications.

2. That s. 61 (1) and ss. (*a*) of the Patent Act require that before a patent shall be declared void on the ground of anticipation it must be established that before the date of the application for such patent another inventor had disclosed or used the invention in such manner that it had become available to the public.

3. That ambiguity, whether deliberate or avoidable, voids a patent, since a specification must be sufficiently explicit in describing the nature and ambit of the invention to ensure to the public the benefit of the

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discovery, when the period fixed in the grant as the period of monopoly comes to an end.

4. That a specification will be sufficient which contains directions enabling a person having a reasonable competent knowledge and skill of the subject to make the article described without further invention.

5. That a patentee need not state the effects and advantages of his invention.

ACTION to impeach Canadian Patents for Invention, numbers 265,960 and 311,185.

The action was tried before the Honourable Mr. Justice Maclean, President of the Court, at Ottawa.

O. M. Biggar, K.C., and *R. S. Smart, K.C.*, for plaintiff.

H. Gerin-Lajoie, K.C., and *W. F. Chipman, K.C.*, for defendant.

The facts and questions of law raised are stated in the reasons for judgment.

The President, now (March 26, 1936) delivered the following judgment:

This is an action for the impeachment of two Canadian patents owned by the defendant, numbered 265,960 and 311,185, assigned to it by the patentee, Camille Dreyfus, and alternatively for a declaration that certain soft collars or shirts with such collars attached, manufactured by the plaintiff, do not infringe the said patents of the defendant. Patent no. 265,960 corresponds with British patent no. 248,147 which issued in March, 1926, and with United States patent no. 1,903,960 which issued in April, 1935; the date of invention here relied upon in respect of patent no. 265,960 is the date of the application of the corresponding British patent, January 23, 1925. In all cases the patentee was Camille Dreyfus, and he is president of the defendant company herein.

The patentee is, I think, by profession a chemist, but at any rate he was associated with the early development of cellulose acetate as a commercial product.

Patent no. 265,960, which I shall first consider, issued on November 16, 1926, on an application filed on December 18, 1925, by Camille Dreyfus. The controversy arising over this patent relates so largely to the language and construction of the descriptive portion of the specification, and so much time was devoted to it by counsel, that it seems to

me desirable to quote it almost in its entirety even though it be lengthy. This might also be advantageous in the event of this judgment coming before another court for review. I shall adhere to the numbering of the paragraphs found in the copy of the specification filed with the court under the rules, and in the evidence, I think, there will be found numerous references to paragraphs of the specification by their numbers. Paragraphs two to twelve inclusive are as follows:—

2. This invention concerns the manufacture of new fabrics or sheet materials having waterproof to gas-proof properties or capable of other applications.

3. According to the invention, a fabric or sheet material is made by uniting under appropriate conditions of temperature and pressure, woven, knitted or other fabrics composed of or containing filaments or fibres of thermoplastic cellulose derivative or derivatives with woven, knitted or other fabric composed of or containing filaments or fibres of non-thermoplastic or relatively non-thermoplastic material.

4. According to the invention woven, knitted or other fabric made of yarns composed of filaments or fibres of a thermoplastic cellulose derivative, such for example as cellulose acetate, ethyl-, methyl-, or benzyl-cellulose, nitro-cellulose or other ester or ether of cellulose, or mixtures of such cellulose derivatives, is associated with woven, knitted, or other fabric made wholly or partly of yarns composed of filaments or fibres of a non-thermoplastic or relatively non-thermoplastic material, such for example as silk, cotton, linen, artificial filaments or fibres of the cellulose type, or wool or mixtures of any of such non-thermoplastic filaments or fibres with each other or it may be with filaments or fibres of a thermoplastic cellulose derivative or derivatives, and the associated fabrics are subjected to heat and pressure, with or without exployment, assistance or application of plasticising or softening agents or solvents of the thermoplastic cellulose derivative or derivatives; in this way the fabrics are united together and a composite sheet material is obtained in which the pores or interstices are reduced to extremely minute dimensions, or closed completely, by the melting or softening effect produced by the heat and pressure upon the filaments and fibres of the thermoplastic cellulose derivative or derivatives and by the uniting of the fabrics under the heat and pressure. Two of such fabrics, i.e., one of each of the two classes specified above, may be associated and united together as referred to, or the respective fabrics may be disposed in any desired relative number in alternation with each other. Thus for example a fabric of cotton or composed of or containing other non-thermoplastic fibre may be disposed between two fabrics of cellulose acetate or other thermoplastic yarns; or a fabric of thermoplastic yarns may be disposed between two fabrics of cotton or composed of or containing other non-thermoplastic fibres; or four fabrics, two of each class, may be disposed so that the fabrics of the thermoplastic yarn alternate respectively with the fabrics of cotton or composed of or containing other non-thermoplastic fibres, and so on.

5. The extent of the melting or softening effect, degree of closing the pores or interstices, and intimacy of union of the fabrics, and therefore the degree of impermeability of the compound fabric or material produced,

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can vary with the degrees and duration of heat and pressure employed, and with whether plasticisers, or softeners or solvents are employed, and with the number of fabrics united together, or other circumstances.

6. Thus for example the heat and pressure (with or without employment or assistance of plasticising or softening agents or solvents) may be such as to unite the fabrics together and close or reduce to minute dimensions the pores or interstices of the compound or combined fabric and render the same water-resisting or even gas-resisting, without causing the filaments or fibres of the thermoplastic cellulose derivatives to disappear. Or the heat and pressure may be such as to cause the filaments or fibres of thermoplastic cellulose derivatives to melt and disappear partly or entirely.

7. It is to be understood that the degrees and duration of heat and pressure are interdependent and that all or any of these conditions may be varied according to circumstances or requirements. For example, the less the heat, the greater or longer is the pressure required to produce a given effect or vice versa; or again, the same conditions of heat and pressure may be applied for more or less time to produce the effect in a more or less pronounced degree.

