No. 771,407 PATENTED OCT. 4, 1904.

H. C. WILLIAMSON & H. PRIES.

UNDERFRAMING FOR CARS.

APPLICATION FILED APR. 20, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

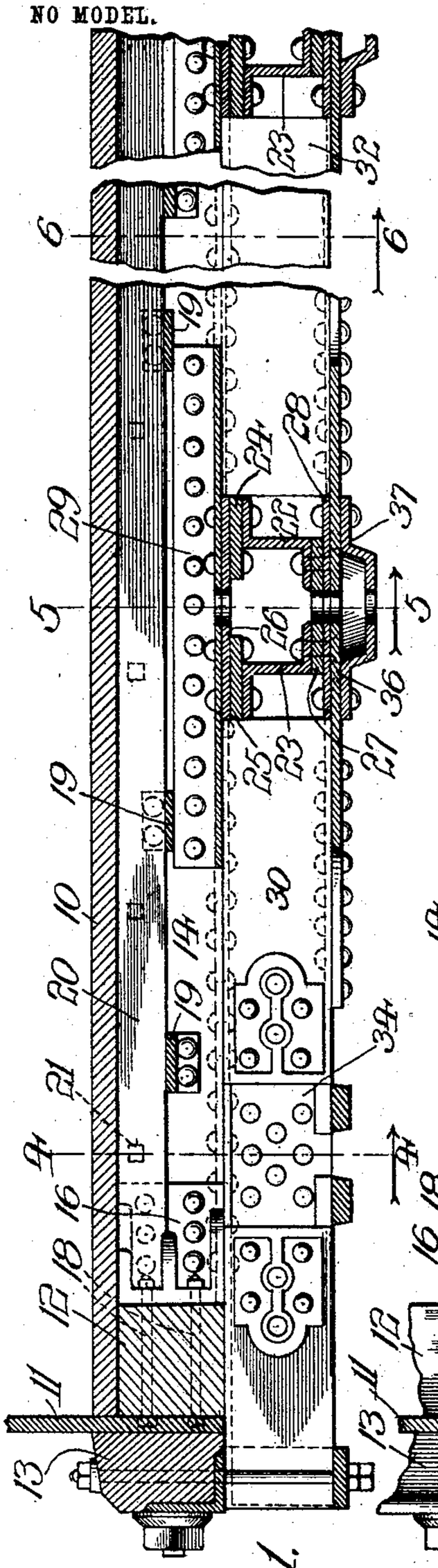


Fig. 1.

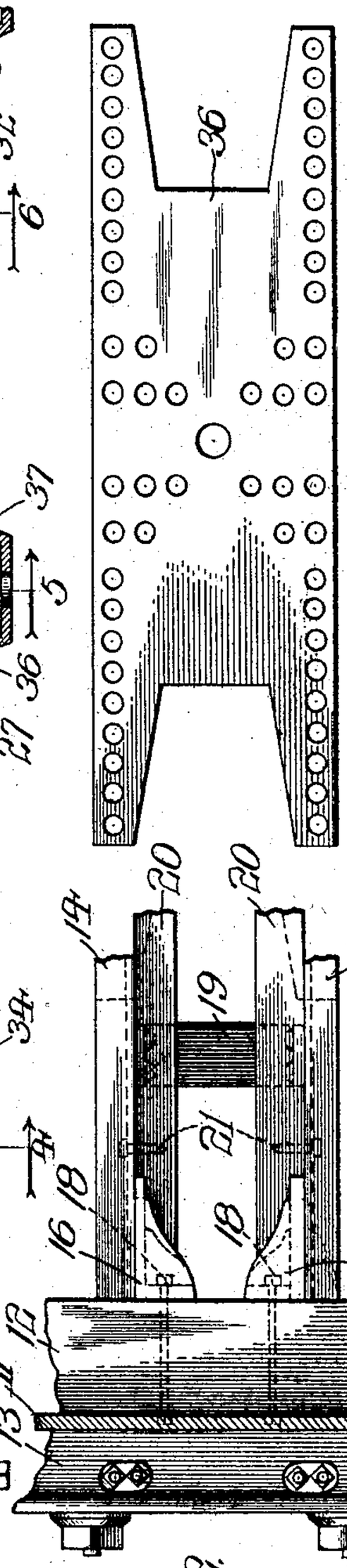


Fig. 2.

