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PATENTS ACT 1977

IN THE MATTER OF Patent Application
8923616.0 by Usui Kokusai Sangyo Kaisha Limited

DECISION

In the course of examination of this application the examiner, Mr M J Insley, had objected that the invention claimed in certain of the claims did not involve an inventive step as required by section 1(1)(b) of the Act. The applicant contested the objection, and as a result the matter came before me on 28 April 1993. The applicant was represented by Mr J P Dean and Ms R L White of Withers and Rogers.

The invention is concerned with plating steel with a corrosion resistant coating, and in particular with a coating comprising at least three layers - first a nickel layer of specified thickness, then a zinc-nickel alloy layer, and finally a chromate coating. Tests described in the specification show this combination of layers to be particularly effective at high temperatures. A number of amendments had already been made to the claims to meet previous objections of the examiner, and by the time the matter came before me there were four independent claims, 1 - 4. In addition, Mr Dean asked me to consider two further possible claims, A and B, which he had submitted a few days before the hearing, and another claim C which he submitted at the hearing. These seven claims read as follows:

1. **A steel product with heat resistant, corrosion resistant plating layers, the layers comprising** a 0.2-10 μm thick nickel plating layer on the steel product, a Zn-Ni alloy plating layer on the nickel plating layer and a chromate coating on the Zn-Ni alloy plating layer.

2. **The use of a coating comprising** a 0.2-10 μm thick nickel plating layer, a Zn-Ni alloy plating layer on the nickel plating layer and a chromate coating on the Zn-Ni

alloy plating layer **as a high temperature resistant, corrosion resistant coating on a steel product.**

3. **Coated steel having a coating comprising** a 0.2-10 μm thick nickel plating layer, a Zn-Ni alloy plating layer on the nickel plating layer and a chromate coating on the Zn-Ni alloy plating layer **when used in a corrosive environment at high temperature.**

4. **A steel product with heat-resistant, corrosion-resistant plating layers, the layers comprising a copper coating on the steel product,** a 0.2-10 μm thick nickel plating layer, a Zn-Ni alloy plating layer on the nickel plating layer and a chromate coating on the Zn-Ni alloy plating layer.

A. **A steel product with corrosion resistant plating layers, the layers comprising** a 0.2-10 μm thick nickel plating layer on the steel product, a Zn-Ni alloy plating layer on the nickel plating layer and a chromate coating on the Zn-Ni alloy plating layer **whereby the product exhibits corrosion resistance at high temperatures.**

B. **A process for improving the corrosion resistance of a steel product at high temperatures the process comprising** applying a 0.2-10 μm thick nickel plating layer on the steel product, a Zn-Ni alloy plating layer on the nickel plating layer and a chromate coating on the Zn-Ni alloy plating layer.

C. **A steel product adapted for use in a corrosive environment at high temperature by being coated with a multi-layer coating the coating comprising** a 0.2-10 μm thick nickel plating layer on the steel product, a Zn-Ni alloy plating layer on the nickel plating layer and a chromate coating on the Zn-Ni alloy plating layer.

There is a lot of similarity between these claims, and to make it easier to see the differences between them I have highlighted those differences in bold (ignoring differences due purely to syntax).

The examiner had no objection to claims 3 and 4. As he explained at the hearing, there was nothing in the prior art revealed by his search that would lead the skilled person to recognise that the three-layer coating would be particularly effective at high temperatures or to consider applying a copper layer as well. However, the examiner objected that claims 1 and 2 did not involve an inventive step having regard to the disclosure in GB 2059438 A (THOMAS STEEL) and what was common general knowledge prior to the filing date of the application, as exemplified by:

GB 2113721 A (EBARA-UDYLITE)
US 4746408 (HYNER)
"Metal Finishing Guidebook and Directory 1986" - pages 453-464

and by the following six Derwent abstracts of Japanese patent specifications (the first number quoted in each case being the Derwent Accession Number):

87-173061/25 (JP 62103394 A)
87-075586/11 (JP 62027587 A)
85-162309/27 (JP 60092483 A)
83-836128/49 (JP 58185777 A)
83-32863K/14 (JP 58031096 A)
80-72301C/41 (JP 55110792 A)

The THOMAS STEEL patent specification discloses, in discussion of both the prior art and the invention, the first two layers required by the present claims 1 and 2 - ie a nickel layer with a thickness in the specified range followed by a Zn-Ni alloy layer. It makes no reference to any chromate coating. However, the other citations show that it is well known to provide a chromate coating on plated steel. The "Metal Finishing Guidebook and Directory" establishes this particularly clearly, and also explains why chromate coatings are used. On page 458, for example, it has a table entitled "Common uses of chromate conversion coatings" which lists four such uses: providing extra corrosion resistance, ensuring better adhesion of subsequent paint coats, producing a polished appearance and

producing a coloured appearance. The book also explains that a chromate coating can be provided on a number of different metals. It does not specifically mention chromating Zn-Ni alloy plating layers, but the eight other citations listed above all do. True, EBARA UDYLITE suggests there may have been problems in chromating this particular alloy but it does explain one way of overcoming them, and from the number of other documents disclosing chromate over Zn-Ni alloy I am satisfied that, at least by the priority date of the present application, these problems would not have deterred the skilled person.