8. The degree of the melting effect, and the degree of intimacy of union of the component fabrics, may be increased or accentuated by the employment, assistance or application of plasticising or softening agents or solvents of the thermoplastic cellulose derivative or derivatives as referred to, and it is to be understood that such agents or solvents may be applied to or incorporated in any or all of the component fabrics before the application of the heat and pressure to the associated fabrics, for example, by the application of such agents or solvents in solution in volatile solvents thereof that are not solvents of the cellulose derivative or derivatives, and that alternatively, such agents or solvents may be incorporated in the filaments or fibres of thermoplastic cellulose derivatives in the production thereof, for example by employing such agents in the spinning solutions from which they are made.

9. Any plasticising or softening agents or solvents (preferably high-boiling or relatively high-boiling), of the cellulose derivatives may be employed. As some instances there may be mentioned triacetin, paratoluene sulphonamide or its derivatives, diethylphthalate, paratoluene sulphonamilide, and high-boiling alkylated xylene sulphonamide derivatives or preparations (for example, monomethyl xylene sulphonamide).

10. As the melting or softening effect is increased or accentuated by the plasticising or softening agents or solvents, one can employ less heat and/or pressure for the production of a given effect when such agents or solvents are employed.

11. The invention is particularly applicable when fabric of cellulose acetate yarns is used as the component thermoplastic fabric of the compound fabric or material, and will hereinafter be described in this connection, it being understood, however, that fabric of other cellulose esters or cellulose ethers may be employed as before indicated.

12. The heat and pressure may be applied in any appropriate way to the associated fabrics to be united together, for example by passage between pressure rollers, one or both of which is or are heated, or between a heated roller and a heated or cold plate or surface, or by pressure between heated plates or surfaces or between a heated plate or surface and a cold plate or surface, or by passing the associated fabrics under tension over a single heated roller, e.g., a calendar roller, or by any other suitable means. In cases where the associated fabrics are passed through

pairs of pressure rollers, the rollers in each pair may rotate at the same or at different speeds. Where the fabrics are passed under tension over a single heated roller, the roller may with advantage be rotated in an opposite direction to the travel of the fabric.

The specification then proceeds to give a more detailed description of the manner in which the invention may be carried into effect, and that is in the language following:—

14. A woven or warp knitted fabric made of cellulose acetate yarn is associated with woven or knitted fabric of silk, cotton, linen or other fibre, preferably after being coated or treated with a plasticising or softening agent or solvent on the face that is to contact with the latter fabric, and the associated fabrics are subjected to heat and pressure to unite the component fabrics together and give a material possessing a desired degree of resistance to penetration by water or gases, according to the degree and duration of temperature and pressure, the conditions of heat, pressure and time being interdependent. The less the heat, the greater or the longer is the pressure required to produce a given effect, or the same conditions of heat and pressure may be applied for more or less time to produce the effect in a greater or less degree.

15. Thus for example the associated fabrics (preferably with the cellulose acetate fabric treated with a plasticising or softening agent or solvent) may be passed between heated pressure rollers, as in a calender, the conditions of heat, pressure and time being interdependent as before mentioned. For instance, the associated fabrics may be passed slowly through heated calender rollers at temperatures between about 100° and 180° C. under pressures of from about 300 to 600 pounds or more per square inch, according to the degree of melting or softening effect on the yarns of the cellulose acetate fabric and the degree of impermeability desired in the resulting compound material. The fabrics may be passed repeatedly between the heated rollers if desired, according to the degree of effect required.

16. Or again the associated fabrics may be passed once or repeatedly between a heated roller and a cold roller or platen, or they may be pressed between heated plates or between a heated plate and a cold platen. Or the heat and pressure may be applied in any other suitable way.

17. The application of plasticising or softening agents or solvents of the cellulose acetate or other thermoplastic cellulose derivatives to assist the melting effect and the union of the component fabrics as hereinbefore referred to is especially of advantage where a high degree of impermeability to water is desired or for obtaining gas proof properties in the compound material. By way of example cellulose acetate fabric may be first treated with small quantities of water—insoluble, non-volatile plasticisers, softeners or solvents of cellulose acetate before being associated with the other fabric for subjection to the heat and pressure. These quantities may vary for instance from about 1 per cent to about 30 per cent of the total quantity of cellulose acetate in the fabric, but more or less may be employed. The non-volatile plasticisers, softeners or solvents may be applied by spraying, dipping or otherwise, dissolved in a volatile solvent which does not dissolve the cellulose acetate, or in any other convenient way. Any suitable plasticisers, softeners or solvents and any suitable volatile vehicle therefor may be used. As one example monomethylxylene sulphonamide may serve as a plasticiser and benzol as a vehicle, a suitable proportion being for instance about 20 grams of the sulphona-

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mide dissolved in 100 grams of benzol for each 100 grams of cellulose acetate fabric. When the volatile solvent of the plasticiser or softener evaporates, the plasticiser or softener remains distributed evenly on the cellulose acetate fabric so that when this is associated with the other fabric and subjected therewith to the heat and pressure, it assists the melting or sofening effect on the cellulose acetate yarns and the union of the component fabrics and closing of the pores or interstices of the component fabrics, thereby producing a compound material having waterproof to gas-proof properties according to the degree of dissolving or melting effect, etc., produced on the cellulose acetate by the condition of heat, pressure and time employed.

