

SPUN ROCK WOOLS LIMITED (DE-
FENDANT) } APPELLANT;

1943

*May 5, 6, 7.
*Oct. 5.

AND

FIBERGLAS CANADA LIMITED AND
OWENS-CORNING FIBERGLAS
CORPORATION (PLAINTIFFS) AND
THE CUSTODIAN (DEFENDANT).... } RESPONDENTS.

ON APPEAL FROM THE EXCHEQUER COURT OF CANADA

*Patent—Validity—Invention—Remedies of licensee against infringer—
Measure, basis, of damages.*

In an action for infringement of a patent for alleged new and useful improvements in the production of fibres or threads from glass, slag and the like meltable materials, the judgment of Maclean J., [1942] Ex. C.R. 73, in favour of the plaintiff was now reversed and the action dismissed by this Court on the ground that there was not invention in the claim sued upon (claim 1) of the patent. Rand J. dissented.

Plaintiff claimed to be the licensee of the rights conferred by the patent. The Custodian, as being the person in whom had become vested the patentee's interest in the patent, was a party defendant. There was a question (assuming a valid patent) as to plaintiff's right to maintain the action; and with regard thereto opinions were expressed as follows:

Per Davis and Taschereau JJ.: For the purposes of s. 55 of the *Patent Act* (Dom., 1935, c. 32) a licensee is a "person claiming under" the patentee "for all damages sustained" by such person by reason of infringement. The profits made by an infringer are not the measure of the damages sustained by a licensee. In the present case there was nothing in the evidence to guide the Court in ascertaining whether any damages were sustained and nothing to lay the basis for a

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proper ascertainment of damages, if any were sustained; in the peculiar circumstances of the case, plaintiff never having made any commercial use of the patented process so far as the evidence disclosed, either in this country or in the United States, it was difficult to see that it had suffered any damages; but plaintiff, if the patent were to be held valid, would be entitled, at its own risk, to a reference as to amount of damages.

Per Kerwin J.: If it were held that the claim of the patent sued on was valid, plaintiff, as exclusive licensee, would be entitled to the usual order of restraint against an infringer. As to damages: An exclusive licensee claims under the patentee within the meaning of s. 55 of the *Patent Act* (*supra*) and the presence of the Custodian as a party defendant in this case would be sufficient if plaintiff had worked the invention in Canada. This did not occur and there was no basis for the fixing of any damages suffered by plaintiff. A claim for damages suffered by the Custodian (as being the person for the time being entitled to the benefit of the patent) might be permitted by amendment in a proper case; but even then it was doubtful if any further evidence could be adduced which would assist in coming to a conclusion as to the damages suffered by him, when the patent was not worked in Canada.

Per Rand J. (who, dissenting, held in favour of validity of the patent, and who would dismiss the appeal from the judgment in the Exchequer Court, which judgment granted, *inter alia*, an injunction, right to recover damages, if any, or profits, if any, made by reason of infringement, as plaintiff might elect, and enquiry as to damages or profits): The action was maintainable, all interested parties being before the Court.

APPEAL by the defendant Spun Rock Wools Limited from the judgment of Maclean J., late President of the Exchequer Court of Canada, in favour of the plaintiffs (1). The action was for an injunction, damages and other relief, by reason of alleged infringement by said defendant of letters patent No. 333,788 granted on July 4, 1933, to N. V. Mij. tot Beheer en Exploitatie van Octrooien (referred to, for short, in the judgments as "Maatschappij") as assignee of Friedrich Rosengarth and Fritz Hager, in respect of alleged new and useful improvements in the production of fibres or threads from glass, slag and the like meltable materials; the plaintiff Fiberglas Canada Limited claiming, through certain agreements, to be the licensee of the rights conferred by said letters patent.

Claim 1 of the patent, on which the plaintiff relied, was:

1. A method of producing fibres from molten glass, slag and the like meltable material, consisting in setting-up a flowing stream of

(1) [1942] Ex.C.R. 73; [1942] 3 D.L.R. 378; 2 Fox Pat. C. 189.

molten material, delivering this stream onto a rapidly rotating surface and causing it to be thrown off the said surface by centrifugal force in the form of fine fibres.

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The said defendant in its statement of defence

admits that it produces fibres by delivering a stream of molten material on to a rapidly rotating surface as stated in claim 1 of the said Patent but says that it has not thereby infringed any rights of the plaintiff because the said Patent and particularly claim 1 thereof, is and always has been invalid for the reasons stated in the particulars of objections delivered herewith.

and in its "particulars of objections" stated, as reasons for such invalidity, that "the alleged invention was not new, but had been described in" certain patents named, and that "there was no invention having regard to the common knowledge of the art and to the patents aforesaid and" certain patents and printed publications named.

