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**Datasheet for the decision
of 20 July 2016**

Case Number: T 1926/12 - 3.2.07

Application Number: 05809786.6

Publication Number: 1799599

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Language of the proceedings: EN

Title of invention:
LOADING ASSEMBLY FOR TRANSPORT CONTAINERS

Patent Proprietor:
Frankel, Nathan

Opponent:
Järvensivu, Jouni

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (yes)

Decisions cited:

Catchword:



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Case Number: T 1926/12 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 20 July 2016

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Decision under appeal: **Interlocutory decision of the Opposition**
Division of the European Patent Office posted on
11 July 2012 concerning maintenance of the
European Patent No. 1799599 in amended form.

Composition of the Board:

Chairman H. Meinders
Members: K. Poalas
I. Beckedorf

Summary of Facts and Submissions

- I. The opponent and the patent proprietor lodged each an appeal against the interlocutory decision maintaining European patent No. 1 799 599 in amended form.
- II. Opposition had been filed against the patent as a whole based on Article 100(a) EPC (lack of inventive step).
- III. The Opposition Division found that the subject-matter of claim 1 according to the main request filed during the oral proceedings meets the requirements of the EPC.
- IV. During the oral proceedings before the Board the patent proprietor withdrew the main and first auxiliary request as filed with letter of 9 November 2012. The result was that the appeal was withdrawn. The opponent was then the sole appellant and the patent proprietor the respondent in the present appeal case.

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

The respondent requested that the appeal be dismissed (main request, equivalent to auxiliary request 2 filed with letter of 9 November 2012), or, in the alternative, that in setting aside the decision under appeal the patent be maintained in amended form on the basis of one of the sets of claims filed as auxiliary requests 8 and 9 with letter of 17 June 2016 and as auxiliary request 7 with letter of 9 November 2012. The other auxiliary requests (3-6) filed with letter of 9 November 2012 were withdrawn.

V. The independent claims 1 and 11 according to the main request read as follows:

"1. A bulk material loading assembly (10) for use with configured to load a transport container (14) having an open end (30) with a load of non-uniformly shaped bulk materials, comprising:

a load bin (18) having a cross section conforming to an open end (30) of a transport container (14) such that the load bin (18) can be inserted therethrough, the load bin (18) defining a top opening (21) for receiving a load (12) of non-uniformly shaped bulk materials,

the load bin (18) defining a volume configured to hold a load (12) of non-uniformly shaped bulk materials, the load being of sufficient size to fill the container (14) to capacity in a single operation;

a support structure (16) for supporting the load bin (18) and being arranged, in use, to be substantially stationary;

a drive mechanism (22) configured to urge the load bin (18) into and out of the container (14) to enable displacement of the load (12) into the container (14) through the open end (30) thereof and

the drive mechanism (22) configured to urge the load bin (18) into and out of the container (14) to retract the load bin (18) from the container (14); and

a barrier assembly (24) configured to confine the contents of the load bin (18) in the container while the load bin (18) is retracted, allowing the contents of the load bin (18) to remain within the container (14) upon removal of the load bin (18)".

"11. A method of loading a transport container (14), comprising:

positioning a loading assembly (10) as claimed in any

of the preceding claims and a container (14) relative to one another such that the loading assembly (10) is adjacent to an open end (30) of the container (14); inserting a load (12) of non-uniformly shaped bulk materials into the load bin (18) via the top opening; inserting the load bin (18) into the container (14) through the open end (30) thereof until the load (12) is fully disposed within the container (14); positioning the barrier assembly (24) adjacent to the open end (30) of the container (14); and retracting the load bin (18), with the barrier assembly (24) in place, such that the load (12) remains within the container (14)".

VI. In the present decision reference is made to the following documents of which all but the last were filed during the opposition proceedings:

D1: JP 61 221017 A;
D2: US 4 055 265 A;
D3: DE 27 20 028 A1;
D4: US 4 537 554 A;
D5: EP 1 221 398 A1;
D6: US 3 809 264 A;
D7: EP 0 655 403 A;
D8: US 3 040 914 A.

