

A. CAMPBELL.
DUMP OR DROP BOTTOM CAR.
APPLICATION FILED DEC. 5, 1910.

1,040,618.

Patented Oct. 8, 1912.

4 SHEETS-SHEET 1.

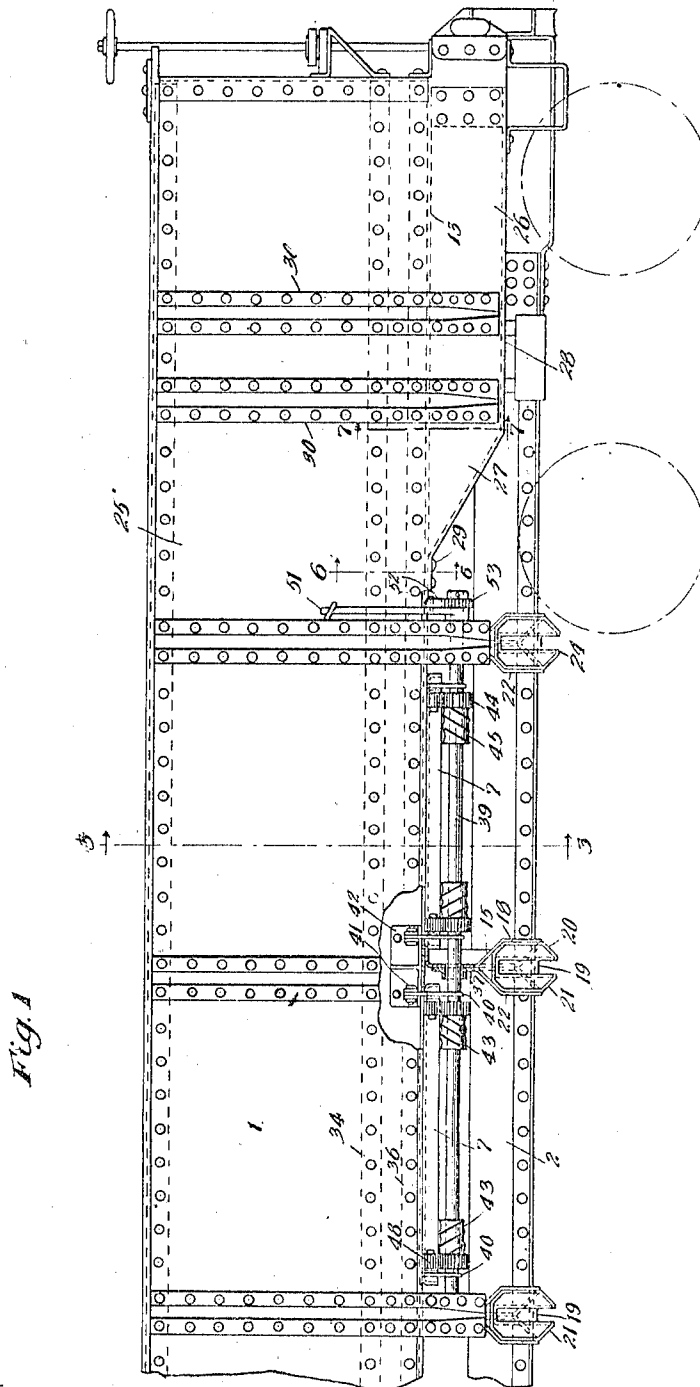


Fig. 1

Witnesses.

Wm. Geiger
Ester Abrams.

