

THE SUPREME COURT OF APPEAL OF SOUTH AFRICA

JUDGMENT

CASE NO: 191/2014

Reportable

In the matter between:

MANTELLA TRADING 310 (PTY) LIMITED

Appellant

and

KUSILE MINING (PTY) LIMITED

Respondent

Neutral Citation: *Mantella Trading v Kusile Mining* (191/2014) [2015] ZASCA 10
(12 March 2015).

Coram: Navsa ADP, Bosielo & Wallis JJA *et* Schoeman & Dambuza AJJA

Heard: 17 February 2015

Delivered: 12 March 2015

Summary: Patent – alleged infringement in relation to patents involving barriers or stoppings in underground passages in mines – challenge on basis of lack of clarity in patent specification and that the patent in suit lacked an inventive step – interpretation of patent claims – construed contextually – inquiry into obviousness – simplicity no bar – combination of known techniques held to involve creative ingenuity.

ORDER

On appeal from: The Court of the Commissioner of Patents (Makgoka J sitting as court of first instance).

The following order is made:

1. The appeal is upheld with costs, including the costs of two counsel;
2. The order of the court *a quo* is set aside and substituted with the following:
 - (a) The defendant's counterclaim for the revocation of South African Patent Number 98/7391 is dismissed;
 - (b) The defendant is interdicted from infringing South African Patent Number 98/7391 by making, using, exercising, disposing or offering to dispose of, or importing barriers or stoppings in particular barriers or stoppings in underground passages, a method of erecting such barriers or stoppings in an underground passage, or a kit for erecting a barrier or stopping in an underground passage which fall within the scope of the claims of South African Patent Number 98/7391;
 - (c) An order is issued:
 - (1) directing an enquiry as to the damages suffered by the Plaintiff as a result of the defendant's infringement of South African Patent Number 98/7391 and directing the payment by the defendant to the plaintiff of the amount of damages found to have been so suffered;
 - (2) directing that such enquiry shall take place in accordance with the procedure agreed upon by the parties; and failing such agreement, authorising either of the parties to make application to the Court of the Commissioner of Patents for directions in regard to the enquiry.
 - (d) A certificate of contested validity is issued in respect of claims 1, 16 and 31 of South African Patent Number 98/7391 as provided for in section 74 of the Patents Act 57 of 1978.

(e) The defendant is ordered to pay the costs of the action.'

JUDGMENT

Navsa ADP (Bosielo & Wallis JJA *et* Schoeman & Dambuza AJJA concurring):

[1] The primary issue in this case is whether a barrier used to create a ventilation passageway constructed and installed by the Respondent company, Kusile Mining (Pty) Ltd (Kusile), in an underground tunnel at its Khutala Colliery in Ogies infringes the Appellant company's Patent No.98/7391, entitled 'An underground Barrier'. The patent concerns barriers or stoppings and, in particular, barriers or stoppings in underground passages; a method of erecting such barriers or stoppings in an underground passage; and a kit for erecting a barrier or stopping in an underground passage. I shall refer to the appellant as Mantella. The second enquiry is whether the patent in question is liable to revocation on the following grounds:

- (i) that the claims of the patent are not fairly based on matter disclosed in the patent specification;
- (ii) that the claims of the patent are unclear;
- (iii) that the patent specification does not sufficiently describe, ascertain and, where necessary, illustrate and exemplify the invention and the manner in which it is to be performed in order to enable the invention to be carried out by a person skilled in the art;
- (iv) lack of an inventive step in that it would have been obvious to a person skilled in the art, having regard to matter which formed part of the state of the art immediately before the priority date of the invention.

[2] Typically, barriers or stoppings in underground passages in mines are utilised to enable fresh air to make its way to working areas underground, and to extract stale air. As a result of mining methods used in underground coal mines the vast majority of

ventilation barriers are used in underground coal mining operations. As mining progresses through an area in a grid pattern it results in a large number of criss-crossing open passages. For obvious reasons, including air supply and cooling, fresh air must be supplied to workers in the working areas. In order for fresh air to reach those areas, it must flow from air ventilation openings through the mined areas to the working areas and stale air must flow back to the ventilation opening to be expelled from the mine. It is such passage ways created by the barriers or stoppings that are the subject of the present appeal.

[3] In an action instituted by Mantella, it was claimed that Kusile was using or exercising a method of erecting a barrier or stopping in an underground passage that incorporated essential features of the registered patent, thus rendering the latter guilty of infringement. In its plea, Kusile denied the infringement and in its counterclaim, in terms of which revocation of the patent was sought, Kusile set out several bases for revocation.

[4] First, Kusile alleged that the patent was invalid and liable to revocation in terms of s 61(1)(f)(ii), of the Patents Act 57 of 1978 (the Act) as the invention's claims were not fairly based on the matter disclosed in the specification. In this regard Kusile pointed out that each of the claims of the patent included, directly or indirectly, the feature that the flexible panels, which are an integral part of the barriers supplied by Mantella, comprised a plurality of adjoining sheets of a 'rigid material'. Kusile contended that there was no further description of 'rigid material' and no disclosure of how the joining together of sheets of the 'rigid material' rendered the panel flexible. In addition, Kusile asserted that there was no disclosure of how a sheet of 'rigid material' was rendered flexible or bendable in one dimension through the incorporation of a profile. All these factors, so it was submitted, had the result that the patent specification was liable to revocation in terms of s 61(1)(f)(ii).

