

No. 815,289.

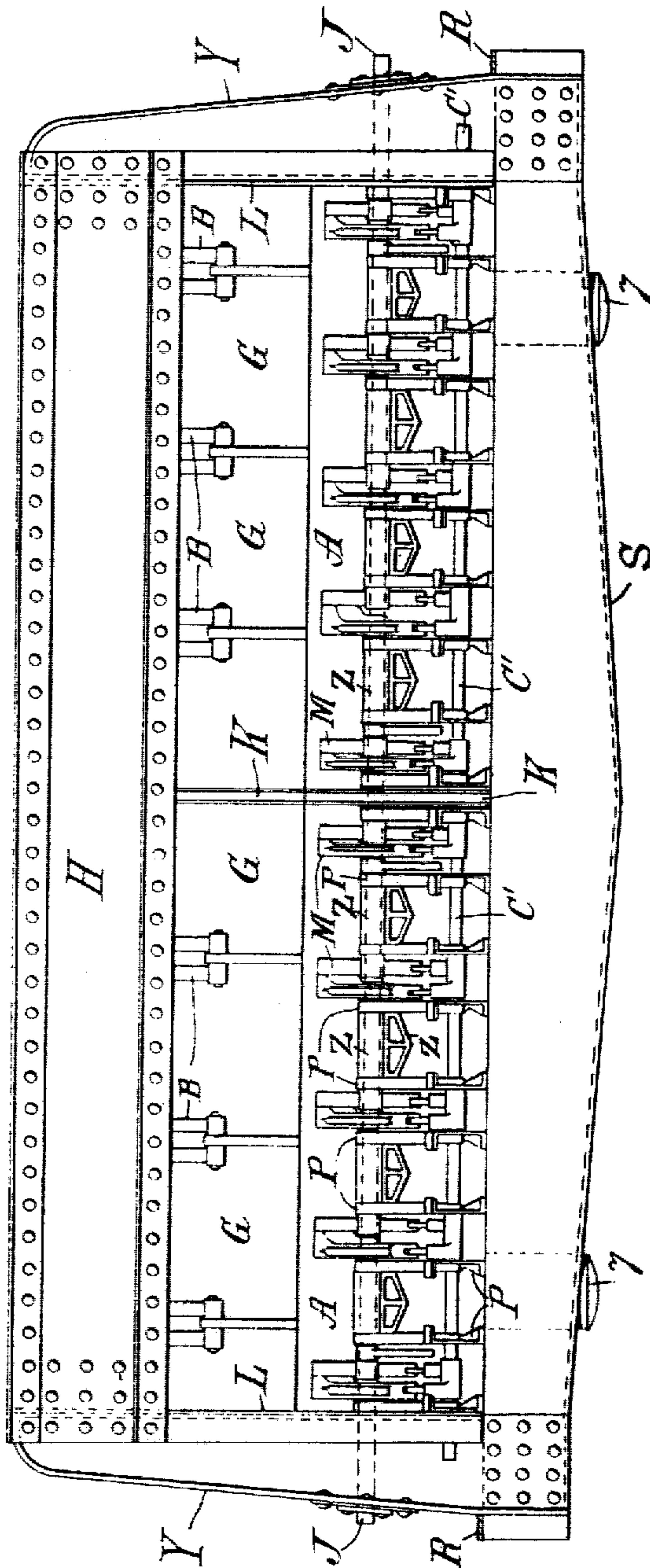
PATENTED MAR. 13, 1906.

