

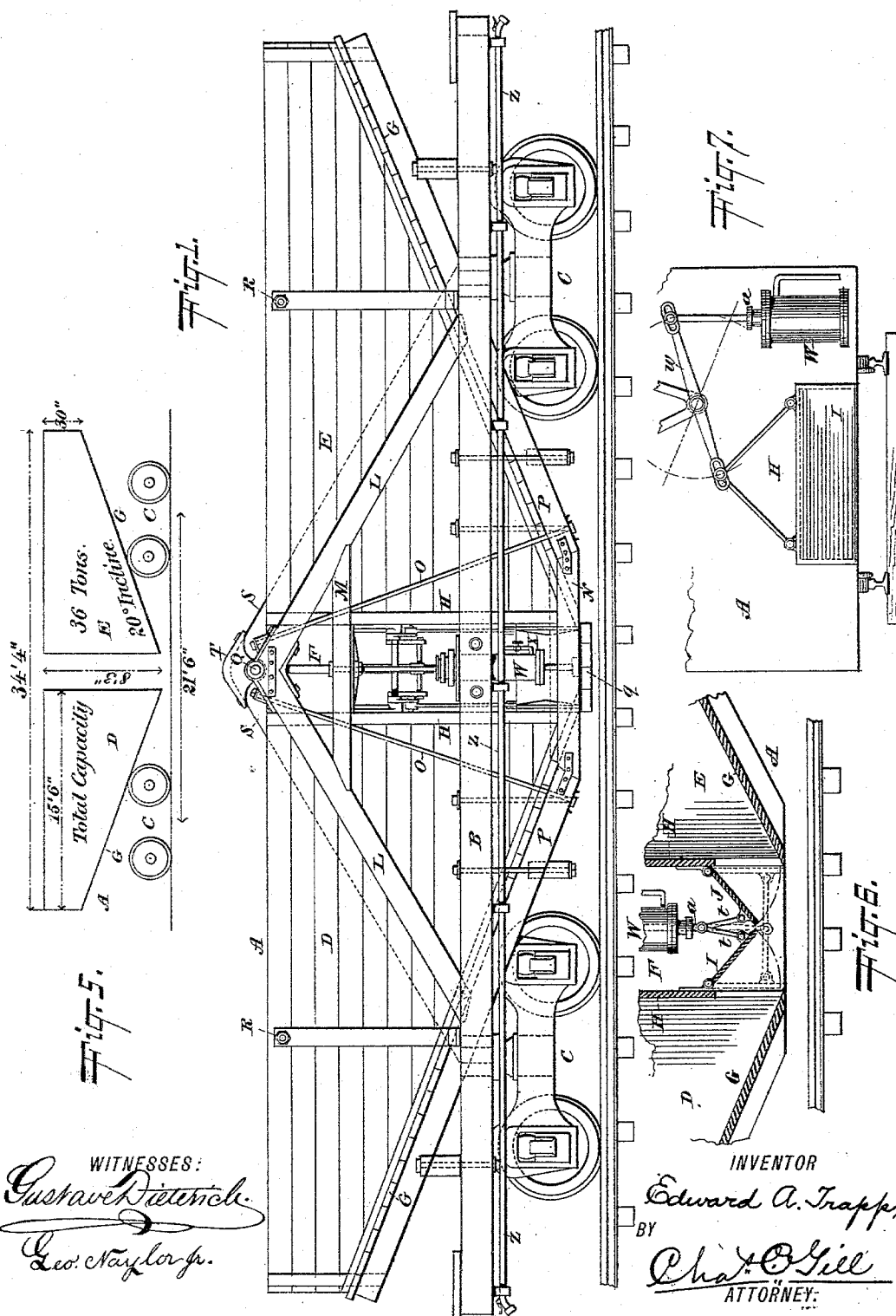
(No Model.)

4 Sheets—Sheet 1.

E. A. TRAPP.
DUMPING CAR.

No. 490,324.

Patented Jan. 24, 1893.



(No Model.)