[5] Second, Kusile adopted the view that the patent was liable to revocation in terms of s 61(1)(f)(i) of the Act, in that it lacked clarity. In support of this view Kusile stated that

the patent specification did not clarify what was meant by 'rigid material'. Kusile went on to state that it was unclear how the incorporation of a profile in a sheet of 'rigid material' rendered an unattached sheet flexible or bendable in one direction.

[6] The third basis for revocation was that the complete patent specification does not sufficiently describe, ascertain and, where necessary, illustrate and exemplify the invention and the manner in which it is to be performed in order to enable the invention to be carried out by a person skilled in the art of such invention. This ground is based on s 61(1)(e) of the Act. In elaboration, Kusile essentially repeated what is set out in the preceding paragraphs. As can be seen these grounds of attack have a common theme, namely the lack of clarity in relation to the expression 'rigid material' and that the patent specification is unclear about how profiling the material renders it flexible in one dimension.

[7] The last ground of revocation was that the invention claimed in the patent lacked an inventive step, in that it would have been obvious to a person skilled in the art, having regard to matter which formed part of the state of the art immediately before the priority date of the invention. In this regard a number of patents registered in the United States of America were relied on. This ground of revocation was based on s 61(1)(c) read with s 25(10) of the Act.

[8] Makgoka J in the court below recorded the independent claims of the patent on which the dispute turned, namely claims 1, 16 and 31, with the essential integers indicated. For convenience I set them out hereafter:

'Claim 1

A method of erecting a barrier or stopping in an underground passage, the method including:

- (a) erecting a support structure between walls of the underground passage; and
- (b) attaching at least one flexible panel to the support structure such that it spans the underground passage at least partially, the panel or panels thus providing a barrier or stopping in the underground passage;
- (c) in which the or each panel comprises a plurality of adjoining sheets of a *rigid material*;

- (d) the method including joining the sheets together by providing a seam along adjoining edges of each sheet;
- (e) engaging the seams of adjoining sheets with each other; and
- (f) rolling the seams closed thereby joining the sheets in a substantially airtight fashion prior to attaching the panel to the support structure.

Claim 16

A barrier or stopping in an underground passage, the barrier or stopping including:

- (a) a support structure located between the walls of the underground passage; and
- (b) at least one flexible panel attached to the support structure and spanning the underground passage at least partially;
- (c) in which the or each flexible panel comprises a plurality of adjoining sheets of a *rigid material*;
- (d) adjoining edges of the sheets being joined by a seam along each adjoining edge of one sheet which engages a seam along the adjoining edge of an adjoining sheet;
- (e) the seams being rolled flat to provide a substantially airtight joint; and
- (f) in which the or each flexible panel includes at least one profiled sheet of a *rigid material*;
- (g) with the profile of the sheet rendering an unattached sheet flexible or bendable in one dimension.

Claim 31

A kit for erecting a barrier or stopping in an underground passage, the kit including:

- (3) at least one elongated support member securely mountable between opposed walls of an underground passage; and
- (4) at least one flexible panel, attachable to the support member and capable of spanning the underground passage at least partially;
- (5) in which each flexible panel comprises a plurality of adjoining sheets of a *rigid material*;
- (6) adjoining edges of the sheets being joined by a seam along each adjoining edge which engages a seam along the adjoining edge of an adjoining sheet;
- (7) the seams being rolled flat to provide a substantially airtight joint; and
- (8) in which the or each flexible panel includes at least one profiled sheet of a *rigid material*;
- (9) with the profile of the sheet rendering it flexible or bendable in one dimension; and
- (10) in which the or each flexible panel is in the form of a roll.' (My Emphasis)

[9] The court below correctly noted that a key dispute between the parties concerned the sufficiency of the patent specification, in particular as regards the 'rigid

material' referred to in the claims. It held that the word 'rigid' as it appeared in the patent specification was not meant to have a technical meaning. Makgoka J reasoned that it must therefore be given its ordinary meaning being 'stiff, unyielding, not pliant or flexible'. He considered the dictionary meaning of 'stiff' which was defined as 'not easily bent, rigid' and held that the evidence revealed clearly that the barriers made of corrugated iron were flexible parallel to the corrugations and rigid against them. He went on to consider whether the components provided by Mantella was in the form of a 'kit' as provided for in claim 31 of the specification'. He held that the different components supplied by Mantella constituted a 'kit' and thus concluded that Kusile had infringed claims 1, 16 and 31 of the patent in question.

[10] Turning to Kusile's counterclaim for revocation, the court below deliberated whether the claimed invention lacked an inventive step. Makgoka J took into account that the onus to prove the patent invalid on one of the statutorily stipulated grounds, rested on Kusile.

[11] As part of the enquiry in relation to what is set out in the preceding paragraph the court below took into account the state of the art immediately before the priority date. It had particular regard to one of the American patents made available by Kusile, namely, United States Patent 3417568A, dated 24 December 1968 entitled 'Mine shaft Bratticing'.

[12] Makgoka J stated that Mantella's claimed invention did not appear to be particularly sophisticated or complex. In this regard he considered and compared the evidence of two experts, namely Dr Burger, a consulting engineer skilled in construction methods, who testified on behalf of Kusile and Mr Elliot, an experienced mine manager, who testified in support of Mantella's case. The court below considered Dr Burger as someone skilled in the art, but not so Mr Elliott. The art we are concerned with is that of designing, constructing and installing barriers or stoppings in underground passages.

