

Commissioner's Decision #1259

Décision du commissaire #1259

TOPIC: O00

SUJET: O00

Application No: 2,055,020 (Class E04D-001/28)

Demande No: 2,055,020 (Classe E04D-001/28)

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,055,020 having been rejected under Subsection 30(3) 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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COMMISSIONER=S DECISION SUMMARY

C. D. 1259 Application No. 2,055,020

Obviousness

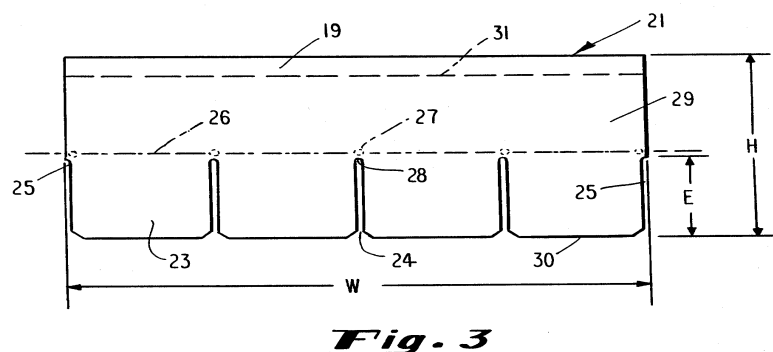
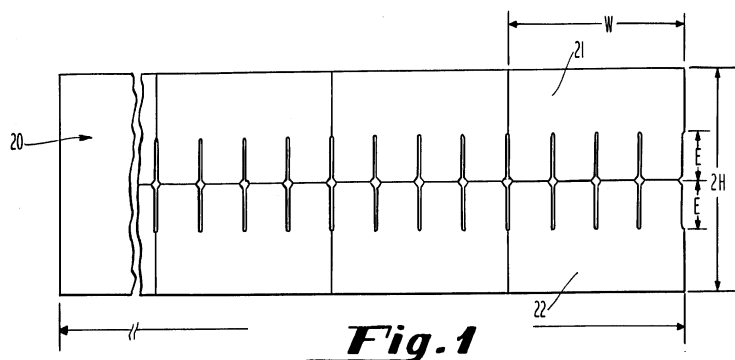
The examiner rejected this application on the basis that the invention claimed was obvious, at the claim date, in view of two cited United States patents disclosing shingles with varying dimensions. The Board found that the technician skilled in the art, but having no inventiveness or imagination, would have had before him a well-charted route of techniques and procedures which would have lead him directly and without difficulty to the alleged invention.

The application was refused by the Commissioner of Patents.

This decision deals with a request that the Commissioner of Patents review the Examiner's Final Action on patent application number 2,055,020 which was filed on 6 November, 1991 and is entitled "A ROOFING SHINGLE". The Applicant is CertainTeed Corporation, assignee of inventors Marcia G. Hannah, George W. Mehrer, Michael J. Noone, Kermit E. Stahl and Joseph Quaranta. The Examiner in charge issued a Final Action on 20 August, 1998 refusing claims 1 to 22 in view of US patent 4,825,616 to Bondoc et al. or US patent 3,624,975 to Morgan et al. and common knowledge in the art.

At the Applicant's request, the Patent Appeal Board conducted a hearing on 2 July, 2003, at which time the Applicant was represented by Mr. Jim McGraw and Ms. Kelly Miranda of the firm of Smart and Biggar, and the Patent Office was represented by Mr. Bruce Brown, the Examiner in charge of the application.

The invention relates to the manufacture of asphalt roofing shingles in which an asphaltic composition is applied over a base mat and the asphalt shingle is then cut to the desired shape and size from the base mat. While the shingle shape is conventional having a chosen number of tabs, the specific height and width dimensions and exposure height are considered the inventive aspects of the shingle. While a standard shingle has a 12 inch overall height with an exposure height of 5 inches, the shingle of this application has an overall height of 18 inches with an exposure height of 8 inches. The coverage efficiency, expressed as a ratio of exposure height to overall height, of the inventive shingle is 44.44% compared to 41.67% for the standard shingle. In addition there is a saving in the number of nails used and in the installation time. Figures 1 and 3 below illustrate the disclosed invention.



The shingles 21, 22 are cut from a sheet of shingle material 20. The resulting shingles each have a width W, an overall height H and an exposure height E.

