

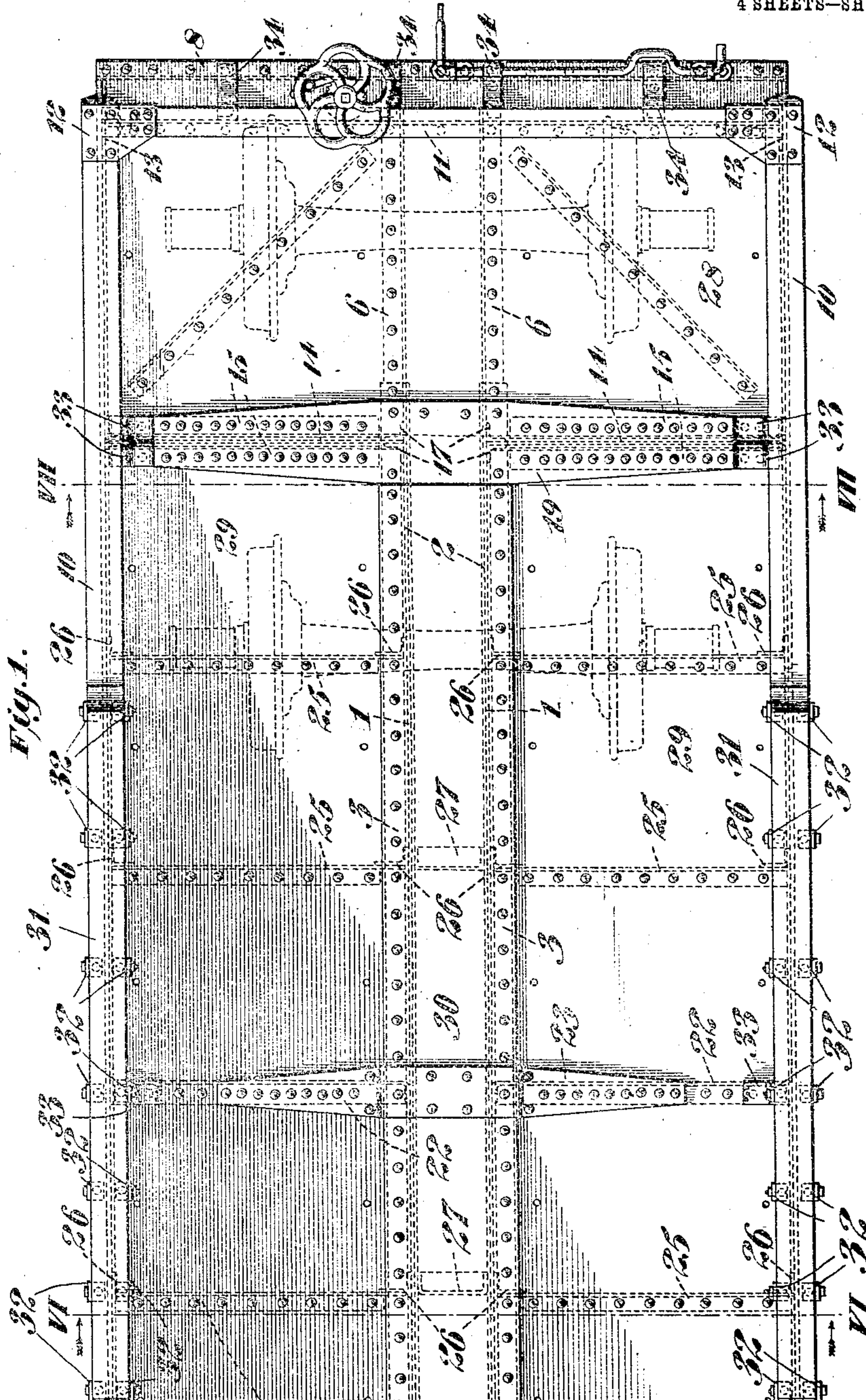
R. V. SAGE.  
FREIGHT CAR.

APPLICATION FILED AUG. 21, 1907.

936,043.

Patented Oct. 5, 1909.

4 SHEETS—SHEET 1.



WITNESSES,

INVENTOR.

Wm. J. Fitzmaurice, Jr.  
Cyrus E. Brown.

Ralph V. Sage  
by Geo. E. Thackray  
his ATTORNEY.