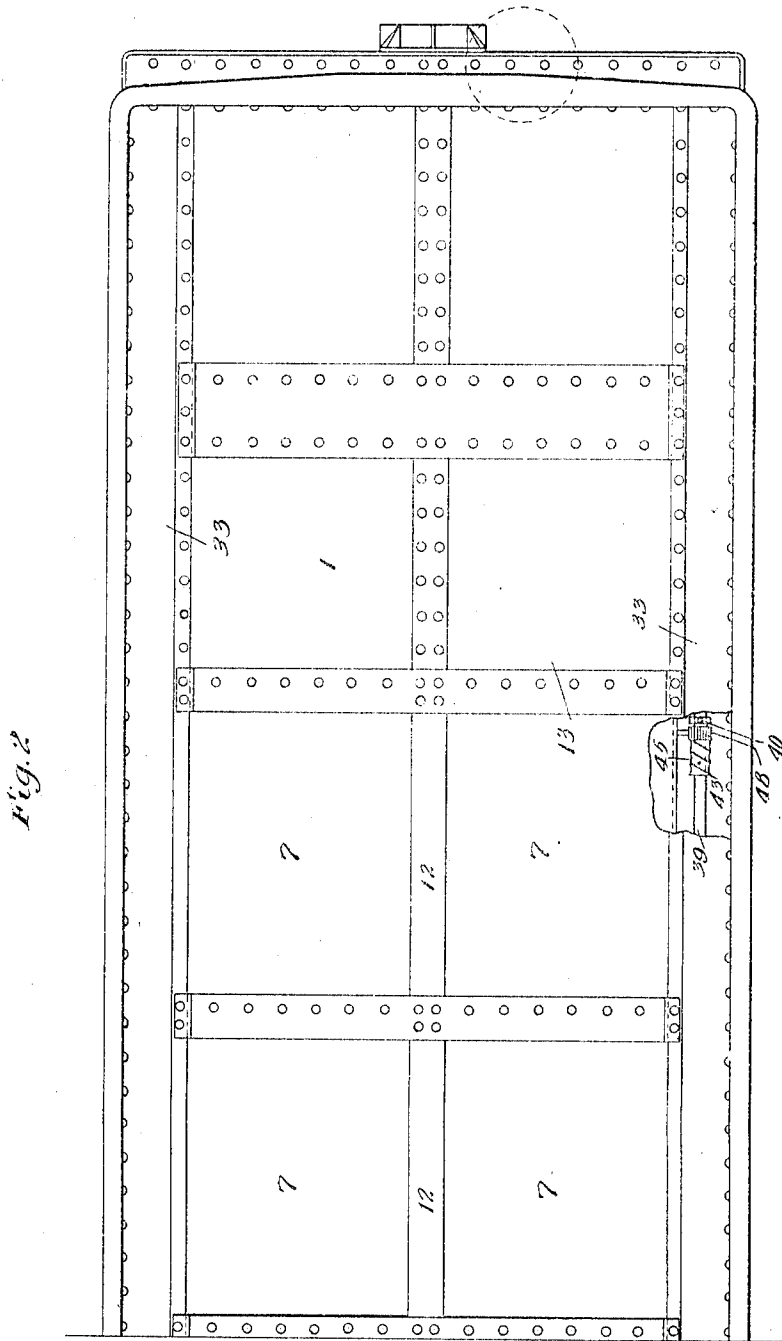
Inventor
Argyle Campbell
By Munday, Evans, Adams & Clarke
his Attys