[13] In considering the prior art, the court below had regard to the specification of the American patent referred to in para 12 above, namely US Patent 3417568A. The 'Abstract of the Disclosure' of that registered patent reads as follows:

'A vertical concrete lined mine shaft has vertically spaced horizontally disposed buntons therein carrying vertically extending corrugated steel panels which divide the shaft into updraft and downdraft compartments. The buntons have their ends embedded in the concrete walls. Anchor plates also embedded in the walls are secured to the sides of the panels.'

[14] The relevant parts of the summary of that invention read as follows:

'In summary, the invention relates to the use of buntons, corrugated panels, anchor plates and corrugated strips in the forming of brattice walling in mine shafts to divide the shaft into compartments for different uses such as updraft and downdraft ventilation.

...

In such an application horizontal steel buntons preferably of streamlined shape are positioned across the shaft with their ends embedded in the concrete peripheral walling. This will enable plates of about 7'6" by 6'0" to be manufactured and subsequently welded in pairs to form panels of a size 15'0" by 6'0" with corrugations along the length thereof with a pitch of 6" across the width. The plate used may be from $\frac{1}{8}$ " to $\frac{2}{8}$ " thick depending on particular requirements. The figures are given as a practical example only and are in no way limitative to the scope of the invention.'

The inventor set out the patent's claims as follows:

'1. In a vertical mine shaft, brattice walling comprising vertically extending steel panels dividing said shaft into plural channel compartments, said panels having corrugations extending in a vertical direction, vertically spaced horizontally disposed buntons having their ends secured to the walls of and spanning said shaft, corrugated strips carried by said buntons, said panels having their upper and lower ends secured to and mating with said strips on said buntons, anchor plates secured to the shaft wall adjacent the ends of said buntons and the sides of said steel panels adjacent said anchor plates being secured thereto.

2. Mine shaft brattice walling as claimed in claim 1 in which resilient sealing linings are employed between overlapping joints of the steel panels and between the strip and the ends of the steel plates.'

[15] The court below accepted the evidence of Dr Burger, testifying on behalf of Kusile, that the American patent disclosed all of the essential features of the patent in suit, except that it made no reference to a 'rigid material'. Makgoka J considered Dr Burger's evidence that there was no substantive difference in the patents because both methods achieved the same effect, namely, of creating an airtight joint. The court below said the following:

'It is to be borne in mind that the rolling together of sheets of metal or corrugated iron is not the inventive concept of the patent in suit, as this was well known before the priority date of the patent in suit.'

[16] The court below held that the only relevant difference between the US Patent and the one under consideration, was that the iron sheets in the former were joined together using a resilient sealant, whereas in the present patent, the sheets are rolled together to form an airtight joint.

[17] Makgoka J rejected the argument on behalf of Mantella, that the patent in suit was a combination invention, combining a number of known features so as to produce a new or improved result. He did not consider that the combination contended for required inventive ingenuity. He concluded as follows:

'[T]he claimed invention is not sophisticated, but very simple. Its basic feature is the rolling together of sheets of metal or corrugated iron by rolling or seaming, using off-shelf equipment. It is a basic construction using corrugated or profiled sheeting, secured to a support structure, to create barriers or walls. I am alive to the fact that simplicity should not be an obstacle. However, in the present case, I find that there would not have been any practical difficulties to be overcome in combining previously known features.'

In the result, the court below ordered the revocation of Mantella's patent.

[18] It is against that conclusion that the present appeal, with the leave of the court below, is directed.

[19] Novelty was conceded by Kusile in the court below. Before us the issues crystallised as follows. On infringement, the argument on behalf of Kusile was that since

the patent specification was lacking in the respects set out in paras 4, 5 and 6 above, it was thus invalid and liable to revocation, and Kusile could not be guilty of infringement. In essence, Kusile challenged the patent on the basis that the 'rigid material' referred to was not adequately described and that there was no intelligible description of how the joining together of sheets of 'rigid material' could render flexible a panel to be affixed to an underground passage. The patent specification was criticised for not only being unclear, inadequate and lacking in its description of the 'rigid material' but also of being incomprehensible, particularly as to how the incorporation of a profile could render the 'rigid material' flexible in one dimension and 'rigid' in another. The remaining issue for adjudication is obviousness.

[20] In the well-known decision of *Gentiruco AG v Firestone SA (Pty) Ltd* 1972 (1) SA 589 (A), the validity and alleged infringement of a patent was considered. In that case this court considered that in addressing those aspects a court's first task was 'to ascertain the nature of the invention as claimed and its precise scope . . . Accordingly the specification, and especially the claims, have to be construed; it is, after all, the instrument on which the letters patent were applied for and granted and it must therefore necessarily govern those issues'.

[21] The function of claims in a patent is to define clearly and with precision, the monopoly claimed so that others may know the exact boundaries of the areas within which they will be trespassing. The claims must undoubtedly be read as part of the entire patent specification document. In this regard, see *Power Steel Construction Co. (Pty) Ltd v African Batignolles Construction (Pty) Ltd* 1955 (4) SA 215 (A) at 224D-G citing with approval *Electrical & Musical Industries v Lissen* 56 R.P.C. 23, 39.

[22] In *Gentiruco* at 614B-C this court stated the following:
'Consequently, the rule of interpretation is to ascertain, not what the inventor or patentee may have had in mind, but what the language used in the specification means, i.e., what his intention was as conveyed by the specification, properly construed . . . since he is presumed to have intended what his language means. To ascertain that meaning the words used must be read grammatically and in their ordinary sense. Technical words of the art or science involved in the

invention must also be given their ordinary meaning, i.e., as they are ordinarily understood in particular art or science, to prove which extrinsic evidence is admissible and usually necessary.'

