No. 750,441. PATENTED JAN. 26, 1904.

J. F. DUNN.

LOCOMOTIVE BUFFER BEAM.

APPLICATION FILED JULY 5, 1902. RENEWED SEPT. 30, 1903.

NO MODEL.

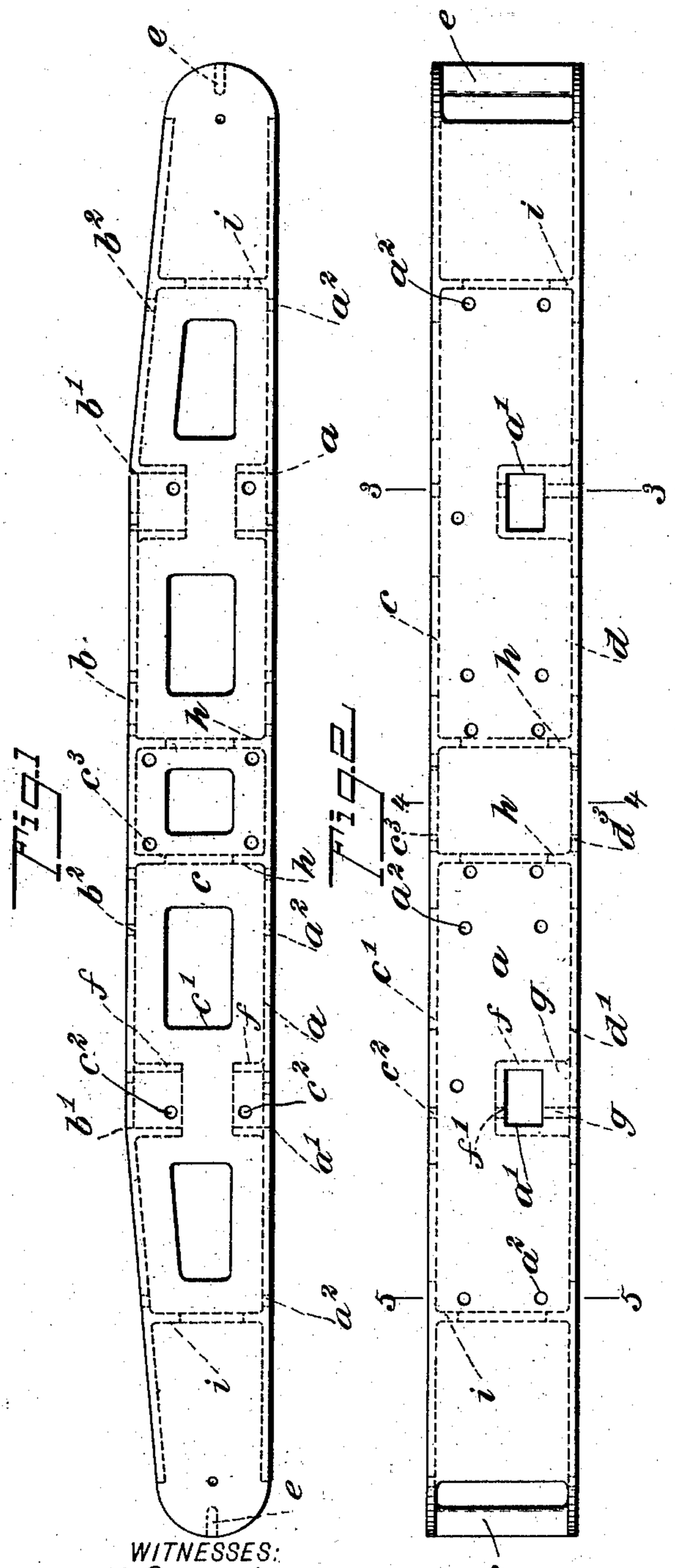

FIG. 1.