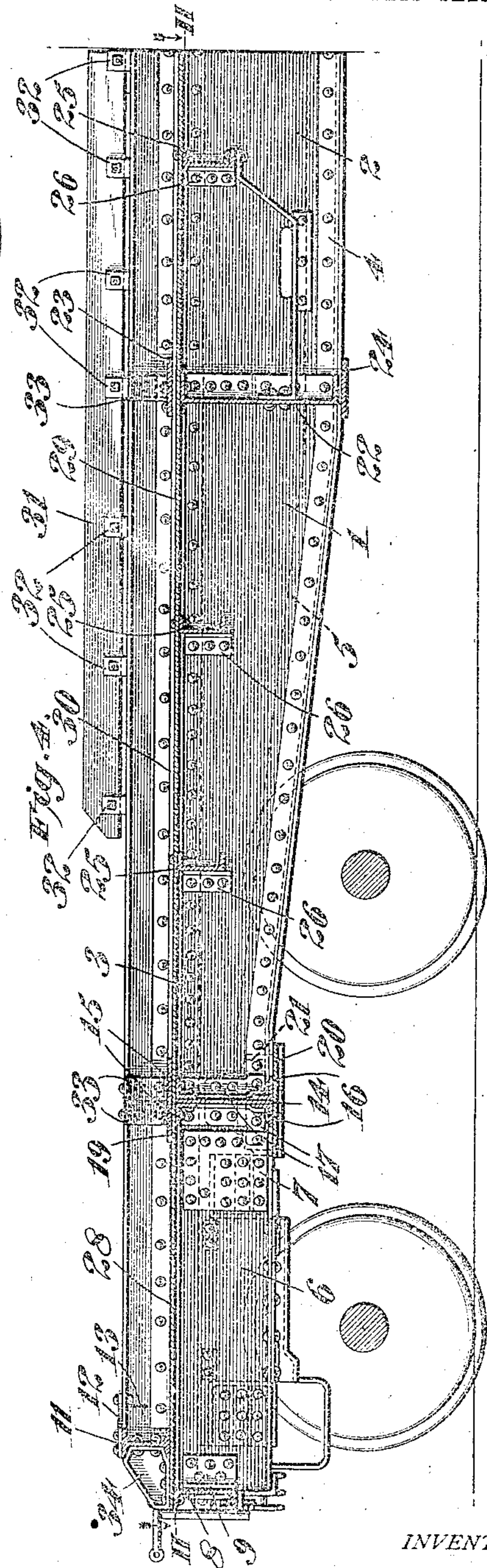
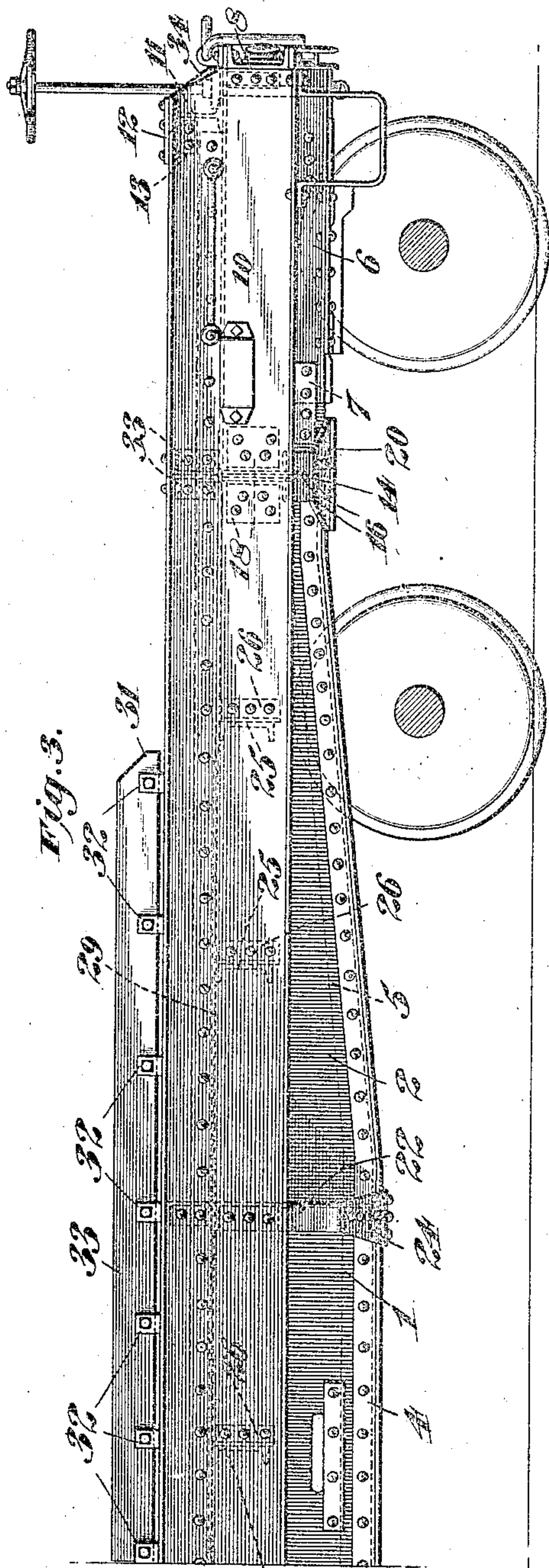
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R. V. SAGE.

