

COMMISSIONER'S DECISION

UNOBVIOUS: Use of Known Material.

On the evidence, the spunbonded material available for many years did not process the properties characteristically required in making parachutes. Unexpected advantages were found in the successful use of the material in one-way cargo parachutes.

FINAL ACTION: Reversed.

This decision deals with a request for review by the Commissioner of Patents of the Examiner's Final Action dated November 21, 1972 on application 010,866. The application was filed on January 26, 1968 in the name of Richard Kohnke and is entitled "Parachute Canopy, Mainly For Cargo Parachutes". The Patent Appeal Board conducted a Hearing on April 30, 1974, at which Mr. G. Seaby represented the applicant.

This application relates to a parachute canopy made from a "Spunbonded" or "unwoven fibre" material.

In the prosecution terminated by the Final Action the Examiner refused the application on the ground that it is directed to a mere substitution of material over the structures shown in the references applied, which read:

Canadian Patent		
422,413	Sept. 5, 1944	Frieder
United States Patents		
2,134,362	Oct. 25, 1938	Frieder
2,067,571	Jan. 12, 1937	Jamison
1,618,613	Feb. 27, 1927	Turner
2,384,187	Sept. 4, 1945	Manson et al

In the Final Action the Examiner stated (in part):

Considering this art, briefly, Frieder, (Canadian Patent) and Turner teach paper parachutes, Jamison and Manson teach one piece canopies or gores and Frieder, (United States Patent) teaches a canopy with stretch in all directions.

The rejection of this application is made on the grounds it is directed to a mere substitution of materials.

A study of the related jurisprudence has brought to light the following criteria for determining whether the substitution of materials is patentable:

1. Where a change or variation in the construction of the apparatus is necessary by reason of the use of a particular kind of material not previously used for that purpose;
2. Where use for a particular apparatus of a known material not previously used for that purpose is due to a hitherto unknown or unsuspected property of the material;
3. Where the adaptation of the known material to the particular piece of apparatus leads to a new departure in the technique of the production of the apparatus;
4. Where use for a particular apparatus of a known material not previously used for the purpose results in an unexpected economic advantage.

...

The fourth criterion is the one applicant feels his application meets. He states that since the use of spunbonded material was not considered for parachutes the discovery that it, spunbond material, was capable of this use, results in an unexpected saving of money. This is especially considered to be true since this application envisages "one-shot" cargo parachutes.

Applicant in his specification acknowledges that it is known to construct canopies of different materials and the art of record confirms this. It is noted that the Canadian Patent to Frieder teaches a parachute made at a low cost and made to be used only once. He also specifies that his parachute is intended for use in connection with flares and signals, - it was not limited to such uses because it "can be used in various sizes for other purposes". The use of "one-shot", low cost parachutes is therefore well known. The only variation in this application from prior art teachings is in the choice of spunbond material among numerous other materials to make a parachute. However, the specification (see page 2) admits that the properties of spunbonded material, including its cost, are well known. Therefore, applicant was not the first to design a parachute with a canopy stretchable in all directions, a one piece gore and made of such inexpensive material that it could be discarded after a single use.

It is maintained that applicant has merely selected one known material from among other known materials to construct a known type of parachute and convinced some organizations that a parachute constructed of this material would be useful to drop loads where a lower standard of safety could be accepted allowing the use of parachutes made of weaker material than previously considered necessary.

The case relied upon by applicant in support of allowance of this application in accordance with the above quotes disclosed not only a substitution of materials in a fan blade, but also new construction necessitated by the substitution and also new results flowing from the substitution, and in consequence a new or at least enhanced utility of the product produced by the substitution of the material. In this application there is no corresponding new construction, new result, or new function flowing from the substitution of materials.

In view of these arguments and the analysis of the jurisprudence and its relation to the subject matter of this application, it is held that this application satisfies none of the four criteria previously mentioned and so relates to the mere, obvious substitution of materials. Therefore, this application is rejected.

The applicant in his response dated February 21, 1973 to the Final

Action stated (in part):

The only issue raised in the Final Action under reply and not raised earlier is that the material used in the parachute canopy of the present invention is inferior. It is submitted that the contention of the Examiner that the material is inferior is pure speculation. The applicant has proven that the use of spunbonded textile material in a parachute canopy leads to an unexpected high flight stability, which is a technical advantage. Moreover, such technical advantage renders the canopy sufficiently useful to place the parachute in commercial production.

It is evident that the Office still contends that the invention claimed in this application constitutes the mere substitution of material. It has been well established that this case, in fact, involves the use of a material, which experts had previously pronounced unsuitable for parachute canopies, since it had a high degree of elongation and low strength. In the opinion of the experts, material for use in parachute canopies had to have the opposite properties, namely low elongation and high strength.