[23] In *Aktiebolaget Hassle and Another v Triomed (Pty) Ltd* 2003 (1) SA 155 (SCA) at 160B–F this court stated the following:

'While the claim must be construed to ascertain the intention of the inventor as conveyed by the language he has used (*Gentiruco AG v Firestone SA (Pty) Ltd* 1972 (1) SA 589 (A) at 614B–C) what is sought by a purposive construction is to establish what were intended to be the essential elements, or the essence, of the invention, which is not to be found by viewing each word in isolation but rather by viewing them in the context of the invention as a whole. To the extent that it might have been suggested in an obiter dictum in *Nampak Products Ltd and Another v Man-Dirk (Pty) Ltd* 1999 (3) SA 708 (SCA) at 714A that it might be called in aid only to construe an ambiguous claim I do not think that is supported by the decisions of this Court and, in my view, it is not correct. It is merely an approach to construction that is aimed at establishing what was meant in a particular context. As pointed out by Hefer JA in *Fundstrust (Pty) Ltd (in Liquidation) v Van Deventer* 1997 (1) SA 710 (A) at 726H–727B (in a passage that was adopted in relation to the construction of patent specifications in *Monsanto Co v MOB Animal Health (Pty) Ltd (formerly MD Biologics CC)* 2001 (2) SA 887 (SCA) at 892B–C):

"The task of the interpreter is, after all, to ascertain the meaning of a word or expression in the particular context of the statute in which it appears (*Loryan (Pty) Ltd v Solarsh Tea and Coffee (Pty) Ltd* 1984 (3) SA 834 (W) at 846G *ad fin*). As a rule every word or expression must be given its ordinary meaning and in this regard lexical research is useful and at times indispensable. Occasionally, however, it is not."

[24] Essentially, Kusile complains that the claims of the complete specification are unclear. It was pointed out by this court in *Roman Roller CC and another v Speedmark Holdings (Pty) Ltd* 1996 (1) SA 405 (AD), that in determining whether a patent claim stakes its monopoly with a sufficient degree of clarity, the court must view the patent through the eyes of the skilled addressee in the relevant art. Corbett CJ said the following at 419D–H:

'[T]he court must take into account that such addressee is expected to use reasonable skill and intelligence in interpreting the language of the patent. He is not required to struggle unduly with it, but he must make the best of it and not adopt an attitude of studied obtuseness. If words or

expressions in a claim are affected or defined by what is said in the body of the specification, the language of the claims must be construed accordingly. Moreover, uncertainty or ambiguity in a claim may be resolved by what appears in the body of the specification, which may be thus resorted to not only when the language in question has been expressly defined in the body of the specification, but also, in the absence of such definition, where there is material in the body from which the intention of the draftsman can be gathered. Where the words permit it, an interpretation should be adopted which is consistent with the description of the problem to be overcome and the method of doing so described in the body of the specification. Another source of elucidation of apparently unclear language may be the prior art itself. (See generally *Helios Ltd v Letraset Ltd* 1970 BP 495 (T) at 498G-499B, 500B-G, 503B-C, *Letraset Ltd v Helios Ltd* 1972 (3) SA 245 (A) at 249H-251B.)'

[25] Since Kusile's case on infringement and revocation is centred on the inadequacy of the specification in relation to 'rigid material', I consider that the appropriate point of departure. It is necessary at the outset to record that before us the parties were agreed that the word 'rigid' where it appears in the specification was not meant to have a technical meaning. It was contended on behalf of Kusile that the patent does not explain what is meant by 'rigid material'. The agreed integers of the independent claims reflected above, as the cited authorities dictate, have to be read in the context of the specification as a whole. I turn to the relevant part of the specification that is descriptive of the 'rigid material', which Kusile chooses to ignore. It reads as follows:

'[E]ach flexible panel includes at least one profiled, eg corrugated, sheet of a rigid material, with the profile of the sheet rendering it flexible or bendable in one dimension. By "profiled" is meant that the sheet has a plurality of ridges and troughs therein. These ridges and troughs thus impart flexibility to the panel, eg permit it to be rolled up, to facilitate transport thereof. Typically, the sheet is corrugated iron or steel sheet.'

These words, read with the independent claims, clearly mean that the flexible panel typically comprises corrugated sheets usually made of iron or steel. Although what is quoted above does not limit the composition of the invention to corrugated iron or steel, it contemplates corrugated iron or steel as the typical material to be used in the flexible panel. It is common cause that Kusile's alleged infringing barrier is constructed of corrugated iron.

[26] Since it was agreed that the word 'rigid' was meant to have its ordinary meaning, the court below cannot be faulted for its consideration of the dictionary meaning, namely, 'stiff, unyielding, not pliant or flexible'. Of course the qualifications in relation to dictionary definitions of words as expressed by this court in *Monsanto Co v MDB Animal Health (Pty) Ltd (formerly MD Biologics CC)* 2001 (2) SA 887 (SCA) at 892A-G have to be borne in mind. They are, first, that a dictionary meaning of a word serves as a guide and cannot govern the interpretation of a patent specification. Where a word has more than one meaning the dictionary cannot prescribe priorities of meaning. Second, is that even definitions must be read in context. The question remains, what is the meaning applicable in the context of the particular document under consideration.

[27] Integers (f) and (g) of claim 1 envisage a flexible panel including at least one profiled sheet of a 'rigid material' and explain that it is the profile of the sheet that renders it flexible or bendable in one direction. Those integers have to be considered alongside that part of the specification set out in paragraph 26 above in which it is explained that profiling has as a result that the iron or steel sheet has a plurality of ridges and troughs which render it flexible in one direction.

