

Enercon (India) Limited Vs. Alloys Wobben

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Court : Intellectual Property Appellate Board IPAB

Decided On : Mar-22-2013

Judge : THE HONOURABLE MRS. JUSTICE PRABHA SRIDEVAN, CHAIRMAN & THE HONOURABLE MR. D.P.S. PARMAR TECHNICAL MEMBER (PATENTS)

Appeal No. : ORA/3/2009/PT/CH and Miscellaneous Petition Nos. 4 of 2010, 26 of 2010, 48 of 2010, 44 of 2011, 11 of 2013

Appellant : Enercon (India) Limited

Respondent : Alloys Wobben

Judgement :

Order (No. 54 of 2013)

D.P.S. Parmar, Technical Member:

This is an application for revocation of the patent No.196341 (Invention in short) granted to Alloys Wobben for the invention A Device for transmitting Electrical Energy From a Generator.

2. From the records in Intellectual Property Appellate Board (IPAB), it was observed that this matter was heard by the earlier Board on 5th October, 2010 and orders were reserved. Since the Hon'ble Technical Member Shri Chandrasekaran retired on 2nd December, 2010, decision was not issued. So this case was listed to be heard again. In the meantime, the matter was transferred to the new counsel for the respondents. On completion of all the formalities, the matter was heard on 20.02.2012 to 22.02.2012.

3. Learned counsel Mr. R. Parthasarathy appeared for the applicant and learned counsel Mr. Praveen Anand represented the respondent. Both the counsel, besides arguing the matter at length, has also filed their written submissions on the preliminary issue as well as on merits.

Preliminary objections by respondent

locus standi

4. Mr. Praveen Anand learned counsel for the respondent raised the issue of locus standi and licensee estoppel. So far as the preliminary objection taken by the respondent questioning the locus-standi of the applicant to move the revocation application as a person interested under S.64 of the Patents Act, 1970 is concerned this question has already been decided against the respondent by this Board in the cases between the same parties in ORA/43/2009/PT/CH and others by order dated 16.11.2010. We will call it the First Batch. This application forms part of the Second Batch which had to be heard again. The Board was pleased to hold that the applicant has a known and general interest together with commercial interest by the grant of the patent in question and therefore, they are definitely persons interested. All the revocation applications in the First Batch were allowed and the patents were revoked. The respondent has challenged these orders in the

Honble Madras High Court and the writ petitions are pending. In ORA/6/2009/PT/CH this Board has already decided that the applicant is a person interested. (Para 10)

10. Here, the applicant as an interested person has been enjoying the benefit of the technical know-how of the respondent. There is no denial that the applicant has established an industry on the basis of this. If the licence has been removed or revoked, then, the applicant in the course of business will be prevented from selling the machinery, and the respondent is already suing for infringement. If the applicant succeeds in demolishing the patent in accordance with law, then the infringement suit must fail and the applicants commercial interest will be secured. Therefore, the applicant herein passes the test of Ajay Industrial Corporation case. In any event, the definition of person interested is not restrictive, but inclusive. Therefore, unless it is shown that the challenge to the patent is frivolous and with a view to extract more money from the patent holder, we are bound to examine the patentability of the invention. We are not sure how far the conduct of the party will weigh with us while deciding a revocation petition. Though S. 64 used the words, may be revoked, if the revoking applicant proves obviousness under section 64(1)(f) or that the invention does not involve any inventive step, the IPAB cannot say that it is true that the invention is obvious but since S. 64 gives us the discretion, we will not revoke the patent. That will set the Patent Law on its head. Therefore, the fact that the applicant has not behaved in an unexceptional fashion towards the respondent will not weigh with us if the applicant proves that the invention is not patentable, on the ground that either it is not an invention under S.3 or since the invention is anticipated or that it does not satisfy the definition of S. 2(1)(j) and 2(1)(ja) or if the grounds under S.64 are made out. The patent monopoly is not given lightly. If the applicant has not paid the royalty or has displayed bad faith, the respondent can sue the applicant for compensation elsewhere. On that ground an inventor cannot have an unworthy patent protected. We are therefore satisfied that the applicant has the locus standi to file this revocation application. We are not inclined to differ from the views of the earlier Bench in his regard.

We are adopting this decision as the facts and circumstances of this case are same.

Licensee estoppel

5. The issue of licensee estoppel was also raised in ORA/6/2009/PT/CH. We are not dealing with this issue here as we have already dealt with it in ORA/6/2009/PT/CH and we adopt the same in this case. (para16)

16 ..So we have the Act which says that the conditions which restrict the right of a licensee from challenging the patent are illegal and we have the opinion of the U.S. Supreme Court explaining why a licensee is entitled to invalidate the patent. This restriction imposed by S.140, is another indicator of the public interest angle in patent law. While the law shall protect the rights of the property owner, it will not restrict the rights of the interested person to challenge the grant, so that unworthy patents are restored to the public domain. Because of the costs of the litigation and the very special nuances of the technology, it may very well be that the licensee alone is capable of challenging the patent. He has the funds and the knowledge to launch the attack on the subject matter of the invention. This is why the U.S. Supreme Court held that it would be inequitable to restrict him from attacking the patent by any condition in the contract. The Parliament has specifically introduced this provision in our Patents Act which is a special enactment as far as patents are concerned and hence it will prevail over the general rules relating to contract. Therefore no licensee can be estopped from challenging the patent. This objection is rejected.

Respondents MP for additional documents

6. The respondent has also filed a common Miscellaneous Petition (M.P. No. 11/2013) for reception of additional evidence after this Board had reserved orders and the said MP seeks to introduce about 38 documents which had been produced before the High Court have been produced as additional evidence. The applicant objected to reception of these documents. These 38 documents include pleadings filed in the various proceedings between the parties. As far as we are concerned the Honble Supreme Court had refused to grant any interim relief to the respondent in respect of the orders passed in the writ petitions filed against

the orders of the IPAB in the First Batch. The pleadings filed before the Company Law board or the Honble High Courts will form the basis for the decisions in those proceedings. No document or order has been produced in these additional documents which has a bearing on the issues raised here. Therefore we are not allowing this MP.

7. After the orders were reserved, the learned counsel for the applicant produced the order of the Company Law Board dated 14.12.2012 in C.P.Nos.82 and 83 of 2011 by which C.P.82 of 2011 filed by Enercon GmbH was dismissed and C.P.No.83 of 2011 filed by Enercon (India) Ltd. was ordered.

Miscellaneous Petition No. 44/2011 for amendment

8. The learned counsel for the respondent filed a Miscellaneous Petition No. 44/2011 for amendment of the claims. The learned counsel for the petitioner Shri R. Parthasarathy objected to the amendment in the claims.

9. The learned counsel submitted that in this matter, the pleadings were complete in July 2010 and hence the proposal to amend the specification/claims at this late stage, in October 2011, deserves to be rejected. The Petitioner served an M.P. for amendment on October 01, 2010 i.e. 3 days before the last date of hearing i.e. October 04, 2010 which was not heard because it was filed at such a last stage that it could not be numbered by the registry and did not come on the record of the Bench. In addition the Patentee also annexed a document to their counter statement, way back in February 2010 that was supposed to be an amendment (without a petition).

10. The learned counsel submitted that it may be seen from the above dates and events that there is an inordinate delay in making the present amendment to the specification/claims. The counter statement, which also annexed the first set of amendments, although without due procedure, to the Revocation Petition was filed by the Patentee on 05.02.2010 i.e. almost 19 months prior to the present Miscellaneous Petition for amendment. He submitted that The revocation Petition was heard on 04.10.2010 and 05.10.2010 and orders were reserved by the earlier Bench..

11. The learned counsel submitted that it is also pertinent to note that the Notice for rehearing of all the matters was given in February, 2011 and yet the amendments are being proposed after a delay of 8 months from the date of notice of hearing, especially, when it is admitted that two other sets of amendments had already been proposed. Thus, this delay disentitles the patentee from the exercise of the discretion by the IPAB. The matters were listed on 8th August, 2011 on which date, the Hon'ble IP AB was pleased to fix the date of next hearing as 21.11.2011. Even as per the admission of the Patentee in the present petition, despite the counsel for the patentee receiving the documents in May, 2011, amendments were being proposed in October, 2011, clearly to delay the proceedings and to have the matters adjourned on 21.11.2011.

