

J. T. GILMAN.
DUMPING VEHICLE.

APPLICATION FILED AUG. 23, 1912.

Patented July 1, 1913.

3 SHEETS—SHEET 1.

1,066,103.

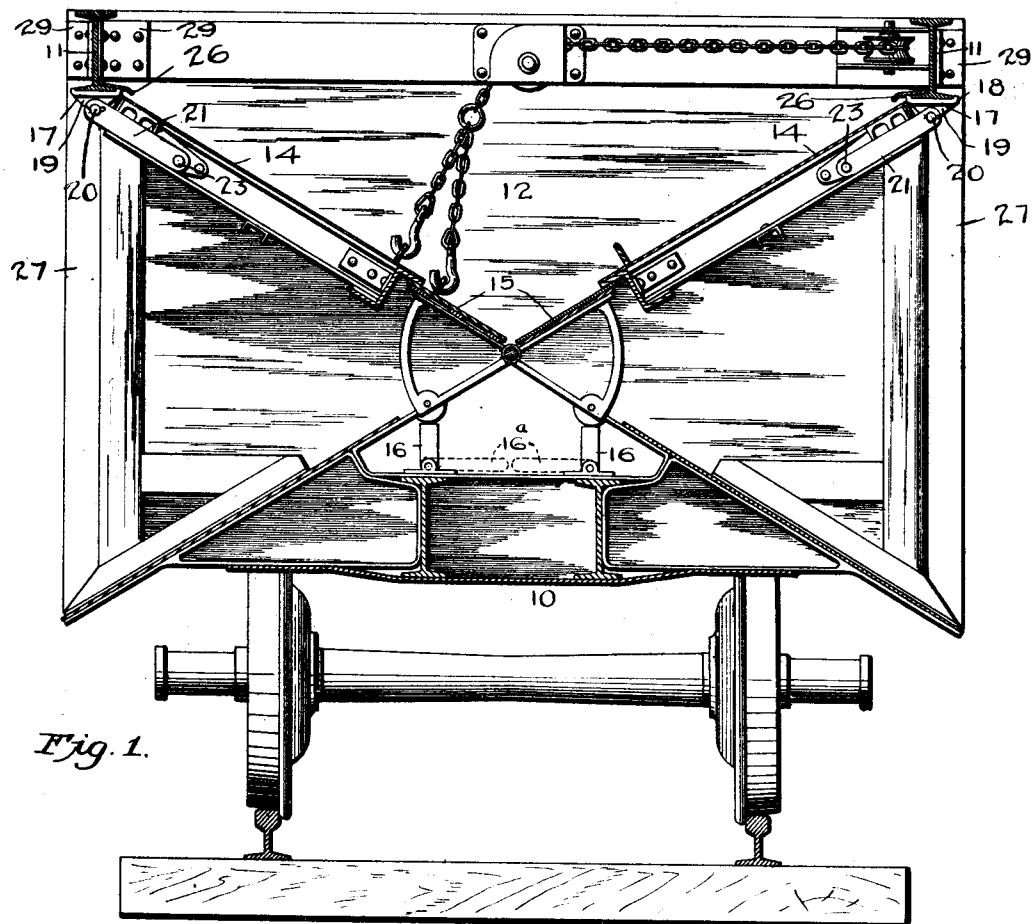
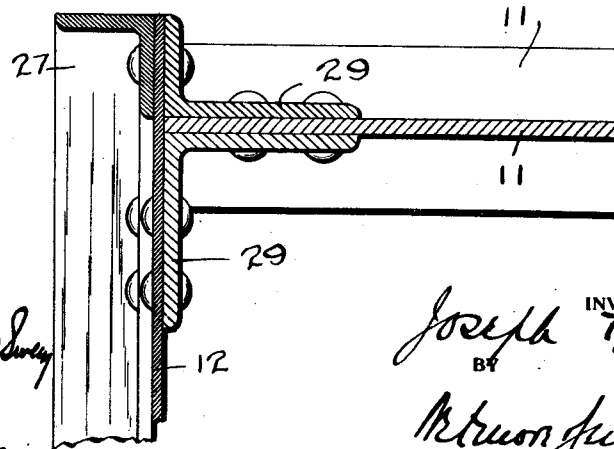


Fig. 1.

