

No. 771,590.

PATENTED OCT. 4, 1904.

C. VANDERBILT.
TENDER FOR LOCOMOTIVES.

APPLICATION FILED NOV. 20, 1902.

NO MODEL.

6 SHEETS—SHEET 1.

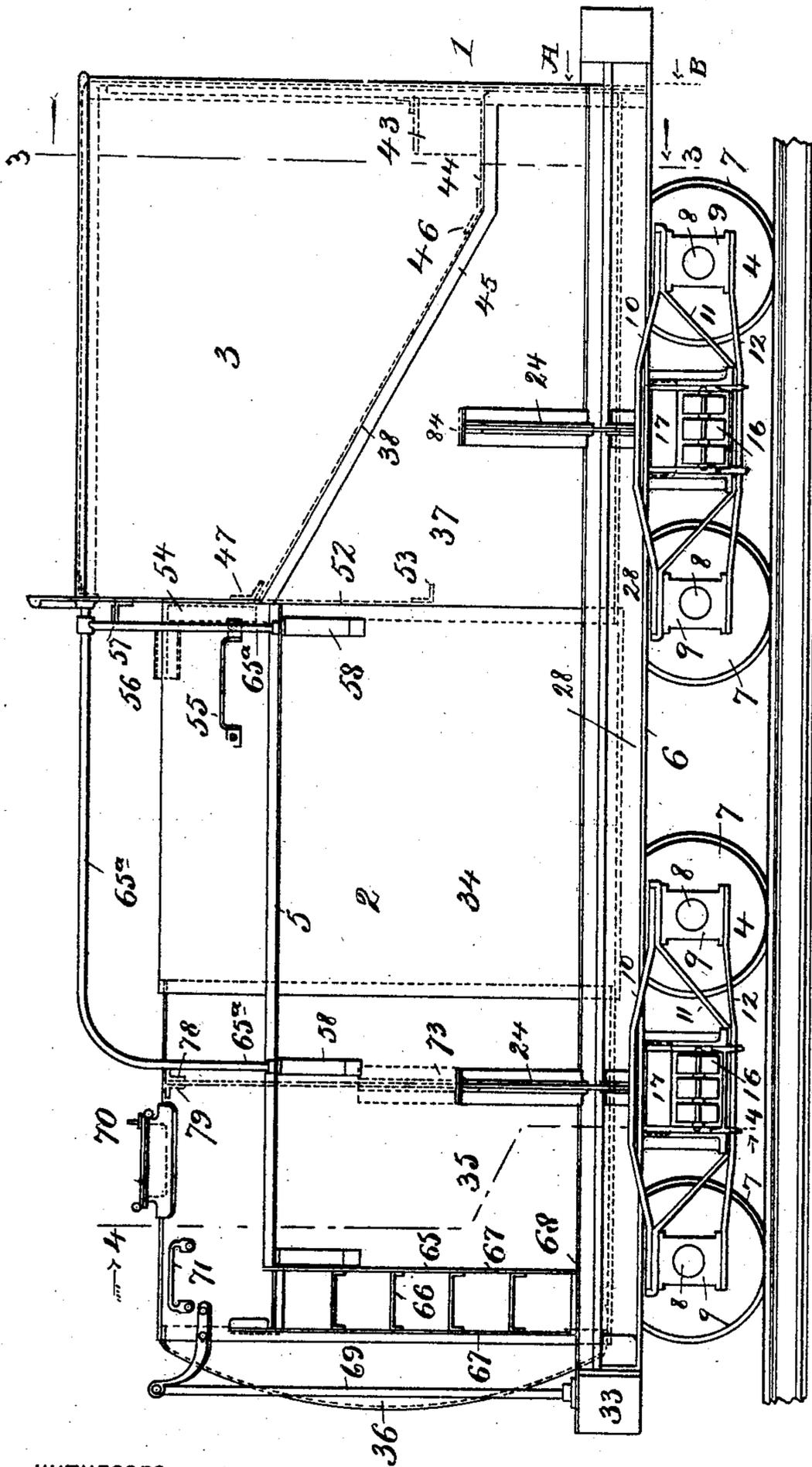


Fig. 1.

