

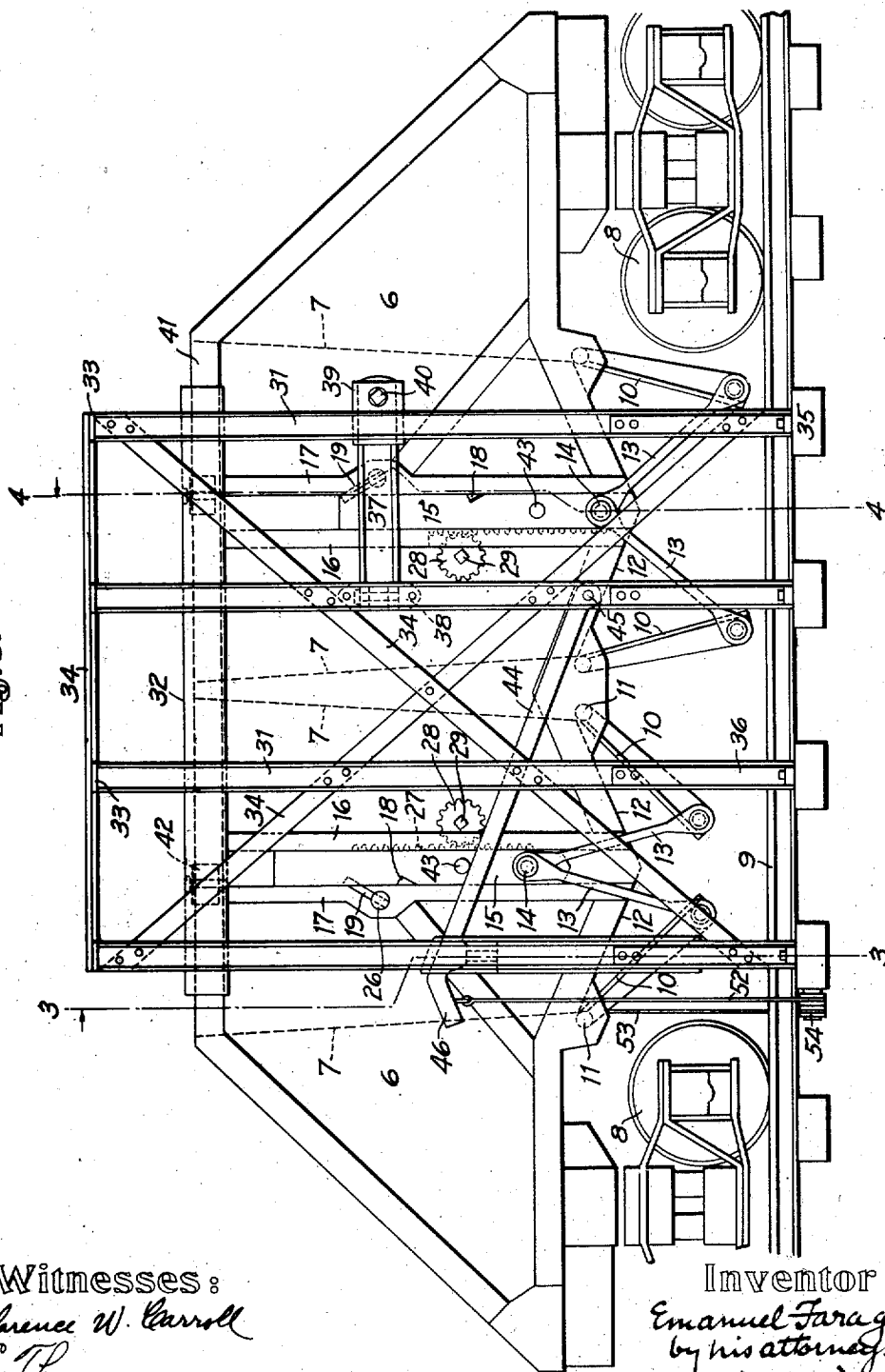
E. FARAGO.
DUMPING MECHANISM FOR RAILWAY CARS.
APPLICATION FILED NOV. 23, 1911.