Independent claims 5, 15 and 19 which are representative of the claims in the application are as follows:

5. A roof surfaced with shingles each having upper ends and lower ends, and being laid-up in partially overlapping courses to have lower shingles exposed to a predetermined height, with successive courses of said shingles partially overlapping upper ends of next underlying courses of shingles to provide shingle exposure of lower ends of said shingles in said next underlying course, with material utilization efficiency being approximately 44.4 percent when said efficiency is defined as the ratio of shingle exposed height to overall height of a shingle, wherein said overall height is nominally 18 inches, whereby the exposed shingle height is about 8 inches of each shingle.

15. A method of producing shingles comprising the steps of:
(a) providing an elongate sheet of shingle material about 36 inches in width;
(b) arranging the sheet for shingle cutting, to lay out a shingle ratio of 200 shingles per each 300 lineal feet of sheet; and
(c) cutting the sheet of shingle material into shingle pieces of about 18 inches by nominally 36 inches; whereby wastage of sheet shingle material is substantially minimized, wherein each shingle is provided with an 8 inch height exposure portion.

19. A square of shingles, having 50 shingles, sufficient to cover 100 square feet of roof area when the shingles are disposed in a laid-up condition on a roof, with their tab areas exposed and covering top areas of shingles in a next- lower course, with each shingle in the square having a total shingle height of 18 inches with an exposed tab portion of 8 inches in height, a tab exposure area and a top area, with the tab areas each including (n) number of tabs separated by (n-1) slots, with nailing zones being located near an end of each slot in the top area of the shingle above the slot and at each end of the shingle, with all nailing zones being generally along a common imaginary line to define (n+1) nailing zones; where n = any of the whole numbers 3 and 4 and where the number of nailing zones in the square equals 200 where n = 3 and 250 where n = 4.

In his Final Action the Examiner refused the claims of the application in view of United States patents 4,825,616 to Bondoc et al. issued 2 May 1989, or US patent 3,624,975 to Morgan et al. issued 7 December 1971, and common knowledge in the art, stating in part that:

Morgan et al teaches laminated mineral-surfaced asphalt shingles, which, when laid in courses on a roof, simulates the appearance of a wood shingle roof. In column 6, lines 6 to 12 it is taught that the laminated strip shingles may be produced in other dimensions as to width and length, within the limits of practical handling in manufacture and application. Additionally, in column 6, lines 14 to 21, Morgan et al states that the length of the shingles used may be varied from the standard sized roofing shingle. For example, 48", or 60" lengths may be used. Morgan et al discloses that by using these longer strip shingles, the number of tabs per shingle would be increased, and the number of shingles per square would be reduced.

Bondoc et al discloses a reroofing shingle having a 7.5 inch exposure and a 17 inch height. The reroofing shingle is primarily intended to be installing over standard asphaltic roofing so that the lower tab edges of each successive course of reroofing shingle is aligned with the top of the spaces between tabs of the preceding reroofing course. The reroofing shingle may also be used to install a

new roof. In column 6, lines 4 to 7, Bondoc et al describes that his shingles may be used as new roofing installed directly on a roof deck.

It is maintained that the present application does not comply with Subsection 28.3 of the Patent Act. Claims 1 to 22 would have been obvious on the claim date to a person skilled in the art or science to which it pertains having regard to either one of Bondoc et al or Morgan et al.

It is held that claims 1 to 4, 6 to 13, and 15 to 18, which relate to the specific dimensions of applicant's shingle, are rendered obvious in view of Bondoc et al or Morgan et al. The patents to Bondoc et al and Morgan et al show several embodiments of shingles having dimensions larger than a standard sized shingle. In his most recent response applicant states that augmenting the 17 inch height Bondoc shingle by a full inch for a total height of 18 inches, as defined in the aforesaid claims, would involve an inventive step. However, it is held that such an increase would not require inventive ingenuity for a person skilled in the art. Bondoc et al shows several embodiments of shingles that are larger than a standard sized shingle. One shingle embodiment shown has a 17 inch height and a 7.5 inch exposure. These shingles may be installed over existing shingles or directly on a roof deck. Notwithstanding that fact that Bondoc et al describes that an increase in height dimension provides no additional benefit, it is held that a person skilled in the art would be led to apply the teachings of Bondoc et al to arrive at a shingle having an 18 inch height and a 8 inch exposure. It is held that such a skilled person would recognize that further increasing the dimensions of the shingles taught in Bondoc et al would result in fewer shingles being needed per square unit area. Both Bondoc et al. and Morgan et al. teach that shingles characterized by an increase in height and/or width require fewer nails to secure them over a given area. Therefore, it is maintained that the height and exposure dimensions as defined in claims 1 to 4, 6 to 13, and 15 to 18 would not be inventive since such claimed variation in shingle size does not provide a new and unexpected use of shingles.