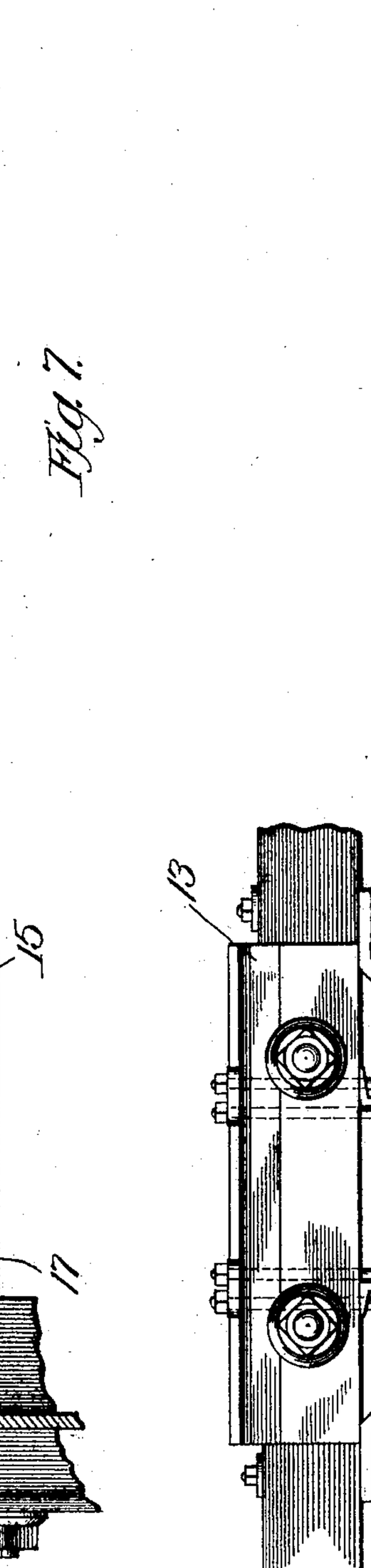


Fig. 7.

Fig. 3.

Witnesses:
Chas. B. Gilkon
E. M. Hatcher

Inventors:
Henry C. Williamson,
Herman Pries.
By Louis R. Lee or Atty.

No. 771,407 PATENTED OCT. 4, 1904.

H. C. WILLIAMSON & H. PRIES.

UNDERFRAMING FOR CARS.

APPLICATION FILED APR. 20, 1904.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 5.