1,045,690.

Patented Nov. 26, 1912.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Clarence W. Carroll
L. Thor

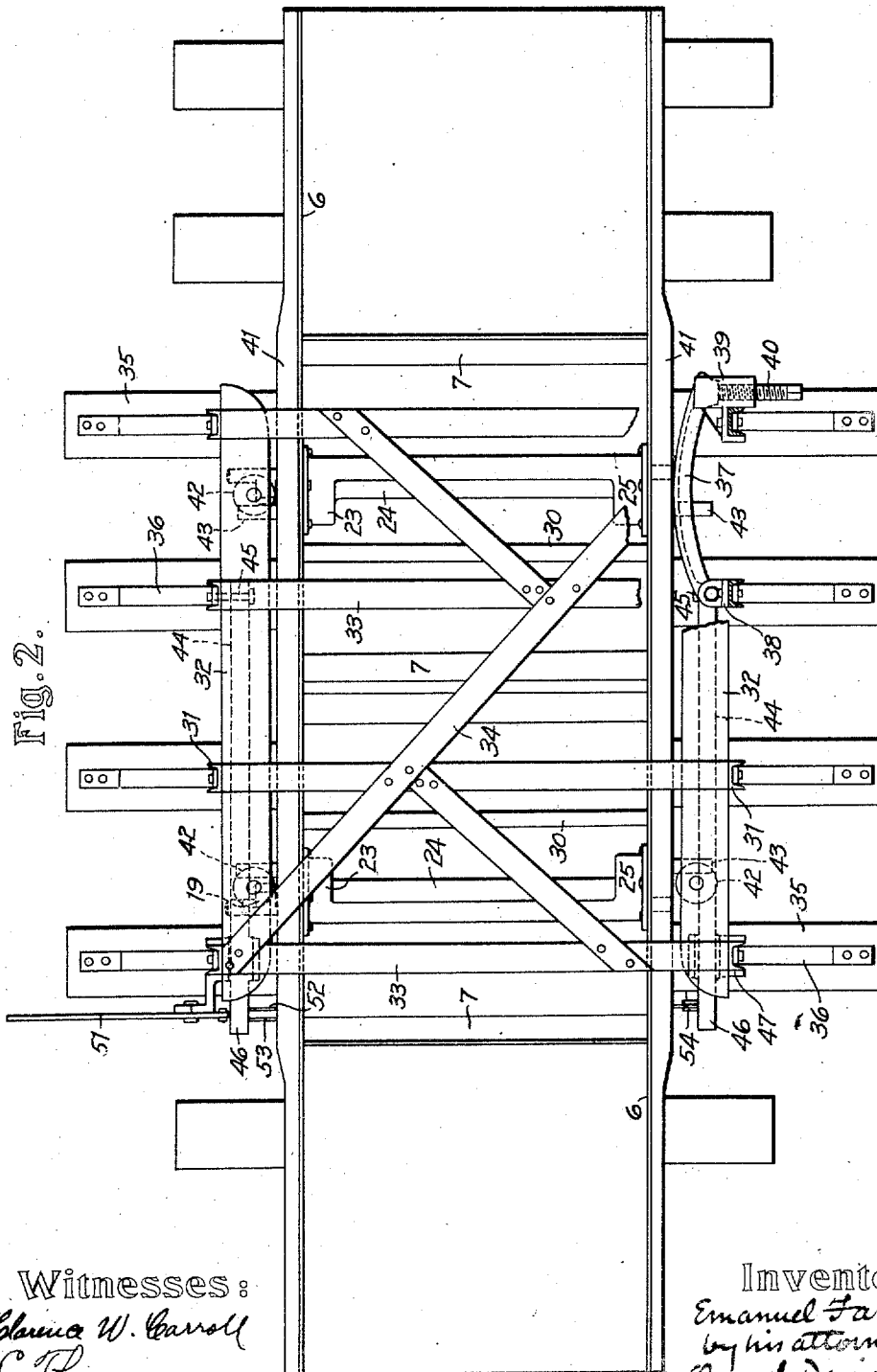
Inventor:
Emanuel Farago
by his attorneys
Osgood, Davis & Wasey

