(No Model.)

D. HOIT.

COAL CAR.

No. 272,550. Patented Feb. 20, 1883.

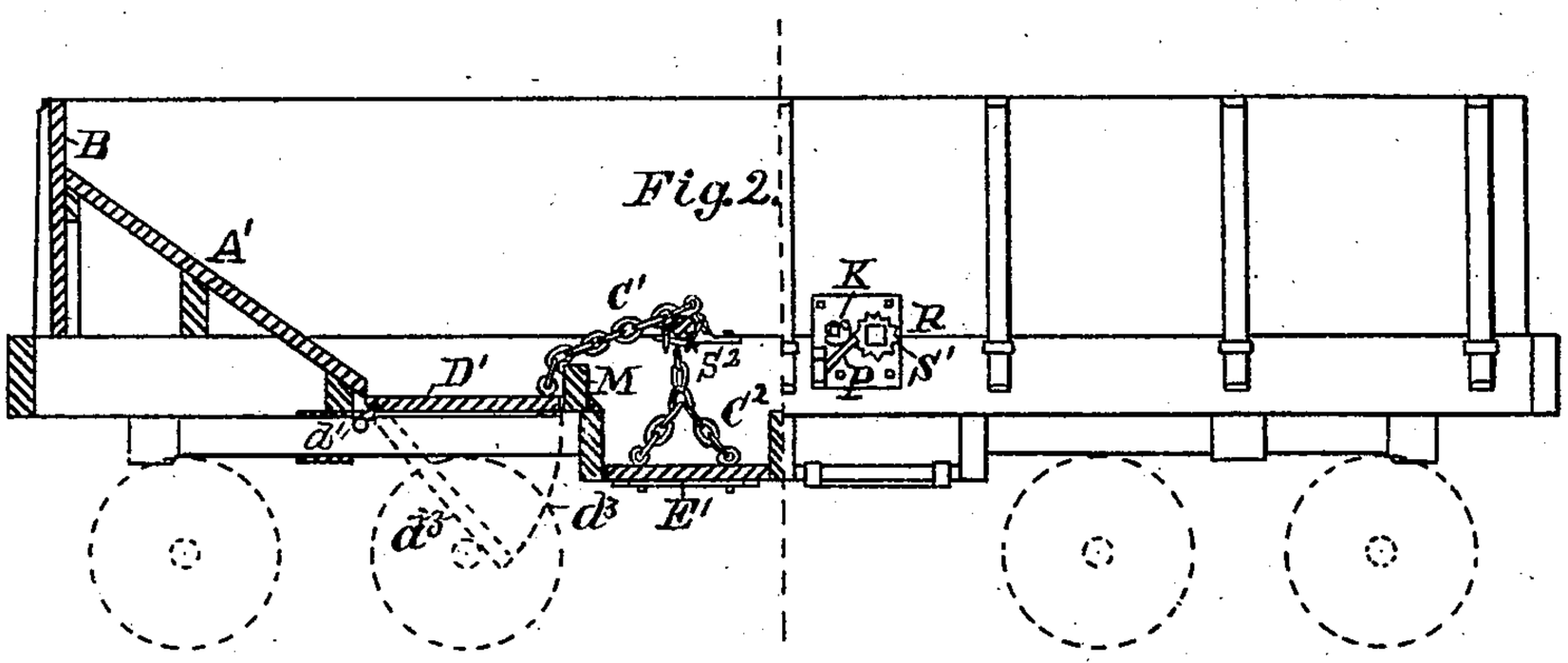

Fig. 2.

