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Case Number: T 1198/05 - 3.2.03

Application Number: 97919409.9

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Language of the proceedings: EN

Title of invention:
Points for a railway line

Patentee:
Jez Sistemas Ferroviarios, S.l.

Opponent:
VOSSLOH COGIFER (S.A.)

Headword:
-

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step - yes (as granted)"

Decisions cited:
-

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Case Number: T 1198/05 - 3.2.03

D E C I S I O N
of the Technical Board of Appeal 3.2.03
of 7 October 2008

Appellant: (Opponent)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 15 July 2005 rejecting the opposition filed against European patent No. 0838552 pursuant to Article 102(2) EPC.

Composition of the Board:

Chairman: U. Krause
Members: E. Frank
K. Garnett

Summary of Facts and Submissions

I. The appeal lies from the decision of the Opposition Division dated 30 June 2005 and posted on 15 July 2005, to reject the opposition filed against European patent No. 0 838 552 pursuant to Article 102(2) EPC 1973.

II. The Appellant (Opponent) filed a notice of Appeal on 14 September 2005, paying the appeal fee on the same day. The statement of grounds of appeal was submitted on 18 November 2005.

III. A communication pursuant to Article 15(1) RPBA was issued together with a summons to attend oral proceedings, which were duly held on 07 October 2008.

IV. The Appellant requested that the decision under appeal be set aside and that the patent be revoked.

The Respondent (Proprietor) requested that the appeal be dismissed.

V. The wording of claims 1 and 5 reads as follows:

"1. An acute swing nose crossing for railways, which can
be incorporated into a continuous welded rail, comprising a fixed element and a movable element, characterized in that the fixed element(1) consists of a first moulded part (1A) made of cast manganese steel and of a second part made of rails (1B), formed preferably by the union of two rails to said first moulded part (1A), which are appropriate to act as anchoring elements for accessories such as buffer,

hell-block [sic!], ribbed plates and expansion joint (3), in that the movable element (2) consists of a moulded part (2A) made of cast manganese steel and of two rail parts (2B, 2B’) joined to the former, one of said rail parts (2B) being coupled to said rail parts (1B) of said fixed element (1) by means of bolted heel blocks (4A,4B,4C), and joining the other of said rail parts (2B') to the expansion joint (3), and in that it provides means for sliding said movable element (2) inside said fixed element (1), as well as means for coupling the movable element (2) to the right or to the left."

"5. An acute swing nose crossing for railways, which can be incorporated into a continuous welded rail, comprising a fixed element and a movable element, characterized in that the fixed element (1) consists of a first moulded part (1A) made of carbon or low alloy steel and of a second part made of rails (1B), formed preferably by the union of two rails to said first moulded part (1A), which are appropriate to act as anchoring elements for accessories such as buffers, heel-block, ribbed plates and expansion joint (3), in that the movable element (2) consists of a moulded part (2A) made of carbon or low alloy steel and of two rail parts (2B,2B') joined to the former, one of said rail parts (2B) being coupled to said rail parts (1B) of said fixed element (1) by means of bolted heel blocks (4A, 4B, 4C), and joining the other of said rail parts (2B') to the expansion joint (3), in that it provides means for sliding said movable element (2) inside said fixed element (1), as well as means for coupling the movable element (2) to the right or to the left, and in that the rolling surfaces of the moulded parts (1A,2A)

are heat treated and said moulded parts (1A,2A) are joined to the rail parts (1B,2B,2B') and adjacent rails (6) by means of conventional or special welding procedures."

VI. The following evidence submitted by the Appellant, has been considered for the present decision:

Printed prior art:

D2 : US-A-5 366 184
D4 : FR-A-2 640 294
D7 : FR-A-2 142 574

"Document D20", in particular:
D20A : English translation of D20; excerpts of the "turnout standard design collection (3)" of the Japan Railway Civil Engineering Association, published as a revised version on 10 December 1985
D20C1 : enlarged page 49 of D20A, showing a handwritten numbering "1" to "28" and including a translation in English of the table of material depicted at the bottom of the drawings on page 49 and of the text relating to the handwritten numbering "1" to "28".