In the judgment of Maclean J. leave was granted to the plaintiff Fiberglas Canada Limited to add Owens-Corning Fiberglas Corporation (a party to certain of the agreements above mentioned) as a plaintiff upon filing the latter's consent. The latter was subsequently added as a plaintiff and is one of the present respondents.

The patentee ("Maatschappy" aforesaid), being a company incorporated under the laws of Holland, with its principal office at The Hague, in the Kingdom of Holland, became an enemy in May, 1940, whereupon its interest in the patent became vested in the Custodian by virtue of the provisions of s. 21 of the Consolidated Regulations respecting Trading with the Enemy, 1939. The Custodian was made by the plaintiff an original party, as defendant, to the action.

By the formal judgment in the Exchequer Court, the plaintiff was granted: leave to add the other plaintiff as aforesaid, an adjudication for validity of the patent and of infringement, an injunction, a declaration that plaintiff was entitled to recover damages, if any, sustained by it, or the profits, if any, made by the present appellant, by reason of infringement, as the plaintiff might elect after the filing of statements, etc., as ordered, an enquiry by the Registrar of the Court as to damages or profits (as the case might be), and delivery up of articles.

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W. D. Herridge K.C. and W. A. MacRae for the appellant.
R. S. Smart K.C. and Christopher Robinson for the respondents Fiberglas Canada Limited and Owens-Corning Fiberglas Corporation.

The judgment of Davis and Taschereau JJ. was delivered by

DAVIS J.—This appeal arises out of an action for infringement of Canadian Patent No. 333788, for an alleged invention of certain new and useful improvements in the production of fibres or threads from glass, slag and the like meltable materials. The patent was granted July 4th, 1933; application filed November 20th, 1931. The action was commenced in the Exchequer Court of Canada, the statement of claim being filed September 15th, 1941. The principal defence is based on want of novelty and subject-matter, that is, want of invention. The appellant (defendant) admits infringement if the patent is valid.

The object of the alleged invention is stated in the early paragraphs of the specification as follows:

The production of fibres or threads from molten glass, so-called glass silk, is hitherto performed by means of spinning machines on which the threads are drawn from prepared glass rods or from the molten mass through nozzles, while in the manufacture of slag wool the threads are produced by the aid of steam or air blowers.

It is the object of the invention to provide a novel method and device for making fibres or threads of the kind stated. According to this invention, the hot liquid glass or slag mass is flown in a continuous and uniform thin stream onto a rapidly rotating body, such as a disc of suitable material. On the disc the liquid mass is scattered into minute drops, which are thrown off by the centrifugal force and simultaneously formed into thin threads which sink down in the space around the rotating disc and can be collected as a uniform fibrous web.

Owing to the higher momentum imparted to heavier particles, such as thicker drops and threads, these are thrown off the disc to a greater distance and thus can be easily separated from the threads of the normal or desired thickness.

Claim 1 of the patent, which is the only claim on which the respondent (plaintiff) sued, is as follows:

1. A method of producing fibres from molten glass, slag and the like meltable material, consisting in setting-up a flowing stream of molten material, delivering this stream onto a rapidly rotating surface and causing it to be thrown off the said surface by centrifugal force in the form of fine fibres.

There are only some sixty pages in the voluminous record taken up with the oral testimony, and much of that testimony is of little help. The question of validity largely turns upon the examination and interpretation of many prior publications and prior patents. The trial judge, while he thought it might fairly be stated that the art here involved is old, concluded that the alleged invention, though it "may be a narrow one," disclosed "such new and useful improvements and required that degree of the inventive power as to merit a patent".

Rock wool, slag wool, or mineral wool is a furnace product which has been made and sold for at least seventy years as a non-conductor of heat and sound. All rock or slags will not make wool. A slag or rock material too rich in iron will blow into "shot", without a trace of wool; slags or rock too rich in the alkaline earths blow into short wool and even into dust. To make the long-fibred wool, a substance is required that has a prolonged period of plasticity (or viscosity) and there must be a wide range of temperature between softening and complete fusion. This phenomenon is best exhibited by glass.