12. The learned counsel submitted that Section 58 of the Patents Act empowers the Appellate Board to allow the Patentee to amend the complete specification in any proceedings before the Board. Section 58 (1) is discretionary and the discretion may not be exercised in case where the patentee has delayed the moving of application for amending the specification claims.

13. The learned counsel submitted that the reason given in the petition for amendment is that the new counsel got the documents only in February 2011 and hence became aware of the subject matter only then and that he came to the conclusion that the specification needed amendment when their team visited Germany. Such a contention cannot be a reason to allow amendment. The patentee was always aware of his patent and change of counsel cannot be a reason for moving the amendment at this late stage. It appears to be a ploy to delay the hearing.

14. The learned counsel submitted that in fact, the amendments brought forth in the present Petition are not such that would have required the alleged plant visit. It is an old tactic of the Petitioner who has been constantly trying to stall the proceedings and cause delay even when he was represented by the earlier

counsel. In view of the above, it is not open to the Petitioner to move for amendment of specification at this stage.

15. The learned counsel contended that In the complete specifications the respondent had originally claimed the device. Now, more than a year after the experts affidavit was filed before the Tribunal, 3rd set of amendments has been filed on 13.10.2011 for the reason due to new perspective and insight gained as a result of the understanding of the technologies. This has been done after his own expert dealt with second set of amendments filled before the previous Board. At least after his own expert had given his opinion, the respondent should have known that all the features that were claimed as invention were actually disclosed by the US 712 Patent and he had still not taken steps to seek the amendment of the claims from device to system.

16. Without prejudice to the above submission, in any case, it was submitted that the amendments do not satisfy the requirements of Section 58 and 59 of the Act and that the amended claims are also invalid under Section 64 of the Act.

AMENDMENT SOUGHT:

17. The Amendment petition states that the amendments in the specification are to improve consistency in terminology and claim 1 is amended by merging it with claim 2, 11 and 14 to bring out clarity and further explain the inventive step and novelty. Claim1 as amended is given below:

An electrical power transmission system, comprising:

a first rectifier (4) converting a first A.C. voltage produced by a generator (2) into a first D.C. voltage;

a step-up converter (6, 24, 26, 28, 3D) connected downstream of the first rectifier converting the first D.C. voltage into a constant D.C. voltage;

a first inverter (8) connected downstream of the step-up converter converting the constant D.C. voltage into a third A.C. voltage;

a first transformer (10) connected downstream of the first inverter (8) converting the third A.C. voltage into a fourth A.C. voltage;

a second rectifier (12) connected downstream of the first transformer(10) converting the fourth A.C. voltage into a second D.C. voltage;

a D.C. transmission line (14) having its near end connected to the output of the second rectifier (12) and fed with the second D.C. voltage; and

a second inverter (18) connected to the far end of the D.C. transmission line (14) converting the second DC voltage into a second AC voltage;

said second inverter (18', 18'') comprising:

at least one capacitor.(38, 16a, 16b) connected to earth; and

a plurality of partial inverters (18a', 18b', 18a'', 18b'', 18c'',18d''), connected in series and even in number, and having a connection point between a first half (18a', 18a'', 18b'') of said series connected partial inverters and a second half (18b'', 18c'', 18d'') of said partial inverters said connection point being connected to earth potential.

18. Mr. Anand submitted that the petition for amendment of the claims had been filed because of new perspectives and insight gained as a result of the understanding of the technologies. The respondent has

carefully contended that the amendment should not be considered as an admission of the deficiency in the claims. By the amendment, original claims 1, 2, 11 and 13 are merged to form amended claim 1. The term device is replaced by electrical transmission system in all the claims

19. We also sought the opinion of the Controller of Patents relating to the amendment sought by the patentee vide IPAB Order Sheet dated 08/06/2012.

20. On 10th August 2012, the information of the Assistant Controller of Patents and Designs, Chennai was received wherein it was stated that

With reference to the above, the opinion about the amendment of the claims of the Indian Patent No.196341, it is submitted that:

The preamble of the original claims defines a "device for transmitting electrical energy from a generator" whereas in the proposed amendment, the preamble states "an electrical power transmission system". It is found that there is no mentioning of any such system in any part of the description.

Normally a system has more interconnected units whereas the device is a single entity. Thus the system claims will have more features than the device claims. In this case, the proposed electrical power transmission system includes the entire electrical energy transmission installation comprising the wind power installation, transmission line and the public supply network. But the device in the original claims describes only the circuit arrangement for transmitting electrical energy from the generator side. Therefore the system claims seek broader protection and are not supported as such.

Hence the proposed amendments in the claims are not allowable U/S 59 (1) of the Patents Act, 1970.

21. In order to provide fairness and in the interest of justice, both the parties were provided with copy of the Controller's opinion on the amendments vide order dated 28.01.2013 for filing their written notes on the amendment within ten days of the communication of order.

22. In the written note, filed by the counsel for applicant, agreed with Controller's opinion and rejection of amendments as not allowable under section 59 and submitted that since all original granted claims were for a device it cannot now be amended to claim a system which would amount to extending the monopoly.

23. Mr. Anand, learned counsel for respondent, in the written note submitted that the said amendment of the claims is by way of disclaimer, clarification and have resulted in narrowing down of the scope of original claim.

24. The counsel for the respondent submitted that the patent specification refers to an electrical energy transmission installation [page 3 line 11, page 3 line 21 page 5 line 29 etc.] and various elements of this installation has been set out in amended claim 1 and together constitute a system. The amended claim 1 according to the counsel is narrower in scope as claim 1, 2, 12 and 14 (13 in MP) are merged. He also argued that the word comprising is an open ended expression and all additional features of the circuit arrangement as was originally claimed in claim 1.

25. At first we will look at the original claims 1, 2, 12 and 14 which the inventor now seeks to merge into amended claim 1.

1. A device for transmitting electrical energy from a generator (2) producing a first inverter voltage. by way of a d.c. transmission line (14) to an electrical a.c. voltage network having a circuit arrangement comprising a, first rectifier (4), characterized in that a step-up converter (6,24,26,28,30) is connected downstream of the first rectifier and a first inverter (8) is connected downstream of the step-up converter, in that the first rectifier (4) converts the first a.c. voltage produced by the generator (2) into a first d.c. voltage, the step-up converter (6, 24, 26, 28, 30) converts the first d.c. voltage into a constant d.c. voltage, and the first inverter (8) converts the

constant d.c. voltage provided by the step-up converter into a second a.c. voltage.

2. The device, as claimed in claim 1, wherein the second a.c. voltage provided by the first inverter (8) is converted by means of a first transformer (10) into a third a.c. voltage, and connected downstream of the first transformer (10) is a second rectifier (12) which converts the third a.c. voltage into a second d.c. voltage which is fed to the d.c. transmission line (14) and the second rectifier (12) regulates the d.c. voltage fed to the transmission line (14) to give a constant value, so that the current fed to the transmission line (14) is modified as a function of the transmission of electrical power.

12. The device as claimed in anyone of the preceding claims, wherein between the second rectifier (12) and the transmission line (14) and/or between the transmission line (14) and a second inverter (18) connected downstream of the transmission line (14) there is at least one capacitor (38, 16a, 16b) connected earth.

14. The device as claimed in claim 13, wherein the second inverter (18', 18'') is formed from a plurality of part inverters (18a', 18b', 18a'', 18b'', 18c'', 18d''), connected in series and even in number, and a connection point between the first half (18a', 18a'', 18b'') and the second half (18b', 18c'', 18d'') of the part inverters is connected to earth potential M.

26. The inventive step or the invention that is claimed by the respondent is device having a circuit arrangement comprising first rectifier (4) characterized in that a step up converter(6,24,26,28,30) connected to downstream of the first rectifier and first inverter. From the complete specifications, we learn that the invention attains the object of elimination of DC choke by producing 2nd ac voltage. According to the invention, first rectifier converts first ac voltage produced by generator into first dc voltage which is converted into constant voltage by step up converter and the first inverter converts this constant dc voltage into 2nd voltage. This circuit arrangement is claimed as device in claim1.

27. In case the claimed amendment is narrower than the original claim and it brings clarity and explains the inventive step and novelty, we are bound to consider it. However we cannot allow an amendment that does not stand the test of Section 59. If the amendment falls within the scope of the original claim and does not claim anything beyond it, we may consider whether our discretion should be exercised for granting the amendment in lieu of revoking the patent.