VII. The appellant's arguments, in so far as they are relevant for the present decision, may be summarised as follows:

Claim 1 according to the main request - inventive step, Articles 52 and 56 EPC

D4 representing the closest prior art

Although the drive mechanism of the loading assembly known from D4 is not configured to urge the load bin into the container to enable displacement of the load into the container through the open end thereof, the load bin 18 of D4, since it is telescoping, can be redesigned so that when the car has arrived, it halts close to the telescoped-in bin, of which then the bin sections 20 to 22 can be extended forwardly into the container. In that case the conveyor belt device would be stationary and the load can still be filled into the load bin, since the front wall is not necessary for this, just as in the patent in suit according to paragraph 24.

The "contents" of the load bin need not exclusively be the entire volume of the load bin, since the volume configured to hold the load of sufficient size is the volume determined by bin sections 20, 21 and 22 of D4. In that sense rearmost bin section 23, with its contents, is configured to confine the contents (of sections 20, 21, 22) of the load bin in the container while the load bin sections 20, 21, 22 are retracted, as claimed, acting thereby as barrier assembly according to claim 1.

In case of not considering the bin section 23 as the barrier assembly according to claim 1 the problem to be solved can be seen in how to modify the loading assembly known from D4 so that a load corresponding to the capacity of the container can be loaded into the container in a single operation.

The skilled man seeking to solve the above-mentioned problem would be guided by his general technical knowledge to adapt the dimensions of the bin sections 20, 21 and 22 to the capacity of the container, to

provide a rear wall at the bin section 22 to act as a barrier assembly, to provide a stationary instead of an extensible conveyor belt device and further to provide an actuator for simultaneously moving the bin sections 20, 21 and 22 forwardly into the container and at the same time loading the bin sections via that stationary conveyor belt.

Furthermore, as argued during the written proceedings, the teaching of D4 in combination with the teaching of one of D1, D3, D5, D6, D7 and D8 renders the subject-matter of claim 1 not inventive.

D1 representing the closest prior art

D1 belongs to the neighbouring technical field of loading stackable materials and can therefore be considered as representing feasible closest prior art.

Given that the loading system of D1 discloses a flat bed 6 and a presser 9, the problem to be solved can be seen in how to modify the loading assembly of D1 in order to be capable to completely fill a container with bulk materials.

The man skilled in the art guided by his general technical knowledge would apply two sidewalls to the flat bed 6 of D1 and would thus arrive at a storage bin sufficient to fill the container 2 to capacity.

D6 shows that sidewalls are used for transporting material in sacks, which are stacked. Normally, sacks contain bulk materials. The teaching of D1 is therefore also applicable to bulk materials.

Furthermore, as argued during the written proceedings,

the teaching of D1 in combination with the teaching of one of D2, D3, D4, D5, D6 and D8 renders the subject-matter of claim 1 not inventive.

Claim 11 according to the main request - inventive step, Articles 52 and 56 EPC

The same arguments presented above for claim 1 of the main request are *mutatis mutandis* applicable to claim 11 of the main request.

VIII. The respondent's arguments, in so far as they are relevant for the present decision, may be summarised as follows:

Claim 1 according to the main request - inventive step, Articles 52 and 56 EPC

D4 directed to a shuttle car loading system for loading newly mined material such as coal, i.e. non-uniformly shaped bulk materials, is from the same technical field as the patent in suit. Further, D4 addresses also the same purpose and effect as the patent in suit, i.e. how to load such materials quickly and efficiently into a container. For these reasons, D4 represents the closest prior art.

D4 does not disclose a drive mechanism configured to urge the load bin into the container to enable displacement of the load into the container through the open end thereof in order to fill the container to capacity in a single operation.

D4 discloses a stationary front wall 44 which does not follow the bin section 20 when the latter moves rearwardly. It would be technically very challenging to

move the front wall 44 into the container together with the front bin section 20. In case of attaching it to that bin section, it would be very difficult to open it while being in the container.

The term "the contents" in claim 1 corresponds to the load mentioned previously in claim 1, whereby the load is of sufficient size to fill the container to capacity in a single operation.

The arrangement of D4 is not capable to introduce the load contained in the bin sections 20-22 and 23 into the container, which all together form the actually needed volume to fill the container to capacity in a single operation.

D4 therefore does not disclose a barrier assembly in the sense of claim 1, namely one that confines the contents of the load bin in th container.

