

Internal distribution code:

- (A) Publication in OJ
(B) To Chairmen and Members
(C) To Chairmen
(D) No distribution

**Datasheet for the decision
of 13 July 2011**

Case Number: T 0123/10 - 3.2.03

Application Number: 01912272.0

Publication Number: 1369529

IPC: E01B 27/10

Language of the proceedings: EN

Title of invention:

System and method for replacement of track bed ballast for
railroad

Patentee:

mitsubishi heavy industries, ltd., et al

Opponent:

Franz Plasser

Headword:

-

Relevant legal provisions:

EPC Art. 56

Relevant legal provisions (EPC 1973):

-

Keyword:

"Admissibility of evidence (partly no)"
"Inventive step (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 0123/10 - 3.2.03

D E C I S I O N
of the Technical Board of Appeal 3.2.03
of 13 July 2011

Appellant: Franz Plasser
(Opponent) Bahnbaumaschinen-Industriegesellschaft m.b.H.
Johannesgasse 3
AT-1010 Wien (AT)

Representative: Rau, Albrecht
Patentanwälte Rau, Schneck & Hübner
Königstraße 2
D-90402 Nürnberg (DE)

Respondents: MITSUBISHI HEAVY INDUSTRIES, LTD., et al
(Patent Proprietors) 5-1, Marunouchi 2-chome
Chiyoda-ku
Tokyo 100-8315 (JP)

Representative: Henkel, Breuer & Partner
Patentanwälte
Maximiliansplatz 21
D-80333 München (DE)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 23 December 2009
rejecting the opposition filed against European
patent No. 1369529 pursuant to Article 101(2)
EPC.

Composition of the Board:

Chairman: U. Krause
Members: E. Frank
J.-P. Seitz

Summary of Facts and Submissions

- I. The appeal lies from the decision of the Opposition Division dated 13 November 2009 and posted on 23 December 2009 to reject the opposition against the European patent No. 1 369 529 pursuant to Article 101(2) EPC. Grant of the patent had been opposed in particular on the ground of lack of inventive step.
- II. The Appellant (Opponent) filed a notice of Appeal on 19 January 2010, paying the appeal fee on the same day. The statement of grounds of appeal was submitted on 9 February 2010.
- III. A communication pursuant to Article 15(1) RPBA was issued after a summons to attend oral proceedings, and the Appellant subsequently filed new documents E10/E10a and E11 on 3 May 2011. The oral proceedings were duly held on 13 July 2011.
- 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 6 (as granted) reads as follows:

"1. A ballast exchanging system for exchanging old ballast (B) of a railroad bed laid under railroad ties (10) on which rails (9a,9b) are supported, comprising a working train (51) capable of running on the rails

(9a,9b) and having a plurality of load carrying cars (53a-53e) coupled together and adapted to be loaded with new ballast (NB) for exchange, and a ballast working car (52) having collecting means (56) configured to scrape up old ballast (B) from a dug-up site (21), wherein a moving direction of the train during the scraping process is away from the dug-up site (21), wherein the ballast working car (52) has out-conveying means (57a,57b) configured to convey the old ballast (B) which is scraped up by the collecting means (56) toward the rearmost load carrying car (53e) as seen in the moving direction of the train; and wherein each of the load carrying cars (53a-53e) has first conveying means (61) and second conveying means(62,63), wherein the load carrying cars (53a-53e) are coupled together such that the first conveying means (61) can convey the old ballast (B) which is conveyed through the out-conveying means (57a,57b) from the rearmost load carrying car (53e) toward a forward most load carrying car (53a) as seen in the moving direction of the train, and that the second conveying means (62,63) can sequentially convey the loaded new ballast (NB) to the ballast working car (52) via the rearmost load carrying car (53e); characterized in that the working train (51) is formed as a one-line unit system in which the ballast working car (52) is coupled to the rearmost load carrying car (53e); the second conveying means (62,63) of the load carrying cars (53a-53e) are adapted to sequentially convey the ballast (B) conveyed to the forward most load carrying car (63a) via the first conveying means (61) to the rear load carrying cars (53b-53e);

the ballast working car (52) has unloading means (58) configured to unload new ballast (NB) into the dug-up site (21), and the collecting means (56) and a discharge end (58a) of the unloading means (58) are both located at a rearmost end of the ballast working car (52) as seen in the moving direction of the train; and
the second conveying means (62,63) of the load carrying cars (53a-53e) are adapted to convey the loaded new ballast (NB) onto the unloading means (58) of the ballast working car (52) via the rearmost load carrying car (53e)."