J. M. GOODWIN.
VEHICLE FRAME CONSTRUCTION.

APPLICATION FILED AUG. 2, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



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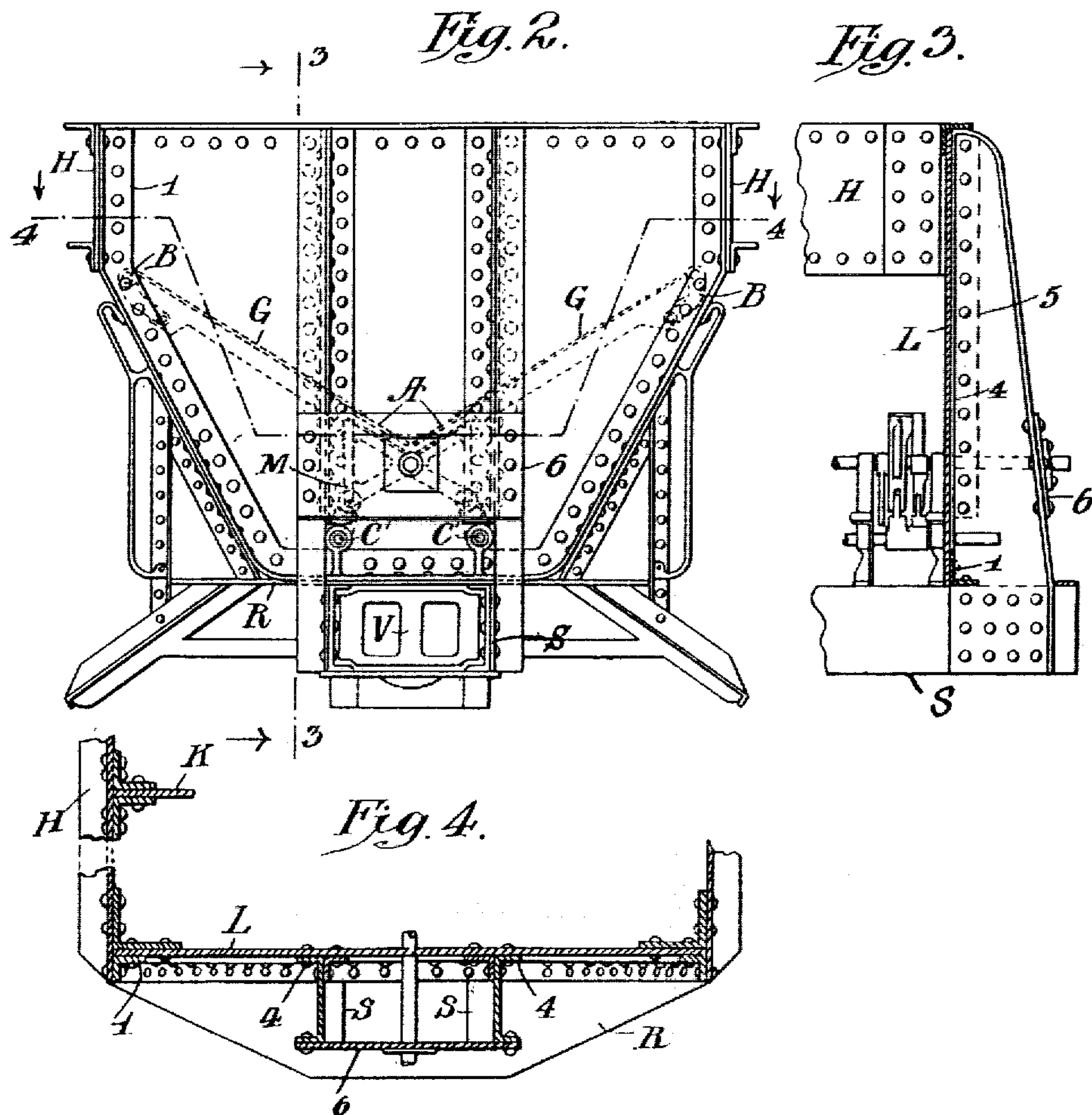
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3

Fig. 5.

