

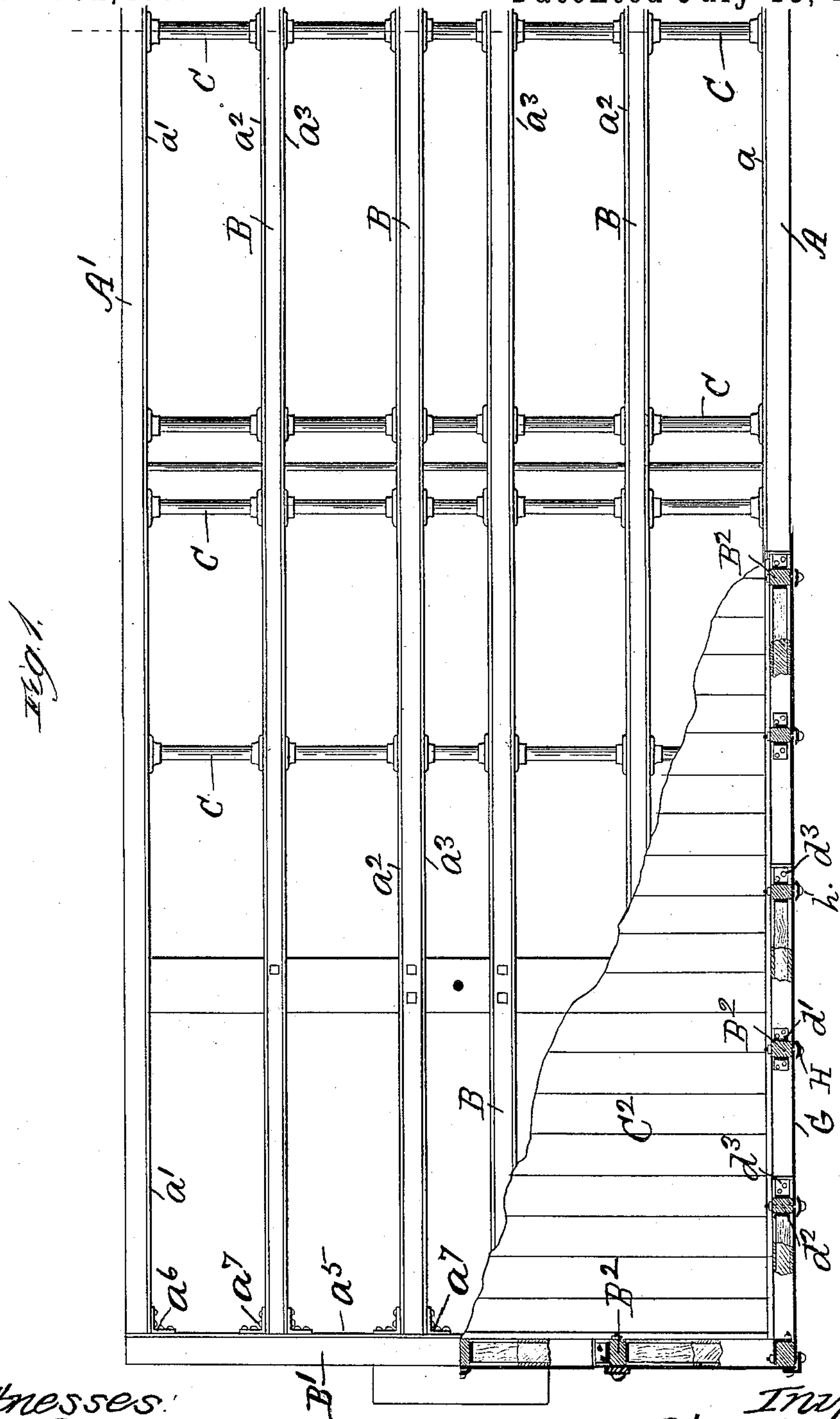
(No Model.)

3 Sheets—Sheet 1.

W. W. GREEN.
FREIGHT CAR.

No. 432,487.

Patented July 15, 1890.