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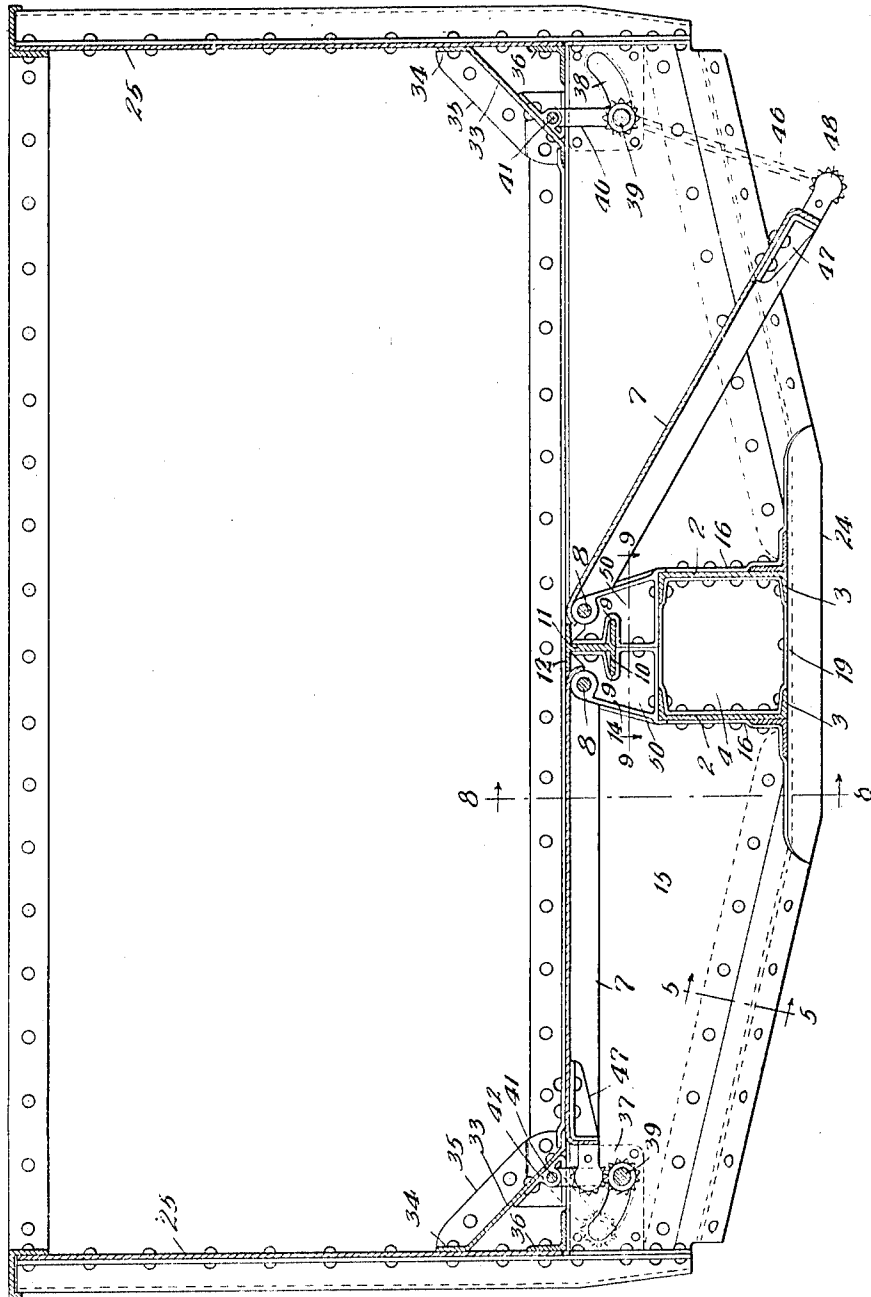
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4 SHEETS—SHEET 3.

