Dec. 5, 1933. H. P. FIELD 1,937,556

MINE CAR

Filed Dec. 11, 1931 3 Sheets-Sheet 1

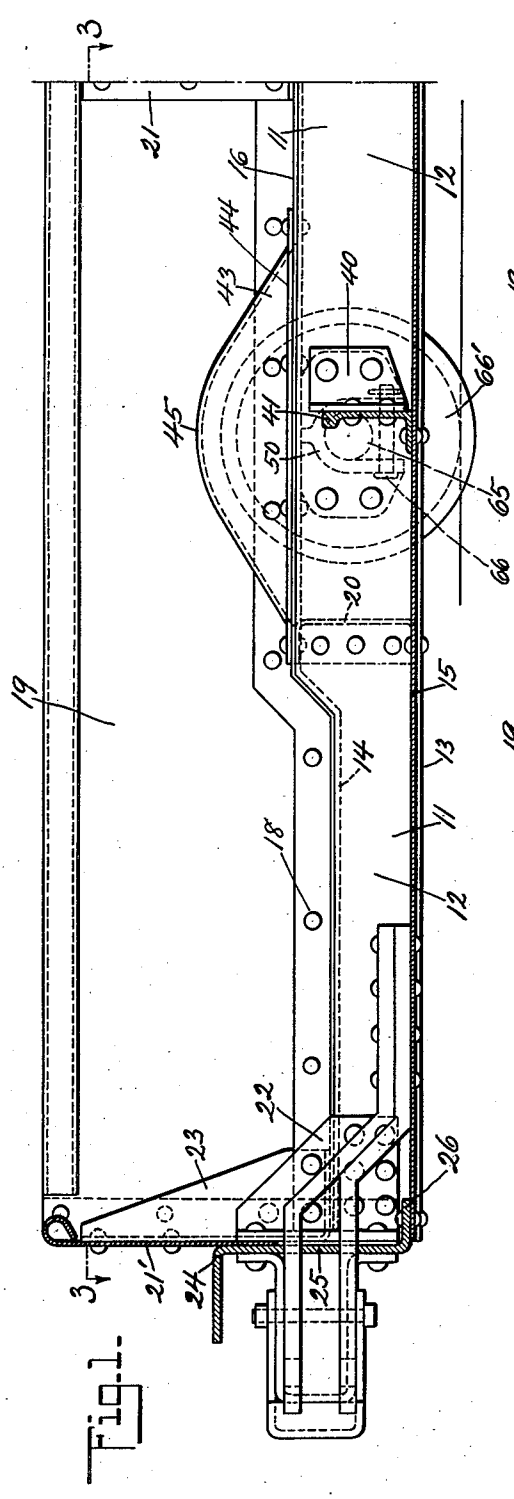


Fig. 1.