Witnesses:

Edw. Chaylors.
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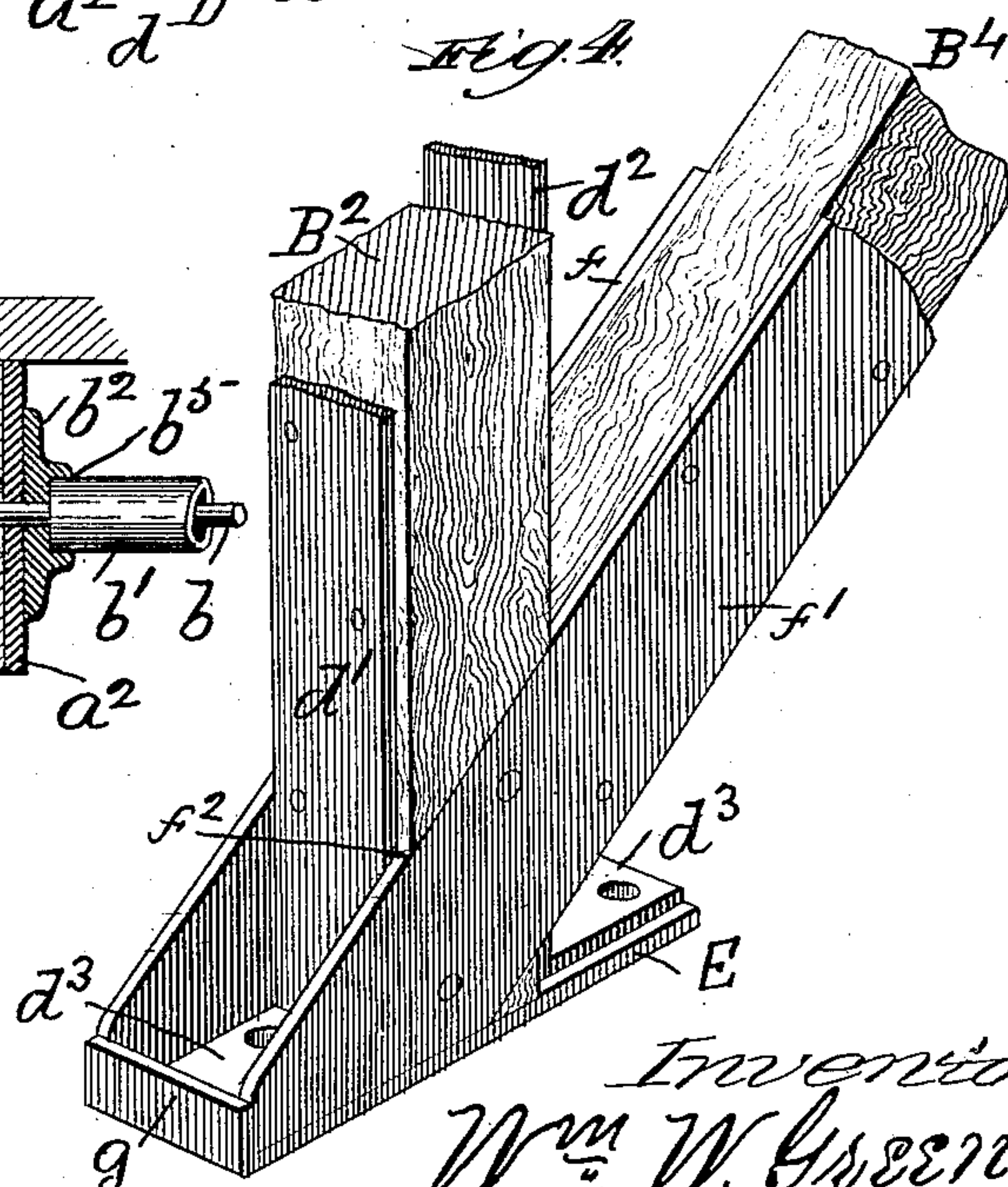
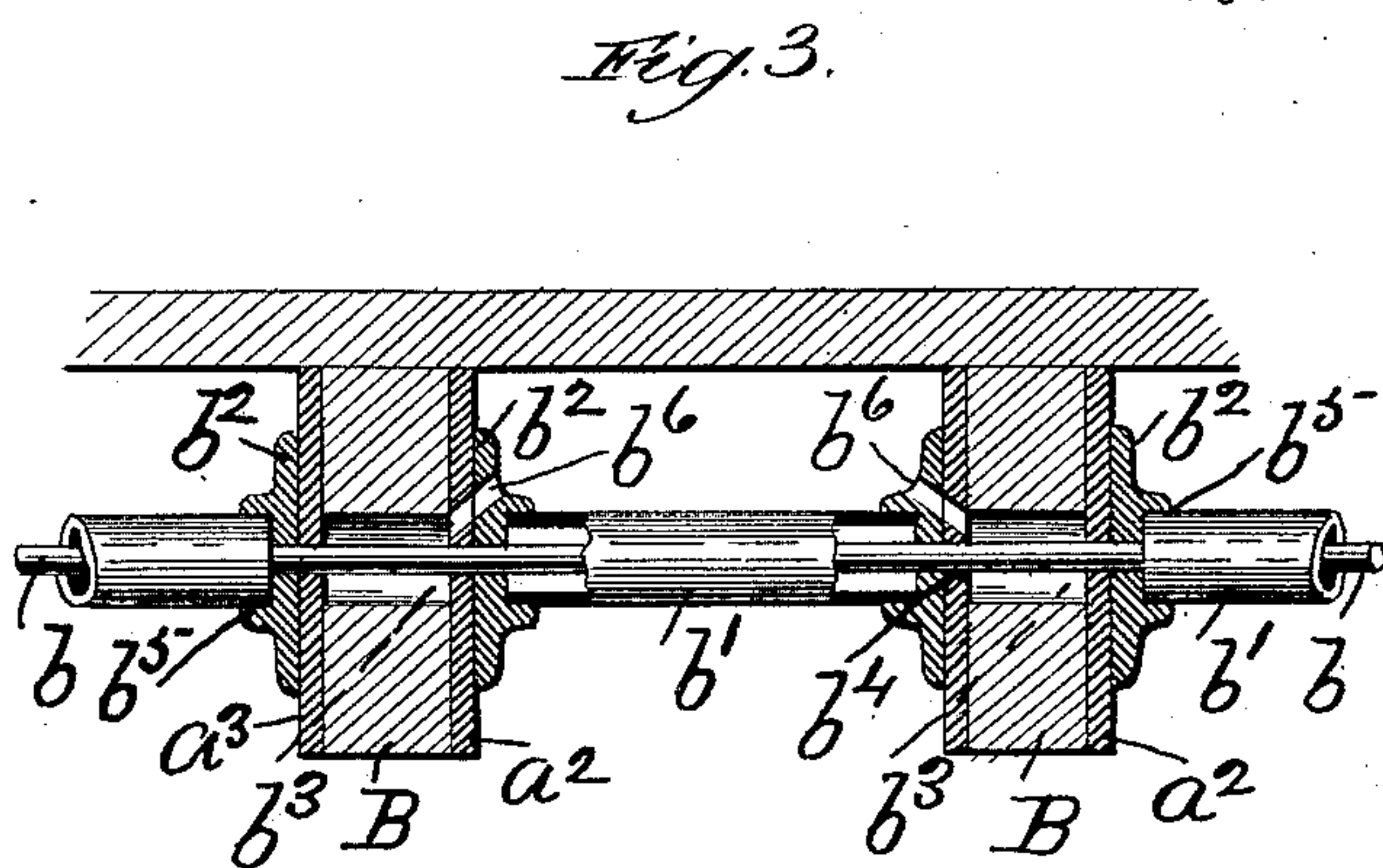
