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CONVENTION

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APPLICATION FOR A STANDARD PATENT

635111

Franz Plasser Bahnbaumaschinen - Industriegesellschaft m.b.H.
Johannesgasse 3, A-1010 Wien, AUSTRIA

hereby applies for the grant of a standard patent for an invention entitled:

BULK GOODS WAGGON

which is described in the accompanying complete specification.

Details of basic application(s):-

A 351/90	AUSTRIA	15 February 1990

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DATED this FOURTEENTH day of FEBRUARY 1991

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By: David B Fitzpatrick

Our Ref : 195364
POF Code: 1203/1203

6010

351/90

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DECLARATION FOR A PATENT APPLICATION

▼ INSTRUCTIONS
(a) Insert "Convention" if applicable
(b) Insert FULL name(s) of applicant(s)

In support of the (a) CONVENTION application made by
(b)
FRANZ PLASSER BAHNBAUMASCHINEN-INDUSTRIEGESELLSCHAFT m.b.H.

(c) Insert "of addition" if applicable
(d) Insert TITLE of invention

(hereinafter called "applicant(s) for a patent (c) for an invention entitled (d)
BULK GOODS WAGGON

(e) Insert FULL name(s) AND address(es) of declarant(s) (See headnote*)

I/~~We~~ (e) JOSEF THEURER of Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H. of Johannesgasse 3, A-1010 Wien, Austria

do solemnly and sincerely declare as follows:

~~I/We am/are the applicant(s)~~

(or, in the case of an application by a body corporate)

1. I am/~~We are~~ authorized to make this declaration on behalf of the applicant(s).

~~I am/We are the actual inventor(s) of the invention.~~

(or, where the applicant(s) is/are not the actual inventor(s))

(f) Insert FULL name(s) AND address(es) of actual inventor(s)

2. (f) JOSEF THEURER of Johannesgasse 3, A-1010 Wien, Austria and FRIEDRICH OELLERER of Rehgraben 3, A-4040 Linz, Austria

(g) Recite how applicant(s) derive(s) title from actual inventor(s) (See headnote*)

~~is~~/are the actual inventor(s) of the invention and the facts upon which the applicant(s) is/~~are~~ entitled to make the application are as follows:

(g) Applicant is the assignee of the invention from the actual inventors

(Note: Paragraphs 3 and 4 apply only to Convention applications)

(h) Insert country, filing date, and basic applicant(s) for the/or EACH basic application

3. The basic application(s) for patent or similar protection on which the application is based is/~~are~~ identified by **country, filing date, and basic applicant(s)** as follows:

(h) Austria, 15 February 1990, Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H.

4. The basic application(s) referred to in paragraph 3 hereof was/~~were~~ the first application(s) made in a Convention country in respect of the invention the subject of the application.

(k) Insert PLACE of signing

(l) Insert DATE of signing

(m) Signature(s) of declarant(s)

Note: No legalization or other witness required

Declared at (k) Wien, Austria

Dated (l) 22 October 1990

(m) FRANZ PLASSER
Bahnbaumaschinen-Industriegesellschaft m.b.H.
(Josef Theurer)

To: The Commissioner of Patents

P18/7/78

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(54) Title
BULK GOODS WAGGON

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(56) Prior Art Documents
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(57) Claim

1. Bulk goods waggon for incorporation into a train of several such waggons, with an open-topped waggon body attached to the bogie frame for storage of the bulk goods and associated therewith a first conveyor which extends at least partially in the lower region of the waggon body and in the longitudinal direction of the waggon and a second conveyor, independent of the said first conveyor, for the transport of bulk goods in the opposite direction, each of the said conveyors having two ends spaced apart from each other in the longitudinal direction of the waggon and arranged at different heights so that on coupling two such bulk goods waggons, the ends of the conveyors of one waggon engage over or under the associated ends of the respective conveyors of the other waggon, thus forming two continuous haulage ways independent of each other, characterised in that the waggon body comprises a central partition extending in the longitudinal direction of the waggon and each half of the waggon body is associated with one of the said conveyors arranged at least partially in the lower region thereof.

