HOSIERS LIMITED .....PLAINTIFF;

v.

PENMANS LIMITED .....DEFENDANT.

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Jan. 27.

Patents—Infringement—Equivalency—Patentability—Process and product patents—Knitting machines.

Both the plaintiff's and defendant's patents consisted of improvements, in a circular knitting machine, for the knitting into a stocking of what is known as the tapered high spliced or reinforced heel. In the plaintiff's improvement this is achieved by a mechanically controlled yarn or finger guide, which at a pre-determined point brings the splicing or auxiliary yarn to certain needles in the cylinder, the particular means being the yarn guide which feeds the thread to the needles.

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In the defendant's improvement, certain needles are automatically and progressively raised by means of the inter-engagement of jacks with lateral nibs, above the level of the other needles in the cylinder, to engage the splicing thread and bring it to the knitting. The essence of the mechanism in the defendant's improvement, being the inter-engagement of jacks by means of lateral nibs.

Held: That the latter was not the mechanical equivalent of the former and was not an infringement thereof.

2. That when the diversity of two mechanisms performing the same function and producing the same effect, express different ideas of means, the diversity is one of substance, and each of the inventions is distinct from and independent of the other.

3. That the tests of equivalency are identity of function, and substantial identity of ways of performing that function. Where it is obvious that a person has taken an idea or principle described in a patent, and has simply altered the details to escape suggestion that he has taken the same thing, the inventor is entitled to protection.

4. That a fair test of whether a machine is an infringement of a patent is whether a skilled mechanic, without inventive faculty, could have worked out the former from a knowledge of the patent in question.

5. That a person claiming that his patent is being infringed, will be held strictly to the particular mechanical means claimed in his patent, and those having *bona fide* employed a different system are not guilty of infringing.

6. Whether or not a machine is the reduction to practice of a new process, or whether it is a new instrument for the performance of an old process, is to be determined by the state of the art at the date of the invention, and if it is the former a process may be patentable, though the machine may be new, if the latter, only the machine can be patented.

ACTION by plaintiff to have it declared that certain patents granted to it were valid and were infringed by the defendant.

Toronto, December 1, 1924, and following days.

Action now heard before the Honourable Mr. Justice Maclean, President of the court.

R. S. Smart and *J. L. McDougall* for plaintiff.

A. J. Thomson for defendant.

The facts are stated in the reasons for judgment.

MACLEAN J., now, this 27th day of January, 1925, delivered judgment.

This is an action for infringement of patents. The plaintiff, as assignee of one Paquette, is the holder of three canadian patents, Nos. 230,598; 256,682, and 230,788. These patents cover respectively an improvement in knitting machines; improvements in the process of knitting

reinforced tubular fabric; and the product, a tubular knit fabric with a tapering spliced area, and all are reissued patents. The original patent covered only improvements in knitting machines, and it was to cover the process and the product, that the claims were broadened in this manner. Divisional applications were filed, and the three patents issued separately. It is claimed that the defendant has infringed claims 12, 13 and 14 of the first mentioned patent, that is the machine patent, and all the claims of the process and product patents. The plaintiff has disclaimed, claims 1 to 11 and 26 to 31, inclusive, of patent No. 230,598, the machine patent.

The plaintiff's machine improvements patent, relates to the knitting of hosiery on what is known as the circular knitting machine, and is a mechanism applied to such a knitting machine. The purpose of this mechanism, is for making what in the hosiery trade is usually known, as the tapered high spliced heel. As the tapered high splice so called, figures prominently in this action, it might conveniently here be explained as a reinforced knitting on the back of the heel in the shape of an inverted V. commencing at the corners of the heel pocket, and then upwards to a point, and is applied chiefly to ladies' hosiery, for the purpose of strengthening the same, and also for ornamental purposes. How this process is executed will be later explained.

It is perhaps desirable here to describe in a very general way the process of knitting hosiery on a circular knitting machine. In such a machine, the knitting takes place in a circular motion, the needles, which are carried in a cylinder rotating at a very great speed, are operated upon by certain instrumentalities to effect the stitching. Commencing at the top, the knitting of the body or leg portion of the stocking proceeds continuously, until the heel portion is reached. Then the machine changes over from a rotary motion, to a forward and reverse motion, usually designated as a reciprocating motion. This is accomplished by a series of controls which are parts of the mechanism, and which put a certain number of needles out of operation at the desired time. When the heel is thus completed, the foot portion is knitted just as was the leg portion of the stocking, by resuming the full circular motion until the

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toe is reached. It is not necessary to describe the operation necessary to complete the toe portion, except to say that it is usually done by the same operation as was required in the knitting of the heel.

