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(54) **RAILWAY MODEL TRAIN FOR DUST COLLECTION**

EISENBAHNMODELLZUG ZUR STAUBSAMMLUNG

TRAIN MINIATURE POUR COLLECTE DE POUSSIÈRE

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Description

TECHNICAL FIELD

[0001] The present invention relates to a dust collecting model railroad car for collecting dust on a model railroad track during its running.

BACKGROUND ART

[0002] Many model railroads are scale models that reproduce the shapes of real objects based on the scales such as 1/87 (HO-gauge). In addition, with the exception of some large sized models, an external power supplied generally through the rails on the model railroad track is used as motive power of model railroad cars.

[0003] The model railroad track is constantly exposed to dust in typical environments without dust protection and dust trapped on the model railroad track may lead to model railroad car malfunctions. In addition, dust on the top surface of the rails can lead to poor current collection and sparking on the rails and wheel tread.

[0004] As a measure for removing dust on a model railroad track, there are, for example, those disclosed in patent literature 1 and non patent literature 1. Patent literature 1 discloses a model railroad car in which a variety of cleaning heads, including centrifugal fan for dust collection, are mounted on a vertically mounted motor shaft. Non patent literature 1 also provides a model railroad car with a centrifugal fan fixed on a vertically oriented motor shaft.

[0005] DE8314477U1 discloses a rail cleaning car for model railway systems comprising first and second vehicle bodies, connected via a conduit. A first vehicle body is partitioned into two sections, one fed by the conduit 27. The other section contains a motor which drives a fan blade. A second vehicle body carries a drive gear for a cleaning roller, and a nozzle below that vehicle body which feeds the conduit.

CITATION LIST

[0006]

Patent Document 1: JP 2000-325673
 Non-Patent Document 1: Catalog by LUX-Modellbau; issued February 2017 [Search performed on Internet on August 31, 2018 (URL) https://www.lux-modellbau.de/cms/upload/downloads/kataloge_flyer_prospekte/Spur_HO.pdf]

SUMMARY OF THE INVENTION

PROBLEM TO BE SOLVED BY THE INVENTION

[0007] However, existing model railroad cars for dust collection have a structure which is unsuited as a model, such as a net or filter for dust collection that is exposed

as a part of the vehicle body. In addition, the length of the centrifugal blower in the direction of the rotation axis is restricted to less than the vehicle body height, because it is installed in a vertical direction.

[0008] Existing model railroad cars for dust collection can only install the outlet of the centrifugal fan in one direction which faces the dust collection chamber.

[0009] On existing model railroad cars for dust collection, the upstream centrifugal fan creates a positive pressure in the dust collection chamber, which can cause dust to escape from the dust collection chamber.

[0010] Existing model railroad cars for dust collection require a separate powered model railroad car such as a locomotive to be connected, because self-propelling is not possible. Therefore, in order to collect dust up to the end of a model railroad track, a turnaround may be necessary so that the model railroad car for dust collection advances first into the end.

[0011] The present invention provides a model railroad car for dust collection having a structure which is harmonized with other scale models, and wherein a centrifugal blower having a size equal to or larger than existing model railroad cars for dust collection can be installed.

MEANS FOR SOLVING THE PROBLEM

[0012] The present invention is set out in the claim. Its characterising features include a dust collection nozzle which is open to below a vehicle body; a dust collection chamber which is positioned at the middle part of the vehicle body, and is partitioned by a partition wall and a dust collection filter; a centrifugal blower, and a dust collection fan which is a centrifugal fan oriented toward the dust collection filter; and an outlet at the periphery of the centrifugal fan. One or more driving bogie(s) as a running gear can be installed.

EFFECTS OF THE INVENTION

[0013] According to the present invention, the centrifugal blower can be housed in a vehicle body having a height of about the diameter of the centrifugal fan when installed horizontally, it can be mounted on a model of a work train such as a rail inspection car. In addition, the restriction on the length of the centrifugal blower in its rotational axis direction is also relaxed, therefore, there is an advantage of installing a larger centrifugal blower than in the existing model railroad car for dust collection even in a model of a small car of about 15 m in actual size.

[0014] In the model railroad car for dust collection of the present invention, since the dust collection chamber is brought to a negative pressure by the centrifugal fan installed downstream, there is less risk of dust leaking from the dust collection chamber. The dust collection filter is placed between the dust collection chamber and the centrifugal fan and need not be exposed to the exterior of the vehicle, so it will not impair the exterior of the model.