Fig 3



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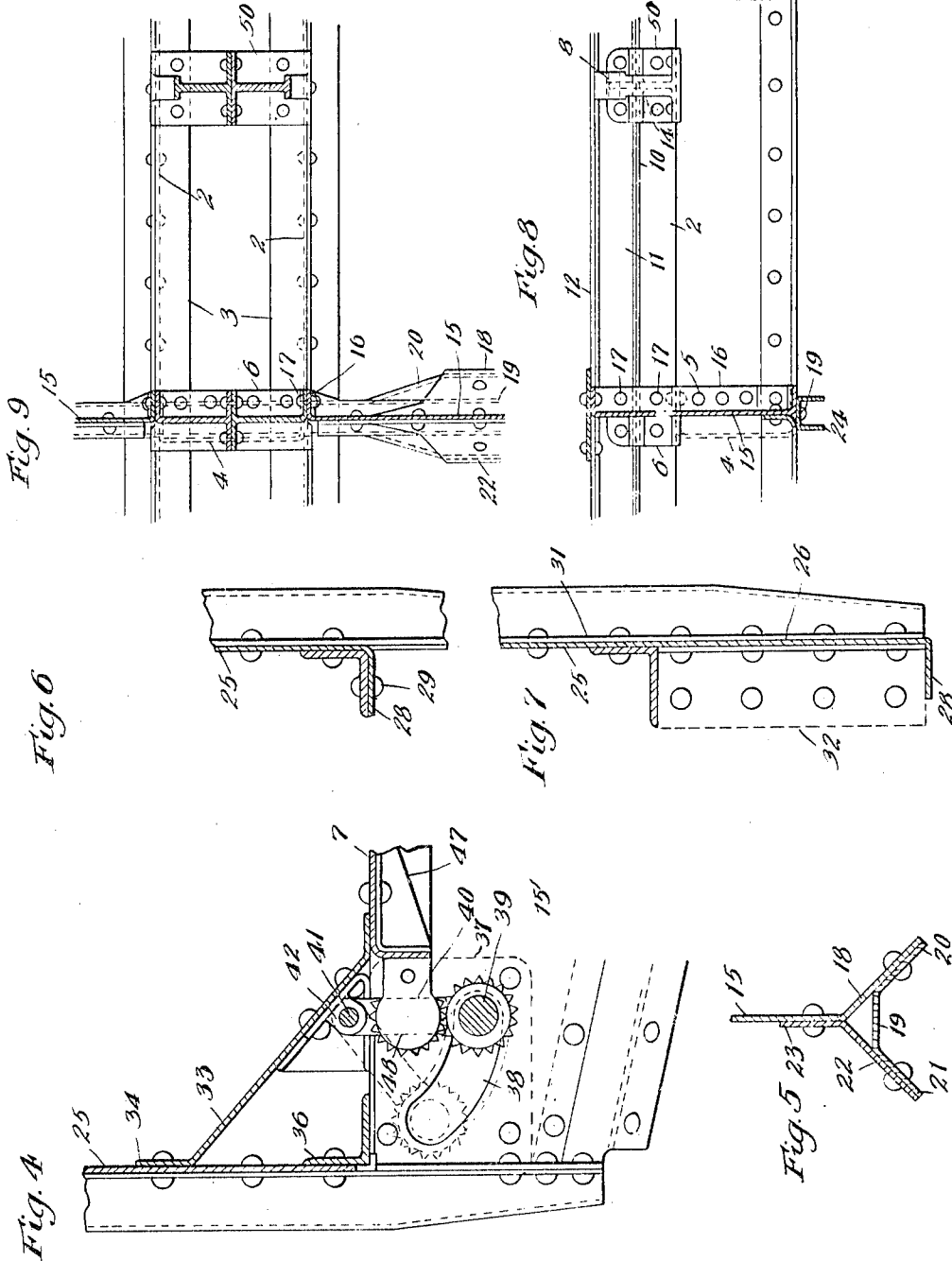
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4 SHEETS-SHEET 4.



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UNITED STATES PATENT OFFICE.

ARGYLE CAMPBELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO ENTERPRISE RAILWAY EQUIPMENT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DUMP OR DROP-BOTTOM CAR.

1,040,618.

Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed December 5, 1910. Serial No. 595,624.

To all whom it may concern:

Be it known that I, ARGYLE CAMPBELL, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Dump or Drop-Bottom Cars, of which the following is a specification.

My invention relates to improvements in dump or drop bottom cars.

In the accompanying drawing forming a part of this specification, Figure 1 is a side elevation, partly broken away, showing one half of a dump or drop bottom car embodying my invention. Fig. 2 is a plan view of same, partly broken away. Fig. 3 is an enlarged cross section on line 3—3 of Fig. 1. Fig. 4 is an enlarged, detail partial section, similar to Fig. 3. Fig. 5 is a detail cross section on line 5—5 of Fig. 3. Fig. 6 is a detail, vertical section on line 6—6 of Fig. 1. Fig. 7 is an enlarged, detail, vertical section on line 7—7 of Fig. 1. Fig. 8 is a detail, vertical section on line 8—8 of Fig. 3, and Fig. 9 is a detail, horizontal section on line 9—9 of Fig. 3.

In the drawing, 1 represents the body of a dump or drop bottom car, 2, 2 the center sills, preferably channels, with the flanges 3 thereof turned inward or facing each other and extending from end to end of the car and connected at intervals by flanged connecting members 4 by rivets 5 and by the flanged saddles or castings 6 to which the diaphragms are connected. At intermediate points, similar castings 50, with hinge points 8 to which the doors 7 are hinged at their inner longitudinal edges, are connected to the center sills 2. The flanged saddles 6 and door hinging castings 50 are furnished with horizontal slots 9 to receive the bottom flange 10 of an I-beam 11, the upper flange 12 of which covers the space between the inner longitudinal edges of the hinged doors 7. The upper flange 12 of the I-beam 11 is preferably substantially flush or on a level with the floor 13 of the car body. The door hinging saddles 50 are wider at their base than at their top so that the hinge pivots of the doors may come much closer together than the center sills 2, 2, the saddles 50 having inclined outer faces 14 to permit the doors to properly swing down in opening.

