

No. 814,273.

PATENTED MAR. 6, 1906.

A. CHRISTIANSON.
ORE CAR.

APPLICATION FILED OCT. 23, 1905.

4 SHEETS—SHEET 1.

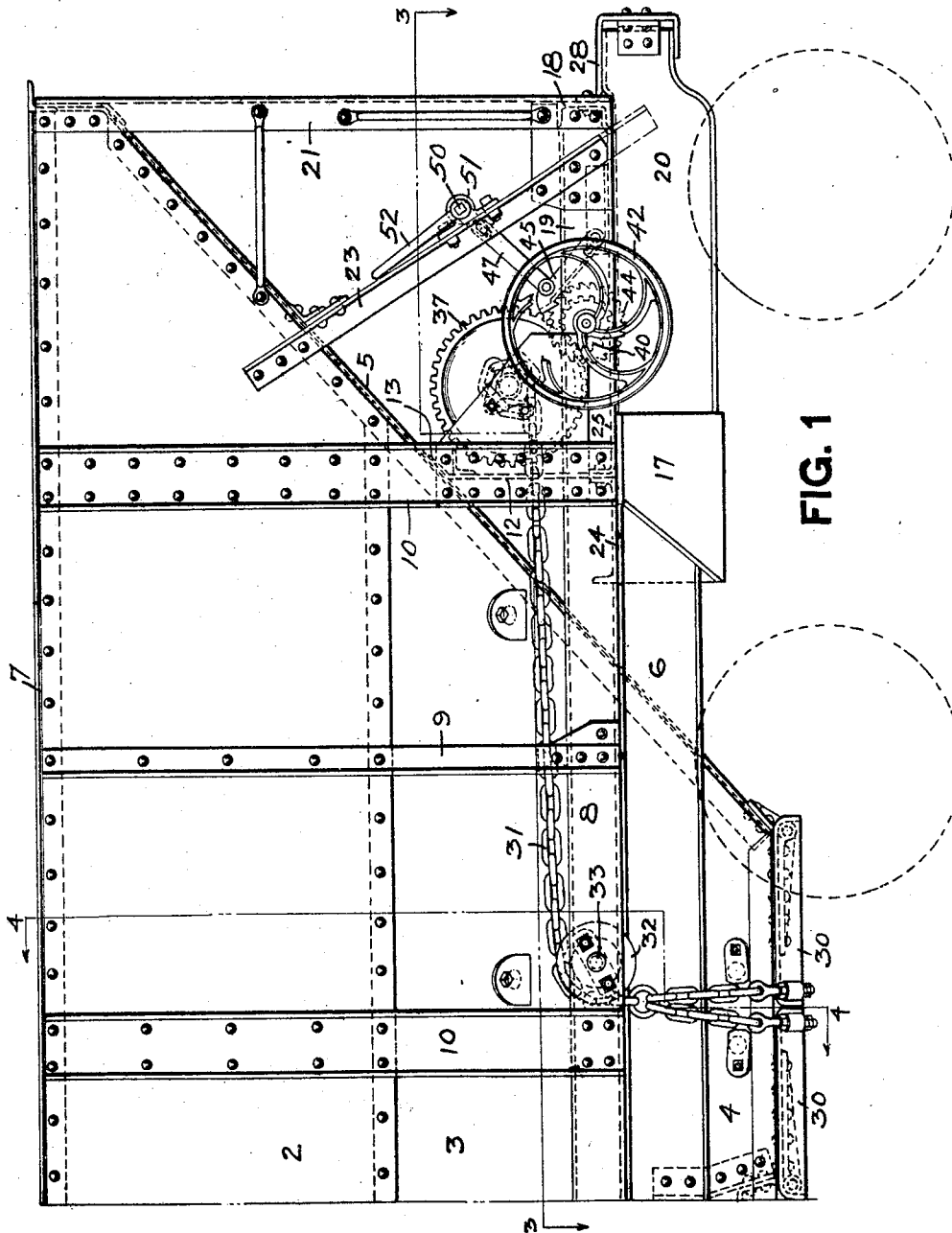


FIG. 1

WITNESSES.