It is further held that claims 5, 14, and 19 to 22, which relate to the efficiency of applicant's shingle, do not define anything which would not be obvious to a person versed in the art. With respect to the applicant's comment that the applicant's shingle is more efficient in its use of area than the shingle disclosed in Bondoc et al, it is held that applicant's shingle is only slightly more efficient in its use of area than the Bondoc shingle. However, this difference cannot be relied upon to add patentability. It is maintained that it would be obvious to a person skilled in the art that an increase in the dimensions of a shingle would result in the reduction of the number of shingles per square area and improve its efficiency in its use of area. Column 3 of the Bondoc et al patent teaches that fewer of the larger sized shingles would be required to shingle a roof and hence savings in material would be realized. Bondoc et al further discloses that 49 of the 7.5 inch exposure shingles are required to cover 100 square feet. Additionally, in Morgan et al, column 6, lines 14 to 21, it is taught that the strip shingles of Morgan et al could be produced in other dimensions as to width and length in order to reduce the number of shingles per square area. Thus, claims 5, 14, and 19 to 22 are rendered obvious in view of Bondoc et al or Morgan et al.

In summary claims 1 to 22 are rendered obvious in view of Bondoc et al or Morgan et al and common knowledge in the art.

In the reply of 22 February, 1999, the Applicant stated, in part:

Moreover, Morgan does not disclose or suggest a shingle having the dimensions recited in the claims, i.e., 18 inches high with 8 inch tabs. The Morgan shingle is, as shown in Figures 3 and 4, not a true rectangle as the bottoms of the tabs, as pointed out above, extend below the lower edge of the base lamina and to different extents. The dimensions are 36 inches long by approximately 12 inches high. The tab divisions are irregular and range around 52 inches. The result is that, dimensionally, the Morgan shingle is similar to the industry standard of 12 inches high with 5 inch exposure.

.....

Bondoc discloses a shingle having specific dimensions that enable it to be used to re-roof over shingles that are either metric or in English units. We have argued on several previous occasions that Bondoc is not relevant to the present invention and most recently in the response dated April 14, 1998 we argued that it would not be obvious to expand the dimensions of Bondoc to those claimed particularly in

view of the caution in Bondoc that any increase in height "provides no additional benefit and represents a waste of material". Notwithstanding that the Examiner continues to suggest that a person skilled in the art would routinely and without invention increase the dimensions of the Bondoc shingle to arrive at the claimed dimensions.

We respectfully request the Examiner to review Bondoc again. The 7.5 inch exposed tab height must be a relatively exact value for the Bondoc invention to have utility. See from line 57 of column 2 of Bondoc to line 2 of column 4. Specifically it is stated that Bondoc eliminates prior art problems by virtue of its unique dimensions providing registry of the 7.5 inch exposed portions with the 5 inch tabs of the English shingle and the 5.625 inch exposed tabs of the Metric shingle (column 2, lines 57-62). Moreover, it is stated that with the 7.5 inch expanse of Bondoc two courses of the Bondoc shingle covers three of the English exposed portions (column 2, lines 62-65) and three courses of the Bondoc shingle covers four of the Metric exposed portions (column 3, lines 40-42). To prove that this is true,

two Bondoc courses = $2 \times 7.5 = 15$ inch exposure
three English courses = 3×15 (sic) = 15 inch exposure and
three Bondoc courses = $3 \times 7.5 = 22.5$ inch exposure
four Metric courses = $4 \times 5.625 = 22.5$ inch exposure

.....

Thus, it is critical that the Bondoc exposure be 7.5 inches (or a multiple thereof) and indeed that precise dimension is claimed in all of the Bondoc claims. Additionally, as stated in the summary of the invention at lines 15-25, column 2 of Bondoc the overall height of the shingle is $n(\text{exposure}) + 2$ inches with n having a value of 2 for a tabbed shingle. Thus, if the exposure is 7.5 inches the overall height must be 17 inches. This also is recited in all of Bondoc's claims.

.....

The Examiner has set out two separate grounds for rejecting the instant application. These grounds

can be stated as follows:

1. The claimed invention is obvious over the cited references and common knowledge in the art in relation to the dimensions of the shingle; and
2. The claimed invention is obvious over the cited reference and common knowledge in the art in relation to the efficiency of the new dimension shingle.

In determining the significance of the teaching of Bondoc et al. and Morgan et al. in establishing the obviousness of the applicant's shingle the Board looked to Mr. Justice Wetston in *Apotex Inc. v. Wellcome Foundation Ltd.*, 79 C.P.R. (3d), wherein he noted at p. 268...

