No. 848,369. PATENTED MAR. 26, 1907.

C. H. HOWARD.

LOCOMOTIVE TENDER AND TANK CAR FRAME.

APPLICATION FILED DEC. 17, 1906.

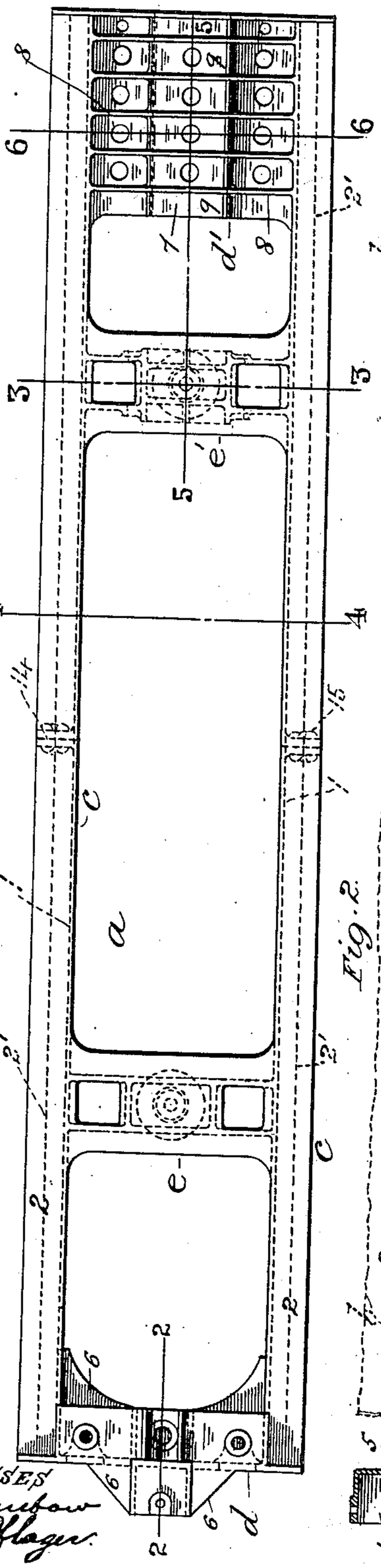

Fig. 1.

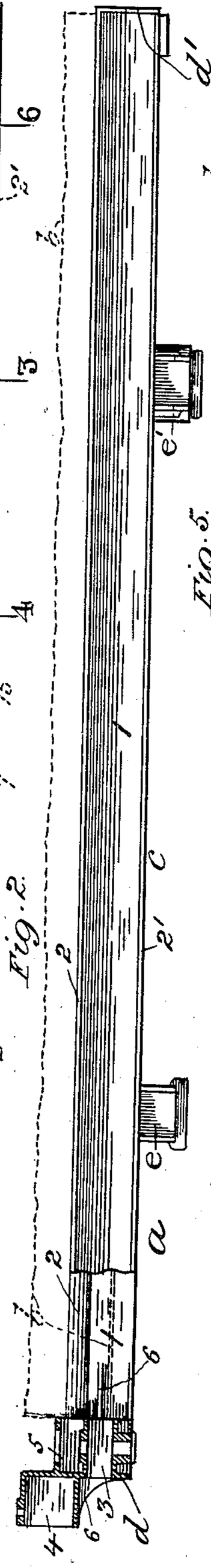

Fig. 2.

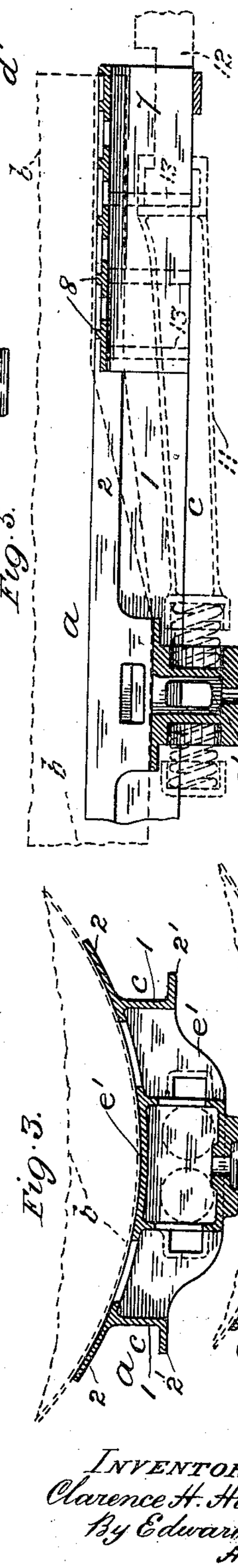

Fig. 5.

Fig. 6.

Fig. 3.

Fig. 4.

WITNESSES

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UNITED STATES PATENT OFFICE.

CLARENCE H. HOWARD, OF ST. LOUIS, MISSOURI, ASSIGNOR TO LOCOMOTIVE TENDER FRAME COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF DELAWARE.

LOCOMOTIVE-TENDER AND TANK-CAR FRAME.

No. 848,369. Specification of Letters Patent. Patented March 26, 1907.

Application filed December 17, 1906. Serial No. 348,219.

To all whom it may concern:

Be it known that I, CLARENCE H. HOWARD, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a new and useful Improvement in Locomotive-Tender and Tank-Car Frames, of which the following is a specification.

