

Ottawa
1967
Apr. 24-28
May 1, 2
May 12

BETWEEN :

LYLE E. BRANCHFLOWER PLAINTIFF;

AND

AKSHUN MANUFACTURING COM-
PANY and V. & S. MACHINE COM-
PANY INC. } DEFENDANTS.

*Patent—Patent Act, R.S.C. 1952, c. 203—Subsection (8) of section 45—
Ice removing blades for use in flake ice making machines.*

In this conflict proceeding under subsection (8) of section 46 of the *Patent Act*, R.S.C. 1952, c. 203, as amended, to determine the respective rights of the parties on applications for a patent or patents containing claims numbered in this action C-1 and C-4, the subject matter was ice removing blades for use in flake ice making machines.

Held, (1) That the plaintiff's and defendants' respective applications for patents in this matter were directed to two different and distinguishable ice removing blades;

(2) That the ice removing blades described in the plaintiff's application for patent contained the elements described in claim C-4, and the defendants' does not; and that the plaintiff invented the design of the blades which has the elements prescribed in all the words in conflict claim C-1 and the defendants' does not;

(3) That the plaintiff made and disclosed the invention within the principles of *Christiani and Nielsen v. Rice* [1930] S.C.R. 443 and the plaintiff formulated his inventions empirically within the principles of *Scragg & Sons Ltd. v. Leeson Corporation* [1964] Ex. C.R. 649.

(4) That the plaintiff is entitled to costs.

CONFLICT PROCEEDING under *Patent Act*.

W. R. Meredith, Q.C. and *D. M. Finlayson* for plaintiff.

James A. Devenny and *N. Fyfe* for defendants.

GIBSON J.:—This is a conflict proceeding under subsection (8) of section 45 of the *Patent Act*, R.S.C. 1952, c. 203 as amended, to determine the respective rights of the parties on their applications of a patent or patents containing claims which are numbered in this action C-1 and C-4.

The plaintiff resides at Seattle, Washington and is the owner of Canadian patent application 626,587 filed February 7, 1952 (Ex. P-1).

The defendant, V. & S. Machine Company Inc., is a State of Illinois corporation and is the owner of Canadian patent application 616,890 filed July 14, 1951 (Ex. F), being the

assignee of it from the defendant Akshun Manufacturing Company, another State of Illinois corporation (see Ex. N), which in turn was the assignee from the alleged inventor, one Gerald M. Lees (see Ex. M).

Both the plaintiff's and the defendants' applications each describe flake ice making machines to make sub-cooled flake ice. Nothing in either application, including the claims, however, apart from the reference to the blades for removing ice (sometimes referred to as knives, cutters, sweepers, etc.) was not known to persons skilled in the art prior to the beginning of 1949.

Both the plaintiff and the defendants filed applications for patents in the United States and each were issued a patent. The plaintiff's United States patent contains a claim similar in wording to claim C-1 in this action and a claim practically similar in wording to claim C-4, the only difference being in the words of the last phrase thereof.

The relevant dates of filing in the Canadian and United States patent offices of plaintiff and defendants are as follows:

February 8, 1951—The plaintiff, Branchflower, filed U.S. application for patent, serial number 210,030 (Ex. P-3) resulting in U.S. patent No. 2,735,275 (Ex. P-4)

February 7, 1952—The plaintiff, Branchflower, filed Canadian application serial number 626,587 (Ex. P-1)

April 9, 1951—The defendants' assignor, Lees, filed U.S. application for patent, serial number 220,044 (Ex. R) resulting in U.S. patent no. 2,716,869 (Ex. S)

June 14, 1951—The defendants' application was filed in Canada, serial number 616,890 (Ex. F); a duplicate of Ex. R above.

The decision of the Commissioner of Patents in this matter was made on August 13, 1959 by which he awarded conflict claim C-4 to the plaintiff and conflict claim C-1 to the defendants.