18. Instead of employing for associating with fabric composed of yarns of thermoplastic filaments or fibres, fabric consisting wholly of yarns of silk, cotton or other non-thermoplastic fibres or filaments, one may employ for association therewith "mixed" fabric consisting of a mixture of thermoplastic yarns with yarns of silk, cotton, linen, artificial silk of the cellulose type, wool or other non-thermoplastic fibres or filaments, or consisting of or comprising yarns composed of a mixture of thermoplastic filaments or fibres with non-thermoplastic fibres or filaments. Or one may even, though with less advantage, employ only such mixed fabrics for making the compound material under the effect of heat and pressure, with or without application of plasticising or softening agents or solvents, the heat and pressure causing more or less melting or softening of the thermoplastic yarns, filaments or fibres and uniting the component fabrics together to form a compound material possessing greater or less degrees of resistance to penetration by water or even gases, according to the temperature, pressure and duration of pressure or other conditions.

The specification then states that fabrics made with yarns of fibres of nitro-cellulose filaments or fibres may be employed in practising the invention but this, the patentee states, is less advantageous owing to the inflammability of nitro-cellulose. The last paragraph is as follows:—

20. The compound materials made according to the invention may be employed more particularly for applications where resistance to penetration by water or gases is desired, for instance as waterproof materials for garments, coverings, etc., or as material for airships or other gas container, but materials made according to the invention may be employed for any other technical or industrial applications.

There are twenty-five claims in this patent, the first twenty-four being process claims, the twenty-fifth being a claim for the product. Mr. Biggar, in his opening, divided the claims into five groups, which grouping seemed acceptable to counsel for the defendant. The first six claims relate to a process for making a composite sheet material by heat and pressure, in which one fabric at least contains a "thermoplastic derivative of cellulose." Claim 6 may be mentioned and it is as follows:—

6. A process for the manufacture of composite sheet material which comprises applying to a fabric containing a thermoplastic derivative of

cellulose a softening agent in solution in volatile solvents which are non-solvents of said derivatives, associating it with another fabric, and uniting the fabrics by subjecting them to heat and pressure.

In the claims 7 to 12 inclusive the expression "organic derivative of cellulose" is used instead of "thermoplastic derivative of cellulose" as in the first six claims. Claim 12 of this group is typical and is as follows:—

12. A process for the manufacture of composite sheet material which comprises applying to a fabric containing an organic derivative of cellulose a softening agent in solution in volatile solvents which are non-solvents of said derivatives, associating it with another fabric, and uniting the fabrics by subjecting them to heat and pressure.

In claims 13 to 18 inclusive reference is made to a fabric containing a "cellulose ester" and claim 18 may be mentioned and it is as follows:—

18. A process for the manufacture of composite sheet material which comprises applying to a fabric containing a cellulose ester a softening agent in solution in volatile solvents which are non-solvents of said ester, associating it with another fabric, and uniting the fabrics by subjecting them to heat and pressure.

In claims 19 to 24 inclusive reference is made to a fabric containing "cellulose acetate" and claim 24 is as follows:—

24. A process for the manufacture of composite sheet material which comprises applying to a fabric containing cellulose acetate a softening agent in solution in volatile solvents which are non-solvents of said acetate, associating it with another fabric, and uniting the fabrics by subjecting them to heat and pressure.

The twenty-fifth claim, the product claim, is as follows:—

25. A composite sheet material comprising a plurality of fabrics, at least one of which contains a thermoplastic derivative of cellulose, which fabrics have been united into a single sheet by the application of heat and pressure.

I shall attempt to state as briefly and as accurately as I can, the substance of the process described in the specification, and, I think, I can best do this by reference to that form of the invention whereby it is proposed to unite three pieces of fabric into a composite sheet, the intermediate fabric containing thermoplastic yarns of cellulose acetate. Dreyfus suggests the uniting of three pieces of textile fabrics, by the use of thermoplastic yarns of cellulose acetate woven into the intermediate fabric, which yarns become soft and adhesive, when heat and pressure is applied. The intermediate fabric may be partly or wholly composed of yarns of cellulose acetate. By the application of this process the interstices or pores in the united fabric become more or less closed by the softening and diffusion of the thermoplastic yarns, and thus acquire air and water resist-

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ing properties, depending upon the degree of intimacy of union of the component fabrics required, the degree and duration of heat and pressure, and according to circumstances and requirements. The specification recommends that before softening the cellulose acetate yarns by heat, that some suitable plasticing or softening agent, or solvent, be applied to assist or accelerate the softening of the cellulose acetate yarns in the intermediate fabric. The specification points out that the plasticising or softening agent, or solvent, may be applied to the associated fabrics before the application of heat and pressure, for example, in solution, or the same may be incorporated in the fibres of the thermoplastic cellulose acetate yarns when being produced. The associated fabrics are then to be passed between pressure rollers, such as calender rollers, one or both of which may be heated; the temperature and pressure will vary, according to circumstances and requirements. When the process is carried out in this way, the three fabrics are united into one single sheet or fabric, and it is claimed that never before was it suggested that three fabrics could be united, in this way, into a composite fabric. This substantially outlines the main features of the alleged invention disclosed in Dreyfus.

At some stage it will be necessary to describe the process employed by the plaintiff in the making of its unstarched collars in order to determine the issue of infringement, if subject-matter is found, and this would seem to be as convenient and appropriate a stage to do so as any other. In doing so I will use almost the precise words of one of the plaintiff's witnesses, Mr. Loew. He stated that the plaintiff's collar consists of three plies of material, that is to say, two outer plies of ordinary shirting material cotton, and an intermediate material cut from a sheet, a "lining" he called it, which contains threads of cellulose acetate; every third warp thread being composed of cellulose acetate. The collar in its three plies is first cut and sewn in the way usual in the collar industry. It is then sent to what is called the wet press, which consists of two metal platens, both of which are padded, and the pads are thoroughly dampened with a solvent composed of 75 per cent of acetone and 25 per cent of alcohol. The collar is placed between the two platens, where it is subjected to a mechanical pressure of ten pounds to the square inch, and there it