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Witnesses:
Clarence W. Carroll
L. F. Horn

Inventor:
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by his attorneys
Osgood, Davis & Dorey

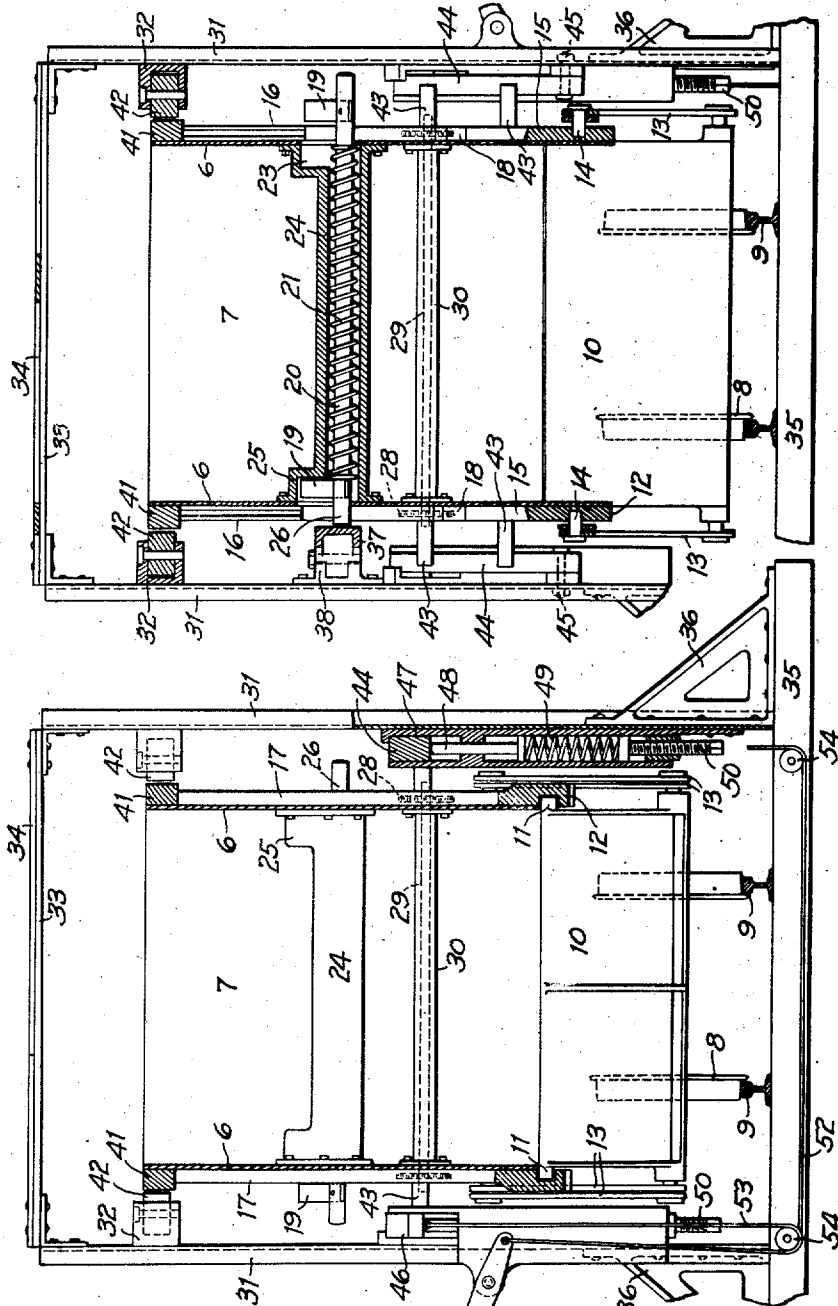
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3 SHEETS—SHEET 3.