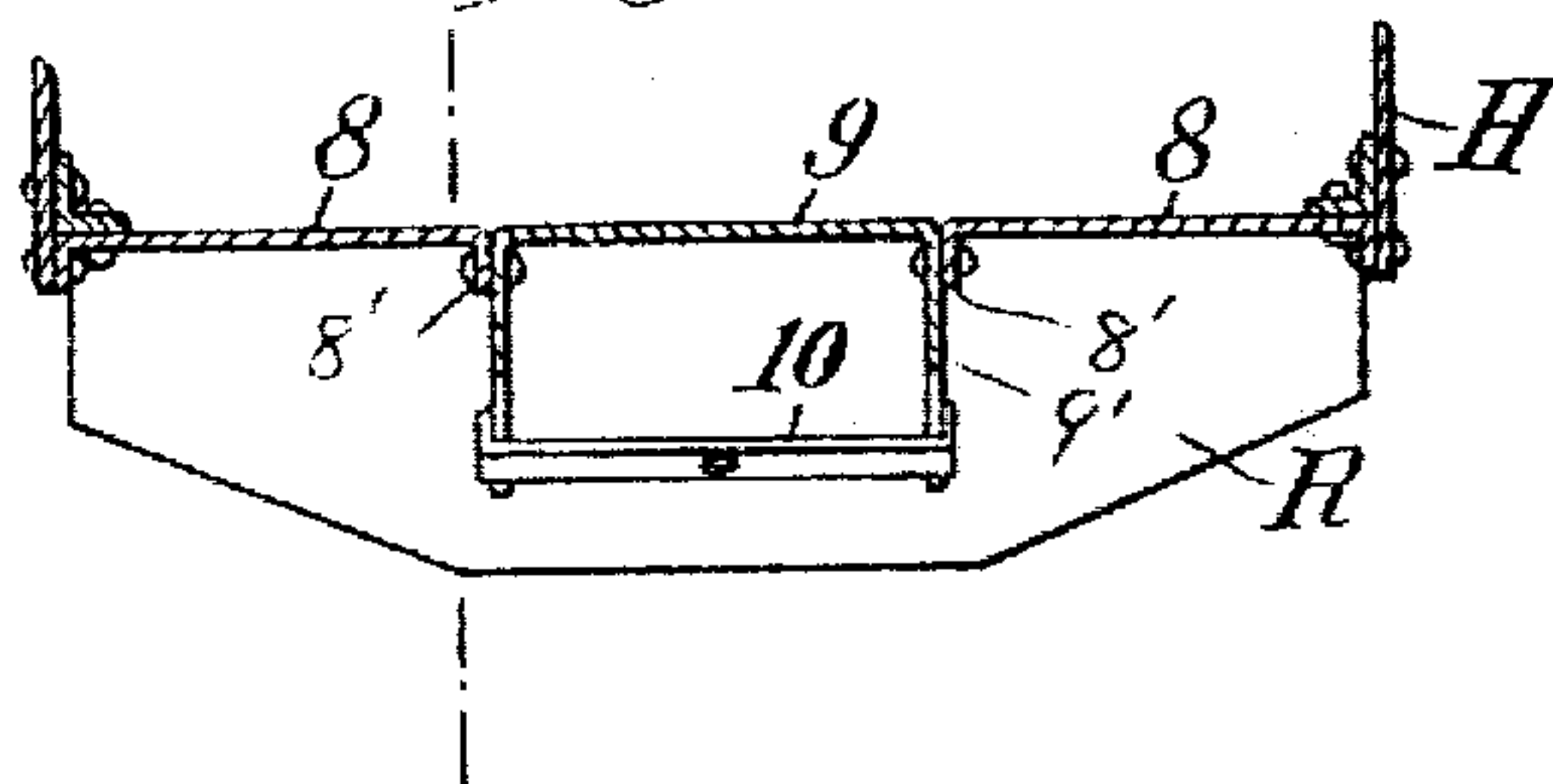
