No. 793,898. PATENTED JULY 4, 1905.

W. McINTOSH.

LOCOMOTIVE TENDER FRAME.

APPLICATION FILED MAR. 1, 1905.

2 SHEETS—SHEET 1.

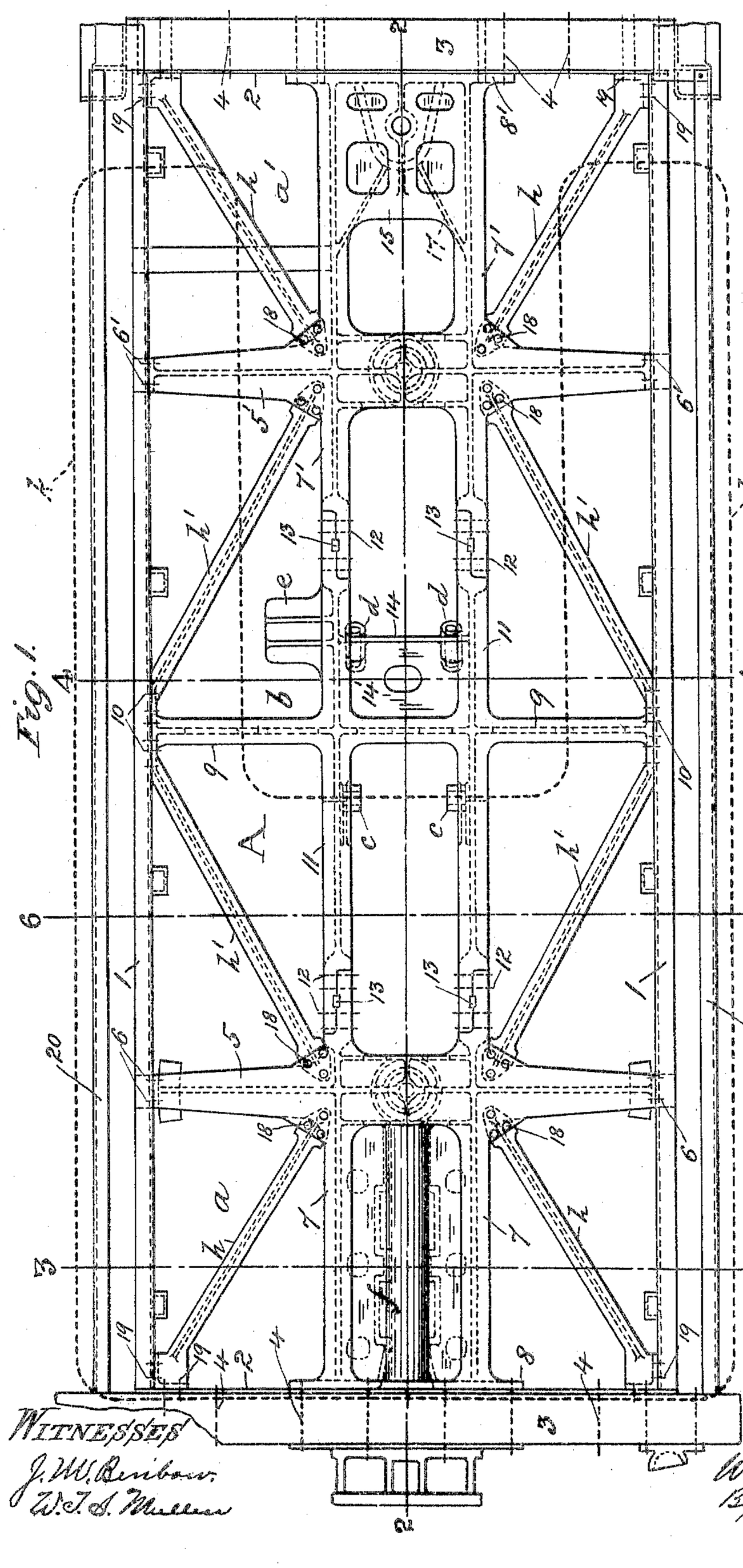


Fig. 1.