remains for nine or more seconds, according to the weight and fineness of the weave of the fabrics; the adjustment is one to be determined by the experience of the operator of the press. This softens the cellulose acetate threads and the three plies of fabrics are more or less adhesively united. The effect of the acetone-alcohol mixture on the cellulose threads in the lining is that it "swells" or "jellifies" the same; when pressure is applied the two outer plies of the collar are pressed on the "lining" material, and what is called the "knuckles" of the cellulose acetate threads, which are now soft, are forced into the threads of the overlying cotton fabrics. The collar is then placed in a hot press which has one polished metal surface and another that is padded with cotton. This press is heated by steam at a pressure of about fifteen or twenty pounds which keeps the press at a temperature of about 250° F. When the collar is placed between the platens of the hot press, the press is closed with a pressure of from ten to twenty pounds to the square inch of the collar. The acetone solvent, which is volatile, is evaporated in order, it is claimed, to harden the cellulose acetate and to prevent its spreading or flowing and forming a film. It was stated by the same witness, that if the collars, as they came from the wet press, were allowed to dry they would adhere but not so well as compared with the final adhesion acquired after they have gone through the hot press. This witness also stated that the cellulose acetate would disperse or flow vertically and partially sidewise, and the latter flow would assist in effecting the adhesion. That generally describes the process used by the plaintiff in the production of its collars, and according to its own witnesses.

The validity of Dreyfus is attacked on four grounds, (1) that the specification is ambiguous, (2) that the specification is misleading, (3) that the alleged invention had been anticipated, and (4) that if on any fair interpretation of the patent there is any novelty, the novelty was obvious, and on that ground the patent should not be supported. The last point relates to subject-matter and will be discussed later. I shall first consider the question of anticipation, and this relates only to prior publications, there being no evidence as to prior user.

It has been held time and again that a prior published patent must be read as it would have been read without

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the knowledge of subsequent researches or improvements disclosed in subsequent patents or publications. It is unsound to re-read prior publications in the light of information first imparted by a later patentee, or as was once said, you must not look at prior documents with an eye which has been sharpened by a subsequent patentee. In the case of *Canadian General Electric Company* v. *Fada Radio Ltd.* (1) it was held that any information as to the alleged invention given by any prior publication must be for the purpose of practical utility, equal to that given in the subequent patent. The latter invention must be described in the earlier publication that is held to anticipate it, in order to sustain the defence of anticipation. Where the question is solely one of prior publication, it is not enough to prove that something described in an earlier publication could have been used to produce this or that result. It must also be shown that the specification contains clear and unmistakable directions so to use it. It must be shown that the public have been so presented with the invention that it is out of the power of any subsequent person to claim the invention as his own. And an improvement, claimed to be invention, must not be dismissed as unpatentable merely because of some vague adumbration of it in the prior art.

Applying these principles to the prior publications cited in this case it seems to me they are all irrelevant. Not one of them, I think, describes or gives directions to use the idea described and claimed in Dreyfus. Not one of them contains the suggestion of uniting two or more fabrics by making use of thermoplastic yarns of a cellulose derivative woven into one of the fabrics to be united; most of the cited prior art suggests the application of an adhesive substance to be applied to some of the fabrics or materials involved. As Mr. Lajoie expressed it, if in 1924, that is prior to Dreyfus, one were given all the prior art cited, he could not have learned from all of them the process of uniting fabrics according to the process described by Dreyfus. I propose to refer only to two of the prior publications cited, Kennedy and Van Heusen.

Kennedy, United States patent no. 590,842, relates to a waterproof cloth and the process of making the same. The

(1) (1930) A.C. 97.

specification states that a fabric may have woven or intertwined into it threads or fibres of cellulose, along with the ordinary threads in the fabric. To obtain a waterproof cloth the patent directs that the fabric be sprayed or otherwise treated with a suitable solvent which converts the nitro-cellulose into pyroxylin (which the defendant's witness Levinson stated to be the same thing as nitro-cellulose), and the acetate of cellulose into a substance analogous to pyroxylin. It is not easy to understand this specification. At any rate the patent suggests that the fibres of nitro-cellulose are altered to another form and in that form diffuse themselves and thus "impregnate the raw fibres, and their interstices of the ordinary threads," without changing the appearance or structure of the article, and which is made waterproof though remaining uncoated or unglazed. Kennedy shows merely the treatment of a single layer of fabric. There is no suggestion of uniting two or more fabrics in the manner disclosed in Dreyfus; and consequently there is no reference to the application of heat and pressure in uniting two or more pieces of fabric one of which contains yarns of thermoplastic cellulose derivatives. I do not think it can possibly be said that Kennedy is an anticipation of Dreyfus. They express altogether two different ideas.

Van Heusen, United States patent no. 1,479,565, relates to the making of collars. In one form of the disclosure the plies of the fabrics are coated on their inner surfaces with an adhesive or cementing material, for example, solutions of cellulose derivatives such as cellulose nitrate in suitable solvents, or solutions of cellulose in cellulose solvents, such as cupremmonium solutions. The coated surfaces are brought together and united by appropriate means. Again the patent states that three plies of fabric may be used and only the intermediate ply coated with the adhesive to give it an adhesive surface, and the two outer layers can be secured to this intermediate layer by reason of its adhesive surfaces. In other cases, the patent states the pieces of fabric may be put together and pressed in a heated press to convert the cementing material into its final form and thereby uniting together the separate layers of fabric. Now there is no reference in Van Heusen to the use of a thermoplastic cellulose derivative in the form of yarns, woven into one of the two or more fabrics to be united, and which

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may be cut and sewn and handled like any other fabric, and this, I think, on grounds of utility, would be much more desirable and convenient than dealing with pieces of fabrics that were coated with a cementing material. Van Heusen in my opinion is not an anticipation of Dreyfus.