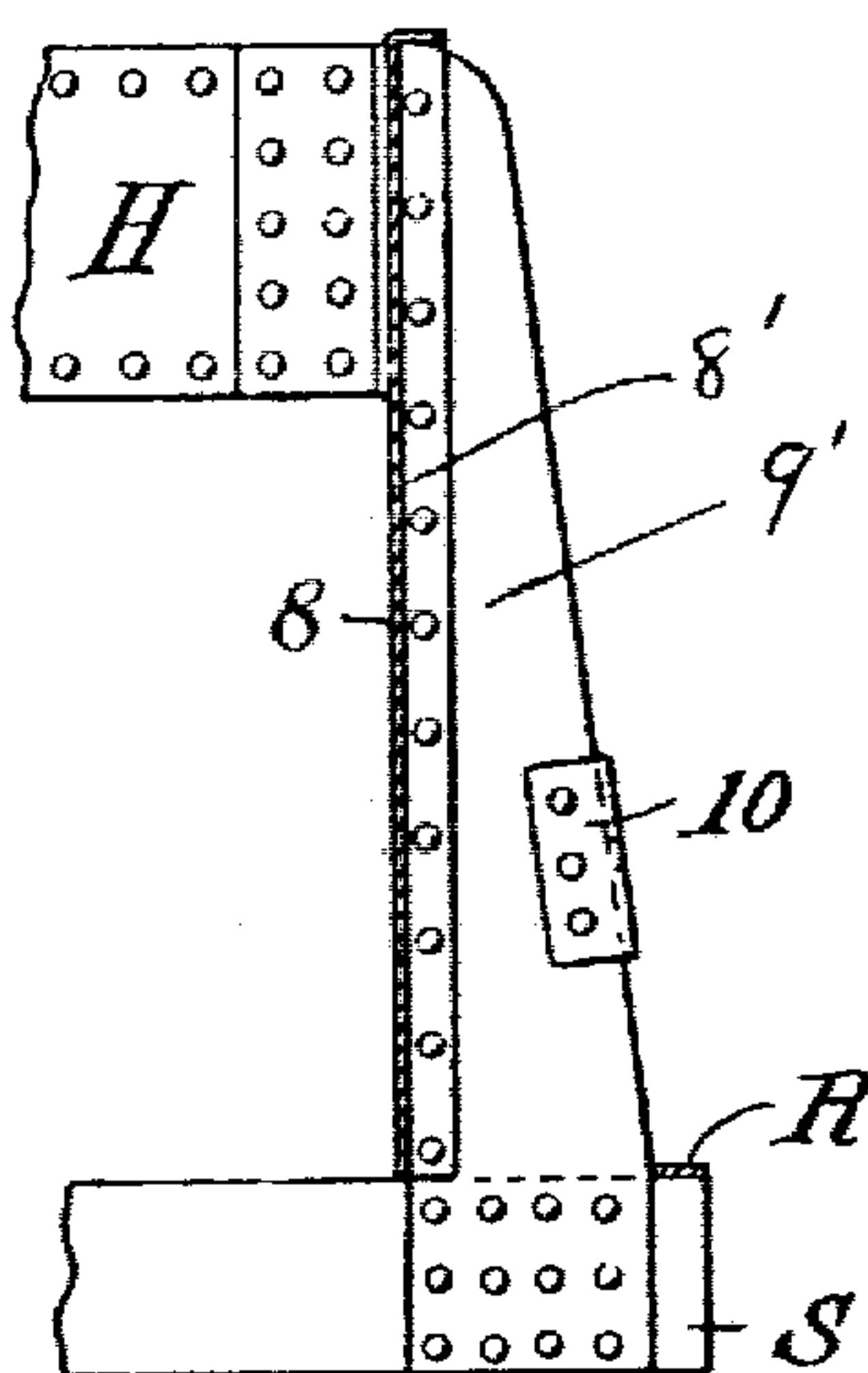