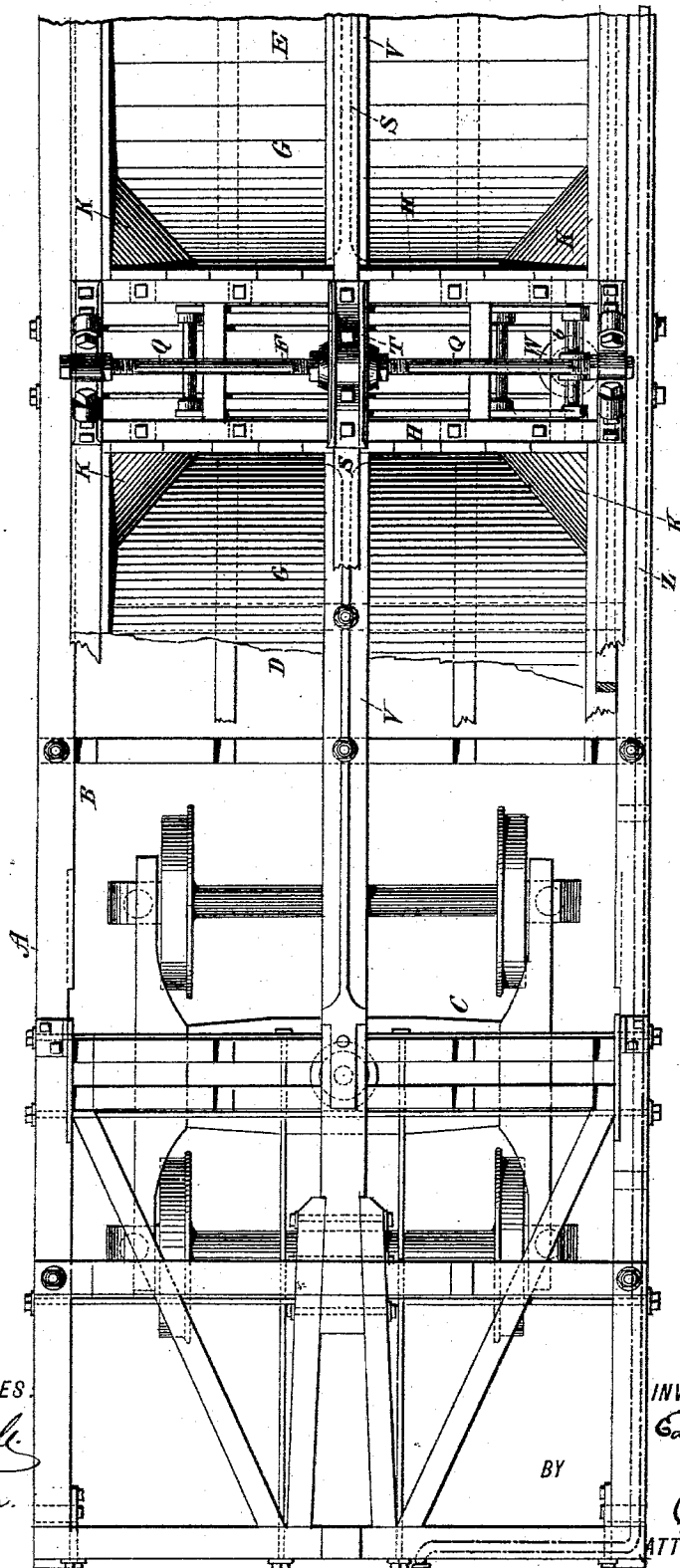
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Fig. 2.