[28] That leads us to Kusile's contention that the specification does not explain how a person skilled in the art would make sense of a flexible panel being derived from a plurality of adjoining sheets of a 'rigid material'. Much store was placed by Kusile on the evidence of Dr Burger. In relation to the sufficiency of a patent specification expert evidence is admissible. A patent specification must be construed with reference to the state of knowledge of those skilled in the art obtaining at the time of the publication of the specification. In *Sappi Fine Papers (Pty) Ltd v ICI Canada Inc* 1992 (3) SA 306 (AD) the following is said:

'[A] patent specification must be construed with reference to the state of knowledge of those skilled in the art; and, according to English authority, the relevant state of knowledge is that obtaining at the time of the publication of the specification (see *Nobel's Explosive Co Ltd v Anderson* [1894] 11 RPC 519 (CA) at 523 lines 9-29; *Marconi's Wireless Telegraph Co Ltd v Mullard Radio Valve Co Ltd* [1924] 41 RPC 323 (HL) at 334 lines 40-2; the *Catnic* case supra at

243 lines 12-18; Terrel on the *Law of Patents* 13th ed at 77 para 4.35). I take this to be the time of filing of the application. This appears to be in accordance with our law. It is not necessary to decide whether, in the case of a convention application, the date of publication should be understood to be the priority date (cf Burrell *South African Patent Law and Practice* 2nd ed at 246 para 5.23).

Accordingly, in order to enable the Court to construe the specification properly, it must be instructed by expert evidence as to the state of the art in the field to which the invention relates as it was at the relevant date (*Gentiruco AG v Firestone SA (Pty) Ltd* 1972 (1) SA 589 (A) at 614E-F). In this way the Court is placed, as far as possible, in the position of the skilled addressee. In this connection, too, the Court should bear in mind that the skilled addressee is someone who is expected to bring reasonable intelligence to bear upon the language of the specification and who, while not required to struggle unduly with it, is to make the best of it and not to adopt an attitude of studied obtuseness (see Holmes JA in *Letraset Ltd v Helios Ltd* 1972 (3) SA 245 (A) at 251A, quoting Colman J in the Court *a quo*).

In the *Catnic* case *supra*, Lord Diplock also stated (at 243 lines 3-5):

“A patent specification should be given a purposive construction rather than a purely literal one derived from applying to it the kind of meticulous verbal analysis in which lawyers are too often tempted by their training to indulge.”

[29] In the ultimate result, it is of course the court’s duty to construe claims and specification and on the merits, to draw inferences from the facts established by evidence.

[30] Dr Burger was a qualified mechanical engineer and had a PhD in design engineering. He was the director of a company which specialised in the design of mining equipment and also for decades, had been involved in consulting in the mining industry. He was unyielding when he testified about how an engineer would understand ‘rigid material’. He was adamant that there was no such thing as a ‘rigid material’. As an example he referred to granite which he explained had a point at which it too would yield and break. Dr Burger insisted that profiling a sheet of iron did not render it flexible in one dimension. Taking the view that there was no such thing as ‘rigid material’, he refused to acknowledge that corrugating a sheet of iron would have the effect of making

it more 'rigid'. Ultimately, he did however accept, albeit reluctantly, that corrugating a flat sheet of iron would have the effect of stiffening it in one direction.

[31] Mr Haven, who had 33 years of experience in mine ventilation and 29 years at coal mines also testified on behalf of Kusile. He accepted that iron sheet material is corrugated to give it strength. He was loath to admit that it provided 'rigidity'. He accepted that corrugated iron sheets can be rolled up in one direction and that, when it was unrolled, it would retain its form. Mr Haven was insistent that a corrugated iron sheet could be bent in two dimensions, namely, parallel to the corrugations and across the corrugations. When asked to demonstrate this in court, Mr Haven could bend it parallel to the corrugations but had considerable difficulty bending it against the corrugations. That difficulty, as recorded in the judgment of the court below, resulted in him cutting himself.

[32] Mr Elliot, the chief executive officer of a coal company and a director of an engineering and equipment manufacturing company, as well as a director of a company consulting in designing mines, testified in support of Mantella's case. He had an engineering degree, decades of experience in the mining industry and vast experience in the construction of ventilation passages in mines. His exposure to different types of coal mining was extensive. At some stage in his life, he was an underground manager. He was also a general manager at mines. As an engineer and someone who had experience in the design, construction and installation of underground barriers or stoppings, he understood the specification to indicate the use of corrugated iron sheets as a component in their construction. He testified that corrugating the iron sheet made it 'rigid' in one direction and flexible in another. He had no difficulty understanding that concept and the specification in this regard.

[33] In my view, the court below was correct in concluding that Mr Haven's difficulty in demonstrating that a corrugated iron sheet is flexible in two dimensions justified the conclusion that corrugated iron is flexible parallel to the corrugations and 'rigid' against them. Dr Burger insisted on interpreting the expression 'rigid material' strictly technically

when it was agreed that it was to be construed according to its ordinary meaning as was done by the court below.

[34] Dr Burger was dogmatic and unpersuasive and I have no difficulty in concluding that Mr Elliot, who had vast practical experience in underground mining, particularly in coal mines, was an impressive witness. He adequately explained how a skilled addressee would understand the patent specification and how it would be put into operation. I understand and accept his explanation that the corrugations in the iron sheet rendered them flexible in one direction and that joining the sheets together did not result in the panels losing their flexibility.