[0015] In the model railroad car for dust collection of

the present invention, the centrifugal blower is installed horizontally, therefore, the outlet can be arbitrarily installed around the centrifugal fan, i.e., at any of four directions of both left and right sides, under the floor, and on the roof.

[0016] The model railroad car for dust collection of the present invention is self-propelling by mounting a driving bogie as a running gear and can easily collect dust to the end of model railroad track.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017]

Fig.1 is an elevational view of an end of the model railroad car for dust collection;

Fig.2 is a cross-sectional view according to the section line A-A in Fig.1;

Fig.3 is a cross-sectional view according to the section line B-B in Fig.1; and

Fig.4 is a perspective view of the dust collection nozzle 14.

MODE(S) FOR CARRYING OUT THE INVENTION

(Example 1)

[0018] An example of the model railroad car for dust collection of the present invention will be described with reference to Figs. 1 to 4.

[0019] Dust on model railroad track 11 is drawn through a dust collection nozzle 14 toward a path 8, and to a dust collection chamber 6 in communication with the dust collection nozzle 14. The dust collection chamber 6 is located at the middle part of the vehicle body partitioned by partition wall 15 and dust collection filter 5 at the front and rear. The drawn dust is separated from the air by vacuum filtration through the dust collection filter 5 and centrifugal fan 4. The residue 12 accumulated in the dust collection chamber 6 can be removed by opening a dust collection chamber lid 7. In addition, a dust bag may be attached instead of the dust collection filter 5.

[0020] The air having passed through the dust collection filter 5 is taken into the centrifugal fan 4, and the air is discharged from an outlet 3. The outlet 3 can be arbitrarily installed around the centrifugal fan 4, i.e., at any of four directions of both left and right sides, under the floor, and on the roof. To the rotational axis of a blower motor 2 for driving the centrifugal fan 4, it is desirable to install a flywheel 1 to be prepared for power outage.

[0021] The model railroad car for dust collection is equipped with a driving bogie 16 which is equipped with a drive motor 9, and a trailing bogie 10 as running gears, so that it can be self-propelling to the end of model railroad track 11. Incidentally, when connecting the model railroad car for dust collection as a trailer to a powered model railroad car such as a locomotive, the driving bogie 16 is replaced with a trailing bogie, and drive motor 9 is

omitted.

[0022] The dust collection nozzle 14 shown in Fig. 4 communicates to the dust collection chamber 6 from under the floor and has an opening with a width equal to or greater than the track gauge and equal to or less than the vehicle body width.

REFERENCE SIGNS LIST

10 **[0023]**

| | |
|----|-----------------------------|
| 1 | FLYWHEEL |
| 2 | BLOWER MOTOR |
| 3 | OUTLET |
| 4 | CENTRIFUGAL FAN |
| 5 | DUST COLLECTION FILTER |
| 6 | DUST COLLECTION CHAMBER |
| 7 | DUST COLLECTION CHAMBER LID |
| 8 | PATH |
| 9 | DRIVE MOTOR |
| 10 | TRAILING BOGIE |
| 11 | MODEL RAILROAD TRACK |
| 12 | RESIDUE |
| 13 | VEHICLE BODY |
| 14 | DUST COLLECTION NOZZLE |
| 15 | PARTITION WALL |
| 16 | DRIVING BOGIE |

30 **Claims**

1. A model railroad car for dust collection comprising:

a vehicle body (13),
 a dust collection nozzle (14), which is in communication with a dust collection chamber (6) in the vehicle body (13);
 a blower (2) installed horizontally in the front-rear direction of the vehicle body (13), with a dust collection fan (4); and
 an outlet (3);

characterized in that:

the dust collection nozzle (14) is open to below the vehicle body (13);
 the interior of the vehicle body (13) is partitioned by a partition wall (15) and a dust collection filter (5) thereby to define the dust collection chamber (6) in a middle part of the vehicle body (13) between the partition wall (15) and the dust collection filter (5) at the front and rear thereof;
 the blower (2) is centrifugal, and the dust collection fan (4) is a centrifugal fan oriented toward the dust collection filter (5);
 the outlet is at the periphery of the centrifugal fan.