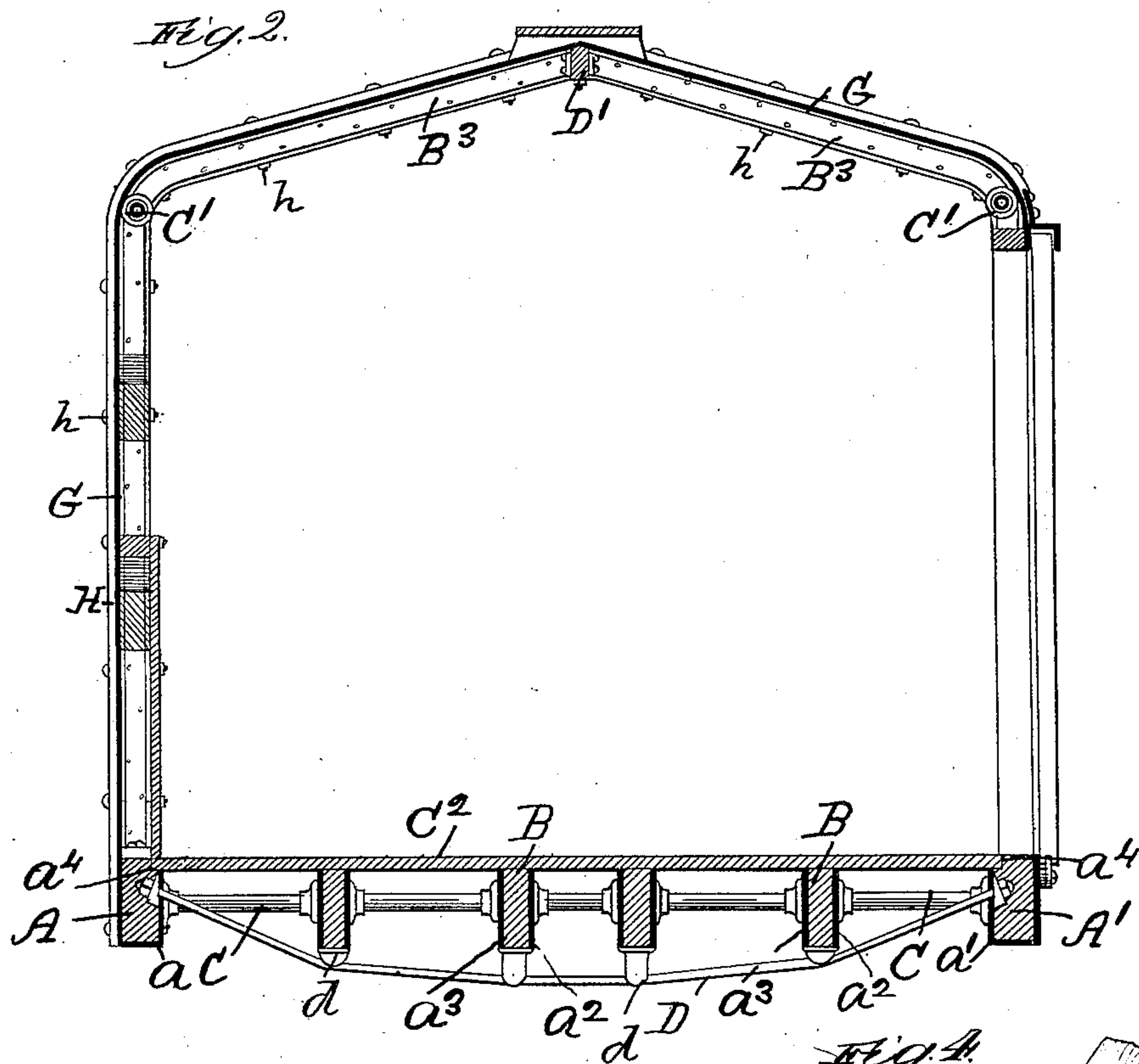
Inventor