"6. A ballast exchanging method for a railroad bed, comprising:
a step of preparing a working train (51) formed as a one-line unit system having a ballast working car (52) including collecting means (56) configured to scrape up at a dug-up site (21) old ballast (B) laid under railroad ties (10) on which rails (9a,9b) are supported, unloading means (58) including a discharge end (58a) and configured to unload new ballast (NB) into the dug-up site (21), and a plurality of load carrying cars (53a-53e) with the new ballast (NB) loaded thereon sequentially coupled together, in front of the ballast working car (52) as seen in a moving direction of the train, wherein the moving direction of the train during the scraping process is away from the dug-up site (21), wherein the collecting means (56) and the discharge end (58a) of the unloading means (58) are both located at a rearmost end of the ballast working car (52) as seen in the moving direction of the train;
a step of conveying the old ballast (B) scraped up by the collecting means (56) of the ballast working car

(52) to a rearmost load carrying car (53e) as seen in the moving direction of the train and further toward a forward most load carrying car (53a) as seen in the moving direction of the train, and supplying the new ballast (NB) which is loaded on the load carrying cars (53a-53e) to the unloading means (58) of the ballast working car (52) via the rearmost load carrying car (53e) while sequentially transferring the old ballast (B) conveyed to the forward most load carrying car (53a) to the rear load carrying cars (53b-53e), thereby replacing at the dug-up site (21) the scraped-up ballast (B) by the new ballast (NB)."

VI. The following evidence has been considered for purposes of the present decision:

E4 = EP 0 442 094 B1

E5 = DE 27 33 084 A1

as filed during the appeal procedure:

E10 = JP 2000-257 003

E10a= English translation of E10's abstract

E11 = DE 1 179 974 B

VII. The parties submitted the following arguments:

VII.1 Admissibility of evidence

(a) The Appellant argued that E10/E10a disclosed a scraping member of a ballast collecting car according to figure 5 of the patent's prior art. Since during appeal proceedings the Respondent disputed for the first time that the figure 5 embodiment of the patent was publicly

available prior art, E10 and its English abstract E10a were relevant. Furthermore, in contrast to E5, E11 (cf. figure 1) unequivocally referred to a collecting means and discharge end both located at the rearmost end of a ballast working car. Thus, E11 was *prima facie* relevant, and since moreover both E10/E10a and E11 were duly filed eight weeks before the oral proceedings in response to the Board's communication, these documents had to be considered.

- (b) The Respondent argued that it was not disputed that the embodiment of figure 5 in context with JP-A-03-233001 formed prior art (cf. patent, paragraph [0004]), the latter however illustrating a bucket-wheel excavator. E10 was a Japanese document without translation, and, thus, it could not be excluded that its entire content disclosed information which was different from its English abstract E10a. As for E11, this publication did not describe any features beyond E5's disclosure. Therefore, both E10/E10a and E11 were not *prima facie* relevant, and should not be admitted into the proceedings at such a late stage.

VII.2 Inventive step

- (a) The Appellant argued that starting from E4 and assuming that, based on the vague wording "located at a rearmost end", the subject-matter of claims 1 and 6 differed from E4 in that both the collecting means and discharge end were located farthest at the rear of the ballast working car, the underlying problem of such an arrangement, as opposed to a positioning at the centre of the ballast working car as shown in figure 1 of E4, was not derivable from the patent in suit. In