The transoms or diaphragms 15 have flanges 16 connected by the rivets 5 with

the center sills 2 and by rivets 17 with the flanged saddles 6. Each of the diaphragms 15 also has a wide flange 18 at its lower edge, preferably extending at an angle of about forty-five degrees to the vertical and riveted to the bottom horizontal member 19 of the diaphragm which has an angle flange 20 fitting the angle flange 18 and riveted thereto. The horizontal member 19 of the diaphragm also has an angle flange 21 fitting and riveted to the angle flange 22 of the additional or supplemental diaphragm member 23 which is riveted to the upright portion of the diaphragm 15. The bottom horizontal member 19 is preferably of pressed steel and extends from side to side of the car and constitutes the bottom tie connection crosswise of the car. And it is provided with right angle flanges 24 at the point beneath the center sills instead of with angle flanges 20 where it is riveted to the diaphragm or transom angle flanges 18 and 22, as before mentioned.

The side sheets 25 which form the upright sides of the car body are furnished with integral depending extensions 26 extending below the floor line, these extensions having inclined inner ends 27 sloping gradually upward to the floor line at a point adjacent to the door which is nearest to the end of the car. The extensions 26 of the side sheets are furnished with horizontal flanges 28 at their lower edges to give additional strength to the car body, and these flanges 28 are secured by rivets 29 to the side of the car. The upright stakes 30 have right angle flanges 31 riveted to the upright side sheets 25 of the car. To give additional stiffness to the side of the car and additional strength for connecting the body bolster 32 to the side of the car, two upright stakes 30 are placed closely together at the body bolster.

Inclined aprons 33 are provided at each side of the car extending between the floor and the side sheets, the same being provided with flanges 34 and 35, riveted to the sides and ends of the car body. Angle plates 36 are also riveted to the upright sides of the car at the floor line.

The diaphragms or transoms 15 of the car are provided with connecting castings 37, riveted thereto and to the upright sides of the car, and the same are provided with curved slots or cut away portions 38 to give

room or space for the swinging door operating shaft 39 to move or swing in. The swinging shaft 39 for operating the doors is supported by pivot arms or links 40, suspended from pivot pins 41 mounted upon suitable brackets 42 which are secured to and supported by the transoms or diaphragms 15 directly beneath the inclined aprons 33. Each of the swinging door operating shafts 39 is provided with a winding drum 43 and gear 44, the gear and drum being preferably formed in one piece and the drum being preferably furnished with a spiral groove 45 for the chain or flexible connection 46 which connects the swinging operating shaft with the doors. The hinged doors are provided at their outer or free ends with supporting bars or pieces 47 which project beyond the outer end edges of the doors and are furnished each with a circularly curved and toothed head or gear 48, adapted to mesh with the gear 44 on the swinging operating shaft 39 when the door is raised to near its closed position so that the gear heads 48 on the doors will cause the operating shaft 39 to swing out of the way of said gear heads 48 as the door is raised, and then cause the operating shaft to swing under said gear heads 48 as the door is further raised, and thus support the door in its closed position independent of the chains 46, as will be readily understood from Fig. 3 of the drawing, which shows at the right hand of said figure the door in its open position, and at the left hand of said figure the door in its closed position.

The swinging operating shaft 39 is preferably furnished with a handle, lever or crank 51 for turning the same, the lever having a pawl 52 engaging a ratchet 53 on the shaft.

The doors 7 are preferably eight in number, four on each side of the transverse middle line of the car, and they extend from truck to truck, but may extend from end to end, if desired.