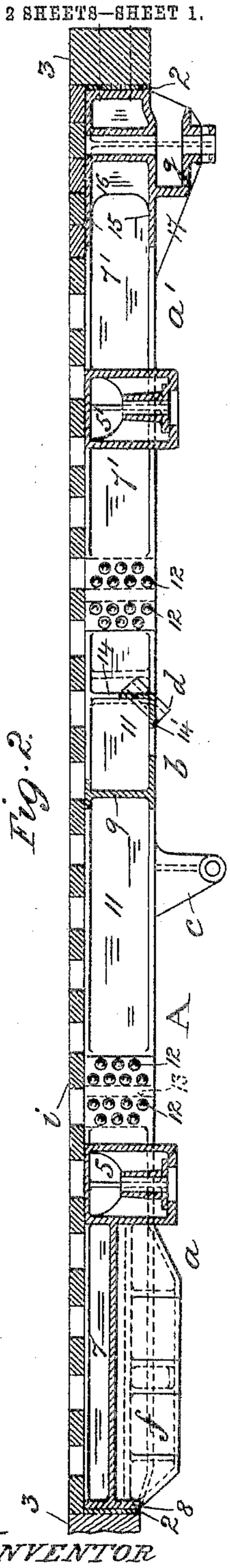


Fig. 2.

WITNESSES
J. W. Benbow.
W. T. S. Mullen

INVENTOR
William McIntosh
By Edward W. Evered
His Atty

No. 793,898. PATENTED JULY 4, 1905.

W. McINTOSH.

LOCOMOTIVE TENDER FRAME.

APPLICATION FILED MAR. 1, 1905.

2 SHEETS—SHEET 2.

Fig. 4.

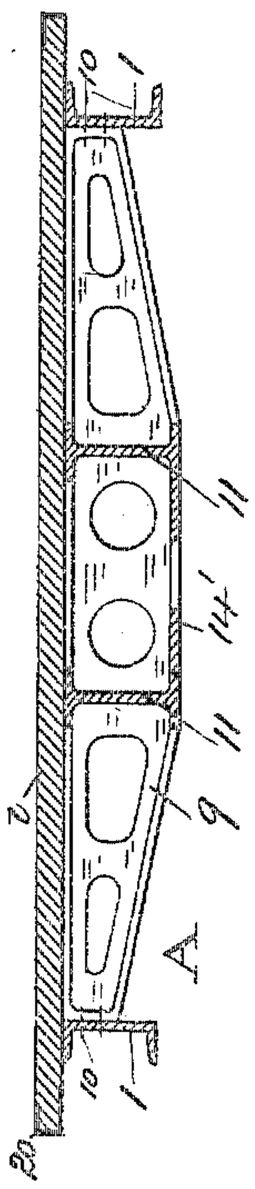


Fig. 5.

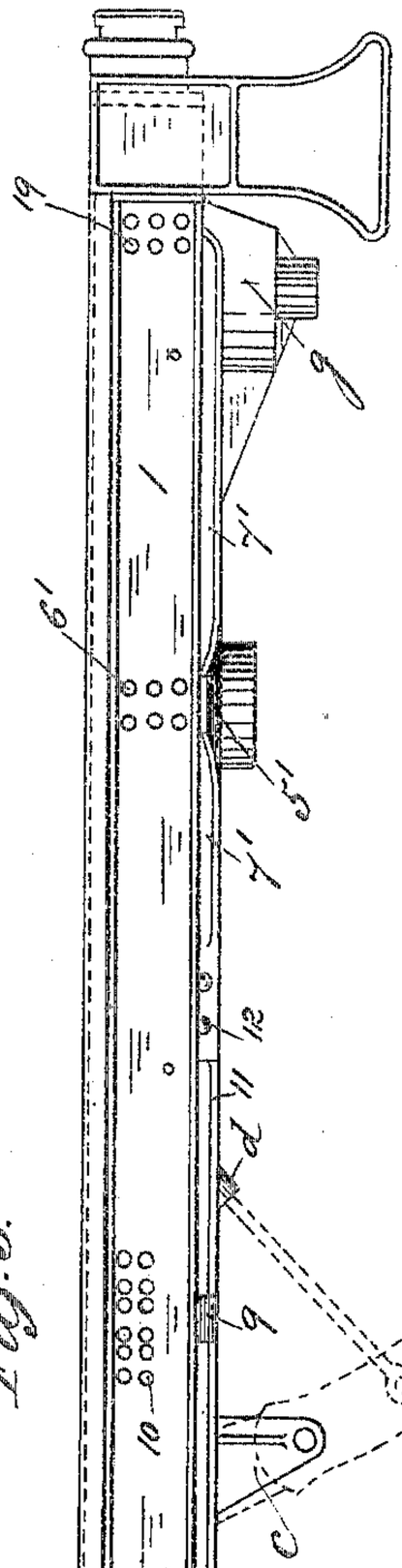


Fig. 7.