particular, because of the patent's promptly performed ballast exchange method at the rear end, warps on the track were suppressed, and also no inserting of tie support bases was required, since no running of the heavy working train over the dug-up site occurred, cf. patent, paragraphs [0058] and [0059]. However, the patent nowhere referred to any influence of a ballast working car's rearmost axle on the dug-up site, and the problems described by the patent thus were likewise solved by the ballast exchange at the rear end of E4's working train. If, moreover, an effect of a ballast exchange behind the rearmost axle of the ballast working car could be seen in an even better avoidance of damages to the railroad bed, this was already hinted at in E11. It was not allowed to apply different criterions on what the skilled person was implicitly deriving from the patent on the one hand, and from the prior art on the other hand. Since the undercarriages of the track work machine of E11 stressed the rails below by means of its railway wheels and lowered crawler tracks during use, but no part of E11's working car ran over the rails at the dug-up site, E11 also disclosed the effect of avoiding damage to the railroad bed by means of a ballast exchange at the rearmost end of the car. Furthermore, although E11 concerned a self-propelled ballast recycling car, any integration of such a car into the trainset previously known from E4 was of no relevance, but only the principle of both scraping up old and unloading new ballast at the rearmost end of a ballast working car as taught by E11, so that damages to the railroad bed could be kept to a minimum. Finally, since E11's recycled ballast could also be understood as a new, ie cleaned, ballast, the skilled person thus would consider E11, thereby

arriving at the subject-matter of claims 1 and 6. Therefore claims 1 and 6 were not inventive in the light of E4 and E11.

- (b) The Respondent firstly argued that the term "rearmost end" in claims 1 and 6 clearly referred to a position that is farthest at the rear; eg, figure 1 of the patent also showed both the collecting means and discharge end at the rearmost end of the ballast working car. Moreover, any technical problem could be deduced by the skilled person in the light of the technical effects derivable from the patent (as filed). Thus, starting from a working train of E4, it arose from paragraphs [0058] and [0059] of the patent, that warps, ie damages to the track/rails, and also working time could be further minimised, when the ballast exchange took place at the rearmost end of the ballast working car of the working train according to claims 1 and 6, since no part of the train had to pass over the fresh dug-up site. The working train of E4 did not address such problems, since the rear chassis of the ballast working car and its axles were not even shown in figure 1 of E4. Furthermore, E11 concerned an independent, individually working, machine. Such a machine was not used, and was not intended to be used, as a working car to be integrated in a trainset, since it did not run on rails, but crawler tracks without lateral guidance. Apart from that, it served for the cleaning of ballast by means of a sieve system and return-conveying means, respectively, whereby the majority of the ballast scraped up from the dug-up site was recycled. Therefore, due to these apparent differences in functionality, starting from a ballast exchanging working train of E4, the machine of E11

would not be considered by the skilled person. But even if the skilled person turned to E11, there was no motivation to locate the ballast exchange at the rearmost end of the ballast working car of E4, since E11 ran on self-propelled crawler tracks, and thus any problems of rail bed damages at the dug-up site due to the rearmost wheels of a train car were not derivable from E11. Finally, the skilled person would face a great number of difficulties to modify the closed-loop ballast recycling system within the machine of E11, such that it could be integrated into a ballast exchange system of a working train, ie to receive new ballast from a load carrying car. Summing up, E11 could not lead to a ballast exchange at the rearmost end of the ballast working car of E4's working train and, therefore, claims 1 and 6 involved an inventive step.

Reasons for the Decision

1. The appeal is admissible.
2. *Admissibility of evidence*

Although the Japanese document E10/E10a apparently depicts (cf. figures) a ballast scraping up device, which resembles the first working train of figure 5 of the patent, neither its translated abstract E10a, nor its figures disclose or hint at the single train concept of claims 1 and 6, ie that both the collecting means for the old ballast and discharge end of an unloading means for the new ballast had to be located at the rearmost end of only one ballast working car. As for E11, this document refers to a collecting means

("Becherwerke 46, 46', 47, 47' ") and a discharge end ("Verteilerinne 76") both located at the rearmost end of a track work machine ("Fahrzeug 10"), and is indeed considered to be *prima facie* more relevant than E5, since during picking up and discharging of ballast at the site, the self-propelled working car of E11 (cf. figures, column 5, lines 1 to 3) invariably loads the rails below, just as the ballast working car of the patent's working train. In E5, on the other hand, the rails firstly have to be removed, and then crawler tracks ("Raupenketten 6") transfer the car's weight during use directly onto the railway foundation (cf. E5, page 12 (handwritten), penultimate paragraph; page 14 (handwritten); and figures). The Board therefore exercised its discretion under Article 13(3) RPBA to disregard E10/E10a, and to admit E11 to the proceedings.