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COMPLETE SPECIFICATION
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Related Art:

Applicant(s):

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Complete Specification for the invention entitled:

BULK GOODS WAGGON

Our Ref : 195364
POF Code: 1203/1203

The following statement is a full description of this invention, including the best method of performing it known to applicant(s):

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The invention concerns a bulk goods waggon for incorporation into a train of several such waggons, with an open-topped waggon body attached to the bogie frame for storage of the bulk goods and associated therewith a first conveyor which extends at least partially in the lower region of the waggon body and in the longitudinal direction of the waggon and a second conveyor, independent of the said first conveyor, for the transport of bulk goods in the opposite direction, each of the said conveyors having two ends spaced apart from each other in the longitudinal direction of the waggon and arranged at different heights so that on coupling two such bulk goods waggons, the ends of the conveyors of one waggon engage over or under the associated ends of the respective conveyors of the other waggon, thus forming two continuous haulage ways independent of each other.

A bulk goods waggon of this kind known from Austrian patent 378 973 is particularly suitable for incorporation into a train consisting of several such waggons. Here, the special conveyors of the goods waggons assembled in any number with a storage capacity fulfilling the conditions of use form a continuous haulage way with which the bulk goods dumped on a goods waggon in one end region of the train can be transported without auxiliary means to the opposite end of the train for storage. Thus the goods waggons can be loaded continuously up to the last waggon which is in the region of the loading point.

From Austrian patent 336 670 is also known a bulk goods waggon for incorporation into a clearing train with an open-topped, funnel-shaped waggon body for storage of the bulk goods.

In the upper end region of the waggon body are provided two conveyor belts for transport of the bulk goods, which are mounted displaceably relative to each other in the longitudinal direction of the waggon by guides disposed on the side panel. Thus the whole length of the waggon can be covered for further transport of the bulk goods onto a coupled bulk goods waggon by the conveyor belts. Discharge chutes are provided in the lower region of the waggon body side panel for unloading. A conveyor belt construction of this kind is relatively elaborate and also does not allow unloading of the stored bulk goods.

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Finally, also known in German patent application 34 20 836 is a railway construction train for removal of the old ballast and introduction of new ballast and chippings. This is composed of a plurality of goods waggons for storage of the bulk goods, wherein an endless conveyor for the transport of chippings or ballast is provided on both longitudinal sides of each goods waggon. A known construction train of this kind, however, requires its own loading equipment with which the bulk goods can be transported onto the respective endless conveyor.

It is the object of the invention to provide a bulk goods waggon of the kind specified for incorporation into a train consisting of several such waggons, with which there is improved capability of use, while retaining automatic unloading without restriction.

This object is achieved with a bulk goods waggon of the kind specified and characterised in that the waggon body comprises a central partition extending in the longitudinal direction of the waggon and each half of the waggon body is associated with one of the said conveyors arranged at least partially in the lower region thereof.

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storage in the waggons which have been emptied in the meantime. Thus in this respect there is improved and more economical capability of use than may now be required for working duties of this kind with a reduced number of waggons compared with previous duties. That is to say, it is now no longer necessary to travel to working duties with a number of empty waggons corresponding to the full waggons, and back again.

A preferred embodiment of the invention consists in that the two conveyors are designed for the transport of bulk goods in opposite directions. In this way, optimum utilisation of the existing storage capacity is ensured, since with one conveyor for example new ballast can be transported in the direction towards the site. At the same time, with the second conveyor running in the opposite direction the old ballast accumulating in the region of the site can be transported continuously for filling the empty space arising in the meantime in the rear end region of the first conveyor, of the bulk goods waggon furthest away from the site.

The additional conveyor is arranged above the waggon body according to another characteristic of the invention. As a result, bulk goods waggons already in use can easily be converted too, without elaborate refitting work or conversion being necessary for this.