Hosiery is also knitted on what is called a flat machine, which produces what is called a full fashioned hose, a flat piece of knitted fabric which must be sewn along the back to make a finished piece of hosiery. During this process of knitting, the hose or fabric can be narrowed, at the ankle say, by taking out of operation certain needles and in this way the hose is knitted to the shape of the leg, or it may be fashioned by sewing to the shape of the leg, whereas when produced on a circular machine, the hose is really stretched to shape. The cost of operation of hosiery is greater from a flat machine, than from a circular machine. The tapered high splice can be produced and is produced on a flat knitting machine, in the full fashioned hose, by the insertion of an extra thread or yarn for a series of courses at the edge of the knitted fabric at the proper points. There is apparently a larger market for stockings knit on the circular machine, owing to a lower production cost and hence a lower price, and the plaintiff claims that until his knitting machine improvement was invented, there was not on the market any machine for producing the tapered high splice on a circular knitting machine. There was however, such a thing as the rectangular or square splicing or reinforcement at the heel, known to the hosiery trade, but it is claimed this occasioned no great problem in the mechanism of a knitting machine, because it was only necessary to throw into the body yarn, a reinforcing yarn, at fixed and definite points, and at the same points in each course of the knitting, until the splicing or reinforcing was finished. Besides, it is claimed that the square splicing is not so attractive in appearance, as the high tapered splicing, and consequently does not possess the same selling qualities.

The plaintiff's improved machine known as the Paquette machine, after the name of its inventor, and as such I shall refer to it, represents a mechanism designed for the purpose of knitting in stockings upon a circular knitting machine, the tapered splicing or reinforcement, at the rear of the heel. In the Paquette machine, when the circular knitting arrives at the point where it is desired that the

tapered reinforcement should begin, certain mechanical controls bring into the knitting the auxiliary or splicing yarn, on what is called a yarn guide or finger with which to knit the tapered splicing. The yarn guide or finger is the immediate means of feeding the additional yarn to certain prearranged needles which are to perform the knitting of the tapered splicing. By certain mechanical controls the splicing yarn guide is brought into position for potential operation at the beginning of the splicing, and then controlled on each course of the knitting of the tapered splicing, because at each course, or every two or three courses, a change is necessary in the supply of needles to widen the splicing as it proceeds downwards. Thus in knitting, a commencement is made on a single needle or a narrow group of needles, at the middle of the back of the stocking where the tapered splicing begins, and then progressively needles are added in the succeeding courses in the knitting of the splicing, so that each successive course is a stitch or so longer than the preceding one, the finger or yarn guide carrying the thread to the needles as they progressively come into operation to knit the tapered splicing. In this manner the tapered shape reinforcement is knitted. The splicing yarn it should be said is carried or fed into needles that carry as well the yarn for the knitting of the main body of the stocking, but the splicing yarn is dropped from the needles as each course of the tapered splicing is finished, while the body yarn goes on in its work. That is to say, when each course of the tapered splicing is finished, the splicing yarn is dropped by the needles, but it is carried loosely inside the stocking as a loose or float yarn, until it is picked up again on the next course on the other side, where the tapered splicing again begins. The float yarn requires to be cut out manually after the stocking is completed. I do not think it is necessary to describe in greater detail the mechanism of the Paquette machine.

The defendant is also engaged in the manufacture of knitted hosiery, and in the manufacture of stockings having the tapered splice, uses a machine, usually called the Lawson machine, after the name of the inventor. It was patented, but subsequently to the Paquette machine, and is manufactured in the United States, by Hemphill & Co., the assignees of the patentee, and was designed for the