Before passing to another topic, I must refer to the United States patent to Woodman and Dickie, no. 176,255, which was assigned to Celanese Corporation of America. This patent apparently does not relate to the uniting of textile fabrics according to the process of Dreyfus. This patent was first published in the United States on June 4, 1929, it having been applied for on December 8, 1925; the caption states that the same application was filed in Great Britain on January 10, 1925. In Great Britain patents are published when they are accepted, while in the United States they are not published until they issue. The patent to Dreyfus was published in Canada before Woodman and Dickie was published in the United States, and there is no evidence as to the date of publication in Great Britain. Woodman and Dickie was mentioned in the plaintiff's particulars of objections as a prior publication. When it was tendered in evidence its reception was objected to and the point was reserved for decision until the end of the trial. In the end Mr. Smart stated that he did not rely upon Woodman and Dickie as an anticipation. He stated plainly that, by reason of section 61 of the Patent Act, he could not attack Dreyfus on the ground of anticipation by setting up this patent even if Woodman and Dickie were a prior invention, because he could not show that the patent was in any way made public before the application of Dreyfus was filed in Canada, which was on December 18, 1925. Sec. 61 (1) and ss. (*a*) of the Patent Act read as follows:—

> 61. (1) No patent or claim in a patent shall be declared invalid or void on the ground that, before the invention therein defined was made by the inventor by whom the patent was applied for it had already been known or used by some other inventor, unless it is established either that,
>
> (*a*) before the date of the application for the patent such other inventor had disclosed or used the invention in such manner that it had become available to the public.

Mr. Smart was desirous that Woodman and Dickie should be received in evidence in case section 61 of the Patent Act should be construed in a way different to that in which he says it has been construed. I do not know that this

provision of the Patent Act has ever been judicially construed, but its meaning would seem quite clear. Woodman and Dickie must be rejected as a prior publication and if it is not admissible on that ground then, I think, there is no reason for its reception at all, and it is refused.

On four grounds it is claimed that the patent in question is ambiguous. It was contended that ambiguity, if deliberate, would void a patent, and if the ambiguity or obscurity were avoidable it would also void the patent, whether the effect was due to design or to carelessness or lack of skill, and that, I think, is on the whole, a fair statement of the law. A specification must be sufficiently explicit in describing the nature and ambit of the invention, to ensure to the public the benefit of the discovery, when the period fixed in the grant as the period of monopoly comes to an end. The four grounds on which ambiguity is alleged are: (1) that it is doubtful on the specification whether or not the alleged invention is confined to relatively impermeable fabrics, (2) that it is doubtful whether the patent is confined to the use of threads of cellulose derivatives woven into the fabric or whether it extends to a fabric which contains a cellulose derivative subsequently applied in any form or manner, (3) that the specification does not make clear whether the alleged invention is confined to thermoplastic derivatives of cellulose or whether it extends to any derivative, thermoplastic or not, that can be made adhesive, and (4) that it is not clear whether the patent is confined to the use of softening agents as mentioned in the claims or whether it extends to the use of volatile solvents, such as acetone-alcohol which the plaintiff employs as a softener or solvent.

Before discussing these points I would observe that a specification is to be read and construed like any other document. All that the statute requires is that the specification correctly and fully describe the invention and its operation or use, and that the claims should state distinctly the things or combinations which the applicant regards as new. And one cannot look at the specification divorced from the art as it existed at the time of the specification. The claims have to be interpreted in the light of the descriptive portion of the specification, the "dictionary" it is sometimes called. A specification will not be bad if it

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turns out afterwards that it does not describe the best possible way of performing the invention; all that is necessary is that it should give the best method known to the patentee. Neither is it incumbent on the patentee to describe all the possible advantages which may in future accrue from the improved use of his invention. He is only bound to give the world the benefit of such information as he possesses. A specification will be sufficient which contains directions enabling a person having a reasonable competent knowledge and skill of the subject to make the article described without further invention, though it may be necessary for him to make some trial and experiment before succeeding in carrying out the process. And finally, a specification is addressed to skilled workmen, and chemical patents are addressed to persons possessing chemical skill to an extent varying with the subject-matter.

Turning now to the first ground on which ambiguity is alleged. It was urged that it was difficult to say whether or not the invention is confined to relatively impermeable fabrics. And probably this is the important and difficult point in this case. The specification states in several places that in uniting multiple fabrics, according to the process therein described, the pores or interstices of the composite fabric will be more or less closed, or reduced in dimensions, and thus take on water and air resisting properties, all depending upon the quantity of cellulose acetate yarn employed, the intimacy of union of the fabrics required, the degree and duration of the heat and pressure applied (heat, pressure and time being interdependent), whether or not softeners or solvents are employed—the use of which is recommended where a high degree of impermeability to water or air is desired,—the number of fabrics to be united, and the weave of the fabrics involved. That is essentially what the specification here has to say concerning "impermeability" or "resistance to air and water" and the specification states that this will vary according to the conditions just mentioned, and according to requirements.

I assume all textile fabrics, in varying degrees, possess air and water resisting properties and when several are united, according to Dreyfus, these properties would probably be emphasized, particularly if the composite fabric when made were intended to be relatively impermeable against air and water. I would infer from the evidence of Mr. Pratt that

in the textile trade, the water and air resisting properties of a fabric are always a matter of concern to the textile manufacturer, and that it is the practice to measure the air and water resisting qualities of a fabric by well known means, and that these properties would vary according to the use to which the fabric was to be put. Mr. Pratt, a witness for the defendant, made many tests of uniting fabrics according to the process of Dreyfus, and he found that air and water resistance varied just as suggested in the specification. According to these tests the quantity of thermoplastic yarns of cellulose acetate employed, the degree of heat and pressure, the quantity and kind of softeners or solvents used, and other factors, determined the degree of adhesion and the relative air and water resisting properties of the composite fabric.

