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D E C I S I O N
of 12 December 1995

Case Number: T 0268/91 - 3.2.2

Application Number: 82306276.5

Publication Number: 0091526

IPC: C22C 38/18

Language of the proceedings: EN

Title of invention:
Iron-Chromium-aluminium alloy and article and method therefor

Patentee:
ALLEGHENY LUDLUM CORPORATION

Opponent:
Sandvik Aktiebolag
Metallgesellschaft AG, Frankfurt/M
General Motors Corporation

Headword:
Iron-chromium-aluminium alloy/ALLEGHENY LUDLUM

Relevant legal provisions:
EPC Art. 54

Keyword:
"Novelty - no; obligation of confidence not established"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0268/91 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 12 December 1995

Appellant: (Proprietor of the patent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 18 January 1991 revoking European patent No. 0 091 526 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: H. Seidenschwarz
Members: R. Lunzer
J. De Preter

Summary of Facts and Submissions

I. European patent No. 91 526 was granted on 12 August 1987 on the basis of application No. 82 306 276.5 filed on 25 November 1982, claiming a priority date of 12 April 1982 based on US Application No. 367 710.

II. Three oppositions were filed on the ground of Article 100(a), alleging lack of novelty (Article 54 EPC), and lack of any inventive step (Article 56 EPC) having regard to a considerable number of documents, out of which the following were regarded as particularly relevant by the Opposition Division:

OI(1) T. Amano et al, High Temperature Oxidation Behaviour of 20Cr 4Al-Fe Alloys with Small additions of Cerium. Trans. JIM 1979 vol. 20 pp. 431-441,

OI(3) Z. Metallkunde, Bd. 57, 1966, pp. 326-331,

OI(5) 8th Int. Cong. on Metallic Corrosion, Mainz, Sept. 1981, pp. 687-691, and

OIII(19) Bernabai et al., La Metallurgia Italiana No. 1 (1979), pp. 22-35.

In addition, the Respondent (Opponent III, hereinafter "GM") relied on the public prior use of the alleged invention having regard the disclosure and delivery of alloys falling within Claim 1 of the patent in suit to itself and to other third parties, the said deliveries having been made before the priority date of the patent in suit and in the absence of any bond of confidence express or implied. In support of that allegation it

filed a series of 17 documents, being letters and other documents exchanged or produced during the relevant period.

III. By its decision given orally on 28 November 1990, and issued in writing on 18 January 1991, the Opposition Division revoked the patent. In the exercise of its discretion under Article 114(2) EPC it excluded an affidavit of James B. Hill, an employee of the Appellant (the patentee, hereinafter "AL") which had been filed only five days before the date fixed for the oral proceedings. As to the alleged prior use, the disclosure and delivery of alloys whose compositions fell within the scope of the claims was not disputed, and the Opposition Division rejected the Appellant's contention that an implied bond of confidence existed. Consequently, the subject-matter of Claim 1 in accordance with a main request and in accordance with an auxiliary request both filed during the opposition procedure lacked novelty. Furthermore, the subject-matter of the said Claims 1 lacked any inventive step having regard to the disclosures of documents OI(1), OI(3) as well as the combined disclosures of documents OIII(19) and OI(5).

IV. An appeal against that decision was filed on 15 March 1991, the appeal fee was paid on the previous day, and the statement of grounds of appeal was filed on 21 May 1991. By its main request filed with a letter of 29 December 1992 the Appellant sought the maintenance of the patent on the basis of Claim 1 which reads as follows:

"1. A hot workable ferritic stainless steel alloy resistant to thermal cyclic oxidation and scaling at elevated temperatures and suitable for forming thereon an adherent textured aluminium oxide surface,

characterized in that the alloy consists of, by weight, 8.0-25.0% chromium, 3.0-8.0% aluminium, and an addition of at least 0.002% and up to 0.05% cerium, lanthanum neodymium and/or praseodymium, a total of all rare earths up to 0.050%, up to 4.0% silicon, 0.1% to 0.5% manganese and normal steelmaking impurities of less than 0.050% carbon, less than 0.050% nitrogen, less that 0.020% oxygen, less than 0.040% phosphorus, less than 0.030% sulfur, less than 0.50% copper, less than 1.0% nickel, the sum of calcium and magnesium less than 0.005%, up to

$$91\left[\left(\frac{\%C}{12}\right) + \left(\frac{\%N}{14}\right) + 0.004\right]\%$$

zirconium to stabilize the alloy, and/or up to

$$93\left[\left(\frac{\%C}{12}\right) + \left(\frac{\%N}{14}\right) + 0.013\right]\%$$

niobium for stabilization and elevated creep strength, and the remainder being iron.

By its auxiliary request the Claim was subject to the further limitation that the upper limit for Cr was reduced from 25.0% to 16.21%.

V. With the statement of grounds of appeal the Appellant included a file containing 56 documents identified sequentially by numbered tabs. They included the 17 documents previously filed by GM, as well as further documents taken from its own files to fill in details concerning the surrounding circumstances of the co-operation between AL and GM in the development of the

alloys. On the basis of these documents it argued in writing and during oral proceedings held on 12 December 1995 that even though there was no explicit agreement on the part of GM to treat the disclosures as secret, such an obligation arose by implication of law having regard to all the surrounding circumstances. Between August 1979 until the priority date of the patent in suit there had been a joint project in which AL and GM cooperated in the development of a metallic support for a catalyst to be used in a motor-car exhaust systems, in the course of which AL provided GM with the alloys for testing in the hope of finding an alloy suitable for the intended purposes.

The appeal was supported by a revised version (dated 14 May 1991) of the affidavit of the above-mentioned James B. Hill. He testified that he had been closely associated with the joint development, and that although there was no explicit agreement to treat the information disclosed as confidential, such arrangements for the joint development of new alloys had regularly been undertaken between the AL and GM in the past, and had resulted in patents being granted to AL without challenge by GM. Such an understanding formed the background to the development of the alloy the subject of the patent in suit, which had been supplied solely to GM on the understanding that the results of the then ongoing alloy development would be treated as confidential, being AL's own proprietary development. A US patent corresponding to that in suit had been issued in November 1983. It was not until the opposition in the EPO in 1988 that GM suggested for the first time that no confidential relationship had existed during the development of these alloys. Therefore the subject-matter of the patent in suit was not made available to the public by use or otherwise because either there was a tacit agreement as to secrecy, or the

circumstances were such that an obligation of secrecy arose from good faith, or a relationship of trust, between the parties.

As to the subject-matter of Claim 1 according to the auxiliary request, this was novel and involved an inventive step since none of the documents OI(1), OI(3) or the alleged prior use disclosed or suggested a hot workable ferritic stainless steel alloy as defined in the precharacterising portion of Claim 1 having an upper limit for Cr of 16.21, which alloys had reduced hardness coupled with increased ductility.

VI. The Respondents argued in their counterstatements, and during the oral proceedings, that the documentation produced by AL, taking into account both what was said in the documents and what was not said, left no room for doubt that in relation to the development of the alloys claimed, there could have been no confidential relationship. Had there been a confidential relationship as alleged, there were numerous occasions on which it could reasonably have been expected that AL would not have acted as in fact it had done, as reflected by the disclosed documents. The subject-matter of the patent in suit therefore was available to the public by means of prior public use before the priority date. The subject-matter of Claim 1 according to the auxiliary request was not new having regard to the disclosure of the letter identified by Tab 16 of the documents filed by AL, or at least did not involve any inventive step having regard to the combined effect of that letter and document OI(1).