Fig. 4.



Witnesses:

Clarence W. Carroll
L. Thon

Inventor:

Emanuel Faragó
by his attorneys
Crygier, Davis & Doney

UNITED STATES PATENT OFFICE.

EMANUEL FARAGÓ, OF ROCHESTER, NEW YORK.

DUMPING MECHANISM FOR RAILWAY-CARS.

1,045,690.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Application filed November 23, 1911. Serial No. 862,077.

To all whom it may concern:

Be it known that I, EMANUEL FARAGÓ, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Dumping Mechanism for Railway-Cars, of which the following is a specification.

This invention relates to dumping-mechanism of the type in which stationary devices, located adjacent a railroad track, operate automatically to discharge cars passing along the track, and to subsequently close the hoppers of the cars after they have been discharged.

One object of the invention is to produce mechanism of the type in question which shall be simple and reliable in operation, particularly through the position of guiding-devices on the cars and on said stationary means for insuring their proper coöperative position.

A further object of the invention is to simplify and improve the dumping-mechanism of the cars, whereby it is particularly adapted for convenience in discharging the cars and returning them to normal or closed position, whether by the use of the automatic means before referred to, or by manual operation.

Various other objects of the invention, and the details of construction by which they are attained, will be set forth in connection with the following description of the preferred embodiment of the invention.

In the accompanying drawings:—Figure 1 is a side-elevation of mechanism embodying the present invention, including a dumping-car and the track upon which it runs, and the stationary means for automatically operating the car; Fig. 2 is a plan view of the subject-matter of Fig. 1; and Figs. 3 and 4 are, respectively, sections on the lines 3—3 and 4—4 in Fig. 1, looking in opposite directions, as indicated by the arrows applied to said lines.

The general form of the dumping-car embodying the present invention is not material, but the car is illustrated as having sides 6 connected by transverse partitions 7, producing two hoppers adapted to contain coal, or other material, in bulk. The body of the car is supported upon the usual wheels 8 running upon track-rails 9. The hoppers are each closed at the bottom by a pair of doors 10, which are pivoted to the

body at 11 and engage the inclined lower edges 12 of the sides of the hopper, when the doors are in closed position. The dumping-mechanism connected with the two hoppers is in all substantial respects similar, and it will be obvious that the number of such hoppers and mechanisms employed upon the car is immaterial. The hopper-doors 10 are controlled by links 13 pivoted to their lower edges and extending upwardly to pivot-pins 14 projecting from slides 15. These slides move in vertical guides 16 and 17 upon the sides of the car. To retain the slides 15 in raised position, and thus hold the hopper-doors closed, each slide is provided with a notch 18 at one edge, adapted to coöperate with a detent 19. The detent is fixed, in inclined position, to a rod 20, which passes through the body of the car and simultaneously operates the detents on opposite sides of the car, the doors being supported on both sides of the car by similar arrangement of links and slides.

The detents are held normally in operative engagement with the slides by means of a spring 21, (Fig. 4,) which surrounds the rod 20 and is confined, at its ends, between the sides 6 of the car. To protect the rod 20 and the spring 21 from contact with the contents of the car, these parts are inclosed by a tubular casing 24, which is fixed, at its ends, to the sides 6 of the car, and is provided, at each end, with an enlargement 25 forming a recess 23 into which one of the detents 19 may move when disengaged from the corresponding slide 15, as shown in Fig. 4. The detents are moved to disengage the slides by means of the extremities 26 of the rod 20, which project at each side of the car. By pushing upon either projection the rod 20 and the detents are moved horizontally to the position of Fig. 4, or to the corresponding opposite position, thus disengaging the detents from the slides, whereupon the slides fall and permit the hopper-doors to open and discharge the contents of the hopper. This operation may be performed manually, but my invention includes means for accomplishing it automatically, as will be described later. When the detents are moved to either disengaging position one or the other of the detents engages the adjacent end of the spring 21, as shown in Fig. 4, thus compressing the spring. So long as the slides remain in their lower position the detent in question is held in its