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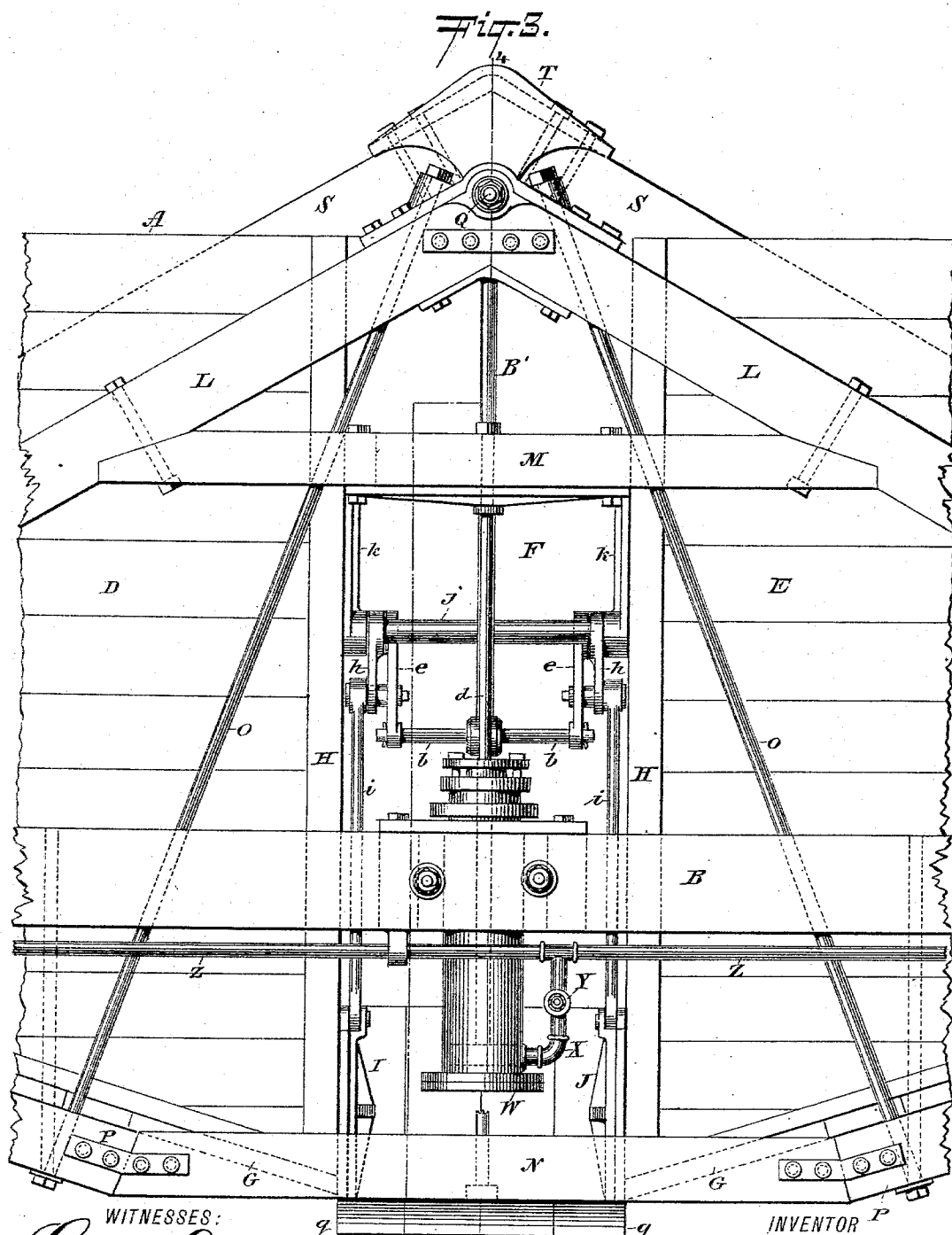
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(No Model.)