[35] Kusile's defence on infringement centred on the insufficiency of the patent specification on the bases referred to earlier. It was not contended on Kusile's behalf, either in written heads or during oral argument, that beyond that, the court below had erred in its conclusion on Mantella's claim to a 'kit' in terms of claim 31. In my view, the court below was wholly justified in having regard to Mr Haven's concession that there were several component parts to be involved in the installation of the contemplated barrier and that the claim to a kit was justified.

[36] Other than the aforesaid points raised by Kusile in relation to the sufficiency of the patent specification, it was uncontested that Kusile's barriers at the Khutala Colliery, in material respects, resembled the barriers that Mantella sold and installed at mines throughout South Africa in accordance with the patent in suit. The court below therefore rightly held that Mantella had proved infringement.

[37] It is now necessary to describe succinctly and portray graphically, Mantella's barriers and method of construction and installation, based on the specification as it would be understood by an addressee skilled in the art. First, corrugated iron sheets are put through a lock-forming machine which forms a bend in the sheets on both sides which then are hooked or clipped together to form the seam referred to in the specification. This is then placed in a press rolling machine that presses the joints flat to

create an airtight joint. The sheets are joined together in dimensions that depend on the dimensions of the tunnels in the mine requiring the barrier. Because the panels are flexible in one direction, they can then be rolled up in a fashion which, from the photograph that appears in paragraph 39, resembles a roll-up garage door. This makes it easy to transport to and from mines. In the tunnel requiring the barrier, square tubing is used to create a frame ('the support structure') fixed to the tunnel walls and then the rolled up panels are attached to the frame. After the panels are attached to the square tubing frame on all sides, they are then sealed off to form an airtight barrier for an underground ventilation system. It is common cause that the lock forming and press rolling machines used in the production of the barriers are readily commercially available. It is also common cause that seaming and pressing together of ends of sheets of metal are well-established techniques known in engineering circles at the priority date of the patent in suit. The 'elongated support member' to which the panels are attached were, at the priority date, also well known in engineering circles.

[38] The following photograph shows the two ends of a corrugated sheet being seamed:

[SEE PDF FOR IMAGES]

[39] The photograph appearing hereunder shows the rolled up panels being transported.

[SEE PDF FOR IMAGES]

[40] The photograph that appears below is one showing a part of the installed Kusile barrier:

[SEE PDF FOR IMAGES]

[41] It is undisputed that initially, Kusile sourced its own corrugated sheets which were sent to Mantella for seaming where after they would be returned in roll-up form to Kusile for itself to later install. This arrangement changed as Mantella insisted that the entire system be purchased from it. This, it seemed, proved too costly for Kusile which led to the latter sourcing its own material and manufacturing and installing its own barriers and that led, ultimately, to the litigation culminating in the present appeal.

[42] In terms of s 61(1)(c) of the Act a person may apply for the revocation of a patent on the basis that the patent is not patentable under s 25. Under the heading 'Patentable Inventions', s 25(1) provides for patents to be granted for 'any new invention which involves an inventive step and which is capable of being used or applied in trade or industry or agriculture'. Section 26(10) provides that 'an invention shall be deemed to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms, immediately before the priority date of the invention part of the state of the art by virtue only of subsection 6.' The latter subsection reads as follows:

'The state of the art shall comprise all matter (whether a product, a process, information about either, or anything else) which has been made available to the public (whether in the Republic or elsewhere) by written or oral description, by use or in any other way.'

[43] As stated earlier, Kusile's case is that the patent in suit is revocable on the ground of obviousness. As recorded by the court below, novelty in the present dispute was conceded by Kusile. Lack of novelty is commonly referred to as 'anticipation'. It is necessary to have regard briefly, to the distinction between novelty and obviousness. As far back as 1930 this court warned about the necessity of preserving the distinction. In *Veasey v Denver Rock Drill and Machinery Co Ltd* 1930 AD 243 at 281, Stratford JA said the following:

'But it has sometimes been said that the distinction between the two is at times obscure and cannot always be maintained. . . . With great respect to these learned authors, I think that the distinction is both valuable and clear and should not be obscured. . . . In an attack upon the validity of a patent on these two grounds the distinction between them is all important because of the differing nature of the evidence required in the two

cases. Anticipation destroys the claim to novelty, but the prior publication (or prior user) relied upon as an anticipation must be of the identical – or substantially identical – invention claimed. Essence, of course, and not form is what is looked to; essential resemblance may be hidden, and comparison between the two may be difficult in particular cases. But difficulty in application does not destroy the clearness of the principle to be applied. The invention claimed is not new if there has been prior publication of it. But novelty is not destroyed by prior publication of an invention closely resembling that of the patent challenged if the difference between the two, however small, is a real difference. In a defence raising want of novelty the evidence in support of it is directed to establish the identical nature of the prior invention and its prior publication. . . . The defence of want of subject-matter [“obviousness”] requires evidence to establish the prior common knowledge in the art and when that knowledge has been fully appreciated it is for the Court to say whether the plaintiff has taken an inventive step forward. . . . On the issue of subject-matter [“obviousness”] the difference between the plaintiff’s invention and prior common knowledge must be measured and valued. If there is no difference, there is no subject-matter; if there is a difference but it calls for no inventive ingenuity to bring it about, there is also no subject-matter [“obviousness”]; but if there is a real inventive step forward, no matter how small, that is sufficient to give subject-matter to the patent. On the question of novelty there is again comparison, in this case, however, not with prior common knowledge but with prior publication (or public user). And when comparison is made with a prior publication and it is found that the two are not substantially the same, the defence of anticipation fails. It is no support to this defence to say that the difference between the two called for no inventive ingenuity to bring it about; though that enquiry may be relevant to the defence of want of subject-matter.’

