Dec. 30, 1952 J. VIAL 2,623,651

DUMP CAR

Filed May 15, 1948 8 Sheets-Sheet 1

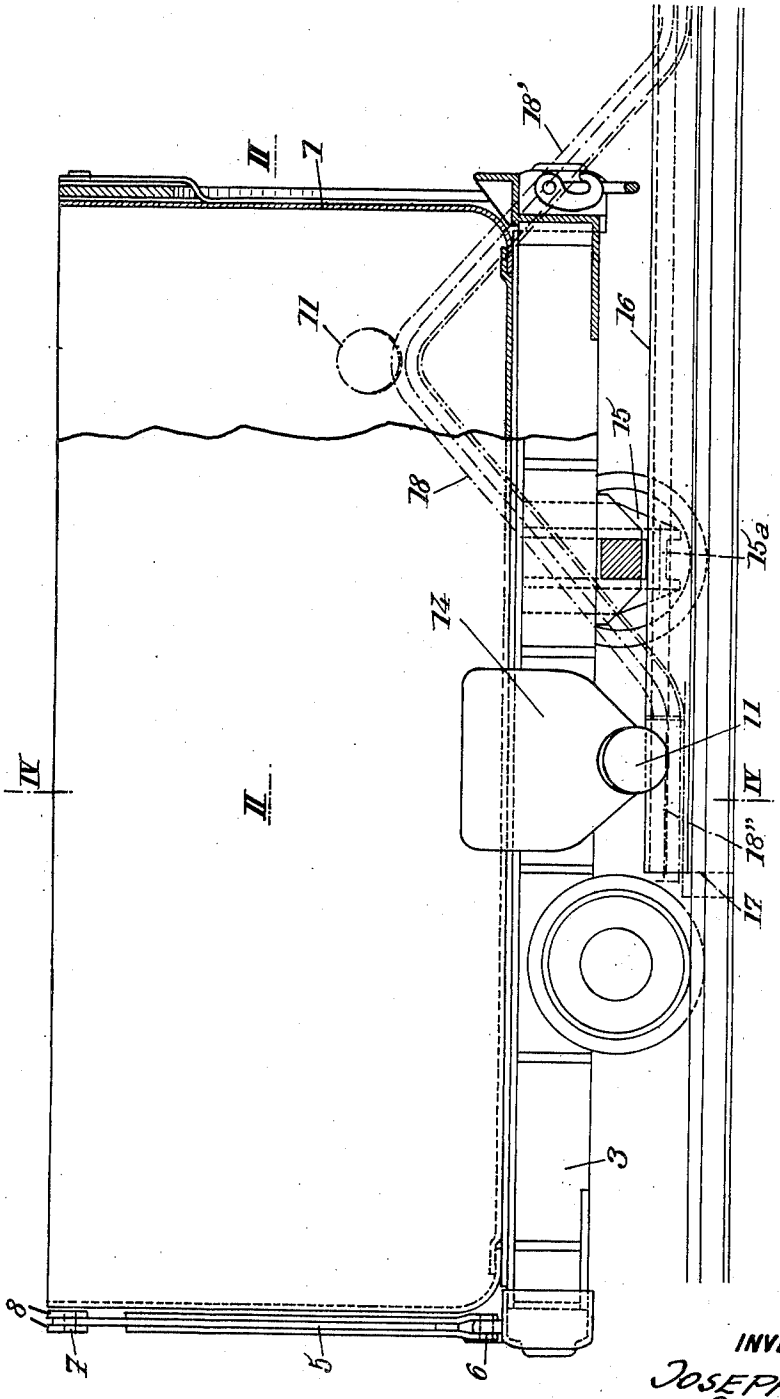


Fig. 1.

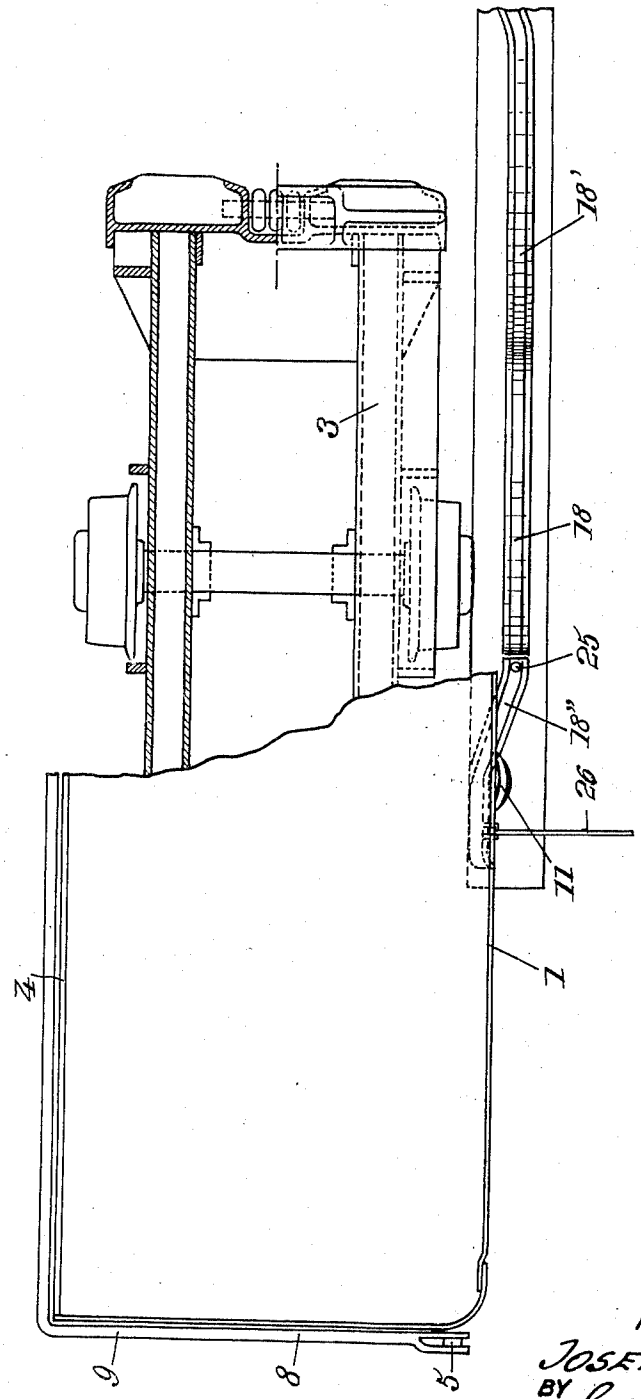
INVENTOR
JOSEPH VIAL
BY Leon M. Strauss
Atty.

