

No. 831,657

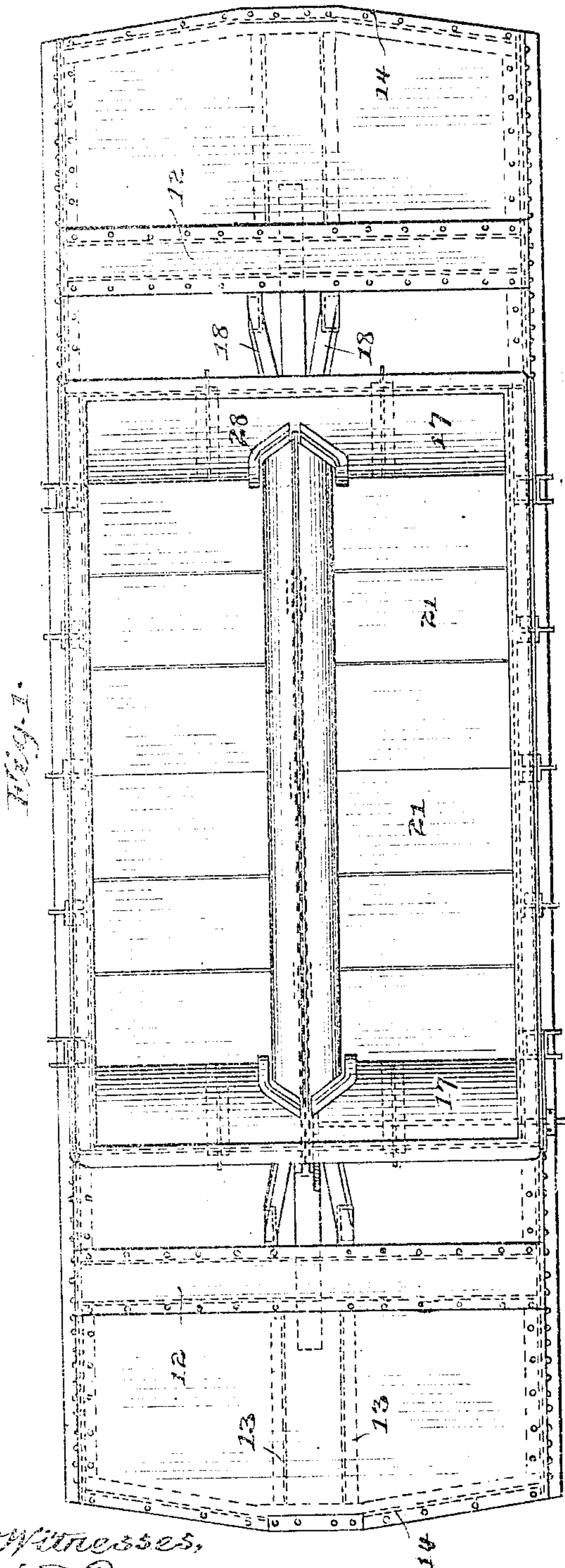
PATENTED SEPT. 25, 1906.

