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(54) **METHOD FOR TRACK RENEWAL**

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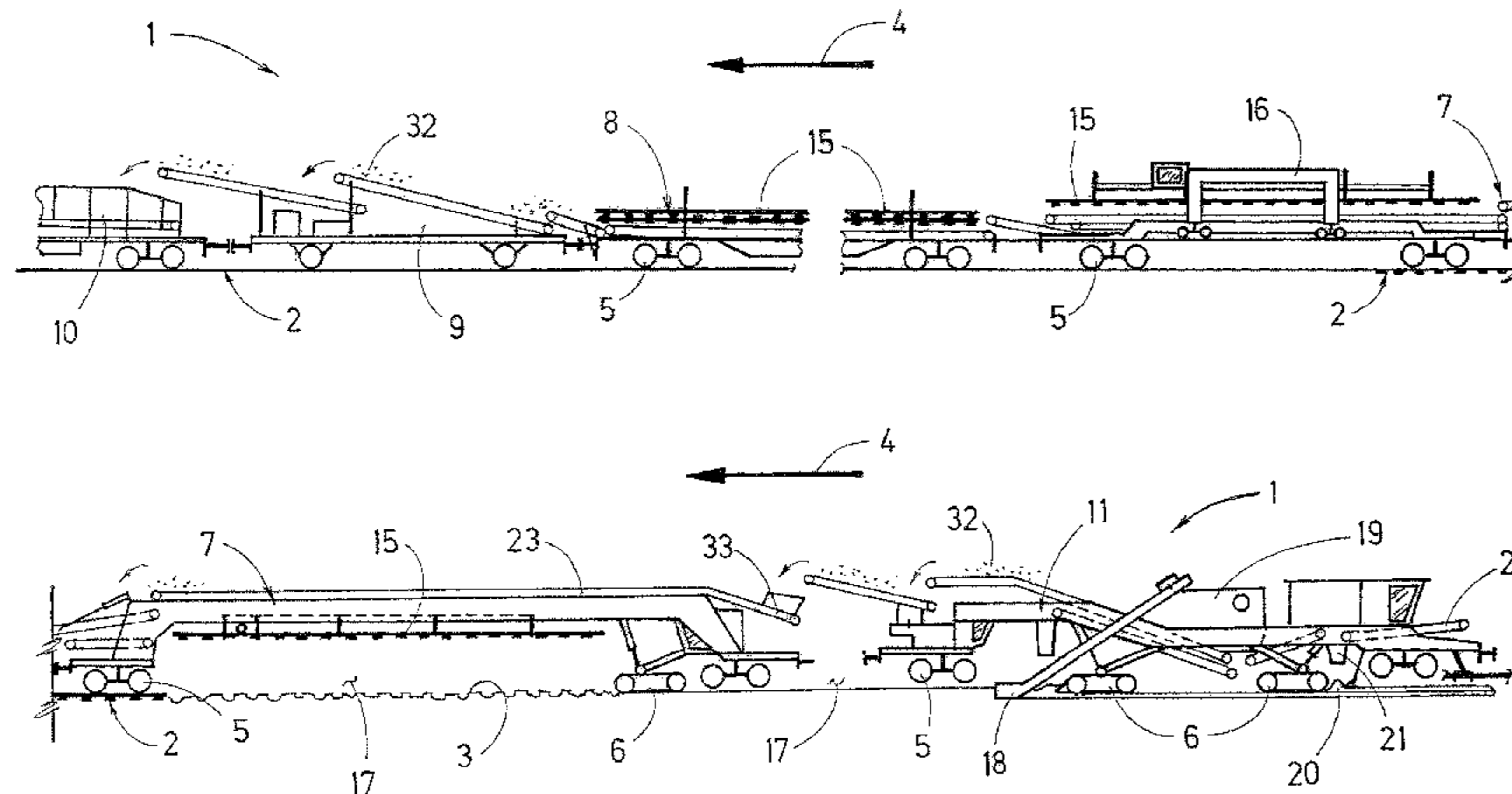
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(57) **ABSTRACT**