Dec. 30, 1952 J. VIAL 2,623,651

DUMP CAR

Filed May 15, 1948 8 Sheets-Sheet 2

Fig. 2.



INVENTOR
JOSEPH VIAL
BY
Glen M. Strauss
Atty.

Dec. 30, 1952 J. VIAL 2,623,651

DUMP CAR

Filed May 15, 1948 8 Sheets-Sheet 3

Fig. 3.

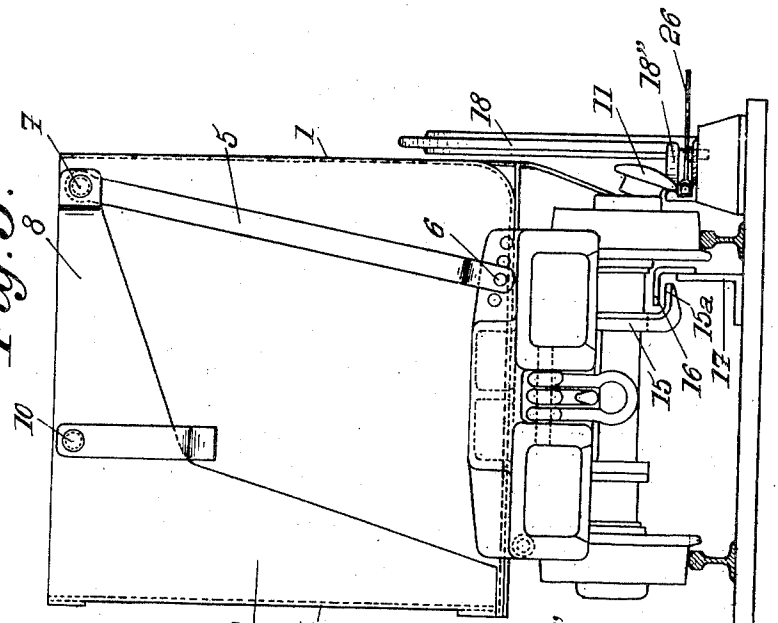
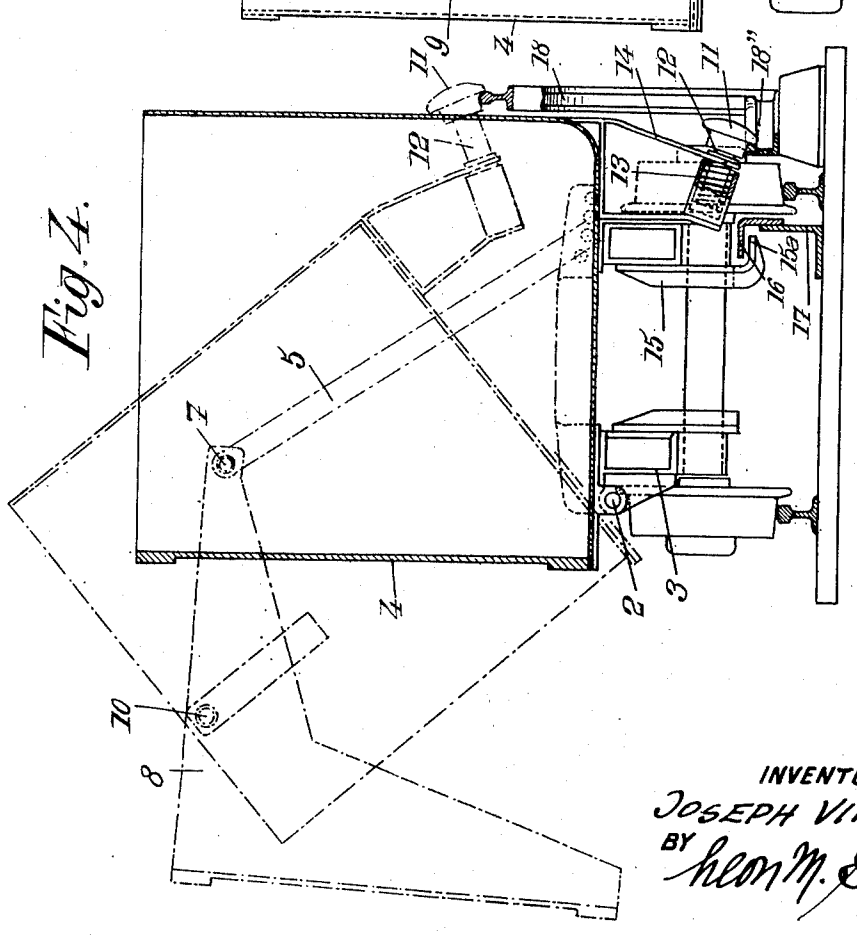