VII. The Appellant (patentee) requested that the decision under appeal be set aside, and that the patent be maintained on the basis of its main request, or on the basis of the auxiliary request, both filed with its letter of 29 December 1992. The Respondents (opponents) requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments to Claim 1*

The Appellant has sought to reduce the upper limit for the combined amounts of rare earth metals from 0.06% to 0.05% and the range of Mn content from the original range 0.06 - 1.0%, to 0.1% - 0.5%. As these preferred limits were disclosed in the application as filed, (page 10, line 8, and page 13, lines 16 to 18, as well as Claim 8 of the application as filed, corresponding to page 4, line 16, and page 5, lines 5 to 6, as well as Claim 6 of the patent as granted) and they have the effect of limiting the scope of protection afforded by the claims, they are admissible for the purposes of Articles 123(2) and 123(3) EPC. Likewise there is no objection to the proposed reduced upper limit for Cr in accordance with the auxiliary request which is set at 16.21%, and is based on Heat No. RV8792, having that amount of Cr and to be found in Table 1, both of the application as filed and the patent as granted.

3. *The legal position in relation to prior public use*

There was no dispute between the parties that the relationship between AL and GM was governed by US law, evidence of which in the form of case law and quotations from a text book was provided by AL. An obligation of confidence can arise by operation of law from the disclosure of a trade secret, irrespective of any explicit agreement (Milgrim on Trade Secrets (1991) section 4.03, page 4 to 28). The relationship of supplier-purchaser does not necessarily preclude the existence of an obligation of confidence (Ibid. section 5.03[4], page 5 to 108).

Although the legal position was not in issue, what was contested was whether in the circumstances of the present case such an obligation existed. For an obligation of confidence to exist, the first requirement is that there must be a disclosure regarded at the relevant time by the discloser as being a secret. Looking at the patent in suit, and its acknowledgement of published prior art, the Board finds it plausible that AL may have seen its activities as involving no more than working in a known field of alloy compositions, with the result that, as confirmed by the documents referred to in detail below, it took no active steps of the kind which might have been expected of a party inviting tests to be made on alloys having an unusual and secret composition.

4. *The alleged invention as seen in relation to the prior art*

In the description of the patent in suit there is discussion at page 2, lines 6 to 34 of the known disadvantages of including yttrium to improve high temperature oxidation resistance of the known

iron-chromium-aluminium alloys, while at page 2, lines 49 to 56 reference is made to the inclusion of cerium as an alternative to yttrium in FE-Cr-Al alloys as described in document OI(1). That document discloses examples which include Ce at the levels of 0.01%, 0.04% and 0.37% in iron alloys containing 20% Cr and 4% Al. In the patent in suit at lines 57 to 60 on page 2 of the description reference is also made to document OIII(19) which refers to the inclusion of Mischmetal (an alloy of rare earth metals containing typically more than 50% of Ce) in a Fe-Cr-Al alloy with 1.4% of Al. However, despite that relatively low upper limit for Al, there is in contrast at page 11 of document OIII(19) a specific proposal to increase the Al content. Of the 14 prior art documents listed in the decision under appeal, many are directed to the inclusion of rare earth additions in heat resistant Fe-Cr-Al alloys.

Looking at Claim 1 in suit in the light of that extensive prior art, it is observed that it defines broadly the well known class of heat resistant Fe-Cr-Al alloys, and requires the inclusion of rare earth elements within the specified upper and lower limits. Apart from Mn which has a lower limit of 0.1%, the remaining features which define the composition do no more than set upper limits for other elements which may or may not be present as impurities.

Thus, although the formulae setting the upper limits for Zr and Nb look complicated, the skilled reader would observe that these preferred constituents, which are well known as stabilising elements whose presence counteracts the effects of C and N can be included in proportion to the amounts of C and N present (description of patent in suit page 5, lines 14 to 57).