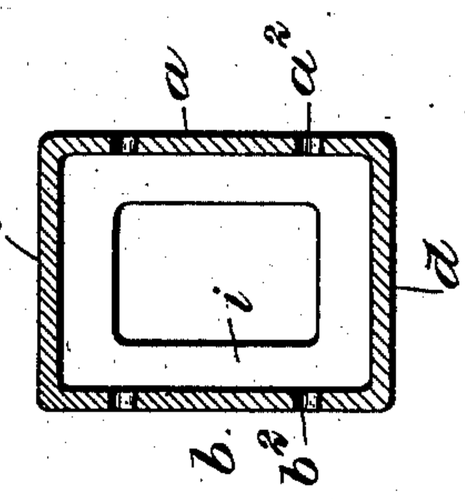

FIG. 5.

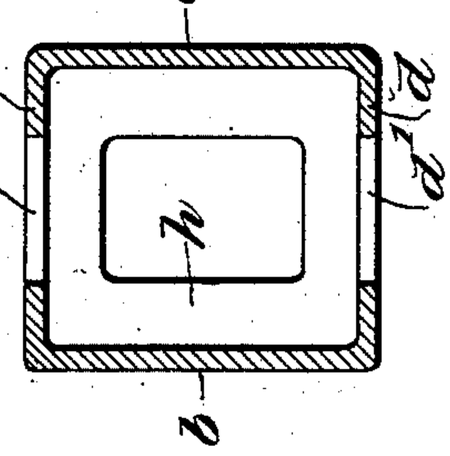

FIG. 4.

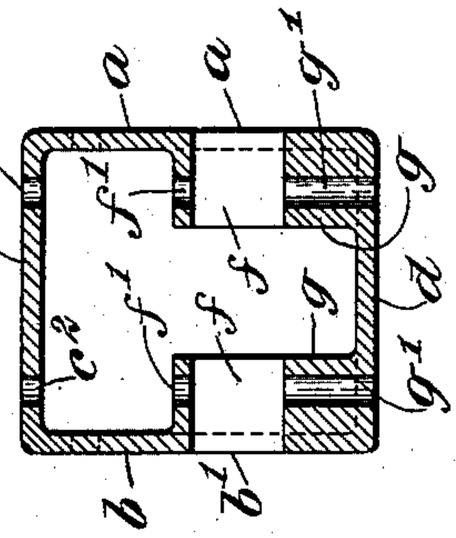

FIG. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES F. DUNN, OF SALT LAKE CITY, UTAH.

LOCOMOTIVE BUFFER-BEAM.

SPECIFICATION forming part of Letters Patent No. 750,441, dated January 26, 1904.

Application filed July 5, 1902. Renewed September 30, 1903. Serial No. 175,233. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. DUNN, a citizen of the United States, and a resident of Salt Lake City, in the county of Salt Lake and State of Utah, have invented a new and Improved Locomotive Buffer-Beam, of which the following is a full, clear, and exact description.

This invention relates to a buffer-beam constructed of an integral mass of cast-steel or other suitable metal. Provision is made for the convenient and effective attachment of the various parts of the locomotive to the beam—that is to say, the frames, pilot, and the boiler-braces.

The invention involves certain novel features of construction the purpose of which is especially to facilitate casting the beam conveniently and properly.

This specification is an exact description of one example of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the invention. Fig. 2 is a front elevation thereof; and Figs. 3, 4, and 5 are respectively sections on the lines 3 3, 4 4, and 5 5 in Fig. 2.

The beam is formed with a front wall a, having therein at each side of its center an opening a' for the reception of the engine-frame beams and a number of bolt-holes a^2 for the reception of the fastenings which hold the pilot and coupler attachments. The rear wall b is constructed essentially the same, having openings b' for the engine-frame beams and the bolt-holes b^2. The frame-beam openings a' and b' are respectively in alinement with each other, as illustrated in Fig. 1, and the various bolt-holes b^2 are in alinement with corresponding holes a^2, so that the frame b and the pilot and coupler attachment fastening-bolts may be passed transversely through the entire beam. The top wall c and the bottom wall d are formed with openings c' and d', respectively, said openings being formed by the supports or ties for the central core of the mold. The four walls a, b, c, and d are disposed in rectangular relation to each other, as illustrated in Figs. 3, 4, and 5. The ends of the beams are left open, so that there is free communication longitudinally through the beam from end to end. This allows the beam to shrink away from the core in cooling. The front and rear walls are fore-shortened, as shown, and vertically-disposed ribs e extend between the top and bottom walls at the extremities thereof.