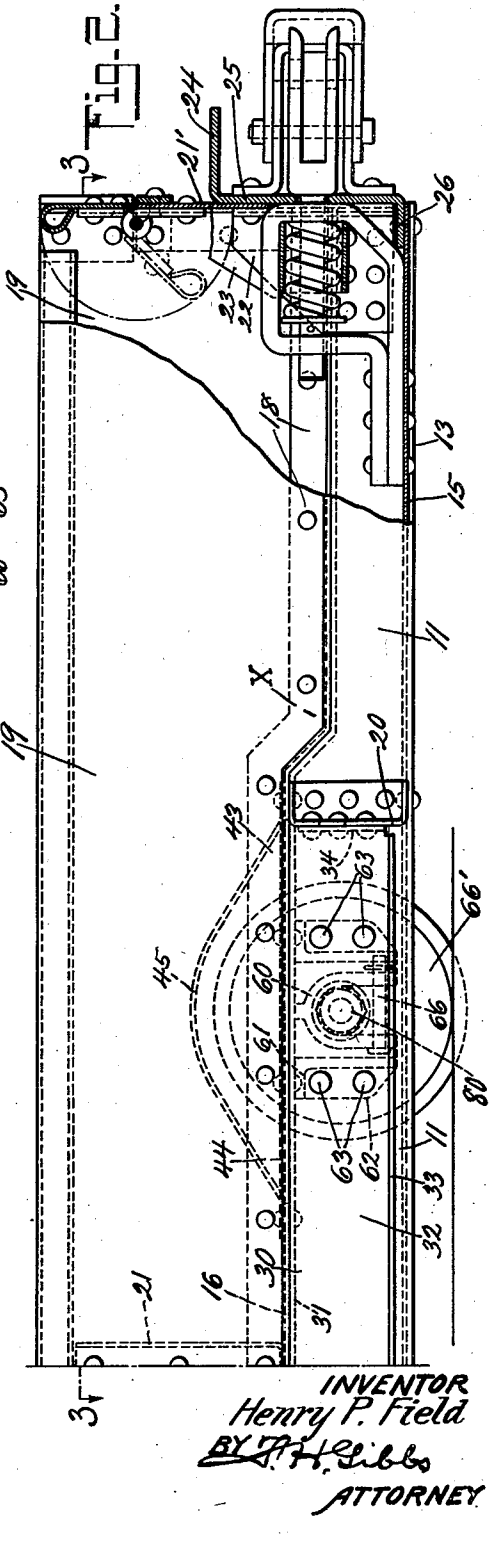


Fig. 2.