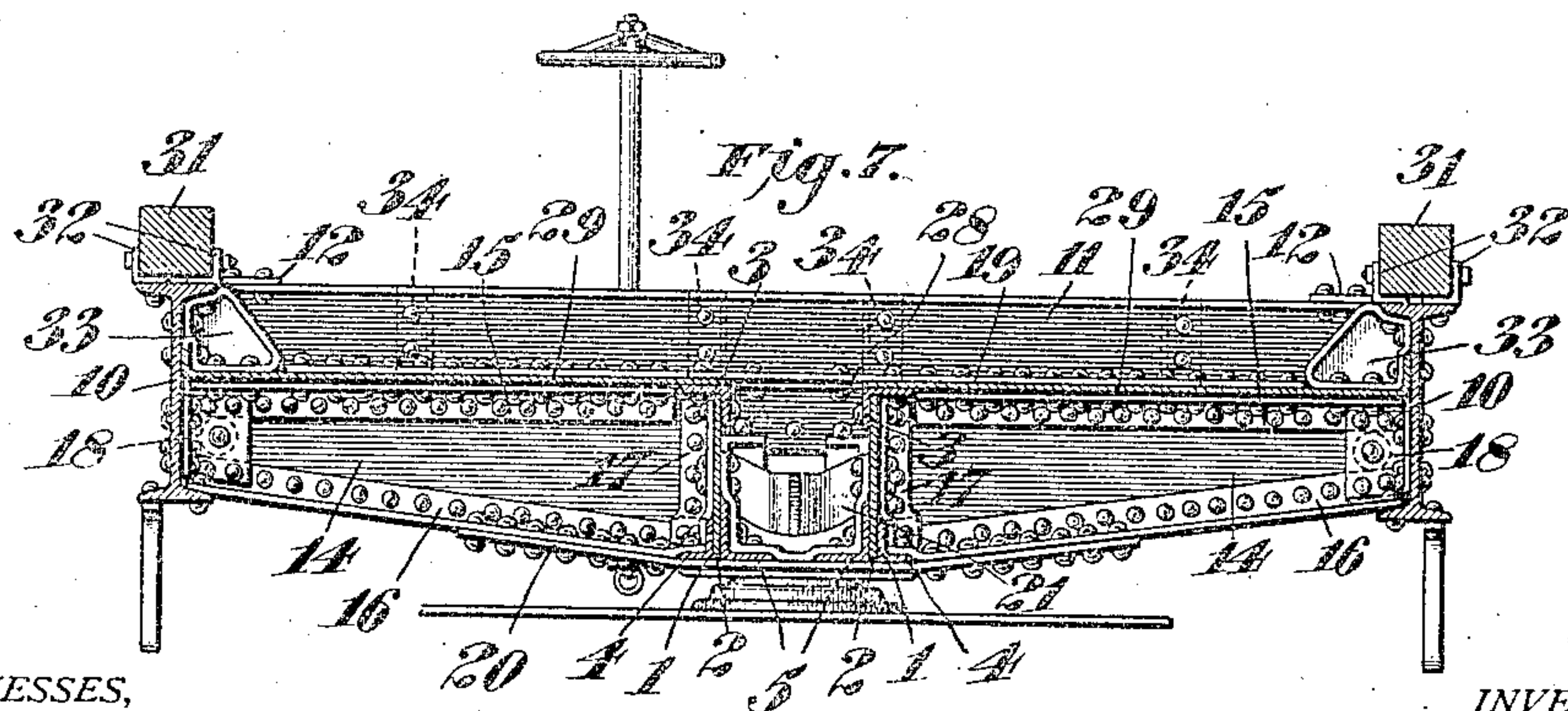
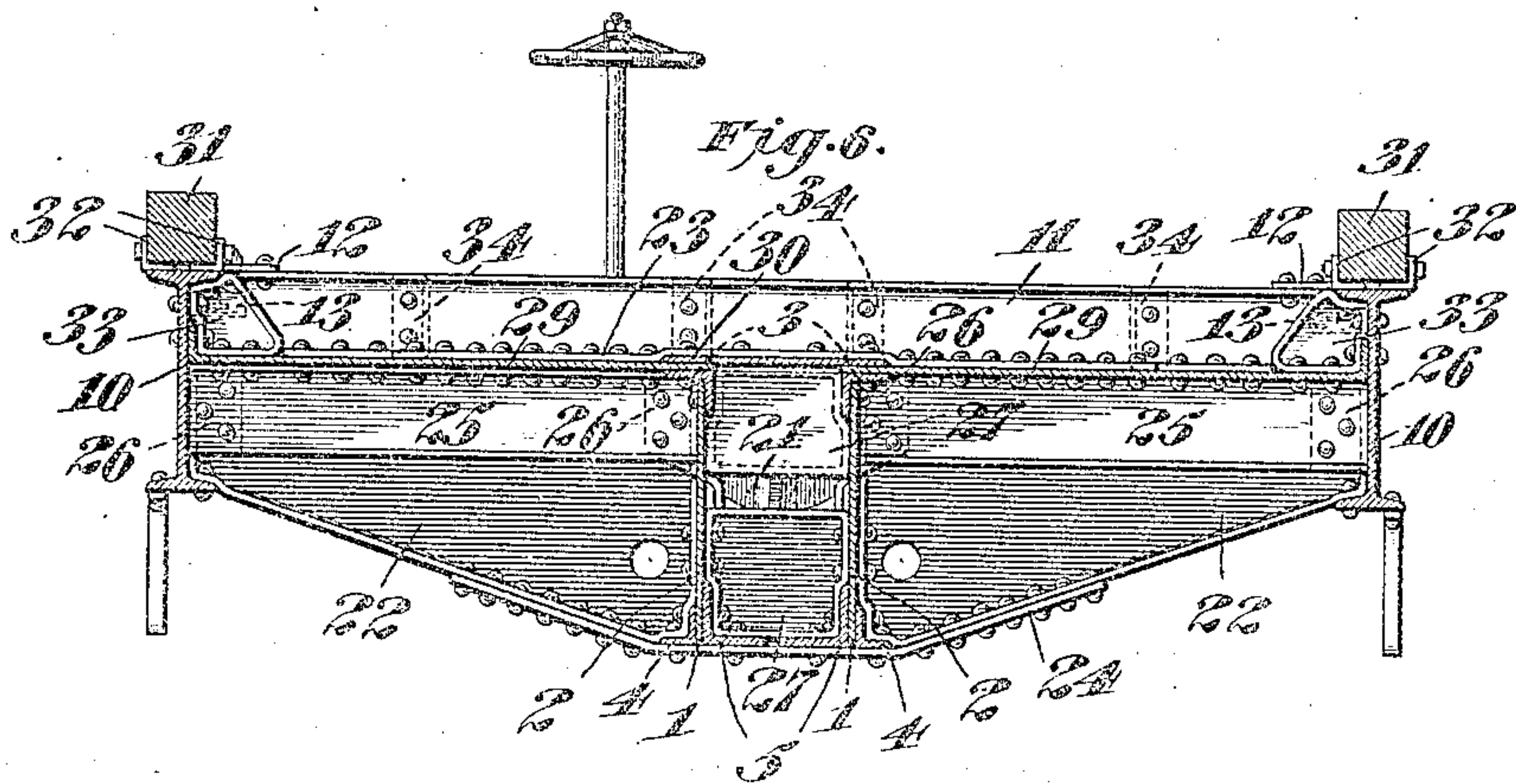