The point raised by the plaintiff under the head just mentioned may be put this way: Dreyfus describes only a process for the manufacture of relatively impermeable fabrics, and it is only the use of such fabrics that the patent directs; the process will make a relatively waterproof fabric or material, something that will resist penetration by water or air, and that was all the patentee had in mind; if the process be applied to the making of collars, the collars would disclose a stiff glaze that would be non-porous, and generally the process would be utterly unsuitable for the making of collars; and that a true construction of the specification limits the invention, if any, to relatively impermeable fabrics or materials, or alternatively, that the specification is ambiguous and therefore void. The defendant contends the specification is clear and unambiguous and that on a fair construction it is not to be limited to relatively impermeable fabrics; and that the process described in the specification can be applied to the manufacture of such things as the collars in question.

Turning now to the specification itself. The paragraph numbered two in the specification states that "the invention concerns the manufacture of new fabrics or sheet materials having water-proof to gas-proof properties or capable of other applications." The words "other applications" mean, I should think, that the process is capable of application for the making of fabrics where water-proof to gas-proof properties are either not required or are of

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no importance. Having mentioned one application of the invention, the "other applications" must mean something distinguished from that which is already mentioned. The last paragraph of the specification makes this more plain. It says: "The component materials made according to the invention may be employed more particularly for applications where resistance to penetration by water or gas is desired, for instance, as waterproof materials for garments, coverings, etc., or as materials for airships or other gas containers, but materials made according to the invention may be employed for any other technical or industrial applications." Here, "technical or industrial applications" means, I think, fabrics or materials which would have a use different from those uses which are particularly given as examples earlier in the paragraph, and would include any "material made according to the invention," where resistance to penetration by water or gas was of little or perhaps no importance at all. I have no doubt but that is what the patentee had particularly in mind, in 1925, as the then best use to which he knew his process might be applied, was a fabric or material where resistance to penetration by water was desired, or, as the last paragraph of the specification puts it, "compound materials made according to the invention may be employed more particularly * * where resistance to * * water * * is desired"; but, the specification states that "materials made according to the invention may be employed for any other technical or industrial applications." I can find nothing in the specification which would, on any fair or just construction, indicate that the patentee intended to limit his territory to relatively impermeable fabrics, or to limit the uses to which the invention might be applied. There is no claim for a fabric which is relatively impermeable, it is the process of uniting two or more textile products which is claimed, and the product made according to the process. I might further add that it is a principle in patent law that a man need not state the effects and advantages of his invention, nor is he obliged to be omniscient. The patentee here has stated a few of the effects or advantages of his invention, for illustrative purposes, that is to say, that a composite fabric may be made by the process de-

scribed, which will be water and air resisting to the degree desired, but he impliedly states that there are other effects, advantages and uses to be obtained from his invention.

The next point made against the patent on the ground of ambiguity is that it is doubtful whether the invention is confined to the use of yarns of cellulose derivatives, or whether it extends to a fabric which contains the cellulose derivative subsequently applied. I think it is quite clear that the specification is limited to yarns or threads of cellulose derivatives, that is to say, the thermoplastic yarns of cellulose derivatives are woven into one at least of the fabrics to be united, and that is the first step in the invention. I cannot think that the specification is in any way ambiguous upon this point.

The next point of attack under the head of ambiguity is that it is in doubt whether the specification is confined to thermoplastic derivatives of cellulose, or whether it includes any cellulose derivative, whether thermoplastic or not. In this connection it was urged by Mr. Biggar that if the invention were confined to the use of thermoplastic derivatives then the plaintiff did not infringe because cellulose derivative acetate was not thermoplastic. It seems to me that the specification is not in doubt about that. It includes any cellulose derivative that is thermoplastic. To sustain this point one would have to hold that yarns of cellulose derivative were not thermoplastic, and that is a point that will be discussed later.

Coming now to the last point in the attack on the specification on the ground of ambiguity, which is, that there is a doubt as to whether the expression, "plasticising or softening agents, or solvents" includes volatile solvents, such as acetone-alcohol, which the plaintiff uses, in the manner already explained. On behalf of the plaintiff it was also contended that acetone-alcohol, a very active solvent, particularly in low temperatures, is not a softening agent, and it was pointed out that the claims refer only to softening agents. Lengthy arguments were addressed to me on this point but I do not think it necessary to review the same, or the evidence directed to this point. I entertain no doubt whatever but that those to whom the specification was addressed would regard "softening agents" and "solvents," as meaning substantially the same thing, in making a

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practical application of Dreyfus, and they would understand the behaviour or effect of softeners, or solvents, in interpreting the specification. The practical effect of the acetone solvent, I think, is to soften the yarns of cellulose acetate, and the plaintiff's own evidence is really to that effect. If the plaintiff's solvent is a volatile one it is still a solvent, and the specification covers any suitable solvent, volatile or non-volatile. It matters little whether acetone is described as a softener or as a solvent. The specification covers both. Further, if we assume that acetone was an invention of the plaintiff, that would not relieve it of infringement if there were subject-matter in Dreyfus. I think that is quite plain as a matter of patent law. I do not think that one can reasonably say that there is ambiguity in the specification in so far as this point is concerned.

Then it was contended that the specification is misleading, first, on the ground that cellulose acetate is theoretically but not practically thermoplastic in the range of temperatures mentioned in the specification. It seems unfortunate that there should be any disagreement upon a point like this. My conclusion is that the contention is not in fact correct. It is admitted that the ethers mentioned by the patentee are thermoplastic. The esters are also admitted to be thermoplastic, and so the controversy narrows down to the question whether cellulose acetate is thermoplastic, and a somewhat similar criticism is made of nitro-cellulose. I have already stated that a thermoplastic derivative of cellulose is one that softens or becomes plastic on the application of heat and of this, upon the evidence before me, I have no doubt. Mr. Levinson pointed out that a product composed of cellulose acetate, such as the fabric sold under the trade name of "Celanese," has been permanently embossed by heated rollers, that is to say, cellulose acetate has been molded during the embossing operation because of its tendency to respond to the action of heat. The same witness also stated that experience had shown that every housewife who has attempted to iron a fabric made of cellulose yarns had found that she must not allow her iron to get too hot, otherwise the cellulose acetate fibres or yarns would coalesce or melt and stick to the iron, causing a hole in the fabric if the iron were hot