Prior use "D1/D1A":

in particular:
D1 : Offer No. E0057 of BWG to COGIFER INDUSTRIES, dated 13 April 1994
D1A : Drawing Iow 12.2501

VII. The parties submitted essentially the following arguments:

During the oral proceedings before the Board, the Appellant took the swing nose crossing of document D4 as the closest prior art in respect of the subject-matter of claim 1 of the patent in suit. Thus, claim 1 differed from the disclosure of D4 particularly in that the movable element consisted of a moulded part made of cast manganese steel and two rail parts joined thereto, and that one of these rail parts was joined to an expansion joint. These differences served to improve the impact and wearing resistance of the swing nose crossing's transition zone whilst its movable point could still deform easily. The swing nose crossing of prior use D1/D1A described a movable point consisting of a forged front part and two rear rail parts. Moreover, an expansion joint was shown in the drawing D1A of D1/D1A, which was joined to one of the rear rail parts in order to avoid a non-deformable triangle formed by the forged tip and the two rear ends of the movable point. Cast manganese steel was commonly used in the railway field, as was derivable from the contested patent itself, see e.g. paragraph [0008] of the patent specification. Moreover, the document D7 described a moulded movable point which might be cast from high-grade steel. Since the person skilled in the art thus knew about cast points and also the excellent impact and wear resistance of manganese steel, he would replace the forged front part of the movable point of D1/D1A by cast manganese steel without prejudice, given that the technical field of activity of the skilled person is the railway industry. Moreover, he would

insert such an advantageous movable point together with its expansion joint into the cradle of D4 and thus arrive at the subject-matter of claim 1. As regards claim 5 of the patent in suit, the Appellant argued that the latter differed from nearest prior art D1/D1A in that the fixed element consisted of two parts, namely a first moulded part of carbon or low alloy steel and a second part made of rails, and in that the front part of the movable element was moulded from carbon or low alloy steel. The moulding process simplified the maintenance of the swing nose crossing. Taught by D4, the skilled person would simplify the cradle of D1/D1A, which was made of rails and bolted joints, by a two-part element having a moulded mono-block part and rail parts. Since D4 addressed the advantageous moulding for its cradle, the skilled person would also replace the forged front part of the movable element of D1/D1A by a moulded part and therefore the subject-matter of claim 5 was obvious.

In the written Appeal procedure, the Appellant chose the newly introduced document D20 as closest prior art. The second part of the fixed element "wing-rail 2" did not appear to be indicated in the drawing, but the skilled person knew that it had to be elongated by rails, which were commonly known as the "hare's paw", joined to the cradle of a crossing frog. Moreover, although only one rail was joined to the moulded front part of the movable point "movable rail 1" shown in the drawing of D20, a second rail necessarily had also to be joined to the movable element, since the latter had two end-pieces. Since features such as bolted heel blocks, etc. were also generally known design features, the subject-matter of claim 1 lacked an inventive step

with regard to the disclosure of document D20 and the general technical knowledge of the person skilled in the art. Moreover, claim 1 also lacked an inventive step in the light of documents D20 and D4 (or D6), since D4 already hinted at a two-part cradle comprising a moulded part "élément moulé 3" of cast manganese steel and a part made of rails "pièces en rail 5,5'". In respect of claim 5, D20 again constituted the closest prior art. Claim 5 differed from D20 in that the first moulded part of the respective fixed and movable element was realised by carbon or low alloy steel and that these elements were heat treated. Since these features were derivable from D1/D1A, the subject-matter of claim 5 lacked an inventive step over D20, D1/D1A and the general knowledge of the skilled person. In its grounds of appeal the Appellant also briefly submitted that claims 1 and 5 lacked an inventive step in particular in the light of three combinations, namely D1/D1A with D2, D1/D1A with D7, and D2 with D7.

The Respondent argued that the differences of claim 1 over D4 solved the problem of the maintenance of the swing nose crossing. This is mainly achieved by means of a movable point, which comprises a front part made of cast manganese steel and a rear part made of rails. This combination of two different types of materials was wear resistant (front part) and flexible (rear part). If D1/D1A was taken into consideration, the substitution of the forged front part of its movable point by cast manganese steel was not obvious. First, a forged front part of carbon steel was easier to get on the market than manganese steel. Second, the moulding process of manganese steel caused problems due to its internal defects, which were known in the art, e.g.