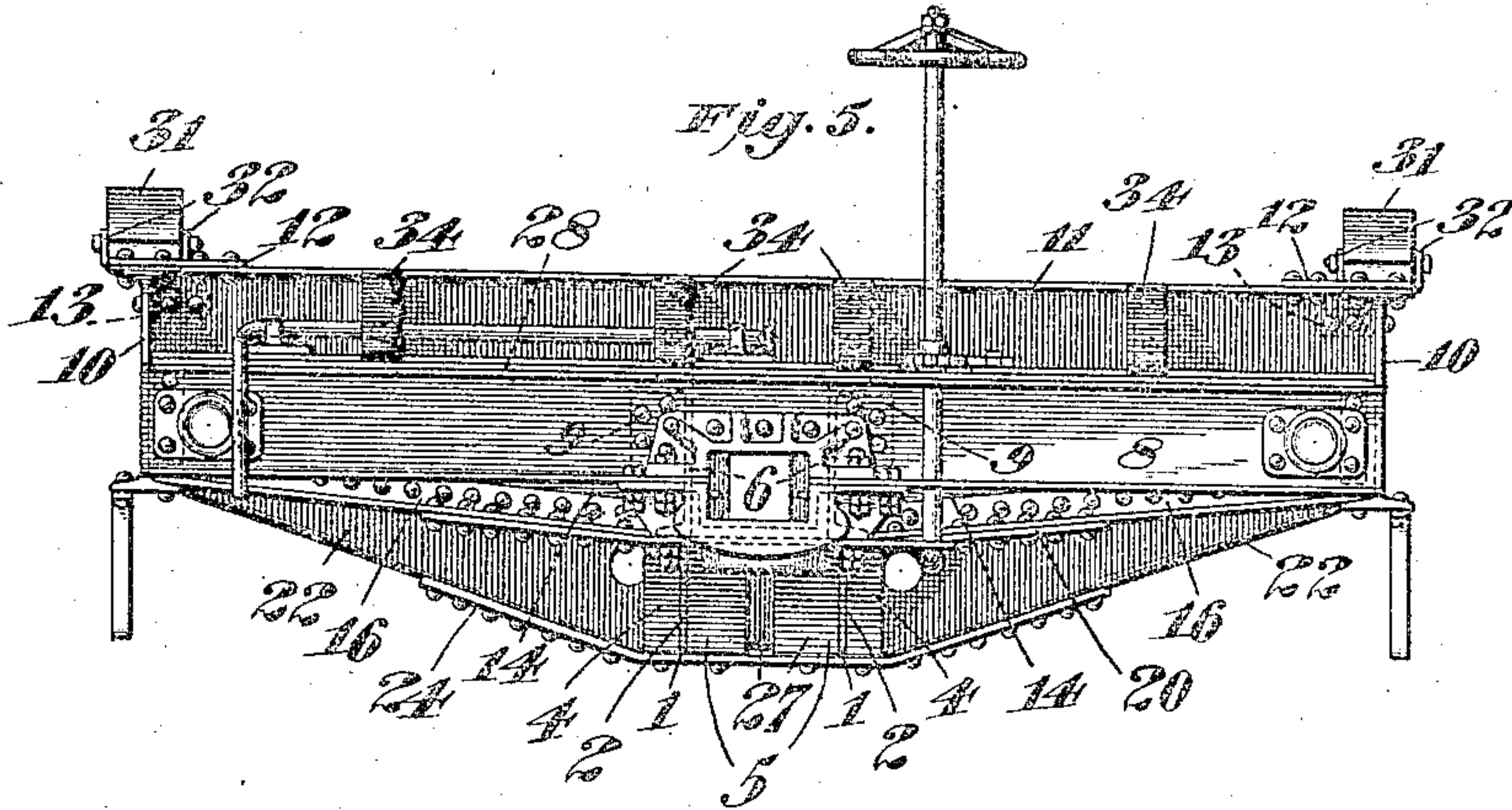
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# UNITED STATES PATENT OFFICE.