T. DUNBAR & E. I. DODDS.

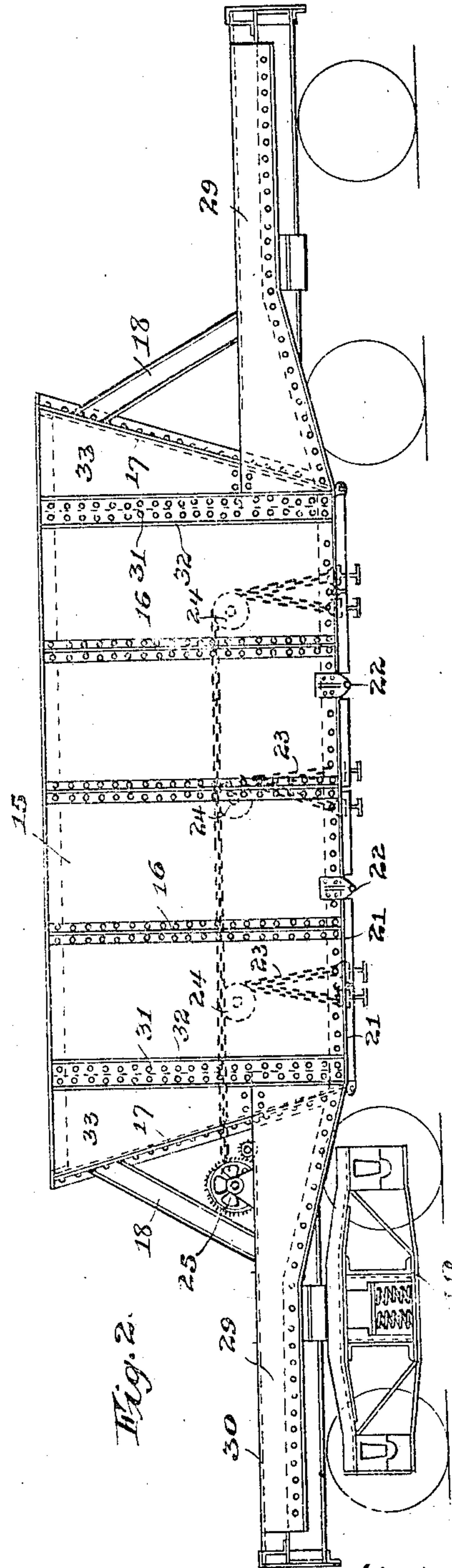
METALLIC HOPPER CAR.

APPLICATION FILED OCT. 30, 1905.

2 SHEETS—SHEET 1.



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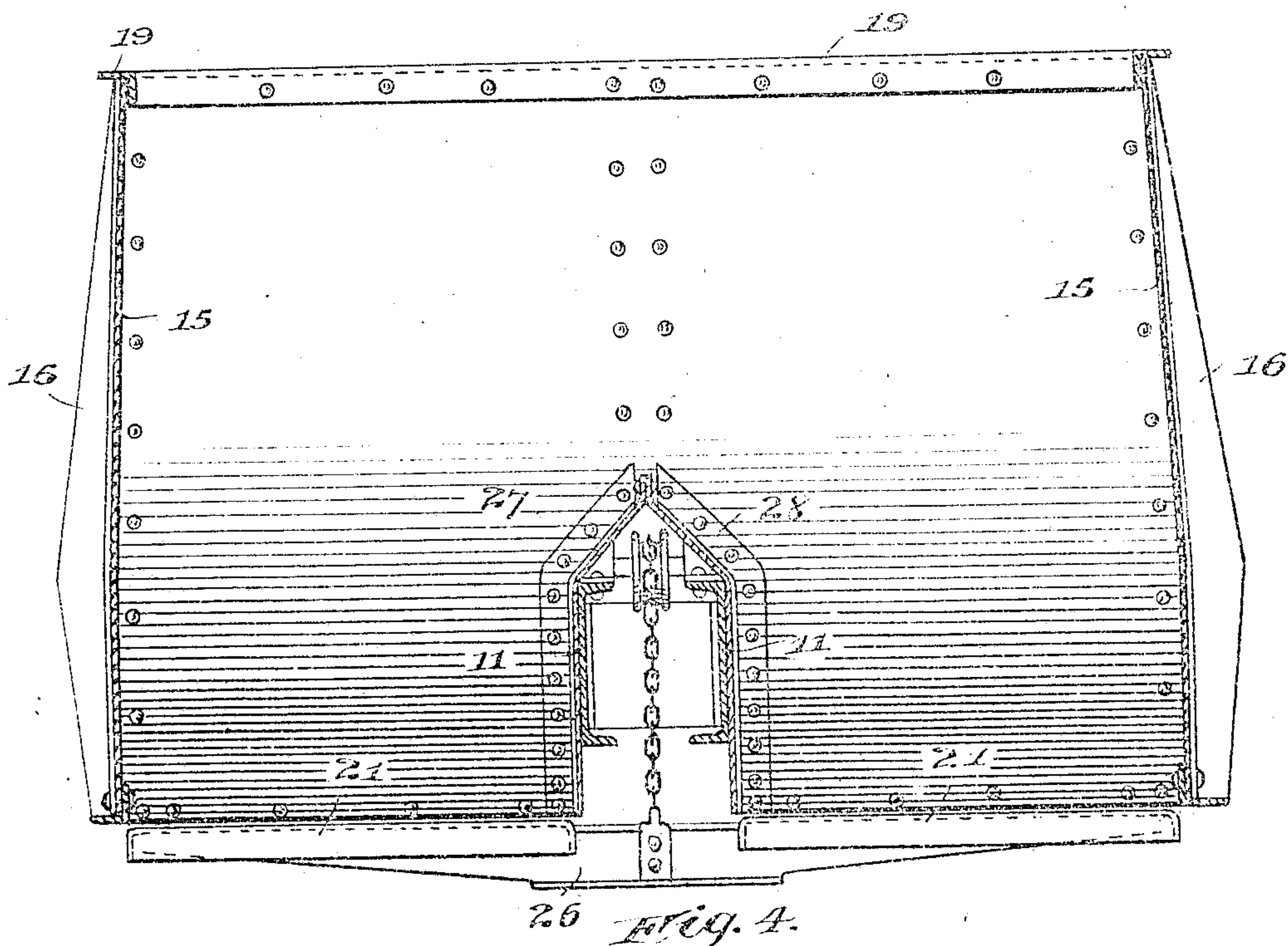
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METALLIC HOPPER CAR.