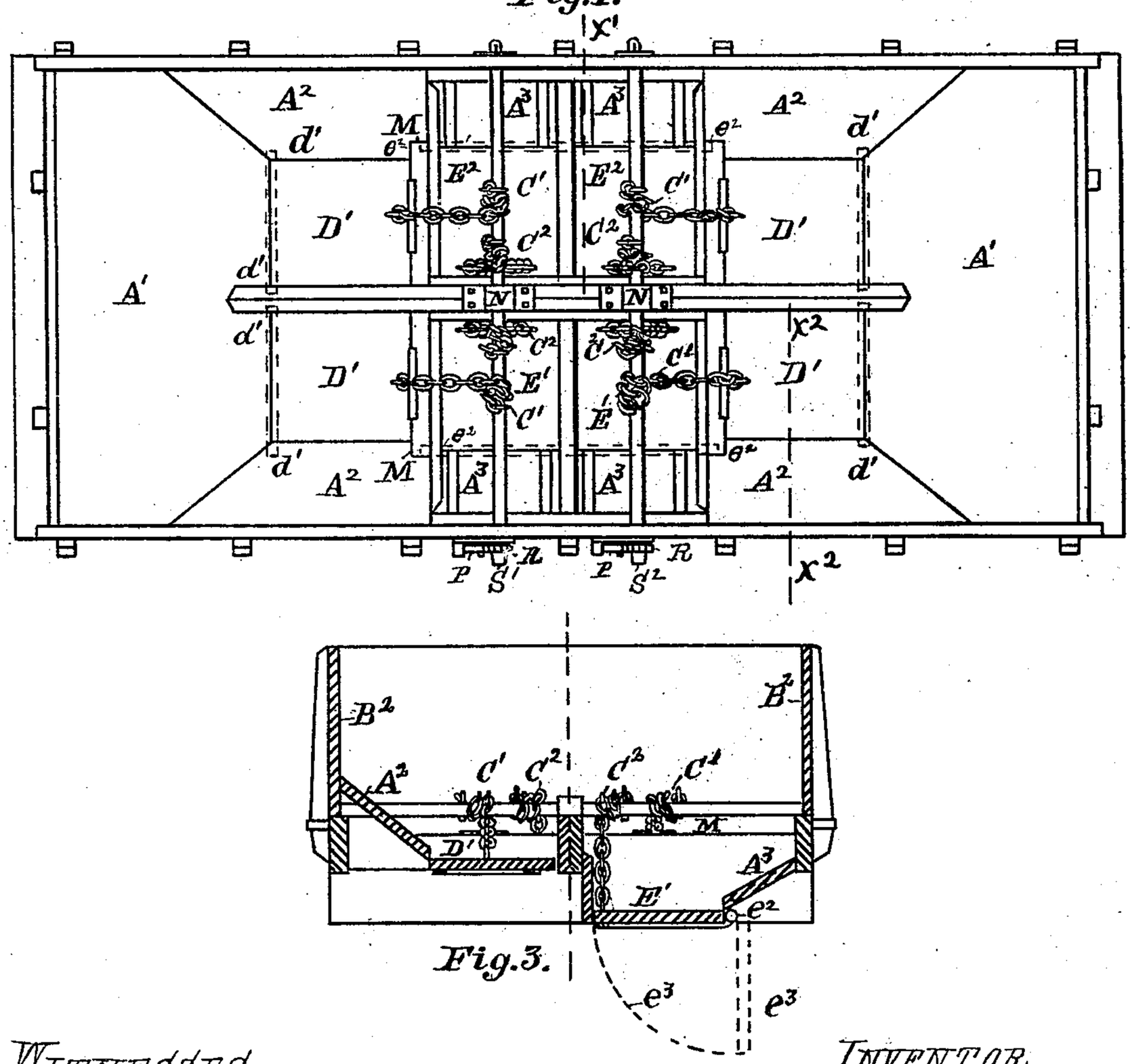

Fig. 1.

Fig. 3.

WITNESSES
E. J. Hicks
F. A. Leeds

INVENTOR
David Hoit
by W. E. Hagan his Atty

UNITED STATES PATENT OFFICE.

DAVID HOIT, OF WEST ALBANY, ASSIGNOR OF ONE-HALF TO CHARLES R. HICKS, OF TROY, NEW YORK.

COAL-CAR.

SPECIFICATION forming part of Letters Patent No. 272,550, dated February 20, 1883.

Application filed December 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, DAVID HOIT, of West Albany, county of Albany, and State of New York, have invented a new and useful Improvement in Railway Coal-Cars, of which the following is a specification.