28. It is clear both from the pleadings on both sides and the written submissions as well as the expert evidence that what is claimed by the inventor as the Invention, and alleged as being disclosed in the prior art of US712 by the applicant, lies in the circuit arrangement of the claimed device. The US712 discloses rectifier (20), converter, and inverter.

Invention

29. The title of the invention is A DEVICE FOR TRANSMITTING ELECTRICAL ENERGY FROM A GENERATOR The object is to eliminate DC choke. In the statement of invention it is stated that the present invention provides a device for transmitting electrical energy from a generator. The circuit arrangement as claimed in claim 1 has a first rectifier (4) characterised in that it has a step up converter (6,24,26,28,30) which converts first dc voltage into constant dc voltage and first inverter converts the constant dc voltage into 2nd AC voltage. The expert also admits that device as claimed in claim1 ends with the production of 2nd AC voltage.

30. If we read Claim 1 as granted it was for a device with the following features. It is also mentioned in the claim how these features are inter connected to produce second AC voltage.

Preamble

A device for transmitting electrical energy from a generator (2) producing a first inverter voltage by way of a d.c. transmission line (14) to an electrical a.c. voltage network (20) having a circuit arrangement comprising

1. a first rectifier(4) characterised in that
2. a step-up converter (6,24,26,28,30) which is connected downstream of the first rectifier(4)
3. a first inverter (8) which is connected downstream of the step- up converter (6,24,26,28,30)

In working the first rectifier (4) converts the first AC voltage produced by the generator (2) into a first DC voltage. The step-up converter (6,24,26,28,30) converts the first DC voltage into a constant DC voltage and the first inverter (8) converts the constant DC voltage into a second AC voltage.

31. We agree with the applicant and the respondent that outcome of the circuit arrangement as claimed in claim 1 is second AC voltage. This outcome is due to the current converter circuit (4,6,8). This is evident from the preamble which states that A device for transmitting electrical energy from a generator (2) producing a first inverter voltage. The first inverter is numbered as 8. FIG. 2 shows a more detailed circuit diagram of the arrangement of a first rectifier (4), to the input of which the electrical generator(2) of the wind power installation is connected, a DC voltage intermediate circuit (6), a first inverter (8), a filter , a medium-frequency transformer (10) and a second rectifier (12) to the output of which the transmission line(14) is connected; Figure 2 shows the circuitry of energy transmission installation at the generation location. The device as claimed in claim 1 is used at this location for obtaining 2nd AC voltage which is the first inverter voltage referred to in the preamble. The same is also stated in the statement of invention on page 6 of the specification. If we see in description of figure 1 [line 29-33 page 7 to line 1-3] we also find that A medium-frequency transformer 10 is connected between the output of the first inverter 8 and the input of a second rectifier 12. Connected to the output of the second rectifier 12 is the transmission line 14 on which the DC voltage produced by the second rectifier 12 is transmitted over a relatively great distance. Therefore we agree with applicant that the transmission line (14) which is downstream of the first inverter (8) after filter 32 , first transformer 10 and second rectifier 12, cannot be construed as part of the arrangement claimed in Claim 1 which ends at the said first inverter 8 itself.

32. If we see claim 2 we find that the 2nd ac voltage provided by 1st inverter (8) is converted by 1st transformer (10) into 3rd ac voltage. The 2nd rectifier 12 which is connected downstream to 1st transformer (10) converts 3rd ac voltage into 2nd dc voltage which is fed into the transmission line 14 and 2nd rectifier (12) regulates the dc voltage fed to the transmission line (14) to give a constant value, so that the current fed to the transmission line (14) is modified as a function of the transmission of electrical power.

33. For the purpose of understanding let us also see the abstract filed along with the application.

The invention concerns an electrical energy transmission installation for the transmission of electrical energy from a generator(2) producing a first AC voltage by way of a transmission line(14) into an electrical AC voltage network(20), comprising a circuit arrangement (4,6,8,32,10,12) which converts the first AC voltage produced by the generator(2) into a first DC voltage and feeds it into the transmission line(14) , and a first inverter (18) which is connected to the output of the transmission line(14) and converts the first DC voltage into a second AC voltage and feeds it into the AC voltage network(20). The particularity of the invention is that the circuit arrangement (4,6,8,32,10,12) has a current converter circuit (4,6,8) which converts the first AC voltage produced by the generator (2) into a third AC voltage, a first transformer(10) which converts the third AC voltage into a fourth AC voltage, and a first rectifier(12) which converts the fourth AC voltage into the first DC voltage.

Figure 2

34. Claim 1 clearly claimed a device for transmitting electrical energy from a generator 2 producing a first inverter voltage by way of a direct current transmission line (14) to an electrical AC voltage network (20) and the invention actual lies in the circuit arrangement (4,6,8,32,10,12) which has a current converter circuit (4,6,8). The step up converter according claim 1 has (6,24,26,28,30). The specification describe it as the DC

voltage intermediate circuit 6 as the DC voltage intermediate circuit 6 includes a booster which transforms variable dc voltage into a constant dc voltage (fig 2). This booster has a first inductor 24, an IGBT (Insulated Gate Bipolar Transistor) 26, a diode 28 and a second capacitor 30. This is also evident from the specification where it is stated that In the installation according to the invention the high DC voltage which is fed into the transmission line can preferably be kept constant as a base value over the entire power range while the current correspondingly changes linearly as a function of the power to be transmitted, for which purpose the current converter circuit and/or the first rectifier regulates to a constant value the first DC voltage which is produced by it and fed into the transmission line. [line 22-28 page 3]. The inventive advancement according to the claimed device is the provision of the above current converter circuit. That is what has been claimed in claim 1. According to the specification That eliminates the DC chokes which are required in the known high-voltage DC transmission.

35. If we see summary of the US 6437996, we find three aspects of invention are stated viz.,

BRIEF SUMMARY OF THE INVENTION

1. Aspects of the present invention reside in an apparatus for the transmission of electrical energy from a generator which produces a first AC voltage by way of a direct current transmission line to an electrical AC voltage network.

2. Aspects include a circuit arrangement comprising a first rectifier, a booster connected on the output side thereof, and a first inverter which is in turn connected on the output side of the booster.

3. Further aspects include the first rectifier converting the first AC voltage produced by the generator into a first DC voltage, the booster transforming the first DC voltage into a constant DC voltage and the first inverter converting the constant DC voltage made available by the booster into a second AC voltage.

36. In light of this also we find that the circuit arrangement claimed in claim 1 is current converter circuit (4,6,8) which has a booster [which is step up converter (6,24,26,28,30) of claim 1]. The term Apparatus and device are synonyms and interchangeable.

37. The respondent has prayed for merger of claim 1,2,12, and 14. In doing so however he seeks to change the device claims to electrical power transmission system.

38. The respondent has invoked section 58 to seek amendments .We have the negative opinion of the Controller in view of the limitations under section 59. Section 58 allows us to use our discretion to amend if we decide that the patent is invalid. However the limitation under section 59 particularly relating to amendment of claims No amendment of .a complete specification shall be made ..and no amendment of a complete specification shall be allowed ,the effect of which would be that the specification as amended would claim .or that any claim of the specification as amended would not fall within the scope of any claim of the specification before the amendment must be observed in allowing the amendments. In the corresponding US 6437996 patent, we have seen summary of invention speaks of three aspects relating to apparatus. In view of this the device as claimed in claim 1-17 cannot by any stretch of imagination include a electrical power transmission system. The respondent also cannot now claim a electrical power transmission system when in the original claims he claimed a device characterized to produce 2nd AC voltage. Therefore the amendments sought in claims are not allowable under section 59 of the Patents Act, 1970.

39. The other alleged typographical errors are listed in annexure to written submission. These amendments are in the specification from page 2-5 page 13 and page15. This is incorrect. In the corresponding US 6437996 patent no change is there relating the alleged typographic errors. So it is not a case of typographical error, but an intended employment of the word such as and/or [page3 line 26]. Further even after the amendments in page 10 line 20-23 the words and/or are found which clearly proves that it is intended employment of these words. The respondent could have explained the correct reason for the change, we may have considered it.

But he cannot present what is clearly contrary to truth, and hope to receive a favourable order. We are not convinced by the plea of inadvertent error.