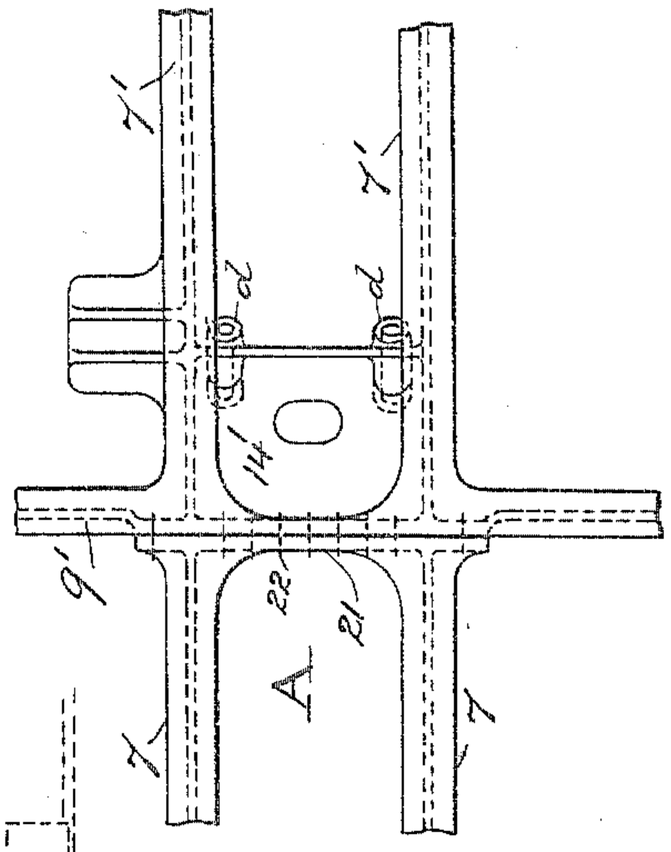


Fig. 3.

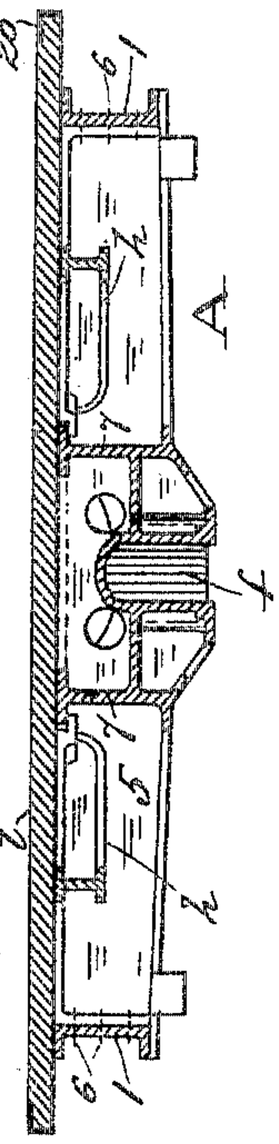
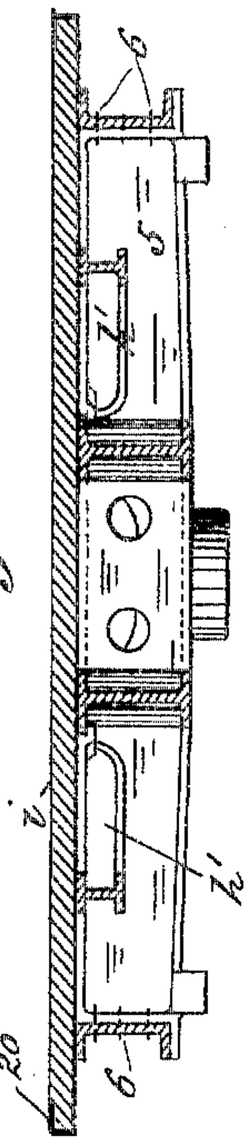


Fig. 6.



WITNESSES

J. M. Benton.

Ed. J. S. Mullen

INVENTOR

William McIntosh,

By Edward W. Furrell

His Atty

No. 793,898. Patented July 4, 1905.