According to another embodiment of the invention, the additional conveyor is releasably connected to the side panels of the waggon body and arranged centrally in relation to the side panels. A releasable fastening of the conveyor to the waggon body of this kind makes it possible to remove the conveyor quickly and easily, in order to use the bulk goods waggon for another purpose too, if necessary. Furthermore, the central arrangement ensures that the bulk goods waggon can easily be combined with many track-laying machines, in which the bulk goods conveyor belts are also as a rule arranged centrally.

Another embodiment of the invention provides that the two ends of the additional conveyor project an equal distance

Due to the construction of the bulk goods waggon in two halves, it is possible to use both halves if necessary either for storage of ballast or for continuous transport of the bulk goods.

In one embodiment of the invention, drive mechanisms of each conveyor can be switched from a slower storage speed to a faster transport speed. As a result, depending on the state of loading or unloading of the bulk goods waggon, the speed of travel of the respective conveyor can be adjusted optimally to the task to be performed - storage or transport of ballast.

A preferred embodiment of the invention is described hereinafter with reference to the accompanying drawings, in which:

Fig. 1 is a side view of a train of several bulk goods waggons and a clearing machine;

Fig. 2 is a side view of a preferred embodiment of a bulk goods waggon according to the present invention incorporated in a train;

Fig. 3 is a plan view of the train shown in Fig. 2; and

Fig. 4 is a side view of another train of bulk goods waggons.

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~~Fig. 2 a side view of another embodiment of a bulk goods~~ waggon according to the ~~invention~~ in the train,

Fig. 3 a ~~plan view~~ of the train shown in Fig. 2, and

~~Fig. 4 another variant of the invention in a side view.~~

A train 1 shown in Fig. 1 consists of a clearing machine 2 and, in front of the latter in the working direction indicated by an arrow 3, a number of bulk goods waggons 4 which can be moved by bogies 5 on a track 6 and each comprise an open-topped waggon body 8 attached to a bogie frame 7. Each bulk goods waggon 4 comprises a conveyor 9 which consists of a bottom conveyor 10 running in the longitudinal direction of the waggon in the bottom region of the waggon body 8 and, adjoining this conveyor in the direction of transport, a raised and projecting transfer conveyor belt 11 which is pivotable about an approximately vertical axis 12. An additional conveyor 13 is connected to side panels 15 of the waggon body 8 by releasable stays 14 above the waggon body 8 and projects an equal distance beyond the respective bogie 5 at both longitudinal ends. The two ends of the conveyor 13 are arranged at different heights, so that in the transfer region 16 the adjacent ends of the respective conveyors 13 come to lie one above the other. Power is supplied to drive mechanisms 17 of the conveyors 9, 13 of the bulk goods waggon 4 in each case by a motor 18.

In use, the train 1 is moved to the site, the bulk goods waggons 4 being filled with new ballast. By means of a clearing chain 19, old ballast 20 is lifted by the clearing machine 2, forming an excavation point 21, and dumped on the clearing conveyor belt 22. This transports the ballast to the upper conveyor 13 of the bulk goods waggon 4 coupled to the clearing machine 2. One end 23 of the clearing conveyor belt 22, which can be bent down for the transfer movement, is arranged in such a way that it overlaps the end of the adjoining upper conveyor 13 accordingly. While the old ballast 20 is transported over the upper conveyor 13 towards the front end of the train 1, at the same time new ballast 24 is conveyed out of the full bulk goods waggons 4 over the lower conveyors 9

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towards the clearing machine 2 and introduced into the track 6 behind the excavation point 21 by means of a conveyor belt 25 (see small arrows in Fig. 1). This discharge takes place using the lower conveyors 9 forming a continuous haulage way in all the bulk goods waggons 4 simultaneously. The empty space which first arises as a result in the foremost bulk goods waggon 4 is refilled continuously with the old ballast 20 brought over the upper conveyors 13, in parallel with discharge. For this purpose the front end 26 in the working direction of the upper conveyor 13 of the foremost bulk goods waggon 4 is shortened, so that the old ballast 20 is dumped onto the lower conveyor 9 of the same bulk goods waggon 4. By the respective drive mechanisms 17, the speeds of travel of the conveyors 9 and 13 can be coordinated with each other according to the level in the bulk goods waggons 4.