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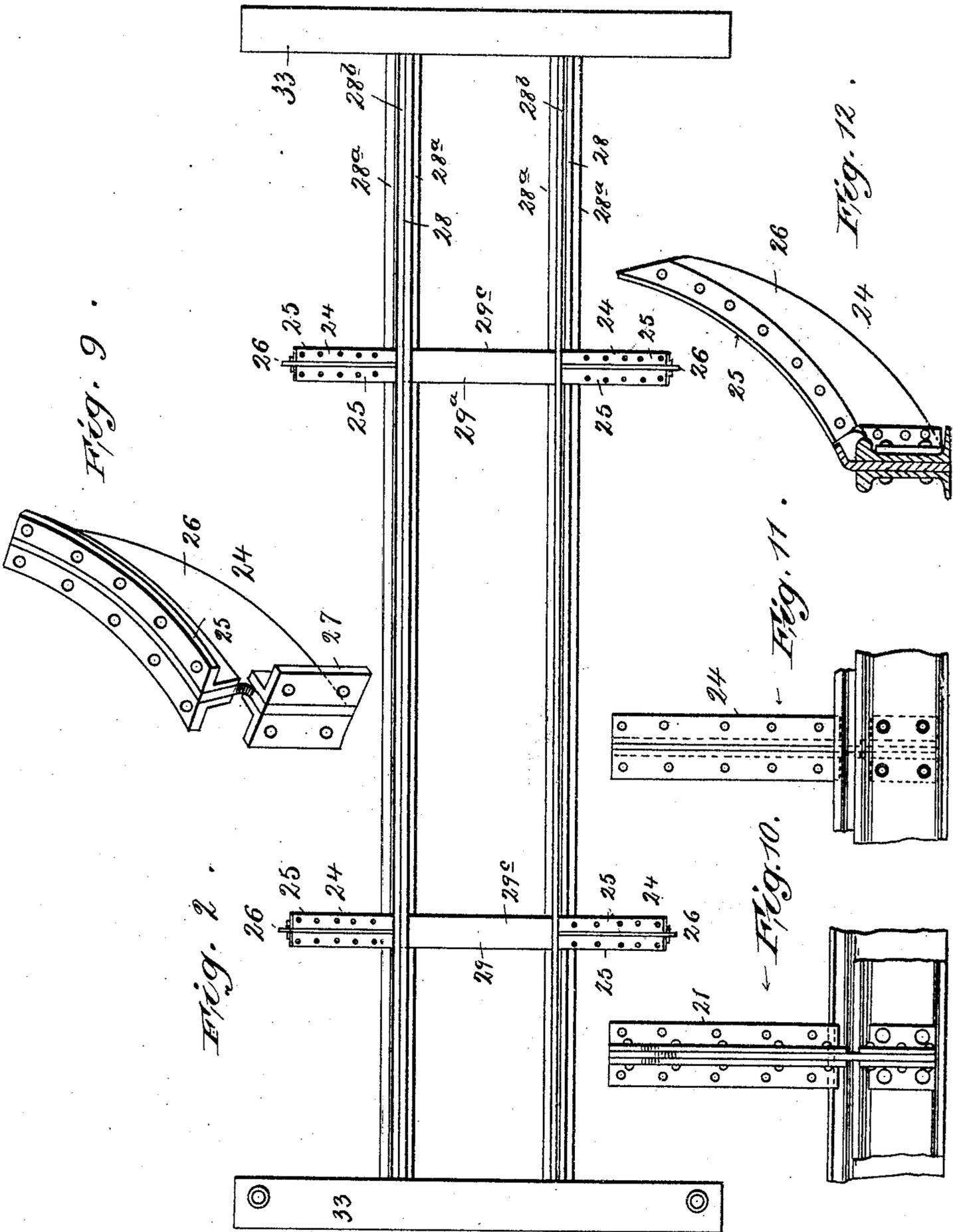
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5 SHEETS—SHEET 2.