There has been much common knowledge and practice in the art for many years past. In the first place, it was known to be essential that the material must be a substance which when melted will have a high degree of viscosity (the quality or fact of being viscous, that is, having a gluey or sticky or ropy character). Certain kinds of rock have peculiar advantages; because of their viscosity they can be converted into the form of threads or fibres. For instance, the rock formation in the Niagara Peninsula in Ontario is of an acceptable nature to be melted into liquid form and it is at Thorold, Ontario, in the Niagara Peninsula, that the appellant company (defendant) carries on its manufacturing of rock wool, which is alleged to be an infringement of the patent in question. Glass, while a very viscous substance, is proportionately expensive for commercial use compared with slag or rock. Further, it was well known that the regulation of the heat was of essential importance and that the range of temperatures, having regard to the melting process and to the subsequent disintegration or dispersal of the liquid material, required careful determination. No objection was taken by counsel for the appellant to the

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breadth of the claim sued on notwithstanding that the quality of the material that may be used is not given nor the range of appropriate temperatures, nor is there reference to any particular shape or form of the surface of the disk that is specified to be used. Counsel for the appellant plainly desired to put the defence upon the broad ground that there was no novelty or subject-matter in the alleged invention.

The manufacturing operations are comparatively simple and have been well known for many years. Roughly stated, the suitable material is put in a furnace and heated to a point where it has become melted into liquid form. There is a small hole or holes in the bottom of the furnace through which the molten material drops as a stream. By means of some form of contrivance this stream may be blown or struck so that it is thrown through the air varying distances as desired and then caught in a receptacle. If the original material has not been of the nature best suited to the operation or if the heat has not been properly regulated, some of the liquid stream as it passes beyond the furnace quickly forms into little hard particles, sometimes called "pellets" but perhaps more commonly called "shot". If the purpose of the disintegration or dispersal of the liquid matter is for producing such materials as cement, the amount of the "shot" is not material; but if a thread-like or fibrous or silky substance is sought to be obtained, then "shot" must be avoided as far as possible and the molten material driven with sufficient speed and at a sufficient distance to create long, thin threads or fibrous substance.

There are two old and well-known processes for dispersing or breaking up the molten material. The earlier was what is known as the "jet" method. Rock or mineral wool has been made by that method since at least 1870. Steam or air forced through a jet is thrown against the stream of the molten material. This method has the effect of dispersing or breaking up the molten material into countless small bead-like particles, each of which as it flies away carries behind it a delicate thread of finely-drawn or spun rock or slag. This method was used and I understand is still used commercially in the manufacture of rock or mineral wool. The loss through a high percentage of "shot" is said to have made this method expensive

for glass. The other method or process employed before the present patent was that known as the "Gossler" process, which is described by Saborsky (in 1923) at pp. 156 et seq. of the Case. In this process glass was melted in the furnace from the bottom of which glass drops were permitted to fall onto a revolving drum, and these drops drew after them glass filaments which were wound on the turning drum. "The drops themselves were thrown off by the centrifugal force of the turning drum, which retained only the pure and light wool." It is contended by the respondent that the Gossler process was slow and intermittent in its operation. The respondent claims that the process of the patent here in question eliminated disadvantages in both the "jet" and the "Gossler" processes in that it is claimed to produce a wool of extremely low "shot" content and produces fibres by a continuous and quick process compared to that of the Gossler process.

It is important to our problem to observe that the Gossler process used a revolving or rotating drum and, as the drum revolved, drops were thrown off by the centrifugal force of the turning drum. It is true these drops formed "shot" while the patent in question in this action specifies a rapidly rotating disk on the surface of which the molten material falls and from which it is thrown off by centrifugal force to form wool. But what is said against the patent in issue is that the use of a rotating or revolving contrivance and the throwing off of the drops by centrifugal force was too old and well known in the art to constitute the basis of the invention claimed.

It may be well here to repeat exactly what the claim in the patent sued on is:

1. A method of producing fibres from molten glass, slag and the like meltable material, consisting in setting-up a flowing stream of molten material, delivering this stream onto a rapidly rotating surface and causing it to be thrown off the said surface by centrifugal force in the form of fine fibres.

The claim is to the use of a "rapidly rotating surface" and the molten material being thrown off the said surface "by centrifugal force". It is to be observed that the "rapidly rotating surface" on which the stream is to be delivered is not in any way defined, and it must be assumed, I take it, to be a flat or smooth surface. As a matter of fact the patent in question has never been put into use in

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Canada nor has its corresponding United States patent been put into use there. Slater, the respondent's (plaintiff's) principal witness, Vice-President in charge of research and engineering with the American company, admitted that they had done "considerable experimental work with the process" under the corresponding United States patent, "but we make our glass fibres by a different process". The process, he said, which they had developed involves a lot of platinum orifices from which they flow over fine streams of glass into a steam jet. Slater admits that the plaintiff company has never manufactured commercially under the Hager process, which is the name generally given to the patent in question. The appellant company (defendant) also found a flat or smooth surface disk impracticable and they use bevelled edges, slanting downwards, grooved to give the necessary friction. As the material falls at one point on the revolving disk it is subject to the friction of the disk and is thrown off instead of sliding. The appellant (defendant) contends that the device used commercially by it marks the difference between the inoperability of the process covered by the patent in question and the device used commercially by the appellant.