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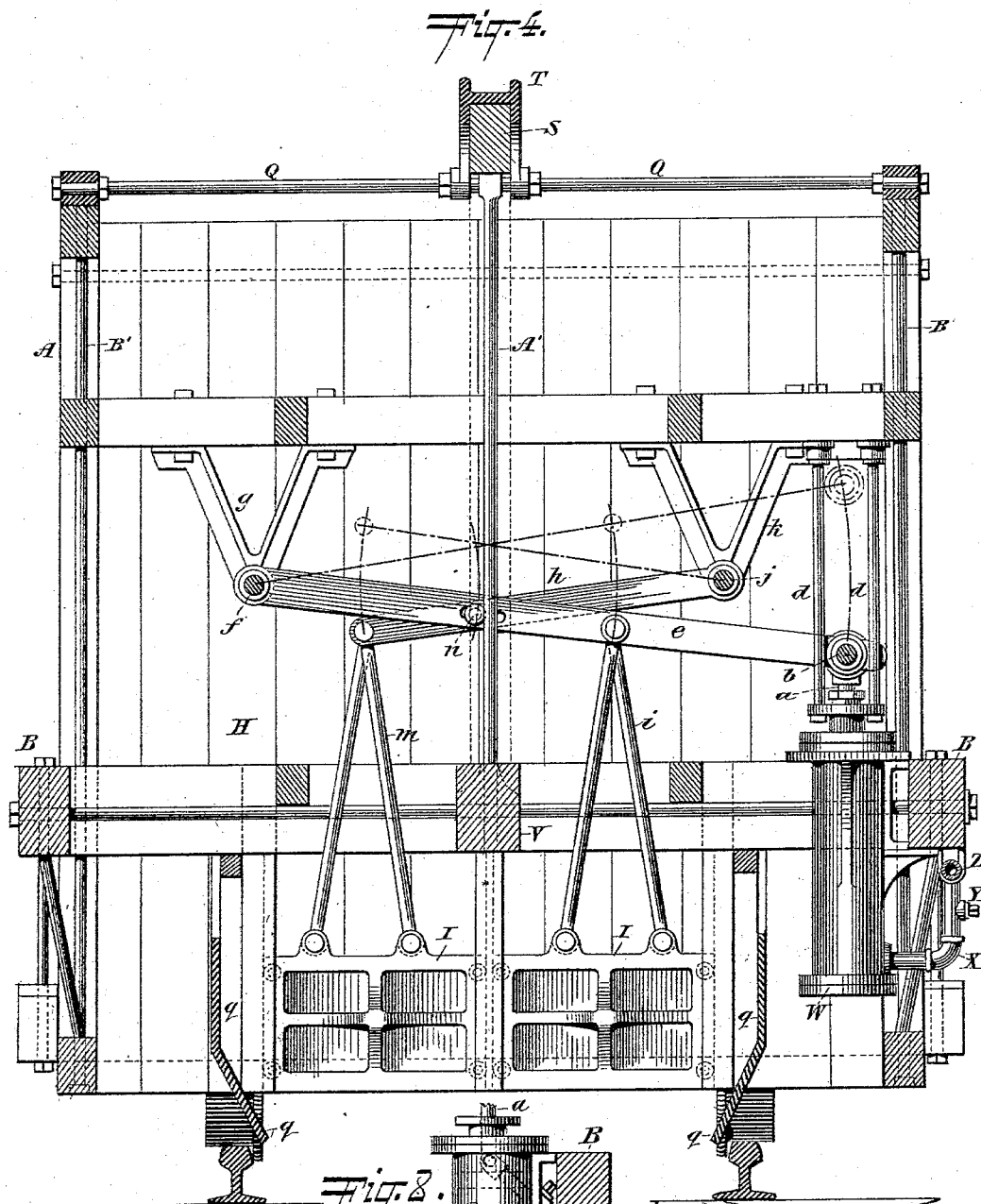
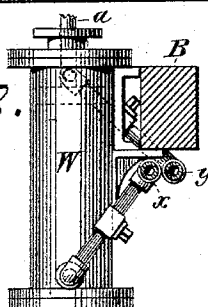


Fig. 2.

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UNITED STATES PATENT OFFICE.

EDWARD A. TRAPP, OF PATERSON, NEW JERSEY.

DUMPING-CAR.

SPECIFICATION forming part of Letters Patent No. 490,324, dated January 24, 1893.

Application filed April 20, 1892. Serial No. 429,854. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. TRAPP, a citizen of the United States, and a resident of Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Transportation and Dumping Cars, of which the following is a specification.

The invention relates to improvements in transportation cars and means for operating the gates or doors of same, and consists of a car composed of compartments separated by a definite space and having floors which incline downward toward said space, on opposite sides of which the vertical facing portions of the car are provided with doors or gates through which the compartments are discharged of their contents and which are adapted to be operated by compressed air through mechanism under the direct control of the engineer on the locomotive. In accordance with my invention all the cars of the train may be discharged of their contents at one time by the engineer or any number of the cars may be thus discharged. The cars which form the subject of a part of the invention are intended for transporting coal to definite stations where they are run upon elevated tracks and dump the coal through the same; but it is to be understood that the cars are not limited in their use to the carrying of coal or any special commodity.

The invention will be more fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:—

Figure 1 is a side elevation of a car constructed in accordance with and embodying the invention; Fig. 2 is an enlarged top view partly broken away of same; Fig. 3 an enlarged detached side elevation of the middle portion of the car, showing the space between the compartments and the mechanism therein for operating the discharge gates or doors; Fig. 4 a vertical transverse section of same on the dotted line 4--4 of Fig. 3; Fig. 5 a diagram of the car showing dimensions for a carrying capacity of thirty-six tons of coal; Fig. 6 a central vertical longitudinal section of a part of the middle portion of the car showing a modified construction of the discharge gates or door and lever mechanism for opening

and closing the same; Fig. 7 a detached view of the inner end of one of the compartments of the car showing a further modified form of discharge gate and operating mechanism therefor, and, Fig. 8 is a detached side elevation of the compressed air cylinder forming a part of the gate operating mechanism.