Fig. 7.



WITNESSES

Joseph Medway
H. K. Kimball

INVENTOR

Joseph T. Gilman
BY
McLellan & Co. ATTORNEY

J. T. GILMAN.
DUMPING VEHICLE.
APPLICATION FILED AUG. 23, 1912.

1,066,103.

Patented July 1, 1913.

3 SHEETS-SHEET 2.

Fig. 3.

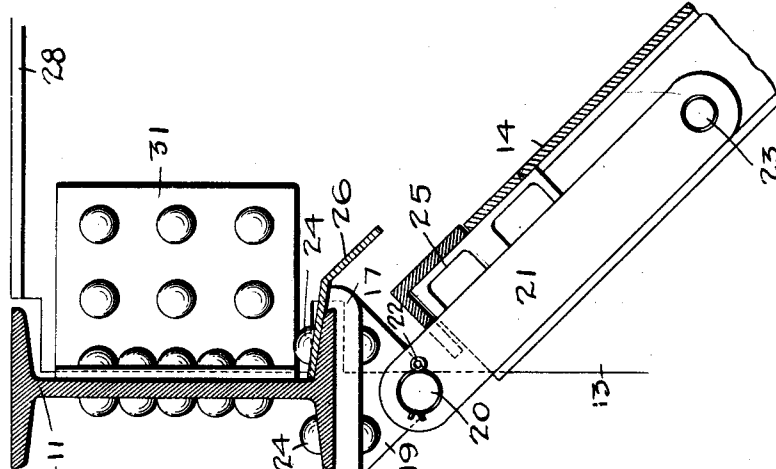


Fig. 2.

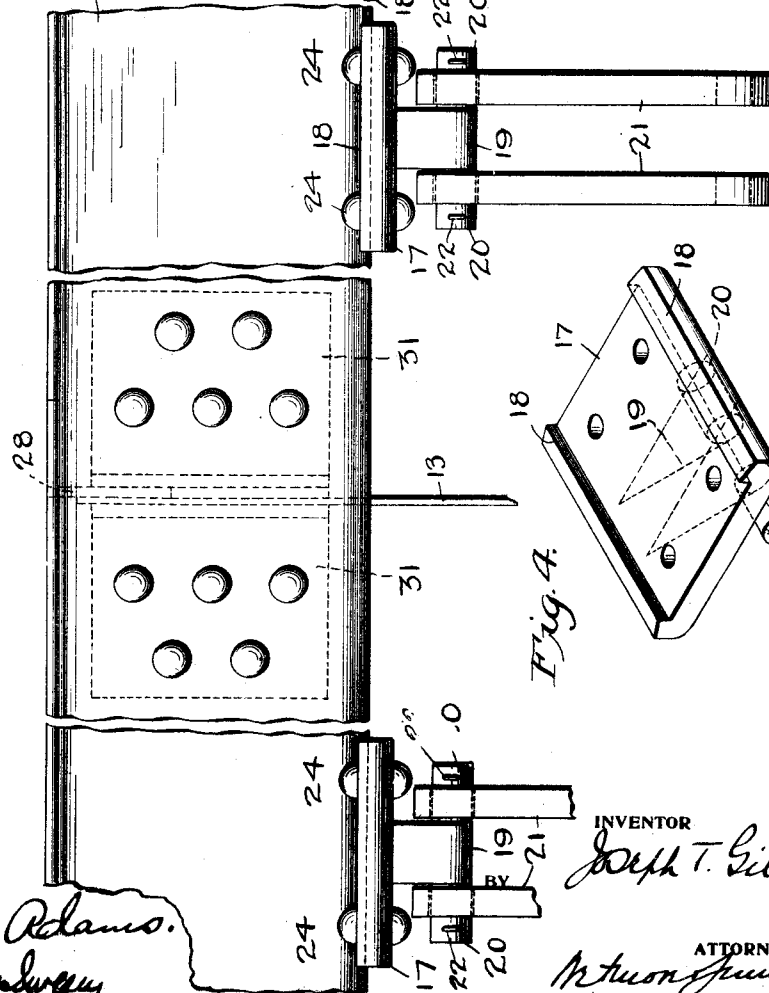
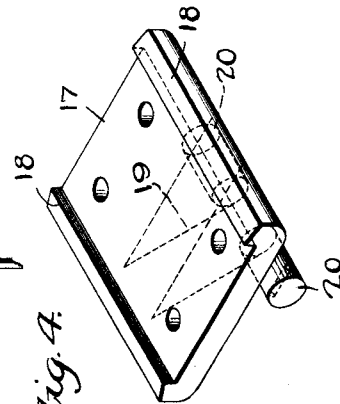