It seems to me in the light of these documents that, *prima facie*, adding a chromate coating to what is disclosed in THOMAS STEEL, thus arriving at the three layer coating of the present claims 1 and 2, would have been seen as an obvious option by a person skilled in the art. Mr Dean disagreed, however, arguing that if the technology was so readily available and if it really was all so obvious someone would have done it before. He also stressed that the invention had had significant commercial success in Japan.

Now, I quite agree that the "why has no one done it before" argument can be compelling in some circumstances, but I do not find it compelling here. It must be remembered that an obvious step may not have been taken simply because the need to do so had not arisen. Thus in the present case, it is clear from the cited prior art that applying a chromate coating is an option, not something that is automatically done if feasible. I would expect the skilled person to consider applying this further coating only if the purpose for which he was using the steel warranted the extra cost. If manufacturers using a THOMAS STEEL coating have never added a chromate coating I do not feel one can deduce that this was because it was not obvious to do so. It is quite possible they had never had reason to do so. Moreover, there is evidence that chromating something very close to a THOMAS STEEL coating has been considered before - see Derwent abstract 85-162309/27, which discloses the required three layers though without specifying the thickness of the first layer. Thus in my judgement Mr Dean's first argument must fail, and indeed he conceded this at the hearing when I drew his attention to this particular abstract.

I should perhaps add that after the hearing the applicant filed a letter stating that the Japanese patent specification corresponding to this abstract does not disclose a coated steel product

having the coating of the present invention thereon as an example". This does not alter the position, as it was never suggested that the citation anticipates the present claims.

The "commercial success" argument can also be persuasive in some circumstances, but equally one must remember that the commercial success of a product may have little to do with the fact that it incorporates a given invention - see for example Tetra Molectric v Japan Imports [1976] RPC 547. Thus for the argument to succeed it must at least be clear not only that there has been commercial success but also that it is due to the invention claimed. In the present case, all I have to go on is a statement that one major Japanese car manufacturer has ordered 556,000 pipes embodying the invention and that other Japanese car manufacturers are interested, and in my view this is quite insufficient to displace the strong *prima facie* obviousness argument. With so little information, I cannot even determine whether these orders represent a significant commercial success, let alone whether the success was attributable to the invention.

I find, therefore, that the corrosion resistant three layer coating of claims 1 and 2 is obvious. That, however, does not dispose of the question of whether the invention claimed in these claims is obvious because they each also refer to heat resistance. Does this save the claims, given that recognition of the heat resistance of the three layer coating has already been accepted as inventive in connection with claim 3? This comes down to a question of interpretation.

Claim 1 must, in my view, be construed as no more than a claim to a product capable of resisting heat. Had someone made the product - an action that I have found to be obvious - what they would have made would have been capable of resisting heat, even though they may not have appreciated the fact, and would thus have fallen within the scope of claim 1. Thus the reference to heat resistance does not save this claim.

Claim 2 appears a little different because it is a "use" claim. In correspondence, the Applicant had drawn attention to the decisions of the Enlarged Board of Appeal of the European Patent Office in Friction reducing additive/MOBIL OIL III, G 2/88, OJEPO 4/1990 and Plant growth regulating agent/BAYER, G 6/88, OJEPO 4/1990. These decisions

are very similar, and it is only necessary to consider the first one. Here, the Board allowed a claim to the use of an additive in lubricating oil to achieve one technical effect when the use of the same additive in lubricating oil to produce a different technical effect was already known. They construed the claim as requiring the new technical effect to be attained, and this was crucial to their decision.

It is arguable that this decision is not wholly in line with past practice in the British courts, and thus whilst I must, in view of section 130(7), pay attention to it, I would be a little uneasy about following it without question. Nevertheless, even if this were not the case, I do not think MOBIL would help the present claim 2. In my judgement, claim 2 must be construed as a claim to the use of the coating as a coating capable of resisting high temperature and this does not require the new technical effect - resisting heat - actually to be attained. Had it been worded "The use of a coating comprising ... as a corrosion resistant coating on a steel product at high temperature" it clearly would have been requiring the new technical effect to be attained, but such a claim would be allowable anyway on the same grounds as the present claim 3. As it stands, though, claim 2 does not go any further than claim 1.