In the drawings A designates the car; B the bed frame thereof, and C the trucks.

The body of the car A consists of the compartments D, E, separated by a central space F and having the floors G which incline downward toward said space. In the vertical facing inner ends H of said compartments D, E, are provided the discharge doors or gates I, J, whose lower edges are in line with the floors G and which doors are adapted to be operated by mechanism located in the space F, as hereinafter described. The doors or gates I, J, may be of any desirable form or construction, and hence as examples there are illustrated in the drawings both sliding and hinged doors, with appropriate lever mechanism for operating them, Figs. 4 and 7 showing the sliding doors and Fig. 6 hinged doors. The floors of the compartments D, E, incline downward toward the doors or gates I, J, and within the corners at the inner ends of the compartments are provided the inclines K, which prevent the coal settling in said corners and direct the material to the discharge doors or gates.

The compartments D, E, are connected and the whole structure strengthened on opposite sides by the inclined beams L diverging downward from a central point at the top of the car and by the longitudinal supporting beam M located between and joining said beams L; and said compartments are further connected and strengthened by the beams N at opposite sides of the lower inner ends thereof and extending across the space F. Stay rods O are also provided, as shown in Figs. 1 and 3, and extend downward and outward from the upper part of the space F through the beams L, M, and longitudinal beams P passing along the outer edges of the floor of the compartments. The upper adjoining ends of the beams L are connected by the transverse rod Q, and the opposite sides of the compartments E, D, are connected at about the middle of their length by the trans-

verse rods R. From the central transverse rod Q there extends downward and outward the central diverging inclined beams S, which are secured by a cap T at their upper ends and at their lower ends are bolted to the central longitudinal beam V extending through the compartments on a line with and forming a part of the bed frame B.

The car constructed as above described forms one part of the invention, and a further portion of the invention involves the means hereinafter described for operating the discharge doors or gates I, J, in the inner facing ends H of the compartments D, E.

The drawings present several systems of levers for opening the discharge doors or gates I, J, and hence the mechanism shown in Figs. 1, 2, 3 and 4 will first be described. Upon reference to said Figs. 1 to 4 it will be seen that within the space F between the compartments D, E, is supported a compressed air cylinder W which is in communication through a pipe connection X having a cut off valve Y with the longitudinal pipe Z extending the entire length of the car, and being properly supported at given intervals, as shown in Fig. 1. The pipe connection X leads to the lower side of the piston in the cylinder W, and hence upon the compressed air entering said cylinder the piston and its rod *a* will be elevated and set in motion the levers by which the gates I, J, are opened. To the upper end of the piston rod *a* is secured the cross head *b* adapted to move between the guides *d* (see Fig. 4) and having connected with its ends the outer ends of the levers *e*, whose inner ends are mounted on the shaft *f* sustained in hangers *g*, and which levers at each side of the space F carry the supplemental levers *h* and the rods *i* leading to one of the discharge doors or gates. The supplemental levers *h* at their outer ends are mounted on the shaft *j* supported in hangers *k*, and at their inner ends said levers at opposite sides of the space F are connected with the rods *m* extending to the other of said discharge doors or gates; thus at each side of the space F there are provided the levers *e*, *h*, which are connected together by the loose bolt *n* and carry the rods *i*, *m*, to which the discharge doors are secured. Upon the piston rod *a* being elevated by the admission of compressed air to the cylinder W the levers *e*, *h* at each side of the space F will be elevated and simultaneously lift the discharge doors or gates I, J, permitting both compartments D, E, to at once discharge their contents, the latter operation being automatic owing to the inclined floors G. During the discharge of the coal or other material from the compartments D, E, the track rails will be kept clear by the inwardly inclined guards *g*, which aid in directing the coal inward that it may fall between the ties to the proper place of deposit. Upon the pressure being relieved from the cylinder W, the piston rod *a*, levers *e*, *h*, and gates I, J, will of their own

specific gravity descend to their former closed position.