Fig. 4.



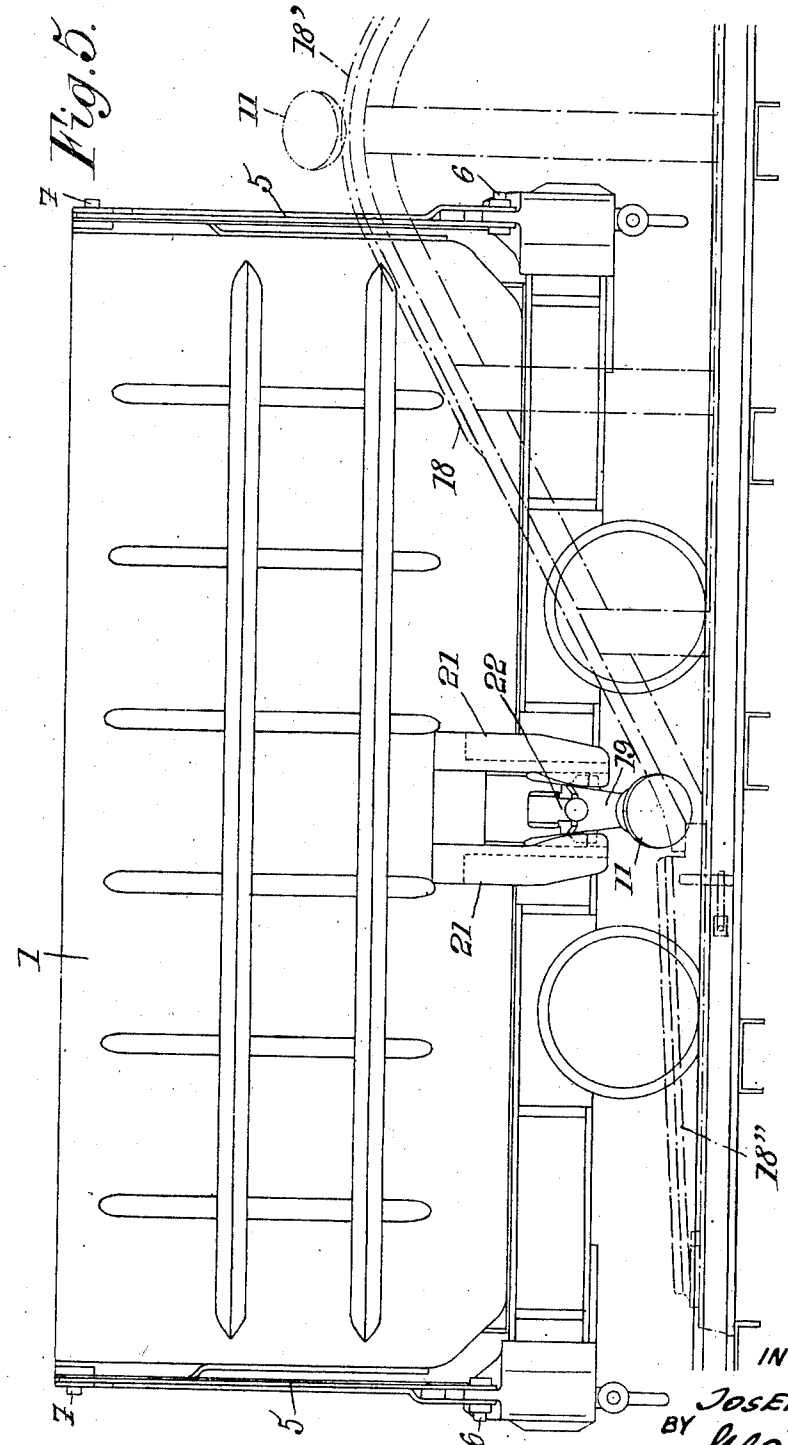
INVENTOR
JOSEPH VIAL
BY Leon M. Strauss
AGT.

Dec. 30, 1952 J. VIAL 2,623,651

DUMP CAR

Filed May 15, 1948 8 Sheets-Sheet 4

Fig. 5.