...

The Office repeatedly states that the present invention is a mere selection of one known material from among known materials to construct a known type of parachute. The first paragraph on page 3 of the Official Action speculates that the applicant has convinced some organizations that a parachute constructed of such material would be useful to drop loads where a lower standard of safety could be accepted. Again, it must be stressed that this is mere speculation, and the Office has produced no evidence in support of such speculation: applicant maintains that the use of a spunbonded textile material in a parachute results in a parachute with high flight stability and, in the absence of any evidence adduced by the Office to the contrary, applicant's evidence and arguments must be accepted.

The Sampson United case⁽¹⁾ is discussed at length in the Official Action under reply. Of course, the facts of that case are not exactly parallel to those of the present case, and consequently the Sampson United case can merely be used to establish guidelines. Regardless of the findings in the Sampson United case, the decision must still be made as to whether the surprising finding that spunbonded material can successfully be used in parachute canopies constitutes invention. It is applicants contention that such findings does constitute an invention, particularly since all of the experts in the art decided that such material could not successfully be used in parachute canopies. In the first paragraph on page 4 of the Official Action under reply, the Examiner states that "It is held to be a matter of expected skill for a parachute maker or designer to select a proper and acceptable material for use in a parachute to achieve the desired strength or characteristics". The foregoing statement when considered alone is quite correct. However, if it is believed that spunbonded material could not be used in a parachute canopy because of its properties, then it is not a matter of expected skill for a parachute maker or designer to select such a material. It has hitherto been believed that the material in question was improper and unacceptable.

The Board must determine whether the applicant has made a patentable advance in the art. Claim 4 reads:

In a parachute canopy a plurality of seamless gores of unwoven spunbonded fibrous material having substantially equal elongation in all directions in response to tension and means for connecting said gores to form said canopy.

The Frieder reference (C.P. 422,413) relates to parachutes for use in connection with magnesium flares and signals of various kinds. The material used for making the parachute is described as follows: "...the paper employed being somewhat in the nature of a strong tissue paper." The applicant, however, admits that he was aware of attempts being made to use paper parachutes (see page 2 of the disclosure). Claim 1 of this patent reads:

A parachute having in combination a canopy or sail consisting of a substantially circular one-piece sheet of paper, reinforcing threads stitched to and extending radially of said sheet, a reinforcing thread stitched to and extending circumferentially of the sheet near the margin of the sheet, and shroud lines secured at their upper ends to the canopy at the points where the radial and the circumferential threads intersect.

The Turner reference relates to a toy parachute also made of paper, which is used as an "inexpensive advertising medium as well as a toy."

The Jamison and Manson references teach the use of one piece canopies or gores to fabricate parachutes.

The Frieder reference relates generally to parachutes made from a woven sail fabric which "affords an elastic or yielding opposition to stress in substantially all directions."

The applicant has emphasised, especially at the Hearing, that no new structure is relied upon for patentability. The specific question to consider, therefore, is whether the discovery that the known unwoven "spunbonded material" could be used to advantage in a particular use, is mere substitution of material or an unobvious step which can be considered as an invention.

It follows that if there is inventive subject matter present, it is in the idea of the "new use" for "spunbonded material." The idea is admittedly new, but must be tested for inventiveness. It is well established in jurisprudence that the recognition of the concept or idea may merit patent protection even though the means of carrying out such concept or idea presents no problem. A leading case is Hickton's Patent Syndicate v Patents and Machine Improvements Company Ltd. (1909) 26 R.P.C. 339. At page 347, Fletcher Moulton J. set forth the applicable law as follows:

The learned Judge says: 'An idea may be new and original and very meritorious, but unless there is some invention necessary for putting the idea into practice it is not patentable.' With the greatest respect for the learned Judge, that, in my opinion, is quite contrary to the principles of patent law, and would deprive of their reward a very large number of meritorious inventions that have been made. I may say that this dictum is to the best of my knowledge supported by no case, and no case has been quoted to us which would justify it.... To say that the conception may be meritorious and may involve invention and may be new and original, and simply because when you have once got the idea it is easy to carry it out, that that deprives it of the title

of being a new invention according to our patent law, is, I think, an extremely dangerous principle and justified neither by reason, nor authority.... In my opinion, invention may lie in the idea, and it may lie in the way in which it is carried out, and it may lie in the combination of the two.

Lindley J. stated in the case of Fawcett v. Homan (1896) 13 R.P.C.