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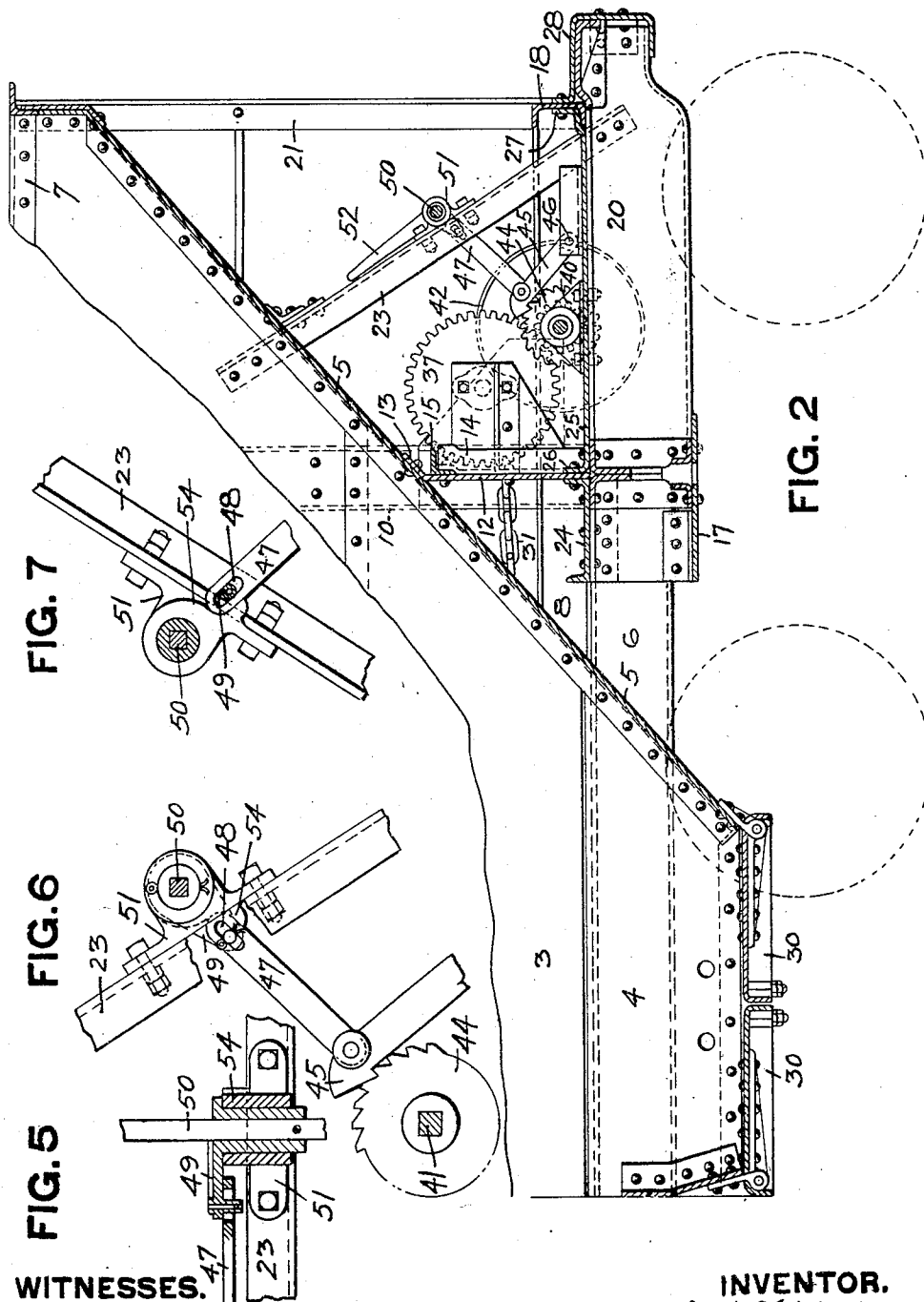
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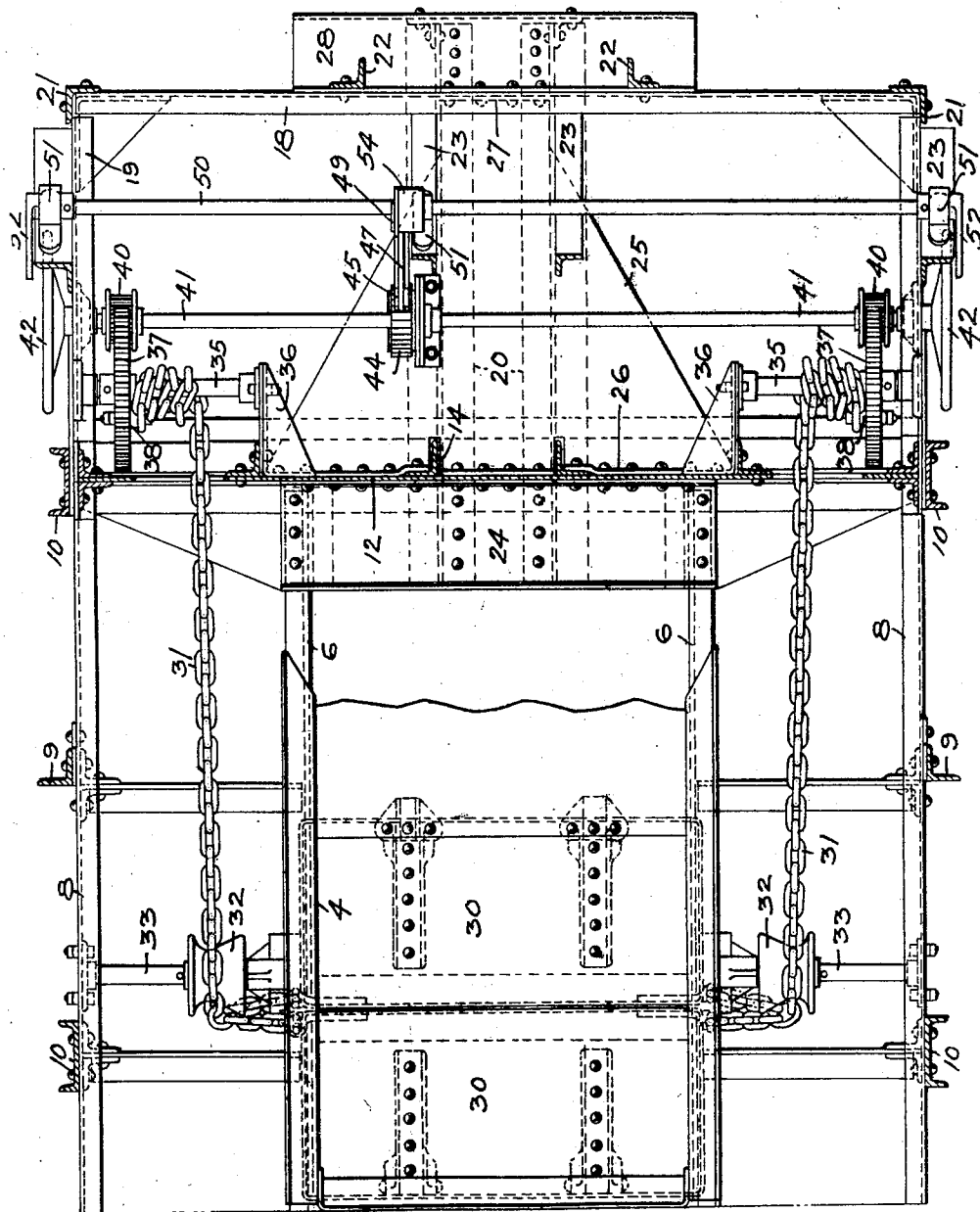