My invention relates to that class of railway-cars which are designed to carry coal, are arranged to be run up on skeleton tracks, and to discharge their contents by means of hinged trap-floors that drop. As the eight-wheel or two-truck cars of this class have heretofore been made, their floors were constructed with centrally-located and hinged trap-fall doors, by means of which they could be emptied of but a part of their contents, they requiring to complete their discharge the employment of laborers with shovels. As such cars were made their construction was necessitated by the presence and position of the two trucks beneath the car, which left but a restricted area for the bottom trap-fall doors. To remedy this difficulty and to construct the interior of an eight-wheel car so that it will discharge all its contents by means of bottom trap-fall doors is the object of my invention.

In the accompanying sheet of drawings, forming a part of this specification, there are shown three figures illustrating my invention, and in all of which the same designation of parts by letter-reference is used.

Figure 1 shows a plan view of a two-truck or eight-wheel car containing my invention. Fig. 2 illustrates the same car in a combined longitudinal central vertical section and side elevation, one half being shown in the latter representation and the other half with the former illustration, each cross-half of the car being the same counterpart of the other. Fig. 3 is a two-part cross vertical section taken on the lines x' x' and x^2 x^2 of Fig. 1.

The parts of the car as thus illustrated are designated by letter-reference, and their construction explained as follows:

The letters D′ D′ indicate two trap-fall doors located side by side at each end in the bottom of the car, and both of which are hinged to the car-bottom at right angles to the sides of the car, so that they can be swung up and down on their hinged connection d', as indicated by the dotted line d^3 of Fig. 1.

The letters E′ E^2 indicate two trap-fall doors, that are located in the car-bottom at each side, near the middle of the car, which are hinged to the sides of the car, and adapted to open and close on their hinged connection e^2, as indicated by the dotted line e^3 of Fig. 3, the trap-fall doors indicated at E′ and E^2 when closed being in a lower plane than the doors D′ when the latter are swung up, the object of thus locating them below the others being to increase the storage capacity of the cars between the trucks.

The letters A′ A′ indicate the inclined end floors of the car, which slope downwardly and inwardly from where they join the vertical ends B until they reach the plane of the closed doors D′.

The letters A^2 A^2 indicate the inwardly-tapering portions of the car-sides opposite the trap-fall doors D′, which also incline inwardly from the vertical portion of the car-sides B^2 until they reach the plane of the closed trap-fall doors D′.

The letters A^3 A^3 designate inclined parts of the sides of the car, which slope inwardly from the vertical portion of the car-sides B^2 until they reach the lower plane of the closed doors E′ E^2 at each side of the car. To operate these doors on their hinged connection, the ordinary chains, grip-shafts, ratchets, pawl-detents, and cam-keepers are used, and which, broadly considered, and independently of their connection specially considered, are not my invention. Two shafts are employed—one for each crossly-divided half of the car—and each one of the shafts operates by connected chains, one set of the end cross-hinged trap-fall doors, D′ D′, and also the two opposite ones of the side hinged trap-fall doors that are indicated at E′ E^2, and which are next adjacent to the end doors, D′ D′. Thus each shaft operates one-half of the trap-fall doors, and each shaft and its connections is the counterpart of the other, and hence a description of one is a description of both.

The two shafts are indicated at S′ S^2, and each shaft at each end is provided with a ratchet-wheel, R, pawl-detent P, and cam-keeper K, and bearings for each shaft are constructed in the center brace and the vertical sides of the car. The chains C′ C′ at one of their ends at-