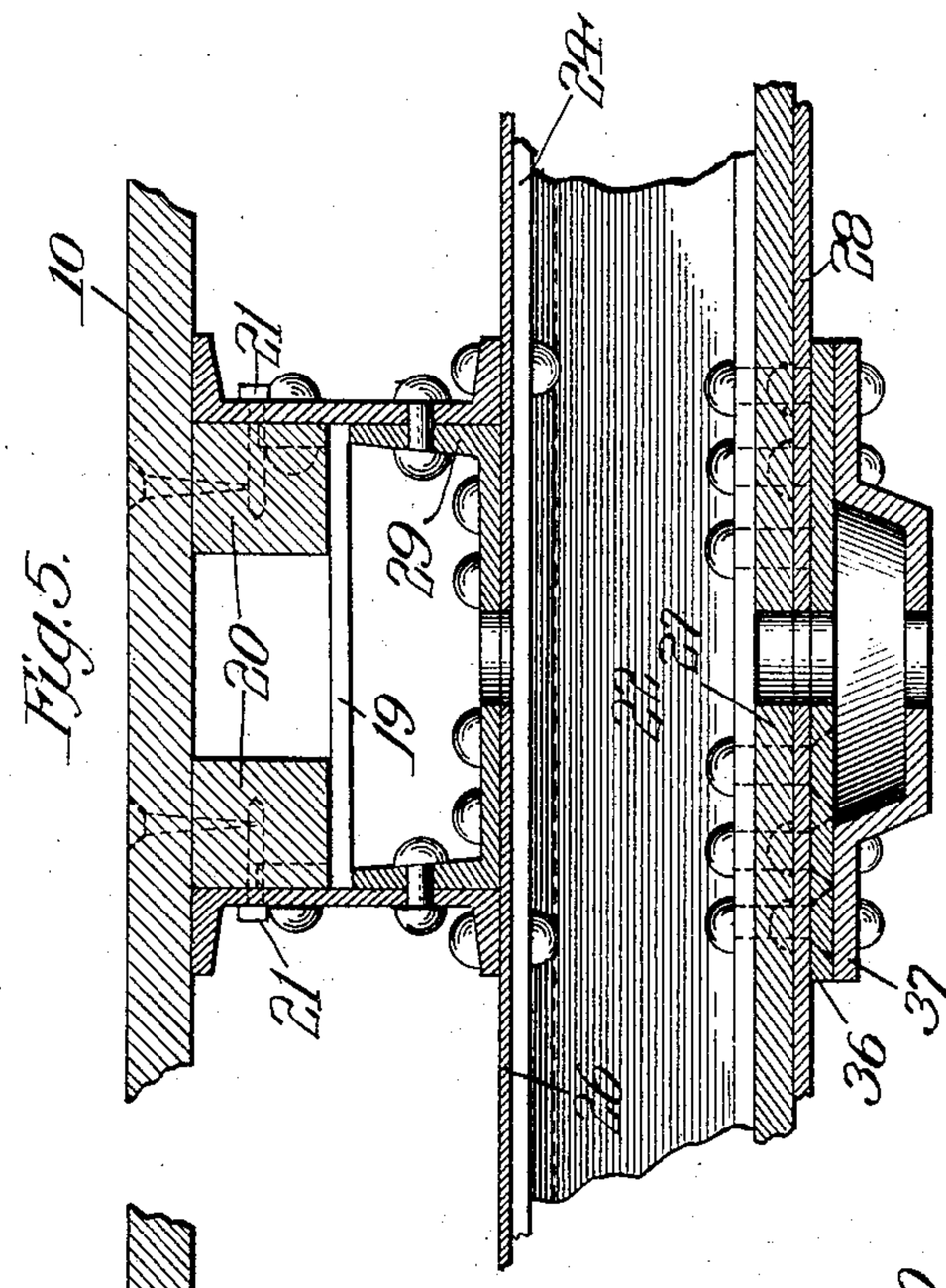


Fig. 8.

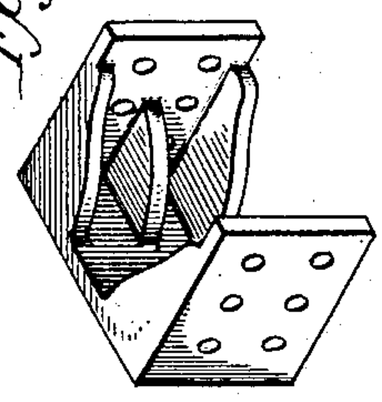


Fig. 4.