In the course of these proceedings, AL sought to rely on the essential presence of Mn within the range defined by the amended claims of 0.1 - 0.5%. However, the six alloys identified in Table 2 by the Heat Nos. RV 8945 - 8950 each contains <0.005% Mn, i.e. well below the minimum limit of 0.1% set by Claim 1. These alloys still showed good to moderate performance in the whiskering and wire life tests, which are used in the patent in suit to evaluate these alloys. Hence the lower limit for Mn cannot be seen as a significant or inventive aspect of the present compositions. The patent in suit contains details of the compositions and the performance under test conditions of a total of 97 heats, which serve as Examples or Comparative Examples, but it is not possible for the Board to identify any single feature, or combination of features, which could be regarded as inventive over the very close prior art, such as document OI(1), which actually discloses a composition having 0.04% of Ce, and otherwise has all the composition features of Claim 1, save that not all the impurity levels defined by Claim 1 in suit are disclosed.

For the purposes of the present decision the Board has no need to reach any concluded view as to whether there could be any inventive contribution by the patent in suit over the prior art made up of the above-mentioned published documents. However, the fact that there is very close prior art is a material factor in the Board's evaluation of the issue of whether it is credible that the alloys were delivered as being compositions of a known kind. If AL had informed GM that it was supplying novel or unusual alloys for use in the trials, an obligation of confidence would have been assumed by both parties. Conversely, if at the relevant time there had been a mutual assumption that the alloys were of a known kind, it is likely that the parties would have behaved

as in fact they did; i.e. AL said nothing to the effect that it regarded the alloys as secret, and GM disclosed the alloy compositions to third parties without consulting AL as to its right to do so.

5. *Whether an obligation of confidence existed*

5.1 General Observations

As already indicated, the Board was presented on appeal by AL with a considerable volume of contemporary documentation, from which the parties sought to draw opposite inferences as to the existence of a bond of confidence. No single document is seen as conclusive in one direction or the other.

However, taken as a whole, and also taking into account the views already expressed by the Board above under point 4, in particular in the last paragraph regarding the absence of any indication that the alloys supplied were other than examples of known compositions, it has reached the conclusion that there was no implicit obligation of confidence. That conclusion is based on the whole of the evidence made available to the Board, and in particular on the individual documents which are discussed below.

5.2 The affidavit of James B. Hill

The content of this affidavit is summarised in paragraph V above. As is evident from the contemporary documents, he was a member of the staff of AL who was closely associated with the development of the alloys in association with GM, and his recollections of the circumstances which existed during the collaboration must be treated as having considerable evidentiary weight. Nevertheless, his two affidavits were sworn

respectively in 1990 and 1991, some decade after the events in question. His current belief that an obligation of confidence existed during a cooperation which took place long ago is not enough to tilt the balance against the weight of evidence in the opposite direction to be derived from the contemporary documents.

5.3 The documents provided by AL in the tabbed file

Tab 3
Letter 23 May 1980 AL to GM
An alloy containing 0.02% Ce was sent with the comment that in wire life tests it behaved better than earlier alloys.

Comment
The Board regards it as significant that AL has been unable to produce a single document indicating to GM that AL regarded the alloys being sent for testing as other than alloys of a known kind.

Tab 4
Letter 17 June 1980 AL to GM
It enclosed a signed undertaking by AL to treat as secret for six months a surface treatment process developed by GM.

Tab 8
Internal memo 16 September 1980 of AL
Refers to AL's "proprietary process" for producing thin foil.

Comment
As appears later, and was not disputed, AL had developed a strip making process which it regarded as secret.

Tab 9

Letter 19 September 1980 AL to GM

AL asked GM to sign a secrecy agreement re AL's strip making process prior to a planned meeting.