On November 5, 1959 the plaintiff instituted this action claiming that conflict claim C-1 should also have been awarded to him and the defendants deny this and by counter-claim claim that conflict claim C-4 should also have been awarded to them.

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Conflict claims C-1 and C-4 read as follows:

C-1

A flake ice maker and removing device comprising a vertical cylindrical shell member open at the bottom and having an inner surface; refrigerating means refrigerating the said inner surface so that water deposited thereon will form into ice; water supply means depositing water on said inner surface; a driven member coaxially mounted of and in said cylinder; a plurality of axially spaced apart ice removing blades carried by said driven member, each having an outer arcuate ice engaging edge portion disposed generally in a horizontal plane, and in close proximity to said inner surface, whereby ice forming on said inner wall is removed at a plurality of locations; and a water collecting trough at the lower edge of said inner surface.

C-4

A machine for the manufacture of flake ice, comprising: a cylindrical shell having an inner surface adapted to be refrigerated; means for supplying water to said surface so that ice in sheet form may be formed thereon; rotatable means arranged coaxially of said shell; base means extending axially of and secured to said rotatable means; axially spaced apart ice removing blades secured to said base means adjacent to said inner surface, each of said blades having a face normal to said surface, and said face being at an angle to the plane of its rotation, and with the leading portion thereof at a higher elevation than the trailing portion.

Flake ice, the product of the machines in both the plaintiff's and the defendants' said applications, is ice in the form of small relatively thin pieces, ragged edged, as distinguished from being in block or cube form. Flake ice is typically of reasonably uniform thickness of approximately $\frac{1}{8}$ inch. Its other dimensions are irregular but it is ordinarily no more than $\frac{1}{2}$ inch across in any other dimension. The general appearance of a single piece of flake ice is not unlike a tiny reasonably regular piece of broken window glass.

Flake ice is also sub-cooled, usually to a temperature of from 0 degrees to 20 degrees above F.

Flake ice has many uses, but very important uses have been and are in the fishing and poultry industries. It is particularly desirable for these purposes because flake ice provides a very large area for cooling per unit of weight, much greater than any other commonly used form of ice such as blocks, cubes or crushed ice.

Flake ice is preferred for the fishing industry over cube ice or crushed ice for additional reasons other than its large surface area. To be useful in the fishing industry, ice must be of sufficiently small particle sizes so that it can be

easily packed in the fish carcass. Flake ice does not have strong sharp edges or lumps which might tear the fish flesh. Flake ice put to this use, being sub-cooled, will not pack into a solid mass in storage, which would make it difficult to handle. Flake ice is very satisfactory in all aspects mentioned and is in great demand for the fishing industry; and also the poultry industry.

There was nothing new about flake ice in 1949. It had been made and used for decades. It had been made by causing water to freeze on a smooth surface and then by some mechanical means was broken off into small pieces.

Both applications for patent herein use this method.

Both applications also relate to making ice on the inside of a rotary drum and then taking it off by blades (sometimes called knives, cutters, sweepers, etc.) causing it to fall to the bottom of the drum as flake ice.

In 1949 there also was nothing new in the refrigeration equipment used to freeze.

Both applications relate to essentially the same matter.

And as stated, all other components of the ice machines in both applications were part of the prior art in 1949.

What is in issue in these proceedings is the assertion of each inventor that he invented the blades, (sometimes called knives, cutters, sweepers, etc.) for removing the ice in an ice removing machine producing flake ice, containing all the elements described in conflict claims C-1 and C-4. Each claims to have made the inventive break-through.

Ernest H. Sinclair, a consulting engineer in Toronto, called as a witness by the plaintiff, puts it this way:

In summary, it was known to produce the known substance flake ice by applying water to the inside or outside of a refrigerated drum, and it was also known to remove the ice by various kinds of cutters or blades. Any improvement making use of the features just referred to would have to have involved particular new and useful design of one or more of such features.