It is obvious that various systems of levers intermediate the piston rod *a* and the discharge gates or doors I, J, could be used with good effect and hence the invention is not confined to the special form of levers above described. As examples of further forms of gate operating levers reference is made to Figs. 6 and 7, which show both hinged and sliding doors with appropriate connecting mechanism. In Fig. 6 the cylinder W appears in an inverted position with its rod *a* carrying the pair of levers *t* connected at their lower end with the lower edge of the doors I, J; and upon the elevation of the rod *a* the levers *t* will open the doors I, J, as denoted by full lines, while upon the lowering of said piston rod *a* the doors I, J, will close and be locked by the levers *t* coming into a horizontal position in line with each other, as indicated by dotted lines. In Fig. 7 the arrangement is such that through the rocking lever *w* the sliding door I will be opened on the lowering of the piston rod *a* and close by its own specific gravity, returning the rod *a* to its initial upward position. Two discharge doors may be used at each side of the space F, or one door or a greater number than two as may be preferred, and said doors may be opened by the force of the compressed air and allowed to close of their own specific gravity, or they may be both opened and closed under the positive action of the compressed air, as may be desired.

In Fig. 8 is illustrated the cylinder W having two pipe connections leading from two supply pipes *x*, *y*, to the opposite sides of the piston one connection being to move the piston in one direction to open the discharge gates and the other to move said piston in the opposite direction to close said gates.

It is proposed to fit each car with the compressed air mechanism, and couple together the meeting ends of the longitudinal air pipes Z of the separate cars of the train, in order that the engineer in his cab may have full control of the same and by simply turning a lever may apply the compressed air and open all of the doors or gates I, J, of the entire train, thus discharging all of the cars at one time. The connections whereby the engineer may apply and cut off the compressed air are not shown, since they are well understood and will be such as he now employs in connection with the air brakes. In case it should be desired that some one or more of the cars of the train should not be discharged while the others are discharging, the same may remain unaffected by simply turning the valves Y in the connections X of said car or cars, thus cutting off the compressed air therefrom and leaving their doors I, J, closed.

From the foregoing description it will be seen that I have provided a new transportation car and also novel economical and effective means for opening and closing the dis-

charge doors of same. The importance of enabling the engineer to control the discharge of the entire train without leaving his cab will be readily appreciated, and this object my invention fully accomplishes in its introduction of compressed air with suitable connections for opening or opening and closing the discharge doors or gates. This latter portion of the invention will also prove of importance as applied to the opening of doors, gates and like devices other than those illustrated in the drawings, and hence I do not limit this portion of the invention specifically to a transportation car. Neither do I confine the special form of car shown to the use of the compressed air mechanism for operating the discharge doors or gates, since the car in itself is novel. The space F between the compartments D, E, may if desired be covered to protect the gate operating mechanism.

What I claim as my invention and desire to secure by Letters Patent is:

1. The transportation car having the compartment provided with the inclined floor G and the discharge door, combined with the compressed air cylinder connected with said door for operating the same, and the supply pipe for compressed air to said cylinder; substantially as and for the purposes set forth.

2. The car having the compartments D, E, separated by a space and provided with the inclined floors G, the discharge doors and the corner inclines K; substantially as set forth.

3. The car having the compartments D, E, separated by a space and provided with the inclined floors and the discharge doors, combined with the beams S and the beam V extending through the compartments and connected with the bed frame; substantially as set forth.

4. The car having the compartments D, E, separated by a space and provided with the inclined floors and the discharge doors, combined with the inclined diverging beams L, horizontal beam M and rods O; substantially as set forth.

5. The car having the compartments separated by a space and provided with inclined floors and the discharge doors, combined with the air cylinder in said space, the supply pipe to said cylinder and mechanism intermediate the piston rod of said cylinder and said doors; substantially as set forth.

6. The car having doors, combined with the compressed air cylinder, the supply pipe to said cylinder, and lever mechanism intermediate the piston rod of said cylinder and said doors for operating the latter; substantially as set forth.

7. The series of doors, combined with the compressed air cylinder for each door or set of doors in said series, lever mechanism intermediate said door or set of doors and the cylinder, and the main supply pipe for the compressed air; substantially as set forth.

8. The car having the compartments separated by a space and provided with the inclined floors and discharge doors, combined with the compressed air cylinder, the levers *e, h*, connected with the piston rod of said cylinder, and the rods *i, m*, connecting said levers with the said doors; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 16th day of April, A. D. 1892.

EDWARD A. TRAPP.

Witnesses:

CHAS. C. GILL,
MILLER.