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2 SHEETS—SHEET 2.

Fig. 3



26 Fig. 4.

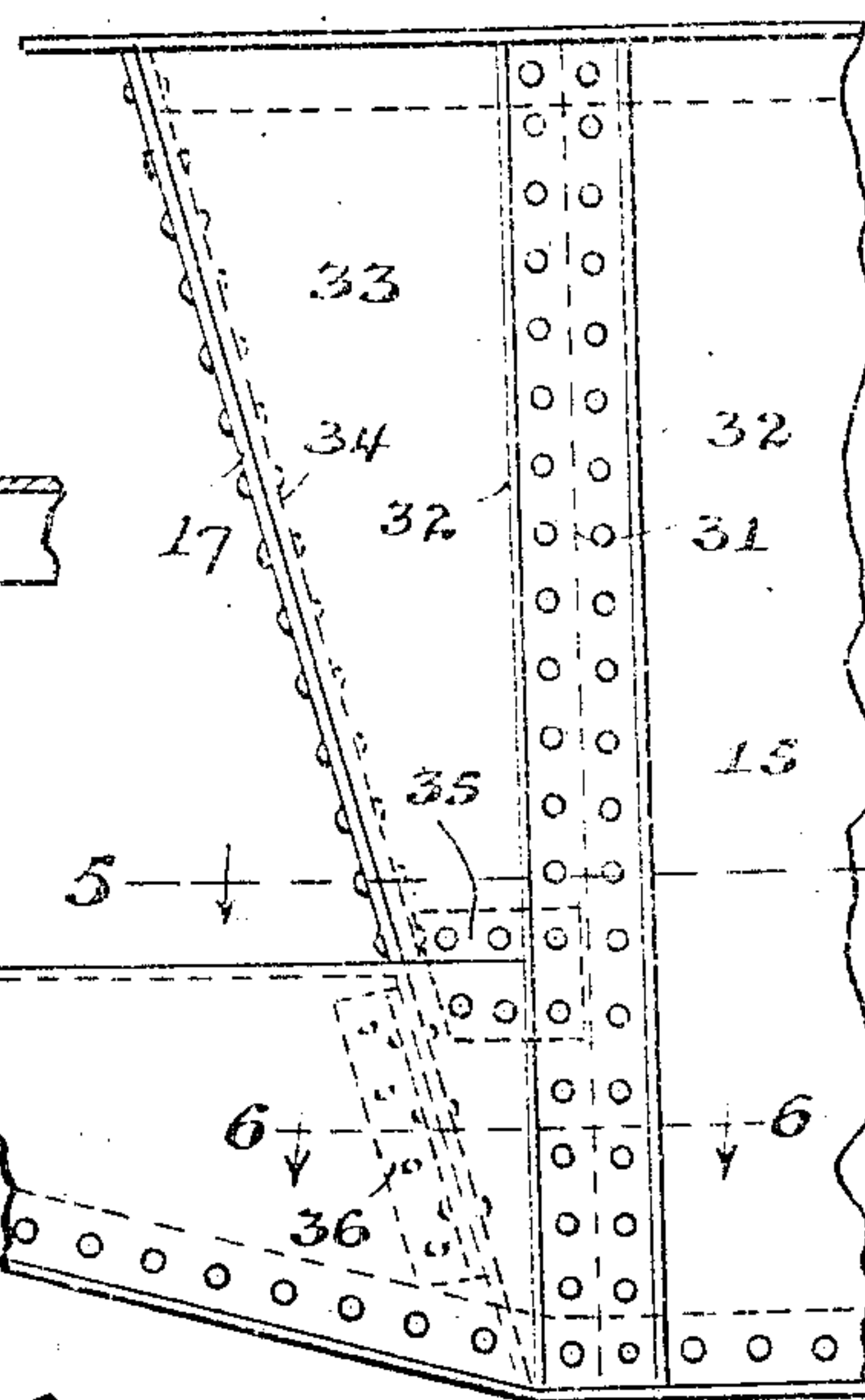
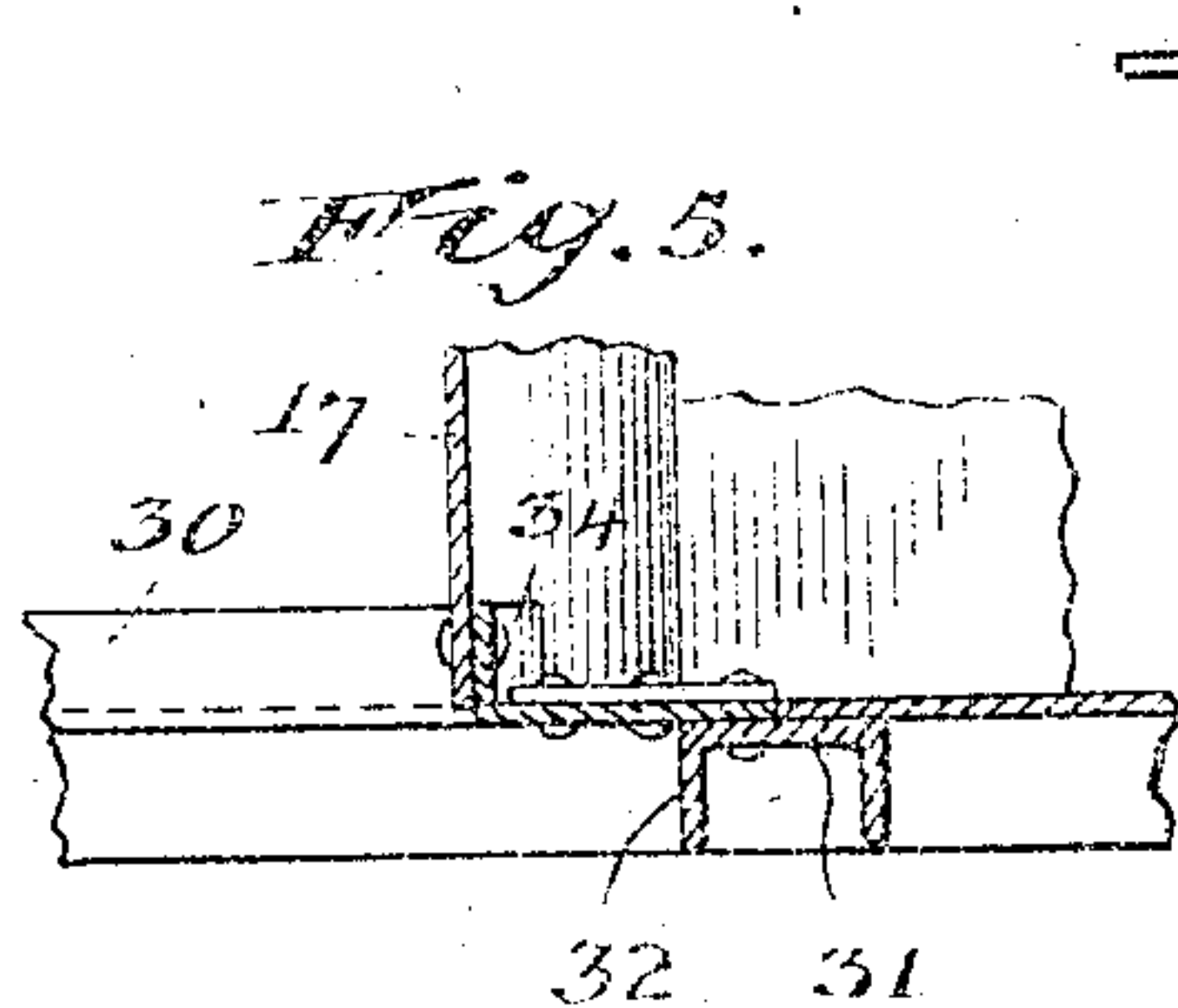