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5 SHEETS—SHEET 3.

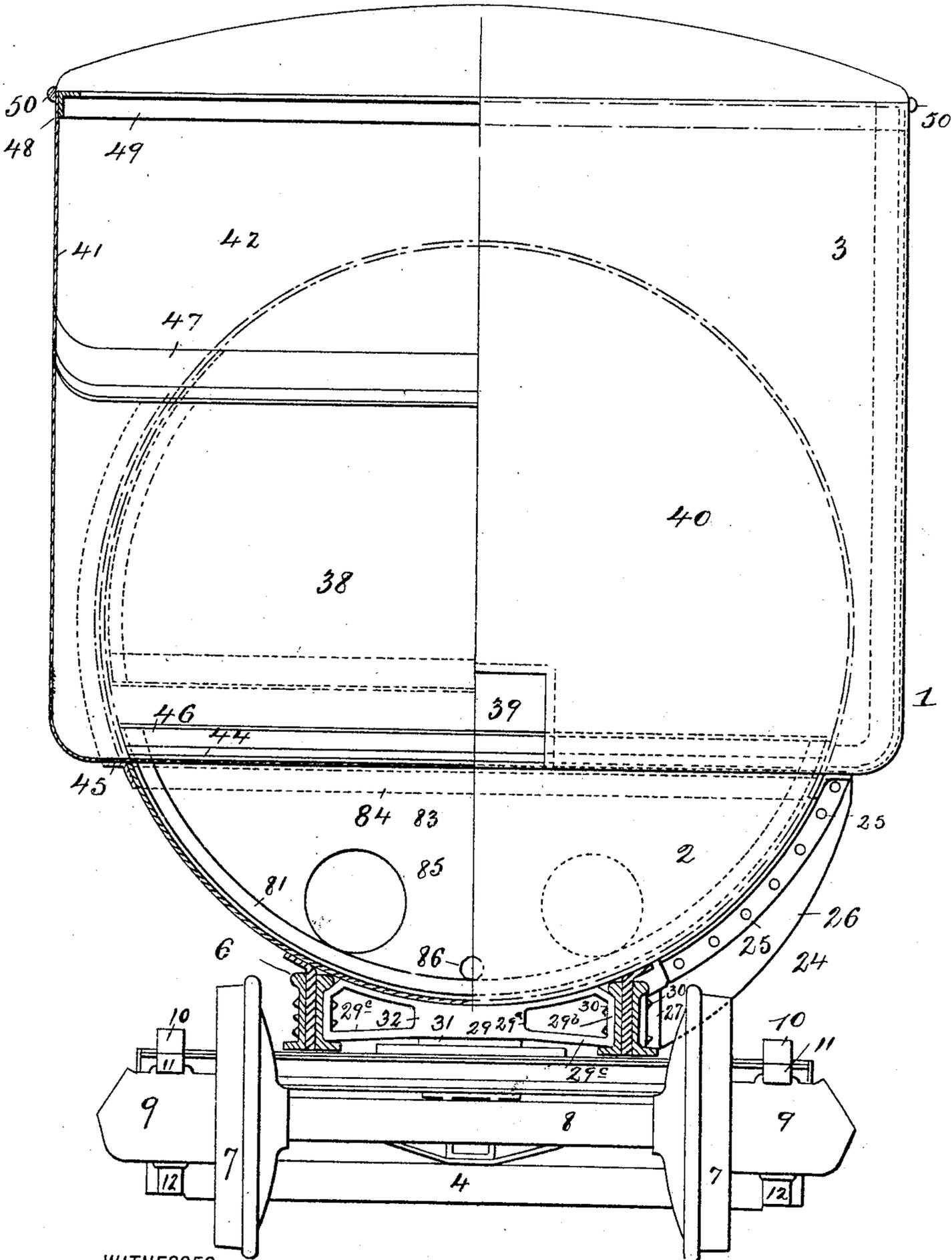


Fig. 3.