inner position against the pressure of the spring by engagement with the inner surface of the adjacent slide, but upon the subsequent upward movement of the slide, in closing the hopper-doors 10, the detent in question is released and the spring 21 then returns the rod 20 and the detents to normal position.

To raise the slides 15 and close the hopper-doors when the car is operated manually, each slide is provided with rack-teeth formed on one edge, and these teeth are engaged by pinions 28 fixed on opposite ends of a shaft 29, which passes through the body of the car. This shaft is protected by a casing 30 fixed to the sides of the car. The ends of the shaft are squared, as shown in Fig. 1, so that it may be turned by means of a hand-crank (not shown) of ordinary form, thus causing the pinions to raise the slides until the detents engage the notches 18.

The automatic means for controlling the dumping-mechanism include a frame-work which spans the track, and through which the car passes when running on the track. This frame-work comprises uprights 31, which are shown as mounted upon the ties 35 of the track. The uprights on each side of the track are connected, near their tops, by a horizontal beam 32, and the uprights on opposite sides are connected by cross-bars 33. Diagonal braces 34 are applied to the top and the sides of the frame-work, and angle-irons 36 connect the uprights with the ties, as shown in Fig. 3, to brace the frame-work laterally.

To discharge the car automatically a cam is mounted upon one side of the frame-work, in position to engage the projection 26 as the car moves through the frame-work. This cam is in the form of a curved member 37, which is pivoted, at one end, between lugs 38 on one of the uprights 31. The other end of the cam is guided in a recessed block 39 mounted upon another upright, and this end of the cam is supported by a screw 40, which is adjustable to vary the position of the cam. In Figs. 1 and 4 the cam is shown as in engagement with one of the projections 26, thus holding the corresponding detents in inoperative position. It will be noted that after the detents have been moved to this position, and the slides 15 have fallen, the detents are retained in such position by engagement with the inner surfaces of the slides, and cannot return to operative position until the slides have again been raised. Accordingly, Fig. 3 shows the other detent-mechanism also in inoperative position, although not in engagement with the cam 37.

The coöperation of the cam 37 and the projections 26 requires that the relative lateral positions of the car and the frame-work

be substantially invariable. Owing to irregular loading of the car or unequal strength in its springs, or to other causes, which will readily occur to those skilled in the art, this lateral relation might be easily disturbed, and accordingly I provide means for maintaining it automatically, when the car is passing through the frame-work. To this end the upper edges of the sides of the car are provided with bars 41, which may be the usual stiffening-members applied at this point, but which also constitute longitudinal abutments, and, to coöperate with these abutments, rollers 42 are journaled in recesses in the inner surface of the beams 32, these rollers being spaced apart a distance only slightly greater than the width of the car. Accordingly, when the car enters the frame-work the rollers and the abutments, by their coöperation, move the car transversely, if necessary, to the exact relative lateral position, with respect to the frame-work, which will permit the automatic mechanism to coöperate properly with the dumping-mechanism of the car.