Fig. 4.



WITNESSES

James Adams.
Joseph M. Lacey.

INVENTOR

Joseph T. Gilman

ATTORNEY

Arthur J. Lacey

1,066,103.

Patented July 1, 1913.

3 SHEETS-SHEET 3.

Fig. 6.

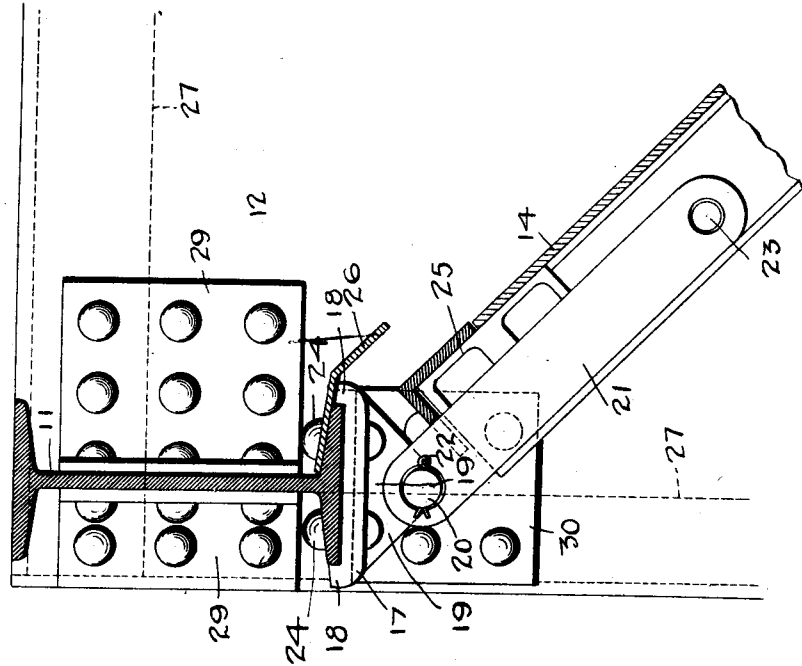
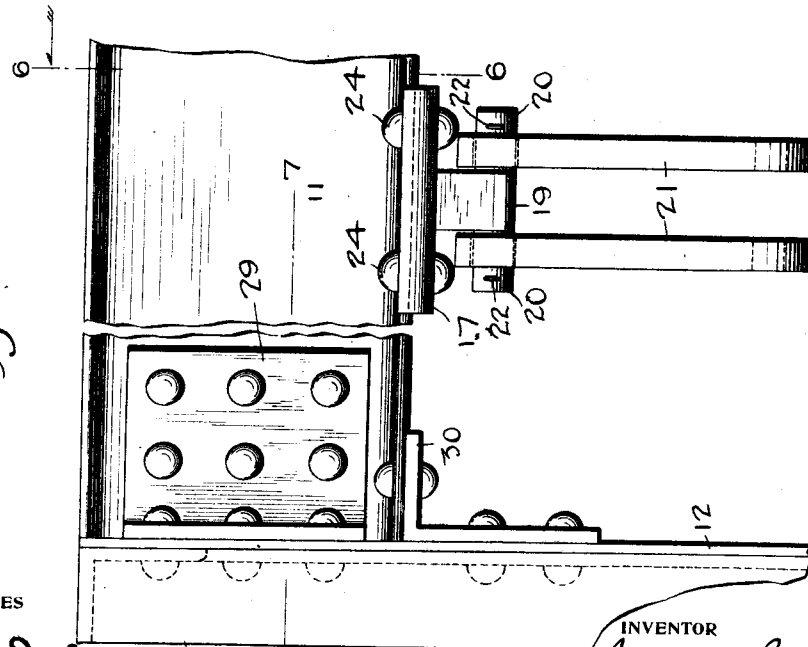