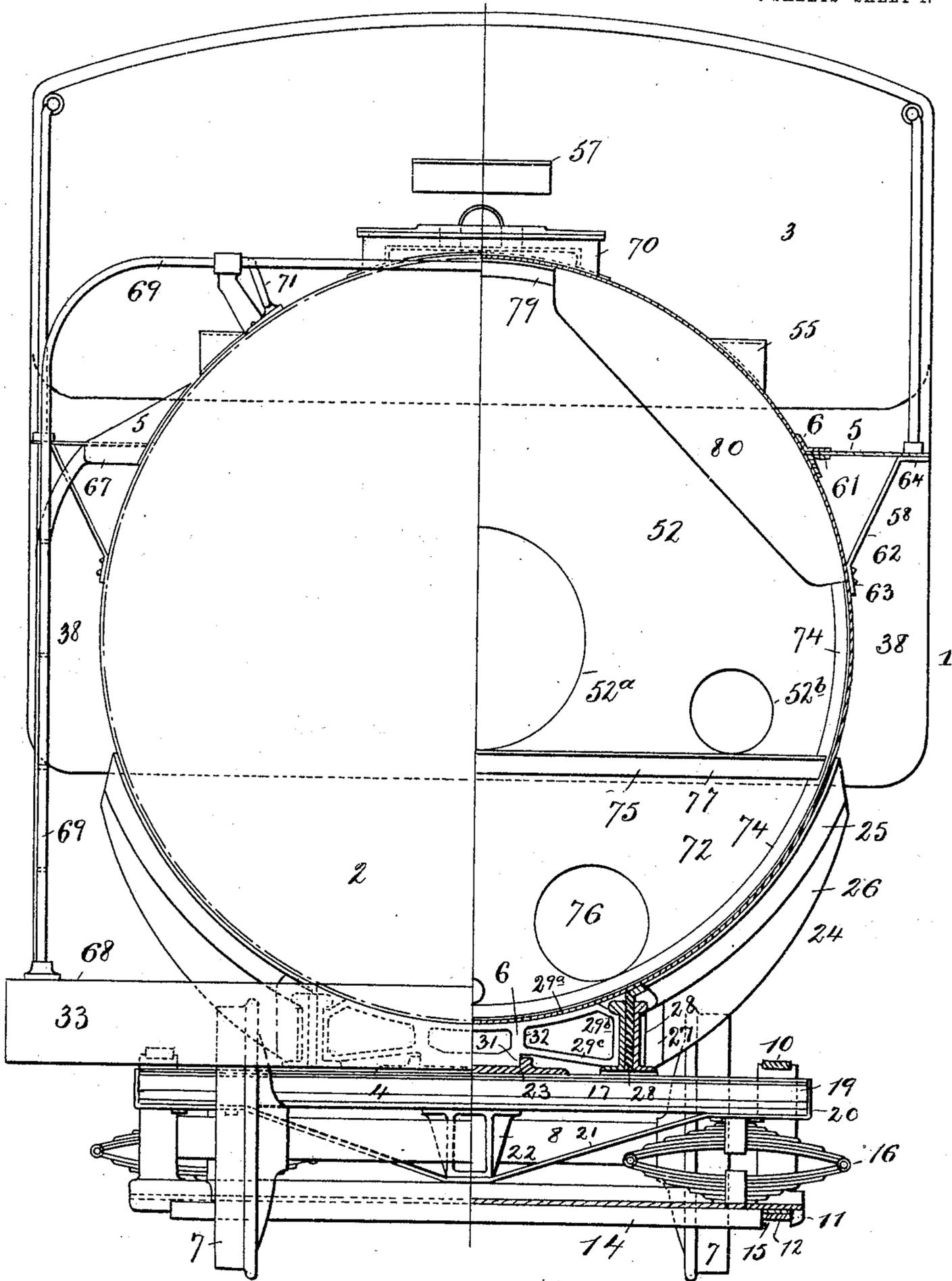
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5 SHEETS—SHEET 4.