40. In *May and Baker Ltds patent (1948) 65 R.P.C. 255*, the Court had to consider whether the amendment of a chemo-therapeutic patent must be allowed. The Court held that if the claims made by the unamended specification are covetous that should in itself be a ground for refusing the amendment as a matter of discretion. In *ORA/14/2009/PT/MUM VRC Continental Ltd Vs Uniroyal And Others dated 24.8.2012*, this Board had relied on *Matbro Ltd. v. Machingan (GB) Ltd. [(1973) RPC 823]* in relation to belated amendments and held that,

a clear distinction between instances where a patentee knows of prior art which he genuinely, and quite properly in the circumstances, thinks is irrelevant, and other instances where, though he learns of or has been warned of objections which are available against his patent as a result of prior art, yet he takes no steps to put his specification right by way of amendment, or still worse, knowingly persists in retaining it in the unamended and suspect form. In the latter cases delay is culpable because potential defendants and the general public are entitled to plan their activities on the assumption that the patentee, though warned, has decided not to amend. If the patentee, by his conduct, lulls the public into a false sense of security he cannot thereafter be allowed to change his mind and ask for amendment, or at any rate without adequate protection being granted to the public.

and refused to allow the amendments. We find this applicable to this case also and refuse to allow the belated amendments.

41. We are also convinced that the amendment of claims as sought by the patentee is beyond the scope of claims as originally granted. We decided to proceed with the matter based on the patent specification on record.

Merits

42. Now we shall deal with the merits of the case. There are 17 claims originally claiming a device and they read as follows:

1. A device for transmitting electrical energy from a generator (2) producing a first inverter voltage. by way of a d.c. transmission line (14) to an electrical a.c. voltage network having a circuit arrangement comprising a, first rectifier (4), characterized in that a step-up converter (6,24,26,28,30) is connected downstream of the first rectifier and a first inverter (8) is connected downstream of the step-up converter, in that the first rectifier (4) converts the first a.c. voltage produced by the generator (2) into a first d.c. voltage, the step-up converter (6, 24, 26,.28, 30) converts the first d.c. voltage into a constant d.c. voltage, and the first inverter (8) converts the constant d.c. voltage provided by the step-up converter into a second a.c. voltage.

2. The device. as claimed in claim 1, wherein the second a.c. voltage provided by the first inverter (8) is converted by means of a first transformer (10) into a third a.c. voltage, and connected downstream of the first transformer (10) is a second rectifier (12) which converts the third a.c. voltage into a second d.c. voltage which is fed to the d.c. transmission line (14) and the second rectifier (12) regulates the d.c. voltage fed to the transmission line (14) to give a constant value, so that the current fed to the transmission line (14) is modified as a function of the transmission of electrical power.

3. The device as claimed in claim 1 or 2, wherein the second a.c. voltage has a frequency which is higher than the frequency of the first a.c. voltage.

4. The device as claimed in anyone of claims 1 to 3, wherein the frequency of the second a.c. voltage is in the range from approximately 500 to 20,000 Hz.

5. The device as claimed in anyone of claims 1 to 4, wherein the circuit arrangement comprising the first

rectifier (4), the step-up converter (6,24,26,28,30) and the first inverter converts the first a.c. voltage into a single phase second a.c. voltage.

6. The device as claimed in at least one of the claims 1 to 5, wherein the first inverter (8) is a single-phase inverter.

7. The device as claimed in anyone of the preceding claims, wherein the second rectifier (12) converts the third a.c. voltage into a second d.c. voltage which is larger than the first d.c. voltage.

8. The device as claimed in anyone of the preceding claims, wherein the second rectifier (12) converts the third a.c. voltage into a second d.c. voltage which is in the range from approximately 10 - 500 kV.

9. The device as claimed in anyone of the preceding claims, wherein the first transformer converts the a.c. voltage into a third a.c. voltage of greater amplitude than that, of the second a.c. voltage.

10. The device as claimed in anyone of the preceding claims, wherein a filter (32) is connected between the first inverter (8) and the first transformer (10).

11. The device as claimed in claim 10, wherein the filter (32) has at least one inductor (34) connected in series and at least one capacitor (36) connected in parallel.

12. The device as claimed in anyone of the preceding claims, wherein between the second rectifier (12) and the transmission line (14) and/or between the transmission line (14) and a second inverter (18) connected downstream of the transmission line (14) there is at least one capacitor (38, 16a, 16b) connected earth.

13. The device as claimed in anyone of the preceding claims, wherein the second inverter (18'; 18'') is formed from a plurality of part inverters (18a', 18b'; 18a'', 18b'', 18c'', 18d'') connected in series.

14. The device as claimed in claim 13, wherein the second inverter (18', 18'') is formed from a plurality of part inverters (18a', 18b', 18a'', 18b'', 18c'', 18d''), connected in series and even in number, and a connection point between the first half (18a', 18a'', 18b') and the second half (18b', 18c'', 18d'') of the part inverters is connected to earth potential M.

15. The device as claimed in anyone of the preceding claims, wherein the second inverter (18', 18'') is connected by way of a second "first" transformer (52', 52'') to the a.c. voltage network (20).

16. The device as claimed in claim 15, wherein the second transformer (52'), (52'') has a plurality of primary winding arrangements (Wp1, Wp2, Wp3, Wp4), coupled inductively in series and corresponding to the number of the part inverters (18a', 18b', 18a'', 18b'', 18c'', 18d''), and a common secondary winding arrangement (Ws), in each case one primary winding arrangement being connected to one part inverter.

17. A device for transmitting electrical energy from a generator substantially as herein described with reference to the accompanying drawings.

Claim interpretation

Respondents arguments

43. Mr. Praveen Anand while explaining the background of the invention through a power point presentation stated that this invention relates to a device for transmitting electrical energy by means of a DC transmission line to an electrical AC voltage network. The features of Claim-1 of the present patent are as follows:

a) Feature F1: a DC transmission line for transmitting electrical energy to an electrical AC voltage network (from the preamble).

b) Feature F2: the electrical energy is generated by an electrical generator.

- c) Feature F3: the 'electrical generator generates a first AC voltage.
- d) Feature F4: a circuit arrangement having a first rectifier.
- e) Feature F5: a step-up converter which is connected downstream of the first rectifier.
- f) Feature F6: a first inverter which is connected downstream of the step- up converter.
- g) Feature F7: the first rectifier converts the first AC voltage produced by the generator into a first DC voltage.
- h) Feature F8: the step-up converter converts the first DC voltage into a constant DC voltage.
- i) Feature F9: the first inverter converts the constant DC voltage into a second AC voltage.

The subsequent claims of the patent further qualify one or of the afore- mentioned features of Claim-I in accordance with different embodiments.

44. The learned counsel for the respondent submitted that claims must be construed as per prevailing practice under Rule 43(1) of EPC. He submitted that , though claim 1 has been worded in a two-part form it must be considered as a whole for determining its scope, in conformity with Rule 43(1) of EPC which provides that: (a) that the preamble shall contain the designation of the subject matter of the invention and those technical features which are necessary for the definition of the claimed subject matter but which in combination form part of the prior art; and (b) the characterizing portion, beginning with the expression "characterized in" or "characterized by", shall specify the technical features for which, in combination with the features stated under sub-paragraph (a), protection is sought.

45. The learned counsel for the respondent submitted that, the scope of a claim includes the features of the preamble as well as the characterized portion of the claim.

46. He relied on (Teschmacher in Singer/Stauder, commentary to the EPC, 5th Ed. 2010 and Article 84, note 31 referring to Technical Board of Appeal 3.5.3, decision T 13/84 OJ EPO 1986, 253) and submitted that the scope of the claim 1 includes both the features mentioned in its preamble as well as the features defined in the characterized portion.

Applicants arguments

47. Mr. Parthasarthy invited our attention to figure 1 of the impugned patent. According to him in view of this figure claim 1 is directed towards a device for transmitting electrical energy from a generator where the said device has a circuit arrangement comprising components till 1st inverter producing 2nd AC. Thus, the main elements of the claimed invention are :

- a) Generator-producing 1st AC
- b) 1st rectifier- rectifying 1st AC into 1st DC
- c) Step-up converter- converting 1st DC into constant DC
- d) 1st inverter- inverting constant DC into 2nd AC

48. The learned counsel submitted that the circuit claimed in Claim 1 ends at the 1st inverter that produces 2nd AC. A reference to Figure 1 of impugned patent shows that the transmission line is downstream of the first inverter (shown by numeral 8) and thus, could not be part of the arrangement claimed in Claim 1 which ends at the said first inverter itself. He argued that 'transmission line' has been used in the preamble of the claim and a bare perusal of the claimed circuit arrangement would indicate that it is not even a part of the claim body. Thus, the claim does not relate to the DC transmission line and the same is not a necessary element of the claim and cannot be considered as part of the claimed features of the invention. With the

above construction of claim I, he took up individual grounds for revocation.