Fig. 6



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UNITED STATES PATENT OFFICE.

JOHN M. GOODWIN, OF MOUNT VERNON, NEW YORK.

VEHICLE-FRAME CONSTRUCTION.

No. 815,289.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed August 2, 1905. Serial No. 272,307.

To all whom it may concern:

Be it known that I, JOHN M. GOODWIN, a citizen of the United States, residing in the city of Mount Vernon, county of Westchester, and State of New York, have invented certain new and useful Improvements in Vehicle-Frame Constructions, of which the following is a full, true, and concise specification.

The present invention relates to the construction of vehicles, and more particularly of dumping-vehicles wherein the bottom floor is composed of movable valves not forming a part of the vehicle-frame; and the invention consists in a certain arrangement and disposition of the several parts whereby the same are specially adapted to cooperate to form a rigid vehicle-frame embodying the principles and load-carrying powers of a continuous beam combined with a cantaliver end-brace construction, whereby certain important advantages are secured, as below explained.

Referring to the accompanying drawings, forming a part hereof, in which like references designate like parts throughout, Figure 1 is a side elevation of a dumping-vehicle embodying my invention stripped of discharging-chutes and other appurtenances, so as to expose the center sill thereof. Fig. 2 is an end elevation of Fig. 1; Fig. 3, a vertical section on line 3 3 of Fig. 2, and Fig. 4 is a transverse cross-section of Fig. 2 on line 4 4 of Fig. 2 and also of Fig. 3. Figs. 5 and 6 are respectively transverse and vertical sections of a modified construction.

The frame of the vehicle is comprised, essentially, of two parallel side girders H, which constitute also the two upper side margins of the cargo-carrying receptacle, a center sill S, which consists of two longitudinal flanged beams spaced apart by the cross-pieces V, Fig. 2, and a plurality of bulk heads L, L, and K, the end bulkheads L L thereof being reinforced and braced from the center sill by the cantaliver end-brace members Y to preserve them rigidly in upright vertical position. The center sill S extends the length of the vehicle, being somewhat deeper at its central portion than at its ends, and it protrudes beyond the end bulkheads L L, as shown in Figs. 1 and 3. At intervals along its length the center sill carries a plurality of pairs of shaft-standards or saddle-pieces P. These are arranged in pairs, as shown in Fig. 1, superposed on top of the sill, and support a lon-

gitudinal rock-shaft J. Between the members of each pair of pieces P the shaft J carries a pair of brackets M M, which are mounted to swing on the said shaft and support the two center dumping-valves A A, shown by the dotted lines of Fig. 2 and familiar to those skilled in this art. Two detent rock-shafts C' C', also journaled in the saddle-pieces, serve to support the brackets M and valves A in the position shown in the drawings, from which position they may be released by the proper manipulation of the said shafts C' C' in well-understood manner. The other bottom dumping-valves G G are pivotally suspended by the hinge-links B B at their outer margins to the two side girders H H, respectively, and their inboard ends are adapted to be normally supported by the free edges of the valves A A, also as indicated by the dotted lines of Fig. 2. The foregoing system of valve operation is that commonly employed in the well-known Goodwin dumping-car and will not require explanation further than to note that the load on the dumping-valves is transmitted partly through the hinge-links B to the side girders H and partly through the pieces P to the sill S.

The spaces between the members of the pairs of saddle-pieces P are entirely occupied by the parts surrounding the shaft, and the several pairs of saddle-pieces are likewise spaced apart by means of the special interposed spacing-struts Z, surrounding intermediate portions of the shaft J, so that the said shaft and pieces P in addition to their primary function of supporting the bottom valves A and G serve also as a continuous longitudinal compression member to reinforce the center sill against vertical deflection, thereby providing a truss formation for supporting the immediate load of the valves A A. The end bulkheads L form, as usual, the end walls of the cargo-carrying receptacle and according to my present invention are rigidly braced and fastened to the sill S and to the ends of the side girders H, so as to form supporting post members for said girders, which are incapable of deviation under ordinary strains from their normal upright positions. As shown in Figs. 1 to 4, the end bulkheads consist each of a continuous sheet L, with its margin bound by the angle-irons 1 and 2 and secured to the side girders H, as shown in Fig. 4. The end brace Y is secured in the angle formed by the bulkhead and the protruding end of the sill and consists of two