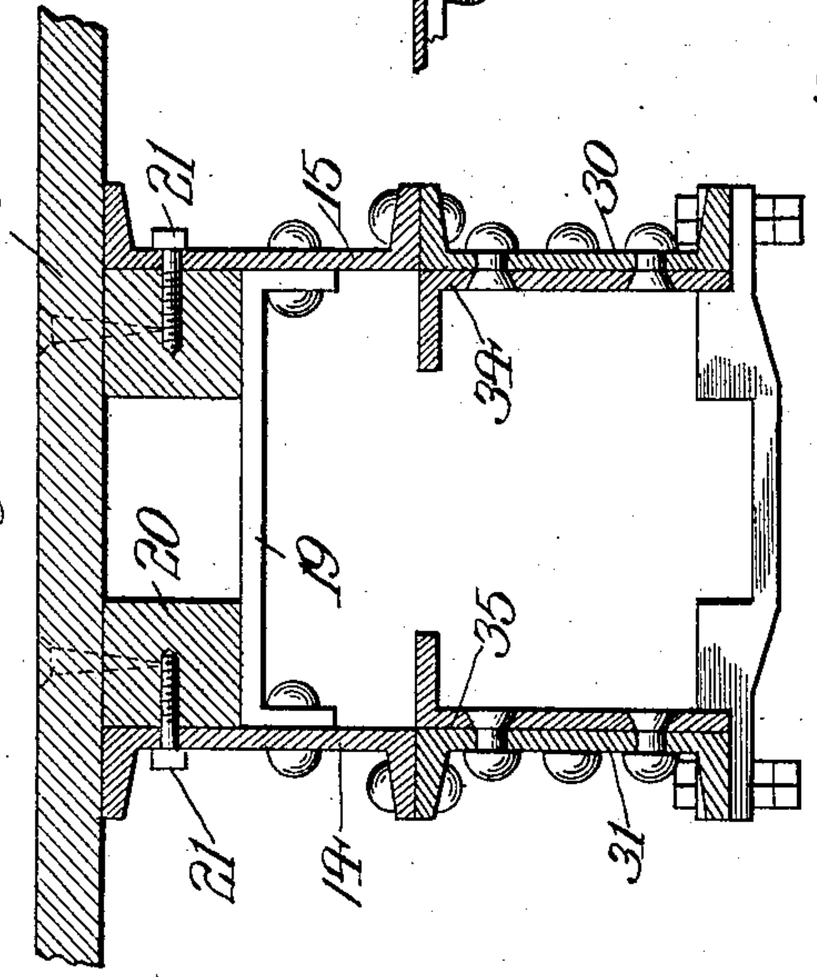
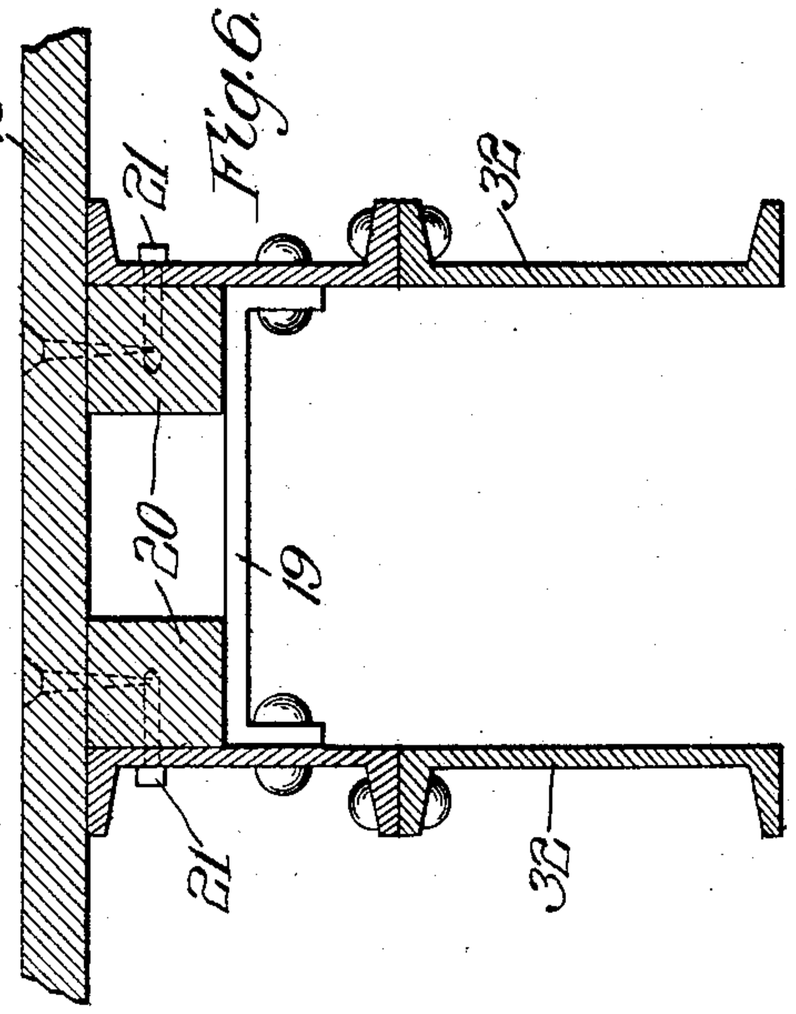


Fig. 6.



Witnesses:
Chas. B. Gilkon
E. M. Klatcher

Inventors:
Henry C. Williamson,
Herman Pries,
By Chas. B. Gilkon Atty.

No. 771,407. Patented October 4, 1904.