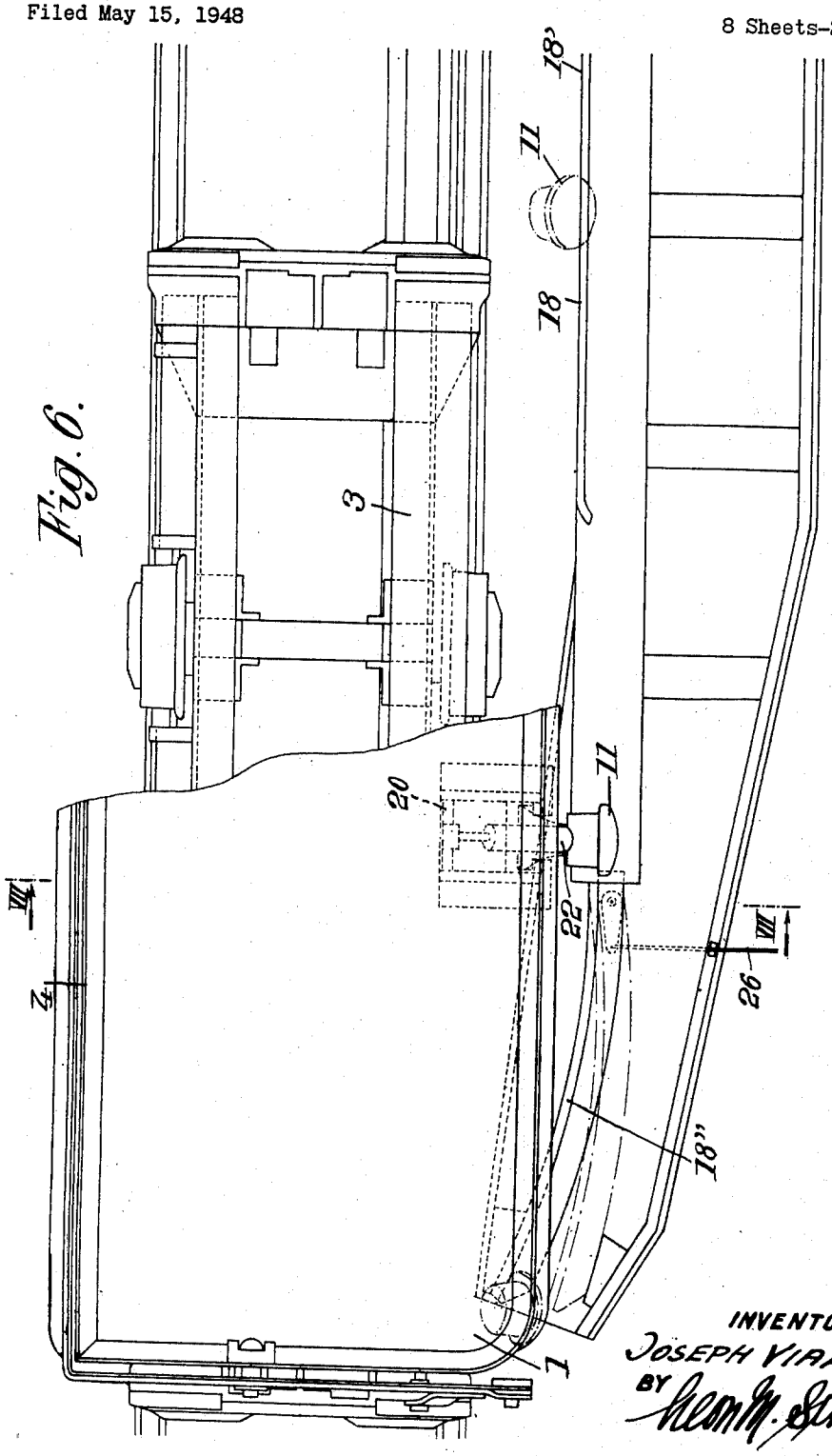
INVENTOR
JOSEPH VIAL
BY Alson M. Shaw
AGT.

Dec. 30, 1952 J. VIAL 2,623,651

DUMP CAR

Filed May 15, 1948 8 Sheets-Sheet 5

Fig. 6.



INVENTOR
JOSEPH VIAL
BY Leon M. Strauss
AGT.