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Fig. 4.

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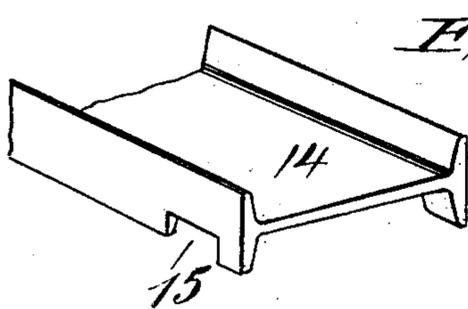
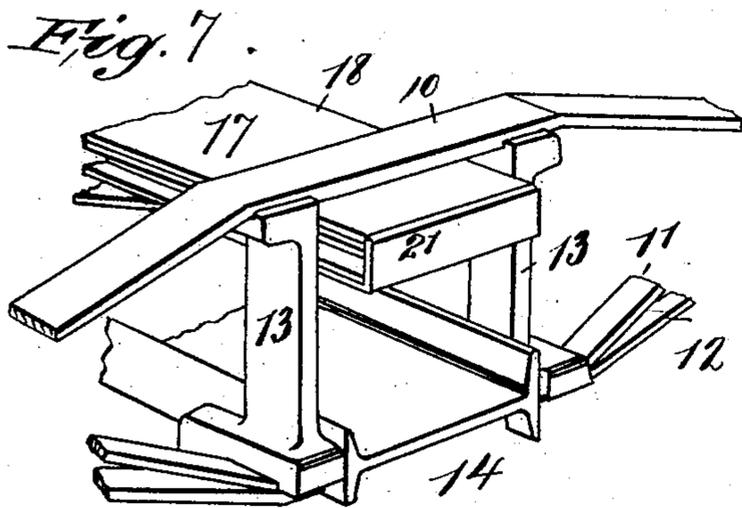
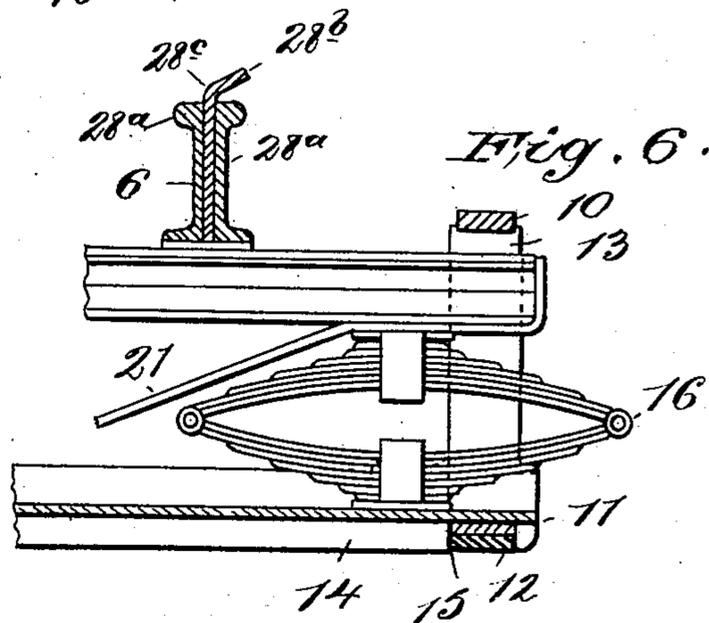
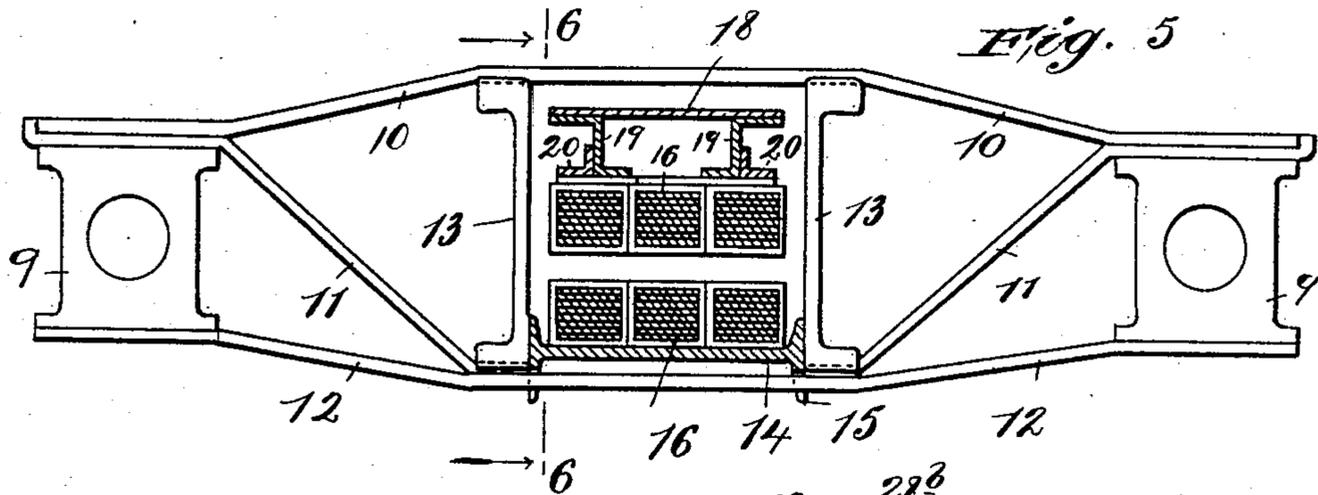
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6 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