What is said against the patent in issue here is, I repeat, that the use of a revolving disk and the throwing off of the liquid material by centrifugal force has been common knowledge in the art for many years and that the patent adds nothing new and useful in the patentable sense.

It is to be kept in mind that the appellant company manufactures its product from certain kinds of rock only, by the centrifugal force of a rotating disk. It is significant, I think, that Elbers in his United States patent, application for which was filed as early as 1876 (the invention being said to have for its object to provide means for reducing molten scoriaceous substances to a fibrous condition, for producing what is known as "mineral wool"), stated in his specification:

I am aware that shot has already been produced by the centrifugal force of a rotary disk, upon whose face the molten metal was poured; and this I do not claim, as my invention refers to the production of mineral wool, and to the use of a wheel having projecting paddles, that strike the molten mass as they revolve, and affect it mechanically.

His object, he says, is to reduce molten substances to "a fibrous condition" and his method was exposing the

material in a fluid state to the action of a rotary paddle-wheel. Elbers describes the wheel as having a suitable number of projecting blades at the edge placed beneath the outlet or discharge opening of a trough or conduit that contains the molten material, the wheel being so placed that, in revolving with proper velocity, its blades will strike and diffuse the molten mass, whirling it with considerable force through the air, and causing its disintegration into fibres or other small particles, whose form will, of course, vary according to the nature and composition, and even degree of heat, of the matter acted upon. There was some debate at the trial between the witnesses on the two sides as to whether there was the use of centrifugal force in the Elbers process, but I think it perfectly obvious that it was only by some centrifugal force from the revolving contrivance that the stuff was thrown off. Elbers does not appear to have been put into commercial use, and there is no defence of analogous user based on it. It is relied on as showing what was common knowledge in the art as early as 1876, when the Elbers patent was taken out.

Much stress was laid by Mr. Smart for the respondent upon the judgment of the Privy Council in the *Pope Appliance* case (1), and there are some similarities, no doubt, in the two cases. But, as Viscount Dunedin said, there was no controversy in the *Pope Appliance* case (1) as to the device being completely successful. It had, he said, been universally adopted. Nor had he any doubt that it was adequately described in the patent and adequately claimed. The contrivance in that case satisfied a long-felt want in the particular industry, and the Privy Council said that the patent, being good, could not be escaped by such an obvious mechanical equivalent as adopted by the respondents in that case.

Lord Russell of Killowen, delivering the judgment of the Privy Council in *Paper Sacks Proprietary Limited v. Cowper* (2), used the following very precise language at p. 54:

In determining the question of inventive step, a very important consideration is whether the alleged invention has satisfied a long-felt want and has in so doing proved a commercial success.

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(1) *Pope Appliance Corp'n. v. Spanish River Pulp and Paper Mills, Ltd.*, [1929] A.C. 269.

(2) (1935) 53 R.P.C. 31.

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My conclusion is that there is not invention in the claim of the patent sued upon in this action and that accordingly the appeal should be allowed and the action dismissed.

If the patent is not valid, then the question of the status of the plaintiff need not be determined. But as the question was argued at considerable length and is of general importance, I think it well to make a few observations on that branch of the case. Counsel for the respondent before us maintained that the plaintiff's status was, in point of law, that of an assign—not a mere licensee. The formal judgment after the trial follows the somewhat usual form where a patentee or his assign sues, in that the plaintiff is granted an injunction, and damages, if any, sustained by it, or, at its election in lieu of damages, the profits, if any, which the defendant has made by reason of the infringement; an order is directed against the defendant to file statements duly verified on oath showing the number of articles sold from time to time, the prices at which the same were sold, "and of the profit made by the said defendant on such sale"; and an inquiry was directed to be made by the Registrar as to the damages sustained by the plaintiff "or the profits made" by the defendant, as the case may be. But the plaintiff sued expressly as licensee of the rights conferred by the Letters Patent granted to a Dutch company (which for convenience has been referred to as "Maatschappy"), the assignee of the alleged inventors Rosengarth and Hager; and the plaintiff pleaded, and it is admitted by the defendant, that Maatschappy, being a company incorporated under the laws of Holland with its principal office at The Hague, became an enemy in the month of May, 1940 (prior to the commencement of this action), whereupon its interest in the said patent became vested in the Custodian by virtue of the provisions of sec. 21 of the Consolidated Regulations respecting Trading with the Enemy, 1939. The plaintiff made the Custodian a party defendant. Mr. Smart for the respondent said at the opening of the trial:

Just as a matter of title. In effect the suit is being brought by a licensee under the Patent Act and the Act requires, where the action is brought in the name of the licensee, that the owner of the patent should be joined as a party.