398 at 405:

The merit of an inventor very often consists in clearly realising some particular useful end to be attained, or, to use Dr. Hopkinson's language, 'in apprehending a desideratum'. If an inventor does this, and also shows how to attain the desired effect by some new contrivance, his invention is patentable, although his contrivance involves the use of things, or parts of things, previously used by other people. Were it otherwise, no patent for a new thing composed of well known parts would ever be sustained. This appears to me to be the case here. The Patentee had in his mind something which had never before occurred to anyone; and the merit of his invention is attributable to this circumstance. (emphasis added)

This doctrine is also part of Canadian jurisprudence. See for example, the following language of Rinfrit J. in Electrolier Manufacturing Co. Ltd. v. Dominion Manufacturers Ltd. (1934)

S.C.R. 436 at 442:

The merit of Pahlow's patent is not so much in the means of carrying out the idea as in conceiving the idea itself (Fawcett v Homan)....

This case dealt with "an ingenious application of a known elastic material."

The idea or concept in the instant application is a new use for a known material. The applicable jurisprudence establishes the following general guidelines as the criteria for determining whether a substitution of one material for another has involved the exercise of inventive ingenuity. Ingenuity may be present if:

1. a change or variation in the construction of an article or apparatus is rendered necessary by reason of the use of a particular kind of material not previously used for the purpose in mind;

2. the use in a particular article or apparatus of a known material not previously used for the purpose in due to a hitherto unknown and unsuspected property of the material;
3. the adaptation of the known material to a particular article or piece of apparatus, leads to a new departure in the technique of the production of the article or apparatus; or
4. a known material is used in an article or apparatus when it had not previously been so used, and such utilization depends on previously known properties of the material, provided the new use results in an unexpected advantage, or unexpectedly avoids a known disadvantage.

With respect to the first criterion, no change or variation in the construction of the parachute is alleged or claimed.

Insofar as the second criterion is concerned, it is admitted by the applicant that there is no hitherto unknown property of the "spunbond material" related to the new use now claimed.

In considering the third criterion, we observe that there is no new or unobvious departure claimed in the technique for producing the parachute.

Criterion (4) is slightly different than criterion (4) referred to by the examiner. His criterion is related to "an unexpected economic advantage." It is upon the criterion "unexpected advantage" that the applicant's case will stand or fall, and we must consider it further.

The applicant stated (see response dated February 14, 1972) that:

It is not merely "the investigation of the use of the spunbonded material in a parachute" which amounts to invention; rather it is the surprising discovery after lengthy research that spunbonded material is not only useful in parachute construction, but results in a new and inexpensive product, which is relatively easy to manufacture.

AND

Concerning point (1), the fact that the properties of spunbonded materials are known supports the inventor's contention that he has made an invention. The airforce of Federal Republic of Germany and firms producing unwoven spunbonded materials, e.g., the firm of Freudenberg in Weinheim an der Bergstrasse has serious doubts as to the usefulness of unwoven spunbonded materials in parachutes.

There is no apparent reason to disbelieve the applicant's submission that, the discovery that "spunbonded material" could be successfully used in making parachutes would be contrary to expectations. Furthermore, these doubts came from the manufacturers' of the material and users' of parachutes.

Also pertinent is the rationale of the Court in Van Heusen Inc. v. Tooke Bros. Ltd. Ex.C.R. (1929) 89 at 97, where it is stated that:

There is no invention in a mere adaptation of an idea in a well known manner for a well known or clear purpose in a well known art, without ingenuity....

And at page 99:

A patent for the mere new use of a known contrivance, without any additional ingenuity in overcoming fresh difficulties, is bad, and cannot be supported. If the new use involves no ingenuity, but is in manner and purpose analogous to the old use, although not quite the same, there is no invention.
(emphasis added)

It follows that substitution of material in which there is served no function or purpose different from the old use, does not merit the distinction of a patent monopoly unless the inventor is the first to see practical difficulties overcome (or advantages gained) as a result of his own ingenuity. (See also, Somerville Paper Boxes Limited v. Cormier Ex.C.R. (1941) 49). In the instant application the purpose and function of the "spunbonded material" is different from any previous suggested use for it, and therefore the application does not fail for this reason.

There was considerable discussion, especially at the Hearing, about spunbonded material not being as strong as, say, "nylon". This is a relative consideration and does not matter so long as the "spunbonded material" has strength sufficient for the intended use. Suffice it is to say that the test reports supplied by the applicant show that the parachute operated successfully with loads up to 1200kg. (2652 lbs.).