My invention relates to the underframe of a cylindrical longitudinally-arranged locomotive-tender or tank-car body, and has for its object to provide a strong, compact, light, and rigid structure adapted to firmly support the said body cradlewise for its entire length, with or without fastenings, and thereby prevent lateral straining and play thereof when traveling around curves at high speed.

It consists principally in forming the top of the underframe practically for its entire length transversely with a curvature corresponding to the circumferential contour of the tender or tank-car body, combined with other features of novelty, as hereinafter described and claimed, reference being had to the accompanying drawings, forming part of this specification, whereon—

Figure 1 is a top plan view of my improved underframe; Fig. 2, a side view thereof, partly in elevation and partly in section on line 2 2 in Fig. 1; Figs. 3 and 4, cross-sections, to enlarged scale, through the underframe on lines 3 3 and 4 4, respectively, in Fig. 1; Fig. 5, a vertical longitudinal section, to enlarged scale, through therear end portion of the underframe on line 5 5 in Fig. 1; and Fig. 6, a cross-section thereof on line 6 6 in Fig. 1.

Like letters and numerals of reference denote like parts in all the figures.

a represents my improved underframe, which is composed, preferably, of cast-steel integral throughout and adapted to support cradlewise in the present case a substantially cylindrical tender-body *b*, (shown broken away by dotted lines in Figs. 2, 3, 4, 5, and 6,) arranged longitudinally thereon, but may be used with slight modification of its subordinate parts as an underframe for supporting the cylindrical tank in that class of car known as a "tank-car."

The underframe *a* is preferably rectangular-shaped in top plan view, comprising two side members *c*, which are united to each other by two end members *d d'* and by two transverse members *e e'* intermediate to the end members *d d'* and adapted to form the body-bolsters of the underframe *a*.

Each side member *c* is preferably channel-shaped in cross-section, having its web 1 arranged vertically and its flanges 2 2' projecting outwardly therefrom, the upper flanges 2 of the side members *c* being curved transversely at the top conformably to the under part of the outer cylindrical surface of the tender-body *b*, which bears thereon practically for the entire length of the underframe *a* and on the similarly-curved top of the transverse members or body-bolsters *e e'*, respectively, whereby the under part of the tender-body *b* is bedded in the curvature of the underframe *a* and lateral strain on the tender-body *b* when rounding a curve resisted thereby.

In the front end member *d* of the underframe *a*, midway between the side members *c*, is formed the pocket 3 for receiving the end of the bar or link by which the underframe *a* is coupled to the locomotive, the pocket 3 being perforated vertically for the passage therethrough of the coupling-pin, (not shown,) while at the top and in front of the end member *d* is formed the outwardly-projecting pocket 4 for receiving the buffing-springs, (not shown,) the pocket 4 being united to the body of the end member *d* by preferably a hollow reinforcing-piece 5 immediately over the pocket 3, combined with strengthening-ribs 6, suitably arranged about the said parts to form a strong and rigid construction thereat integral throughout.

The rear end member *d'* of the underframe *a* consists in the present case of a longitudinally-arranged inverted-U-shaped channel-piece 7, located midway between the side members *c* and having the bottom edges of its side walls and opening thereat flush, or thereabout, with the lower flanges 2' of the side members *c*, the U-shaped piece 7 being united externally to the webs 1 of the side members *c* by a series of vertical parallel webs 8, arranged transversely thereto, combined with a horizontal web 9, intersecting the webs 8, the whole forming a strong and rigid end to the underframe *a* for resisting shocks from collision.

The transverse member or body-bolster *e'* adjacent to the rear end member *d'* is in the present case preferably adapted for the ap-

plication thereto of a suitable draft-gear, such as that for which Letters Patent of the United States were granted to Harry M. Pflager January 23, 1906, No. 810,805, in which the usual follower-plates are eliminated, as indicated by dotted lines in Fig. 5, in which case the draw-bar extension 11 is inclined upward from its inner end adjacent to the body-bolster *e'* and passes at its outer end portion with the draw-bar 12 through the channel of the U-shaped piece 7, or, if desired, in lieu of applying the draft-gear to the body-bolster *e'*, as shown and described, a suitable draft-gear may be applied directly to the end member *d'*, in which case vertical lugs or stops 13 for the follower-plates (if used) are cast on the inner faces of the side walls of the U-shaped channel-piece 7, as indicated by dotted lines in Figs. 5 and 6. Furthermore, in the case of a tank-car the front end member *d* in lieu of having the pockets 3 and 4, as above described, may be constructed similarly to the rear end member *d'* and the body-bolster *e* adjacent thereto adapted for the application of suitable draft-gear thereto or not, as in the case of the body-bolster *e'*.

It is here noted that although the underframe *a* is above described as preferably integral throughout it may be made in two parts respectively integral and secured together preferably midway of the length of the frame by flanges 14 and rivets 15, as indicated by dotted lines in Figs. 1 and 4, or otherwise, as found most suitable.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination with a cylindrical locomotive-tender or tank-car body, of a cast-metal underframe, comprising, two longitudinal side members, two transverse end members, and two transverse members intermediate to the end members and adapted to form the body-bolsters of the said frame, the said side and intermediate members being conformable at the top to the outer cylindrical surface of the said body and adapted thereat to support the same, one of the said intermediate members being adapted for applying a suitable draft-gear thereto, and the adjacent said end member having a channel in its under side for the passage therethrough of the draw-bar, and a series of webs uniting the walls of the said channel to the said side members, substantially as described.

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

CLARENCE H. HOWARD.

Witnesses:
JESSE T. FRIDAY,
EDWARD W. FURRELL.