tach to the shafts and at each of their other ends to one of the trap-fall doors, D′. To give the chains C′ C′ a direct vertical hold on the latter doors, they pass laterally from the shafts toward the car ends over a cross-brace, M, from whence they descend in a perpendicular line to attach to the doors. The chains C^2 C^2 connect at one of their ends with the shafts, and at each of their other ends with one of the side hinged trap-fall doors E′ E^2. When the shafts are turned and the chains wound around them, the trap-fall doors are drawn up on their hinged connections to a horizontal position, where they form a part of the car-bottom to support its load, being held there by the engagement of the pawl-detent P, made with the ratchet-wheel R, (the latter being secured to the shaft,) and the engagement with the cam-keeper and the pawl-detent. When the keepers are raised and the detents tripped, the weight of the car contents opens the doors by unrolling the chains from off the shafts, and the contents pass downwardly by gravity through the doors. The relative position of the latter and the construction of the inwardly-tapering chute-form sides facilitate the emptying of the entire contents of the car, this better result (the dumping of the entire contents of a two-truck eight-wheel car) proceeding from the differing construction and arrangement of parts which I employ, when compared with the older methods of constructing such cars for the same purpose, as before stated.

I am well aware that there is no novelty in hinging the trap-fall doors of dump-cars crosswise or lengthwise of the cars, and that I cannot claim, broadly, either class of these constructions, or apart from the manner in which I arrange them relatively and construct the interior of the car in co-operating combination therewith, and their further combination as relatively placed, with the means employed to operate them.

As I arrange and construct one shaft with four connected sets of chains to operate simultaneously four trap-fall doors, these factors would perform the same office in the same manner whether the trap-fall doors were in one horizontal plane when closed or in two differing planes when closed, as I illustrate them. Hence I do not limit my invention of the former to its combination with the latter, the object of having the side hinged doors in a lower plane than the doors which are hinged crosswise of the car being merely to increase the carrying capacity of car, as before stated, and not for any co-operating function, otherwise; the trap-fall doors may be made to all have one horizontal plane in the car-bottom when closed, if desired.

As I construct the car interior with combined vertical and sloping sides and ends which taper inwardly to the plane of the closed doors, with two of the latter hung from each end of the car, and at right angles to the sides, and two of the trap-fall doors hung from each side between the two trap-doors at each end, the car interior, as thus constructed, would contain and dump its contents in the same manner whether the doors were operated as shown or by other equivalent means that would retain them horizontally and simultaneously release them. Hence I do not limit my invention as it relates to the construction of the car interior and its combined parts to their combination with the means employed to operate them.

To actuate so as to hold connectedly and simultaneously to release by one shaft and four chains two of the end crosswise hinged trap-fall doors, and the opposite ones of the side hinged trap-fall doors that are next adjacent to the former in each cross-half of the car, with the shaft vertically over one set of the doors, and to secure a vertical attachment of the chains to the other, I construct and apply the cross-brace M, which has its top sheathed, for the passage of the chains (which connect with the doors that are not vertically beneath the shaft) until the chains are directly over such doors for vertical attachment, using a greater length of chain for making this connection than where the doors operated are directly beneath the shaft.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A two-truck eight-wheel car interior in combination, consisting of the drop-fall doors E′ E′ and E^2 E^2, hinged to the bottom of each of the inclined sides of the car that are opposite said doors, the drop-fall doors D′ D′ at each end of the car hinged to the bottom of the sloping ends of the car to swing therefrom crosswise of the latter, the vertical ends B, inwardly-sloping ends A′ A′, vertical sides B^2, and inwardly-sloping sides A^3 A^3, as herein shown and described.

2. The combination of the two trap-fall doors D′ D′, hinged from the end of the car-bottom, so as to swing crosswise of the car, the two oppositely-placed side hinged trap-doors, E′ E^2, which are next adjacent to the aforesaid doors D′ D′, the shaft S′, attached chains C′ C′ and C^2 C^2, and the brace M, arranged to operate as and for the purposes herein described and shown.

3. The combination of the two trap-fall doors D′ D′, hinged from the end of the car at the bottom, so as to swing crosswise of the car, the two opposite ones of the side hinged trap-fall doors, E′ E^2, which are next adjacent to the aforesaid doors D′ D′, the shaft S′, attached chains C′ C′ and C^2 C^2, the ratchets R, pawl-detents P, keepers K, and the cross-brace M, arranged to operate substantially as herein shown and described.

Signed at West Albany this 12th day of December, 1882.

DAVID HOIT.

Witnesses:
CHARLES S. BRINTNALL,
WM. R. HOTALING.