

COMMISSIONER'S DECISION

UNOBVIOUSNESS: Patentable Advance in the Art.

Manufacture of a panti-hose blank using only unidirectional rotary knitting was found patentable over the prior art which uses unidirectional rotary knitting for the leg portions but changes to reciprocatory knitting when forming the body portion of the garment blank. Affidavits from experts indicated the result was unexpected.

FINAL ACTION: Modified.

This decision deals with a request for review by the Commissioner of Patents of the Examiner's Final Action dated July 12, 1973, on application 038,715 (Class 66-91). The application was filed on December 24, 1968, in the name of Martin R. Johnson et al, and is entitled "Circular Knit Panti-Hose And Tights." The Patent Appeal Board conducted a Hearing on April 30, 1975 at which Mr. G. Partington represented the applicant.

This invention relates to a lower-body garment or panti-hose which is knit in a single integral tubular form seamless throughout its length. It is made by knitting a tubular garment blank on a circular knitting machine. This is done by continuous unidirectional rotary knitting from one end of the garment to the other, after which a slit is made to form a waist opening.

In the Final Action the examiner refused the application for failing to define any patentable subject matter over the teaching of the following reference:

U.S. Pat. 3,109,301 Feb. 5, 1963 Garrou et al

In that action the examiner stated (in part):

As was pointed out in the previous office action, Garrou et al has disclosed substantially the method and product set forth in the above claims, namely, the manufacture of a seamless knit garment wherein all sub-parts are integrally knit. The patent states that the knitting is performed on a circular knitting machine beginning with one leg portion and ending with the other. On page 2, beginning at line 28, it is stated "the garments shown in the drawings are shaded with lines which extend in the direction of the knit wales in various portions of the

garment". The shade lines are continuous. The wales thereof extend through one leg portion into and through the pant portion into and through the other leg portion.

The knitting technique employed by Garrou et al where it concerns the crotch area and body gusset should not be seen as teaching away from the method and product set forth in the above rejected claims as applicant has contended. Rather, what Garrou et al has done is superimpose on the basic method of continuous rotary knitting a special technique to obtain an improved crotch area and body gusset for his bifurcated garment.

The allowability of claims 2 and 15 as stated, in the previous office action has been reconsidered and these claims now stand rejected for lack of invention in view of Garrou et al. It is now held that undue emphasis was placed on the expression "continuous unidirectional rotary knitting". As was pointed out above, Garrou et al discloses a basic method of knitting a seamless body garment knitted on a circular knitting machine. He points out that by varying the number of complete courses in the body panels (which is obtained by reciprocatory knitting) the garment may be fashioned because variation of complete courses will affect the width of the fabric. He points out (page 4, last paragraph) that the size and shape may be changed by varying the number of complete courses and thus implies strongly that the final shape of the garment is a matter of choice. The patentee further implies (page 5, 1st full paragraph) that the use of stretch or non stretch yarns is also a matter of choice.

It is held therefore that continuous unidirectional rotary knitting of a garment as set forth in claims 2 and 15 is substantially inherent in the Garrou et al method and product. The fact that Garrou et al has followed a more sophisticated and therefore more complex procedure does not imply that his procedure is not readily adaptable to a more simple technique should such be desired. What the applicant is in effect doing is omitting steps from the Garrou et al procedure and thereby obtaining a corresponding omission in the result namely a simplified product which is desired by applicant.

The applicant in his responses to the Final Action dated January 8 and January 9, 1974 stated (in part):

The Examiner is also believed to be in error, when in the same paragraph, he states that the shade lines, in the patent drawings, are continuous, in trying to anticipate the claimed limitation of continuous wales. All the shade lines are not continuous. In any event the shade lines show direction, not individual lines. The wales are not believed to be continuous in the patent because they are discontinued at the gore or suture lines 24, 25.

The Examiner is further believed to be in error in interpreting Garrou to disclose a superimposition (of reciprocatory knitting?) on a basic method of continuous rotary knitting. Garrou simply

does not disclose a basic method of continuous rotary knitting (to provide a panty or panty-hose type garment). Nor does Garrou disclose superimposing any thing on rotary knitting. Reciprocatory knitting is alternated with rotary knitting in Garrou but not superimposed.

The Examiner is again believed to be in error, this time in failing to give due weight to the phrase "continuous unidirectional rotary knitting" as outlined on page 2, paragraph 2 of the Final Action. Contrary to the Examiner's belief, this phrase covers the essence of the invention. Nowhere in Garrou however, is this feature disclosed or suggested as being able to provide, on its own, an acceptable garment. Garrou only disclosed a garment made from a combination of rotary and reciprocatory knitting. Garrou may, as the Examiner suggests in this paragraph, show how to get variations in garment size. This is not surprising however since this is what Garrou's invention relates to. It is not seen that this has any relevance to the applicant's one-size garment however.