Dec. 30, 1952

J. VIAL

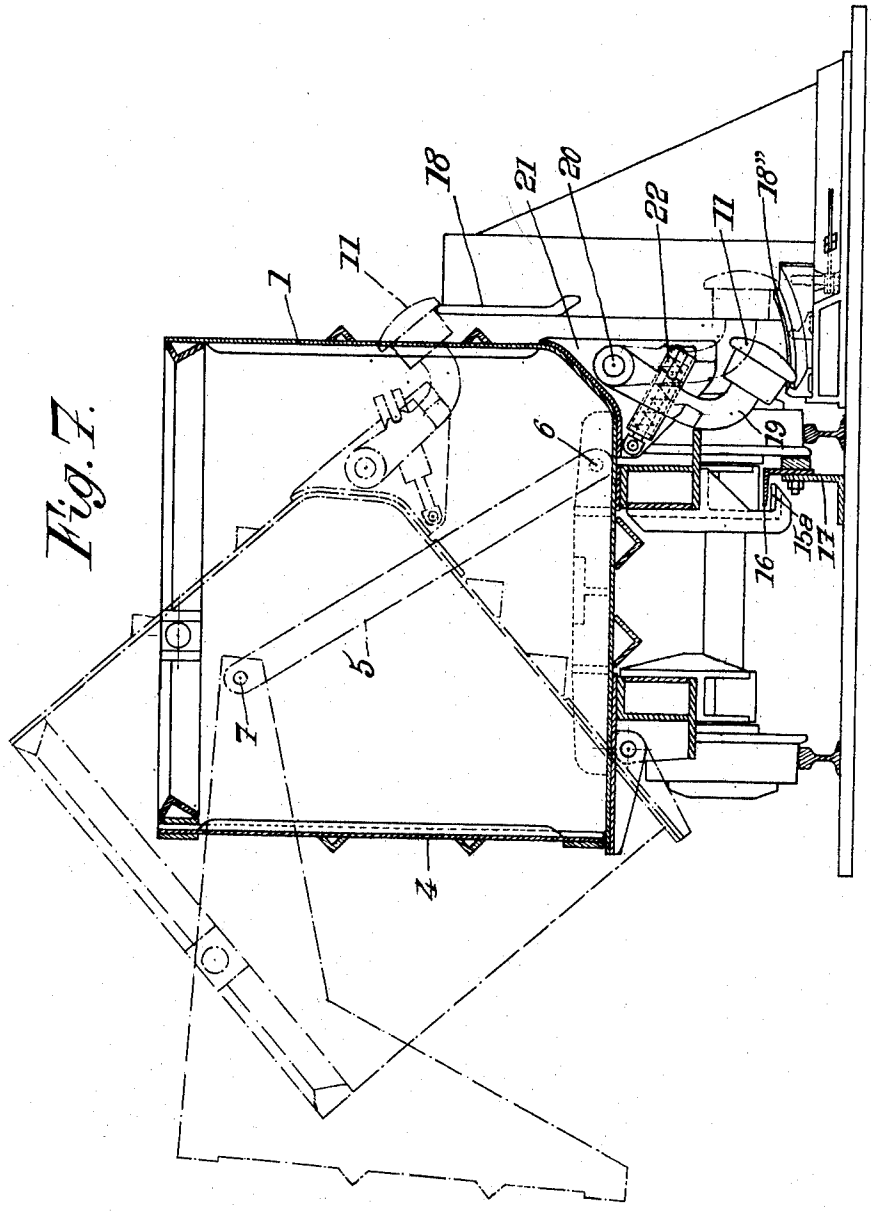
DUMP CAR

2,623,651

Filed May 15, 1948

8 Sheets-Sheet 6

Fig. 7.



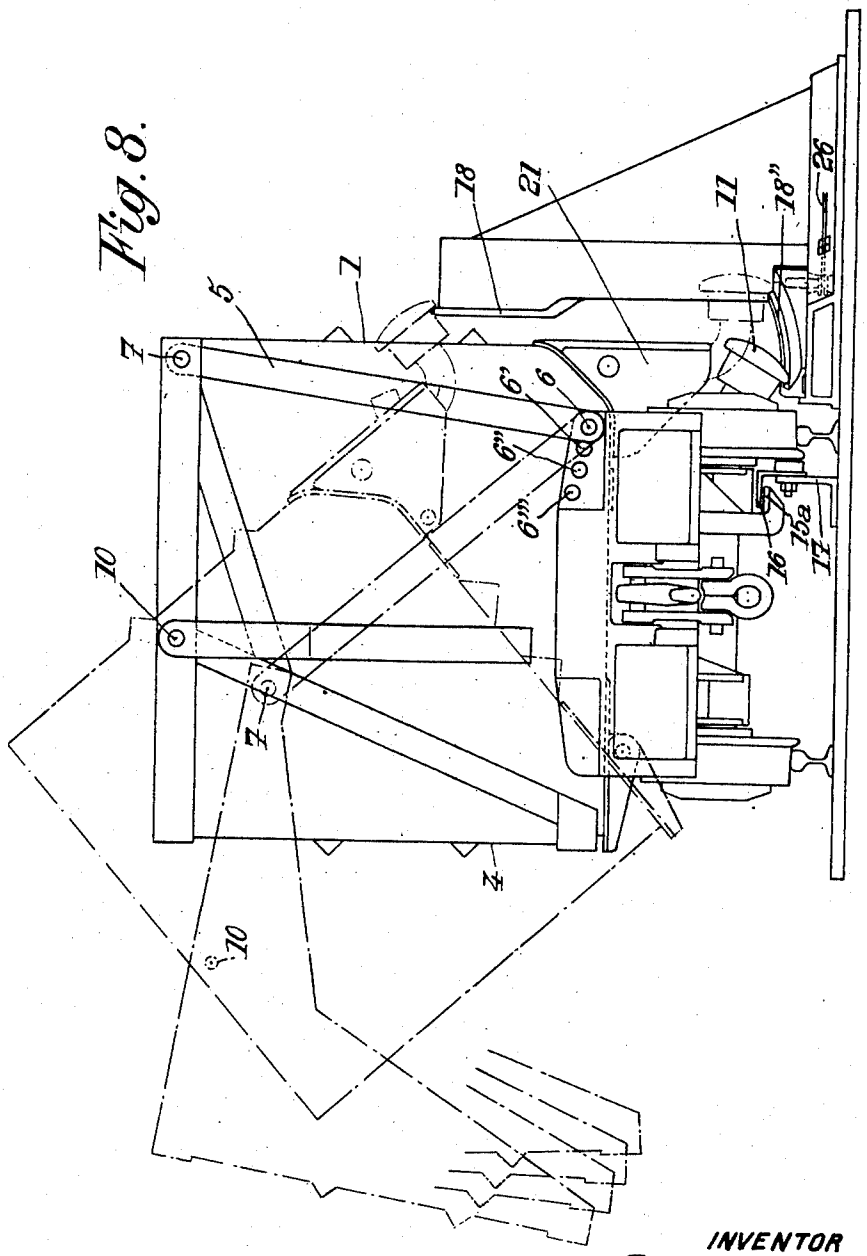
INVENTOR
JOSEPH VIAL
BY Leon M. Strauss
ATT.