INVENTOR
Henry P. Field
BY T. H. Gibbs
ATTORNEY

Dec. 5, 1933. H. P. FIELD 1,937,556

MINE CAR

Filed Dec. 11, 1931 3 Sheets-Sheet 2

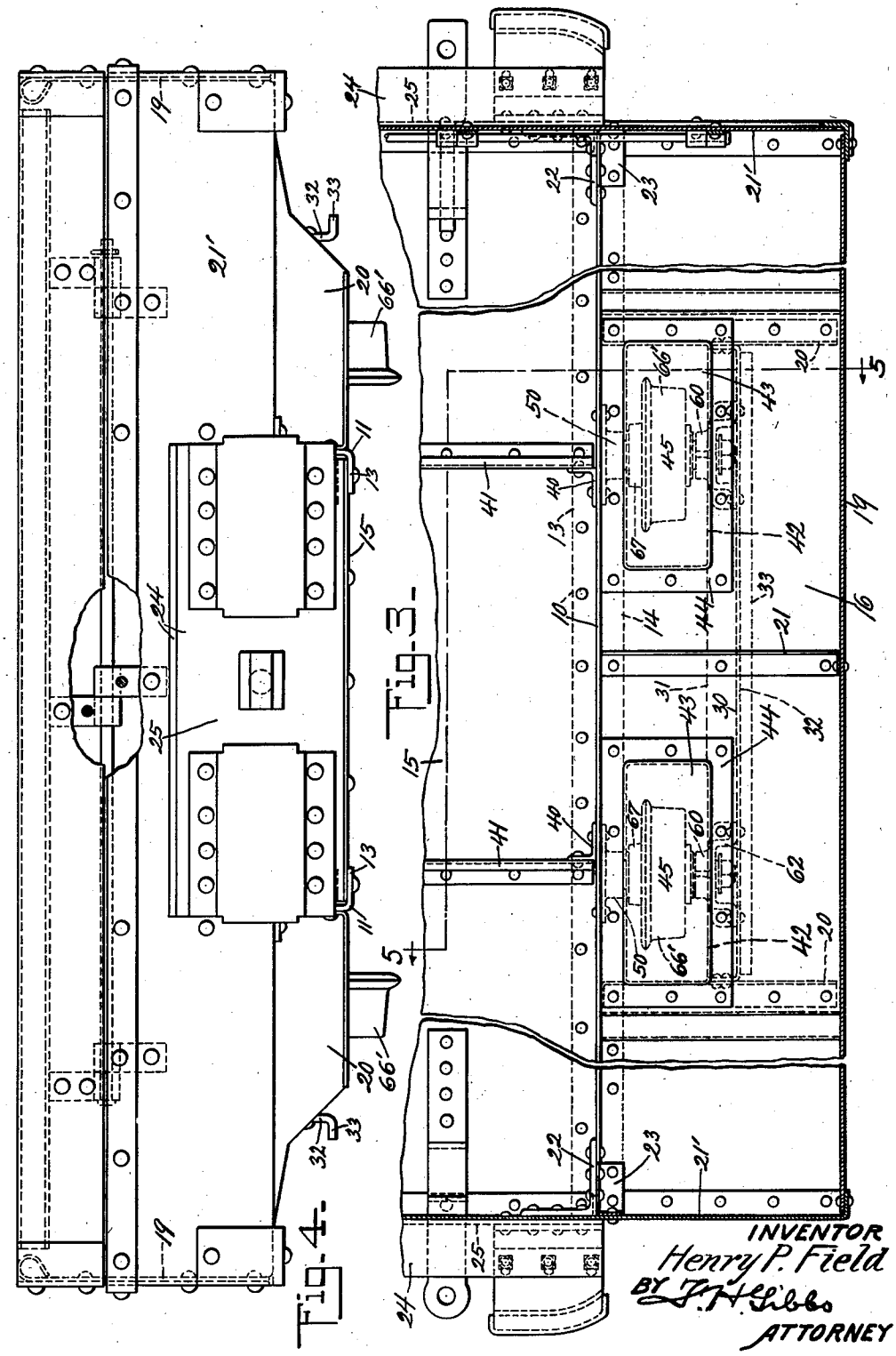


Fig. 4.

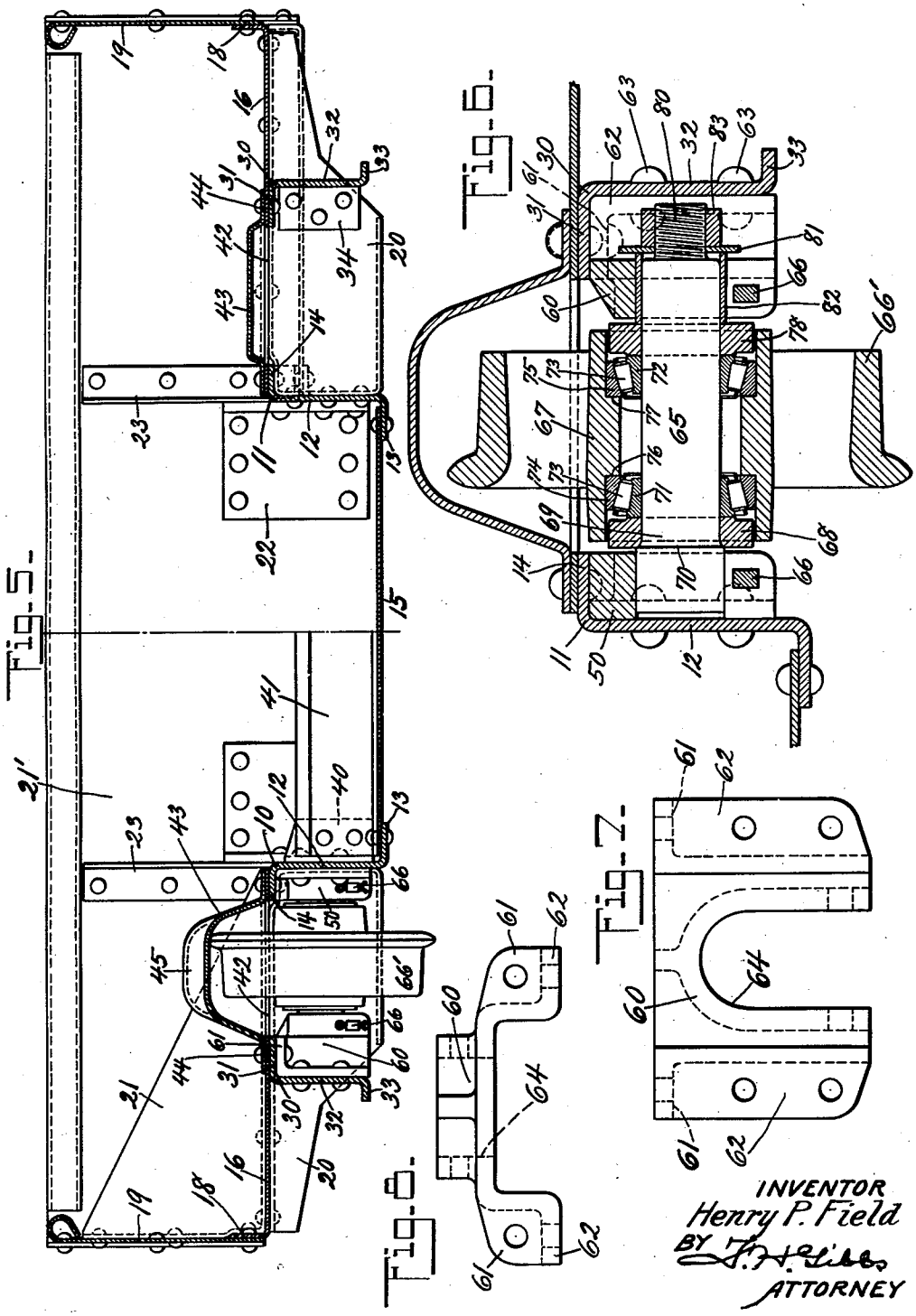
Fig. 3.