UNITED STATES PATENT OFFICE.

HENRY C. WILLIAMSON AND HERMAN PRIES, OF MICHIGAN CITY, INDIANA.

UNDERFRAMING FOR CARS.

SPECIFICATION forming part of Letters Patent No. 771,407, dated October 4, 1904.

Application filed April 20, 1904. Serial No. 203,980. (No model.)

To all whom it may concern:

Be it known that we, HENRY C. WILLIAMSON and HERMAN PRIES, citizens of the United States, and residents of Michigan City, county of Laporte, and State of Indiana, have invented certain new and useful Improvements in Underframing for Cars, of which the following is a specification and which are illustrated in the accompanying drawings, forming a part thereof.

This invention relates to the center and draft sills and body-bolsters of railway-cars and to their relative arrangement; and it consists in the structure hereinafter described and which is illustrated in the accompanying drawings, in which—

Figure 1 is a detail longitudinal central section of a railway-car. Fig. 2 is a detail plan section of the same, the floor being removed. Fig. 3 is a detail end elevation of the same. Fig. 4 is a detail cross-section on the line 4 4 of Fig 1. Fig. 5 is a detail cross-section on the line 5 5 of Fig. 1. Fig. 6 is a transverse section on the line 6 6 of Fig. 1. Fig. 7 is a plan view of one of the parts, and Fig. 8 is a perspective of a modified form of one of the parts.

There is shown in the drawings a portion of the floor 10 of a freight-car and of the end sheathing 11 thereof. The end sill of the car is shown at 12, and the usual dead-wood at 13.

The underframing forming the subject of this invention comprises two pairs of sills arranged along the median line of the car, each pair of sills having its own duty to perform and the two pairs being so connected together that each supplements the other. One of these pairs of sills comprises the two members 14 15, shown as taking the form of commercial rolled channel-plates and abutting against the inner face of the end sills 12, only one of which is shown in the drawings. These members constitute the center sills of the car, their duty being to carry the individual car and its load. The sills 14 15 and the end sill 12 are attached together by means of brackets 16 17, riveted to the center sills and bolted to the end sill, as shown at 18. The sills 14 15 are tied together by a plurality of straps 19, having their ends bent at right angles to their body portion, so as to seat against the inner faces of the sills and receive the attaching-rivets. These cross-ties are as numerous as may be deemed advisable. They serve the further purpose of supports for the nailing-blocks 20 20, to which the flooring 10 is spiked, as shown in Fig. 5. These blocks, while resting upon the straps 19, are preferably secured to the webs of the sills 14 15, as by the lag-screws 21 21. The sills 14 15 rest upon the body-bolsters. Each of these bolsters comprises the side plates 22 23, shown as in the form of commercial rolled **Z**-bars, the upper longitudinal plates 24 25, one resting upon the top flange of each of the side plates 22 23, an upper tie-plate 26, a lower tie-plate 27, upon which the lower flanges of the side plates 22 23 rest, and a supplemental bottom plate 28.

The center sills are reinforced directly over the bolster by means of a channel-plate 29 of such width that its side flanges are seated against the inner faces of the sills and securely riveted thereto. The web of this reinforcing-plate 29 rests upon the top plate 26 of the bolster, and the bolsters and center sills are secured together by means of rivets set through the reinforcing-plate, the lower webs of the sills and the upper plates of the bolsters, including the top flanges and its side plates 22 23.

As shown in Figs. 1 and 5, the ends of those tie-plates 19 which are located above the reinforcing-plate 29 are turned upwardly, the ends of the remaining tie-plates, as shown in Figs. 1 and 4, being preferably turned downwardly, so as to avoid the necessity of letting them into the nailing-blocks 20.

The second pair of sills are formed, as shown, of commercial rolled channel-plates 30 and 31, which are located immediately below the end and center sills of the car and extend from the front face of the dead-wood block 13 to the body-bolster and a similar pair of plates 32 33, located between and abutting against the body-bolsters of the car. The sills 30 and 31 carry the cheek-plates 34 35 of the draft-rigging of the car, these cheek-plates being of any desired form of construction and being secured to the sills, which are properly designated the "draft-sills."