In a method for renewing a track (2) and cleaning a ballast  
bed (3), the old track (2) is lifted off the ballast bed in  
sections as a track panel (15), transported forward in a  
working direction (4) and deposited on track panel wagons  
(8). The exposed ballast bed (3), forming a renewal gap (17),  
is cleaned by a cleaning machine (11), spoil (32) accruing in  
the process is transported forward underneath the track  
panels (15) deposited on the track panel wagons (8), and  
stored in hopper cars (10). New rails (29), pre-deposited  
underneath new sleepers (27) positioned on sleeper wagons  
(14), are pulled forward into the renewal gap (17) by the  
cleaning machine (11) and deposited on the cleaned ballast  
bed (3). The new sleepers (27) are laid down on the cleaned

(Continued)



ballast bed and connected to the new rails (29) lifted off the ballast bed (3).

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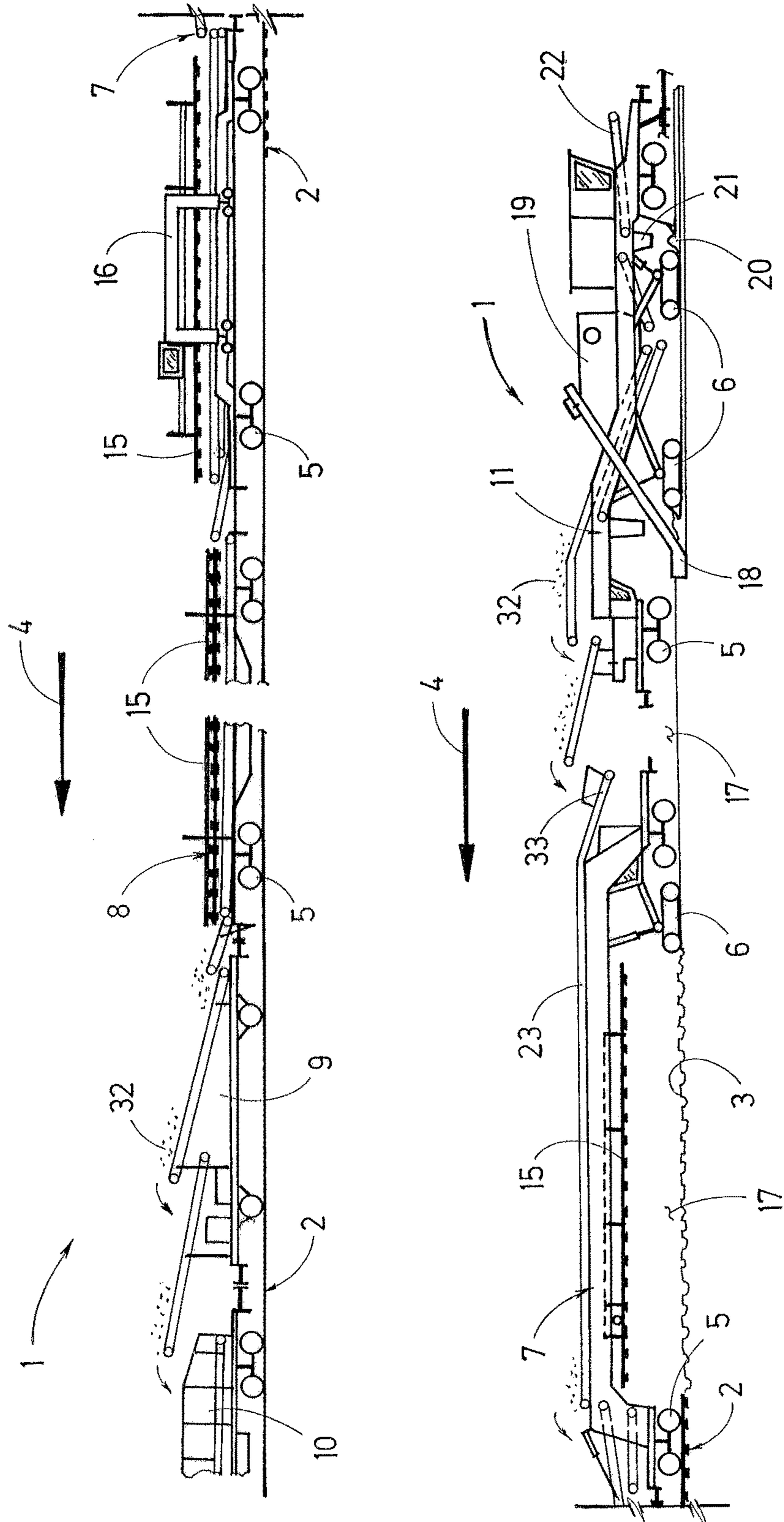
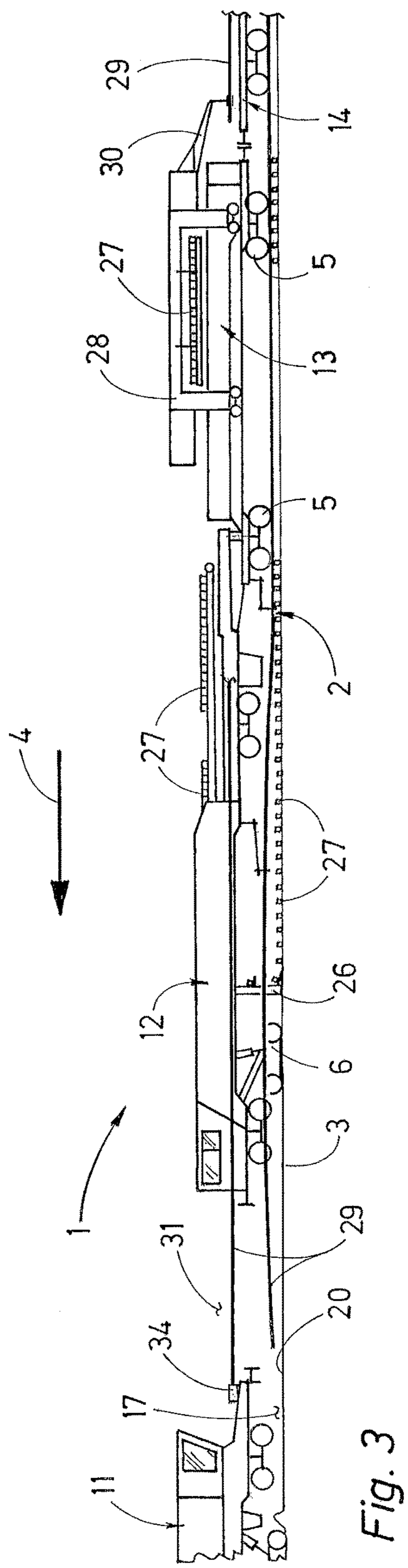
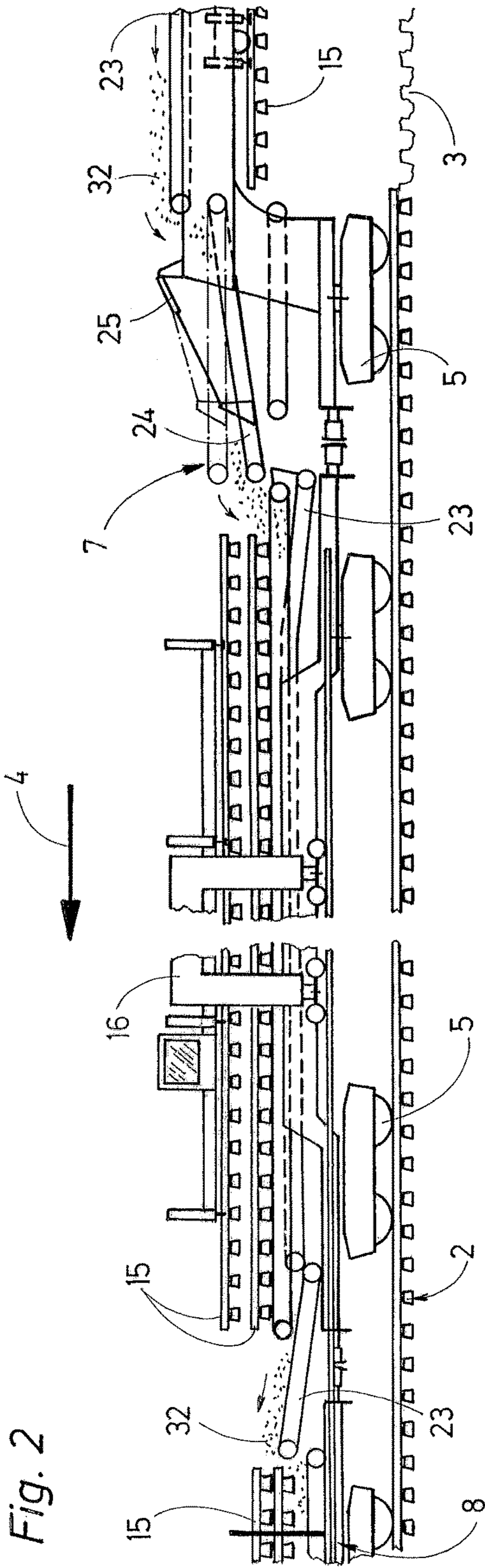