In addition to discharging the car, the automatic mechanism is also provided with means for returning the dumping-mechanism of the car to normal or closed position upon a return movement of the car through the stationary frame-work. To this end each slide 15 is provided with an outwardly-projecting pin 43, which constitutes a cam-follower adapted to coöperate with an inclined cam 44 mounted upon the frame-work. The main portion of this cam is inclined in a direction to raise the pin 43 when the car returns through the frame-work, that is, in the direction from right to left in Fig. 1, but the upper end of the cam is provided with a short oppositely-inclined portion 46, this portion being provided so that when the loaded car passes from left to right through the frame-work any engagement of the pin 43 with the cam which may occur at this time shall be such as to permit the pin to pass over the cam. For the same purpose the cam is mounted movably upon the frame-work, its lower end being pivoted, at 45, to one of the uprights, while its upper end is guided in a vertical slot formed in a casing 47 fixed to another upright. Within this casing is a plunger 48 which supports the upper end of the cam, this plunger being, in turn, supported by a compression-spring 49 inclosed within the casing 47. The lower end of the spring is supported by a screw 50, by which the compression of the spring may be adjusted. When the car is loaded the body of the car assumes a somewhat lower position than when the car is empty, owing to the action of the springs upon which the car-body is supported, and accordingly the pins 43 are somewhat lower at this time

than the position to which they are raised by the cam 44 in closing the dumping-mechanism during the return-movement of the empty car. Accordingly, when the loaded car passes from left to right through the frame-work, if the pins engage the ends 46 of the cams, they may depress the cams by compressing the springs 49.

As it may be desirable to avoid the engagement just described between the pins 43 and the cams 44, particularly when a train of heavily loaded cars passes through the stationary frame-work, means are provided for depressing the cams manually to hold them out of engagement with the pins. To this end a hand-lever 51 is pivoted at one side of the frame-work, and is connected with the cams 44, on both sides of the frame-work, by means of ropes or cables 52 and 53, which pass around guide-rollers 54 journaled on one of the ties 35, as shown particularly in Figs. 1 and 3.

When a car, or train of cars, constructed as above described passes through the stationary frame-work from left to right, each of the hoppers is, in turn, discharged when it reaches the position indicated generally by the line 4-4 in Fig. 1. Upon a return-movement of the car or cars, each of the hoppers is again closed by the mechanism above described, the cars being thus discharged and closed automatically at the required point. In Fig. 1 the car is shown as at a point in its return movement where the left-hand hopper has been partially closed, while the right-hand hopper is still entirely open.

It will be apparent that since the rod 20 and the detents may be moved horizontally in either direction to disengage the slides, owing to the symmetrical construction of these parts, the car will be automatically discharged in passing the cam 37 whichever side of the car may happen to be presented toward this cam, and it is, therefore, unnecessary to arrange the cars in any particular position in the train. It will also be apparent that the arrangement of the slides 15, the links 13 and the doors 10 is such that in closing the doors a single cam, such as the cam 44, located at one side of the track, will be sufficient to restore the parts of the dumping-mechanism to normal position, but in order to relieve the parts of unnecessary strain it is preferable to employ duplicate cams on opposite sides, where this can conveniently be done, as shown in the drawings. My invention is not limited to the embodiment thereof hereinbefore described and illustrated in the accompanying drawings, but may be embodied in various other forms within the nature of the invention as it is defined in the following claims.

I claim:—

1. The combination of a car provided with

dumping-mechanism including a vertically-movable cam-follower, a cam located adjacent the track and adapted to engage and raise the cam-follower, as the car moves along the track, to move the dumping-mechanism to closed position, and manually-operable means for moving the cam in accordance with the vertical position of the cam-follower.

2. The combination of a dumping-car, a track on which the car runs, stationary means located adjacent the track and adapted to cooperate with the dumping mechanism of the car to control the operation thereof, and interengaging members on the car and said stationary means to hold said car and means in operative relation as the car moves along the track.

3. The combination of a dumping-car, a track on which the car runs, stationary means located adjacent the track and adapted to cooperate with the dumping-mechanism of the car to control the operation thereof, and interengaging members on the car and said stationary means to hold them in definite relative lateral position as the car moves along the track.

