

COMMISSIONER'S DECISION SUMMARY

C.D. 1220Application No. 2,041,167 (OO)

Claims rejected as obvious over cited prior art.

The application disclosed multi-layer articles of manufacture prepared by sandwiching a layer of bentonite clay between layers of flexible fabric materials. The articles are useful for waterproofing surfaces such as lagoons, and hazardous and toxic waste containment areas. The examiner rejected all of the 40 claims for lack of inventive ingenuity over two references either alone or in combination. The Board's recommendation that the rejection be reversed was accepted by the Commissioner of Patents.

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,041,167 having been rejected under Subsection 47(2) of the Patent Rules, the Applicant asked that the Final Action of the Examiner be reviewed. The rejection has been considered by the Patent Appeal Board and by the Commissioner of Patents. The findings of the Board and the decision of the Commissioner are as follows:

Agent for the Applicant

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This decision deals with a request that the Commissioner of Patents review the Examiner's Final Action on patent application number 2,041,167 which was filed on April 24, 1991. The Applicant is American Colloid Company, assignee of inventor Alec W. White and the invention is entitled "WATER BARRIER OF WATER-SWELLABLE CLAY SANDWICHED BETWEEN INTERCONNECTED LAYERS OF FLEXIBLE FABRIC NEEDED TOGETHER USING A LUBRICANT. The Examiner in charge issued a Final Action on November 1, 1993 refusing all of the claims because the subject matter thereof was considered to lack inventive ingenuity in view of two references and the Applicant replied on May 2, 1994 requesting that the refusal be reviewed by the Commissioner of Patents.

The invention is directed to a multi-layer article of manufacture useful as a waterproofing membrane for waterproofing surfaces such as soil, plaza decks, in the formation of waterproofed construction areas and soil structures such as lagoons, hazardous or toxic waste containment areas and the like. More particularly, the invention is directed to a multi-layer waterproofing article of manufacture including a layer of powdered or granular water-swellable clay, such as bentonite, surrounded by contacting layers of flexible fabric materials, such as geotextile fabrics, interconnected at spaced locations, after lubrication of the clay layer, such as by needle punching, to provide a structurally sound spacing and interconnection between the flexible fabric materials.

The application contains 40 claims directed to the articles of manufacture themselves, to methods of manufacture of the articles and to methods of preventing water from penetrating structures by installing the articles against the structures. Claims 1 and 19 of the application which are representative of the present claims are as follows:

1 A multi-layer article of manufacture useful as a water-proofing material comprising a pair of flexible sheet material layers having a layer of powdered or granular bentonite clay sandwiched therebetween, said pair of sheet material layers structurally interconnected one to the other by sewing or needle punching to interconnect fibers from flexible sheet material layer to the other flexible sheet material layer, thereby containing the clay layer therebetween after first wetting the clay layer with a lubricant in an amount in the range of about 0.1% to about 40% lubricant based on the dry weight of the clay layer.

19 A method of manufacturing a multi-layer water barrier including a lower layer of fabric, an upper layer of fabric and an intermediate layer of a powdered or granular water-swellaable bentonite clay secured between the fabric layers by needle punching or sewing, the improvement comprising applying about 0.1% to about 40%, by dry weight of said bentonite clay layer, of a lubricant to the bentonite clay layer to lubricate the penetration of a needle through the layer of clay, while interconnecting fibers from one flexible sheet material layer to the other flexible sheet material layer, thereby reducing needle wear and friction and needle breakage and providing consistent, effective securing of the upper and lower fabric layers surrounding a uniform thickness of bentonite clay

In his Final Action the Examiner refused the claims for lack of invention in view of British patent Specification number 2,202,185 to Heerten et al. and Canadian patent number 1,247,347 to Tesch stating, in part, that:

On page 3 of the disclosure of the present patent application, applicant teaches:

"U.K. published patent application GB 2,020,2185A discloses a layer of water-swellaable bentonite between flexible layers that have been needle punched together in a needle loom that secures material from a lower layer of non-woven textile material to an upper layer of non woven textile material and secures material from an upper non-woven textile material to the lower non-woven textile material "

Clearly applicant is familiar with the teachings of Heerten et al. The only difference between the claimed subject matter of the present application and that taught by Heerten et al is the application of a lubricant to the intermediate layer to provide easier needle penetration, with less wear and/or needle breakage.

However this single difference is taught by Tesch. The reference to Tesch relates to a process for the preparation of fiber reinforced flat bodies. Tesch teaches on page 5.

"The water present in the core layer serves as a swelling agent for the mass of the core layer, such as strips or shreds of paper, a medicinal natural healing mass, such as a mud paste, healing earths, fango mud or the like, or a raw ceramic slip, whereby these substances are present in a swollen state and are highly flexible. The water further serves as a lubricant for the needle bonding needles and the holding fibers to be inserted therein Experiments have shown that for the needle bonding of dry strips of paper or shreds of paper placed upon each other, (also of dry peat particles) the core layer must be made extremely thin, because in the case of thick layers it is difficult for the bonding needles to penetrate through the core layer and they break very rapidly. With water containing masses needle breakage, which occasionally occurs in the textile industry also, almost never takes place." (underlining added)

In light of Tesch's teachings then, the single difference, distinguishing applicant's claimed subject matter from the teachings of Heerten et al, fails to provide any inventive ingenuity.

Applicant has argued that "Tesch, therefore did not contemplate the use of water-swellaable clay as the intermediate layer, and in fact, teaches away from using a water-swellaable clay as the intermediate layer since Tesch states that thick intermediate layers present difficulties in needle bonding"

The examiner agrees that Tesch does not teach the use of water-swellaable clay, but must disagree with applicant's conclusion that Tesch teaches away from its use. Tesch teaches away from needle bonding thick dry layers.