Suspended operating shafts 39 are located on each side of the car which serve for opening all the doors, each shaft being provided with two winding drums 43 and two gears 44 for each of the doors, and each of the doors having two projecting supporting bars 47, each with a toothed or gear head 48. Each of the swinging operating shafts 39 is suspended from pivot pins 41, located above the swinging shaft 39 through the suspended arms or links 40. As each of the swinging operating shafts 39 has no contact with the connecting castings 37 or with the walls of the curved slots 38 therein, the swinging operating shafts which are journaled in suspension arms or links 40 are free to swing out of the way and around the projecting supporting bars 47 when the

toothed heads 48 thereof engage the gears 44 on the operating shaft, and there is thus no liability for the swinging operating shaft to bind or become wedged against the walls of the slots 38 under action of the toothed heads 48 and gears 44 and consequent failure to properly operate either in opening or closing the doors. The slots 38 in the connecting castings 37 are simply for the purpose of giving room for the swinging movement of the operating shaft 39 when the connecting castings 37 are made of the preferred shape illustrated in the drawing, it being, of course understood that if the connecting castings 37 are so shaped as to permit the operating shaft to swing as required without the necessity of slotting the same, the slots 38 would, of course, be omitted.

I claim:—

1. In a drop bottom dump car, the combination with a pair of center sills spaced apart, of connecting saddles secured on top of said center sills and doors hinged at their inner longitudinal edges to said saddles, and an I-beam between the hinged edges of the doors and secured to said saddles, said saddles having slots to receive said I-beam, substantially as specified.

2. In a drop bottom car, the combination with a pair of center sills spaced apart, of connecting saddles secured on top of said center sills and doors hinged at their inner longitudinal edges to said saddles, said saddles having upwardly and inwardly inclined outer faces to bring the hinged edges of the doors closer together than the center sills, and an I-beam fitting between and secured to said saddles and having its upper flange flush with the doors, said saddles having slots to receive the lower flange of said I-beam, substantially as specified.

3. In a drop bottom dump car, the combination with a fixed floor extending over the trucks, of hinge doors extending between the trucks and upright side sheets having downwardly projecting extensions below the floor line at the ends of the car, said extensions sloping upwardly to the floor line at their inner ends and serving to strengthen the car body, substantially as specified.

4. In a drop bottom dump car, the combination with a fixed floor extending over the trucks, of hinge doors extending between the trucks and upright side sheets having downwardly projecting extensions below the floor line at the ends of the car, said extensions sloping upwardly to the floor line at their inner ends and serving to strengthen the car body, said extensions having inwardly turned flanges at their lower edges, substantially as specified.

5. In a drop bottom dump car, the combination with the floor and hinged doors and upright car sides, of transversely extending diaphragms between the doors comprising

each a vertical plate furnished with an angle flange at its lower portion, a supplemental diaphragm member riveted thereto and having an angle flange at its lower portion to prevent lodgment of material on the diaphragm and to give strength to the diaphragm, said flanges being diverging and sloping downwardly, substantially as specified.

6. In a drop bottom dump car, the combination with the floor and hinged doors and upright car sides, of transversely extending diaphragms between the doors comprising each a vertical plate furnished with an angle flange at its lower portion, a supplemental diaphragm member riveted thereto and having an angle flange at its lower portion to prevent lodgment of material on the diaphragm and to give strength to the diaphragm, each of said diaphragms also having a horizontal member provided with angle flanges fitting said before mentioned angle flanges and riveted thereto, substantially as specified.

7. In a flat bottom dump car, a transverse diaphragm comprising a vertical plate having a wide flange at its lower portion, a supplemental vertical plate riveted thereto and having a wide flange at its lower portion and a horizontal member having flanges at

each edge riveted to said wide flange of said vertical member, substantially as specified.

8. In a flat bottom dump car, a transverse diaphragm comprising a vertical plate having a wide flange at its lower portion, a supplemental vertical plate riveted thereto and having a wide flange at its lower portion and a horizontal member having flanges at each edge riveted to said wide flanges of said vertical member, said horizontal member having depending right angle flanges at the portion thereof beneath the center sills, substantially as specified.

9. In a drop bottom car, the combination of a vertical cross diaphragm flanged at the bottom and depending pieces attached to said diaphragm, said pieces being also flanged, and a continuous cross member under the center sills and attached to said cross diaphragm, said cross member being flanged at right angles for a distance at its center under the center sills and flanged at each end portion at angles to match the flanges on said diaphragm, substantially as specified.

ARGYLE CAMPBELL.

Witnesses:

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