FIG. 3

WITNESSES

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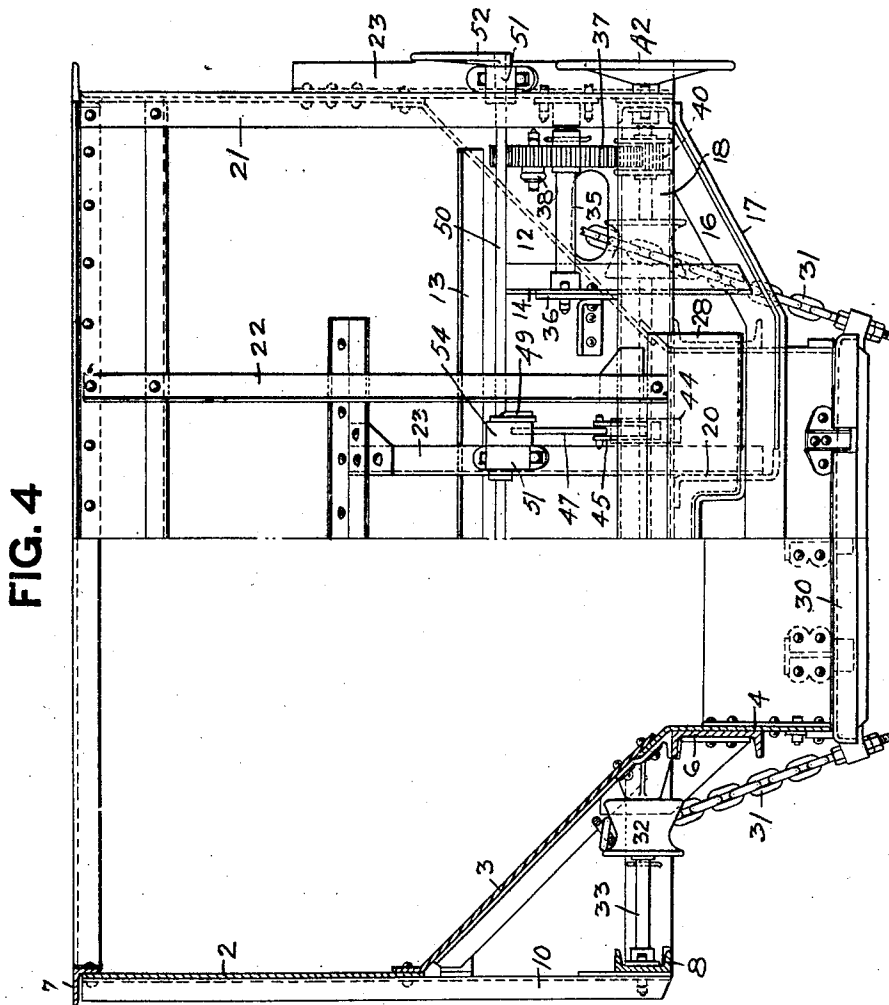
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