Fig. 5.



WITNESSES

Joseph Dubucq
H. H. Hines

INVENTOR

BY

Joseph T. Gilman
Attorney

UNITED STATES PATENT OFFICE.

JOSEPH T. GILMAN, OF CHICAGO, ILLINOIS.

DUMPING-VEHICLE.

1,066,103.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed August 23, 1912. Serial No. 716,577.

To all whom it may concern:

Be it known that I, JOSEPH T. GILMAN, a citizen of the United States, residing in the city of Chicago, in the county of Cook and State of Illinois, have invented the following-described new and useful Improvements in Dumping-Vehicles.

This invention relates to that type of railroad dumping car, known as Goodwin cars, in which there are drop side doors, center detent valves to hold said doors in closed position, and means operated from the end of the car for releasing said detent valves. Recognizing that in cars of this class as heretofore constructed the metal side girders for supporting the drop doors, as also the parts attached to them, have been of a complicated and expensive nature, it has been my aim in the present invention to secure as good and in fact better results by a very much simpler construction, involving the use of single rolled beams of standard section for the side girders, in place of built-up beams, and a simpler and cheaper form of hinge bracket for the drop doors. In the usual construction of Goodwin steel cars the side girders have been made of several parts riveted together, and hinge brackets have been located at their inner sides and have been covered by a wide slope sheet, these being features that involved considerable expense as well as reducing the carrying capacity of the car. In the present invention the side girders are simply rolled beams of suitable standard section and of adequate size and strength, the hinge brackets are simple and inexpensive castings and are secured directly below the girders, and the hinge-links for the double-hinged doors are preferably straight, as this is a form which lends itself readily to economic production by stamping. The crack or joint at the upper edge of the drop door is covered on the inside by a small plate, which may be riveted to one of the basal flanges of the girder. In this way I secure a strong construction by very simple means, and one in which the carrying capacity is or may be increased with the same over-all dimensions as heretofore.

Another object of the invention is to improve and strengthen the general truss construction of the framework of the car. As is well understood the car frame constitutes in effect a deep truss-girder, which consists, of a center sill, forming the lower chord,

the side girders, forming a double upper chord, and end and central bulkheads secured to the center sill and side girders, and acting as post members, the major part of the load being suspended from the top chords, since to these are secured the drop doors which are also load-supporting bottom sections. The strength of this truss depends, of course, largely upon the rigidity of the post members and the mode of uniting them to the chords, and heretofore the connection between the side girders and the end bulkheads has presented a point of serious weakness, in so much that fracture has occurred in a large number of instances. In the prior construction the end bulkheads were bound with marginal angle irons and the side girders were extended at their ends slightly beyond the side edges of these bulkheads and riveted to the projecting flanges of the angle irons, the latter being bent immediately below the girders to follow the triangular or trapezoidal shape of the lower and major portions of the bulkheads. In consequence, the angle irons, which are primarily stiffeners for the bulkheads, experienced undue strain due to the stresses set up in the loaded cars, particularly in starting and stopping, tending to cause relative angular movement of the bulkheads and girders with the result that the angle irons frequently broke at the bend. To correct this defect I have devised an improved manner of connecting the girders and end bulkheads, in accordance with which the girders are not extended outside of these bulkheads but are in abutting relation to their inner surfaces, and are united to the bulkheads by riveted angle plates all at the inboard sides of the bulkheads.