49. The learned counsel for the applicant submitted that that the construction of claim I by the respondent is wrong and that DC transmission is a part of the claimed feature. The Respondent used an animated video presentation to explain the prior art and its own contribution. The contribution of the respondent lay in the step up-converter, whereas other elements were either known or allegedly modified. Thus, the respondent sought to establish that DC transmission is a part of the claim I and has not been shown in the documents cited for anticipation.

50. The learned counsel for the applicant relied on *Catalina Marketing International, v. Coolsavings.com, Inc* decided by United States Court of Appeals, Federal Circuit. (reported as 289 F.3d 801) to highlight the well established principle of claim construction wherein preambles describing the use of an invention generally do not limit the claims because the patentability of apparatus or composition claims depends on the claimed structure, not on the use or purpose of that structure. It is trite to state that the patentability of apparatus claims must be shown in the structure claimed and not merely upon a use, function, or result thereof"). (last para, page 11).

51. The counsel submitted that "for transmitting electrical energy... by way of a DC transmission line..." is only a functional feature and not the structural feature of the claimed invention. In particular the claim language of claims 1 and 25 was highlighted to show that in Claim 1 the words 'located at pre-designated sites such as consumer stores' was only in the preamble whereas in claim 25 it was both in the preamble and body of the claim. It was held that in claim 25 it was a limiting factor and not in claim 1. On this analogy it was submitted that in the present case 'the DC transmission line was not an element of claim whereas it constituted an element in claim 2.

52. In view of the conclusion relating to the scope of claim1 that it does not include transmission line 14 in para anti , We agree with the applicant that since outcome of the device having circuit arrangement as claimed in claim 1 is second AC voltage the scope of the claim1is limited to device for production second ac voltage. This outcome is due to the current converter circuit (4,6,8). The specification describe the DC voltage intermediate circuit 6 and this as The DC intermediate circuit 6 includes a booster which transforms variable dc voltage into a constant dc voltage (fig 2).This booster has a first inductor 24, an IGBT (Insulated Gate Bipolar Transistor) 26 , a diode 28 and a second capacitor 30.

53. If we see claim 2 we find that the 2nd ac voltage provided by 1st inverter (8) is converted by 1st transformer (10) into 3rd ac voltage. The 2nd rectifier which is connected downstream to 1st transformer (10) converts 3rd ac voltage into 2nd dc voltage which is feed into the transmission line 14 and 2nd rectifier (12) regulates the dc voltage fed to the transmission line (14) to give a constant value, so that the current fed to the transmission line (14) is modified as a function of the transmission of electrical power.

54. With this construction of claim 1 and 2 we shall now examine grounds of revocation. The applicant attacked the claimed Invention as being anticipated and that it was obvious and did not involve an inventive step.

Applicants case

Anticipation

55. Several prior art citations were filed but the applicant relied on US patent 5225712 , 5083039, 4855652 and 4019115 in both oral and written submissions.

US 5225712

Mr. Parthasarathy submitted that the title of US 712 is Variable speed wind turbine with reduced power fluctuation and a static VAR mode of operation . It is continuation in part co-pending application of US,039

dated 1st Feb 1991. According to the counsel Figure 1, of US 712 , clearly disclosed a generator 12, rectifier 20, DC link 24, inverter 28. The said components in '712 patent are in the same configuration as the circuit in claim 1, because the DC link 24 is also stabilizing the variable DC from the rectifier 20 (column 8, lines 47 - 62 read with column 22, lines 27 - 30). Thus impugned claim 1 is not new.

US 5083039

The learned counsel submitted a bare perusal of the figs. 1 and 2 of US '039 would indicate that the subject matter is almost similar but for their individual claims. He submitted that both prior art documents disclose a circuit arrangement that performs the same conversions in the same configuration.

According to the applicant, all elements in the claimed invention are present in US039 and US712 therefore, it is anticipated.

US 4855652

US652, titled "Speed Control Apparatus for a brushless Direct Current motor", is dated August 8, 1989. According to the counsel in Figure 1 the '652 Patent shows the prior art invention which has a step-up Chopper Circuit indicated by Item 3 in the said figure. The step-up chopper circuit comprises inductor 31, diode 33, transistor 32 and capacitor 34 (column 3, lines 36-42) which are in an identical configuration with the step-up converter in impugned patent which has an inductor, diode, transistor and a capacitor as shown in figure 2 of the impugned patent . This step-up Chopper circuit of is connected between rectifier and an inverter which is the same configuration as the impugned patent.

US 4019115

US '115 patent dated 19.4.1977, relates to DC transmission from a power station (Column 1 line 5-8). This patent discloses that HVDC is supplied with energy from rectifier stations, 3 phase generators, through transformers .and rectifier bridges (Column 2 lines 31-47). The above disclosure read with figure 1 clearly indicates that the use of power converter circuit between a generator and transmission of High voltage DC has been long known.

Common general knowledge

56. The learned counsel submitted that in view of all the above teachings it is clear that a person having ordinary skill in the art knows as a part of common general knowledge that:

- a. Variable AC can neither be fed into the grid nor is good for transmission by any means.
- b. It is required that variable AC must be converted into stable AC before being used for consumption or transmission
- c. One way to convert and stabilize variable DC is to use step-up converter or step-up chopper circuit which does not let the voltage fall below a certain point
- d. Long distance transmission lines require High Voltage (AC or DC).
- e. DC cannot be transformed using transformer, which is why DC must be converted into AC before being transformed.
- f. AC lines losses due to impedance (inductance, capacitance) is more than DC line losses.
- g. HVDC system of transmission is well known in the art.

Inventive step

57. As regards inventive step, learned counsel referred to the decision in Wind Surfing International Inc. V. Tabur Marine Great Britain Limited [1985 RPC 55] to show how the question of obviousness must be decided. He also referred to 2007 EWHC 2636 (Pat) between the respondent herein and Vestas Celtic Wind Technology Ltd. He also referred to Pozzoli v. BDMO SA [(2007) EWCA Civ 588].

US Patent 4855652 with US712

According to the learned counsel there is no difference between the claimed invention and what is described in fig 1 in US712. He pointed out that the impugned claim 1 does not even relate to HVDC transmission because the circuit arrangement of the claimed device ends at inverter producing 2nd AC voltage. In addition to '712 Patent, the US Patent 4855652, titled "Speed Control Apparatus for a brushless Direct Current motor", dated August 8, 1989, also has to be considered for the purpose of showing the common general knowledge and lack of inventive step. According to the counsel in Figure 1 the '652 Patent shows the prior art invention which has a step-up Chopper Circuit indicated by Item 3 in the said figure. The step-up chopper circuit comprises inductor 31, diode 33, transistor 32 and capacitor 34 (column 3, lines 36-42) which are in an identical configuration with the step-up converter in impugned patent which has an inductor, diode, transistor and a capacitor as shown in figure 2 of the impugned patent. This step-up Chopper circuit is connected between rectifier and an inverter which is the same configuration as the impugned patent.

58. The counsel of the applicant submitted that armed with the knowledge of '712 Patent and '652 Patent the person ordinarily skilled would find the circuit arrangement in claim 1 as granted very obvious. It was submitted that in view of Windsurfing case, considering '712 Patent as the closest prior art, the only difference between the said document and claim 1 was the Step-up converter, which may not be expressly present in '712 Patent. The same was clearly part of common general knowledge as shown in '652 Patent which contains the step up chopper circuit. According to the counsel any person skilled in the art knows the function of a chopper circuit is to stabilize the voltage i.e. it does not let the voltage go below a certain limit. Thus, the skilled person would easily know that a step-up chopper circuit is what was needed at the output of the first rectifier in the impugned patent to stabilize the 1st DC which is variable. Therefore, in view of '712 patent and common general knowledge evident from '652 patent, the granted claim 1 does not involve an inventive step as defined in Section 2 (ja) of the Patents Act and is liable to be revoked.

