2 Sheets—Sheet 1.

G. W. CUSHING.

Car-Frame.

No. 223,437. Patented Jan. 13, 1880.

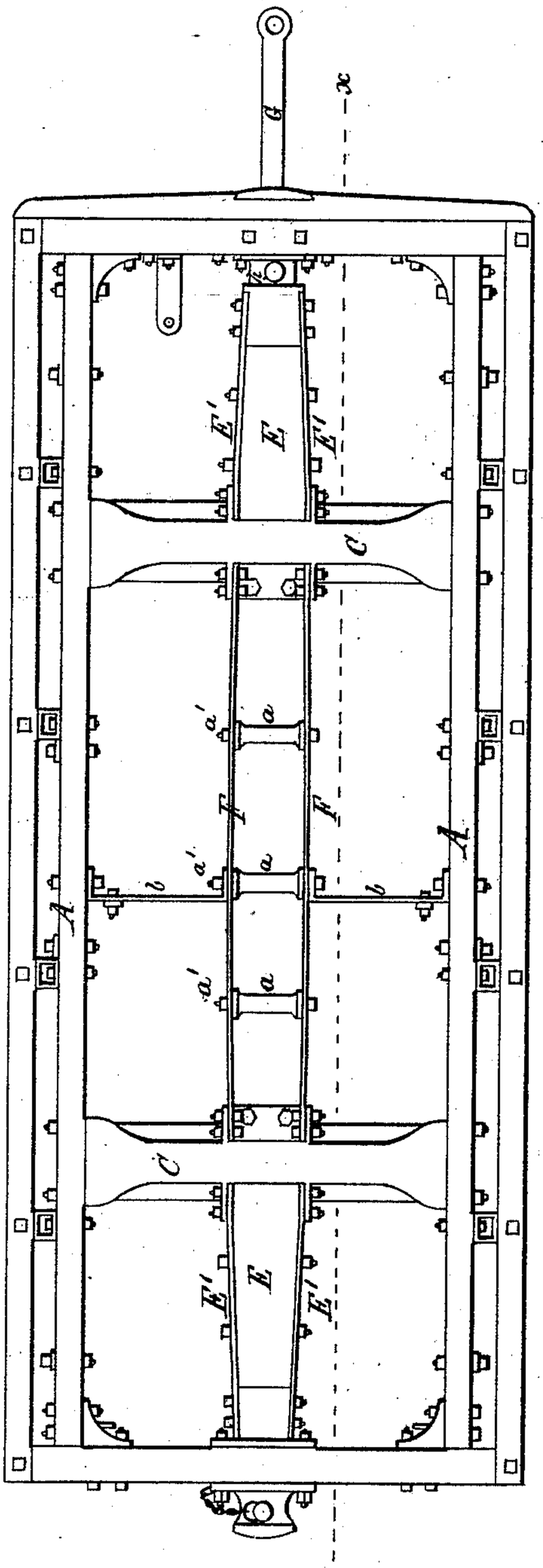

Fig 1.