Bulk goods waggons 27 shown in Figs. 2 and 3 in each case comprise a bogie frame 30 movable by bogies 28 on a track 29, with a waggon body 31 which is divided into two halves 33, 34 by a partition 32 extending centrally in the longitudinal direction of the waggon. Each of these waggon body halves 33, 34 is equipped with a separate conveyor 39, 40 which consists of a bottom conveyor belt 35, 36 and a raised, projecting transfer conveyor belt 37, 38, which conveyors can be driven by a motor 41 independently of each other in opposite directions (see solid and dashed arrows). In this case each bottom conveyor belt 35, 36 is extended at the respectively opposite end by a transfer conveyor belt 37 or 38. At the right end of the train, indicated by the adjacent bulk goods waggons 27, is located for example a clearing machine, not shown, while at the left end a reversing conveyor belt, also not shown, diverts the flow of ballast from one direction to the other, i.e. from one conveyor 39 or 40 onto the other. At the beginning of use, both halves 33, 34 of the waggon body of bulk goods waggons 27 are filled with new ballast which is transported over the conveyors 39, 40 to the site or clearing machine. As this discharge - respectively forwarding the ballast by means of the

transfer conveyor belts 37, 38 on the adjoining waggons 27 - takes place simultaneously in all waggons 27, an empty space arises immediately in the waggon body half 33 immediately adjoining the clearing machine. The old ballast excavated by the clearing machine is dumped continuously in this empty space and forwarded to the other empty spaces arising in the meantime (see solid arrows in Fig. 3). If shortly before the end of use the new ballast is already removed from the last waggon body half 34 immediately adjoining the clearing machine, the remaining waggon body halves 33, 34 are already filled up with old ballast.

A bulk goods waggon 42 shown partially in Fig. 4 and incorporated into a train comprises a waggon body 43 which is connected to a bogie frame 46 movable by means of bogies 44 on a track 45. A conveyor 47 disposed in place of the bottom surface of the waggon body 43, with a projecting transfer conveyor belt, is provided both for ballast transport and for ballast storage, while an addditional conveyor 48 disposed underneath serves mainly for continuous transport of ballast and is provided with ends located at different heights, in order to ensure overlapping of the conveyor belts in the coupling region of the bulk goods waggons 42. The mode of operation of the bulk goods waggons 42 completely filled with new ballast at the beginning of use is as in the examples already described in Figs. 1 to 3.

The claims defining the invention are as follows:

1. Bulk goods waggon for incorporation into a train of several such waggons, with an open-topped waggon body attached to the bogie frame for storage of the bulk goods and associated therewith a first conveyor which extends at least partially in the lower region of the waggon body and in the longitudinal direction of the waggon and a second conveyor, independent of the said first conveyor, for the transport of bulk goods in the opposite direction, each of the said conveyors having two ends spaced apart from each other in the longitudinal direction of the waggon and arranged at different heights so that on coupling two such bulk goods waggons, the ends of the conveyors of one waggon engage over or under the associated ends of the respective conveyors of the other waggon, thus forming two continuous haulage ways independent of each other, characterised in that the waggon body comprises a central partition extending in the longitudinal direction of the waggon and each half of the waggon body is associated with one of the said conveyors arranged at least partially in the lower region thereof.

2. Bulk goods waggon according to claim 1, characterised in that the drive mechanisms of each conveyor can be switched from a slower storage speed to a faster transport speed.

3. Bulk goods waggon according to claim 1 or 2, and substantially as hereinbefore described with reference to Figs. 2 and 3 of the accompanying drawings.