Wm W. Green,
by L. B. Coupland Secy

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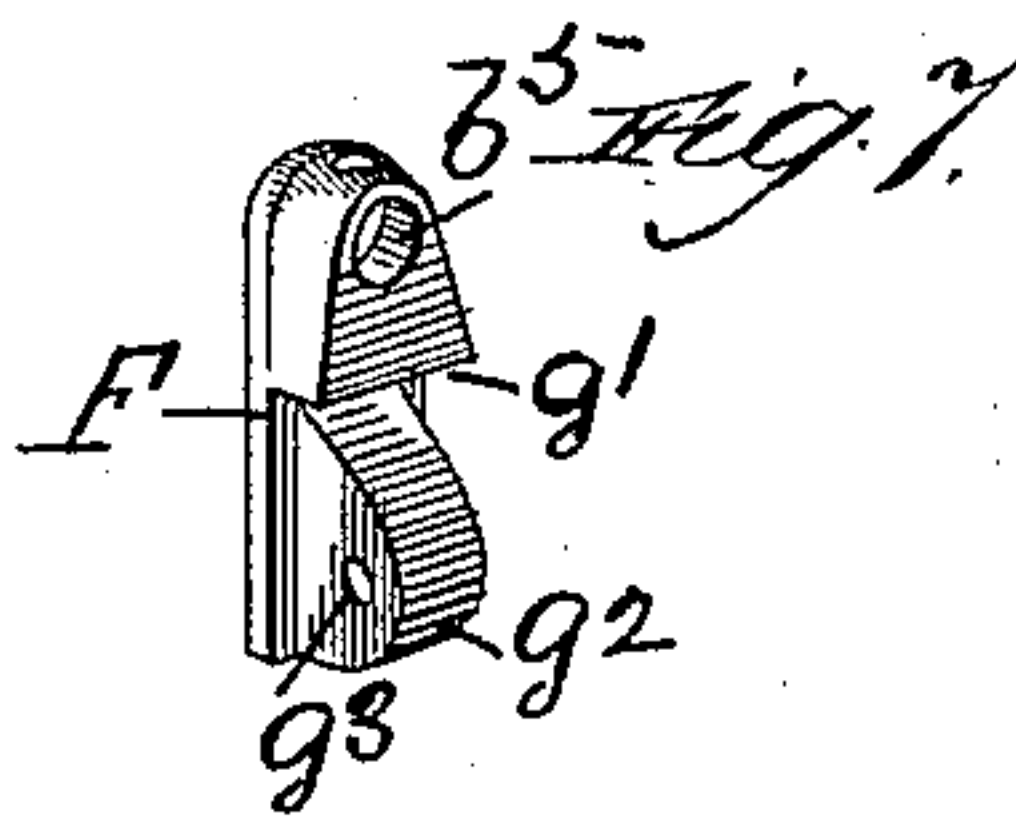
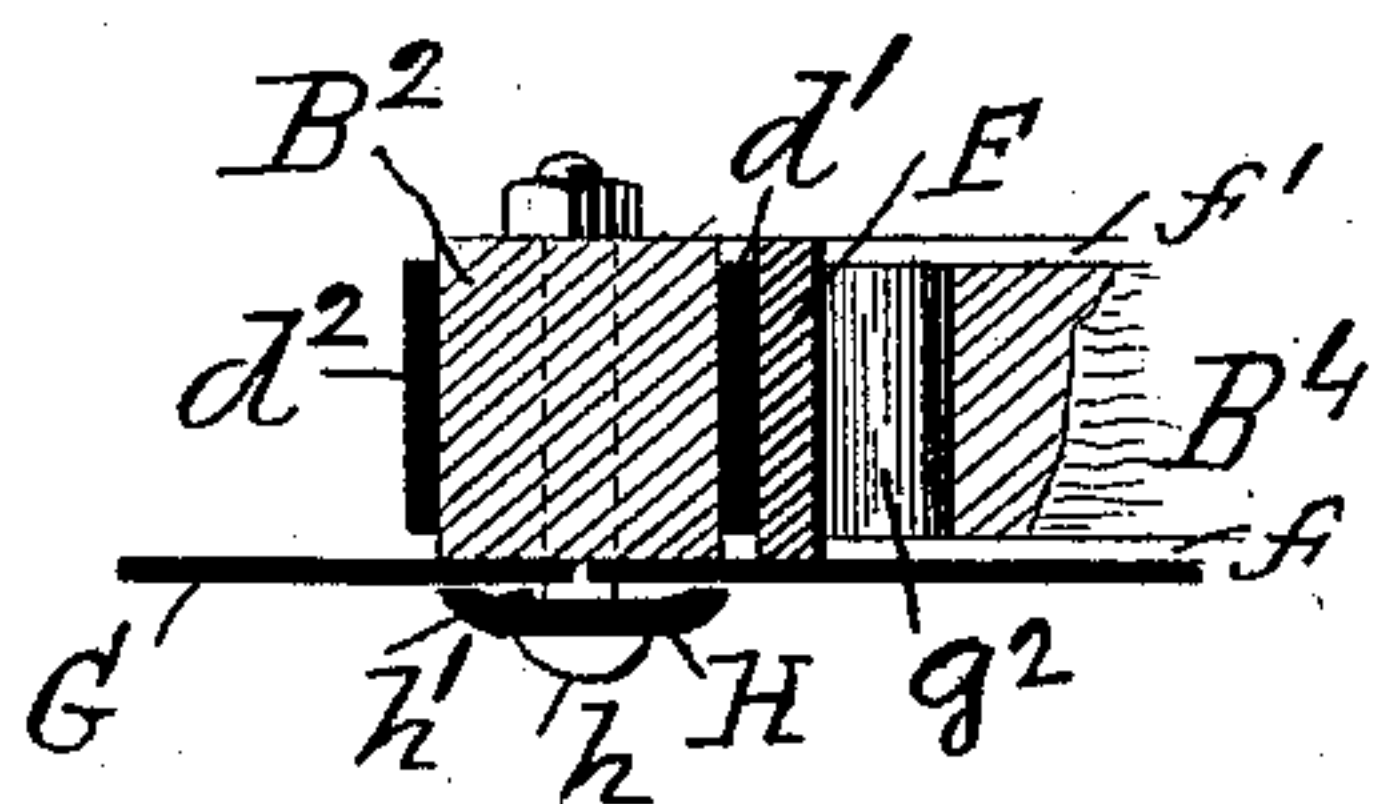
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3 Sheets—Sheet 3.