Patentansprüche

1. Modelleisenbahnwagen zum Sammeln von Staub, umfassend:

einen Fahrzeugkörper (13),
 eine Staubsammeldüse (14), die mit einer Staubsammelkammer (6) in dem Fahrzeugkörper (13) kommuniziert,
 ein Blasgerät (2), das horizontal in der von vorne nach hinten gehenden Richtung des Fahrzeugkörpers (13) installiert ist, mit einem Staubsammelgebläse (4) und
 einen Auslass (3),
dadurch gekennzeichnet, dass:

die Staubsammeldüse (14) zu unterhalb des Fahrzeugkörpers (13) offen ist,
 das Innere des Fahrzeugkörpers (13) durch eine Trennwand (15) und einen Staubsammelfilter (5) unterteilt ist, um dadurch die Staubsammelkammer (6) in einem mittleren Teil des Fahrzeugkörpers (13) zwischen der Trennwand (15) und dem Staubsammelfilter (5) an der Vorder- und der Rückseite davon zu definieren,
 das Blasgerät (2) zentrifugal ist und das Staubsammelgebläse (4) ein zu dem Staubsammelfilter (5) hin ausgerichtetes Zentrifugalgebläse ist,
 sich der Auslass am Umfang des Zentrifugalgebläses befindet.

collecte de poussière (5) à l'avant et l'arrière de celle-ci ;
 le souffleur (2) est centrifuge, et le ventilateur de collecte de poussière (4) est un ventilateur centrifuge orienté en direction du filtre de collecte de poussière (5) ;
 la sortie est située à la périphérie du ventilateur centrifuge.

Revendications

1. Véhicule ferroviaire miniature de collecte de poussière comprenant :

un corps de véhicule (13),
 une buse de collecte de poussière (14), qui communique avec une chambre de collecte de poussière (6) dans le corps de véhicule (13) ;
 un souffleur (2) installé horizontalement dans la direction avant-arrière du corps de véhicule (13), avec un ventilateur de collecte de poussière (4) ; et
 une sortie (3) ;
caractérisé en ce que :

la buse de collecte de poussière (14) débouche sous le corps de véhicule (13) ;
 l'intérieur du corps de véhicule (13) est divisé par une cloison (15) et un filtre de collecte de poussière (5) de façon à définir ainsi la chambre de collecte de poussière (6) dans une partie médiane du corps de véhicule (13) entre la cloison (15) et le filtre de