59. The counsel for the applicant submitted that even if it is assumed that claim 1 includes DC transmission line as an element, it was submitted that in that case also, there cannot be any contribution of the patentee in provision of such a DC transmission system. This is because the patentee himself has acknowledged, at page 23, line 4 onwards, that HVDC transmission lines are known in the art.

60. The learned counsel argued that applying the test of obviousness propounded in the Wind Surfing International case (1985 RPC 59) and also section 2(ja) of the Patents Act 1970, it may be seen that the difference between the existing knowledge and the amended claim 1 is the use of converter as described in fig. 1 of the impugned patent in an HVDC system. The said converter circuit, according to patentee at Page 38, fig.2 is made up of a rectifier, step-up converter, (comprising inductor 24, a transistor 26, diode 28 and capacitor 30), inverter, transformer, and another rectifier.

61. He submitted that it cannot be said with any certainty that the claimed invention in the impugned patent has any technical advance over the existing knowledge. Thus, the very first requirement of Section 2 (ja) of the Patents Act is not met by the impugned Patent. The minor difference, if any, from the existing knowledge is obvious to a person skilled in the art. Therefore, the impugned patent does not involve any inventive step.

62. Learned counsel referred to the Expert evidence which are the affidavits of (i) Mr. MC Mehta, who is an Electrical Engineer with 34 years of experience in power engineering field and (ii) Mr. R Nagaraja, who is an Electrical and electronic Engineer with 22 years of experience in power systems. Learned counsel submitted that both the Experts have concluded that the impugned patent is not novel in view of US712 and lack inventive step in view of US712, US652 and US115. Learned counsel submitted that the Expert evidence filed

by the respondent has failed to address any of the opinion expressed by the above experts.

Respondents reply

Anticipation

63. The learned counsel for respondent submitted that the petitioner has failed to correctly understand the features of the claims of the instant patent and has therefore wrongfully deduced anticipation by the following prior art documents:

a) US 5083039

b) US 5225712

c) US 4855652

d) US 4019115

64. According to counsel it is settled in law that in order to anticipate a patent's claim a single prior publication must reveal all the features of the claim as illustrated in the case law "Farbwerke Höchst Aktiengesellschaft Varmals Meister Lucius and Bruning a Corporation etc. Vs. Unichem Laboratories and Ors." (in Para 15, line 3 to 6) in which it was held that "to anticipate a patent, a prior publication or activity must contain the whole of the invention impugned; i.e., all the features by which the particular claim attacked is limited. In other words, the anticipation must be such as to describe, or be an infringement of the claim attacked. "

US 5083039

The learned counsel for respondent submitted US '039 relates to a variable speed wind turbine with a power converter that supplies constant frequency, high quality power at an adjustable power factor to a utility grid and there is no hint of electrical energy transmitted over a DC transmission line connecting a generator to the public supply network. According to the counsel US '039 merely discloses in "The electricity generated by each generator 16 and 18 is converted from variable frequency AC to fixed frequency AC by power converters that comprise active rectifiers 20 and 22, DC voltage links 24 and 26, inverters 28 and 30, and filters 32 and 34. The outputs of the filters 32 and 34 are combined at a transformer 36, the output of which is supplied to the utility grid." The counsel submitted that US '039 does not provide even a hint of feature F1 and therefore fails to address even the most fundamental aspects of the instant patent. He argued that the DC link 24 and 26 as disclosed in US '039 are simple wires carrying DC output and cannot even remotely be considered to be the equivalent of a "step-up converter" as it completely lacks the definitive features of increasing and regulating the Dc voltage applied at its input. He added that as a result of the lack of feature F5, US '039 also fails to reveal feature F8 which defines the function performed by the step-up converter. Hence according to him as a consequence of its failure in disclosing features F1, F5 and F8 of the instant patent US '039 cannot in any manner be construed to anticipate the instant patent.

US 5225712

The counsel submitted that US '712 is in fact, a continuation-in-part of the previously mentioned US '039 patent by the same inventor and applicant and therefore lacks in exactly the same aspects as US '039 in relation to the instant patent. According to the counsel US '712 relates to a variable speed wind turbine and does not contain any hint of electrical energy transmitted over a DC transmission line present between the generator and the public supply network and in fact relates to a wind power installation which is directly coupled to the power supply grid. Further it does not disclose a "step-up converter" - which by definition is a DC-to-DC converter with a DC output that is higher than its DC input - but merely a DC link" which comprises a +V rail 68 and a -v rail 70 and energy storage 25 (a battery 80) connected between them resulting in an

arrangement using which it is not possible to provide a higher DC voltage at the output than at the input. (column 5, Para 2, line 18 25).The counsel argued that the Petitioner is incorrect in stating that the "generator control" is equivalent to the "step-up converter" since the "generator control" acts on the AC generator and does not in any manner act to increase and regulate the DC voltage from the rectifier. He submitted that as a consequence of its failure in disclosing features F1, a step-up converter F5 and F8 of the instant patent US '712 cannot in any manner be construed to anticipate the instant patent. The counsel submitted that, the Petitioner has in fact put forward mutually-destructive arguments in attempting to establish anticipation by prior arts US '039 and US '712, which are in fact mutually related since US '712 is a continuation-in-part of US '039 and comprises the very same elements with the sole exception of the storage devices of US '039 being replaced by capacitors in US '712, by arguing that feature F5 of the instant patent (namely the "step-up converter") corresponds to the "Generator Control Unit" (76) of the US '039 patent while at the same time arguing that the very same feature F5 corresponds to the "DC Link" (24,26) in the case of the US '712 patent even though the "Generator Control Unit" is present and performs the same function in the US '712 patent as it does in the US '039 patent.

US 4855652

The counsel submitted that this patent relates to speed control apparatus for a brushless direct current motor, a subject which is completely different from the subject of the instant patent, and therefore lacks several of its features. He submitted that US '652 does not provide even a hint of feature F1 and therefore fails to address even the most fundamental aspects of the instant patent. Further this patent fails to disclose any of features F2 and F3 as it bears no relevance to electric generators. According to the counsel even features F4 and F5 are not disclosed as it does not contain a hint of any feature resembling a step-up converter. As a consequence of its failure in disclosing features F4 and F5 it also fails to disclose feature F8 of the instant patent. Since US '052 fails to disclose features F1, F2, F4, F5 and F8 of the instant invention, it cannot in any manner be construed to anticipate the instant patent.

US 4019115

The counsel submitted that this patent relates to a DC transmission system, it deals with aspects of such systems which are completely different from those addressed by the instant invention - namely the issues which pertain to the distribution of power to multiple distributed sub-grids operating at different voltages. For this reason it provides no hint of any solution for the elimination of DC Chokes and lacks all the inventive features of the present invention, including features F4, F5, F6, F7, F8 and F9. therefore the teaching of US '115 does not constitute relevant prior art for anticipation

65. The counsel submitted that in view of the arguments stated above, the petitioners reliance on this ground for revocation u/s 64(1)(e) is not maintainable and ought to be rejected.

Obviousness

Non-Analogous Art

66. The learned counsel for respondent argued that it is well known that in order to be judged patentable, an invention must be new, useful and non-obvious. When considering whether a patent claim is obvious, a trial; of fact will determine the scope and content of the prior art. An inventor is charged with "full knowledge of the prior art in the field of his endeavor and knowledge from those arts reasonably pertinent to his particular problem." Moreover, the "Indian Patent Office Manual" on Page 87 Para 2 describes that "a person skilled in the art is a notional person who is presumed to be a skilled practitioner aware of what was general common knowledge in the relevant art at relevant date'. Consequently, cited references from analogous arts will be considered in determining whether an asserted claim is obvious.

67. The learned counsel for respondent submitted that, US '712 and US '039 do not even remotely relate to DC

Power Transmission systems and consequently do not provide even a hint of any solution for the elimination of DC chokes in such systems.

68. The learned counsel for respondent submitted that, the DC Link of the US '712 and US '039 patent does NOT correspond to feature F4 of the instant invention as it does not increase ("step-up") the DC voltage supplied at its input.

69. The learned counsel for respondent submitted that US '652 relates to Brushless DC Motor controller which does NOT even faintly suggest any relation to a DC Power Transmission system or the issue of elimination of DC Chokes in such systems.