segregation of the material. In particular for high speed trains, a high internal quality and soundness was required. Thus, only large fixed elements of a crossing were made of cast manganese steel. Moreover, since manganese steel underwent plastic deformation during the initial passage of trains over the rails, when final hardening took place, the coupling with the fixed part of the crossing was problematic due to the development of burrs. Finally, welding problems also occurred in the joint between the movable manganese steel front part and the rear, flexible rails. Furthermore, D7 gave no clue as to use of manganese steel and describes a pivot joint of the movable point, rather than a welded joint. Thus, D7 could not be used for high speed or heavily loaded trains. As regards the disclosure of D20, the Respondent argued that its crossing could not be incorporated into long welded rails and essentially differed from claim 1 in that there merely a one-part movable element, integrally made of manganese steel, was described. Thus, starting from D4, the documents D1/D1A, D7 and D20 would not necessarily lead to the solution of claim 1 of the contested patent. With respect to claim 5 the Respondent argued that the moulded elements of the crossing were heat-treated carbon or low alloy steel to produce individual properties needed for wear; this was not derivable from the available prior art. In its written reply to the grounds of appeal, the Respondent doubted whether the respective contents of D20 in Japanese and English versions were consistent or that the translation from Japanese to English was actually complete. This could have lead to misleading arguments by the Appellant. If D20 was the starting point, and D4 was taken into account, a skilled person would not be

led to claim 1, since D4 described a movable element made of rails only, with their known disadvantage of poor wear and impact resistance. Moreover, neither the completely moulded movable element of D20, nor the forged carbon steel front part taught in D1/D1A would have led to the cast carbon or low alloy material and its suitable heat treatments as described in claim 5 of the patent in suit.

Reasons for the Decision

1. The appeal complies with the provisions of Articles 106 to 108 EPC and of Rule 99 EPC and is, therefore, admissible.

2. *State of the art*
(Article 54(2) EPC)

The Opposition Division found the prior use of the swing nose crossing as specified in documents D1/D1A to form state of the art in the sense of Article 54(2) EPC; moreover, the Respondent did not dispute this fact in the Appeal procedure. The Board also has no reason to doubt its public availability, and therefore regards D1/D1A as prior art under Article 54(2) EPC.

Furthermore, the Appellant submitted the documents D20, describing the "turnout standard design collection (3)" of the Japan Railway Civil Engineering Association. Since the Respondent did not dispute that D20 had been published prior to the priority date of the contested patent, and the publication date of D20 is also clearly indicated on the last page of D20A as the 10th of

December 1985, the Board concludes that D20 also forms state of the art according to Article 54(2) EPC. The Respondent remarked that it was not sure that the contents of the documents D20 in the Japanese and English language version were consistent. However, it did not submit any evidence supporting a translation deviating from the Japanese original. The Board did not object under Article 12(4) RPBA to admission of these documents, though late-filed, into the proceedings because they disclose the use of manganese steel for a movable element of a crossing for railways.

3. *Novelty*
(Article 100a) EPC, see Article 54 EPC)

Since the opposition is not based on lack of novelty, this opposition ground was not open to decision by the Board.

4. *Inventive step*
(Article 100a) EPC, see Article 56 EPC)

4.1 Claim 1

4.1.1 During the oral proceedings before the Board, document D4, which concerns an acute swing nose crossing for railways, was considered as closest prior art. Following from figure 1 and the corresponding description on page 1, lines 1 to 4 and page 4, lines 17 to 29 of D4 this crossing is incorporated into a continuous welded rail by welding. A first moulded part "élément moulé 3" made of cast manganese steel (cf. D4; page 7, lines 27 to 29; figure 1) and a second part made of carbon steel rails "pièces 5 et 5'" (cf.

D4; page 7, lines 4 to 7 and 29 to 30; figure 1) form the cradle, i.e. the fixed element, of the crossing frog, whilst the movable element of the frog is formed by a movable point "pointe mobile 1" entirely made of carbon steel rails (cf. D4; page 4, lines 27 to 29 and page 7, lines 29 to 30; figure 1). The movable element "pointe mobile 1" is coupled to both of the second parts of the fixed element "pièces 5 and 5'" by means of heel blocks "entretoises d' encastrement 8", which are preferably glued to the respective rails (cf. D4; page 5, lines 1 to 8; figure 1). Means for sliding the movable element "pointe mobile 1" inside the fixed element "élément moulé 3 - pièces 5,5'", as well as means for coupling the movable element "pointe mobile 1" to the right or to the left, are mandatory design features and, therefore, considered to be implicitly disclosed in document D4. Thus, the subject-matter of claim 1 of the contested patent differs from the disclosure of document D4 in that