Fig. 1







**METHOD FOR TRACK RENEWAL****CROSS REFERENCE TO RELATED APPLICATIONS**

This application is the National Stage of PCT/EP2016/000024 filed on Jan. 8, 2016, which claims priority under 35 U.S.C. § 119 of Austrian Application No. A 55/2015 filed on Feb. 6, 2015, the disclosures of which are incorporated by reference. The international application under PCT article 21(2) was not published in English.

The invention relates to a method for renewing a track and cleaning a ballast bed.

According to AT 368 217, a method for rehabilitation of a track subgrade is known in which, by means of a bridge-like first track maintenance vehicle, a track panel is lifted off a ballast bed and temporarily removed in the longitudinal direction of the track. In the renewal gap thus created, the old ballast bed is excavated by means of a second vehicle. Thereafter—again by means of the first vehicle—a formation protection layer as well as new ballast is introduced into the renewal gap. Upon this new bedding, the old track panel is laid or reinstalled, the panel having been stored on the first vehicle, suspended from the frame of the same, during the bedding rehabilitation process.

A track maintenance machine for partial renewal of a track is known from CH 657 649, said machine consisting of a carrying beam supported at its ends on two on-track undercarriages. This beam is placed above a track panel to be removed, which is lifted up and fixed to the beam. Then the machine is moved on crawler tracks along the track renewal gap, during which the old ballast bed is removed by means of a clearing chain provided at the end of the beam, and new ballast is brought in. Upon the latter, the old track panel is subsequently laid down again.

It is the object of the present invention to provide a method of the kind mentioned at the beginning with which a simplified complete track renewal is possible.

According to the invention, this object is achieved with a method of the specified kind by way of the features cited in the characterizing part of the main claim.

A method of this kind offers the advantage that a complete track renewal is possible which includes transporting away the old rails and, taking place parallel thereto, bringing on new rails. In an advantageous way, this renders unnecessary two additional track closures required for a removal of the old rails and a delivery of new rails which, as a rule, are pre-deposited laterally next to the track to be renewed.

Additional advantages of the invention become apparent from the dependent claim and the drawing description.

The invention will be described in more detail below with reference to an embodiment represented in the drawing in which FIG. 1 is a schematic side view (shown in two parts for reasons of space) of the front section of an installation for track renewal and ballast cleaning, FIG. 2 is an enlarged detail view of a part of the installation, and FIG. 3 is a schematic side view of the rear section of the installation.

An installation 1, visible in the drawings, serves for renewal of a track 2 and for cleaning of a ballast bed 3 and consists essentially of a number of track maintenance vehicles, arranged one following the other in the longitudinal direction of the track, which are mobile in a working direction 4 on on-track undercarriages 5 and, in part, additionally on crawler tracks 6. The front section of the installation 1, shown in FIG. 1, is dedicated to dismantling the old track 2 and is composed of a panel removing machine 7 and several track panel wagons 8 preceding the same in the

working direction 4. Located at the front end of the installation 1 is a loading wagon 9 to which hopper cars 10 are coupled. An independently mobile ballast bed cleaning machine 11 follows the panel removing machine 7.

5 The rear section of the installation 1, visible in FIG. 3, serves for laying a new track 2 and includes a sleeper laying machine 12, following the cleaning machine 11 in the working direction 4, to which a motor wagon 13 as well as a number of sleeper wagons 14 are coupled.