On page 2, paragraph 3, the Examiner states that "continuous unidirectional rotary knitting" of a garment is inherent in Garrou. This is not true. Garrou, if anything teaches the exact opposite, that is, to provide a satisfactory garment, more than continuous rotary knitting is required. In fact the Garrou cited patent moves further away from applicant's invention, when looked at in the light of Garrou's earlier patent.

In the same paragraph, it is believed that the Examiner is in error in stating that the applicant has omitted steps from Garrou's method with a corresponding omission of result. It is submitted that applicant has instead substituted unobvious steps for certain of Garrou's steps with a totally new, useful and unexpected result.

The purpose of applicant's invention is essentially, to provide a low cost, one-size, panty hose which is extremely simple and thus inexpensive to make. (See page 2, lines 21 to 28 of the disclosure.)

The purpose of Garrou's et al invention on the other hand is to provide an improvement in two-legged garments, such as the panties illustrated, which improvement consists in being able to vary the width of the garment by including complete courses in the central body portion between the legs.

Garrou's invention is an improvement on his earlier U.S. Patent 2,962,884. Both patents require, as an essential part of the garment construction, a substantial portion of reciprocatory knitting.

Applicant's invention, on the other hand, requires substantially all of the knitting to be rotary.

Garrou thus is not particularly concerned with panty-hose, which have to be inexpensive to sell; he is not concerned with a one-size garment (in fact he is concerned with the exact opposite); and he is not concerned with a simple inexpensive garment, for otherwise he would not switch from rotary to reciprocatory to rotary to reciprocatory to rotary knitting. Such switches are time consuming and expensive. He is instead concerned with seamless, fashioned panties which can be made in different sizes.

The Garrou patent relates to knitted seamless two-legged lower garment, such as tights or the like, and the method of making the same. This garment is manufactured by knitting a tubular garment blank on a knitting machine in which the leg portions are made by unidirectional, rotary knitting, with the gusset and body portions made by reciprocatory knitting. After completion a slit is made for the waist opening. Use of reciprocating knitting in the body portions serves to "fashion" the garment to enable it to conform to a wide range of body sizes and shapes. Claim 1 of the Garrou patent reads:

A seamless knit panty or the like comprising a pair of seamless tubular legs of substantially equal lengths, fashioned extensions knit integral with and extending upwardly from each of said tubular legs, and a fashioned body gusset knit integral with and interconnecting said seamless tubular legs and said fashioned extensions, said fashioned body gusset having a central portion extending between said seamless tubular legs and defining a crotch area.

As stated above, this application relates to panty-hose comprising an upper body portion to fit around the waist and the lower part of the trunk, and a depending pair of legs knitted integrally with the body portion. It is made by knitting a garment blank on a circular knitting machine by continuous unidirectional rotary knitting from one end of the blank to the other. A slit is made at the intermediate portion to form the waist opening. The garment is then subjected to a "relaxing treatment effected under the action of heat and moisture which develops the stretch qualities of the yarn and enhances the capacity of the garments for elastic stretch and recovery."

The question to be resolved is whether the application is directed to a patentable advance in the art in view of the cited reference.

At the Hearing the applicant emphasized that his use of unidirectional rotary knitting substantially throughout his garment blank is an advance in the art which was not contemplated by Garrou. In the Final Action the examiner stated "The fact that Garrou has followed a more sophisticated and therefore more complex procedure does not imply that his procedure is not

readily adaptable to a more simple technique should such be desired." In reviewing the Garrou patent we find that continuous rotary unidirectional knitting is used in the leg portions of the garment. When the body area is being formed the knitting is changed to reciprocatory motion to "fashion" the garment, as well as to obtain a variation in the size. There is no indication in the Garrou specification of using unidirectional rotary knitting only to produce the complete garment blank.

The applicant submitted four affidavits from recognized experts in the knitting industry from several different countries. Each of the affiants indicated that nobody had ever before realized that a straight seamless tube made by unidirectional circular knitting throughout could be used for pantihose in the manner envisaged by the applicant. Also submitted was a copy of an agreement purportedly made by the owners of the Garrou patent to enable them to utilize this invention.

A question about the continuity of the wales in Garrou was raised. The wales are comparable to the weft in flat weaving. In the Final Action the examiner stated that Garrou shows wales extending through one leg portion, into and through the panty portion and then into and through the other leg-portion. In figure 4 of Garrou the shade lines indicate the wale direction. This reveals interruptions at the gore lines 24 and 25 to indicate the boundary of the reciprocatory knit portions of the garment. There may be continuous wales in the body area indicated as 35, and probably some in the area indicated as 36, but these would be a small percentage of the total wales in the garment blank.