INVENTOR
Henry P. Field
BY F. H. Gibbs
ATTORNEY

Dec. 5, 1933. H. P. FIELD 1,937,556

MINE CAR

Filed Dec. 11, 1931 3 Sheets-Sheet 3



INVENTOR
Henry P. Field
BY L. P. Gibbs
ATTORNEY

Patented Dec. 5, 1933 1,937,556

UNITED STATES PATENT OFFICE

1,937,556

MINE CAR

Henry P. Field, Berwick, Pa., assignor to American Car and Foundry Company, New York, N. Y., a corporation of New Jersey

Application December 11, 1931
Serial No. 580,348

7 Claims. (Cl. 105—364)

This invention relates to mine cars and with regard to certain more specific features thereof, to stub axle rotary dump mine cars constructed for the most part of metal plate or commercially rolled forms.

The invention has for one of its objects to provide by relatively inexpensive methods of manufacture and with low material cost an extremely sturdy mine car of large capacity and low lading level.

Another object is to provide a car in which the body, although formed largely of plate and commercially rolled pieces, has its parts so shaped, assembled and reinforced as to develop a body of great resistance to torsional and other strains, in consequence of which the car has a pronounced characteristic of durability.

Still another object lies in the provision of an improved mounting for the wheeled stub-axles of the car, the mounting being simple and inexpensive, avoiding the use of heavy castings, yet substantial and convenient for the introduction of the axles and protective of the more delicate parts of the wheeled axle assembly.

Other objects will be in part obvious and in part pointed out particularly, in the following description of a preferred form of the invention.

The invention accordingly consists of the various features of construction, combinations of elements and arrangements of parts which will be exemplified by the description hereinafter set forth and illustrated in the accompanying drawings, and the scope of the application of which will be indicated in the appended claims.

In the drawings, wherein is shown one of various possible embodiments of the invention:—

Figures 1 and 2 conjointly represent the improved mine car, partly in longitudinal central section and partly in side elevation.

Fig. 3 is a fragmentary view in top plan of the car shown in Figs. 1 and 2, the side and end sheets being shown in section taken on line 3—3 of Fig. 1.

Fig. 4 is a view in right end elevation.

Fig. 5 is a view in cross section taken on the line 5—5 of Fig. 3.

Fig. 6 is a view in cross section taken through one of the stub axles showing the manner of associating the axle with the wheel and with the body of the car.

Figs. 7 and 8 are views, respectively, in front elevation and top plan of the outer pedestal for the stub axle.

Referring now more particularly to the drawings, the car body is constructed around and includes spaced longitudinal members 10 and 11, which are preferably of Z-shaped metal plate each having vertical webs 12, inwardly extending lower flanges 13 and outwardly extending upper flanges 14. A sub axle-plane central flooring or bottom 15 extends between and is directly attached to the inwardly extending flanges 13. Opposite side flooring or side bottoms 16 have their inner edges 17 attached to the outwardly extending flanges 14 and extend outwardly to a connection at 18 with upstanding opposite side walls 19. These side bottoms are depressed substantially at either end of the car as indicated at X, considerably adding to the capacity. These depressions follow a corresponding shape of the members 10 and 11 which have their upper flanges 14 dipped as shown in Figs. 1 and 2 of the drawings. A plurality of spaced transverse gussets 20 are arranged externally of the wall and bottom construction just described. These gussets have points of attachment to the outer sides of the longitudinal members 10 and 11 and extend along the underside of the side flooring members in riveted relation therewith. Spaced interior gussets 21 are attached to the upper flanges 14 of the members 10 and 11 and extend in attached relation over the side bottoms 16 and upwardly along the side walls 19. Opposite end walls 21' are secured to the side walls and flooring portions by suitable angle members and are directly tied to the longitudinal members 10 and 11 by brackets 22 and gussets 23. Opposite end Z bars 24 of metal plate having vertical webs 25 are riveted to the end walls and to the brackets 22 thereby tying these end sills to the longitudinal members 10 and 11. Each end bar has an inwardly turned flange 26 to which the ends of the central flooring portion are riveted. Suitable bumper and drawbar structures are attached to the end members 24.