Applicant also argues "Any prewetting of a water-swellaable clay decreases the water-absorbency of the clay. Therefore, it is counter productive to pre-wet a material that is designed for absorbing water. This fact also teaches away from using the Tesch lubrication step on a material designed to absorb water"

The examiner recognizes, just as those skilled in the art, that "prewetting a water-swellable clay decreases the water absorbency of the clay"

However, those skilled in the art, having read Tesch, would weight the benefit of lower production costs through less needle breakage against any decrease in water absorbency of the clay. They would be expected to find the economic balance without the demonstration of inventive ingenuity

Consequently, claims 1 to 40 are rejected because the subject matter thereof lacks inventive ingenuity in view of Heerten et al, as the difference thereover is held to be obvious to one of ordinary skill in the art to which the alleged invention pertains.

Further, this difference is obvious because it is common knowledge in the analogous art as shown by Tesch

The question before the Board is therefore whether or not the invention claimed in claims 1 to 40 is obvious in view of the cited prior art.

In its response to the Final Action dated May 2, 1994 the Applicant argued against the rejection on the grounds that the Examiner is applying a hindsight approach or an ex post facto analysis in order to judge the invention as obvious. The Applicant states that the invention has benefits other than reducing needle breakage such as resulting in a stronger more compact and tighter product with the opposed fabrics held tighter together. As proof of this the Applicant has provided a comparison of the products made without lubrication with those made using lubrication according to the invention showing that the products of the invention are clearly superior.

In a further submission made on June 14, 1994 the Applicant offered an affidavit by the inventor Alec C. White stating that it is common knowledge to those skilled in the art of using bentonite clay to keep the clay as dry as possible before installation or use in order to maintain maximum swell after installation. It would therefore go against the knowledge of those skilled in the art to wet the clay before constructing the products of the invention.

The inventor also states that the lubrication that eases the needle penetration also unexpectedly provides a superior product in that a tighter, more compact, denser product is produced through improved needle penetration. This improvement, in the inventor's opinion, could not have been predicted from the information contained in either of the two cited references. The inventor's

statements are also corroborated by the affidavit of Richard W. Carriker and James T. Olstra, both professional engineers employed by a division of the Applicant, submitted by the Applicant on May 26, 1997.

As to the references themselves Heerten is disclosed as prior art by the Applicant and essentially shows the production of bentonite products without lubrication, i.e. the starting point for Applicant's invention. As to Tesch, Applicant states that the reference shows the production of fiber reinforced flat bodies wherein a flowable core layer is sandwiched between two other layers by using a needle bonding process. In Tesch the water content is such that the core layer is laid down as a slurry in an already swollen state as distinct from the Applicant's invention where the amount of water added is substantially less.

Furthermore even though Tesch also states that the water contained in the core layer acts as a lubricant such that needle breakage is very rare it is Applicant's opinion that there is nothing in the reference either alone or in combination with Heerten that indicates that using the amounts of water disclosed by the Applicant would lead to not only reduced needle breakage but also to increased production of an improved product.

The Applicant also notes that the products produced by Tesch relate to, for example, pads to be applied to the human body, a use far removed from the use of the Applicant's products, so much so that the Applicant considers that the reference cannot be used for a rejection based on obviousness. It is Applicant's contention that the reference is found in a field so unrelated to that to which the Applicant's invention is found that it would not be found by a person skilled in the art of manufacturing waterproofing membranes.

After detailed consideration of the references the Board agrees with the Applicant's position that neither reference on its own or in combination renders the claims of the application obvious. Thus the Heerten reference merely shows the prior art situation of waterproofing membranes made with no lubrication whilst the Tesch reference can be taken to show merely that using a lubricant while

needle punching articles leads to less needle breakage than when lubrication is not used. There is no indication in Tesch that using the amounts of water disclosed by the Applicant would lead not only to less needle breakage than before but to an improved product. Nor is it clear that Tesch can be properly used as a reference for the purposes of obviousness since it is from an unrelated field and thus would not be expected to be found by the notional person skilled in the art of manufacturing waterproofing membranes.

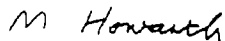
In making this finding of non-obviousness the Board has taken into account the judicial test for obviousness noted by the Applicant and set forth in the Federal Court of Appeal decision in Beloit Canada Ltd. et al. v. Valmet Oy 8 C.P.R. (3d) 289, at page 294, namely:

The test for obviousness is not to ask what competent inventors did or would have done to solve the problem. Inventors are by definition inventive. The classical touchstone for obviousness is the technician skilled in the art but having no scintilla of inventiveness or imagination; a paragon of deduction and dexterity, wholly devoid of intuition; a triumph of the left hemisphere over the right. The question to be asked is whether this mythical creature (the man in the Clapham omnibus of patent law) would, in the light of the state of the art and of common general knowledge as at the claimed date of invention, have come directly and without difficulty to the solution taught by the patent. It is a very difficult test to satisfy.

The Board therefore recommends that the rejection of claims 1 to 40 be withdrawn and that the application be returned to the Examiner for further prosecution consistent with the recommendation.



P.J. Davies
Chairman



M. Howarth
Member

I concur with the recommendation of the Board that the rejection of claims 1 to 40 be withdrawn and therefore return the application to the Examiner for further prosecution consistent with the Board's recommendation.



S. Batchelor

Commissioner of Patents

Dated at Hull, Quebec,
this 15 day of July / 97