- the movable element consists of a moulded part made of cast manganese steel and two rail parts joined to the former

- the heel blocks are fixed by means of bolts

- one of the rail parts (of the movable element) is joined to an expansion joint

The Appellant argued that the underlying problem to be solved by these differences was firstly to improve the impact and wear resistance of the transition zone between the fixed and movable elements of the swing nose crossing. Moreover, the movable element of D4

should be enabled to deform easier, since its "hare's paw", formed by two flexible rail parts and fixedly coupled by heel blocks, constituted a non-deformable triangle. The prior art D1/D1A already described a movable point of a swing nose crossing, which consisted of two parts, namely a forged front part and a rear part made of two rails. Furthermore, document D7 described a movable point which may be cast from high-grade steel, and also the use of cast manganese steel was generally known in the railway field; this was derivable in particular from paragraph [0008] of the present patent in suit. Thus, since the skilled person knew about movable points made of cast steel and also about the material properties of cast manganese steel as regards its advantageous impact and wear resistance, he would readily replace the forged front part of the movable point of D1/D1A by cast manganese steel. Therefore, he would envisage the cradle of D4 with a movable point having a cast manganese front and two rear rails joined thereto. Since D1/D1A also showed an expansion joint linked to one of the rear rails of the movable point, the skilled person would also implement that feature in D4. Finally, the bolting of heel blocks was a generally known design feature, e.g. as was shown in figure D1A of D1/D1A. The subject-matter of claim 1 of the contested patent therefore did not involve an inventive step in respect of prior art D4, D1/D1A, and D7, and the general knowledge of the person skilled in the art.

These arguments, however, cannot be accepted by the Board. In the Board's view, and also in accordance with the arguments brought forward by the Respondent, the remaining features of claim 1 over the disclosure of D4

essentially serve to reduce the maintenance work of the swing nose crossing. To this end, the present invention provides for the movable point a favourable combination of material properties, namely a front part made of cast manganese steel and a rear part made of rails. Thus, advantage can be taken of the excellent impact and wear characteristics of moulded austenitic manganese steel which is unable to withstand large deformations, and the lateral flexibility of carbon steel rails. The joining of one of the (rear) rails of the movable element to an expansion joint allows an appropriate lateral movement and therefore is considered to contribute to a better durability and thus also to less maintenance for the crossing. The bolting of heel blocks, however, apparently does not serve to solve the above problem. Bolted heel blocks as described by claim 1 are known in the art for maintaining the rails' position against longitudinal forces (see, e.g. D1/D1A, drawing D1A: section "H-H"), as was argued by the Appellant and also submitted by the Respondent.

4.1.2 The prior art D1/D1A discloses a frog for high speed crossings (cf. D1, coversheet: "... für Hochgeschwindigkeitsweichen") having an acute swing nose. The fixed element of the crossing frog consists of assembled rails ("zwei Flügelschienen ... UIC 60"), and the movable element ("federnd beweglicher Herzstück-Mittelblock"), on the one hand, consists of an acute forged block of carbon steel ("einteiliger homogen geschmiedeter Spitzenblock") and on the other of two rail parts ("abbrennstumpf angeschweißte zwei Anschlußschienen UIC 60") joined to the former (cf. D1: "Teil B" on page 4 and 5; cf. D1A: drawing). D1

describes on page 5 that the entire transition rolling area ("Radüberlaufbereich") of the fixed element ("der beiden Flügelschienen") and of the movable element ("des beweglichen Mittelblocks") is heat treated ("feinperlitische Vergütung"). Thus, both the cradle of D1 and its movable point have improved wear properties due to heat hardening in its rolling areas. Moreover, during the oral proceedings, the parties agreed that an expansion joint is shown in the drawing of D1A (cf. ground view and corresponding sections "H-H","E-E") which is joined to one of the rail parts of the movable element.

The Appellant argued that eliminating the wear resistant cradle of D1/D1A, which consists of partly heat hardened rails joined by various brackets and bolted to a plate assembly, and replacing it by the cast mono-block housing of D4 enabled the swing nose crossing to be more easily maintained due to the simplified design. Thus, merely the movable point ("pointe mobile 1") of the crossing structure of D4 had to be replaced in turn solely by the movable element ("federnd beweglicher Herzstück-Mittelblock") of the swing nose crossing of D1/D1A, if also a better wear behaviour of the movable part of D4 was envisaged to improve the overall maintenance properties of the crossing. The movable element of D1/D1A offers better durability due to its forged heat treated element made of carbon steel.