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same purpose as the Paquette machine, the knitting of the tapered splice. In a circular knitting machine the needles are placed in grooves in a cylinder, which grooves are of a definite width and there is a fixed spacing between each groove. Below the needles and in the same groove there are what are known as "jacks" their purpose being to lift the needles. These jacks have what are called "butts," being a projection on the jack, and which protrudes through the grooves on the outside of the cylinder, but the "jack" and its "butt" is not new. In the Lawson device, the inventor sought through the jacks the means of moving the needles, so as to bring them up progressively to catch the extra yarn when knitting the tapered splice. To accomplish this he made the jacks with a tail the end of which is called a "nib" and which projects through the groove like the butt, and is then bent over laterally around the cylinder, some to the right and others to the left, of what are called "key jacks," that is jacks with longer butts than the other jacks, and which govern the "jack" control. When the time arrives to commence the splicing operation the key jacks are put into engagement by automatic means, and the nibs on the key jacks are such that they will inter-engage with one more jack on one side, and another jack on the other side. That is to say, when the key jacks are raised from an inactive level by controlled mechanism to an active or upper level, the lateral nibs extend far enough over to come into contact with the butt of the next jack. When the key jacks are thus elevated in order to catch the splicing yarn, the short butt jacks on either side are elevated to another level, and on the next revolution of the cylinder, by the agency of cams they are in turn elevated so as to engage the splicing yarn. In this way two needles, one on each side of the key jacks, enter into the knitting of the tapered splice, then two more are added, one on each side, and so on until the limit of the jacks has been reached, and the tapered splicing finished. In this mechanism then, the needles are directly put into motion by the instrumentality of the jacks which are inter-engaging. The needles are thus by mechanical controls introduced progressively, and moved high enough to catch the splicing yarn suspended above the level of the body yarn, and fed through what is called a silent finger because the eye through which

the thread goes to the needle is in a fixed position, and the needles come down in such a way as to catch the body yarn, as well. The essence of the mechanism is the inter-engagement and control of the jacks among themselves.

In the case of Paquette, the splicing yarn and body yarn needles are on the same level, and the splicing yarn finger, an operative element (19 Fig. 1), carries to and takes from certain needles the yarn during the knitting of the tapered splicing, while the cylinder of needles revolves. In the case of Lawson, the needles which take the splicing yarn are first raised to a higher level than the other or body yarn needles, that is to say certain needles go to the splicing yarn and fetch it to the knitting. In the one case the splicing yarn is carried to the needles, in the other the needles go to the yarn. That is the main distinction between the two machines in actual operation. The plaintiff claims Lawson's is a mechanical equivalent of Paquette's. This is the first point for determination.

It may safely be stated as well settled principles in this field of jurisprudence that there are two tests of equivalency, that is identity of function, and substantial identity of ways of performing that function. It is therefore important to consider what is the principle of the invention of Paquette. If an alleged infringer takes the principle and alters the details, and it is obvious he has taken the idea and simply altered the details so as to escape the suggestion that he has taken the same thing, it is clear the inventor is entitled to protection. If the substance is taken, an infringement is committed even if ingenuity is added. The question here is did Lawson take the idea or the essence and substance of Paquette's prior invention.

It is first necessary to determine the true construction of the specifications in the plaintiff's machine patent, in order to ascertain the real invention claimed. A reading of the specifications will not I think, disclose more than a description of auxiliary yarn feeding means, which feed the splicing yarn to a varying number of needles in successive courses of the knitting in one particular way, and there is also described the means of actuation. It was only for mechanism operating in that way for which the plaintiff claimed invention, and for which he secured a patent. It does not appear to me to be sufficiently broad as to have

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contemplated any other means of accomplishing the same thing, except by means which feed the splicing yarn to a varying supply of needles. Then construing claims 12, 13 and 14, which are alleged to be infringed, it also appears clear to me that the claims in each are limited to an auxiliary splicing yarn feed, and means to operate and control the auxiliary yarn feeding means during the period of knitting. I do not think one would be justified in reading into these claims anything more than this, and I doubt if anything more was intended. There is here a specific mechanical improvement claimed, and as laid down in *Curtis* v. *Platt* (1) and *Seed* v. *Higgins* (2) the person claiming must be held strictly to that particular mechanical means which he has claimed for effecting the end he had in view, and if he says it is to be done in one precise and particular way, to that precise and particular way he must be held, and those who have *bona fide* employed a different system and a different way must not be held to have infringed.

I do not think the Lawson machine can be said to be the mechanical equivalent, or that it embodies the substance or the idea of the Paquette machine. It is altogether a different means of producing the same result, and there is not room in my opinion for comparing them as they represent two different conceptions of means to a common end. The defendant's counsel Mr. Thomson put it: Lawson received no aid or suggestion in working out his invention from the Paquette improvement, and that no skilled mechanic without the inventive faculty could have worked out the Lawson from the Paquette. That I think is an appropriate way of testing the matter. They are two different mechanisms altogether, and this difference in structure and operation, is evidenced by seeing each in operation as I did. Each in my opinion is a particular agent or means for attaining a certain though common end, and it is not necessary to say which is the better or which expresses the greater degree of invention.