Mr Dean also asked me to consider claims A,B and C. I have looked at them carefully, but again feel that each of them, on a proper construction, require no more than the capability of resisting heat. Claim A is merely claiming a product which is capable of resisting heat and does not go beyond claim 1. Claim B is claiming a process for making a product which is capable of resisting heat. In the light of the way Morton J. construed a similar claim in GEC's Application 50 RPC 1 at page 3, line 35, this claim amounts to no more than a claim to a process for applying the three layers. Claim C is in substance identical to claim A because no adaptation is, in fact, necessary to make the product suitable for high temperature use. Thus these claims are obvious for much the same reasons as claims 1 and 2.

In short, therefore, I find that claims 1, 2, A, B and C all fail to meet the requirement of section 1(1)(b) of the Act.

I must now turn briefly to the subordinate claims, which read as follows:

5. A steel product according to claim 1, 3 or 4, in which the Zn-Ni alloy plating layer contains 2-20% nickel.

6. A steel product according to claim 5, in which the Zn-Ni alloy plating layer contains 12-15% nickel.

7. A process for producing a steel product according to claim 1,3 or 4, in which the nickel plating layer is formed by electrolytic deposition of nickel using a Watt bath.

8. A process according to claim 7, in which the Zn-Ni alloy plating layer is formed by electrolytic deposition of Zn-Ni alloy using a chloride bath or sulphate bath.

9. A process according to claim 7 or 8, in which the chromate covering is formed by treatment with a chromate solution or a sulphuric acid dichromate solution.

10. The use according to claim 2, in which the Zn-Ni alloy plating layer contains 2-20% nickel.

11. The use according to claim 10, in which the Zn-Ni alloy plating layer contains 12-15% nickel.

12. A process for producing a coating for the use according to claim 2, in which the nickel plating layer is formed by electrolytic deposition of nickel using a Watt bath.

13. A process according to claim 12, in which the Zn-Ni alloy plating layer is formed by electrolytic deposition of Zn-Ni alloy using a chloride bath or sulphate bath.

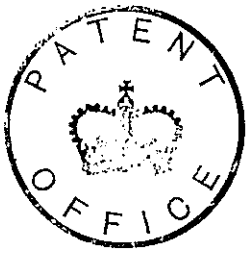
14. A process according to claim 12 or 13, in which the chromate covering is formed by treatment with a chromate solution or a sulphuric acid dichromate solution.

The examiner objected that these claims too were obvious because the features of claims 5 - 8 and 10 - 13 were all disclosed in THOMAS STEEL whilst the chromating method of claims 9 and 14 is conventional. Mr Dean did not dispute this, and accepted that the subordinate claims would stand or fall with claims 1 and 2. I agree with the examiner, and accordingly find that claims 5 - 9, insofar as they are dependent on claim 1, and claims 10 - 14 also fail to meet the requirement of section 1(1)(b).

There are two other matters I must mention. Firstly, the examiner had objected that claims 7 -9 and 12 -14 are unclear, but he withdrew this objection at the hearing and I need say no more about it. Secondly, the Applicant had asked that the Comptroller's discretion be exercised to extend the period prescribed in rule 34 of the Patents Rules 1990 as necessary to allow them to conduct further comparative tests with prior art coatings. They hoped such evidence might help their argument on inventive step. They were particularly concerned to have the opportunity to put such evidence before the Comptroller because, following the comments in Wistar Institute's Application [1983] RPC 260, they felt they might have difficulty introducing it later if they were to appeal. In the event, Mr Dean withdrew the request at the hearing after I suggested that such evidence was unlikely to help because the advantages of a three layer coating were in not dispute, and pointed out that in any case the Comptroller appeared to have no power to consider such an extension until a Form 52/77 had been filed.

Having found that most of the claims do not meet the requirements of the Act, it is proper that I should give the Applicant an opportunity to amend the application to overcome my finding. Since the period during which an appeal may be filed against this decision is six weeks from the date below, and that as a result the time allowed for putting the application in order is extended until the end of that period by virtue of section 20(2), I allow the Applicant the same six week period in which to submit amendments. If no satisfactory amendments are submitted, I shall refuse the application. I would observe, however, that the Applicant would be well advised not to wait right until the very end of the period before submitting amendments so as to allow time for the examiner to consider them and agree any further amendments that may be necessary.

Dated this 12 day of May 1993



P HAYWARD

Principal Examiner, acting for the Comptroller