CORNELIUS VANDERBILT, OF NEW YORK, N. Y.

TENDER FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 771,590, dated October 4, 1904.

Application filed November 20, 1902. Serial-No. 132,046. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS VANDERBILT, mechanical engineer, a citizen of the United States, and a resident of the city and county of New York, borough of Manhattan, and State of New York, have invented certain new and useful Improvements in Tenders for Locomotives and the Like, of which the following is a specification.

The object of my invention is to construct a locomotive-tender or analogous structure which shall combine cheapness, durability, and lightness of construction, and this I accomplish by means of the construction hereinafter described, wherein the utilization of commercial forms of iron is made a leading feature.

My invention resides in the novel construction and combination of parts of both the tender, frame, and supporting-truck hereinafter described, and further pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a side elevation of a tender embodying my improvements. Fig. 2 is a plan view of the frame and sill-bolsters. Fig. 3 is an end elevation of the front of the tender, portions being shown in sections taken on the lines 3 3 and A B of Fig. 1 looking in the direction of the arrows. Fig. 4 is an end elevation of the rear of the tender, a portion being shown in section taken on the line K 4 of Fig. 1 looking in the direction of the arrows. Fig. 5 is a side elevation of the side frame. Fig. 6 is a section of the same on the line 6 6, Fig. 5, looking in the direction of the arrows. Fig. 7 is a perspective view of a portion of the side frame, bolster, and spring-board. Fig. 8 is a perspective view of a portion of the spring-board, and Figs. 9, 10, 11, and 12 are views of the bolster-wing.

Similar numerals of reference indicate corresponding parts throughout the several views.

The tender is designated by the numeral 1, 2 being the tank, 3 the fuel-box, 4 the trucks, 5 the running-board, and 6 the frame.