The applicant emphasized that with unidirectional rotary knitting the time required to make garment blanks is much less than with reciprocatory knitting, which was employed by Garrou. This has resulted in considerable commercial success for the applicant, some 5 million in sales, and \$160,000 in royalties. In addition 31 firms in twelve countries have obtained a licence from the applicant.

It is noted that claims 1 to 46 were in the application at the date of the Final Report. These were cancelled and replaced by claims 1 to 36 in the applicants response dated January 8, 1974 to the Final Action. At the hearing the applicant presented new claims 1 to 43 to replace the previous claims. The latest claim 1 reads:

A method of making a continuous seamless tube and a two-legged garment therefrom, the garment having a pant portion and a pair of integral legs, the pant portion enclosing a lower part of a trunk and extending beneath a crotch of a wearer and the pair of integral legs each terminating in a foot portion having a closed toe, the pant portion having a waist opening therein, which method includes:

- a) knitting on a rotary knitting machine, as a continuous tube, three integral tubular portions, namely: a first leg portion having a toe portion is knit substantially unidirectionally, an intermediate portion for eventually forming the pant portion is knit wholly unidirectionally and then a second leg portion having a toe portion is knit substantially unidirectionally, the seamless tube having knitted wales, all of which extend continuously throughout the seamless tube; and
- b) closing the toe portions of the seamless tube.

On considering the difference between the reference and that covered by the proposed claim we find: "a first leg portion having a toe portion is knit substantially unidirectionally, an intermediate portion for eventually forming the pant portion is knit wholly unidirectionally and then a second leg portion having a toe portion is knit substantially unidirectionally, the seamless tube having knitted wales, all of which extend continuously throughout the seamless tube;" Garrou uses unidirectional knitting for the leg portions of his garment, but the body gusset is knitted by reciprocatory movement.

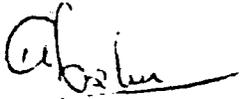
As a result the majority of the wales are interrupted at the gore lines which indicates that the wales are not all extending continuously throughout the seamless tube. The applicant recognized that the simpler technique of unidirectional knitting throughout the blank enabled him to produce a satisfactory garment in less time than that required by the prior art method.

In the Final Action the examiner stated that "Claim 1 is considered incomplete. This claim, directed to a method of making a garment, merely sets a method which results in a blank or closed tube." This comment is applicable to proposed claim 1. At the Hearing the applicant indicated that he would be agreeable to incorporate dependent claim 2 as part of independent claim 1 to overcome this objection. Since the step of providing a waist opening is an essential feature in the production of the two-legged garment found in the preamble of claim 1 this limitation must be included in the claim.

In the opinion of the Board, a claim combining proposed claims 1 and 2 would overcome the art. We are fully satisfied that the claims before the examiner at the time of Final Action were objectionable, and quite properly refused. The Board however has been presented with the additional affidavitory evidence, testifying to the unexpected results flowing from the applicants invention (when fully defined). That invention has won wide acceptance, and as indicated previously, thirty-one licenses under it have been taken out by competitors. It has had early and extensive success commercially. All of these considerations persuade us that inventive ingenuity has been exercised.

As many of the proposed claims depend on claim 1, and the examiner has not had an opportunity to evaluate them, we will not comment further on such claims. Since the examiner did not at the time of writing the Final Action, have access to the affidavits and articles submitted at the hearing, he will need to consider these when assessing the other claims.

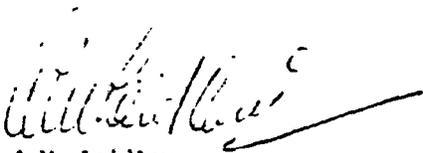
The Board is satisfied that a claim which would combine proposed claims 1 and 2 ought not be refused on the Garrou reference. We recommend that the rejection of the application as a whole (as distinct from a rejection of the original claims) on the art cited be withdrawn, and that the application be returned to the examiner for a further consideration of the patentability of the latest proposed claims.



Gordon A. Asher
Chairman
Patent Appeal Board

I concur with the findings of the Patent Appeal Board, and refuse to allow the claims on file. The applicant has six months within which to appeal this decision under the provisions of Section 44 of the Patent Act or to amend the claims as suggested by the Board.

Decision accordingly,



A.M. Laidlaw
Commissioner of Patents

Dated at Hull, Quebec
this 16th. day of
June, 1975

Agent for Applicant

Alan Swabey & Co.,
Montreal, Quebec.