The test for obviousness set out by Huggessen J.A., in *Beloit Canada Ltd. v. Valmet OY*, supra, at page 294, is as follows:

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 the mythical creature (the man in the Clapham omnibus of patent law) would, in light of the state of the art and of common general knowledge as at the claimed date of the invention, have come directly and without difficulty to the solution taught by the patent. It is a very difficult test to satisfy.

Mr. Justice Wetston further noted at page 269 that...

There is no inventiveness in following an obvious and well-charted route using known techniques and processes involving known compositions unless the inventor encounters difficulties that could not have been reasonably expected by a person versed in the art or overcome by the application of ordinary skill: *Burns & Russell of Canada v. Day and Campbell Ltd.* (1965),

The test set out by Huggessen, and the criteria articulated by Wetston as established in *Burns & Russell of Canada v. Day and Campbell Ltd.*, suggest several questions to be answered in determining obviousness.

The questions needed to be answered are as follows:

- 1) What was the problem in the art encountered by the applicant, the solution for which is taught by the patent?
- 2) Did the applicant follow an obvious and well-charted route using known techniques and processes in arriving at the solution taught by the patent?
- 3) Did the applicant encounter any difficulties on the way to the solution that could not have been reasonably expected by one versed in the art and could not have been overcome by the application of ordinary skill?

As to the first question, there is no disclosure of a single problem, or problems, in the art for which a solution was sought. Rather, the applicant discloses various benefits to be realized by practising the alleged invention, such as: better use of shingle roll material in making shingles; fewer shingles per 100 square feet of coverage; fewer nails and higher material coverage efficiency.

In determining the answer to the second question the Board looked to the prior art. The Examiner has cited United States patents to Bondoc et al. and Morgan et al. in support of the argument that the claimed shingle dimensions, where W (width) = 36", H (overall height) = 18", and E (exposure height) = 8", are obvious. A careful review of the Bondoc et al. patent reveals at least 6 different sets of specific dimensions, as well as a range of dimensions for existing shingles, as follows:

	<u>W</u>	<u>H</u>
		<u>E</u>
English tabbed shingle		36"
		12"
		5"
Metric tabbed shingle		39.375"
		13.25"
		5.625"
Bondoc strip shingle		36"
		9.5"
		7.5"
"		36"
		17"
		15"
Bondoc tabbed shingle		36"
		17"

		7.5"		
"			36"	
		32"		
		15"		
Uniform length shingle	30" to 45"	17"	or	32"
	7.5" or 15"			

Bondoc et al. describes the advantage of his specific shingle dimensions as follows:

At column 2, lines 57 - 65

Because of the unique dimensions of the present reroofing shingles and the registry of their 7.5 inch or 15 inch exposed portions with the 5 inch exposed tabs of the English shingle and the 5.625 inch exposed tabs of the Metric shingle, it is found that the nesting problems are completely eliminated. More specifically with the present shingle having a 7.5 inch exposure, the exposed reroofing areas of two successive courses covers three of the English exposed portions

At column 3, lines 9 - 18

Additionally, since only two courses of reroofing require overlapping and nailing, instead of nailing and overlapping three of the English size shingles, **significant savings in time, labor and material is realized** while providing a lighter, more eye pleasing roof covering. This savings is considerable since it requires 80 English size 36 inch length shingles to cover every 100 square feet of roof as compared to **only 56 of the present reroofing shingle** of 36 inch length and 7.5 inch exposure to cover the same area. (emphasis added)

At column 3 lines 27 - 30

Also, the present shingles characterized by **their increased height and coverage of underlay shingles, require fewer nails to secure them over a given area,.....**(emphasis added).

At column 3 lines 45 -49

In the case of Metric size, only 65 shingles are required to cover 100 square foot area; however, **only 49 of the identical length reroofing shingles** described herein of 7.5 inch exposure are needed to cover the same area. (emphasis added)

At column 6 lines 3 - 5

It will be obvious to those skilled in the art that **the present shingles can be used as new roofing** installed directly on a roof deck.... (emphasis added)

The shingle of the Morgan et al. patent is a laminated strip shingle and its construction is described as follows:

At column 5, lines 22 - 29....

To achieve the several purposes of this invention it has been found desirable to construct the strip shingle in laminated form, with a unitary base lamina or Amonotab@, of the full length dimension of the strip, and with no tab cut-outs. Laminated to this base lamina is an overlay or Apron lamina@ of similar roofing sheet material of the same length as the base. This apron overlay may be of narrower width.

