

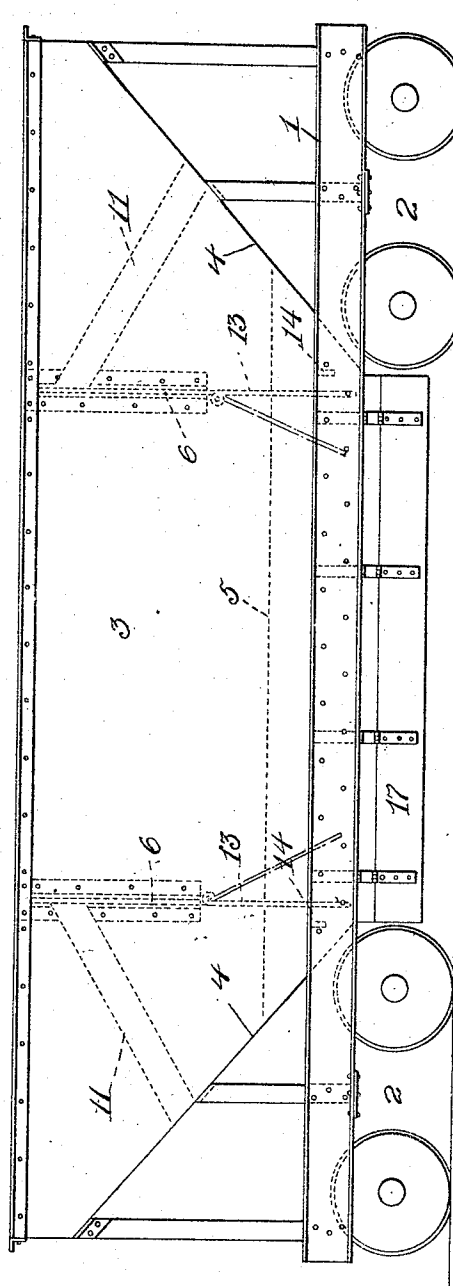
P. J. HARRIGAN.
DUMP CAR AND VEHICLE.
APPLICATION FILED MAR. 19, 1909

975,861.

Patented Nov. 15, 1910.

3 SHEETS-SHEET 1

Fig. 1



Witnesses

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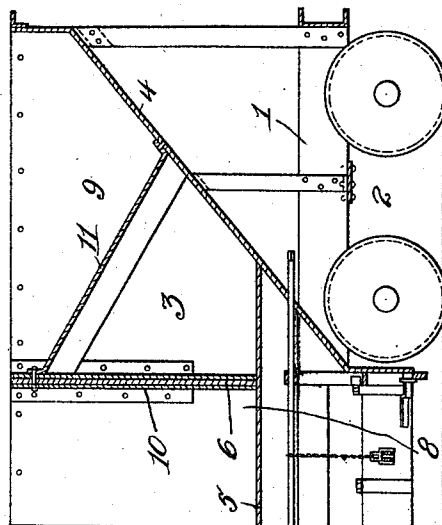
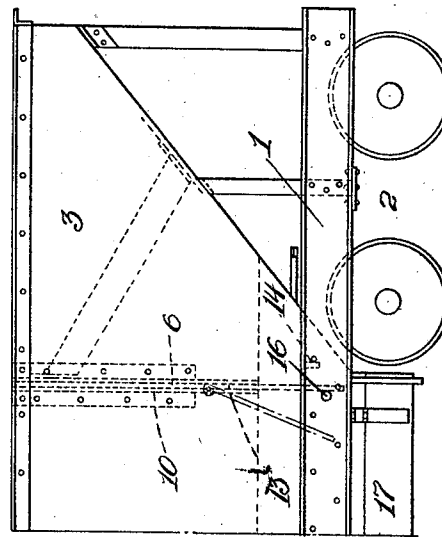
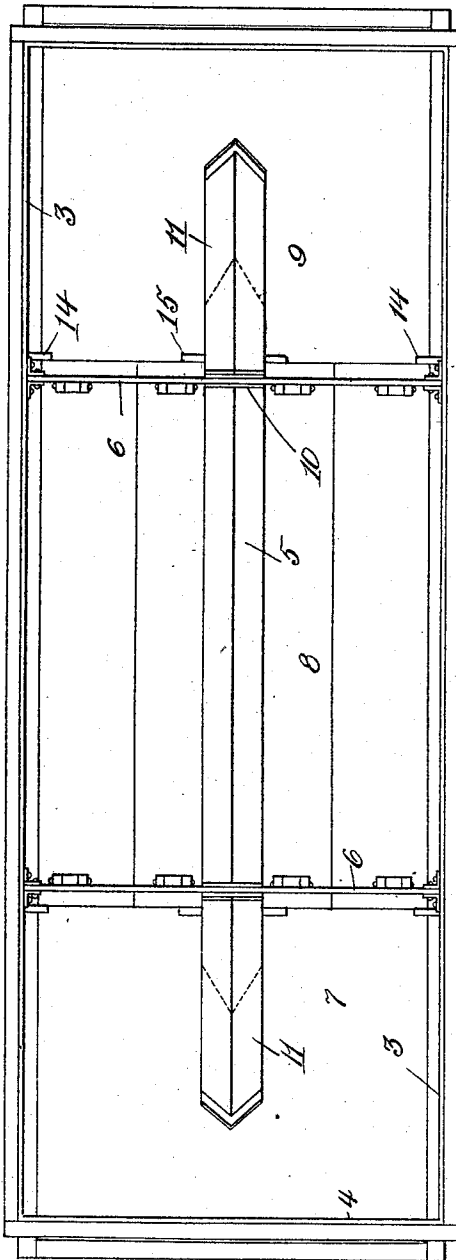
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3 SHEETS-SHEET 2.