RALPH V. SAGE, OF WESTMONT, PENNSYLVANIA.

## FREIGHT-CAR.

936,043.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed August 21, 1907. Serial No. 389,424.

*To all whom it may concern:*

Be it known that I, RALPH V. SAGE, a citizen of the United States, residing in the borough of Westmont, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Freight-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in railway cars and more especially to those known as gondola cars with low sides, although certain of my improvements may also be applied to other forms of railway cars, as may be readily understood by one skilled in the art.

The object is to provide a car which shall be securely braced and enabled to resist to the best advantage the various strains to which it is subjected.

To this end, the invention consists in providing combined sides and side sills composed of rolled I-beams of sufficient size and strength to support the weight of the lading and at the same time of sufficient depth to serve as the side walls of the car. In a car used for the shipment of heavy material it is important that the low side walls should be of unusual strength, and by making these walls integral with the sills an especially compact and substantial construction is secured.

My invention further consists in those novel features hereinafter more particularly described and set forth in the claims, including the method of securing the end floor plates to the framework, so that the said plates, that is, those over the draft sills, may be easily removed and renewed when necessary, this portion of the car being especially subject to strains and shocks.

Referring now to the four sheets of drawings forming part of this specification and in which similar characters indicate corresponding parts throughout the figures:—Figure 1 is a top plan view of one-half of the car; Fig. 2 is a horizontal sectional plan of the other half of the car on the line II—II of Fig. 4 showing the side sill in section and with the floor removed to show the construction of the underframe of the car; Fig. 3 is a side elevation of that portion of the car shown in Fig. 1; Fig. 4 is a vertical

longitudinal sectional elevation on the line IV—IV of Fig. 2; Fig. 5 is an end elevation of the car; Fig. 6 is a transverse vertical sectional elevation on the line VI—VI of Fig. 1, and Fig. 7 is another vertical transverse sectional elevation at the car bolster on the line VII—VII of Fig. 1.

Referring now to the characters of reference on the drawings:—1 represents the center sills of the car, each comprising a web plate 2 of varying depth, the ends tapering toward the body bolster. Angles 3 are secured to the upper edges of the center sills, and angles 4 and 5 to the lower edges thereof, as clearly shown in Figs. 6 and 7. Draft sills 6 are attached to the ends of the center sills by means of plates 7, and to the end sills by angle brackets 9. The side sills 10 of the car are formed of I-beams having nearly one-half of their depth extending above the center sills, this construction being one of the principal features of my invention, and I-beams 11 extending across the end of the car are connected to the side sills by means of gusset plates 12 and angular brackets 13.

The body bolsters 14 are composed of web plates having angles 15 secured to their upper edges and riveted to the floor plates and to cover plates 19, shown more clearly in Fig. 1 of the drawings. The angle plates 16 on the lower edges of the bolsters have secured thereto a bottom plate 20, and angles 17 and 18 connect the body bolsters to the center and side sills of the car. A casting 21 for the reception of the king-bolt is located between the center sills on the line of the body bolsters and is provided with flanges by means of which it is secured to the sills and bolsters.

Between the bolsters are located the transoms 22 extending from the center sills to the side sills, and each comprising a web with flanges extending entirely around the same to strengthen it, and in order that the transoms may be secured to the floor of the car and to the side sills. To further strengthen the construction, cover plates 23 are secured to the upper flanges of the transoms and to the car floor and plates 24 are riveted to the lower flanges thereof. Between the transoms and the body bolsters are channels 25, which are secured to the sills by means of angles 26, and between the center sills in line with each transom and each channel are spacing members 27 which are riveted to the center sills.



The floor plates 28 at the ends of the car are riveted to the upper flanges of the end, draft, and center sills and to the angles on the body bolsters. These plates are flanged upwardly at the sides and are riveted to the side sills and stiffened by means of angles secured to their surface in a diagonal direction, as shown at the extreme right in Fig. 1. It will be observed that the plates 28 cover only that portion of the floor between the end sills and body bolsters, and that the central floor plates at the ends also terminate at the bolsters. The construction mentioned permits of the renewal of these plates and of the draft sills, when required, without unnecessary labor, this portion of the car being especially subject to shocks and strains. Floor plates 29 are secured to the center and side sills and extend between the body bolsters to which they are also attached. They are likewise secured to the upper flanges of the diaphragms and transoms. Central floor plates 30 are arranged above the side plates and riveted thereto, and to the upper flanges of the sills 1.

Above the side sills are wooden beams 31, secured by means of brackets 32, in order to prevent the sills from becoming battered when loading heavy material such as steel billets. Box shaped braces 33 made of a single piece of pressed metal having flanged edges are formed to fit under the inner flanges of the side sills, and are riveted to these sills and to the floor of the car and are located over the body bolsters and transoms as shown. Similar braces 34 are located at the ends of the car and bear against the outer side of the end I-beams 11.

Although I have shown and described my invention in considerable detail, I do not wish to limit myself to the exact and specific forms shown and described, but may use such substitutions, modifications or equivalents thereof, as are embraced within the scope of my invention as set forth in the claims.

What I claim as new and desire to secure by Letters Patent is:—

1. In a railway car, the combination of center sills, side sills composed of I-beams and extending above the center sills, thereby forming car walls, and body bolsters secured to the center and side sills.