Dec. 30, 1952 J. VIAL 2,623,651

DUMP CAR

Filed May 15, 1948 8 Sheets-Sheet 7

Fig. 8.



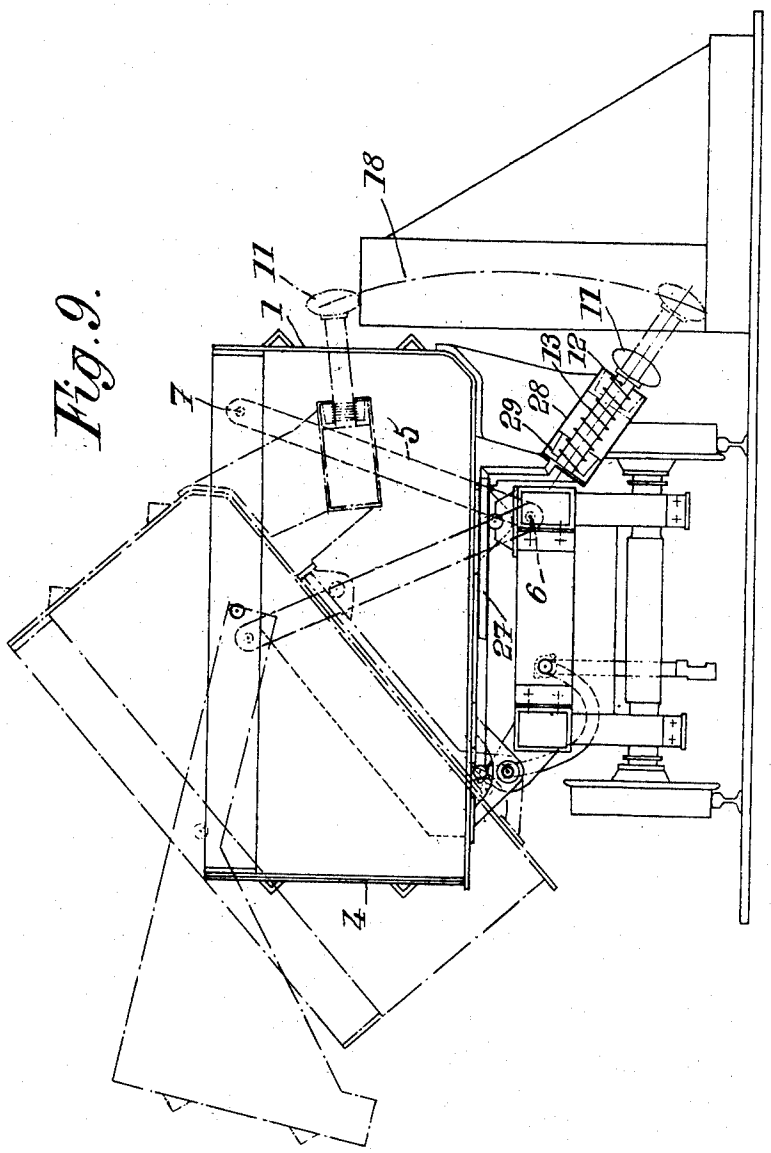
INVENTOR
JOSEPH VIAL
BY Leon M. Strauss
Atty.

Dec. 30, 1952 J. VIAL 2,623,651

DUMP CAR

Filed May 15, 1948 8 Sheets-Sheet 8

Fig. 9.



INVENTOR
JOSEPH VIAL
BY Glenn M. Strauss
ATT.

Patented Dec. 30, 1952

2,623,651

UNITED STATES PATENT OFFICE

2,623,651

DUMP CAR

Joseph Vial, Paris, France

Application May 15, 1948, Serial No. 27,303
In France June 10, 1947

4 Claims. (Cl. 214—62)

1

The present invention relates to dump cars of the so-called Granby type, i. e. including a body dumped to one side of the track by pivoting about a longitudinal axis under the action of a roller carried by said body and running up an incline constituted by an auxiliary rail provided on the side of the track opposed to that to which the body is to be dumped.

Such dump cars involve a serious drawback, to wit the presence of this roller on the side wall of the body and at the lower part thereof.

In the case of cars having a relatively narrow body, this roller projects to the outside of the car gauge and constitutes a serious danger for workmen, especially when the cars are intended to run in underground workings, where little space is left free on either side of the track and visibility is bad.

In the case of cars having a wide body which projects sufficiently on either side of the frame, it is possible to reduce this danger by housing the roller in the space under the side of the body. But in this case the locomotive, the gauge of which is normally analogous to that of the cars, cannot run along the track past the dumping rail and dumping operations are complicated as they can only be performed by backing the train.

The chief object of my invention is to provide a dump car of the above mentioned kind which avoids these drawbacks.