The trucks comprise the usual wheels 7, axles 8, which support the axle-boxes 9, which in turn support the upper and lower arch-

bars 10 and 11 and tie-bar 12, the arch-bars being connected by the bolster guide-bars 13, completing the side frames of the truck in the usual manner. The axle-boxes 9 are shown diagrammatically, except in Fig. 3.

The side frames are united by an I-beam 14, having a portion of its lower flanges removed at 15 to receive the lower arch-bars 11 and the tie-bars 12. This I-beam 14 forms a spring-board on which rest triple elliptic springs 16, which support the bolster 17 and are secured to both the spring-board and bolster. The bolster 17 is formed by a bar of metal 18, with Z-irons 19 fixed to its lower side adjacent to its longitudinal edges, so that one horizontal web of each Z-iron reinforces the adjacent edges of the bar, and the free flange of the bars 19 project inwardly. To the free edges of the Z-irons 19 angle-irons 20 are attached, having a vertical web fixed to a vertical web of the Z-iron and the horizontal web forming a continuation of the lower horizontal web of the said Z-iron. A strip of metal 21, forming a tie-rod, passes from the end of the bar 18 around the ends of the angles 19 and 20 and is fixed to their lower portions until clear of the springs 16, whence it proceeds downwardly and inwardly to support the king-pin 22 immediately under the center bearing-plate 23, which rests on the upper surface of the bar 18. By this means the bolster is reinforced at the point where it carries the weight of the tank-car.

The frame 6 consists of channel-iron sill 28, united by bolsters 29 and buffer-bars 33. The sills 28 consist of channel-irons 28^a, with their flanges projecting outwardly, and their inner walls are fixed to a strip of sheet metal 28^b, which extends above said sills 28^a and is bent upwardly and outwardly at 28^c to fit the bottom of the tank 2. The bolsters which unite said sills 28 consist of a central portion 29, provided with a curved upper portion 29^a, which supports the tank and ends 29^b, which fit the inner webs and adjacent flanges of the channel-irons 28^a. The lower part of said central portion 29 is curved upwardly at 29^c to the pivot 31, which projects into the center bearing-plate 23, and the parts 31 and 29^a are united by the strengthening-webs 32. 30 designates

rivets which extend through the ends 29^b, the sills 28, and the flanges 27 on the end of the wings 24 to unite the same to the frame and form an extension of the bolster. The wings
 5 24 consist of a curved flange 25, which fits and supports the tank, strengthening-webs 26, which sustain the flanges 25, and flanges 27, which fit the outer portion of the sills 28, as indicated in Fig. 4. The tank may be secured to
 10 the frame by means of rivets or in any other well-known manner. The frame is also provided with the usual buffer-bars 33.

The tank consists of the usual cylindrical sections 34 and 35, which are secured together
 15 in any desired manner, and the rear end of the section 34 has a conventional header 36. At the forward end of the section 34 is secured the section 37, which is partially cylindrical, with a flattened upper surface 38, which forms
 20 the bottom of the fuel-box 3. The section 37 is reduced, so that the surface 38 will slope forwardly in order that the fuel in the box 3 will tend to move toward the opening 39. The fuel-box is formed with the front wall 40, the
 25 side walls 41, and the rear wall 42, all of which are preferably of sheet metal. The bottom 38 extends beyond the walls of the tank, and the sides are made to correspond, so as to provide the largest fuel-box that can be made with
 30 permissible clearness.

On each side of the opening 39 and adjacent to the side 40 are the usual tool-boxes 43, which rest on a horizontal portion 44 of the
 35 bottom 38. To strengthen the said bottom 38, longitudinal angle-irons 45 are fitted externally to the joint between the bottom 38 and the walls of the section 37, and the bottom is further reinforced by an angle-iron 46 on the upper surface of the bottom 38, where
 40 it is bent to form the horizontal portion 44, and at the rear extremity of the bottom 38, where it adjoins the walls 32, is another angle-iron 47.