What was desired to be achieved by a flake ice making machine was known. It was known that machines for producing flake ice should ideally produce dry, subcooled, friable, discrete flakes of ice of large surface area in relation to weight.¹

The plaintiff's submission in brief is this: Conflict claims C-1 and C-4 are drawn in sufficiently broad language that

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¹ Ex. P-12, pp. 13-4.

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they describe each of the plaintiff's and defendants' machines except for the cutting blades (sometimes called knives, cutters, sweepers, etc.) and that the only matter in issue is the design of the respective blades of the parties; that the plaintiff in designing and fabricating his blades invented the subject matter of claims C-1 and C-4; that the defendants (Lees) in designing and fabricating, or in describing its blades, did not; provided, however, that the plaintiff does not say that the defendants (Lees) did not make any invention, but instead says that Lees made another and different invention not containing the elements described in claims C-1 or C-4; and that the plaintiff alleges a date of invention not later than July 31, 1950.

The defendants' submission in brief is this: That the cutting blades (sometimes called knives, cutters, sweepers, etc.) such as filed as Ex. P-20 at this trial which the parties agree is a blade invented by Lees and designed by him sometime in July or August, 1949, is within the concept of claim C-1; that the plaintiff's alleged invention is not; that claim C-4 is inoperative or (conceding that the blade Ex. P-20 does not contain the elements described in claim C-4) it is within Lees' concept of invention on a so-called two-faced theory (see p. 102 of Ex. I, Note Book of Lees); that the plaintiff's alleged invention is not within the concept of claim C-4; and that the defendants allege a date of invention of July or August, 1949.

At the time of this trial, the plaintiff, the alleged inventor of the invention in his application, was too sick to testify; and the defendants' alleged inventor, Lees, was dead.

Part of the plaintiff's evidence was that the licensee under its United States patent, containing essentially claims C-1 and C-4, North Star Ice Equipment Co. Inc., employing the concept of the plaintiff's alleged invention of his blades, had manufactured and sold over 1,000 machines in the world market, 300 of which had been sold in Canada.

The defendants, on the other hand, adduced no credible evidence that any machine incorporating the Lees invention of blades Ex. P-20, was ever sold commercially.

The plaintiff's witnesses were: Mr. Ernest H. Sinclair, mechanical engineer, Toronto, Ontario; Mr. Allan J.

Treuer, President of North Star Ice Equipment Co. Inc., and former partner with the plaintiff in the firm known as Lyle E. Branchflower and Company, Seattle, Washington; Mr. Meryl H. Jenkins, production superintendent in 1949 and 1950 and now, of Lyle E. Branchflower and Company; Mr. Paul Blivene, a patent attorney, formerly of Seattle, Washington, who in 1950 was retained by the plaintiff to prepare and file his application for a United States patent.

The defendants' witnesses were: John E. Watkins, mechanical engineer of Maywood, Illinois; James Albright, President of both the defendant Companies; Lew E. Flanders, a general attorney at law, Seattle, Washington.

The plaintiff by letter agreement dated May 3, 1949 (Ex. D) hired the said Gerald M. Lees, the defendants' alleged inventor, to construct an ice machine and for this purpose to prepare shop drawings in consultation with the foreman of Lyle E. Branchflower, one Charles Nelson, for the production of a unit which should produce approximately ten tons of flake ice per 24 hour day. The agreement provided among other things as follows:

... For your technical knowledge and preparation of drawings, supervision of assembly, and starting of the operation of the unit, we will pay you at the rate of \$100 00 per week for the 6 week's period. When the unit has been put into operation, we will then pay you the \$400 00, or total of \$1,000 00 for the engineering, design, and supervision of construction of this unit.

It is further understood that you will design and supervise construction of additional units on the basis of \$500.00 per unit, if we so desire.