The draft-sills 30, 31, 32, and 33 are secured

to the center sills 14 15 by means of rivets set through their adjacent flanges, and the sill-sections 30 and 32 and the sections 31 and 33 are secured together, respectively, by means of a bottom tie-plate 36 passing under and riveted to the body-bolster and being riveted to the sill-sections. The center plate 37, of ordinary construction, is secured directly to the draft-sills by means of rivets set through its flange and through the reinforcing-plate 36, constituting a part of these sills.

The construction shown and described provides a pair of center sills in line with the end sills, their upper faces being flush with the under side of the floor of the car and being located entirely above the body-bolster, so that they are in no wise weakened for its accommodation. It provides a set of draft-sills located directly in the line of draft and receiving the body-bolsters between their end and intermediate sections. Each of these sets of sills has its own immediate duty to perform, the one giving strength to and supporting the load of the individual car and the other receiving and transmitting the train-draft. Each, however, supplements and strengthens the other, the draft or sub sills assisting the center or upper sills in carrying the load of the individual car, and the latter serving in part as means for transmitting the train-draft from section to section of the draft-sills.

The construction provides great strength relative to the weight of material employed, yet without raising the body of the car. The structure has the further advantage of cheapness of manufacture, as it is made almost entirely of commercial rolled material, and this requires but little fashioning to adapt it for use.

If preferred, the brackets 16 and 17, by means of which the center and end sills are secured together, may comprise a single casting, as shown in Fig. 8, generally U-shaped in contour, so that its outer faces are seated one against each of the center sills. This form of construction while less convenient for assembling adds somewhat to the stiffness of the frame of the car.

While the construction shown and described herein comprises sectional sills with bolsters interposed between the ends of the sill-sections, such construction is not now broadly claimed, being made the subject-matter of a copending application, Serial No. 215,346.

We claim as our invention—

1. In an underframing for cars, in combination, an end sill; center sills in line therewith and secured thereto; tie-plates attached to adjacent faces of the center sills; and nailing-blocks resting upon the tie-plates and having their upper faces flush with the upper faces of the center sills.

2. In an underframing for cars, in combination, a pair of center sills; a body-bolster secured to the lower faces of these sills; and a reinforcing channel-plate having its flanges secured to adjacent faces of the center sills and its web resting upon and secured to the body-bolster.

3. In an underframing for cars, in combination, an end sill; a pair of center sills in line therewith and secured thereto; body-bolsters below and secured to the center sills; sectional draft-sills below and secured to the center sills, one section thereof extending from the end of the car-framing to the bolster and another section extending from bolster to bolster; and a tie-plate below the bolster and secured to adjacent sections of the draft-sills.

4. In an underframing for cars, in combination, an end sill; a pair of center sills in line therewith and secured thereto; body-bolsters below and secured to the center sills; sectional draft-sills below and secured to the center sills, one section thereof extending from the end of the car-framing to the bolster and another section extending from bolster to bolster; and a tie-plate below the bolster and secured to adjacent sections of the draft-sills and to the bolster.

5. In an underframing for cars, in combination, an end sill; a pair of center sills in line therewith and secured thereto; body-bolsters below and secured to the center sills; sectional draft-sills below and secured to the center sills, one section thereof extending from the end of the car-framing to the bolster and another section extending from bolster to bolster; a tie-plate below the bolster and secured to adjacent sections of the draft-sills; and a center plate secured to the tie-plate.

6. In an underframing for cars, in combination, an end sill; a pair of center sills in line therewith and secured thereto; body-bolsters below and secured to the center sills; sectional draft-sills below and secured to the center sills, one section thereof extending from the end of the car-framing to the bolster and another section extending from bolster to bolster; a tie-plate below the bolster and secured to adjacent sections of the draft-sills and to the bolster; and a center plate secured to the tie-plate.

7. In an underframing for cars, in combination, a pair of center sills each formed of a channel-plate extending downwardly from the floor of the car and having its flanges directed outwardly; a pair of draft-sills located below the center sills and formed of channel-plates having their flanges directed outwardly, contiguous flanges of the center and draft sills being riveted together; and a body-bolster passing through the draft-sills and secured to the center sills.

HENRY C. WILLIAMSON.
HERMAN PRIES.

Witnesses:
GEO. P. ROGERS,
JOHN W. CARLSON.