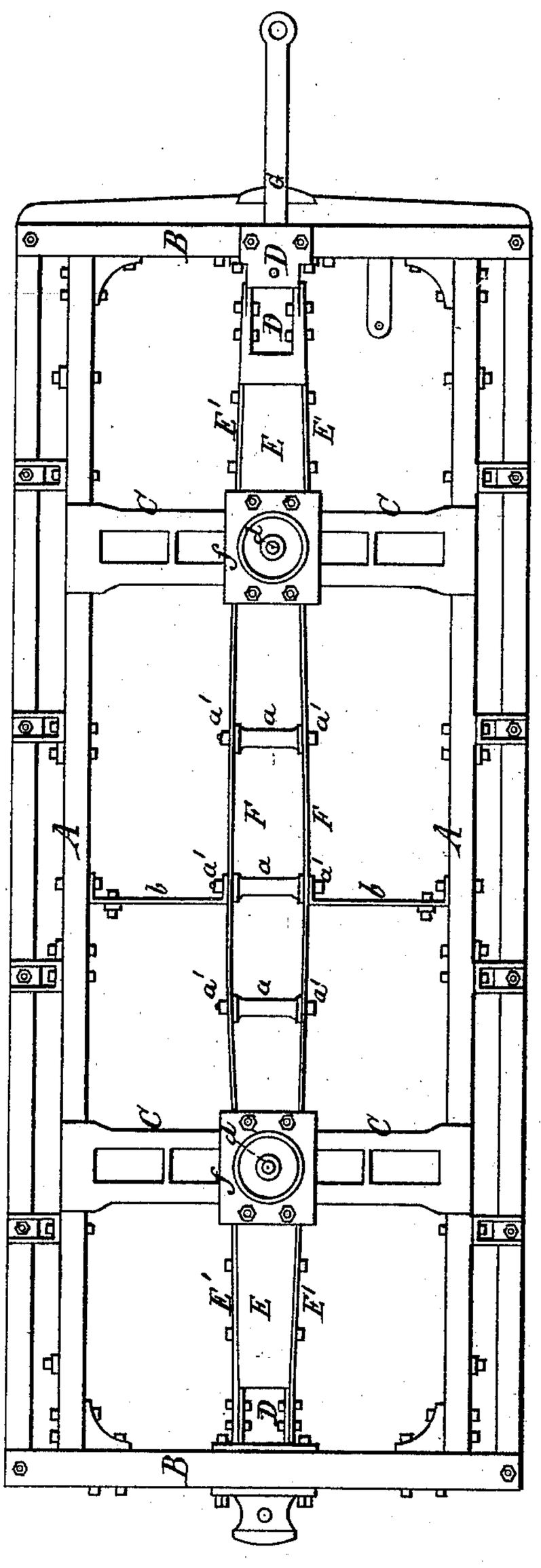

Fig 2.

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2 Sheets—Sheet 2.

G. W. CUSHING.
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Fig 3.

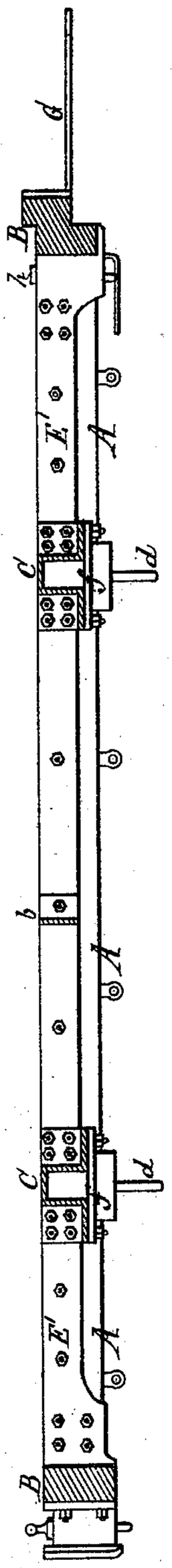


Fig 4.

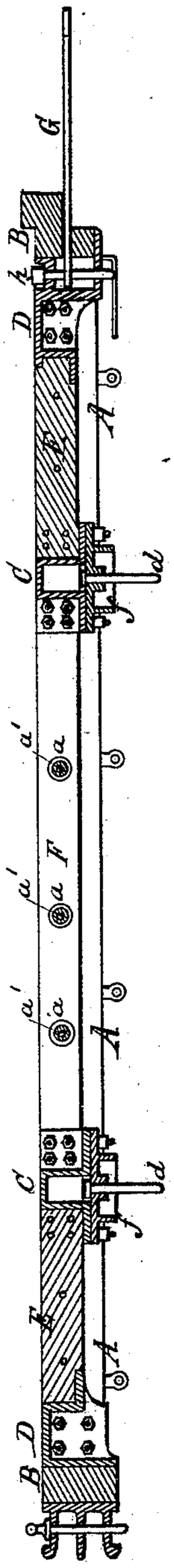


Fig 5.

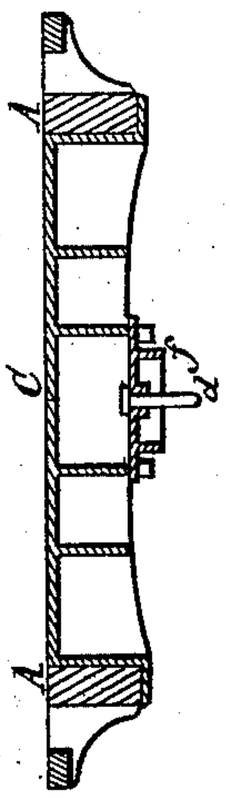
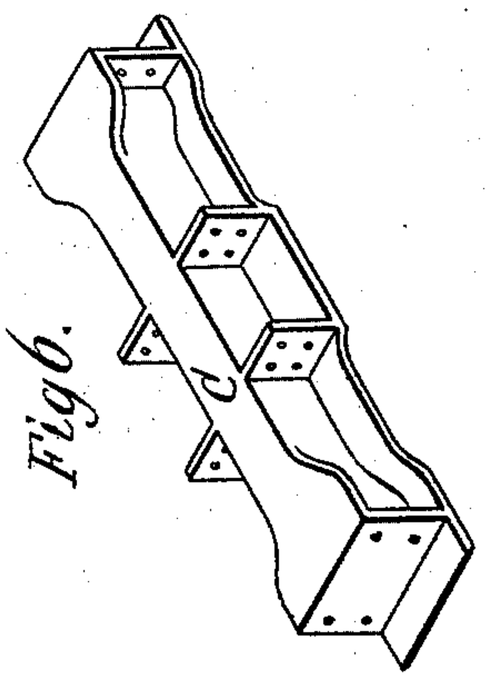


Fig 6.