10 The method of track renewal according to the invention starts with the removal of the old track 2 in sections, in which a track panel 15 is in each case lifted off the ballast bed 3 by means of the panel removing machine 7, thus creating a renewal gap 17, and is transported towards the front in the working direction 4 with the aid of a gantry crane 16 (FIG. 1), where the track panel 15 is deposited on one of the track panel wagons 8 riding on the old track 2. During this, the front end of the panel removing machine 7 is supported via on-track undercarriages 5 on the old track 2 while the rear end of the machine 7 rests in the renewal gap 17 on the now exposed ballast bed 3 via a crawler track 6 lowered for this purpose.

The cleaning machine 11, following in the renewal gap 17 and also moving on lowered crawler tracks 6, takes up the ballast bed 3 by means of a clearing chain 18 and cleans it in a screening plant 19. The cleaned ballast 20 is discharged right away again via a chute 21 and graded behind the rear crawler track 6. Additionally, there is also the alternative possibility to introduce new ballast, as needed, by way of a conveyor belt 22 via the chute 21 into the renewal gap 17, and to grade the same.

As can be seen in FIGS. 1 and 2, the spoil 32 accruing in the screening plant 19 is transported forward in the working direction 4 of the installation 1 via a conveyor belt road 23 underneath the track panels 15 deposited on the track panel wagons 8, where it is discharged via the loading wagon 9 (FIG. 1) into the hopper cars 10 for storage. In order to enable a removed track panel 15 to be shifted forward without obstruction on the panel removing machine 7 for being placed on the first track panel wagon 8, a conveyor belt 24 of the conveyor belt road 23 is designed to be vertically pivotable by means of a drive 25. While the track panel 15 is shifted forward through the region of said conveyor belt 24, the transporting of the spoil is briefly interrupted.

The forward motions of the panel removing machine 7 and the trailing cleaning machine 11 must be coordinated with one another in such a manner that a continuous transfer of the spoil 32 to a rear end 33 of the conveyor belt road 23 is possible.

15 In the rear section of the installation 1, shown in FIG. 3, the independently mobile sleeper laying machine 12 follows the cleaning machine 11 at a certain distance and, during this, is supported at its front end by a crawler track 6 in the renewal gap 17 on the new or cleaned ballast 20. Upon the latter, new sleepers 27 which are brought on in layers with the aid of a gantry crane 28 are continuously laid down by means of a sleeper laying device 26. The new sleepers 27 are stored on sleeper wagons 14 (not shown in detail) arranged at the rear end of the installation 1, wherein additionally new rails 29 are also stored underneath the new sleepers 27.

20 On the sleeper wagons 14, these new rails 29 are gripped in pairs by means of a gripping device 30 with the aid of the gantry crane 28 and transported forward in the working direction 4 up to a front transfer position 31. In this position, the free ends of the new rails 29 are received by suitable rail tongs 34—fastened to the cleaning machine 11—and pulled

forward into the renewal gap 17 and then temporarily deposited on the cleaned ballast 20 of the ballast bed 3. After the new sleepers have been placed, the pre-deposited new rails 29 are lifted from the ballast bed 3, spread onto the new sleepers 27 and connected to the same to form the renewed track 2. 5

The invention claimed is:

1. A method for renewing a track and cleaning a ballast bed (3), comprising the following steps:

- a) lifting an old track off the ballast bed in sections as a track panel is, transported forward in a working direction and deposited on track panel wagons, 10
- b) cleaning the exposed ballast bed, forming a renewal gap, by a cleaning machine, spoil accruing in the process is transported forward underneath the track panels deposited on the track panel wagons (8), and stored in hopper cars, 15
- c) pulling new rails, pre-deposited underneath new sleepers positioned on sleeper wagons, forward into the renewal gap by the cleaning machine and deposited on the cleaned ballast bed, and 20
- d) laying down the new sleepers on the cleaned ballast bed and connected to the new rails lifted off the ballast bed.

2. The method according to claim 1 wherein, by means of a gantry crane provided for transport of the new sleepers in the working direction, the new rails are pulled in pairs into a front transfer position for being received by the cleaning machine. 25

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