The Morgan et al. patent acknowledges that the 12" x 36" dimension shingle constitutes the industry=s major volume product, and indicates general conformity to these dimensions in the following terms:

At column 6 lines 1 - 10

For practical purposes of handling on the roofing machine, packaging, shipment and application, it is desirable that **the shingle dimensions should conform generally to the dimensions of the asphalt strip shingles** which constitute the industry=s major volume product , namely, 12" x 36" strips. However, **laminated strip shingles embodying the features herein disclosed can, of course be produced in other dimensions as to width and length, within the limits of practical handling in manufacture and application**(emphasis added)

At column 6 lines 14 - 21

It will of course be understood that a 12" x 36" size has been selected because this is presently the standard in the roofing industry, but that **48" or 60" or even 72" lengths could be used**. With longer strip shingles the number of tabs per shingle will be increased, making possible a greater variation in individual tab configurations, and at the same time **reducing the number of shingles per square**. (emphasis added)

The Board carefully considered the accepted standard shingle dimensions and the disclosed variations therefrom in the shingle industry, and looked for any pre-existing constraints limiting shingle size, other than weight and handling. While all shingles are dimensioned to ensure proper mating of overlapping shingles and to achieve the desired architectural appearance when installed, there is no evidence of other constraints having limited the possible shingle size. While the Bondoc et al. shingle has specific dimensions, they are related only to its specific function when used as a reroofing shingle for existing English or Metric shingles, and are not related to some pre-existing constraint limiting overall shingle size. When used as a >new roof= shingle, the specific dimensions of the Bondoc et al. shingle perform only the usual mating and appearance functions.

Bondoc et al. and Morgan et al. each disclose a broad range of existing shingle dimensions: widths of 36", 39.375", and 36" to 45"; overall heights of 9.5", 12", 13.25", 17" or 32"; and exposures of 4.875", 5", 5.625", 7.5" or 15". These existing shingle dimensions all exceed the dimensions of the industry=s largest volume product, 12" x 36", apparently without difficulty.

Bondoc et al. and Morgan et al. also provide significant teaching relating to the efficiency of larger shingles. Bondoc et al., in describing the benefits of the 17" x 36" (7.5 exposure) shingle indicates savings in time, labour, material and nails. In terms of the coverage efficiency of tabbed shingles, when defined as a ratio of the exposed height to overall height, the Bondoc et al. coverage efficiency is 44.12% (7.5"/17") as compared to the applicant=s 44.44% (8"/18"). By comparison the common 12" x 36" shingle has a coverage efficiency of 41.67% (5"/12"). All of these are based on a 2" headlap.

A mathematical comparison of gradually increasing exposure heights, while maintaining the 2" headlap, shows a gradually diminishing increase in coverage efficiency. For example, the 12" shingle with 5" exposure has a coverage efficiency of 41.67% while a 13" shingle with 5.5" exposure (2" headlap) would have an efficiency of 42.31% (5.5"/13"). The increase in efficiency is .64%. By comparison the increase in efficiency between the Bondoc et al. shingle at 44.12% and the applicant=s shingle at 44.44% is merely .32% for a corresponding .5" increase in exposure height. This of course is the expected mathematical result for gradually increasing shingle heights and corresponding exposures with a constant 2" headlap. If the headlap was 0" then a maximum efficiency for tabbed shingles would be 50%.

The Board therefore finds, in answer to the second question, that there existed a well-charted route

of requirements, techniques and procedures in the design and sizing of shingles, as well as knowledge of the resulting benefits of larger shingles.

As to the third question, there is no disclosure of any difficulties encountered by the applicant in producing shingles in the desired dimensions from the standard elongate shingle material. The relationship between shingle height and shingle exposure was well known and understood in the art to enable a person skilled in the art to establish the respective dimensions, without the exercise of inventive skills.

The above teaching and practice support both grounds of rejection by the examiner; that the dimensions of the shingle are obvious in view of the prior art and common knowledge, and that the increase in efficiency of the larger shingle is obvious in view of the prior art and common knowledge. The Board feels that with this knowledge in hand, the technician skilled in the art but having no inventiveness or imagination, would have had before him a well-charted route of techniques and procedures which would have led him directly and without difficulty to the alleged invention which is disclosed and claimed in the instant application.

As a result, the Board concludes that claims 1 to 22 are obvious at the claim date and fail to comply with Subsection 28.3 of the Patent Act. Therefore, it is recommended that the decision in the Final Action to reject the application be affirmed.

M. Gillen
Chairman

M. Wilson
Member

J. Cavar
Member

I concur with the findings and recommendation of the Patent Appeal Board. Accordingly, I refuse to grant a patent on this application. Under Section 41 of the Patent Act, the applicant has six months within which to appeal my decision to the Federal Court of Canada.

David Tobin
Commissioner of Patents

Dated at Gatineau, Quebec,

this 16 day of September, 2004