UNITED STATES PATENT OFFICE.

WILLIAM McINTOSH, OF PLAINFIELD, NEW JERSEY.

LOCOMOTIVE-TENDER FRAME.

SPECIFICATION forming part of Letters Patent No. 793,898, dated July 4, 1905.

Application filed March 1, 1905. Serial No. 247,963.

To all whom it may concern:

Be it known that I, WILLIAM McINTOSH, a citizen of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Locomotive-Tender Frames, of which the following is a specification.

My invention relates to a locomotive-tender frame, and has for its object to provide a tender-frame combining lightness and strength and having its parts detachable and renewable in case of injury or fracture.

The invention consists in 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 locomotive-tender frame; Fig. 2, a vertical longitudinal section through the frame on line 2 2 in Fig. 1; Fig. 3, a vertical transverse section thereof on line 3 3 in Fig. 1 looking to the right; Figs. 4 and 5, similar views to Fig. 3 looking to the left; Fig. 6, a side elevation of the frame; and Fig. 7, a top plan view of the middle portion of the frame, showing an alternative construction thereat.

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

A represents my improved tender-frame, which comprises principally a rectangular-shaped outer portion having two opposite side pieces 1, preferably composed of rolled steel, channel-shaped in cross-section, and two opposite end pieces (preferably steel plates) 2, which are respectively secured to an end sill or wood beam 3 by bolts 4, as shown, or the end sill 3 may be of metal, if desired.

The body of the frame A between the side and end pieces 1 2 of its outer or surrounding portion consists, preferably, of three separately-constructed parts *a*, *a'*, and *b*, composed, preferably, of cast-steel respectively integral throughout, the part *a*, which forms the rear end portion of the body of the frame A, having a transverse beam 5, which forms the tender body-bolster and is perforated centrally for the king-bolt (not shown) in the usual manner.

The beam or "bolster" 5, which may be of any suitable configuration, but preferably box-shaped along its middle portion and thence I-shaped and tapering to each end thereof, as shown, is secured at its ends to the side pieces 1 by rivets (or bolts) 6 and is intersected at right angles on each side of and equidistant from the longitudinal center line of the frame A by a longitudinal and preferably I-shaped beam or member 7, the two beams 7 being united to each other at one end by an upright web or flange 8, which bears against and is secured to the end piece or plate 2 of the outer rectangular portion of the frame A by the bolts 4, the other ends of the beams 7 extending to a suitable distance beyond the beam or bolster 5 toward the middle of the frame A.

The part *a'*, which forms the front end portion of the body of the frame A, is similar in construction and arrangement to the part *a*, having the transverse beam or bolster 5', secured at its ends to the side pieces 1 by rivets (or bolts) 6' and intersected by the longitudinal I-beams or members 7', which are united to each other at one end by the upright web or flange 8' and extend at their other ends to a suitable distance beyond the bolster 5' toward the middle of the frame A, the beams 7 and 7' being in alinement with each other.

The middle part *b* of the body of the frame A consists of a transverse beam or I-shaped member 9, which is attached at its ends to the side pieces 1 in the middle of the frame A by rivets (or bolts) 10 and is intersected at right angles by longitudinal beams or members 11, which are alined to the beams 7 7' of the parts *a a'*, the meeting ends of the beams 7 7' 11 being spliced and secured to each other, respectively, by rivets (or bolts) 12, supplemented by vertically-inserted keys 13, as shown, or in any other suitable manner.

Depending from and preferably integral with each longitudinal member 11 of the middle part *b* is a bracket *c*, to the lower end of which is hinged the water-scoop, (indicated by broken lines in Fig. 5,) and between the beams 11 on the other side of the beam 9 are

located opposite to the brackets *c* the adjusting-sockets *d* for the water-scoop, the sockets *d* being preferably cast integral with the upright and horizontal webs 14 14′, respectively, which unite the beams 11 to each other thereat.

e is a bracket for the brake-cylinder (not shown) and is preferably cast integral with one of the beams 11 of the part *b*, but may be otherwise arranged and of separate construction, if desired.