See also T D Burrell, *Burrell’s South African Patent and Design Law* 3ed (1999) para 4.12.2.

[44] The enquiry into obviousness involves three questions: first, what the state of the art was immediately before the priority date of the invention in suit; second, whether the invention claimed was a step forward on the state of the art; third, whether in the light of the state of the art, the step was inventive, that is, not obvious. See Burrell *op cit* para 4.8 and *Roman Roller CC* at 414-418.

[45] In *Ensign-Bickford (South Africa) (Pty) Ltd and others v AECI Explosives and Chemicals Ltd* 1999 (1) SA 70 (SCA), Plewman JA 'reformulated' the threefold inquiry as follows:

- '(1) What is the inventive step said to be involved in the patent in suit?
- (2) What was, at the priority date, the state of the art (as statutorily defined) relevant to that step?
- (3) In what respect does the step go beyond, or differ from, that state of the art?
- (4) Having regard to such development or difference, would the taking of the step be obvious to the skilled man?'

[46] In Burrell *op cit* at 166, the learned author points out that the approach followed by Corbett CJ in *Roman Roller CC* and referred to in para 44 above is in fact the skeletal structure adopted by our courts over the years. It is a structure that the learned author favours above the approach in *Ensign-Bickford* and which he follows. I am not persuaded that there is a substantive difference between the two. The approach in *Roman Roller CC* has an appeal because of its simplicity.

[47] Before embarking on the threefold enquiry identified in *Roman Roller CC* it is necessary to record that initially, ventilation barriers in mines, known as brattices or bratticing, were either in the form of walls built from bricks and mortar in a conventional building method to block off passages, or in the form of ventilation curtains made of cloth, nailed to the walls of passages that spanned the passage like a conventional curtain or sail. Brick and mortar type walls required substantial materials which had to be transported from the surface to underground locations. They were also labour intensive. Reusing the materials comprising brick and mortar walls was virtually impossible. Although the cloth barriers were reusable, lightweight and easy to install, they deteriorated over time and were not sufficiently fire resistant. The cloth barriers were susceptible to damage or destruction in a hostile mining environment and were often lost due to theft.

[48] In considering the question of obviousness, which it is the court's duty to determine, the primary evidence is the technical evidence by expert witnesses in

respect of the nature of the step claimed to have been inventive, the state of the art as at the priority date relevant to that step and the respect or respects in which the step goes beyond or differs from that state of the art. See *Schlumberger Logelco Inc v Coflexip SA* 2003 (1) SA 16 (SCA) para 34. Secondary evidence can serve to test the primary evidence and enable a proper evaluation thereof.

The state of the art

[49] It was accepted on behalf of Kusile that the state of the art, immediately before the priority date, is best reflected in the American patent referred to earlier. The patentee was a South African living on the Reef and almost certainly arose from his experience in South African mines. It is important to note at the outset that the invention, as can be seen from the abstract, summary and the claims set out above, was contemplated to be put into operation in vertical shafts to divide them into updraft and downdraft compartments. It is a common characteristic of South African gold mines that access to them and the provision of ventilation occurs by means of such vertical shafts which are something different from the underground passages and stopes we are here concerned with.

[50] In the American patent, horizontal steel buntons are positioned across a vertical shaft with their ends embedded in the concrete peripheral walling. End anchor plates, to which the panels may be bolted, will be imbedded in or bolted to the concrete walling between buntons and the joints will be provided with rubber or other resilient lining. This lining will also be included in the horizontal and vertical edges of adjacent panels to enable the bratticing to extend right across the shaft. The upper and lower ends of the panels will be secured to the buntons. The iron sheets are *welded* in pairs to form the panels.

A step forward?

[51] The inventive step asserted by Mantella is that of engaging seams of adjacent corrugated iron sheets with each other and rolling the seams closed thereby joining them in a substantially airtight fashion before the panel is attached to the support structure between the walls of the underground passage. This results in minimum sheet material overlap at the seams, allows the panels to be rolled up and provides a substantially airtight joint. This improves handling, transportation and installation of the panels and results in significant all-round cost savings.

[52] Having conceded novelty, Kusile found itself in an invidious position evidenced by an initial submission on its behalf that the American patent contained all of the essential features of the patent in suit and subsequently refined into a contention that, whilst the patent in suit did represent a step beyond the state of the art, that step did not involve inventive ingenuity. The court below accepted Dr Burger's explanation that the patent disclosed all the necessary features of the patent in suit, except that it made no reference to 'rigid material'. Makgoka J was persuaded by Dr Burger's testimony that the sheets being joined together in the American patent by virtue of a resilient sealing was no different to the patent in suit having the corrugated iron sheets rolled together to form an airtight joint, because both methods achieved the same result. The court below ignored the following very significant concession made by Dr Burger when he was asked whether, immediately before the priority date, he would have come up with the idea of seaming the edges of the corrugated iron sheets and rolling them to form an airtight joint. Although answering in the affirmative, he said the following:

'M'Lord, purely for the reason that it is a very easy and imaginative way of construction if you want to use that word.'

The word 'imaginative' is defined in the Concise Oxford English Dictionary as:

'[H]aving or showing creativity or inventiveness.'