enough and long enough applied, and I am disposed to accept this evidence as being in fact correct. Mr. Lajoie contended that the best evidence as to the thermoplasticity of cellulose acetate, within the range of temperatures mentioned in the specification, came from the plaintiff itself. Exhibit no. 29 was put in evidence by the plaintiff and it represents a union of two fabrics, one composed entirely of cellulose acetate, the other being a cotton fabric. These two fabrics were united by the application of heat and pressure. They were subjected to a pressure of 600 pounds per square inch at a temperature between 150° C and 160° C, for five minutes. The result was that the cellulose acetate fabric had a glazed appearance which does not appear on the cotton fabric and Mr. Lajoie contended that the glaze was due to the softening of the cellulose fabric. I am inclined to think, though I do not rely on it, that this does demonstrate that cellulose acetate is not only thermoplastic, but that it is thermoplastic within the temperatures and pressures mentioned in the specification; and the test or experiment represented by this exhibit was made without the aid of a solvent or softener. Counsel for the plaintiff, I should say, contended that the glaze on the cellulose acetate fabric was merely an effect produced by the pressure of the heated rollers. The contention that cellulose acetate is not thermoplastic, to say the least, has not been established.

Next, the patent is said to be misleading on the ground that methyl-cellulose is not waterproof and is soluble in cold water, or water at room temperature. Dr. Esselin, for the plaintiff, stated that he examined a specimen of methyl-cellulose textile finish and found it soluble at a certain temperature. On the other hand, Mr. Levinson, for the defendant, was definitely of the opinion that methyl-cellulose was not soluble in water at room temperature; and he further stated that the methyl-cellulose that Dr. Esselin referred to had come on the market recently and was deliberately made water soluble because it was highly desirable that textile sizes should be water soluble so that they might be readily removed by washing. On the evidence I must hold this ground of attack is not established. Even the evidence of Dr. Esselin, on this point, left me with the impression that he himself was a little uncertain as to the opinion he expressed.

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The specification is also said to be misleading because it states nitro-cellulose to be thermoplastic. Nitro-cellulose, as the specification states, is highly inflammable and the point taken is that before it could be made thermoplastic by the application of heat the fabric containing it would burn, and it would be dangerous to operatives. It is agreed that nitro-cellulose can be made safely thermoplastic by the use of a softener, and this probably would be known by those to whom the specification was addressed. Paragraph 19 of the specification, which I did not reproduce, is as follows:—

> Whilst fabrics made with yarns or fibres of nitro-cellulose filaments or fibres may be employed in practising the invention this is less advantageous owing to the inflammability of nitro-cellulose.

I do not think the public could be misled by this. The specification in effect warns those to whom the patent is addressed not to use nitro-cellulose yarns and the reason therefor is stated. I cannot think there is any substance in this point. I think the patentee in mentioning the danger of using fabrics made with yarns of nitro-cellulose has prudently met all legal requirements, otherwise the specification might have been attacked on the ground of insufficiency; it also is indicative of good faith in describing the invention. In the case of *Gold Ore Treatment Co.* v. *Golden Horseshoe Company* (1) Lord Dunedin said that if a patentee puts forward a process without a warning note that if certain things are done it will be a failure, the specification will be insufficient unless the danger is such as common knowledge of ordinary practice will avert.

Then it is claimed that the patent is bad because the expressions "organic derivatives of cellulose," "cellulose esters," and "cellulose ethers," are so broadly stated in the patent as to include many derivatives of cellulose, laboratory products, not mentioned in the specification, many of which are not commercially available, and many of which could not have been known to the patentee. I hope I understand and have stated this point accurately. The classes of substances which I have mentioned were and are perfectly well known but it may well be that there are many species of the same classes not commercially available, known only to laboratory workers, and the list may grow. It seems to me that it is immaterial, if other

(1) 36 R.P.C. 95 at p. 132.

species of the classes mentioned, but which fall within the general description of such classes, are not specified, or were unknown to the patentee. I do not think the patent should be condemned on this ground.

I turn now to the difficult question, true of so many patent cases, as to whether or not there is invention in Dreyfus. That is a question of fact. It will be seen that the alleged invention is essentially a process for the uniting of two or more textile fabrics so as to produce a composite fabric. To unite fabrics by some adhesive, applied in one way or other, such as coating, spraying or impregnating, was known to the art. Dreyfus seems to suggest an entirely new idea, and that is the uniting of fabrics by making use of yarns, filaments or fibres, of thermoplastic cellulose derivatives, which are woven, at least into one of the fabrics, and uniting the fabrics in the way I have already described. To suggest the uniting of three pieces of fabric in this way, I think, was a novel step and called for the exercise of the inventive faculty, and, I should also think, required research and experimental work; and I do not think it was obvious. The idea was, I think, quite novel and patentable, and an idea may be patentable. Subject-matter is demonstrated by the fact that the plaintiff in the manufacture of its collars follows almost precisely the process which Dreyfus describes in his specification. Collars are not mentioned in the patent, and there is no reason why they should, but the patent does describe a process whereby, for example, the plaintiff's united three-ply soft collar may be made and is being made. The plaintiff enjoys and employs, in a practical way, all the advantages described in Dreyfus. A patentee need not state the effect or advantage of his invention, if he describes his invention so as to produce it, and that, I think, Dreyfus has done.

Even if Dreyfus had slightly erroneous views as to the effect or influence of some of the various factors which he has mentioned in carrying out or procuring the advantages of his invention, for example, the precise behaviour and effect of the thermoplastic yarns, whether softened or not, or the precise contribution which heat and pressure, and their degrees, make in carrying out his process, that would not militate against him because he has shown the practical advantages of his invention, and I think he has shown how the public can obtain those advantages practically.