4. The combination of a dumping-car provided with longitudinal abutments on its sides, a track on which the car runs, a stationary frame bridging the track and through which the car is adapted to run, abutments on said frame adapted to engage said abutments on the car to determine the relative lateral position of the car and the frame, and means supported by said frame and adapted to cooperate with the dumping-mechanism of the car to operate the latter as the car moves through the frame.

5. The combination of a dumping-car, a track on which the car runs, stationary means located adjacent the track and adapted to cooperate with the dumping-mechanism of the car to discharge the car automatically as it moves along the track in one direction, stationary means located adjacent the track and adapted to cooperate with the dumping-mechanism of the car to move the same to closed position automatically as the car moves in the opposite direction, and manually-operable means for throwing said second stationary means out of operative position while the car is moving in the first-mentioned direction.

6. The combination of a dumping-car comprising a hopper, a pivoted door for closing the bottom of the hopper, a vertically-movable slide connected with the door and normally supporting the same in closed position, and a transversely-movable detent normally engaging and retaining the slide and having a member projecting laterally from the body of the car and operable to disengage the detent from the slide; a track on which the car runs, and

a stationary cam adapted to engage said member to dump the car.

7. The combination of a dumping-car comprising a hopper, a pivoted door for closing the bottom of the hopper, and a vertically-movable cam-follower connected with said door; a track on which the car runs, and a stationary cam adapted to engage said cam-follower to raise it and close the door as the car moves along the track.

8. The combination of a dumping-car comprising a hopper, a pivoted door for closing the bottom of the hopper, vertically-movable slides, on opposite sides of the car, connected with said door, detents normally engaging said slides to retain them in raised position, a rod passing through the body of the car and connecting said detents, whereby they may be simultaneously released to permit the door to open, and a casing fixed to the sides of the car and inclosing said rod;

a track on which the car runs, and a stationary member adapted to engage one end of said rod as the car passes along the track to move the rod longitudinally and dump the car.

9. A dumping-car having, in combination, a hopper, a pivoted door for closing the bottom of the hopper, means for holding the door normally in closed position including a detent and a releasing-member for operating the detent, said member projecting on both sides of the car and being operable from either side, a track on which the car runs, and stationary means located adjacent the track and adapted to coöperate with the releasing member to discharge the car automatically as it moves along the track.

EMANUEL FARAGÓ.

Witnesses:

D. GURNEE,

L. THON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

Correction in Letters Patent No. 1,045,690.

It is hereby certified that in Letters Patent No. 1,045,690, granted November 26, 1912, upon the application of Emanuel Faragó, of Rochester, New York, for an improvement in "Dumping Mechanism for Railway-Cars," an error appears in the printed specification requiring correction as follows: Page 1, line 19, for the word "position" read *provision*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 24th day of December, A. D., 1912.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.

a stationary cam adapted to engage said member to dump the car.

7. The combination of a dumping-car comprising a hopper, a pivoted door for closing the bottom of the hopper, and a vertically-movable cam-follower connected with said door; a track on which the car runs, and a stationary cam adapted to engage said cam-follower to raise it and close the door as the car moves along the track.

8. The combination of a dumping-car comprising a hopper, a pivoted door for closing the bottom of the hopper, vertically-movable slides, on opposite sides of the car, connected with said door, detents normally engaging said slides to retain them in raised position, a rod passing through the body of the car and connecting said detents, whereby they may be simultaneously released to permit the door to open, and a casing fixed to the sides of the car and inclosing said rod;

a track on which the car runs, and a stationary member adapted to engage one end of said rod as the car passes along the track to move the rod longitudinally and dump the car.

9. A dumping-car having, in combination, a hopper, a pivoted door for closing the bottom of the hopper, means for holding the door normally in closed position including a detent and a releasing-member for operating the detent, said member projecting on both sides of the car and being operable from either side, a track on which the car runs, and stationary means located adjacent the track and adapted to coöperate with the releasing member to discharge the car automatically as it moves along the track.

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