Other features of the invention will become apparent as the specification proceeds.

In the accompanying drawings illustrating the invention: Figure 1 is a vertical transverse section through a car embodying the invention, the view being taken as if looking at the inner side of one of the end bulkheads; Fig. 2 is a fragmentary exterior side elevation showing one of the side girders, with parts broken away, the center bulkhead, and two of the hinge brackets with their hinge links; Fig. 3 is a vertical section at right angles through Fig. 2, a portion of one of the drop doors being shown; Fig. 4 is a detail perspective view, showing one of the hinge brackets; Fig. 5

is a fragmentary exterior side elevation similar to Fig. 2, but showing the construction at the end of the car; Fig. 6 is a vertical section on the line 6—6 of Fig. 5; and Fig. 7 is a section on the line 7—7 of Fig. 5.

The center sill is indicated at 10 and the side girders at 11, these members being connected by end bulkheads 12 and a center bulkhead 13. Drop doors 14 are hung by a double hinge connection from the side girders and are engaged by detent valves 15, which are held in closed relation by detents 16 that are operated from the end of the car in a suitable manner, suggested by the lever indicated by dotted lines 16^a in Fig. 1. This general arrangement of parts characteristic of this type of car is well understood and need not be described with more particularity.

For the side girders 11 I use a rolled beam of standard section, preferably an I-beam, which not only possesses the inherent advantages of a beam of this character but also combines to particular advantage with the other novel features hereinbefore outlined and now to be described.

Hinge brackets 17 are secured to and directly below the side girders, and are shown as consisting of a simple casting in the form of a plate having low side marginal ribs 18, forming a broad shallow channel seat to receive the base of the girder, and a triangular transverse web 19 projecting downward from the under side of the plate and carrying oppositely directed, preferably integral, trunnions 20. On the latter are pivoted the upper ends of pairs of hinge links 21, which may be retained thereon by cotter pins 22. These links are pivoted at their lower ends, at 23, to the drop doors 14, intermediate the upper and lower edges of the latter, so as to afford a double hinge support having the advantages well known in the art. By reason of the construction and mounting of the brackets 17 the upper pivot 20 of this double hinge is located directly beneath the side girders; in fact, as shown its axis lies in the central plane of the web of the I-beam. As compared with the prior construction this involves a shifting outward of this upper pivot relatively to the side girder, from which, as will be apparent, there results a gain in carrying capacity, or conversely, if desired the side girder may be shifted somewhat inward without decreasing the capacity. The connection of this form of hinge bracket to the side girders may be effected in a convenient and solid manner by rivets 24 passing through the plate of the bracket and the basal flanges of the I-beams. The drop doors 14 may be of suitable or usual construction, and they may carry bearing blocks 25 on their under sides at the upper edges to contact with the links 21, which pref-

erably are normally parallel to but spaced from the sheet metal body of the door. The links are preferably straight members, and may be made by stamping.

The upper edge of the drop door and the slight space between the same and the side girder are covered and protected by a small preferably angular plate 26, which is advantageously secured to the top of the inner basal flange of the I-beam girder by the same rivets 24 that hold the hinge brackets 17.

The bulkheads 12 and 13 are secured in a suitable and rigid manner to the center sill 10 as in the manner known in the art. These bulkheads are of sheet metal suitably reinforced, preferably by means of marginal angle irons riveted thereto. In the case of the end bulkheads 12 there is a binding of angle iron 27 on the outer side, at the top and side edges, the side irons extending vertically below the side girders. For the center bulkhead 13 there may be simply an angle iron 28 across the top.