[53] Soon after Dr Burger's testimony, referred to in the preceding paragraph, he said the following:

'What I will give the inventor a credit and that was it was a creative . . . [indistinct] of existing techniques.'

The missing word is probably 'use' or 'employment'. What the two passages of evidence reveal is a concession of 'creative' use of existing techniques – the very antithesis of obviousness.

[54] Mr Haven testified about a time in the past when he had worked with Mr Elliot and had discussions about problems related to ventilation. One of their principal concerns was the leakage in relation to 'zinc walls'. They struggled to find a suitable method to address the problem. According to Mr Elliot the airtight joints provided by the patent in suit were 'a huge step in the right direction'. The court below ignored the evidence of Dr Burger referred to in the preceding paragraphs as well as the evidence of Mr Haven and Mr Elliot.

[55] Mr Elliot's evidence in relation to the benefits accruing from the patent in suit is significant. First, as illustrated by the photograph of the rolled-up panels, there is a saving in storage and transport costs. A number of barriers can be stored in reduced space and be transported in a single load. The materials are compact, simple, light weight and in a roll form. There is a cost saving in time and labour, as they can be erected in a simple and easy manner. There are cost savings in that virtually all the components of the barrier of the patent are capable of being used multiple times. Substantially airtight joints are obtained in an easy and cost-effective manner without the need to provide other forms of sealing between adjacent sheets. During blasting operations in a mine the barriers in question have some degree of yield to absorb the shock from blast. The panels are relatively fire resistant and are not easily susceptible to the production of toxic fumes. Despite all the effort put into finding a simpler solution to the problems of creating ventilation passages in mines, to which both Mr Elliot and Mr Haven testified, no similar product had been devised by anyone else.

[56] I am persuaded that the patent in suit did disclose a step forward.

An inventive step?

[57] In *Roman Roller CC* Corbett CJ said the following:

'The next and final question in regard to the issue of obviousness is whether the patent involves an inventive step. This must be judged by asking oneself whether, in the light of the state of the art at the time, the step forward taken by the invention would have been obvious to the skilled addressee.'

[58] The priority date of the patent in suit is 17 August 1998. In the almost 30 years that passed between the American patent and the priority date of the patent in suit, in an era of intensive mining in South Africa, no one appears to have thought of the inventive step claimed by Mantella. In *Roman Roller CC* at 418H-I Corbett CJ referred to the evidence of a witness to whom it was put that an invention was obvious, he replied as follows:

'If it was so obvious, why did we have to wait so long before somebody did it? We battled and we had major problems.'

In this regard the words of Sir Donald Nicholls in *Mölnlycke AB and Another v Procter & Gamble Ltd and Others (No 5)* [1994] RPC 49 (CA) at 113 are apposite:

'What with hindsight, seems plain and obvious, often was not so seen at the time. It is for this reason that contemporary events can be of evidential assistance when testing the experts' primary evidence. For instance, many people may have been industriously searching for a solution to the problem for some years without hitting upon the allegedly obvious invention.'

[59] The step forward claimed by the patent in suit is one that is based on a combination of known techniques and, in hindsight, one might rightly marvel at its simplicity. It is common cause that the patent in suit is successfully and extensively employed in mines in this country. In *Roman Roller CC* Corbett CJ stated that simplicity is not an obstacle to a step being recognised as being inventive. He said the following at 417J–418A:

'Experience has shown that a number of simple inventions have constituted patentable subject-matter. Moreover, one must guard against the snare of hindsight, while at the same time not over-compensating for this factor.'

[60] In *Schlumberger Logelco Inc v Coflexip SA* 2003 (1) SA 16 (SCA), this court considered a challenge to a patent on the ground of obviousness. The patent was in relation to an apparatus using at least one hose for the purpose of transferring fluid, particularly oil, between the seabed and the sea surface. As at the priority date, various configurations of the apparatus were known and utilised. The patent in suit in *Schlumberger* married known techniques in a manner held by this court to be inventive. Similarly, in my view, the combination by Mantella of known techniques in relation to the use of corrugated iron sheeting in barriers or stoppings in underground passage-ways involved creative ingenuity. The challenge to the patent on the ground of obviousness must therefore fail. The court below erred in its conclusion on this aspect.

[61] The following order is made:

1. The appeal is upheld with costs, including the costs of two counsel;
2. The order of the court *a quo* is set aside and substituted with the following:
 - (a) The defendant's counterclaim for the revocation of South African Patent Number 98/7391 is dismissed;
 - (b) The defendant is interdicted from infringing South African Patent Number 98/7391 by making, using, exercising, disposing or offering to dispose of, or importing barriers or stoppings, in particular barriers or stoppings in underground passages, a method of erecting such barriers or stoppings in an underground passage, or a kit for erecting a barrier or stopping in an underground passage which fall within the scope of the claims of South African Patent Number 98/7391;
 - (c) An order is issued:
 - (1) directing an enquiry as to the damages suffered by the Plaintiff as a result of the defendant's infringement of South African Patent Number 98/7391 and directing the payment by the defendant to the plaintiff of the amount of damages found to have been so suffered;
 - (2) directing that such enquiry shall take place in accordance with the procedure agreed upon by the parties; and failing such agreement,

authorising either of the parties to make application to the court of the Commissioner of Patents for directions in regard to the enquiry.

- (d) A certificate of contested validity is issued in respect of claims 1, 16 and 31 of South African Patent Number 98/7391 as provided for in section 74 of the Patents Act 57 of 1978.
- (e) The defendant is ordered to pay the costs of the action.'

MS NAVSA

ACTING DEPUTY PRESIDENT

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