Witnesses

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Fig. 3.

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3 SHEETS—SHEET 3.

Fig. 4.

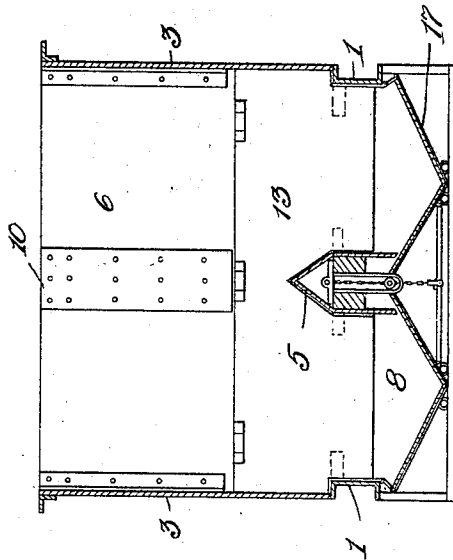
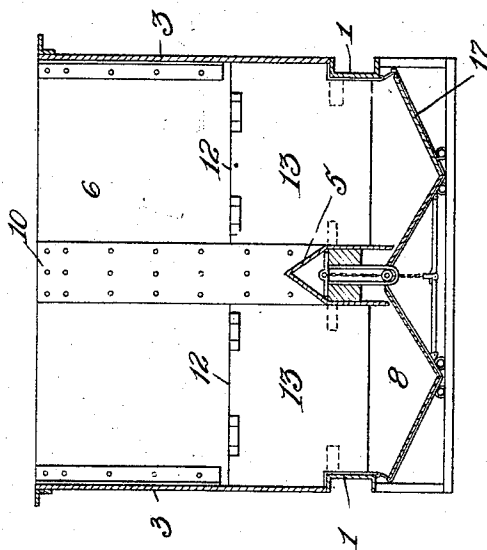


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

PATRICK J. HARRIGAN, OF McKEESPORT, PENNSYLVANIA.

DUMP CAR AND VEHICLE.

975,861.

Specification of Letters Patent.

Patented Nov. 15, 1910.

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To all whom it may concern:

Be it known that I, PATRICK J. HARRIGAN, a citizen of the United States of America, residing at McKeesport, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Dump Cars and Vehicles, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to dumping cars, and more particularly to that type of car, commonly styled a "hopper car" and used for transporting coal, coke, iron ore, and other material of high and low specific gravity.

The object of the invention broadly stated, is to provide a hopper car which can be advantageously employed for the hauling of materials of high specific gravity, such as iron ore, ore scale, flue dust, etc., and also utilized for the hauling of material of lower specific gravity, such as coal, coke, etc., without necessitating any alteration of the car to adapt it to the hauling of the different materials.