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UNITED STATES PATENT OFFICE.

GEORGE W. CUSHING, OF SEDALIA, MISSOURI.

CAR-FRAME.

SPECIFICATION forming part of Letters Patent No. 223,437, dated January 13, 1880.

Application filed November 29, 1879.

To all whom it may concern:

Be it known that I, GEORGE W. CUSHING, of Sedalia, in the county of Pettis and State of Missouri, have invented a new and useful Improvement in Locomotive-Tender and Car Frames; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of the frame. Fig. 2 is an inverted plan of the same. Fig. 3 is a vertical longitudinal section in the line *x x* of Fig. 1. Fig. 4 is a vertical central longitudinal section of the same. Fig. 5 is a vertical transverse section of the frame, showing a longitudinal section of one of the transoms. Fig. 6 is a perspective view of one of the transoms.

My invention relates to a novel and durable combination of iron and wood in the construction of locomotive-tender and car frames.

The nature of the invention consists in a tender or car frame comprising, substantially, the following parts, to wit: wooden end and side sills or timbers, two or more iron or other metal transoms secured to the side sills, and a central draft-bar composed of sections, the end sections thereof being formed of wood and metal, and the central section of metal plates stayed and braced, and all the sections supported upon and bolted to the transoms and central draw-blocks or irons of the frame, the combination iron and wood frame forming a strong structure, and affording an unyielding draft-bar and frame for the purposes mentioned.

A in the accompanying drawings represents the side, and B the end, sills of the frame, they being made of wood; C, the metal transoms; D, the end draw-irons; and E, E′, and F, the central draft-bar or sills, the parts E of which are of solid hard wood, and applied as a filling between the parts E′ and F, which are of metal, the wood portions E, together with the metal portions E′ and F, abutting against and resting upon flanges and between jaws of the transoms C, and also abutting against and resting upon the end draw-irons, D.

The parts E and F are in form of broad metal bars, and they are arranged edgewise with their broad sides vertical.

The plates or bars F are applied between the transoms, being placed some distance apart. The ends of these plates abut against the transoms C, and rest upon and bear against flanges formed on the transoms, as shown.

The respective metal parts described are firmly bolted to the end draw-irons, D, and to the transoms C, and the wood and metal portions are firmly united together by bolts, as shown in the drawings.

The plates of the central metal portion, F, of the draw-bar or central sill are stayed by tubes *a* and bolts *a′* passed through the plates and tubes, and they are further braced by angle-irons *b*, placed between the plates of said portion F and the side wood sills, A.

In constructing the draw-irons D and the transoms C it is desirable to avoid unnecessary weight of metal; and to this end the draw-irons are formed with ribs and flanges, and the transoms are formed with cavities separated by solid webs of metal, in order that lightness with great strength may be secured.

In uniting the parts of the frame together the following order may be pursued: The transoms C being placed in their proper positions, the side sills, A, are placed upon and secured to them. The end sills are then secured to the side ones by suitable irons or plates. The front and rear draw-irons are now secured to the end sills. The iron portions E′ of the front section of the draft-sill are next fitted and bolted in position, as are also the iron portions E′ F of the rear and front sections thereof. Next the wood filling E is applied to the front and rear sections E′, and the bolting and bracing, as described, of the several parts finish the frame.

The connecting-bar G for the engine is held by a bolt, *h*, passed through the front draw-bar, D, and said bolt, by being placed in rear of the wood end sill, will relieve this sill of draft-strains.

The center pins, *d*, for the trucks are confined upon the transoms by screw-plates *f*, as shown.

The construction and arrangement of the parts of the frame are such that a firm through connection between the front and rear end sills is effected, and the weight of frame is far less than that of a frame made entirely of iron, and which frame is far preferable to a solid iron frame and as strong and durable as required.

What I claim is—

1. The tender or car frame comprising in its

construction the wooden side and end sills, A and B, and the supporting and abutment metal transoms C, constructed, respectively, of one piece and with end and front flanges, substantially as and for the purpose described.

2. The tender or car frame comprising in its construction the central draft sill or bar formed of the plates or bars E′ F and wood filling E, and the metal transoms C, the end draw-irons, D, and the side and end wood sills, A B, substantially as and for the purpose described.

3. The end sections of the draft sill or bar formed of plates E′ and hard-wood filling E, in combination with the abutting and supporting end draw-irons, D, and the flanged supporting and abutting transoms C, substantially as and for the purpose described.

4. The tender or car frame provided with the section F between its transoms C C, said section being formed of plates braced, tied together, and stayed, substantially as described.

GEORGE W. CUSHING.

Witnesses:
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