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however narrow or wide, as has the plaintiff. See Moulton, L.J., in *Z. Lamp Works* v. *Marples* (1). I am of the opinion therefore that there is invention and that the patent is valid. In this action I do not think it is necessary to discuss the claims separately, or in the groups mentioned. It seems to me they are all valid claims.

There remains for decision the question of infringement. The plaintiff claims that it does not infringe Dreyfus, in the making of its collars. First, it is said, the plaintiff does not make a composite fabric, and that its collar is not a composite fabric. Then it is claimed that the plaintiff does not make use of a fabric containing thermoplastic yarns of cellulose acetate, that is to say, that the cellulose acetate yarn in the intermediate ply of its collar is not thermoplastic at all. Next it is claimed that if the yarns of cellulose acetate in the intermediate ply has thermoplastic qualities, no reliance is placed upon heat and pressure whereas, it is said, Dreyfus depends exclusively upon the thermoplastic qualities of cellulose acetate yarns and the bringing about of adhesion by heat and pressure. And finally it is claimed that the collar made by the plaintiff is even more permeable or porous than it was before being processed. I have described the plaintiff's process, and in doing so I relied on the evidence of one of its own witnesses. From that evidence, and other evidence, I should think it is beyond controversy that the intermediate ply which the plaintiff employs in the making of its collars contains a predetermined quantity of thermoplastic yarns of cellulose acetate to the square inch, and that heat and pressure is used and relied upon to make a merchantable collar. Neither do I think it has been established by the evidence that the plaintiff's collar is more porous after it is completed than it was before going through the process described, and I doubt if it can be established. It seems to me the plaintiff in the practical sense, uses precisely the process described in Dreyfus in making collars and that is done by uniting three pieces of fabric in the manner already described. The collar is a composite fabric. That there are slight differences between the process described in Dreyfus and that followed by the plaintiff is not of importance. For example, one of the platens in the press

(1) 27 R.P.C. at p. 746.

used by St. Hilaire Ltd. is padded, but, as explained by the witness Loew, that was necessary because the edges of the collar are thicker than the body or central portions, and if the platens were both faced with metal the pressure would be concentrated upon the edges and the other parts of the collar would not receive the necessary pressure. The process which Dreyfus describes and that employed by St. Hilaire Ltd. are substantially the same. I am of the opinion therefore that there is infringement of Dreyfus by the plaintiff.

I come now to consider the second patent in suit. The specification states that the object of the alleged invention is to produce a fabric containing organic derivatives of cellulose that is suitable for use as a stiffening material wherever such a fabric is necessary. Paragraph 4 of the specification is as follows:—

> In the making of garments, particularly outer garments such as suits, coats, top coats, etc., the use of stiff material is necessary in certain places to help retain the shape of the garment. Likewise it is often desirable to use a stiff fabric as an inner lining in neckwear such as cravats, to impart desirable stiffness to the same. Heretofore, coarsely woven fabrics made of wool, cotton, or the like, reinforced or not by stiffer material such as hair, have been used for this purpose. These materials are open to the objections that they are apt to soften when damp and are often bulky.

The specification describes several methods of carrying out the invention. The stiffening material may assume the form of a comparatively open mesh fabric made of cellulose acetate yarns, and in order to impart stiffness the yarns should be of a "high twist," or the fabric may be made of "spun" cellulose acetate yarns, which means, as I understand it, that the yarns are cut into comparatively short lengths and the short lengths are spun in a manner analogous to cotton or wool yarns, which yarns it is said form a fabric which is much stiffer than the yarns made of continuous filaments of cellulose acetate. Then it is stated that in the spinning of the yarn, other fibres, such as cotton or wool, may be incorporated with the cellulose acetate yarns and a stiff fabric may be made of this mixed yarn. Another method of carrying out the invention is to treat a fabric containing organic derivatives of cellulose with a material tending to stiffen it, such as a solvent or swelling agent, which may be applied by brushing, spraying or dipping. The specification points out that yarns of organic derivatives of cellulose are not affected

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by humidity as are many other yarns and will retain their stiffness under conditions wherein fabrics of other fibres will become softened.

I do not propose to engage in a lengthy discussion of this patent. In the first place, it seems quite clear to me that the plaintiff does not infringe this patent. I see nothing in the teachings or directions of this patent that resembles the process carried out by the plaintiff in the making of its collars; this patent relates to something entirely different.

Further, I do not think there is patentable novelty or subject-matter in this patent. There may be some novelty in the patent but something further is necessary to secure a monopoly. There is no invention, I think, in the weaving of a fabric of yarns of organic derivatives of cellulose merely by using yarns of a high twist, yarns of a certain denier, or spun yarns, in order to get a stiffening effect; that in plain language only means the using of more yarns or threads, of well known yarns or threads, whose behaviour was known, in the weaving of a fabric, in order to get a stiffening or strengthening effect in the fabric. It was urged by Mr. Lajoie that Dreyfus was the first to suggest the idea that these yarns could be used for the purpose of obtaining a stiffening material, and that this was the invention. Even on that assumption I do not think the idea contains subject-matter. I hardly think this called for the exercise of the inventive faculty. Examined qualitatively or quantitatively, I do not think there is that degree of novelty or of subject-matter in this patent which would justify a patent monopoly. Having reached that conclusion it is not necessary to say more. The plaintiff must therefore succeed in respect of this patent.

In the result the defendant succeeds upon the issues relating to the first patent, no. 265,960, with costs, and similarly the plaintiff in respect of the second patent, no. 311,185. The main contest related to the first patent and occupied by far the greater part of the time of the trial of the action, and that I should think would also be true of the preparation for trial. There will be an apportionment of costs, the basis of which will be fixed on the settlement of the minutes, the one set of costs to be set off against the other.

Judgment accordingly.