ANDREW CHRISTIANSON, OF BUTLER, PENNSYLVANIA, ASSIGNOR TO
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ORE-CAR.

No. 814,273.

Specification of Letters Patent.

Patented March 6, 1906.

Application filed October 23, 1905. Serial No. 283,993.

To all whom it may concern:

Be it known that I, ANDREW CHRISTIANSON, a resident of Butler, in the county of Butler and State of Pennsylvania, have invented a new and useful Improvement in Ore-Cars; and I do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to metallic railway-cars, and especially to hopper-bottom cars for carrying ore and similar material.

The object of the invention is to improve the construction of such cars in details hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side view of one-half of the car. Fig. 2 is a vertical longitudinal section taken through the center of the car. Fig. 3 is a horizontal section on the line 3 3, Fig. 1. Fig. 4 is in part a transverse section on the line 4 4, Fig. 1, and in part an end view of the car; and Figs. 5, 6, and 7 are enlarged detail views of the pawl-locking mechanism.

The car will be provided with a hopper-body of any approved type, but preferably of the shape shown in the drawings. This body comprises vertical side plates 2, sloping side plates 3, extending from the lower edges of the plates 2 and continuing to the vertical side hopper-plates 4. The end of the car will preferably be sloping and the end floor-plates 5 will project down into the hopper, as shown in Fig. 2. The car is provided with intermediate sills 6, to which the side hopper sheets 4 are secured, while the side sill is a truss having a top cord formed by the angle-bar 7, bottom cord formed by the channel-bar 8, together with vertical stiffeners consisting of angle-stakes 9 and channel-stakes 10, the diagonal bracing being effected by the side plates 2.

The car will be provided with body-bolsters, each comprising a vertical web-plate 12, extending upwardly and having a flanged upper edge 13 riveted to the inclined floor-plates 5. This web-plate fits in between the sides and sills of the car and is suitably strengthened by vertical flanged bars 14, horizontal flanged bars 15, and at its lower edge having riveted thereto the angle-bars 16, which serve as a suitable means for the connection of the bottom cover-plate 17. This form of bolster, however, is not new.

The car is provided with an end sill 18, which is connected to the body by means of 55 subside sills 19 and draft-beams 20. The overhanging end portion of the body is supported by corner-stakes 21, end stakes 22, and diagonal braces 23, all being connected by means of gusset-plates and brackets in the 60 usual or any approved way. The draft-sills extend inwardly through openings in the web-plate of the bolster and are suitably secured to the latter and to the intermediate sills 4 by means of a gusset-plate 24 lying 65 just inside of the body-bolster and suitably secured to the ends of the draft-beams and intermediate sills. On the outer side of the bolster is a large gusset-plate 25, which is 70 substantially triangular, having a wide end provided with an upturned flange 26, which is riveted to the vertical web of the body-bolster. This gusset-plate lies on top of the 75 draft-beams and is riveted to the latter and at its outer end is provided with an upturned flange 27, which is riveted to the end sill 18 and to the central hood or face-plate 28. By this construction the portion of the end frame which projects beyond the body-bolsters is 80 rendered very strong and rigid.