Further objects of the invention are, first, to provide a hopper car with compartments from which material can be easily and quickly discharged; second, to provide a hopper car with compartments from which the discharge of the material can be easily controlled; third, to provide a hopper car of the usual maximum capacity that can be advantageously used for ore or other material of high specific gravity; fourth, to provide a car with novel means for retaining a portion of the load while the greater portion thereof discharges; fifth, to provide a car for use as an ore hauling car with a central compartment from which the load can be readily discharged without any danger of a portion of the load clinging or adhering to the sides of the compartment; sixth, to obviate the necessity of using car dumping machines and manual labor for removing material from the car, particularly such material as has a tendency to bridge and wedge in the car; seventh, to provide a partitioned hopper that can be used in connection with various types of trucks and dumping doors; and eighth, to obviate the necessity of sacrificing the cubical capacity of a car in order to obtain a car in which ore or similar material can be placed and easily removed.

The above objects are attained by utilizing the present type of standard hopper cars and placing partitions therein, which will divide the car into a plurality of compartments, the central compartment having vertical sides directly above the dump doors or gates of the car. The lower edges of the partitions are provided with flap doors, whereby after the material has been discharged from the central compartment of the car, the load in the other of said compartments will open the flap doors and discharge, one portion of the load being thus discharged in advance of another portion or portions. It is therefore apparent that with the provision of suitable means in connection with the flap doors that the secondary discharge can be easily controlled. Such a car can be advantageously used where portions of its load are to be discharged at different points.

In devising my improved car, I have aimed to obviate the necessity and expense of building a special type of car for hauling ore, in which type of car the capacity compared to an ordinary hopper car has been sacrificed without materially increasing the general usefulness of the car, it being impossible, in a great many instances, to use these specially designed ore cars other than for a one way transportation.

To obviate the necessity of using a specially designed ore car, as the "Summers" type, I provide an ordinary hopper car wherein ore can be confined within the center compartment having as large capacity as the specially designed car above referred to, the pressure of the ore within the compartment being such that its weight is at its maximum to dislodge any material that has a tendency to cling or adhere to any portion of the car.

My invention will be hereinafter considered more fully in detail, and then specifically claimed, and reference will now be had to the drawing forming a part of this application wherein there is illustrated preferred embodiments of my invention but I would have it understood that the detail construction thereof can be varied or changed without departing from the spirit or scope of the invention.

Referring to the drawings:—Figure 1 is an elevation of a car constructed in accordance with my invention, Fig. 2 is a plan of the same, Fig. 3 is a longitudinal sectional

view of a portion of the car, Fig. 4 is an elevation of a portion of the car equipped with a flap door lock, Fig. 5 is a cross sectional view of the car illustrating one of the partitions thereof provided with two flap doors, and Fig. 6 is a similar view illustrating a single flap door.

In the accompanying drawings, 1 designates a car frame supported by trucks 2, said frame supporting a metallic hopper, rectangular in plan and consisting of side walls 3, inclined end walls 4, and a longitudinal center sill 5, all of these parts being common to an ordinary hopper car body.

6 designates transverse vertical partitions having the vertical edges thereof suitably secured to the inner sides of the walls 3, said partitions extending from the upper edges of the side walls downwardly to approximately half the height of the side walls 3, and dividing said car into three compartments 7, 8 and 9, the compartment 8 having all walls thereof vertical, while the compartments 7 and 9 each have an inclined end wall serving functionally as the bottom of each compartment. The partitions 6 are provided with central vertical strengthening reinforcements 10 which are connected to the inclined end walls 4 by angularly disposed braces 11, said braces being located centrally of the compartments 7 and 9, and connecting with the reinforcements contiguous to the upper ends thereof. The braces 11, similar to the center sill 5, are of an inverted V-shape in cross section in order not to interfere with the discharge of the contents of the compartments of the car.

The space below the lower edges of the partitions 6 constitute discharge openings 12 for the compartments 7 and 9, and movably arranged in said openings, are flap doors or gates 13 preferably secured to the partitions 6 by hinges as shown. In some instances, each partition can be provided with two discharge openings and two doors, as shown in Fig. 5, while in other instances, each partition can have a single discharge opening with a single door cut away to clear the center sill 5, as shown in Fig. 6. The inwardly swinging movement of the flap doors or gates 13 may be limited by projections 14, carried by the inner sides of the walls 3 adjacent to the lower edges of the inclined end walls 4. The inward movement of the doors or gates can also be limited by similar projections 15 carried by the center sill 5, or by the lower edges of the inclined end walls 4.