In case of attempting to redesign the bin sections 20 to 22 in order to accommodate a load corresponding to the capacity of the container, there exist only two alternatives, namely to increase the width and/or the height of said bin sections. Given that the maximum width of the bins is limited by the width of the container, since said bin sections have to be insertable into the container, the only possibility for the further increase of the capacity of said bin sections would be to increase the height of the side walls of the bin sections. Given that the bulk loading assembly of D4 is provided to work in the confines of a mine stope of small height, see column 1, lines 37 to 41 and column 2, lines 26 to 29, the conveyor belt has to be horizontally extensible above said bin sections. The skilled person would be reluctant to increase the height of the side walls of the bin sections 20 to 22.

The above-mentioned technical limitations would discourage the skilled person from doing this.

A combination of the teaching of D4 with the teaching of one of D1, D3, D5, D6, D7 and D8 cannot render the subject-matter of claim 1 obvious to the person skilled in the art.

Since D1 relates to the technical field of loading stackable materials, said technical field is quite distinct from that of the patent in suit concerning loading of non-uniformly shaped bulk materials. D1 further does not address the problem of efficiently loading bulk materials into a transport container and therefore cannot be considered as representing the closest prior art.

Claim 11 according to the main request - inventive step, Articles 52 and 56 EPC

The same arguments presented above for claim 1 of the main request are *mutatis mutandis* applicable to claim 11 of the main request.

Reasons for the Decision

Claim 1 according to the main request - inventive step, Articles 52 and 56 EPC

1. *Closest Prior Art Document*

- 1.1 The Boards of Appeal have repeatedly pointed out that the closest prior art for assessing inventive step is normally a prior art document disclosing subject-matter conceived for the same purpose or aiming at the same objective as the claimed invention and having the most

relevant technical features in common, i.e. requiring the minimum of structural modifications, see Case Law of the Boards of Appeal, 7th edition 2013, I.D.3.1.

- 1.2 The patent in suit is directed to an assembly for loading transport containers with non-uniformly shaped bulk materials and the technical problem the patent in suit seeks to solve is how to load such non-uniformly shaped bulk materials into a transport container more efficiently than the prior art, see paragraphs 1, 3, 8, 9 and claim 1.
- 1.3 **D4** directed to a shuttle car loading system for loading newly mined material such as coal, i.e. non-uniformly shaped bulk materials, is from the same technical field as the patent in suit. D4 is also directed to the same purpose and effect as the patent in suit, i.e. how to load such bulk materials quickly and efficiently into a transport container, see D4, column 1, lines 28 to 33 and 44 to 49. As such, D4 offers the best available starting point when trying to improve the efficiency of loading.
- 1.4 The Board considers therefore D4 as representing the closest prior art.
- 1.5 **D1**, on the other hand, relates to the specific technical field of stackable cargo loading assemblies. The way of loading stackable items is different in many respects from the loading of bulk materials. For example, stackable items are generally self-supporting and will generally remain in their stacked condition while being loaded into a container. Further, when working with stackable items, a mere planar platform such as the flat cargo loading bed 6 of D1 is generally used because this is sufficient to support the

stackable load and also enables easy access from all sides to the platform. However, such a flat loading platform is not suitable for efficiently loading non-uniformly shaped bulk materials due to the inherent instability of said materials.

For the above reasons, the technical considerations in the field of loading non-uniformly shaped bulk materials are very different from the technical considerations in the field of loading stackable materials.

- 1.6 Therefore, D1 does not belong to a closely related technical field, as argued by the appellant. Furthermore, efficient loading of non-uniformly shaped bulk materials into a transport container is not mentioned in D1 as an objective to be achieved.

- 1.7 According to the Case Law of the Boards of Appeal, 7th edition 2013, I.D.3.3, last paragraph, the choice as closest prior art of a disclosure from which no relevant technical problem can be formulated without inappropriate hindsight is a fatal defect. An attempt to establish a logical chain of considerations which might lead the skilled person to the claimed invention will inevitably run into difficulties from the start, for want of a relevant identifiable goal or object. If the relevant problem is not derivable from the alleged closest prior art, in the present case "how to load non-uniformly shaped bulk materials into a transport container in an efficient manner", the measures for its solution are *a fortiori* not evident. In other words, the invention is not obvious in the light of such art.