flanged metal sheets or beams each having the cross-section of a U-beam, but being slightly wider at its base than near its top. The two sheets are securely riveted by their flanges 4 4 to the central portion of the sheet L, and angle-bars 5 are fastened in the angles between them. The bases of the two sheets of the end brace extend below the bulkhead and the platform R and are overlapped on the webs of the center sill S, to which they are securely riveted, as shown, so as to resist racking strains in an endwise direction. The cross or binding plate 6 may be secured to the two members of the brace to hold them together, if desired, and forms a journal-seat for the end of the shaft J. The center bulkhead K is supported upon the sill and secured to the side girders H, as indicated in Fig. 4, so that each girder, being supported at three points, forms, in effect, a "continuous beam," the points of support being provided, respectively, by the two end and the center bulkheads. Moreover, the supporting connections between the side girders H H and the center sill S, as above described, form these parts into a deep girder-truss, of which the sides H H are two separated top chords, the sill S the bottom chord, and the three bulkheads the post members. The center sill is intended to rest on trucks or other carrying members at the two points marked 7 7 in Fig. 1, which points are intermediate of the end bulkheads L L and located as near to the center of each cargo-compartment as is possible and convenient. It will be plain from a consideration of the disposition of the load in the vehicle described that the downward pressure thereof is resisted in the first instance by the side girders H, which, being functioned to act as continuous beams, as above described, offer the well-understood load-resisting advantages of such construction. A portion of the downward pressure of the load in the vehicle is also carried as a uniform load directly by the center sill, being transmitted thereto through the center valves A and their series of spaced supports P. The pressure of the continuous-beam girders on the three post members or bulkheads is transmitted vertically through the same to the sill and is here resisted, not only by the sill alone, nor by the sill reinforced by the spaced saddle-pieces, but also by the sill acting as the bottom chord of the deep girder-truss, which, as already described, comprises the side girders as top chords, the bulkheads as post members, and the sill as a bottom chord. The tendency for the sill to sag between its two points of support is in addition counteracted by the cantaliver action of the two halves of the vehicle-frame, which action is due to the pressure of the end bulkheads on the ends of the sill beyond its two points of support 7 7 and also to the pressure of the immediate load thereon, this pressure at the

far ends of the sill tending, of course, to raise its central portion. The efficacy of the truss and cantaliver actions mentioned depends in large degree, if not entirely, upon the maintenance of the ends of the side girders at all times in proper fixed relation vertically above the corresponding points of the sill, and therefore of the post members or bulkheads, rigidly in their upright positions, and the side girders also, acting as a continuous beam, require that the bulkheads be rigid against angular movement with respect to the sill.

A modified construction involving the foregoing principles is exhibited in Figs. 5 and 6, wherein the end bulkhead instead of being formed of a continuous sheet of metal is formed of two side sections 8 8 and a central or intermediate section 9, which sections when joined together, as indicated, form an end-braced bulkhead. The side sections 8 are provided with outer marginal flanges secured to the side girders H and inner flanges 8', secured to the flanges 9' of the central section 9. The flanges 9' may be of triangular shape, as shown in Fig. 6—i. e., wider at their bases than at their tops—and said flanges extend below the platform R, being secured to the sill like the bases of the braces Y in Figs. 1 to 4. It also carries a cross-plate 10 for binding its flanges together and providing a support for the end of the shaft J.

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

1. A cargo-carrying vehicle having bottom dumping-valves and comprising two upper side girders and a lower central sill, respectively forming the top and bottom chords of a girder-truss, in combination with upright center and end bulkheads for the vehicle supporting the girders from the sill and serving as post members for said truss, and rigid angle-braces between said sill and the end bulkheads for maintaining the latter in fixed upright position.

2. A cargo-carrying vehicle having bottom dumping-valves and a central sill provided with two separated points of support, upright bulkheads located on said sill outside of said points and side girders carried by said bulkheads, said girders constituting the means of support for said valves, in combination with a central post member on the sill, constituting an intermediate support for the side girders, and angle-braces for the end bulkheads to maintain them in fixed upright position with respect to the sill.

3. A cargo-carrying vehicle having its floor formed of bottom dumping-valves, and comprised of two upper side girders and a lower center sill, respectively forming the top and bottom chords of a girder-truss, in combination with vertical end and intermediate bulkheads serving as post members to support said girders from the sill, means for rigidly

reinforcing the end bulkheads in vertical position and means for supporting the sill at two points intermediate of the end bulkheads.