Fig 1

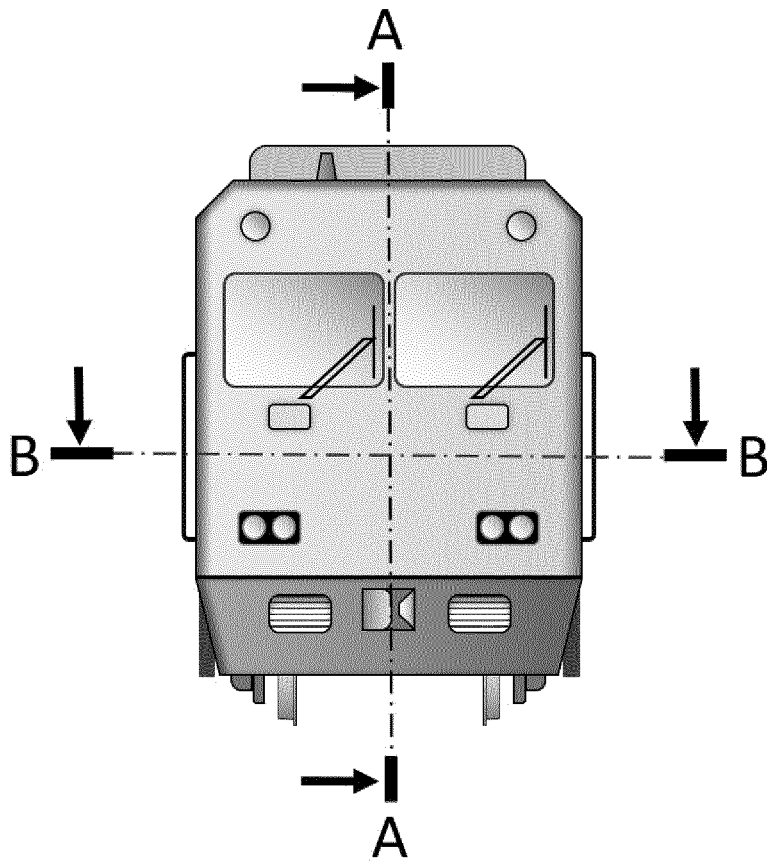


Fig 2

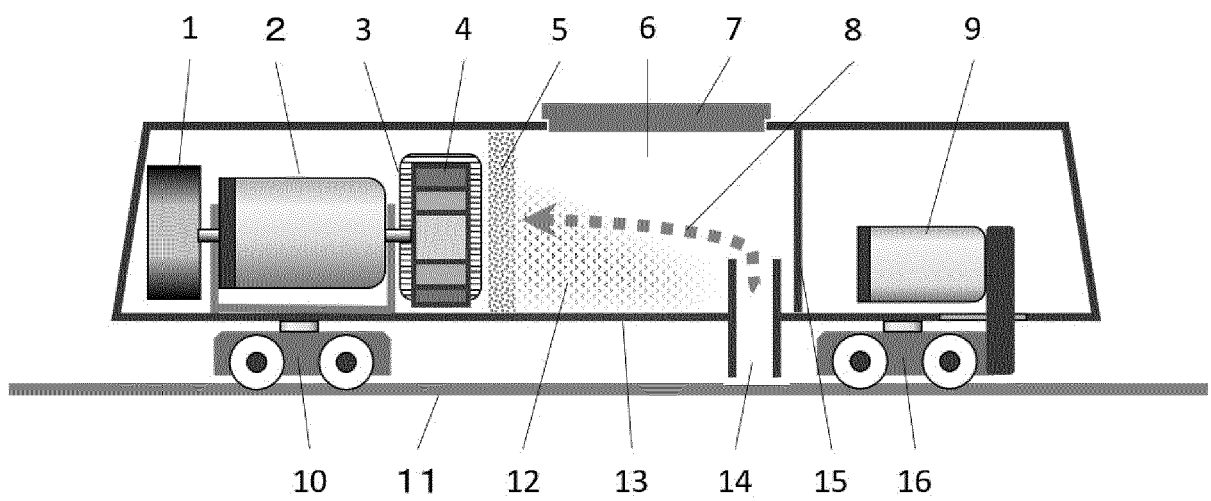


Fig 3

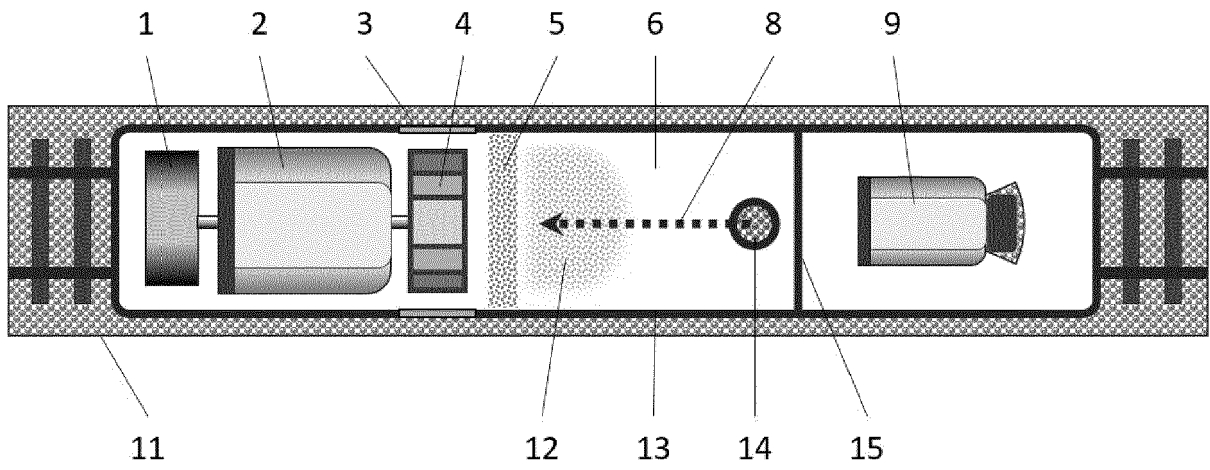
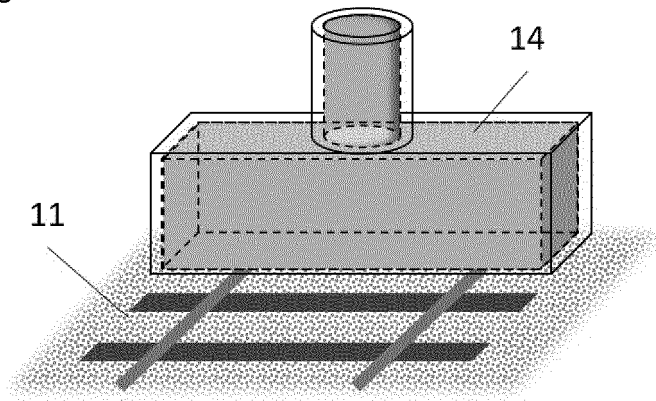


Fig 4



REFERENCES CITED IN THE DESCRIPTION

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- JP 2000325673 A [0006]

Non-patent literature cited in the description

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