However, it is generally known in the art that the entire frog unit of a swing nose crossing, and thus both the movable point and its associated cradle, which are incorporated into continuous welded rails, are

subjected to considerable loads during use, e.g. high compression and traction forces engendered by variations of temperature in these long welded rails (cf., e.g., D2; column 1, lines 20 to 25). Moreover, the specification of the contested patent (cf. column 2, paragraph [0010]) points out that a perfect coupling between the tongue and the housing of swing nose crossings has to be assured to prevent any mismatching phenomena between both elements which might damage the tongue when the train is passing or even cause its derailment. In the view of the Board it therefore appears that the skilled person would consider the movable point (i.e. the tongue) and its respective cradle (i.e. the housing) as features both essential to the design of a swing nose crossing, since they serve, as a unit in combination, for the proper functioning of the latter. This is also derivable from D1/D1A under "Teil B" point 1 ("Herzstück bestehend aus") first two paragraphs on top of page 5, where a frame of the cradle, formed by two rails and a plate assembly ("Flügelschienen-Rahmen, bestehend aus den beiden Flügelschienen und einem Satz Spezial-Rahmenunterlagsplatten") is described. That particular frame enables the longitudinal rail forces to be passed around the movable point of D1/D1A, which is, therefore, not subject to tensions.

Thus, starting from D4, it does not appear to be obvious for the person skilled in the art to consider the advantageous wear resistant movable point of D1/D1A without its associated (and also wear resistant) cradle.

4.1.3 Moreover, the question arises as to whether there would be any incentive for the skilled person to foresee yet another step, namely to replace the forged heat treated front part of the movable element made of carbon steel of D1/D1A by a moulded part made of cast manganese steel.

As regards the making of particularly the two-part movable point of the contested patent, the Respondent argued that manganese steel could not resist deformation or lateral stress, which inevitably resulted in material fatigue. Thus, both for a cradle and a movable point of a swing nose crossing, only large one-part elements had been used so far. Moreover, the connection between a movable moulded manganese front part and flexible rear rails caused welding problems. As regards the material quality of such a moulded movable front part, no internal defects were allowable for high speed crossings. The poor reputation of cast manganese steel was well known in the art; e.g., the problem of material segregation had to be overcome to comply with the required soundness. Furthermore, as was also described in the contested patent (cf. paragraph [0009] and [0010]), manganese steel, when used for a crossing, plastically deforms on the passage of train wheels. Thus, a surface hardening due to the cold deformation takes place, and as a result, lips or burrs at the edges of the rolling table lead to disadvantageous maintenance work, since a perfect coupling between the tongue (i.e. the movable element) and the housing (i.e. the fixed element) is obligatory for swing nose crossings. The Board notes that the patent in suit (cf. paragraph [0016]) envisages in a preferred embodiment using explosive

impact-hardening of the manganese steel to overcome this problem.

Moreover, the Board agrees with the Respondent in that D7 concerns a swing nose crossing having a one-part pivot point which is merely cast from high-grade steel ("acier noble"). Contrary to the Appellant's view, the disclosure of document D7 (cf. page 3, line 3) therefore leads away from both a two-part movable element and the use of cast manganese steel. The document D20 was no longer addressed by the Appellant during the oral proceedings before the Board. However, even if the remote swing nose crossing assembly of D20 (cf. D20C1; figure, table of material: "No. 1 - Movable Rail - High manganese steel") was taken into consideration, it could merely prompt the skilled person to foresee a pivotable point made of a large single part of cast manganese steel. Thus, D20 is also not considered to be relevant and it is, therefore, immaterial whether or not the translation D20A is consistent with the Japanese original or whether, as also suggested by the Respondent, some details of document D20 are missing in the English translation.

Thus, even if cast manganese steel was considered as an excellent wear resistant material generally known in the railway field, as argued by the Appellant and also derivable from the patent specification itself (cf. paragraph [0008]), due to the absence of any teaching or hint in the art and the aforesaid practical problems involved, the skilled person would not be lead to a movable point having a moulded front part of such a material and two rear rail parts joined thereto, to achieve the advantages of the claimed solution.