1.8 In view of the foregoing, the Board considers that D1 is not suitable as the closest prior art.

2. *Disclosure of D4*

D4 discloses a shuttle car loading system for loading newly mined material such as coal, i.e. non-uniformly shaped bulk materials. Said system includes a storage bin 18 having four bin sections 20 to 23, three of which are telescopically movable, whereby said storage bin is located underneath a conveyor belt. The system includes further a shuttle car 14 having a transport container ("hopper") 34 that can be moved underneath the bin, surrounding thereby much of it, see column 2, lines 55 to 58. With the storage bin in its extended position and filled with coal, three (20-22) of the four bin sections can be telescopically retracted to allow the coal to fall into the container, to quickly load the container. These three bin sections can then be extended again, while they are filled anew with coal, awaiting another shuttle car.

3. *Differences*

3.1 It is undisputed that the following feature of claim 1,

a) "a drive mechanism configured to urge the load bin into the container to enable displacement of the load into the container through the open end thereof",

is not disclosed in D4.

3.2 As concerns the term "the contents of the load bin" mentioned in claim 1, the Board follows the respondent's argument that said term defines the load to be held by the load bin and subsequently to be

displaced into the transport container, as defined earlier in claim 1, namely as the **contents**, i.e. said load being "of sufficient size to fill the container to capacity in a single operation".

- 3.3 The Board notes that in D4 no information is available concerning the load capacity of the transport container 34 and/or the load capacity of the bin sections 20 to 23. From figure 4 it can be derived that the length of only sections 20 to 22 corresponds to the length of the container 34. Section 23 remains outside the container. However, what is actually loaded into the transport container corresponds to the sum of the volumes of the load carried by the bin sections 20 to 22, but also of a part of section 23, which according to figure 5 clearly also falls into the transport container, and is the capacity filled in a single operation. Accordingly, even considering the bin section 23, with its contents, functioning as a barrier assembly during the retraction of the bin sections 20 to 22, this barrier is not one which fulfils the requirements of confining those "contents which are of sufficient size to fill the container to capacity in a single operation". Therefore, the bin section 23 cannot be considered as being a barrier assembly according to claim 1.

- 3.4 From the above follows that the following feature of claim 1,

b) "a barrier assembly configured to confine the contents of the load bin in the container while the load bin is retracted, allowing the contents of the load bin to remain within the container upon removal of the load bin",

is also not disclosed in D4.

Effects

3.5 Given that the barrier assembly according to feature b) is interrelated with the drive mechanism of the movable bin sections 20-22 only as far as it concerns the retraction of the load bin from the container and has therefore no interrelation with feature a) concerning the displacement of the load bin into the container, the above-mentioned differentiating features a) and b) are not interrelated with each other and have to be considered independently from each other when assessing inventive step.

3.6 The technical effect of the barrier assembly according to feature b) is the discharge of a well-defined amount of non-uniformly shaped bulk materials into the transport container, so that the container is filled to capacity in a single operation.

4. *Problem to be solved*

Since the objective technical problem has to be formulated without any pointer to the claimed solution, it can be considered as "how to modify the loading assembly known from D4 in order to enable an efficient discharge of a well-defined amount of non-uniformly shaped bulk materials from the storage bin into the transport container, this amount being the filling capacity of the container".

5. *Combination of the teaching of D4 with the general technical knowledge of the person skilled in the art*

5.1 The appellant argues in this respect that the skilled person would be guided by his general technical knowledge to reconstruct the loading assembly known

from D4 in order to provide it with a barrier assembly according to feature b), without exercising an inventive activity.

5.2 The Board cannot follow this for the following reasons.

5.3 Even if the skilled person would consider to define a specific volume of the storage bin to correspond to the volume of the transport container in order to discharge the non-uniformly shaped bulk materials into the transport container in a single operation it would have to redesign a big part of the loading assembly of D4.

5.4 When the shuttle car 14 is in loading position only the bin sections 20 to 22 are within the container 34, see figures 3, 4 and 5. This means that the container 34 is filled up to capacity only by adding to the load of the bin sections 20 to 22 also that part of the load of the stationary bin section 23 which naturally slides also into the container after the bin sections 20 to 22 have been completely retracted and the tail gate 32 is to be closed.

The Board follows the appellant's argument that in order to have a defined amount of bulk materials inserted into the container the skilled person would consider a wall at the rear end of the bin section 22 in order to act as a barrier assembly when retracting the bin sections 20 to 22. The volume of the bulk materials loaded in the bin sections 20 to 22 has to be, according to claim 1, identical with the volume of the container. Since the bin sections 20 to 22 have to be also insertable into the container, the maximal width of said sections is limited by the internal width of the container.