70. The learned counsel for respondent submitted that a Step-up Converter is a well-known feature capable of being used in many diverse applications, and therefore an example of its use in a Brushless DC Motor Controller does NOT in any manner undermine the inventive step involving its use in combination with other features to provide a solution that eliminates DC chokes in DC Power Transmission systems.

71. The learned counsel for respondent submitted that, US '115 relates to a DC transmission system, it deals with aspects of such systems which are completely different from those addressed by the instant invention - namely the issues which pertain to the distribution of power to multiple distributed sub-grids operating at different voltages. For this reason it provides no hint of any solution for the elimination of DC Chokes and lacks all the inventive features of the present invention, including features F4, F5, F6, F7, F8 and F9.

72. The learned counsel for respondent submitted that in view of the arguments stated above, the petitioner's reliance on this ground for revocation u/s 64(1)(f) is not maintainable and ought to be rejected.

Expert evidence

Expert evidence by applicant

73. We shall now turn to the expert evidence given in this case. The affidavit of Mr. .R. Nagaraja (applicant's expert) is to establish that the invention is anticipated by the US712 and US 931 Patent. According to the Expert preamble is not the part of the device.

74. He has compared US 712 and the invention and according to him, there are various parallels and similarities between the prior art and the invention such as, Fig 2 of US 712 DC shows item 20 which is a rectifier which is similar to rectifier as claimed. According to the Expert, the inverter 28 is equal to inverter claimed. The arrangement in Fig 2 is the same. Therefore, according to the Expert, the rectifier will convert variable AC from generator into variable DC. Dc link with inverter control unit makes this variable DC into constant DC which the inverter converts into AC.

75. He also compared the US931 with impugned invention and according to him rectifier (D1 to D4) which is similar to rectifier as claimed. The boosting chopper circuit +control circuit 20 is equal to step up converter. The Self running inverter with transistors Q3 and Q4 = inverter as claimed. Input Ac voltage corresponds to generator; rectification means conversion of AC to DC; the booster circuit with control circuit keeps a constant DC voltage across the capacitors which are part of the booster circuits downstream of the inverter as shown in Fig 3. Therefore ,according to the expert constant DC from booster circuit goes to the inverter for conversion to AC.

Expert evidence by respondent

76. Prof Diedrichs has given expert evidence on behalf of the inventor. Prof. Diedrichs Who holds PhD in Electrical Engineering and he has 19 years of experience of working in the area of wind energy systems, and energy transmission and distribution. This expert has not dealt with claim 1 as granted. He dealt with 10 prior arts viz., D1 to D10.However this witness is silent about the novelty and obviousness of claim 1 as granted. He

has given his evidence in respect of combine claims 1 and 2 [1st Amendment sought with CS]

He explains the invention in detail and stated that solution of claim 1 is

1.3 Solution of claim 1

Claim 1 relates to a device for transmitting electrical energy from a generator (producing a first voltage) via a long distance high DC transmission line to an electrical AC voltage network (supply network). The device comprises a circuit arrangement having a first rectifier, a step-up converter connected downstream of the first rectifier. A first inverter is connected downstream to the step-up inverter. The first rectifier converts the first AC voltage into the first DC voltage. The step-up converter converts the first DC voltage into a constant DC voltage. The first inverter converts the constant DC voltage into a second AC voltage.

Accordingly, the subject matter of claim 1 has the following features:

F1 A device for transmitting electrical energy from an electrical generator producing a first voltage by means of a DC transmission line to an electrical AC voltage network

F2 The device comprising a circuit arrangement having a first rectifier

F3 A step-up converter is connected downstream to the first rectifier

F4 A first inverter is connected downstream to the step-up converter

F5 The first rectifier converts the first AC voltage produced by the generator into a first DC voltage

F6 The step-up converter converts the first DC voltage into a constant DC voltage

F7 The first inverter converts the constant DC voltage into a second AC voltage.

He further added that proposed amendment of claim 1 (a combination of the granted claims 1 and 2) was filed together with the counter statement. Claim 1 now has the following additional features:

F8 The second AC voltage provided by the first inverter is converted by means of a first transformer into a third AC voltage

F9 A second rectifier is connected downstream of the first transformer and converts the third AC voltage into a second DC voltage.

F10 The second DC voltage is fed to the DC transmission line.

F11 The second rectifier regulates the DC voltage fed to the transmission line to give a constant value

F12 This is performed so that the current fed to the transmission line is modified as a function of the transmission of the electrical power.

77. Therefore, the expert evidently accepts the case of the applicant to this extent that claim 1 ends at production of 2nd AC. However, where the expert draws the difference in the prior art is that

US712 relates to a variable speed wind turbine does not contain any hint that a long DC transmission line is present between the generator and the public supply network. In fact, it only describes a wind power installation which is directly coupled to the power supply grid. The generator 16 is coupled to a rectifier 20 for rectifying the AC voltage produced by the generator 16 into DC voltage. The DC voltage is supplied to the DC link 24, 26, which comprises energy storage devices 25, 27. The output of the DC link is supplied to an inverter 28 for producing an AC voltage from the DC voltage. The output of the inverter is coupled to an output transformer and the utility grid via a filter 32 (cf. Fig. 1 and 2).

It should be noted that a step-up converter is by definition a converter with a DC output that is higher than its DC input. Annexure-2 however merely discloses a DC link 24 but not a step-up converter connected downstream to the first rectifier (feature F3). The DC link of Annexure 2 is merely comprised of a +v rail 68 and a -v rail 70. Between the two rails the energy storage 25 (a battery 80) is provided. With such an arrangement it is not possible to provide a higher DC voltage at the output than at the input. Furthermore, Annexure-2 does not show the feature F6, namely that the step-up converter converts the first DC voltage into a constant DC voltage. In fact, it is the inverter control unit 88 which can control the voltage of the DC link 24 (column 22, lines 25-30). In contrast to what the petitioner has stated in para 17, it is not DC voltage link but the inverter control unit which is controlling the value of the DC voltage in order to maintain a desired value. The petitioner of the petition for revocation has not explained in detail why the DC link 24 corresponds to a step-up converter.

78. We find his opinion useful in understanding the invention and constructing the scope of claim 1 as granted. Prof.Dr.-Ing. Volker Diedrichs explained that the claim 1 is for a device which comprises

a circuit arrangement having a first rectifier, a step-up converter connected downstream of the first rectifier. A first inverter is connected downstream to the step-up inverter. The first rectifier converts the first AC voltage into the first DC voltage. The step-up converter converts the first DC voltage into a constant DC voltage. The first inverter converts the constant DC voltage into a second AC voltage.

He further stated that

By means of the device for transmitting electrical energy according to claim 1, the DC voltage, which is fed into the transmission lines, can be kept constant over the entire power range. Only the current will change linearly as a function of the transmitted power. To achieve this, a DC voltage having a constant value is produced.

79. He has not provided any opinion on anticipation and obviousness of the claim 1 as granted. Even his opinion on anticipation and obviousness in relation to proposed amendments dated 05.02.2010 is of no help to us as the respondent has sought further amendments in the claims on 01.10.2010 before the previous Bench. On 27.09.2011 respondent filed MP 44/2011 for seeking amendments in complete specification and further amendments in claims which has being dealt with separately.

80. Now, we come to the evidence of Mr. Harish.C.Mehta on behalf of the applicant. He has also given his evidence in respect of combined claims 1 and 2 [1st Amendment sought with CS] which are not before us now.

81. Dr. Rudolf Teschemacher, who has 42 years of experience of working in the field of patent law gave his opinion on construction of claim as per the European practice under European Patents (EPC) Rule 43 relating to claims where characterizing is used. We do not find it relevant.

Anticipation

Law of anticipation

82. Law of anticipation is explained in para 16-41, Patent Law by P. Narayanan, fourth edition which is reproduced below.

Law of anticipation: To establish anticipation based on what was known before the priority date of the claim it must be shown that in some prior publication there is to be found information about the alleged invention equal for the purposes of practical utility to that given by the patent in suit.

To anticipate a patent, a prior publication or activity must contain the whole of the invention impugned, i.e. all the features by which the particular claim attacked is limited. In other words, the anticipation must be such as to describe, or be, an infringement of the claim attacked.

For a document to anticipate a claim it must contain clear and unmistakable directions to the claimed invention or there must be evidence that carrying out what was suggested in the document inevitably resulted in the claimed invention.