DATED: 10 December, 1992
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Fig.1

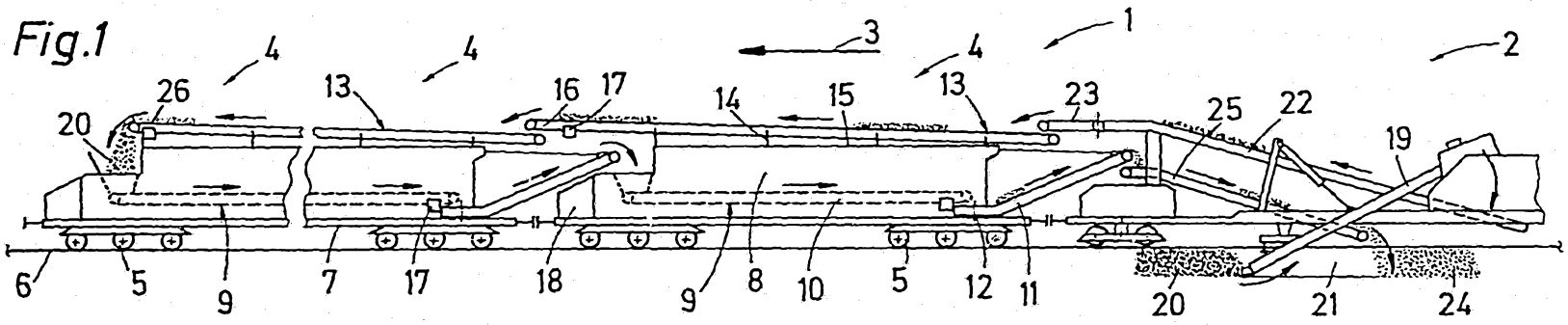
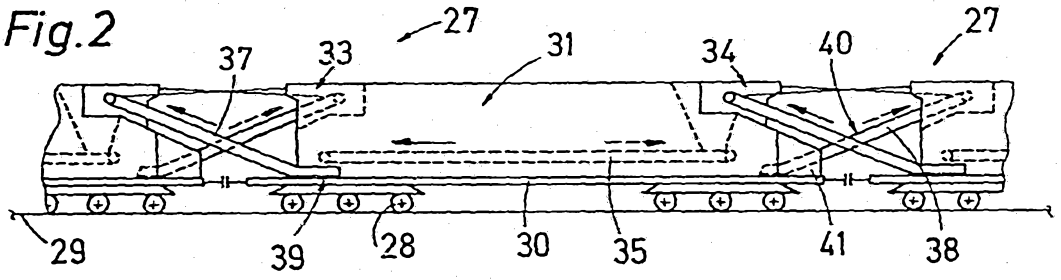


Fig.2



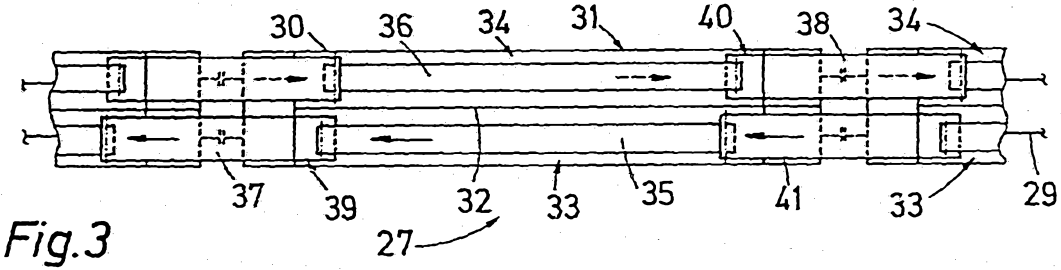


Fig.3

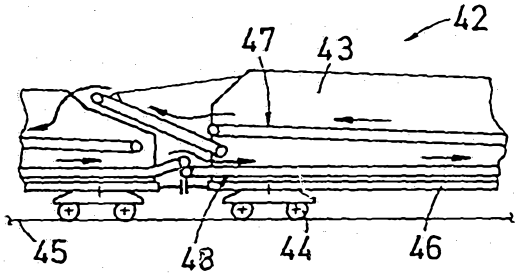


Fig.4

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