Tab 11

Letter 3 October 1980 GM to AL

Refusal by GM to sign an agreement in these terms:

"It is AC's position not to sign any agreement. Please understand this meeting is open. You should not discuss **anything** you consider confidential." (emphasis added)

Comment

This is an important document. For AL it was argued that, being concerned solely with a request for secrecy with respect to AL's new process for making strip, it had nothing to do with the ongoing cooperation in developing new alloys. That is accepted by the Board. However, as emerges from the next document, one of the matters actually discussed at the meeting was the alloy compositions. If it had been Al's intention before the meeting that the alloy compositions were to be a topic for discussion, it would have reacted by mentioning that the alloys were also to be discussed at the meeting, and that they were the subject of an existing understanding of secrecy which remained intact. There was no such reaction.

Tab 12

Memo by GM of the meeting on 9 October 1980

One of the topics of that meeting was the Ce containing Fe-Cr-Al alloys, and a composition falling within the claims of the patent in suit is given on the final page.

Comment
It is clear that alloys the subject of the patent in suit were discussed at a meeting declared by GM to be open, and there is no memorandum on the part of either party suggesting that this part of the discussion was regarded by AL as concerning a secret. The Board would not regard this disclosure alone as being decisive, but it is an indication which, with others, has a cumulative effect.

Tab 13
AL's memo of the same meeting
At page 2 reference is made to the potential demand for the alloys, 7.5 m pounds in 1983, and 12 m pounds in 1986, at a selling price suggested by GM of $2.00 to $4.00 per pound, and AL's suspicion that GM might be willing to pay $5.00 to $6.00 per pound. At page 4 there is the following observation:

"4. We were left with the impression that "Aggalloy" is strictly an AL proprietary development for the metal substrate application."

Comment
The scale of potential demand mentioned at page 2 shows that much was at stake from the point of view of AL, with the result that it may have been prepared to take the commercial risk of not being too strident in its demands that the alloys be treated as secret. That is confirmed rather than refuted by the above-quoted observation which is inconsistent with AL having itself clearly represented to GM that the alloys were made in accordance with a new and secret composition.

Tab 19

Letter 13 February 1981 AL to GM

First letter discussing a substantial delivery of "Aggalloy" (the alloys of the patent in suit) in strip form in return for a charge of $21,000 on a "shared cost basis".

Comment

The Board agrees with AL's contention that this was not a sale in the normal sense, but was more in the nature of sharing costs in a joint venture. As such it is neutral on the issue of whether the joint venture was being carried out using secret or known alloys.

Tab 25

Order by GM to AL of 16 April 1981

A five ton ingot, rolled to three different sections, was ordered at a price $21,000. The order was sent on GM's standard form, which included Term 13 set out in Tab 26.

Tab 26

Term 13 of standard conditions of purchase by GM

"13. TECHNICAL INFORMATION DISCLOSED TO THE BUYER: Seller agrees not to assert any claim (other than a claim for patent infringement) with respect to any technical information which Seller shall have disclosed or may hereafter disclose with the goods or services covered by this order."

Comments

(a) AL submitted in its grounds of appeal that it was not clear that paragraph 13 had in fact been used at the relevant time in connection with the purchase order. However, that late introduction of this issue is unconvincing because that fact had

already been admitted by AL before the Opposition Division (page 2 of AL's reply of 13 February 1989 to GM's statement of opposition).

(b) The use by GM of a standard form in connection with a non-standard purchase could be due to a simple error on the part of the purchasing department. It is therefore not regarded by the Board as significant.

(c) Term 13 is interpreted as being a standard term the normal purpose of which is to prevent a supplier asserting against GM that any secret had been disclosed giving rise to an obligation of confidence on GM's part.

(d) If, as contended by AL, an implied obligation of confidence existed, GM's use of this form, without drawing any attention to Term 13, would not have sufficed to destroy that obligation. To do that would have required clear notice given by GM that it intended an existing relationship to be ended.

(e) However, this is another example of a situation in which AL could have reacted by observing that a clause had been included which was inappropriate to the circumstances. That it did not so react is another pointer, albeit a weak one, away from the existence of any clear idea on the part of AL that its alloys were secret.