The body is provided with horizontal transverse doors 30. These are operated by means of chains 31, which pass upwardly over cone-shaped guide-sheaves 32, mounted on horizontal shafts 33, which rest on the side 85 and intermediate sills, and thence pass to the end of the car to suitable winding mechanism. The cone-shaped sheaves 32 are of special importance, as they permit the chains to incline inwardly, as shown in Fig. 4, and at the same 90 time permit the shafts 33 to be set horizontally, so that the latter can rest directly on the intermediate and side sills without the necessity of special castings or blocking up.

At the ends of the car are provided two 95 short shafts 35, one on either side, these being mounted in suitable bearings on brackets 36, secured to the body-bolster. On these shafts are gear-wheels 37, and the chains are secured directly to said wheels, as at 38, instead of 100 being secured to the winding-shafts themselves, as is customary. As a consequence no torsional strain is put on these winding-shafts, and the necessity of keying or otherwise rigidly securing the gear-wheels 37 to 105 the shafts is done away with. The gear-

wheels 37 are located on the outside of the chains, as shown. They mesh with pinions 40 on an operating-shaft 41, which extends across the end of the car, being mounted in suitable bearings on the underframe and being provided at its ends with suitable operating means, such as the hand-wheels 42. At or near the center of the shaft 41 is a ratchet-wheel 44, which is adapted to be engaged by a pawl or dog 45, pivoted to the bearing 46, located on the gusset-plate 25. This dog has hinged thereto one end of a link 47, the opposite end of which is provided with a slot 48, which is engaged by a crank 49 on a shaft 50, mounted in bearings 51, secured to the diagonal braces 23 and extending from side to side of the car and being provided at both ends with a handle 52. On the bearing 51 adjacent to the crank 49 is a suitable stationary stop-face 54, which is wedge or cam shape, as shown in Fig. 7, and is in such position that when the pawl 45 is locked the crank-pin 49 will move the upper end of the link 47 underneath said stop-face, so that the latter locks the pawl in position and prevents the same from jumping up under the jolting of the car. When the parts are in the position shown in Figs. 1 and 2, the handle 52 will rest against the brace 23 and the end of the link braced against the stop-face 54. In order to unlock the pawl 45 to permit opening or closing the doors 30, the handle 52 is swung outwardly, so that the crank-pin 49 will move the end of the link inwardly—that is, toward the body of the car—and from underneath the stop-face 54. As a consequence the pawl can move up and down in order to be disengaged from the ratchet-wheel or to permit the latter to be rotated in closing the doors. In this manner an effective lock against the accidental opening of the doors is provided.

What I claim is—

1. In a railway-car, the combination of the longitudinal sills, a body-bolster having a vertical web, an end sill connected at its ends to the car sides, draft-sills connecting the body-bolster and end sill, and a gusset-plate having a wide end secured to the web of the body-bolster and having its outer end secured to the end sill.

2. In a railway-car, the combination of the

longitudinal sills, a body-bolster having a vertical web projecting above the sills, an end sill connected at its ends to the car sides, draft-beams connecting the end sill and body-bolster, and a gusset-plate resting on said draft-beams and secured thereto and being provided at its ends with flanges secured to the web of the body-bolster and to the end sill, said gusset-plate being substantially triangular and having its wider end toward the body-bolster.

3. In a railway-car, the combination of a body provided with doors in its bottom, longitudinal sills, a horizontal transverse shaft supported by said sills, a cone-sheave on said shaft, a chain connected to the doors and passing over said sheave, and chain-winding mechanism at the end of the car.

4. Door-operating mechanism for railway-cars, comprising an operating-shaft and winding-shaft, intermeshing gears carried by said shafts, and a winding-chain having its ends secured directly to the gear on the winding-shaft.

5. Door-operating mechanism for railway-cars, comprising a winding-shaft, a ratchet-wheel thereon, a pivoted pawl engaging said ratchet-wheel, a link having one end hinged to said pawl and having its opposite end provided with a slot, a stationary stop-face, and an actuating-shaft provided with a crank engaging the slot in the link and adapted to carry the end of the link into engagement with the stop-face.

6. Door-operating mechanism for railway-cars comprising a winding-shaft, a ratchet-wheel thereon, a pawl engaging said ratchet-wheel, a link having one end hinged to said pawl and provided with a slot in its opposite end, a stationary cam-shaped stop-face, and an actuating-shaft provided with a crank engaging said slot and adapted to carry the end of the link into engagement with said stop-face.

In testimony whereof I, the said ANDREW CHRISTIANSON, have hereunto set my hand.

ANDREW CHRISTIANSON.

Witnesses:

L. P. WALKER,
A. J. LYONS.