The preparation of the drawings will be done in your residence. Fabrication and production of the various units for the machine will be contracted for by us and all costs will be paid by us. The assembly of the machine will be in our own shop.²

Lees' employment terminated on August 18, 1949 after a disagreement.

At least by August 18, 1949 a so-called experimental machine had been fabricated and was working at the premises of Lyle E. Branchflower and Company. The blades in it designed by Lees were similar to the blades Ex. P-20 which the plaintiff agrees is a blade invented by Lees.

Prior to this employment of Lees by the plaintiff, namely, on April 19, 1949, Lees attended the law office of Lew E.

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Flanders, the said attorney at Seattle, Washington, for the purpose of having pages 100, 101, 102 and 103 of a Note Book of his, alleged to be a record of his invention for an ice making machine, notarized. This Note Book is Ex. I. Mr. Flanders affixed his signature as a Notary Public and his notarial seal on said pages on April 19, 1949.

Page 100 dated March 25, 1949³ reads in part:

A way to make a large ice machine. . . . Run two sets of knives, one set for each plate (essentially Lessard-Lees knife assy) . . .

At page 102 dated March 27, 1949⁴ there appear these words:

An efficient knife for flat surface. . . . It seems to me that if I could make a thin cut nearly thru the ice sheet & then start driving the wedge to apply shear to the bond that this would be more efficient.

There then follows subject sketches of blades and opposite one appear these words: "Lay this off". This is alleged to mean curved.

Then under date March 29, 1949, page 102⁵, there appears a sketch of a blade with a saw cut in it, the tail portion of which is bent down. These words appear under it:

A good knife perhaps Use 20° (sharp) blade thruout apply shear by making a saw cut & bending tail end of blade down to bear down on ice—"Splht the log & then drive the wedge".

The evidence of the plaintiff, by the witness Treuer, is that the said experimental machine using blades similar to Ex. P-20 was not satisfactory because it did not remove substantially all the ice and would not run for long periods unattended, among other things; and that as a consequence, the plaintiff continued to experiment with the design of blades to produce a more satisfactory ice cutting machine. I accept this evidence.

Treuer testified that not later than July 31, 1950, the plaintiff had designed and had caused to have fabricated blades in an ice making machine which produced the successful results sought. Ex. P-29 is part of a rail containing eight blades, all of which are examples of such blades. Mr. Treuer says the plaintiff disclosed this to him, to Charles Nelson who caused the actual fabricating of them, and to others in the plant of Lyle E. Branchflower.

I accept this evidence and also infer that the milling along the bottom of such blades had been done by that time.

Treuer says the plaintiff gave these blades (Ex. P-29) to Mr. Blivene, the said patent attorney, on October 19, 1950, when the plaintiff retained the latter and authorized him to prepare a patent application. Mr. Blivene testified that he received Ex. P-29 and used it in preparing the United States patent application of the plaintiff. Mr. Blivene also testified that he made various inquiries of the plaintiff and of the employees at the plant of Lyle E. Branchflower to assure himself that there was no joint inventor of Ex. P-29. I accept this evidence.

The engineer, Sinclair, called by the plaintiff, said that he had seen machines working commercially which had blades in them incorporating the plaintiff's concept of blades exemplified by the blades on Ex. P-29. He said they were in machines made by North Star Ice Equipment Co. Inc. He identified Ex. P-31 and Ex. P-32 as examples of such North Star Ice Equipment Co. Inc. blades. He identified Ex. P-11-F, which is an enlarged version of figure 9 of a drawing of the plaintiff's blade in his said Canadian patent application.

Sinclair's affidavit as filed, complied with Rule 164B of this Court and also the Order of this Court dated December 14, 1966 concerning the conduct of this trial.

Watkins, the engineer who gave evidence on behalf of the defendants, had never seen a machine working which he identified as using North Star blades implementing the alleged invention of the plaintiff exemplified by the blades in Ex. P-29; and also had never seen a flake ice machine operating which had in its blades employing the Lees concept of blade as exemplified by the blade Ex. P-20.