When the idea of means in both inventions is essentially the same, the variation either indicates a different development of this idea by which the latter invention becomes an improvement on the earlier, or is a simple alteration in the

(1) [1866] L.R. 1 H.L. 337. (2) [1860] 8 H.L.C. 550.

form of its embodiment. The legal doctrine of equivalency should perhaps be further discussed. One text writer discussing this subject states that when the diversity of two mechanisms performing the same function and producing the same effect, express different ideas of means, the diversity is one of substance, and each of the inventions is distinct from and independent of the other. The purpose of a machine may be to produce a fabric of a certain kind, and it may well transpire that in the progress of invention several inventors may have invented different machines producing the fabric by different modes of operation, and in that event each successful inventor might be entitled to his patent. It is not therefore I think correct to say, that because two or more devices operating to the same end or producing the same result, are mechanical equivalents, unless they effect the same substantial purpose by substantially the same mode of operation. The material question therefore, is not whether the same elements of motion or the same component parts are used, but whether the given effect is produced substantially by the same means or mode of operation and the same combination of powers in both machines. If it were otherwise, it seems to me a patentee would have a monopoly of more than he invented. This is I think a fair statement of the principles established by the courts in reference to mechanical equivalents.

With this statement of the law as to mechanical equivalents, and taking also into consideration the construction of the three claims of the plaintiff's patent which it claims to be infringed, and what I deem to be the disclosed differences in the two mechanisms before me, I am of the opinion that the Lawson machine used by the defendant, is not the mechanical equivalent of the plaintiff's. They are different mechanisms and represent different improvements, although the ultimate purpose is the same. Nor is Lawson a mere improvement of Paquette in my opinion.

The plaintiff has also a process patent. The process claimed is described as the automatic knitting of circular knit seamless stockings, consisting in knitting successive courses of circular work for the body of the tubular fabric, and automatically feeding by circular knitting, a single splicing thread to a gradually and automatically varying number of master cam controlled needles, in different

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courses, as the knitting of the body above the heel proceeds, thereby forming a tapering high splice, and floating portions of this splicing thread across the back of the fabric from edge to the other of the tapering high splice at successive courses. In the specifications of this patent it is also stated that any mechanism found suitable may be devised to effect high spliced heels of this type; and any form of auxiliary yarn feeding means may be employed that is capable of intermittent actuation of varying periods of duration, such as the yarn means described in the plaintiff's machine patent. The plaintiff's process patent is therefore much broader than his machine patent. If the process patent is valid it would seem to destroy the usefulness or value of the Lawson patent even though it is not the mechanical equivalent of Paquette, which would be a strange result. The question is not without its difficulties, and it is always difficult to decide, what is a process, which may be the subject of a patent.

Whether or not a new machine is the reduction to practice of a new process, or whether it is a new instrument for the performance of an old process, is to be determined by the state of the art at the date of the invention, if it is the former the process may be patentable, though the machine may be new, if the latter, only the machine can be patented. If a process exists which consists of different steps created by machinery, and there is an improvement in that process caused by a new element added to or taken from the machinery, then, the process existing and being known, the party who added to or took away the part of the machinery might if it were useful, be entitled to a patent, not for the process which formerly existed and was well known, but only for that which had been added to or taken from the mechanism. These principles are to be found in many decisions almost verbatim; and they appear to me to be sound. An illuminating discussion upon the point as to whether it is the machine or the process that is patentable is to be found in Robinson on Patents, and which I think supplies the proper reasoning to be applied to cases of this kind, and I venture to quote it in its entirety. There the author says in a note to be found at page 256:—