The relevant provision of the *Patent Act* is sec. 55 of ch. 32 of the Statutes of 1935, and reads as follows:

55. (1) Any person who infringes a patent shall be liable to the patentee and to all persons claiming under him for all damages sustained by the patentee or by any such person, by reason of such infringement.

(2) Unless otherwise expressly provided, the patentee shall be or be made a party to any action for the recovery of such damages.

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The statutory remedy provided is an action "for all damages sustained". A licensee is, I think, for the purposes of the section, a person claiming under the patentee, but the statutory liability is "for all damages sustained" by such person by reason of such infringement. What is the measure of damages in any case is usually a difficult matter to determine, but certainly the profits made by the infringing person is not the measure of the damages sustained by a licensee. There is nothing in the evidence in this case to guide the Court in ascertaining whether any damages were sustained and nothing to lay the basis for a proper ascertainment of damages if any were sustained. In the peculiar circumstances of the case, the plaintiff never having made any commercial use of the patented process so far as the evidence discloses, either in this country or in the United States, it is difficult to see that it has suffered any damages. This Court, at any rate, has no evidence upon which it could go to fix an amount if the patent were to be held valid, but the plaintiff would be entitled, at its own risk, to a reference for this purpose to the Registrar of the Exchequer Court. The position of a licensee and the measure of damages were fully discussed by this Court in the judgment delivered in *Electric Chain Company of Canada, Ltd. v. Art Metal Works Inc. et al.* (1).

After the judgment at the trial and by leave granted by that judgment, the plaintiff added Owens-Corning Fiberglas Corporation, a company incorporated under the laws of the State of Delaware, having its principal office in Toledo in the State of Ohio, one of the United States of America, as a party plaintiff, and amended the statement of claim accordingly, and that company is one of the respondents before us. Mr. Smart admitted that it was probably unnecessary to have added that company. In my view, the company was neither a necessary nor a

(1) [1933] S.C.R. 581.

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proper party, and in any event of the disposition of the appeal the respondents should not, in my view, be allowed any costs in connection with the application or amendment.

KERWIN J.—This is an appeal by the defendant, Spun Rock Wools Limited, from a judgment of the Exchequer Court declaring that as between the appellant and the plaintiff, Fiberglas Canada Limited, claim 1 of Canadian Letters Patent No. 333788, bearing date July 4th, 1933, is valid and has been infringed by the appellant and restraining the appellant from making, constructing, using and/or vending to others, to be used in Canada, the invention defined by the said claim, during the continuance of the said letters patent in respect of the said claim. The judgment also, in the usual form, declares that the said plaintiff is entitled to recover from the appellant as the plaintiff may elect, the damages, if any, sustained by it by reason of the said infringement, or the profits, if any, which the appellant has made by reason of the said infringement.

The original parties to the action were those already mentioned and, as a defendant, the Custodian. By the judgment now in appeal, leave was given to add Owens-Corning Fiberglass Corporation as a party plaintiff upon filing its consent. This consent was filed and the statement of claim amended in pursuance of the judgment but no relief was granted the added plaintiff. The alleged invention was made by two German subjects but the patent issued to their assignee, a company called, for short, Maatschappy. The latter company never assigned the patent but granted exclusive licences to certain intermediate parties who in turn transferred those rights to Fiberglas Canada Limited. The added plaintiff was one of the intermediate licensees and its presence in the litigation adds nothing to the rights or liabilities of the other parties.

Maatschappy was incorporated under the laws of Holland with its principal office at The Hague in the Kingdom of Holland, and in May, 1940, became an enemy, whereupon its interest in the patent became vested in the Custodian by virtue of the provisions of section 21 of the Consolidated Regulations respecting Trading with the Enemy, 1939. The Custodian was made a party defendant and, the appellant admitting infringement if it be held

that the claim sued on is valid, Fiberglas Canada Limited, as exclusive licensee, would be entitled in that event to the usual order of restraint against the appellant.