4.1.4 In the Board's view, starting from D4 and taking into consideration the teaching of D1/D1A, D7, D20 and his common technical knowledge, there is therefore no indication for the skilled person to modify the crossing of D4 in that its movable element firstly would be replaced only by the two-part point of the entire frog unit of D1/D1A, and that the forged front heat treated carbon steel part of the latter then in turn would be replaced by cast manganese steel, to arrive at the subject-matter of claim 1 of the patent in suit.

In the written Appeal procedure the Appellant argued that the subject-matter of claim 1 was also obvious in the light of prior art documents D1/D1A and D2, D1/D1A and D7, D2 and D7, and D20 and D4 (or D6). However, none of these documents hints in particular at a movable two-part point which consists of a moulded (manganese steel) front part and two rear rail parts joined thereto. D2 (cf. figure 1: "movable point") and its priority document D6 (cf. figure 1: "pointe mobile 1") are silent as regards the construction of the movable element. Moreover, as set out above, the documents D7 and D20 merely describe a large one-part pivotable point which is cast from high-grade steel (D7) or from manganese steel (D20).

Summing up, as also indicated in the decision of the Opposition Division, in the view of the Board, the inventive concept of claim 1, which essentially resides in using a moulded part of cast manganese steel and rail parts which are joined thereto for both the cradle (fixed element) and the movable point (movable element)

of the frog, to reduce the maintenance of the swing nose crossing, is not obvious from the available prior art.

Therefore, the subject-matter of claim 1 involves an inventive step.

4.2 Claim 5

At the oral proceedings before the Board, the prior use D1/D1A was considered as closest prior art. It follows from the feature analysis of the swing nose crossing disclosed by D1/D1A under point 4.1.2 of this decision, that the subject-matter of claim 5 of the patent in suit differs from D1/D1A in that

– the fixed element consists of a first moulded part made of carbon or low alloy steel and a second part made of rails joined thereto

– the movable element consists of a moulded front part made of carbon or low alloy steel

– the rolling surfaces of the moulded parts are heat treated

The Appellant argued that the moulding procedure simplified the maintenance of the swing nose crossing, since less components were used in such a frog structure. Turning to document D4, which also concerned the same technical field as D1/D1A, the skilled person would firstly be taught to simplify the cradle of D1/D1A by a fixed element having a moulded part and rail parts, according to the two- part structure

"élément moulé 3" and "pièces 5,5' en rails" of D4. Since D4 described a moulding process for its cradle, D4 would also lead the skilled person to the replacement of the front part of the movable point of D1/D1A by a moulded one, thus arriving at the subject-matter of claim 5.

However, this argument cannot be accepted by the Board. As argued by the Respondent, carbon steel rails merely consist of standard material made by rolling mills. By contrast, the new developments in carbon and low alloy steel casting materials, and suitable heat treatments of these materials, mean that similar properties to those of cast austenitic manganese steels can be achieved as regards the impact and wear resistance. Furthermore, the composition and structure of such a cast material can be customized and the specific properties needed for impact or wear can be realised. In the view of the Board, starting from D1/D1A, the skilled person would not get any indication from the disclosure of D4 to replace the forged front part of the movable point of D1/D1A by a moulded part of carbon or low alloy steel. Moreover, D4 would also lead away from a fixed element having a first moulded part of carbon or low alloy steel, since D4 suggests a first part ("élément moulé 3") made of cast manganese steel. In writing, the Appellant argued that claim 5 of the contested patent was also obvious in the light of prior art documents D1/D1A and D2, D1/D1A and D7, D2 and D7, and D1/D1A and D20. However, it is reiterated that none of these documents hints in particular at a movable two-part point which consists of a moulded front part and two rear rail parts joined thereto, as already discussed under point 4.1 of this decision.

Furthermore, none of these documents suggests moulded parts made of carbon or low alloy steel which are suitably heat treated.

Therefore the Board concludes also that the inventive concept of claim 5, namely to reduce the maintenance work of a swing nose crossing, which again is essentially based on two-part structures and provides a suitably heat treated moulded part of carbon or low alloy steel and rail parts which are joined thereto for both the cradle (fixed element) and the movable point (movable element) of the frog, is not obvious from the available prior art.

The subject-matter of claim 5 thus also involves an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar The Chairman

A. Counillon U. Krause