For this purpose, according to a first feature of my invention, the roller intended to cooperate with the dumping rail is shiftably mounted on the body so as to be able to occupy either an active position, outside of the car gauge, in which it can engage said dumping rail, or a retracted position, inside of the car gauge, which constitutes its normal position and for which the above mentioned danger is avoided.

Advantageously, and according to another feature of my invention, means are provided for automatically bringing the roller from its normal retracted position to its active position just when the car is coming opposite the dumping rail, such means being for instance constituted by cam means mounted on the side of the track ahead of the dumping rail so as to engage the roller in the retracted position and to pull it into active position in engagement with the dumping rail.

Preferably, these cam means are shiftable so as to permit of making them inoperative when so desired, whereby the car can run past the dumping rail without its body being dumped.

2

According to another possible embodiment of my invention, the means for shifting the roller from retracted into active position are operated at the desired time by the locomotive driver or any other operator on board the train, through suitable control means provided on the car.

Other features of my invention will appear from the following detailed description of some specific embodiments thereof, given merely by way of example, and in which:

Fig. 1 is a side elevation of a dump car according to my invention, with parts in longitudinal vertical section;

Fig. 2 is a corresponding plan view, partly in section on the line II—II of Fig. 1;

Fig. 3 is an end view corresponding to Figs. 1 and 2;

Fig. 4 is a vertical section on the line IV—IV of Fig. 1;

Fig. 5 is a view similar to Fig. 1 of another embodiment of my invention;

Fig. 6 is a plan view corresponding to Fig. 5, the body being partly cut away;

Fig. 7 is a vertical cross section on the line VII—VII of Fig. 6;

Fig. 8 is an end view of the car of Figs. 5 to 7;

Fig. 9 is a cross sectional view of a third embodiment of a dump car according to my invention.

In the embodiment illustrated by the drawings, the car includes a body 1 mounted on a frame 3 to which it is pivoted about a longitudinal axis owing to the provision of hinge-like connections 2 (Fig. 4).

Pivoting of this body toward the left (Fig. 4) causes the side wall or door 4 thereof to open under the action of a lever 5 pivoted at 6 to frame 1 and at 7 to an arm 8 rigid with bent extensions 9 of door 4.

Dumping is performed by a roller 11 running up an incline constituted by a rail 18 provided on the side of the track opposed to that to which the body is to be dumped.

According to a feature of my invention, roller 11 is normally held in retracted position so as to be inside the car gauge, and this roller is shiftable into an active position where, coming outside of the car gauge, it can engage the dumping rail 18.

In the embodiment of Figs. 1 to 4, roller 11 is carried by a spindle 12 slidable axially in a support 14 rigid with the car body and a spring 13 urges said spindle 12 inwardly so that said roller is normally retracted and located inside the car gauge.

The dumping rail includes, in the usual manner, an upwardly inclined portion 18, which cooperates with roller 11 to cause dumping of the car and a downwardly inclined portion 18' for returning said body into normal position under the effect of gravity, these two portions 18 and 18' being for instance symmetric with respect to a vertical plane at right angles to the plane of Fig. 1 and passing through the top of the said dumping rail.

According to a feature of my invention, the dumping rail is associated with a cam rail element 18'' located at the level of the bottom of dumping rail 18 and oblique with respect to the vertical plane of said dumping rail so that the front end of said cam element 18'' is located on the inner side of the vertical plane in which roller 11 is normally running, whereas its rear end is in line with dumping rail 18. Thus, when roller 11 in retracted position comes opposite said front end of cam element 18'', it is caught by said cam element and pulled outwardly against the action of spring 13 so as to run along dumping rail 18.

The fact of running the car past the dumping rail therefore causes roller 11 to be automatically pulled into active position, although before it reached switch element 18'' said roller was in retracted position.

After it has run down the other side 18' of the dumping rail, roller 11 is pulled back into retracted position by the action of spring 13.

However, according to a feature of my invention, means may be provided to prevent at will this automatic working from taking place. For this purpose, cam element 18'' is pivoted at its rear end about a vertical axis, at 25 and a pulling rod 26 connected with the front end of cam element 18'' permits either of placing it in the active position shown by Figs. 2 and 3, or of pulling it outwardly, out of the path of roller 11, so as to enable the car to run past the dumping rail 18—18' without being dumped. This operation of cam element 18'' is analogous to that of the switch means of a railway track at a crossing.

In the embodiment of my invention illustrated by Figs. 5 to 8, roller 11 is carried by a bent arm 19 pivoted at 20, about a horizontal longitudinal axis, in brackets 21 rigid with the car body. A spring arm 22, pivoted to the car body and bearing against the edge of arm 19, urges said arm 19 toward the retracted position shown by Fig. 5 and in solid lines by Fig. 7.

Apart from the difference in the movement for shifting from this retracted position to the active position shown in dotted lines by Fig. 7, this embodiment is constructed and operated substantially as above described with reference to Figs. 1 to 4.

According to still another feature of my invention, in order to prevent tilting of the car frame when the body thereof is being dumped by the action of the dumping rail 18—18' on roller 11, I provide, between the rails of the track, along the portion thereof located opposite dumping rail 18—18', a guide rail 17 provided with an angle iron 16 at the top thereof, to cooperate with the bent end 15a of a holding part 15 rigid with the car frame and extending downwardly therefrom.