An affidavit of Watkins was filed purporting to comply with Rule 164B of this Court, but it contained nothing which related to the provisions of the said Order of this Court dated December 14, 1966, that expert testimony at the trial could be adduced as to the technical significance of the words and phrases of claims C-1 and C-4.

Speaking generally, Sinclair's evidence, in my view, in the main is to be preferred to that of Watkins. His experience over thirty years and his technical training admirably

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qualified him to give the evidence he did, and his evidence including that adduced on cross-examination, I prefer where it conflicts in any way with that of Watkins on any material point. Watkins, in my view, was more advocate than witness.

Speaking generally also, Albright for the defendants was an unsatisfactory witness. He described himself, *inter alia*, as a promoter of patents. He was not truthful in respect to certain material evidence at this trial. From this, from his general demeanour, and from other *indicia*, I conclude I do not accept any of his evidence in so far as it is relevant to the determination of the issue of this action. Other facets of the unreliability of this witness were expressed by the plaintiff as far back as July 28, 1950. (See letter to the plaintiff from Albright dated July 28, 1950, which was put in evidence by the defendants as Ex. O.)

On the evidence, the issue for decision in so far as conflict claim C-1 is concerned, resolves itself into a question as to whether the plaintiff invented the design of the blades in the structure (Ex. P-29) and whether such design has the elements prescribed in these words in conflict claim C-1, namely: "each having an outer arcuate ice engaging edge portion disposed generally in a horizontal plane"; or whether the defendants' (Lees) invention of blade Ex. P-20 which it is agreed was invented in July or August, 1949, has the elements called for in those said words in conflict claim C-1.

On the evidence, the issue for decision in so far as conflict claim C-4 is concerned, is again whether the plaintiff invented the blades in the structure (Ex. P-29) and also whether they have the elements called for in these words in said claim, namely: "axially spaced apart ice removing blades secured to said base means adjacent to said inner surface, each of said blades having a face normal to said surface, and said face being at an angle to the plane of its rotation, and with the leading portion thereof at a higher elevation than the trailing portion."; or whether as contended by the defendants, claim C-4 is inoperative in that it does not describe the concepts of the blades on Ex. P-29 or Ex. P-20 (which the defendants concede) or alternatively, whether it describes the Lees invention of blade

disclosed at page 102 of his Note Book (Ex. I) on a so-called two-face theory (which is discussed later in these reasons).

As to the wording of both claims, they should be interpreted, in my view, according to the ordinary dictionary meaning of same.

As to the above quoted relevant words in conflict claim C-1, I am of opinion that Sinclair in his said affidavit filed, and orally, adequately and correctly explains them, even though in employing the words he did, he had in mind in the main, the blades used in a North Star flake ice machine and the North Star ice machine generally. This does not detract from their validity. His words of description are:

12. (12) "*Outer arcuate ice engaging edge portion*"—The phrase altogether means a particular surface. This is the surface (portion) of the ice removing blade that actually comes into contact with the ice and exerts a downward force on the ice below the blade which breaks adherence to the drum wall. It is clear that in the apparatus shown in both of the patent applications set forth in paragraph 6⁶ hereof, such surface is the lower surface of each blade. The drum wall is round and cylindrical and the outer extremity (edge) of the surface on the blade is curved (arcuate) to match the curvature of the drum wall. The ice removing blade is mounted on the driven arm so that its outer edge clears the drum wall by a very small clearance which I know from my experience in the industry to be about 0.005"; such dimension in practical terms is approximately equal to the thickness of a sheet of good bond paper. The underneath surface of the blade engages the ice, pushing the ice downward until the bond of the ice to the drum wall is broken. Thus the ice falls by gravity out of the machine into storage.