In the part *a* and preferably integral therewith between the beam or bolster 5 and the end web or flange 8 and between the adjacent portions of the longitudinal beams or members 7 is formed the draw-bar pocket *f* for the rear-end coupler of the tender, and in the part *a′* and preferably integral therewith on its underside is formed the pocket *g* for the front-end coupling-link to the engine, the pocket *g* and part *a′* of the frame A thereat being perforated vertically for the link bolt or pin, (not shown,) for which purpose the longitudinal beams 7′ and the end web or flange 8′, adjacent to the perforated pocket *g*, are united to each other, preferably along the top and bottom flanges of the beams 7′, by webs 15, having strengthening-ribs 16 and 17, or the pocket *g* may be otherwise strengthened and the metal disposed thereat, as found most suitable.

Between the bolsters 5 5′ and the side pieces 1 and end pieces 2 of the outer rectangular portion of the frame A are arranged diagonal braces *h h′*, which are preferably fixed at one end to the bolsters 5 5′, adjacent to the longitudinal members 7 7′, by rivets (or bolts) 18 and at their other ends in the case of the front and rear end braces *h* to the side and end pieces 1 2 at their junction or corners of the rectangular portion of the frame A and in the case of the middle braces *h′* to the side pieces 1 and middle beam 9 at their junction by rivets (or bolts) 19.

On the frame A as above constructed is secured the floor *i*, (omitted from Fig. 1,) having the side angle-iron covering-bars 20, which extend the entire length of the frame A between the end sills 3, and on the floor *i* is supported the tank *k*, (indicated by the heavy broken line in Fig. 1,) which is of the usual construction, the other appendages of the frame forming no part of my invention and needing no further descripiton.

By my construction of frame as above described I obtain great strength with comparative lightness, and if one of the parts becomes damaged it can be detached from the frame and a new part substituted without the delay consequent upon repairing a tender-frame when built up practically in one piece.

If desired, I may dispense with the longitudinal beams 11 of the middle part *b* and their attachments 12 13 to the beams 7 7′ of the parts *a a′*, in which case the beams 7′ of the part *a′* are extended and unite with the transverse beam or member 9′ at the middle of the frame A, the beams 7 of the part *a* being likewise extended and united to each other at their ends by a web or flange 21, which bears against and is secured to the beam 9′ by bolts 22, as shown in Fig. 7.

It is to be here noted that for avoiding obscurity of delineation the various bolts (or rivets) 4, 6, 6′, 10, 12, 18, and 19 for securing the several parts of the frame A together, as hereinbefore specified, are indicated, respectively, on the drawings by a single broken line.

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

1. A locomotive-tender frame comprising an outer rectangular portion, a body portion surrounded by the rectangular portion and consisting of two end parts, and a middle part, respectively integral throughout, each end part having a transverse member forming the tender body-bolster and a longitudinal member intersecting the transverse member, and the middle part having a transverse member and a longitudinal member intersecting the transverse member and alined to the longitudinal members of the end parts, and means for detachably securing the said parts to each other and to the outer rectangular portion, substantially as described.

2. A locomotive-tender frame comprising an outer rectangular portion, a body portion surrounded by the rectangular portion and consisting of two end parts and a middle part, respectively integral throughout, each end part having a transverse member forming the tender body-bolster, two longitudinal members intersecting the transverse member and a coupler draw-bar pocket, and the middle part having a transverse member and two longitudinal members intersecting the transverse member and alined to the longitudinal members of the end parts, and means for detachably securing the said parts to each other and to the said outer rectangular portion, substantially as described.

3. A locomotive-tender frame, comprising an outer rectangular portion, a body portion surrounded by the rectangular portion and consisting of two end parts and a middle part, respectively integral throughout, each end part having a transverse member forming the tender body-bolster, two longitudinal members intersecting the transverse member and a coupler draw-bar pocket, and the middle part having a transverse member, two longitudinal members intersecting the transverse member, and a bracket and socket for carrying the water-scoop, and means for detachably securing the said parts to each other and to the said outer rectangular portion, substantially as described.

4. A locomotive-tender frame having an

outer rectangular portion, a body portion surrounded by the rectangular portion and consisting of two end parts respectively integral throughout, each of the said parts having a transverse member forming the tender body-bolster, two longitudinal members intersecting the transverse member, and a coupler draw-bar pocket, and means for detachably securing the said parts to each other and to the said outer rectangular portion, substantially as described.

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

WILLIAM McINTOSH.

Witnesses:

JOHN H. LANGE,

L. A. KINGSLAND.