In *Electric Chain Company of Canada Limited v. Art Metal Works Inc.* (1), it was held that under the provisions of the *Patent Act* of 1923 a licensee was not entitled to a judgment for damages since section 32 of that Act provided that any infringer "shall be liable to the patentee or his legal representatives in an action of damages for so doing" and the term "legal representatives" was defined by section 2 (c) as including the heirs, executors, administrators, guardians, curators, tutors, assigns or other legal representatives, and by section 2 (e) "patentee" meant the person for the time being entitled to the benefit of a patent. When the *Patent Act* was recast in 1935, the definition of the word "patentee" remained the same, but section 55 provides:

55 (1) Any person who infringes a patent shall be liable to the patentee and to all persons claiming under him for all damages sustained by the patentee or by any such person, by reason of such infringement.

(2) Unless otherwise expressly provided, the patentee shall be or be made a party to any action for the recovery of such damages.

So far as a claim for damages is concerned, therefore, an exclusive licensee claims under the patentee within the meaning of this section, and the presence of the Custodian as a party defendant in this litigation would, I think, be sufficient if the plaintiff had worked the invention in Canada. This did not occur and there is no basis for the fixing of any damages suffered by Fiberglas Canada Limited. Although no claim is made in the action for any damages suffered by the Custodian as being the person for the time being entitled to the benefit of the patent, there would appear to be no reason why such a claim should not be permitted by amendment in a proper case. Even then it is doubtful if any further evidence could be adduced which would assist the Court in coming to a conclusion as to the damages suffered by the Custodian, when the patent was not worked in Canada.

However, the action fails and must be dismissed for lack of invention. I have had the advantage of reading the judgment of my brother Davis and on this point I agree with what he has stated. The appeal should be allowed and the action dismissed with costs throughout.

(1) [1933] S.C.R. 581.

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HUDSON J.—I have had an opportunity of reading the judgment prepared by my brother Davis and agree with him that this appeal should be allowed on the ground that the claim in the patent in question lacks novelty and subject-matter, that is, the want of invention.

As the patentee and the original licensees are before the Court, I think it is unnecessary for me to express any opinion as to the status of the plaintiff to bring the action. I would allow the appeal and dismiss the action.

RAND J. (dissenting)—This is an appeal in an action for the infringement of a patent for a process of making what is known as glass or mineral wool. The patent is challenged on the grounds of anticipation and want of subject-matter. Utility is unquestioned and infringement admitted. The trial judge found for validity and from that finding this appeal is brought.

The process deals with meltable materials such as glass, slags and other minerals and mixtures of which silica alumina and lime are the chief constituents. It consists of the delivery of a continuous thin stream of molten substance on to a rapidly rotating disc. The effect of this is to break the stream into small particles and by its rotatory force fling them off the disc to trail into very fine threads or filaments which drop in a “jack-straw” arrangement beneath. The product resembles ordinary sheep’s wool and is used for many purposes of insulation.

The methods of the art in 1933 when the patent was issued were somewhat simple and limited. Glass wool was made by what was known as the Gossler process which consisted of causing molten material to drop through small openings on to a revolving drum around which the glass was drawn in fine fibres. When the skein was full the drum was stopped and the wool cut and removed. It was then fluffed manually to produce the condition necessary to insulation properties.

Slag and minerals were reduced to wool by subjecting the molten stream to a blast of air or steam. This dispersed the material into small droplets and at the same time forced them through the air to tail off into very fine threads.

In both of these operations there was present in the wool more or less of particles of the material which had not been spun out. These were called shot, and the grade

of the product was determined largely by the quantity of this unspun material present. In both, also, the length of, and, in fact, the property of being convertible into the fibre depended on the viscosity of the substance used. This is measured by the range between the fusing and the hardening points, beyond which the meltable substance cannot be pulled or spun to fibre.

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There is no doubt that there was a commercial pressure for over fifty years before the issue of the respondents' patent for improved means of utilizing waste slags, chiefly from the vast steel and iron industry developed during that period; and from the beginning of the present century there has been a steadily expanding field and demand for the use of these insulation materials. The search, therefore, for more efficient means and processes for the production of glass and mineral wool has, for over a quarter of a century, been general and persistent.

The point of anticipation can be disposed of shortly. The test laid down in the cases cited in the judgment below rules out the patents mentioned in the particulars of the defence. It must, in my opinion, be taken that no one who was facing the problem posed, upon being presented with any of them, would be able to say: "that is what I am seeking". This objection, therefore, fails.