At their upper extremities the walls 40 and
 45 41 are reinforced by angle-irons 48, which extend the length of the same, and the wall 42 is strengthened adjacent to its upper edge by an angle-iron 49, which forms a continuation of the angle-iron 48. The upper edges of
 50 these walls are curved downwardly and outwardly, as shown at 50, to further strengthen the structure.

The wall 42 has a curved portion 51, which extends above the angle-iron 49, and the lower
 55 portion of said wall 42 extends into the interior of the tank, as shown at 52, to form a baffle to prevent undue movement of the water in the tank, and is provided at its lower extremity with an angle-iron 53 to further stiffen and
 60 strengthen the same. This baffle is provided with perforations 52^a and 52^b, as shown in Fig. 4.

The upper portion of the section 34 adjoins the wall 42 and is secured thereto by means
 65 of an angle-iron 54 and rivets. Upon the

outer surface of the said section 34 are steps 55 and 56, which, together with the step 57 on the wall 42, enables the trainmen to pass over said wall.

Below the steps 55 are the running-boards 70 5, which are secured on brackets 58. The brackets 58 consist of a horizontal bar 59, which at its inner extremity is provided with angles 60 and 61, which are riveted to the tank, and at its outer extremity it is fixed to
 75 a bent bar 62, which is united to the tank at its lower portion 63, and at its upper portion 64 it is bent so as to support the bar 59.

The hand-rail 65^a is attached to the bracket 58 at its outer extremity, so that the running-
 80 board 5 rests between said hand-rail 65 and the tank. At the rear end of the running-board 5 and at one side of the section 35 is a ladder 65, which is provided with the usual rungs 66 and side pieces 67, said side pieces
 85 being bent at their upper extremities and fixed to the tank, and at their lower ends they rest on a platform 68, secured to the rear buffer-bar 33.

At 69 is a hand-rail which extends from the
 90 rear buffer-bar 33 in a direction parallel to the said ladder and is bent at its upper portion, so as to be secured to the section 35 of the tank.

At the top of the section 35 and centrally located thereon is a manhole 70, which may
 95 be of any well-known type, and to make the same more accessible is a handhold 71 above the ladder 65.

In the section 35 and immediately over the
 100 bolster is a brace 72, which consists of two angle-irons 73 and 74, bent to fit the interior circumference of said tank, and sandwiched in between them is a baffle-plate 75, having
 105 openings 76 and stiffening-bars 77, which preferably are angles secured to the upper edge of the baffle 75. At the top of said section 35 and in line with the angles 73 and 74 are angles 78 and 79, and sandwiched in between them and the extended ends of the an-
 110 gles 72 and 73 is a baffle 80. Over the forward bolster in the section 37 are angles 81, which hold between them a baffle-plate 83, surmounted by stiffening-iron 84. In said baffle-plate 83 are openings 85 and 86, and as
 115 the structure of this baffle is in all respects similar to the one, 72, described above, except that the ends of the angles are not extended above the irons 84, further description is un-
 necessary.

Having described my invention, what I
 120 claim is—

1. As an article of manufacture, a cylindrical tank having a reduced front portion, and a fuel-box resting thereon, one side of said fuel-box being extended into the interior tank to
 125 form a baffle.

2. As an article of manufacture, a cylindrical tank comprising in its structure a reduced por-
 130 tion, a fuel-box resting on said reduced portion, one side of said fuel-box extending into

said tank to form a baffle, and angle-plates at the end of the said extended portion.

3. As an article of manufacture, a cylindrical tank, with two adjoining angle-irons fixed to its interior circumference, and baffle-plates sandwiched in between said angle-irons.

4. In a tank-car, the combination with the body-frame and tank thereon, of brackets secured to the tank and provided at their outer ends with sockets, uprights held in said sock-

ets, a rod connecting the uprights at their upper ends and a floor on said brackets, substantially as set forth.

Signed in the city, county, and State of New York this 18th day of November, 1902.

CORNELIUS VANDERBILT.

Witnesses:

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