The Prior Art:

83. We find US 5225712 to be the closest relevant prior art. Figure 1 and 2 of US 712 clearly disclose a generator 12, rectifier 20, DC link 24 and inverter 28 [controlled by control unit 88 to supply or observe reactive power (col 22 line 21)]. The inverter control unit 88 can also control the voltage of dc link 24 to maintain it at desirable value. [col 22 line 27-29]. Figure 1 and 2 are reproduced below.

84. These components are in the same configuration as the circuit in claim 1 in view of the fact that DC link 24 also stabilizes the variable DC from rectifier 20 [Col 8 line 47-62 read with Col 22 line 27-30 of US 712]. The switching device 82 of inverter 28 comprises single IGBTs. It is known that wind turbines use AC induction generator which produces electrical power with variable frequency. This variable frequency AC must be converted to a constant frequency. This conversion can be accomplished either directly by a frequency converter or through an intermediate conversion to DC by a rectifier and subsequent inversion to fixed frequency AC by means of inverter. If we see page 4 line 29-31 of the impugned patent we find wind power installation is connected to a current converter circuit (4,6, 8) which has a first rectifier 4, a rectifier intermediate circuit 6 and a first inverter 8. The DC voltage produced by first rectifier 4 is applied to the DC voltage intermediate circuit 6. Further specification discloses that in the installation according to the invention the high DC voltage which is fed into the transmission line can preferably be kept constant as a base value over the entire power range while the current correspondingly changes linearly as a function of the power to be transmitted, for which purpose the current converter circuit and/or the first rectifier regulates to a constant value the first DC voltage which is produced by it and fed into the transmission line. [line 22-28 page 3]. and Keeping the high DC voltage applied to the transmission line 14 constant is implemented by suitable regulation of the booster contained in the DC voltage intermediate circuit 6, first inverter 8 and/or the second rectifier 12. [page 10 line 20-23]. In other words constant DC voltage can also be achieved by first rectifier 4 or second rectifier 12 alone. Therefore, the device claimed in claim 1 as granted is not novel as it is anticipated by US 712.

US 5801931

85. If we compared the US931 with impugned invention and we find rectifier 14 is same as 1st rectifier 4 in impugned patent which converts 1st AC into 1st DC. The booster chopper circuit in US 931 is same as step up converter (6,24,26,28,30) of claim 1 of impugned patent as it also stabilizes variable DC into constant DC.(col.4 line 5-17).The transistor 23-24 are in the same configuration as 1st inverter 8 of impugned patent which converts constant DC into 2nd AC. Rectifier (D1 to D4) which is similar to rectifier as claimed. Therefore the device as claimed in claim 1 is not new. If we see claim 2 which is dependent on claim 1 we find additional features such as transformer 26 is same as transformer 10 in impugned patent as it also transforms 2nd AC from 1st inverter (col.4 line 41-48). Rectifier D6 D7 D8 is same 2nd rectifier 12 of impugned patent which converts AC from transformer to DC and feeds into DC power bus. We find all essential features of claim 1 and 2 present in US 931. Thus US patent anticipates claim 2 read with claim 1. We are inclined to disagree with the contention of the respondent that US931 does not anticipate the invention as claimed in claim 1 and 2 because it does not disclose the generator and also the DC transmission line for the simple reason that claim 1 as worded is wide to cover a device as disclosed in the US931 prior art as we find it does not even relate to HDVC transmission because the circuit arrangement of the claimed device ends at 1st inverter producing 2nd AC.

86. Therefore, we find the device claimed in claim 1 as granted is not novel as it is anticipated by US 712 and device as claimed is anticipated by US,931.

Obviousness

87. As regards inventive step, learned counsel referred to the decision in *Wind Surfing International Inc. V. Tabur Marine Great Britain Limited* [1985 RPC 55] to show how the question of obviousness must be decided. He also referred to 2007 EWHC 2636 (Pat) between the respondent herein and Vestas Celtic Wind Technology Ltd. He also referred to *Pozzoli v. BDMO SA* [(2007) EWCA Civ 588].

88. The learned counsel for respondent submitted that, only pertinent or analogous art can be considered in making a determination of obviousness and art that pertains to an entirely different field would be considered non-analogous and not relevant. He relied on

(a) *MGA Entertainment Vs. Wal-Mart Stores Inc.*, 2010-1290, in the United States Court of Appeals for the Federal Circuit on Page 12, Para 4, lines 1 to 8 and Para 13, Para 1, where it was held that

A reference qualifies as prior art for a determination under 103 when it is analogous to the claimed invention. In *re Clay*, 966 F.2d 65, 658 (Fed. Cir. 1992) "Two separate tests define the scope of analogous art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor's is involved".

(b) *re Bigio*, 381 F. 3d 1320, 1325 (Fed. Cir. 2004). Where it was held

"A reference is reasonably pertinent if it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem".

a) *Clay*, 966 F. 2d at 659. If a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem, and that fact supports use of that reference in an obviousness rejection "

b) and was also supported in *In Re Arnold G. Klein*" 2010-1411, in United States Court of Appeals for the Federal Circuit.

89. The learned counsel for respondent submitted that, prior arts US 4545774, US 438561, US 4959591, US 4855652, and 5801931 are not relevant prior art as they are non-analogous prior art. He contended that where US 4855652 is not related to wind power generation, why the person skilled in art would look at it all.

90. The applicant relied on the combined teaching of US 712 and US652 to prove obviousness.

91. Considering the evidence of the experts of both sides and the reasons given by them, we find Figure 1 of the US 652 Patent disclose the prior art invention which has a step-up Chopper Circuit indicated by numeral 3 in the said figure which is connected between rectifier(2) and an inverter (4). This step-up chopper circuit comprises inductor 31, diode 33, transistor 32 and capacitor 34 (column 3, lines 36-42) which are in an identical configuration with the step-up converter in impugned patent which has an inductor, diode, transistor and a capacitor as shown in figure 2 of the impugned patent. This step-up Chopper circuit of is connected between rectifier and an inverter which is the same configuration as the impugned patent. In abstract it is stated that AC power supply is converted to DC by a rectifier circuit. The DC is stepped up by a step up chopper circuit. It may also be seen that the impugned claim1 as worded does not even relate to HDVC transmission or long distance DC line which is self evident as the circuit arrangement of the claim 1 ends with first inverter (8) producing second ac voltage. Therefore we do not accept the argument of the respondent that US,652 is not analogous prior art and the person skilled in art would not look at it.

92. A patent is normally considered through the eyes of a notional person skilled in the art. This notional person is likely to have a practical interest in the field of invention and he is also known to have common general knowledge which form the stock of knowledge available to those who are engaged in the field of invention. If we see common general knowledge available at the time of invention, we found that it was known to the skilled person that network voltage could be controlled by regulating the flow of real power or

reactive power through the lines of the network. [2007] EWHC 2636 (Pat) para 23] It was known to use step up converter/chopper circuits to improve DC voltage. It was also known to connect this chopper circuit between rectifier and the inverter. When the invention of stepping up DC by chopper circuit is known, it is unlikely that the person in art would not use it. There is no inventive step in using chopper circuit in the DC intermediate current 6 which in fact does the same function of transforming variable DC into a constant DC. Therefore, the circuit arrangement as granted in claim 1 is clearly taught in US 712 and step-up Chopper Circuit is disclosed in US652. In view of combined teaching of US 712 and US 652 we find that claimed invention does not involve an inventive step and it is liable to be revoked under section 64(1)(e).

93. According to section 10 all the claims in a complete specification shall have one (invention) inventive step or group of inventive features linked so as to form a single inventive concept .We find inventive step claimed in claim 1 is obvious in view of US712 and 652, all the subsequent claims being dependent on claim 1 could at the most add only minor variations of feature which would not impart any inventive step into the dependent claims. In other words dependent claims rise or fall with the independent claim 1.

94. Finally we find the claims as originally filed cannot be accepted they are anticipated and obvious and when the conduct of the respondent is one of the reasons for not allowing the amendment, we are inclined to allow the revocation application. Therefore, patent no 196341 is revoked. The ORA/3/2009/PT/CH is allowed. Consequently Miscellaneous Petition Nos. 4/2010, 26/2010, 48/2010 are dismissed. The Miscellaneous Petition No. 44/2011 and 11/2013 are ordered.

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