(13) "*Disposed generally in a horizontal plane*"—Although these words have a broader general meaning, as applied to machines of the kind described in the patent applications set forth in paragraph 6 hereof, this phrase refers to the orientation or position of the ice engaging surface of the ice removing blades when

⁶6. THAT I am aware that this action is concerned with a patent application of Lyle E. Branchflower, Serial No. 626,587 entitled "ICE MAKING MACHINE AND THE ART THEREOF" and a patent application of Gerald M. Lees, Serial No. 616,890, entitled "KNIVES FOR FLAKE ICE MAKING MACHINES", both of which applications I have read. The opening words of the said Branchflower application state that it is concerned with "the making of sub-cooled ice in flake form" and the opening words of the said Lees application states that it is concerned with "an improved machine for making flake ice and a knife therefor". Assuming the quoted words in the last sentence are used in the sense that they are used as terms relating to refrigeration in the food processing industries, it is my opinion that both the said patent applications have to do with the manufacture of a particular form of ice known as flake ice.

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properly positioned in the ice making machine. The drum wall, although round, is vertical or upright. If one placed one leg of a carpenter's square upright against the inside wall of the drum and the other leg toward the shaft in the center of the drum, the ice engaging surface of the ice removal blade would rest upon the inwardly extending leg of the carpenter's square. Thus, the working surface of the blade may be said to be generally in a horizontal plane.

(14) "*Outer arcuate ice engaging edge portion disposed generally in a horizontal plane*"—This phrase combines Nos. 12 and 13 phrases so the combined definition of Nos. 12 and 13 applies. This phrase defines the placement and position of the working surface of the ice removal blades. The "edge portion" is the working surface on each blade. Its outer extremity is arcuate and in the Branchflower application referred to in paragraph 6 hereof, matches the curvature of the drum wall. This surface is generally horizontal in that it extends from the vertical wall inwardly toward the central shaft in a horizontal direction.⁷

2. THAT upon reviewing my said affidavit of March 21, 1967, it seems to me that a further comment will be helpful in understanding the facts deposed to. Particularly in Paragraph 12(12) and 12(14) of my said affidavit I have referred to the term "arcuate edge portion", and I wish to point out that the expression "arcuate edge portion" is distinguishable from a structure which is "tangential" to the inner wall of the drum. "Tangential" implies a straight line which is a tangent to a circle and "arcuate edge portion" could therefore not be "oriented in a substantially tangential direction in relation to the inner wall".⁸

I agree with the opinion of Sinclair that the above quoted words of claim C-1 require that the ice removing blades have a working surface generally in a horizontal plane and that such surface be outer arcuate and ice engaging.

The blades of the plaintiff exemplified by Ex. P-29 clearly fulfil this requirement of structure in that, *inter alia*, it is arcuate along its full working surface and all of such surface gets into the ice (engages it). The Lees' blade exemplified by Ex. P-20 does not. It is outer arcuate only on the front part of it where it scores the ice and is not in the rear part so to speak, of its blade which wedges the ice off; and in consequence does not engage the ice along the whole of its working surface.

I also agree with Sinclair that to engage the ice is to be in the ice and not just touch it and such engaging must be in an ice removing functional part of the blade. As stated, the blades exemplified by Ex. P-29 fulfil this requirement and the blades exemplified by P-20 do not.

⁷ Ex. P-12 pp. 8-9.

⁸ Ex. P-23.

As to the above quoted relevant words in conflict claim C-4, I am of the opinion that Sinclair adequately and correctly explains them. His words of description are:

12 (24) "*A face normal*"—Normal is another word for perpendicular. The drum inside surface is vertical and the lower surface (face) of the ice removal blade is generally horizontal. Vertical is usually thought of as perpendicular to horizontal and vice versa. Hence, the under surface or face of the ice removing blades may be said to be perpendicular or normal to the vertical surface of the drum on which the ice is formed.