> Where a process consists entirely in the operation of a machine or other instrument, it approaches so nearly to the function of the instru-

ment employed that several decisions have been rendered identifying it therewith, and hence denying its patentability. But the process and the function are, after all, two entirely separate entities, both in intellectual and physical contemplation; the former being capable of conception apart from any object acted on, the latter not so. The difficulty is another form of the old confusion between the end and the means ,and is to be avoided by defining sharply the end to be accomplished, and determining whether the machine or the operation performed by it is the actual means. For if the operation performed by the machine is now in reference to the object upon which it is employed, a new process has been invented; and this is no less true if the machine or instrument employed is new than if it were old, or if the process can be performed in no other known way than by this particular machine. While on the other hand, if the operation is known in reference to the object, the invention of a new machine for performing it does not make a new process, but only a new instrument for applying it. Thus in the art of planing lumber, if the end to be accomplished were the smoothing of the boards and there were no known methods of attaining this end, the process of smoothing by removing inequalities would be a means, and the inventor of this process would be entitled to a patent for it, no matter what method he may have employed. But it being once apparent that smoothness could be effected by removing inequalities, the removal of inequalities becomes the end, and a process for removing them the means; and if the process now invented for that purpose be the cutting of the surface by a group of knives applied in a certain speed or order of succession, this also, as a new means is a new invention. This peculiar excision of the surface now becomes an end, and every machine devised for performing it a means, and at this point invention passes from process into instrument, and every subsequent invention for the same end is only as broad as the new character of the instrument produced. Whether or not a new machine is the reduction to practice of a new process, or is a new instrument for the performance of an old process, is therefore to be determined by the state of the art at the date of the invention. If it is the former, the process is patentable, though the machine be new. If the latter only the machine can be allowed the protection of the law.

It is to be noted that in both the Paquette and Lawson machine patents, the same were improvements in knitting machines, and cannot I think in any sense be said to be pioneer or primary patents. There was not any invention in the conception of the tapered splicing or reinforcing itself, that was old. As a figure or design it was comprehended in the Beers design patent referred to in the evidence, and now expired. Again this form of reinforcing was known to be made on a flat machine, and also in a modified form at least by the reciprocating method. It was also anticipated by other patents, notably the British patent to White and Mills. The ultimate purpose of both Paquette and Lawson was by mechanical means to introduce an auxiliary yarn into needles progressively in a circular knitting machine, and was nothing more than a means

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to an end well known, or instruments for the performance of process that had been disclosed in the prior art. In neither case can it be said that the machine reduced to practice a new process, and in both cases the process is identical with the *modus operandi* of the machine, which alone, may be regarded as subject matter for letters patent. I am of the opinion, therefore, that the plaintiff's patent relates to mechanism, and any process involved therein is subsidiary to mechanism. The machine was the primary conception. The idea of the act to be performed was well known, was known to both Paquette and Lawson, the evidence is clear upon this; the idea of special means to be employed in performing a well known end was what concerned them. In each case, it is the machine and not the operation performed by it, that constitutes the actual means. I am therefore of the opinion that the plaintiff's process patent No. 230,788 cannot be sustained.

With the process patent thus disposed of, it logically follows I think, that the product patent falls. If a product is known to the trade, its production by a new process or new instruments cannot make it new. A manufacture is not new and patentable until the creative act in which it originated, is distinct from that required to invent the process or apparatus by which it is made. *Union Paper Collar Company* v. *Van Dusen* (1); *Kopp* v. *Rosenwald* (2). The stocking with the tapered splice was not unknown prior to the plaintiff's patent, though produced by a different means. It was disclosed in the full fashioned machine product to which I have already referred, and making the same product on a circular machine does not, I think, make it a new product. Place, (U.S. 466 372) disclosed means for making a high splice with a reinforcing thread, by reciprocated knitting on a circular machine. Mettler, (U.S. 862,575) discloses and describes a stocking with a tapered high splice. White and Mills (British 13,755), very clearly disclosed the tapered high splice where the reinforcing thread is broken in each course and reintroduced on the next course. These patents may not have attained commercial success, but they nevertheless disclosed the idea of

(1) [1874] 90 U.S. (23 Wall.) 530, at p. 563.

(2) [1900] 19 R.P.C. 205, at p. 211.

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the tapered splicing. In this case I do not think the product can be said to be the result of the exercise of an art invented by the plaintiff's assignor. I am therefore of the opinion that the plaintiff's patent as to product is invalid.

With the conclusions I have already reached there is not I think any necessity of dealing with other points that were discussed during the trial of this cause. The plaintiff therefore fails in his action for infringement and the defendant shall have his costs. The patents as to process and product shall be disposed of in conformity with this judgment.

Judgment accordingly.

Solicitors for plaintiff: *Fetherstonhaugh & Co.*

Solicitors for defendant: *Tilley, Johnston, Thomson & Parmenter.*