Advantageously, as shown by Fig. 8, lever 5, which controls the opening of door 4, is adjustable so that it can be pivoted on any of a plurality of pins 6, 6', 6'', 6''' (see for instance Fig. 8). To each of these positions of pivoting of arm 5 there corresponds a different degree of opening of the door as shown in dotted lines on the left hand side of Fig. 8.

Finally, Fig. 9 shows still another embodiment of my invention in which shifting of roller 11 from retracted to active position and vice-versa is obtained through means controlled at will from the train, for instance from the locomotive thereof. In the example shown by Fig. 9, roller 11, which is supposed to be carried by a telescopic arm analogous to that described with reference to Figs. 1 to 4, is urged toward its retracted position by a spring 13. It is moved into active position by the action of a fluid under pressure, for instance compressed air, fed through a conduit 27 into a cylinder 28 in which is slidable a piston 29 rigid with the sliding rod 12 on which roller 11 is mounted. The feed of compressed air to conduit 27 is controlled through any suitable means, for instance from the locomotive.

Whatever be the means for shifting the roller from retracted to active position (and of course there are other means than those above described by way of example, for instance direct manual means), this possibility of dumping the car only when so desired permits of selectively distributing the contents of the cars of a train by dumping thereof at different points along the track, each provided with a dumping rail. And this possibility is obtained irrespective of the order in which cars containing different matters to be distributed separately have been placed behind one another in the train.

It should also be noted that if the bottom end of portion 18' of the dumping rail is provided with a cam element similar to 18'', a car (and of course a train) which has been dumped by running in one direction along a dumping rail can be run back in the opposed direction past the same dumping rail without having to undergo a second (and unnecessary) dumping. It suffices to this effect to shift this rear cam element into retracted position.

In a general manner, while I have, in the above description, disclosed what I deem to be practical and efficient embodiments of my invention, it should be well understood that I do not wish to be limited thereto as there might be changes made in the arrangement, disposition and form of the parts without departing from the principle of the present invention as comprehended within the scope of the accompanying claims.

What I claim is:

1. A dump car system which comprises, in combination, a dumping inclined rail located at a given point along the track on one side thereof, a car including a frame, a body tiltable laterally with respect to said frame and a roller for running on said dumping rail carried by said body movably with respect thereto in a plane at right angles to the fore-and-aft direction thereof so as to be able to occupy either an active position, outside of the car gauge, in which it engages said dumping rail, or a retracted position, inside of the car gauge, in which it by-passes said dumping rail, spring means for normally holding said roller in retracted position, cam means mounted on the side of the track ahead of said dumping rail for automatically bringing said roller from retracted into active position, said cam means being shiftable so as to be able to occupy either an active position across the path of said roller or an inoperative position outside of this path, and means for controlling the position of said cam means.

2. A dump car system which comprises, in combination, a dumping inclined rail located at a given point along the track on one side thereof, a car including a frame, a body tiltable laterally with respect to said frame and a structure including a part capable of running on said dumping rail for tilting said body, said structure being movably mounted on said body, for movement of the respective points of said structure in planes at right angles to the fore-and-aft direction of said body, between two limit positions, to wit an active position in which said part of the structure is held outside of the car gauge to engage said dumping rail and a retracted position, inside of the car gauge, in which said part by-passes said dumping rail, and cam means located on said side of the track ahead of said dumping rail for engaging said structure as it moves past said cam means so as mechanically to pull said structure into said active position.

3. A dump car system which comprises, in combination, a dumping inclined rail located at a given point along the track on one side thereof, a car including a frame, a body tiltable laterally with respect to said frame, an arm carried by said body, a roller carried by said arm capable of running on said dumping rail for tilting said body, said arm being movably mounted on said body, for movement of the respective points of said structure in planes at right angles to the fore-and-aft direction of said body, between two limit positions, to wit an active position in which said roller is held outside of the car gauge to engage said dumping rail and a retracted position, inside of the car gauge, in which said roller by-passes said dumping rail, and cam means located on said side of the track ahead of said dumping rail in adjoining relation to the front end thereof for engaging said roller as it moves past said cam means so as mechanically to pull said arm into said active position and to lead said roller to said front end of the dumping rail.

4. A dump car system which comprises, in combination, a dumping inclined rail located at a given point along the track on one side thereof, a car including a frame, a body tiltable laterally with respect to said frame, an arm carried by said body, a roller carried by said arm capable of running on said dumping rail for tilting said body, said arm being movably mounted on said body, for movement of the respective points of said structure in planes at right angles to the fore-and-aft direction of said body, between two limit positions, to wit an active position in which said roller is held outside of the car gauge to engage said dumping rail and a retracted position, inside of the car gauge, in which said roller by-passes said dumping rail, means for urging said arm toward said retracted position thereof, and cam means located on said side of the track ahead of said dumping rail in adjoining relation to the front end thereof for engaging said roller as it moves past said cam means so as mechanically to pull said arm into said active position and to lead said roller to said front end of the dumping rail.

JOSEPH VIAL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
917,313	Knotts	Apr. 6, 1909
977,699	Berryman	Dec. 6, 1910
1,016,570	Lawton	Feb. 6, 1912
2,251,981	Card	Aug. 12, 1941
2,364,554	Sanford	Dec. 5, 1944