Surrounding the openings a' and b' in the walls a and b are bosses f, which project inward and form inclosures for the frame-beam. These bosses do not meet each other, and a space is left between the bosses in the longitudinal center of the beams, as shown in Figs. 1 and 3. Extending from each boss f downward to the bottom wall d is a thickened rib or mass of metal g, which serves to support the bosses and to strengthen the general structure of the beam. The beam is formed, as shown best in Fig. 3, with a number of series of openings the members of which are designated c^2, f', and g', the members of each series being arranged in a vertical line and passing, respectively, through the top wall c, the bosses f, and the rods g. These openings c^2, f', and g' serve to receive the fastening-bolts which pass through the frame-beams to secure the same and which also pass through the boiler-braces, these parts being arranged essentially as shown in my previous patent, No. 656,532, dated August 21, 1900.

In the center of the beam are formed two internal strengthening-ribs h, which extend transversely around the four walls of the beam, these two ribs leaving a central space in the beam to give continuity to the before-mentioned longitudinal passage, which extends through the beam from end to end. Adjacent to each end of the beam is arranged an internal strengthening-rib i, these ribs extending transversely around the four sides of the beam the same as the ribs h. This construction forms a beam of the utmost strength, and at the same time it allows the beam to be cast easily and without subjecting it to those detrimental strains ordinarily due to the shrinkage of the hot metal. In casting the beam the core of the mold is extended through

the longitudinal center of the beam to or beyond the ends thereof. The core is formed with projections extending downward and upward, the downwardly-extending projections bearing against the bottom of the mold to support the core and the upward projections bearing against the coping of the mold to prevent the mold from floating. When the metal shrinks in cooling, the ribs *e*, being narrow, as shown, cut their way into the ends of the core, and the core therefore offers no resistance to this shrinkage.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A locomotive buffer-beam, formed of an integral mass of cast metal and having a continuous cavity extended longitudinally through it from end to end, and said beam being open at each end for the purpose specified, and two transverse cavities communicating with the longitudinal cavity and serving to receive the engine-frame beams.

2. A locomotive buffer-beam, formed of an integral mass of cast metal and having a longitudinal cavity extending through it from end to end, and said beam being open at each end for the purpose specified, and a plurality of cavities extending upward and downward through the top and bottom walls of the beam and serving to receive supports for the core-beam of the mold in which the buffer-beam is cast.

3. A locomotive buffer-beam, formed of an integral mass of cast metal and having a longitudinal cavity extending through it from end to end, and said beam being open at each end for the purpose specified, and a plurality of cavities extending transversely through certain walls of the beam and serving to receive supports for the core-beam of the mold in which the buffer-beam is cast.

4. A locomotive buffer-beam formed of an integral mass of cast metal, said beam being hollow and having internal strengthening-ribs extending transversely around its walls, said ribs leaving an unobstructed central opening, for the purpose specified.

5. A locomotive buffer-beam, formed of an integral mass of cast metal and having a longitudinal cavity extending through it from end to end, and vertical ties or ribs located at each end of the beam and extending between the upper and lower walls thereof.

6. A locomotive buffer-beam formed of an integral mass of cast metal, and having a longitudinal cavity extending through it from end to end, the ends of the buffer-beam being open to permit the core of the mold to project to or beyond the ends of the beam, for the purpose specified and said beam having transverse openings facilitating its attachment to the locomotive.

7. A locomotive buffer-beam formed of an integral mass of cast metal and having a longitudinal cavity extending through it from end to end, said beam being open at each end for the purpose specified, and also having an internal strengthening-rib extending transversely around its walls, said rib leaving an unobstructed central opening.

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

JAMES F. DUNN.

Witnesses:
ISAAC B. OWENS,
JNO. M. RITTER.