Tab 38

Letter GM to Crucible Compaction 9 December 1981

Reference is made to inquiries already made about atomising alloys, and at the second page an analysis is disclosed by GM to Crucible which falls within the scope of Claim 1.

Comment
There is no evidence that AL was aware of this disclosure. Hence it could not have complained. The Board cannot exclude the possibility that some bond of confidence with respect to the analysis of alloys sent for atomisation could have existed between GM and Crucible.

Tab 39
Order GM to AL for delivery on 14 December 1981
Five ingots were ordered, of which two were to be sent to Cameron Works, Brighton, Michigan, and three to GM. As is seen from later documents, Cameron prepared powders from these ingots for GM.

Comment
Unlike Tab 38, this was a clear indication to AL that its alloy was to be sent to a third party. At that stage it was to be expected that AL would require a secrecy undertaking from Cameron before delivering, but none was sought, and there is no suggestion on the part of AL that any such agreement already existed with Cameron. This is seen as another pointer away from the existence of an obligation of confidence.

Tab 40
Letter 4 February 1982 GM to Asea Inc.
Invitation to a third party to quote for a "FeCrAl Mischmetal Alloy" containing essentially, Cr 19.5-21.5, Al 4.75-5.52, Ce .01-.02, La .005-.2, and thus an alloy in accordance with the alleged invention. (This was filed before the first instance by GM, and taken from its own the files, as contrasted with most of the other documents which were common to the files of both parties.)

Comment
The fact that the La range of .005 to .2% includes compositions with a La content well above the claimed range is immaterial. As it is described as a "FeCrAl Mischmetal Alloy", the skilled reader would in all probability have interpreted the .2% as being a misprint for an intended .02%, since Mischmetal usually contains a predominance of Ce, whose maximum was 0.02%. Whereas the companies who were asked to atomise ingots so as to provide GM with metals in powder form might have been bound by background agreements as to confidence made in favour of AL or GM or both, no such possibility exists here. This unfettered disclosure by GM to Asea Inc. is a significant pointer away from the existence of any obligation of confidence.

Tab 41
Report by Cameron Powders Systems to GM 9 May 1982
There is a powder analysis covering both size fractions and composition. The composition given is outside the claimed limits, but that was explained as being due to changes in composition during atomising. In any event, the starting material is identified as Heat No. 11563, the final alloy covered by Table 2 of the patent in suit, and an alloy made in accordance with the alleged invention.

Comment
Although dated after the priority date, taken in conjunction with Tab 39 above it is reasonable to infer that Cameron works had access to the alloy and its composition well before the priority date. Hence the comments made in relation to Tab 39 above apply equally here too.

5.4 Conclusion on the issue of confidence

In the light of the comments made above, the Board concludes that AL has failed to prove that GM was bound by an obligation of confidence, with the result that all alloys whose compositions were disclosed by AL to GM before the priority date are to be treated as prior art for the purposes of Articles 54 and 56 EPC.

6. *Alloys actually disclosed*

Numerous alloys were disclosed during the programme of testing. Tab 16 is a letter from AL to GM dated 18 November 1980 which mentions the delivery of samples of Heats Nos. RV-8792 and RV-8793 containing respectively 16.21 and 16.05% Cr, and RV-8794 and RV-8795, containing 20.90 and 21.23% Cr, the remaining elements in all four alloys being within the claimed limits. Reference has already been made to Heat No. 11563 in connection with Tab 41. As these Heats are all included in the patent in suit as Examples of the alleged invention, it follows that their disclosure to GM before the priority date without any obligation of confidence deprives the subject matter of Claim 1, whether according to the main or the auxiliary request, of novelty, and is necessarily fatal to both requests.

7. *conclusion*

As the patent in suit lacks novelty, it fails to meet the requirement of Article 54(1) EPC, and the appeal must therefore be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

S. Fabiani H. Seidenschwarz