The remaining contention of the appellant is in substance this: the principle of disintegration of molten material by means of a rotating disc has long been a matter of common knowledge; that of the production of fine fibres by propelling globules of molten material, of suitable viscosity, through the air, equally so: the bringing together of these two well-known operations by the method challenged was an ordinary extension of the art and not one which called for the exercise of invention.

Is, then, the new method but an ordinary and inevitable step from the two principles already mentioned? On this the patent of 1876 by Elbers (exhibit "M"), who was associated with the production of mineral wool in the United States from its beginning, and his observations on the art to that time are of significance. He says:

This invention has for its object to provide means for reducing molten scoriaceous substances to a fibrous condition, for producing what is known as "mineral wool". Heretofore such reduction was usually effected on scoriaceous substances by a jet of air or steam propelled through or against a stream of molten slag or scoria; but in practice I

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have found that, upon striking the flowing mass, the force of the jet of steam or air is spent to a greater or less degree, and the reduction consequently not as perfect as it would be if less changeable power were applied. In the production of mineral wool a very considerable proportion of objectionable bead-like globules is therefore produced, simply because the jet of air or steam does not remain sufficiently powerful to follow all the parts of the diffused matter and reduce them in proper manner.

My invention consists in the use of a rotary paddle-wheel, which I apply to the molten scoriaceous matter.

* * *

Heated or cooled air or steam may be used in connection with my process and apparatus. Thus, in order to prevent the diffused particles of slowly-solidifying mineral wool from reuniting on contact, they may be thrown into or through a current of cold air, which may assist in further dividing or reducing the particles which fly from the wheel.

* * *

I am aware that shot has already been produced by the centrifugal force of a rotary disk, upon whose face the molten metal was poured; and this I do not claim, as my invention refers to the production of mineral wool, and to the use of a wheel having projecting paddles, that strike the molten mass as they revolve, and affect it mechanically.

That language, stressed by the appellant, indicates to me that the possibility of using the centrifugal force of the rotating disc as the propellant of particles to elongate them into fibres quite missed the inventor. He was anxious to disclaim the production of shot and equally to emphasize the use of the mechanical force of a paddle to produce wool. This specification was made in 1876. In an article published by him in 1899 (exhibit "E"), the history of mineral wool production is fully given. There is in it no reference to the invention of 1876, and the only process mentioned for other material than glass is that of the steam jet. This paper not only evidences the interest and authority of Elbers in the art itself, but it confirms the fact that the utilization of centrifugal force for the spinning action had never suggested itself to his mind.

Underlying Mr. Herridge's argument that all that remained to be done in order to convert the shot produced by rotatory disintegration into fibre was to use material having the necessary viscosity, is, I think, the fallacious assumption that ordinary skill could perceive that the centrifugal force imparted by the rotating disc would adequately serve as the required propellant for the disintegrated material. That, in my opinion, goes to the essence of the discovery and is the point for determination. In the documentary history of the prior art presented by

Mr. Herridge, nothing is disclosed to indicate appreciation of that possibility. The disc operation could disintegrate and disperse, that was familiar; but that its rotatory force could at the same instant be utilized for whirling the minute particles through the air and into fibres does not appear until the invention of the respondents.

There is no evidence that any of the patented processes claimed to be anticipations were ever put into practical use and the respondents raise the point that nothing in them can, therefore, be taken to support the application of the principle of analogous user. But even if it were assumed that there is sufficient in the case to justify the conclusion that the method of disc disintegration was one that had seen actual use, it cannot, in my opinion, be said that the adaptation of such a machine to produce glass wool through a combined action of disintegration and propulsion is analogous to disintegration alone for entirely different purposes. It is a new use with a new product not cognate in any sense of patent law with the previous operation or its product.

The question remains, then—and it is the same if we treat the matter as well from the standpoint of a step in advance of the general knowledge of the art—did the recognition of the possibility of the new use of the disc involve an act of the inventive faculty? Was the function of propulsion by the disc for the purpose of reduction to fibre so near to that involved in disintegration merely that we have here simply the act of adapting the disc to another use that would occur to any skilled worker who set his mind to the problem? I cannot think so. To elude the experimenters for over fifty years is evidence of the existence of a barrier, or a lack of kinship, between the two conceptions that in the minds of skilled workers kept them apart.