(25) "*A face normal to said surface*"—The surface is the inside surface of the drum. The face is the underneath (lower) surface of the blades that remove the ice. These drum and blade surfaces are arranged in a perpendicular fashion relative to each other and may be described as normal to each other.

(26) "*Face being at an angle to the plane of its rotation*"—The face is the lower flat surface of the blade that removes the ice. This surface is about two inches long from front to back. The blades are carried around the interior of the drum but do not move up or down. The blades move past the drum, the ice on the drum wall being stationary because the drum is stationary.

The plane of rotation is the path in which each blade is carried and is horizontal since the blades move neither up or down in the machine. The flat underside surface of each blade is tilted slightly so that the rear part of the surface is lower than the front. As the surface (face) engages a given piece of ice below it on the drum wall, this tilted surface forces the ice downward until its bond or adherence to the drum wall is loosened and broken. The face of the blade urges the ice downwardly in a manner similar to the way a road grader blade pushes snow or gravel to the side as the machine travels along the road. Attached to this my affidavit and marked as Exhibit "G" is a brochure of Huber-Warco Company entitled "Motor Graders", which, particularly at page 12 thereof illustrates the same action just discussed.

(27) "*An angle to the plane of its rotation*"—This phrase is part of No. 12(26) above and the same definition applies. The blades are carried in a horizontal path in the machine. The working lower surface on each blade is tilted at an angle which in the Branchflower patent application set forth in paragraph 6 hereof is 4° or 5° to the plane of rotation in order to thrust the ice downwardly as the blades pass the ice clinging to the drum wall.

(28) "*The leading portion thereof*"—This refers to the working surface of the ice removal blades. The part that "leads" is in front of the rest of the blade determined by the direction of rotation of the blades in the drum. Most of the machines rotate the arm and thus the blades in counterclockwise direction viewed from above the machine.

(29) "*The leading portion thereof at a higher elevation than the trailing portion*"—The words describe the same relationship of the same parts as No. 12(26). "Portion" refers to the flat lower surface of the blade sometimes referred to as the "face" of the blade or that surface in contact with the ice. Each blade

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being moved horizontally in a circle about the drum but neither moved up or down, the working surface on the blades is oriented relative to elevation in the ice making machine in order to define the slight tilt of the face relative to the horizontal. The slight tilt of the face means simply that the front end of the working surface is slightly higher than the rear end of the flat face. The face is a flat surface from front to rear.

These words merely define the slight tilt of the working surface in technically accurate terms of relative elevation in the machine.

(30) "*The trailing portion*"—The meaning of this expression is apparent from No. 12(29) just referred to.⁹

I am of opinion that the blades exemplified by Ex. P-29 embody all the elements contained in these words. The only submission made that they did not, was based on the fact that strictly speaking, geometrically the blade exemplified by Ex. P-29 does not have a face normal (perpendicular) to said surface (that is the inner surface of the cylindrical wall) because the ice engaging portion of such blade is in an inclined plane of about 5 degrees off horizontal. In my view, this language of the claim may be slightly inadequate if the words were left by themselves, but these words are qualified by the two phrases following which make it perfectly clear what is meant:

...and said face being at an angle to the plane of its rotation, and with the leading portion thereof at a higher elevation than the trailing portion.¹⁰

As a result, I am of opinion that the blades exemplified by Ex. P-29 embody all the elements contained in the words of claim C-4.

The ice engaging surface on the Lees blade exemplified by Ex. P-20 is a bevelled surface at about 45 degrees to the drum wall and therefore clearly does not have a "face normal to said surface". It clearly does not embody the elements contained in claim C-4.

As to the defendants' submission that Lees' Note Book (Ex. I) at page 102 describes a blade embodying all the elements in the said key words of claim C-4 on the so-called two-faced theory, it is clear that such is without merit.