2. In a railway car, the combination of center sills, side sills composed of I-beams and extending above the center sills, thereby forming car walls, and body bolsters and transoms secured to the center and side sills.

3. In a railway car, the combination of side sills composed of I-beams extending above the center sills, thereby forming car walls, bolsters connected thereto, center sills, floor plates secured to the center and side sills, and cover plates secured to the body bolsters.

4. In a railway car, the combination of side sills composed of I-beams extending above the center sills, thereby forming car walls, center sills, body bolsters connected thereto, floor plates connected to the center and side sills, and cover plates above the floor and secured to the latter and to the body bolsters.

5. In a railway car, the combination of side sills composed of I-beams extending above the center sills, thereby forming car walls, body bolsters and transoms connected thereto, center sills, floor plates connected to the center and side sills, braces between the center sills, and cover plates above the floor and secured to the latter and to the body bolsters.

6. In a railway car, the combination with side sills composed of I-beams extending above the center sills, thereby forming car walls, center sills and body bolsters, of floor plates connected to the center and side sills, braces connecting the floor plates with the side sills, and stiffening cover plates above the floor and secured to the body bolsters.

7. In a railway car, the combination of side sills composed of I-beams extending above the center sills, thereby forming side walls, and body bolsters, transoms and diaphragms secured to the center and side sills.

8. In a railway car, the combination of center sills, side sills composed of I-beams and extending above the center sills, thereby forming car walls, floor plates secured to the center sills and side sills, and bolsters and transoms secured to the center and side sills.

9. In a railway car, the combination of center sills, side sills composed of I-beams and extending above the center sills, thereby forming car walls, bolsters, floor plates extending from the center sills to the side sills, and cover plates secured to the body bolsters.

10. In a railway car, the combination of center sills, side sills composed of I-beams and extending above the center sills, thereby forming car walls, body bolsters, floor plates between the center sills and the side sills, and floor plates connecting the center sills and secured to the plates last mentioned.

11. In a railway car, the combination of center sills, side sills composed of I-beams and extending above the center sills, thereby forming side walls, body bolsters, floor plates between the center sills and the side sills, floor plates connecting the center sills and secured to the plates last mentioned, and cover plates secured to the body bolsters.

12. In a railway car, the combination of center sills, side sills composed of I-beams and extending above the center sills, thereby forming car walls, body bolsters and transoms, floor plates connecting the center sills with the side sills, and floor plates connecting the center sills and secured to the plates last mentioned.



13. In a railway car, the combination of center sills, side sills composed of I-beams and extending above the center sills, thereby forming car walls, body bolsters and transoms, floor plates connecting the center sills with the side sills, floor plates connecting the center sills and secured to the plates last mentioned, and braces between the center sills.

14. In a railway car, the combination of center sills, side sills composed of I-beams and extending above the center sills, thereby forming car walls, bolsters and transoms, floor plates secured to the side sills, and open box-shaped braces secured to the floor plates and to the side sills.

15. In a railway car, the combination of center sills, side sills composed of I-beams extending above the center sills, thereby forming car walls, end sills, bolsters secured to the side sills, end floor plates extending between the end sills and bolsters, and floor plates between the bolsters.

16. In a railway car, the combination of center sills, side sills composed of I-beams extending above the center sills, thereby forming car walls, bolsters and transoms between the side sills, end sills, end floor plates between the end sills and bolsters, floor plates extending between the bolsters, and

cover plates for stiffening the upper edges of the bolsters.

17. In a railway car, the combination of center sills, side sills composed of I-beams extending above the center sills, thereby forming car walls, body bolsters and transoms between the side sills, end sills, end floor plates extending between the end sills and bolsters, floor plates extending from the center sills to the side sills and between the bolsters, and central floor plates between the center sills and overlapping the floor plates on either side of said center sills.

18. In a railway car, the combination of center sills, side sills composed of I-beams extending above the center sills, thereby forming car walls, bolsters and transoms, end sills, end floor plates extending between the end sills and the bolsters, floor plates extending between the bolsters on either side of the center sills, central floor plates between the center sills and overlapping the edges of the plates on either side of said center sills, and braces between the center sills.

In testimony whereof, I hereto affix my signature in the presence of two witnesses.

RALPH V. SAGE.

Witnesses:

WM. J. FITZMAURICE, Jr.,  
CYRUS E. BROWN.