In an article published in 1923 in the Journal of the American Ceramic Society on Glass Wool Heat Insulation in Europe (exhibit "B"), A. D. Saborsky furnishes a detailed account of the development of this art in Europe during the last war. He states that, up to the year 1914, the manufacture of glass wool was by the crude and simple method of melting the tip of a glass rod over a flame, seizing the forming drop by another glass rod in the hand of the operator and, by a quick twist, throwing it over a

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hand-operated rotating drum. Around this the soft glass was pulled in fine threads. The machine used had a number of glass rods clamped in a horizontal position; these were fed gradually into the gas flame and turned slowly to make the heat even. Later on, "the biggest advance" in the spinning was by the

very obvious and long-delayed improvement of placing the revolving drum underneath the falling glass drops * * * This simple improvement proved to be so basic in the art, that very strong patents were obtained on this feature.

The next step was to substitute a direct flow of molten glass from the furnace instead of using glass rods. After much experimenting, a method for that was finally achieved and, from 1922, the use of glass rods discarded. Between that year and 1930, when the respondents' application was filed in Germany, the so-called Gossler process held the glass wool field alone.

Saborsky's description of the intense development work in Germany is of some interest:

In 1914 the War started, and with it an immediate and entire lack of asbestos importations for Central Europe set in, aggravated by a still greater necessity for the preservation of fuel. Glass wool, whose excellent insulation qualities were already recognized, was then called upon irrespective of cost. A firm of ship chandlers in Hamburg, who up to that time had carried a line of asbestos insulations, started to supply the rapidly growing demand for glass wool, at first employing the crude manufacturing methods then available. Gradually as they found themselves unable to comply with the steadily increasing demand, different methods to improve the manufacture were repeatedly tried, put into production and abandoned again, when better ways were discovered. In this way they covered the ground from the semi-manual making of glass wool from glass rods to present-day automatic production directly from a vat of molten glass, with scrap glass as the raw material.

* * *

Several patents were obtained during the development of the manifold processes and machines. All thinkable possibilities were tried, out of which the present machines finally crystallized. This process of producing glass wool directly from a molten mass of glass is new, and has been well protected in all civilized countries.

"All thinkable possibilities," however, did not include the process of a rotating disc. That the use of such a disc in disintegrating slags for cement purposes was well known in Germany at that time—1923—can be taken without much hesitation. One patent put in evidence specifically claims it. Fellner (exhibit "H") was a manufacturer of Frankfort-on-the-Main and his patent is put forth by the

appellant as an anticipation because of this particular feature; then, of course, there is the contention that such a use was part of the common knowledge of the industry. It is, therefore, a significant commentary on the quality of the ingenuity behind the patent of the respondents that, through that period of intense groping for a new method, no mind associated the well-known disc with the purpose before it. There is, too, a striking illustration of the fact that simple solutions are sometimes most invisible, in the evolution of the Gossler process. "The simple improvement," as Carlson calls it, of moving the drum under the molten glass rods and allowing the drops to fall by gravity did not occur to any person until toward the end of the last war.

The challenged process, moreover, realizes substantial advantages over the prior methods. It eliminates, by its mechanical separation of the shot, the necessity for carding the wool; it is continuous in operation; it produces about ten times the quantity of glass wool as the Gossler machine; its fibre is exceedingly fine with a low shot content; and it offers in addition to these advantages a practical method of production not calling for high capital outlay and available for limited markets.

The appellants have obtained patents for the infringing process. The testimony of the witness Richard Buss shows experimental work of over one and a half years in developing the metal and apparatus. It seems to have been a chance suggestion from his brother, who was familiar with centrifugal machines, which lead to experimentation with the disc method. But this discovery, as well as that of the respondents, came at the end of a long period of baffled effort in the field generally, and that circumstance seems to be most significant to the question raised.

I agree, therefore, with the trial judge that there was patentable subject-matter in the invention of the respondents.

A further defence was raised as to the right of the respondents to maintain the action. The original plaintiff claimed to be the exclusive sub-licensee of the added plaintiff, Owens-Corning Fiberglas Corporation, under exhibits 3, 4 and 5: but that these documents conveyed

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such an interest was seriously challenged. The capacity of the added plaintiff, in turn, was alleged to be that of exclusive licensee of the patentee. There does not appear to be any doubt of that fact, and the inclusion of the corporation in the action cures any defect in parties of beneficial interest. The patentee was a corporation of Holland and, by the provisions of the regulations respecting Trading with the Enemy (1939), the legal title to the patent has been vested in the defendant Custodian. All interested parties are, therefore, before the court and whether as plaintiff or defendant would not, in the circumstances, appear to be material.

The appeal should, therefore, be dismissed with costs.

*Appeal allowed and action dismissed
with costs throughout.*

Solicitor for the appellant: *William A. MacRae.*

Solicitors for the (plaintiffs) respondents: *Smart & Biggar.*