Fig. 6.

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UNITED STATES PATENT OFFICE.

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METALLIC HOPPER-CAR.

No. 831,657.

Specification of Letters Patent.

Patented Sept. 25, 1906.

Application filed October 30, 1905. Serial No. 285,159.

To all whom it may concern:

Be it known that we, THOMAS DUNBAR and ETHAN I. DODDS, citizens of the United States, residing at Pullman, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Metallic Hopper-Cars, of which the following is a specification.

Our present invention concerns railway hopper-cars, its principal object being a car construction which shall have strong side sills, with the weight of the car reduced to a minimum, at the same time securing a maximum width of car-body. To accomplish this object, we build the car with the sides of the body forming the center-plate portions of the sills, the comparatively short end beams of the sills being fastened thereto in any approved manner, preferably, however, by means of side stakes which form splicing means. A sill of this character, due to its deep center portion, can sustain a heavy load without undue deflection, and buckling of the same is prevented by the side stakes attached to the sides of the body, each having an outstanding flange. The parts of the sill are still further strengthened and more firmly bound together by an angle-bar extending substantially the full length of the sill and riveted to the end beams of the sill and to the side of the body.

In the accompanying drawings, which illustrate the preferred mechanical embodiment of our invention, Figure 1 is a plan view of a metallic hopper-car. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical cross-section of the car through the body portion. Fig. 4 is a fragmentary side elevation of a portion of the car, showing the junction of one of the end beams with the side of the body. Fig. 5 is a horizontal cross-section on line 5 5 of Fig. 4 looking downwardly, and Fig. 6 is a horizontal cross-section on line 6 6 of Fig. 4 as viewed in the same direction.

Supported on car-trucks 10 is a car-frame comprising, among other parts, spaced channel center sills 11, which project beyond body-bolsters 12, draft-sills 13 being secured to the projecting ends and to end sills 14.