No. 432,487.

Patented July 15, 1890.



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UNITED STATES PATENT OFFICE.

WILLIAM W. GREEN, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE AMERICAN
FIRE PROOF STEEL CAR COMPANY, OF SAME PLACE.

FREIGHT-CAR.

SPECIFICATION forming part of Letters Patent No. 432,487, dated July 15, 1890.

Application filed April 8, 1890. Serial No. 347,031. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. GREEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Freight-Cars, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to an improved car structure which combines lightness, durability, and strength; and the same consists of certain novel features in the construction, arrangement, and manner of securing the different parts with reference to each other, as will be hereinafter set forth.

Figure 1 is a broken-away plan and part horizontal section of the bottom of the car, a portion of the flooring being shown in place; Fig. 2, a vertical central transverse section in plane 2, Fig. 1, being in the line of the doors; Figs. 3 and 4, detached parts of the frame-work, showing sectional and broken-away details of construction; Fig. 5, a broken-away side elevation, a part of the outside surface being removed, showing the frame-work of the structure; Fig. 6, a horizontal sectional detail in plane 6, Fig. 5; and Fig. 7 a detached detail.

Referring to the drawings, A A' represent the two outside sills; B, the different intermediate sills; B', the transverse end sills; B², the posts; B³, the rafters; B⁴, the diagonal braces; C, the transverse struts in the bottom of the structure; C', the longitudinal struts located at the junction of the roof and sides, and C² the floor or bottom of the car.

The different sills, posts, braces, and rafters are of wood and covered on two or more of their surfaces with metal plates, as will now be described in detail.

The two outside sills A A' are covered on their inner and under sides with the metal angle-plates *a* *a'*, and the intermediate sills are covered on their respective sides with the metal plates *a*² *a*³, as shown in Fig. 2. The upper inside corners of the outside sills are cut away, as at *a*⁴, so as to let in the flooring

flush with the top of said sills, as shown. The inside vertical face of the end sills is covered by the metal plate *a*⁵, (see Fig. 1,) and the inside corners of the structure strengthened by the angle-plates *a*⁶. The ends of the longitudinal intermediate sills are inserted in the respective end sills and are further secured in relation thereto by means of the angle-plates *a*⁷.

The transverse struts in the bottom of the structure consist of a rod *b*, (see Fig. 3,) the tube-sections *b'*, and the socket cap-flanges *b*². The rod *b* in the different struts extends clear through the different sills and ends in the respective outside sills. The holes through the wood part of the sills are of a much greater area than the diameter of the rod or rods and form the annular chamber or space *b*³, (see Fig. 3;) but the corresponding apertures *b*⁴ in the metal plating are just large enough for the easy insertion of the rods. The series of cap-flanges *b*² are rigidly secured to the sills and are provided with the annular socket or recess *b*⁵, in which are inserted the respective ends of the series of tube-sections *b'*, inclosing the rods *b* between the different sills. One of the cap-flanges on each of the sills is provided with the diagonal aperture *b*⁶, which communicates with the chamber *b*³, and through which said chamber may be filled with molten metal, forming a solid structure and preventing an endwise pressure from crushing the sills. The series of tubes are of a greater diameter than the strut-rods, so that these parts do not have contact, which feature, together with the molten-metal filling, prevents the rods from rattling.