The two-faced theory in brief is that the blade sketched under the date March 29, 1949 in the said book has two parts, the leading portion being normal to the said surface

⁹ Ex. P-12 pp 11-3

¹⁰ Claim C-4

and the trailing portion namely, the saw cut or wing tail portion, being not. The submission of the defendants is that the leading portion is normal (or perpendicular) "to said surface" and this should qualify it as being within claim C-4, even though the saw cut or wing tail portion is not. Watkins in his affidavit (Ex. K) at paras. 14, 15 and 16 put this theory in this way:

14. Attached hereto and marked Exhibit "G" to this my affidavit are pages 100 to 103 of a notebook of Gerald M. Lees dated March 25-30, 1949. Page 102 of the said notebook is particularly relevant in that it includes various sketches of what are obviously ice-removal blades, called knives. The blade representation which is marked 1 in red would have taught or suggested to me in 1949 an ice-removal blade which in operation would be disposed in an ice-making machine (of the type referred to in paragraphs 10 and 12 hereinabove) generally in a horizontal plane, and which blade has an ice-engaging edge portion 1a which is arcuate in configuration.
15. The diagrams which have been marked 2 and 3 in red depict an ice-removal blade which would have taught or suggested to me in 1949 an ice-removal blade having a surface marked 2a in red, which surface could be described as a face which would be normal, that is at right angles, to the inner surface of a cylindrical shell when in operation, the said face 2a also being inclined at an angle to its plane of rotation so that the leading portion thereof is at a higher elevation than the trailing portion.
16. The said page 102 of Exhibit "G" also discusses the essence of this type of blade, namely the use of a relatively sharp leading edge which makes a "thin cut" in the ice and then is followed by an inclined surface which will shear off the ice. "Split the log and then drive the wedge".

I am of the opinion that no person skilled in the art reading these said words in claim C-4 would come to the conclusion that it suggested to him a blade designed along such two-faced theory; and therefore, such does not contain the elements described in claim C-4.

In summary, the plaintiff's and the defendants' application for patents in this matter, in my view, are directed to two different and distinguishable ice removing blades for use in flake ice making machines and I adopt the words of Sinclair which he employs in differentiating them:

. . .the Lees' structure (involves) a two-part blade first scoring or grooving the ice and second working in the grooves on the ice for removal; the Branchflower structure being a single flat surface blade like a road grader blade; . . .¹¹

¹¹ Ex. P-12, p. 22, para. 29
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In elaboration, in differentiating the Branchflower blade from the Lees blade, I also agree with the opinion of Sinclair that the Branchflower structure of blades operate on an auger-like principle and that the rotational effect causes the ice on the inside of the cylindrical surface of the ice machine to be swept in a continuous motion; that the sweeping off is caused by means of this auger-like action of the ice removing blades; that it is the underside that also does the shearing and that except for some minor wedging at the front of the blade which is inconsequential when it first comes in contact with the ice, that the shearing takes place in a manner which he aptly describes as like a road grader; and that using the analogy of an auger has its limitation like most analogies, especially when in referring to the milled underside of the blade in respect of which the analogy does not fit, but which failure to fit is of no consequence.

Finally, on the issue of whether the plaintiff made the invention in his application, the evidence in my view satisfies the burden of proof the plaintiff had.

That the plaintiff made and disclosed the invention within the principles of *Christiani and Neilsen v. Rice*¹², in my view, is proven by the evidence of Treuer and amply corroborated by the evidence of Jenkins and Blivene; and that he formulated the invention empirically within the principles of *Scragg & Sons Ltd. v. Leeson Corporation*¹³ is established by the blades of Ex. P-29.

In the result therefore, I find that the plaintiff was the inventor of the elements contained in conflict claims C-1 and C-4 and that Lees was not the inventor; and that accordingly the plaintiff is entitled as against the defendants to the issue of a patent including claims C-1 and C-4 in conflict as applied for by him.

The plaintiff is also entitled to costs.

¹² [1930] S.C.R. 443.

¹³ [1964] Ex. C.R. 649