The applicant also states that: "The unwoven or nonwoven material used in this invention is described in a treatise by C.M. Brandt, published in 1959...." In this work it is shown that the material was known for a considerable length of time. Page 3 reads (in part): "One of the earliest nonwoven fabrics was produced in the United States in 1932." At page 4 we find: "In the early 1950's, one firm, Pellon Corporation, finally put on the market a high-performance nonwoven for use in interlinings." Also on page 75 there is a list of seventy products in which nonwoven fabrics are used, but there is no suggestion to use it for parachutes. It is apparent, therefore, that this was not just a matter of the applicant trying a new material for a different use. The material was available for many years before the date of the present application.

In addition in British Patent 1,126,560 (referred to by the applicant), with a convention priority date of June 18, 1965, the inventor had this to say about spunbonded products:

These products have sometimes been described in American literature by the generic term "spunbonded", and for simplicity this expression will be used in this specification. These spunbonded products have only recently become commercially available, and have been tried out in numerous fields. For example it has been proposed to use them as substrates for coating or impregnation in the production of, for example, book covers and coated papers; as replacements for conventional textile linings in the manufacture of shoes and clothing as carriers for a layer of laminated synthetic resin; as a replacement for glass fibre mats; and even as a base fabric for "tufted" carpets, that is to say for carpets in which the nap forming the pile consists of continuous yarns punched across the base fabric in the form of loops by means of equipment which produces this nap by means of needles.

It has now been found that spun bonded sheets may be used in the production of fabrics useful as floor coverings.... (emphasis added)

Also of interest are the conclusions reached in the test reports supplied by the applicant (D.P.L. Testing Station, dated . 20, 1967), using "perlon fibre unwoven spunbonded" canopies:

After recovering and testing the test equipment all the participants agreed in a subsequent meeting as follows:

It was to be expected that the preliminary tests of today would not be 100% positive, but the fundamental suitability of the unwoven spunbonded material of perlon fibres as a canopy fabric for one-way cargo parachutes, also in the size G 12 D, is evident.

However, in order to confirm the fundamental suitability shown by the preliminary tests, it seems appropriate to repeat the preliminary tests upon changing the size of the apex and attaching cords to the base, before starting the construction of a parachute canopy directed to the special properties of the unwoven spunbonded material and before starting systematic tests. Even now it can be seen that because of the relatively low price of the unwoven spunbonded material a saving in costs of approximately 50% per parachute must be expected when purchased in quantity. (emphasis added by the applicant)

Turning back to our Criterion (4) which reads: Ingenuity may be present if:

a known material is used in an article or apparatus when it had not previously been so used, and such utilization depends on previously known properties of the material, provided the new use results in an unexpected advantage, or unexpectedly avoids a known disadvantage.

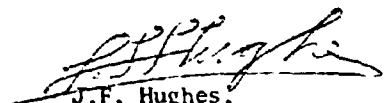
and in consideration of the above discussion and the state of the law, it is our view that an unexpected advantage is found in the idea that the "spunbonded material" could in fact be used successfully for making parachutes. Despite the fact that the material was available for many years there is no evidence that it was ever used for parachutes. On the contrary the only evidence before the Board was that it would not be suitable for this purpose.

Accordingly, the Board is satisfied that there is present a degree of ingenuity which was the result of thought and experiment (See Crosley Radio Corporation v Canadian General Electric Company (1936) S.C.R. 551 at 556), and that the Commissioner ought not to be satisfied that the applicant is not by law entitled to the grant of a patent.

Notwithstanding the above, the Board is not satisfied that claims 1 to 3 are allowable. Claim 1 does not claim the invention, but only claims one part of the parachute (Section 36 of the Patent Act applies). Claims 2 and 3 depend on claim 1 and are objectionable for the same reason.

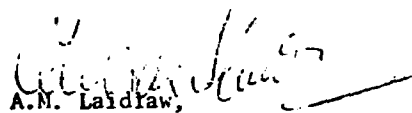
A claim similar to claim 4 could be accepted if amended to cover a parachute canopy made of a "synthetic organic spunbonded material." This was the only material used in all the test reports supplied to us, and also it is the material used in the referred to British Patent. There is no satisfactory evidence that the invention is broader than that.

The Board, therefore, recommends that the decision of the examiner to refuse the application be withdrawn, and that amendments to the claims be made accordingly.


J.F. Hughes,
Assistant Chairman,
Patent Appeal Board.

I concur with the findings of the Patent Appeal Board. Accordingly, I withdraw the Final Action and return the application to the examiner for resumption of prosecution and I direct amendment along the guidelines indicated.

Decision accordingly,


A.M. Laidlaw,
Commissioner of Patents.

Dated and Signed
in Hull, Quebec
this 16th day of
May, 1974.

Agent for Applicant

Marks & Clerk