The side girders 11 extend uninterruptedly between the end bulkheads, with their ends in abutting relation to the inner faces of the latter, and are secured to the same by means of angle plates 29 and 30, all at the inboard sides of the bulkheads. There is a pair of the plates 29 at each end of the beam, riveted by the same rivets to opposite sides of the web and with oppositely and laterally extending arms riveted to the end bulkhead. The angle 30 is located below the beam, its horizontal arm being riveted to the basal flanges of the beam and its vertical arm being riveted to the bulkhead. By this combination of side and bottom brackets great rigidity is attained, which is increased by causing part of the rivets uniting each of the brackets with the bulkhead to pass through the angle iron binding 27, thereby including three thicknesses of material between the heads of these rivets. One of the pair of brackets 29 has a shorter lateral arm than the other, being on the outside of the beam 11 and the available width of surface to which to attach it therefore being limited by the extent to which it is deemed desirable to have the end bulkheads extend laterally beyond the webs of the I-beams.

As usual the center bulkhead 13 is received between the side girders 11, being united thereto by angle plates 31 which are riveted to the bulkhead at its opposite sides and to the webs of the I-beams. The body of the bulkhead and the top angle iron 28 thereof are suitably cut away to receive the inboard flanges of the beams, all as will be apparent from a consideration of the drawings.

I claim,

1. In a car of the type described, the com-

5 combination of a center sill or sills, bulkheads mounted thereon, drop side doors constituting floor sections, rolled beams forming top side girders supporting said drop doors from the bulkheads, brackets fixed to the under-
sides of said girders, and hinge links pivoted to said brackets and to said doors.

10 2. In a car of the type described, the combination with a floor having drop side doors, of I-beam top side girders from which said drop doors are hung, hinge brackets riveted to the under sides of the basal flanges of said beams, and straight hinge links pivoted to said brackets and to said drop doors.

15 3. In a car of the type described, the combination of a center sill or sills, bulkheads mounted thereon, top side girders carried by said bulkheads and consisting each of a single rolled beam, hinge brackets beneath and secured to said beams, hinge links pivoted to said brackets directly below said beams, and drop side doors pivoted on said links.

25 4. In a car of the type described, the combination with drop side doors, of top side girders composed of rolled beams, having basal inward projecting flanges, hinge brackets beneath and secured to said beams, hinge links pivoted to said brackets and to said drop doors, and guard plates covering the upper edges of said doors and overlying and secured to said basal flanges.

30 5. In a car of the type described, the combination with drop side doors, of a center sill or sills, and bulkheads mounted thereon and provided at their outboard sides with a marginal reinforcing angle iron binding, continuous side girders to support the drop

doors extending between said end bulkheads with their ends in abutting relation thereto, and angular connecting angle plates all at the inboard sides of said bulkheads riveted thereto and to said girders, part of the rivets uniting them to the end bulkheads passing also through said angle iron binding at the opposite sides of the bulkheads.

6. In a car of the type described, the combination with drop side doors, of a center sill or sills, end bulkheads mounted thereon, continuous rolled beams extending between said bulkheads with their webs set in from the side edges thereof and constituting side girders from which said drop doors are hung, pairs of angular connecting plates riveted to opposite sides of said beams and to the inboard sides of said bulkheads, and angular brackets below said girders, being riveted to the bases thereof and to the bulkheads.

7. In a car of the type described, the combination with drop side doors, of a center sill or sills, end bulkheads mounted thereon, continuous rolled beams extending between the inboard faces of said bulkheads, angular connecting plates all at the inboard sides of said bulkheads riveted thereto and to said beams, brackets beneath and secured to said beams at intermediate points and hinge links pivoted to said brackets at points below said beams and at their other ends pivoted to said drop doors.

In testimony whereof, I have signed this specification in the presence of two witnesses.

JOSEPH T. GILMAN.

Witnesses:

B. E. SAFFORD,

H. VAN SCOY.