To lock the doors or gates 13 from swinging outwardly into the compartment 8, suitable latches or pins 16 can be employed, said pins being located in the frame 1 of the car to extend into the body of the car and be engaged by the doors or gates.

Suitable drop or dump doors 17 of the or-

dinary form or any desired type can be used for closing the bottom of the car hopper or body.

Assuming that the doors 17 are in a closed position, the manner of filling my improved car is as follows: Material is first placed in the compartment 8 and as the material enters said compartment, the doors or gates 13 are forced outwardly against the projections 14 and 15, and are firmly held against said projections as long as the material remains in the compartment 8. The compartments 7 and 9 can then be filled, the doors 13 being held against movement by the load in the compartment 8, and it is apparent that the capacity of the three compartments 7, 8 and 9, is equivalent to the ordinary hopper car.

In the construction herein shown, the stops 14, 15, are so positioned that when the load is in compartment 8, the doors 13 will assume an inclined position with respect to the partitions 6, before the doors engage the stops 14, 15. But this is not essential to the effectual operation of the device, as the stops may be located in such position that the doors 13 when the compartment 8 is filled, will hang in vertical alinement with the partitions 6.

When the contents of the car are to be discharged, assuming that all of the compartments are loaded, the doors 17 are released and it is obvious that the contents of the compartment 8 will immediately discharge, since all slopes and inclined walls are dispensed with in connection with this compartment, and the contents thereof allowed to discharge by gravity. Immediately upon the discharge of the contents of the compartment 8, the weight of the load within the compartments 7 and 9 causes the flap doors or gates to swing open or into the compartment 8, whereby the contents of the compartments 7 and 9 can immediately follow the contents of the compartment 8. When the load passes out of the compartment 8, the doors or gates 13 are free to swing inwardly toward each other and since these doors act, when in closed position, to hold the load in compartments 7 and 9, it will be evident that the contents of these compartments are free to discharge.

It will be noted that with a compartment hopper car as above described when ore scale, flue dust, and materials of high specific gravity, but of an adhesive and bridging nature are placed in the central compartment, they will dump as readily as coke, coal and other loose material of lower specific gravity. This is accomplished without lessening the cubical capacity required for the lighter material, thus eliminating the need of special cars for ore. Furthermore, the partitions of the car add rigidity and strength to the same without materially in-

creasing the expense of construction and maintenance.

Having now described my invention what I claim as new, is:—

5 1. A car of the type described, comprising a body provided with a discharge opening in the bottom thereof, fixed partitions divid-
10 ing said body into compartments, doors hinged to the lower edges of said partitions and adapted to be held in a closed position by a portion of the lading for retaining
15 another portion of the lading within said body; said doors free to open automatically under the pressure of the lading in one compartment when the lading in another compartment is discharged, and each compartment discharging direct through the discharge opening without passing through
20 any other compartment.

20 2. A car of the type described, comprising a body provided with a discharge opening and having a fixed partition forming compartments, doors controlling the discharge of a load from said compartments, and a
25 second door hinged to said fixed partition and arranged to be held closed by the weight of the load in one of the compartments, and being free to open automatically when the load in the last-named compartment is discharged, each compartment discharging di-

rect through the discharge opening without passing through any other compartment.

3. A car of the type described, comprising a body having a discharge opening and having fixed partitions dividing the car into
35 compartments, and hinged doors carried by said partitions and adapted to be held in a closed position by a portion of the load within said body, said hinged doors being
40 free to open when the door-holding portion of the load is discharged, and each compartment discharging direct through the discharge opening without passing through
any other compartment.

4. In a dump car, a car body of hopper
45 form having a bottom discharge opening, and swinging doors disposed transversely of the car body within the same and directly above the discharge opening adjacent the
50 ends of the latter forming a central compartment and end compartments in the car body, the end compartments being in direct communication with the bottom discharge opening when the doors swing open.

In testimony whereof I affix my signature
55 in the presence of two witnesses.

PATRICK J. HARRIGAN.

Witnesses:

JAS. V. McMASTERS,
SAMUEL PAYNE.