5 4. A cargo-carrying vehicle having bottom dumping-valves and formed of two side girders constituting the margins of the cargo-receptacle from which the dumping-valves are pivotally suspended, a center sill extending
10 beyond the ends of the receptacle and provided with means to support the free ends of said bottom valves, upright bulkheads for the receptacle supporting the ends of side girders thereof from the center sill, in
15 combination with angle-braces between said bulkheads and the ends of the sill to preserve said bulkheads in upright position and means for supporting the sill at points intermediate of the bulkheads.

20 5. A cargo-carrying vehicle having a center sill, a plurality of saddle-pieces secured thereto, and dumping-valves supported by said pieces, in combination with spacing-struts interposed between said saddle-pieces
25 to form a continuous compression member reinforcing said sill against vertical flexure.

6. A cargo-carrying vehicle having two side girders, and dumping-valves pivoted thereto, a center sill for the vehicle, a plural-
30 ity of shaft-standards secured thereon, in combination with a shaft journaled in said standards and provided with means to support the ends of said valves, and spacing-struts interposed between said shaft-standards to form a continuous compression mem-
35 ber reinforcing said sill against vertical flexure.

7. A cargo-carrying vehicle having bottom dumping-valves and a frame upon
40 which said valves are pivoted comprising two upper side girders, a lower central sill, and upright bulkheads, said bulkheads serving as post members to support the girders from the sill at three or more points and con-
45 verting said frame into a girder-truss with two upper separated chords, in combination with shaft-standards secured to said sill between bulkheads, a longitudinal shaft journaled in said standards, valve-supporting
50 brackets on said shaft and spacing-struts between standards, the brackets, standards and struts serving as a compression member to reinforce the center sill.

8. A cargo-carrying vehicle having bot-
55 tom dumping-valves and a frame upon which said valves are pivoted comprising two top chords or side girders, a single bottom chord or center sill and upright bulkheads serving as post members to support the girders from

the sill, the said sill being formed of one or 60 more flanged beams extending beyond the ends of the cargo-receptacle, in combination with reinforcing angle-braces located outside of the receptacle and secured to a vertical web of said sill and also to the end bulkheads 65 thereof, respectively, to preserve the latter rigidly in upright position.

9. A cargo-carrying vehicle having bot-
tom dumping-valves and a girder-frame to which said valves are pivotally connected, 70 comprising two top chords or side girders, a single bottom chord or center sill, and upright bulkheads formed of sheet metal and serving to support the girders from the sill at the ends of the vehicle and at an intermediate 75 point, in combination with reinforcing end braces secured in the angles between the end bulkheads and the sill, and means for supporting said sill at points intermediate of the end bulkheads. 80

10. In a dumping-vehicle, a cargo-carrying receptacle comprising two side girders and a center sill, extending beyond the ends of said receptacle, sheet-metal bulkheads 85 forming the ends of the receptacle and supporting the side girders thereof from the sill, angle-braces outside of the receptacle and secured between the bulkheads and sill to preserve them in fixed upright position thereon and dumping-valves forming the bottom 90 floor of the receptacle located between the sill and the said side girders.

11. An end bulkhead for cargo-carrying vehicles formed of a plurality of united sheet-metal sections and flanges on opposite mar- 95 gins of one of said sections, extended vertically below the bulkhead and adapted to be secured to the center sill of the vehicle.

12. A sectional end bulkhead for cargo-carrying vehicles, formed of two side sections 100 having inboard flanges, an intermediate section having side flanges secured to said inboard flanges respectively and adapted for connection with the sill of the vehicle.

13. In a cargo-carrying vehicle having a 105 center sill and dumping-valves, an end bulkhead supported on said sill and comprised of united sections, one of said sections being formed with vertical flanges overlapping the sides of the center sill and rigidly connected 110 thereto.

In testimony whereof I have signed my name to the specification in the presence of two subscribing witnesses.

JOHN M. GOODWIN.

Witnesses:

E. W. GOODWIN,
PHILIP H. LANTZ.