3. *Inventive step*

(Article 100(a) EPC, see Article 56 EPC)

3.1 The Appellant did not dispute the novelty of claims 1 and 6, and also the Board has no reason to doubt that its subject-matter is novel. As argued by the Respondent, the term "rearmost end" in claims 1 and 6 is clearly understandable and refers to the back-end of the ballast working car where the collecting means and discharge end are both located, that is, in the moving direction of the train, the ballast working car's rear undercarriage is positioned before its rearmost end.

3.2 As to inventive step, the Board agrees with the parties that document E4 forms the closest prior art with respect to the subject-matter of claims 1 and 6, since

E4 also pertains to a one-line unit working train for exchanging ballast. At the rear end of the working train, the trainset ("*Zugverband 1*") of E4 features a ballast exchange system positioned approximately in the centre of a working car ("*Räummaschine 2*") (cf. E4, figure 1). Thus, the parties agreed that the subject-matter of claims 1 and 6 differs from the disclosure of E4 in that the collecting means and a discharge end of the unloading means are both located at a rearmost end of the ballast working car as seen in the moving direction of the train.

- 3.3 In the Respondent's view, by considering this difference, the technical problem has to be deduced from the technical effect that no part of the train has to pass over the fresh dug-up site. Therefore, it arises from paragraphs [0058] and [0059] of the patent, that the objective problem underlying the distinguishing position of the ballast exchange can be seen in the further minimising of damages to the tracks and reducing of working time at the dug-up site.

The Board notes, however, that this objective problem has to be implicitly determined by the skilled person, since the problems described by the patent (cf. paragraphs [0058] and [0059]) are already overcome by a location of the ballast exchange at the rear end of the ballast working car, rather than at its "rearmost" end. As argued by the Appellant, the patent also does not refer to any impact of the ballast working car's rear carriage/axles on the fresh dug-up site, ie that it was particularly advantageous that actually "no part of" the train passed over the fresh dug-up site.

3.4 The document E11 describes a track work machine, ie also relates to the exchanging of ballast from a bed supporting a track. The old ballast is scraped up, cleaned, recycled and finally refilled at the dug-up site. Contrary to the Respondent's view, during use, the machine loads the rails below by means of its railway wheels ("*Laufradsätze 11,11'*") and lowered crawler tracks ("*Raupenfahrwerk 15*"). Moreover, the recycled ballast of E11 has to be interpreted as a "new" ballast within the meaning of claims 1 and 6, since it is cleaned and serves to freshly refill the track bed at the dug-up site, without the need for additional ballast (cf. E11, column 5, and figure 1). Although the Board acknowledges that no trainset is described by E11, in the view of the Board, the problems of a self-propelled railway vehicle arising from possible rail damages and extra work because of lack of ballast prior to refilling of the fresh dug-up site are, therefore, comparable to those of a ballast working car at the end of a working train.

3.5 Furthermore, the ballast exchange takes place at the rearmost end of E11's railway vehicle and, in use, no part of the vehicle loads the rails above the dug-up site (cf. E11, figure 1). In absence of any clear argument of the Respondent as to other possible purposes of such an arrangement of both the collecting means and a discharge end of the unloading means, the Board thus agrees with the Appellant's view that the problem underlying their positioning at the rearmost end of the vehicle (and its technical effect) can be implicitly seen in that damages to the tracks and working time had to be minimised in E11, ie the

arrangement of E11 must serve the same purpose as in the patent.

As argued by the Appellant, moreover no relation can be seen between this concept of exchanging of ballast and the manner of conveying new ballast to its discharge end. Therefore, whether the integration of a closed-loop recycling system of E11 into a ballast working car of a trainset of E4, which receives new ballast from load carrying cars, could possibly be problematic, or not, is not considered to be relevant.

3.6 Therefore the Board concludes that, starting from a working train of E4 and based on his common knowledge relating to the technical field of exchanging ballast from railway beds, it would be obvious to the skilled person, to consider the railway vehicle of E11 and to relocate the ballast exchange to the rearmost end of the ballast working car of E4, and hence to arrive at the subject-matter of claims 1 and 6, if he was faced with the objective problem stated under point 3.3 of this decision above.

Thus, the subject-matter of claims 1 and 6 does not comply with the requirements of inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar

The Chairman

D. Hampe

U. Krause