The only possibility for adapting the volume of the bin sections 20 to 22 to the volume of the container would then be the provision of higher vertical side walls for said bin sections.

Given that the conveyor belt has to be positioned above said bin sections 20 to 22, and that the loading system of D4 is to be used in a mine stope, which generally is of limited height, see column 1, lines 37 to 41 and column 2, lines 26 to 29, increasing the height of the vertical wall of the bin sections 20 to 22 is not a feasible option. For this reason already, the skilled person would not arrive in an obvious way at the claimed solution.

- 5.5 Whether the skilled person would or would not accept to stop the conveyor belt for a short time, while the "adapted" sections as discussed above are discharged into the container, is then a moot question.
6. During the written proceedings the appellant presented a further line of arguments arguing that the teaching of D4 in combination with the teaching of one of D1, D3, D5, D6, D7 and D8 renders the subject-matter of claim 1 not inventive.
7. The Board cannot follow the above-mentioned line of arguments for the following reasons.
8. *Combination of the teaching of D4 with the teaching of D1*
- 8.1 D4 describes a telescoping load bin 18, whereas D1 describes a flat loading bed 6. The barrier 9 in D1 is configured to push a stable, stackable load along the planar surface defined by the flat loading bed 6. In

case of a replacement of the rearward wall of bin section 23 of D4 by the barrier 9 of D1 to fill the container up to capacity, as argued by the appellant, the continually operating conveyor belt 16 of D4 would have to be stopped, otherwise the latter would drop material behind the barrier, when the latter moves towards the front of the load bin.

8.2 The Board considers therefore the barrier 9 of D1 as being incompatible with the load bin 18 of D4, since the main aim of D4 is to avoid an interruption of the operation of the mining machine, i.e. of the conveyor belt, see column 1, lines 28 to 33. In view of the limited available space this continuously arriving coal cannot be easily diverted.

9. *Combination of the teaching of D4 with the teaching of D3*

9.1 D4 describes a telescoping load bin 18, whereas D3 describes a flat loading surface with parallel cylindrical rollers 14. The bar 12 in D3 is configured to block a stable, stackable load when the planar surface is withdrawn from under the load. It is unclear how such a bar could be used to confine a load of non-uniformly shaped bulk materials. Even if it would be converted into a barrier wall, the incompatibility as discussed under point 9.2 above also applies here.

9.2 The Board considers therefore that the skilled person will not apply this teaching of D3.

10. *Combination of the teaching of D4 with the teaching of D5*

10.1 D5 does not concern the loading of transport containers but rather an unloading device.

10.2 The Board considers the apparatus described in D5 incompatible with the loading assembly of D4 due to the fact that D4 describes a telescopic load bin, whereas D5 describes a rigid, generally half-pipe shaped container 3 having a pushing device 51. In case of a replacement of the rearward bin section 23 of D4 by the pushing device 51 of D5, the remarks made in point 9.2 above apply *mutatis mutandis*.

11. *Combination of the teaching of D4 with the teaching of D6*

The conclusions presented above in respect of D1 and D5 apply *mutatis mutandis* to D6, and its pusher face 22 connected with scissor arms 21 and to the carriage back 20.

12. *Combination of the teaching of D4 with the teaching of D7*

The conclusions presented above in respect of D1, D5 and D6 apply *mutatis mutandis* to the loading apparatus 30 of D7.

13. *Combination of the teaching of D4 with the teaching of D8*

13.1 D8 discloses a cubage box 130 for pre-assembling modular load units, whereby one wall may be a movable wall 144 so that the cubage box can be more easily unloaded.

13.2 The Board considers technically incompatible the combination of a cubage box 130 with the pre-assembled modular load units known from D8, said units having predefined dimensions, with the telescoping load bin 18 known from D4.

13.3 Consequently, the Board considers that the skilled person would not consider the teachings of D4 and D8 as being combinable with each other.

14. For the above-mentioned reasons, the subject-matter of claim 1 involves an inventive step.

Claim 11 according to the main request - inventive step, Articles 52 and 56 EPC

15. The same arguments presented above for claim 1 of the main request are *mutatis mutandis* applicable also to claim 11 of this request.

16. Accordingly, the subject-matter of claim 11 involves also an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



B. Atienza Vivancos

H. Meinders

Decision electronically authenticated