The transverse truss-rods D run under the intermediate sills and are anchored in the respective outside sills, as shown in Fig. 2. These rods are let into the under side of the blocks *d*, secured to the under side of the intermediate sills. The wood posts and rafters of the frame-work are covered on the sides with the continuous metal plates *d'* *d*², the lower ends *d*³ of which are bent outwardly at right angles and bolted to the outside sills, and the upper ends *d*⁴ are bent in the same manner and rigidly secured to the ridge-bar D', as shown in Fig. 5. The longitudinal

struts C' , extending along through the junction of the side framing-posts and rafters, are of precisely the same construction as that of the transverse struts in the bottom structure, excepting the alternate socket cap-plates, which are of the form illustrated in Fig. 7, in order to adapt the same to provide a suitable anchorage for the diagonal braces B^1 . A detailed description of these companion struts will therefore be omitted.

The diagonal braces B^1 are covered on their sides with the metal plates $f f'$, as shown in Figs. 4, 5, and 6. It will be observed in Fig. 4 that the braces are of a less thickness than the posts, the difference being equal to the thickness of the metal plating, the posts being cut, as at f^2 , so as to let in the plates on the braces flush with the surfaces of the posts. The plates on the posts may or may not be equal to the width of the surface which they cover. The diagonal braces are arranged at intervals and extend from the outside sills to a point just below the roof-struts and are rigidly bolted to the framing-posts. The lower ends of the diagonal braces are cut square, so as to have a full bearing on the horizontal metal shoes E , which are recessed into the outside bottom sills and turned upwardly at right angles, as at g , to provide a bearing for the toe end of the braces. The shoes E are under alternate ends of the posts. The angle ends of the metal plates covering said posts rest on these shoes, the fastening-bolts passing through both down into the sills, as shown in Fig. 5. The upper squared ends of the diagonal braces bear against the under side of the shoulder g' , formed on the socket cap-plate F , and the wood part cut out to seat the lug g^2 , formed on the cap-plate F , the ends of the iron plates embracing said lug and being rigidly secured thereto by means of a bolt or rivet passing through the aperture g^3 in the lug or lugs and corresponding apertures in the metal plates on the braces.

The socket cap-plate F is of the elongated form shown, instead of circular, as are the other cap-plates used on the struts.

The outside covering of the car and roof consists of a number of metal plates G , bent to conform to the contour of the sides and roof, and extend from the lower edges of the outside sills to the top of the ridge-beam, where the ends of the plates from the respective sides of the car join, as shown in Fig. 2. The joining edges or joints of the plates G are covered by the continuous batten-strips H , secured in place by bolts h , passing clear through from the outside and held by nuts on the inside of the respective posts or raft-

ers. The batten-strips are concave on their inner sides, as shown at h' , Fig. 6, to permit of the insertion of some suitable packing to form a tight joint. The outside covering of the ends of the car will also be of metal put on in the same manner, and the inside lining may be of metal or wood, as circumstances may require. Metal lining makes the structure substantially fire-proof.

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

1. In a car structure, the combination, with the outside sills, of the metal angle-plates $a a'$, the intermediate sills, the metal plates $a^2 a^3$, the transverse struts connecting said sills, the transverse end sills, the metal plate a^5 , and the angle-plates $a^6 a^7$, substantially as described.

2. In a car structure, the combination, with a wood sill or sills having the sides covered with metal plates, of a strut-rod passing through said sills, the chamber in the wood part surrounding said rod, and an aperture communicating with said chamber, whereby molten metal may be run into said chamber, substantially as and for the purpose set forth.

3. In a car structure, the combination, with a wood sill or sills covered on the sides with metal plates, a continuous strut-rod passing through said sills and plates, a chamber formed in the wood part of the sills, and a mass of metal run into said chamber in a molten state, substantially as and for the purpose set forth.

4. In a car structure, the combination, with the outside and intermediate sills covered with metal plates, as described, of the continuous strut-rod, the socket cap-plates, the tube-sections having their ends inserted in said cap-plates, and the truss-rod passing under the intermediate sills and anchored in the outside sills, substantially as described.

5. In a car structure, the combination, with the outside sills, of the posts, the longitudinal struts, the diagonal wood braces, and the metal plates covering the sides of said braces, substantially as described.

6. In a car structure, the combination, with the outside sills, of a metal shoe rigidly secured to said sills and having one end upturned, the framing-posts, the cap-plates secured to said posts and provided with the shoulder g' and the lug g^2 , and the diagonal braces extending from said shoe to said cap-plates, substantially as described.

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Witnesses:

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