The car-body includes plate sides 15, each of which may be made of a single plate or a number of plates secured together, each side having secured thereto a number of upright

side stakes 16, T-shaped in cross-section to prevent buckling. The ends 17 of the car-body converge downwardly, as is shown in Fig. 2, and are maintained in position by channel-struts 18, secured to their outer faces and to center sills 11. Coping angle-irons 19 are provided along the top edges of the sides and ends, having at their corners the usual plates 20. A plurality of horizontal doors 21, pivoted at the points 22, form the bottom of the car-body and are actuated by a number of chains 23 passing over idlers 24 to the operating-windlass 25. The doors on the opposite sides of the center sills 11 are connected by I-beams 26, preferably tapered at their end portions, to which I-beams the ends of chains 23 are attached, as shown in Fig. 3. Deflecting-plates 27 are secured to the webs of the center sills 11, converging above them and riveted together along their upper edges, while angle-bars 28 attach their ends to the sloping ends of the car-body. It should be noted that the sides 15 are vertical for a portion of their height and then incline slightly upwardly. This feature of the structure, however, forms no part of our present invention.

Each side sill to which the body-bolsters 12 and end sills 14 are attached comprises two end beams 29, having integral inwardly-turned flanges 30 along their upper edges, the inner ends of the beams being deeper than their outer ends, as shown most clearly in Fig. 2. To the plate side 15 the inner end of each end beam is secured by means of a substantially vertical channel-stake 31 with outwardly-extended flanges 32, which acts as a splicing-plate for the parts. Each stake 31 extends to the top of the side, and that portion of each above the end beam 29 is connected to the adjacent sloping end 17 of the body by a tapering plate 33, the inner edge of which is riveted to the web of the stake and the outer edge of which is flanged over at 34, Figs. 4 and 5, and secured to the end plate. To permit end plate 17 to extend to the bottom of the body, the top flange 30 of each end beam 29 is cut away for a portion of its length, and the lower part of each plate 33 is joined to the vertical plate portion of end beam 29 by a splice-plate 35 on the inside of the body, the same being riveted to plate 33, end beam 29, and the web of stake 31. Below the up-

per edge of beam 29 the end plate 17 is secured to the end beam by an inclined angle-bar 36, as shown most clearly in Figs. 4 and 6.

It will be noted from this construction that the body of the car can occupy the full width of the same and that since its side plates, which are of unusual depth, form the center portions of the side sills the latter possess greater strength than the ordinary sills and the side 15 is prevented from buckling by the flanges of the stakes 16 and 31 attached thereto.

Minor mechanical changes may be made in such a structure without departing from the essence of our invention as defined by the appended claims. For example, instead of using side stakes which extend to the top of the body as splicing means for the sides and beams shorter members or flat plates may be employed.

Reference is made to the copending application, Serial No. 266,811, filed June 24, 1905, for features which are shown in these drawings, but which are not set forth in the appended claims.

We claim—

1. In a railway-car having a body with metal plate sides, a side sill composed of end beams of greater depth at their inner than at their outer ends, and a side of said body, the latter forming the center portion of the sill, substantially as described.

2. In a railway-car having a body with metal plate sides, a side sill composed of end beams, a side of said body, and splicing means to secure said beams to said side, substantially as described.

3. In a railway-car having a body with metal plate sides, a side sill composed of end beams, a side of said body, and side stakes

joining said end beams and side, substantially as described.

4. In a railway-car having a body with metal plate sides, a side sill composed of end beams, a side of said body to which said end beams are attached, and a longitudinal bar secured to said end beams and side, substantially as described.

5. In a railway-car having a body with metal plate sides, a side sill composed of end beams, a side of said body, side stakes joining said end beams to said side, and a bar extending substantially the full length of said sill fastened to said end beams and side, substantially as described.

6. In a railway-car having a body with plate metal sides, a side sill composed of end beams, a side of said body, substantially vertical side stakes each with one or more outstanding flanges joining said end beams to said side, and an angle-bar extending substantially the full length of the sill secured to the lower portions of said end beams and side, substantially as described.

7. In a railway-car having a body with plate metal sides, a side sill composed of end beams, each with an integral inwardly-turned top flange, a side of said body having attached thereto upright side stakes each with an outstanding flange, channel side stakes to the webs of which the end beams and side are riveted, and an angle-bar extending substantially the full length of the sill riveted to the end beams and to the side, substantially as described.

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