Spaced outwardly from the members 10 and 11 and parallel thereto are auxiliary Z bars 30 preferably of sheet metal having inwardly extending top flanges 31, vertical webs 32 and short outwardly extending lower flanges 33. Opposite ends 34 of the webs 32 are turned inwardly and riveted to the exterior gussets 20. The inwardly extending flanges 31 are riveted to the side bottoms or flooring 16.

Extending between the longitudinal members 10 and 11 and secured thereto by angle members 40 are transverse bulb angle bars 41 riveted to the central flooring 15.

The side flooring 16 is apertured at 42 for the reception of the wheels and is completed by wheel hoods 43 preferably of metal plate of rectangular exterior having flanges 44 and an arched central portion 45. The flanges 44 of each hood are riveted to the side flooring.

The car body as thus far described consists of relatively thin metal plate and light weight commercially rolled forms. The walls and flooring, however, are so shaped and assembled with the gussets, sills, bulb angles and wheel housings that a body shell is derived having the strength and

rigidity to withstand all the lading strains incident to the receiving, carrying and delivering of the load, and all of the usual strains of operation to which mine cars are subjected in the translation of the same over the roughest roads and in the dumping of the lading.

To complete the body for association with the axles and wheels, inner pedestal members 50 are fitted in the upper angles of the Z-bars 10 and 11 and secured to the webs 12 and the outwardly extending top flanges 14 thereof. Outer pedestal members 60 (shown in Figs. 6 and 7 of the drawings) are fitted in the upper angles of the auxiliary Z-bars 30 and secured to the inwardly extending flanges 31 thereof by rivets passing through flanges 61 of the pedestal. Opposite ears 62 of the pedestal 60 bear against the web 32 and are secured thereto by rivets 63. This locates the main body of the pedestal in spaced relation with the web 32. Each pedestal is recessed as at 64 to receive opposite ends of a stub axle 65. Removable pins 66 are passed transversely through the lower pedestal portions to detachably maintain the axle in assembled position.

Each stub axle 65 is assembled with a wheel 66 having a hub 67 and an anti-friction bearing, such, for example, as a Timken roller bearing, arranged between the wheel hub 67 and the axle. For bearing adjustment purposes a collar 68 is shrunk onto the shank 69 of the axle against a shoulder 70. Inner race members 71 and 72 carrying anti-friction rollers 73 loosely surround the axle shank 69. Outer bearing races 74 and 75 are located in the hub 67 of the wheel against shoulders 76 and 77. A collar 78 loosely surrounds the axle shank at the opposite end of the bearing. The outer end of the axle has a reduced threaded portion 80 equipped with a washer 81 which bears against a sleeve 82 on the axle shank. The inner end of the sleeve bears against the loose collar 78. A nut 83 on the threaded end 80 of the axle is used to advance the sleeve 82 inwardly carrying with it the loose collar 78 so as to urge one of the inner bearing races toward the other and tighten the bearing. As the nut is moved in the reverse direction the bearings will naturally settle into a loosened relation. By reason of the offset ear construction of the outer pedestal, space is provided for manipulation of the nut 80 when the parts are assembled.

The axle wheel assemblies may be introduced and withdrawn from the car body by straight transverse thrust and each axle assembly may be inserted or withdrawn as a unit independently of any of the others. No movement of the axle assembly in an axial direction is required and the assembly is protected against dirt and against injury, by outside protectors which, in the present embodiment of the invention, comprise the auxiliary sills 30.

What is claimed is:

1. A mine car having a metal shell body comprising Z-shaped bars, a central sub axle-plane flooring joining the lower flanges of the bars, side flooring extending outwardly from the upper flanges of the bars, side walls extending upwardly from the side flooring, exterior gussets extending from the sides of the bars outwardly under the side flooring, interior gussets extending from the bars along the side flooring and up the side walls, end walls joined to the side walls, interior end gussets extending from the bars to the end walls, and interior transverse bulb-angle bars extending along the central flooring between the bars.

2. In a mine car, a body having a main bar of Z shape, an auxiliary bar of angle shape spaced therefrom having its upper flange facing the upper flange of the main bar, an axle pedestal fixed in the upper angle of the main bar, another axle pedestal having a seat and offset attaching lugs fixed in the upper angle of the auxiliary bar, and a roller-bearing wheeled stub-axle with an adjusting nut, the axle being positioned in the pedestal so as to locate the nut in the space provided by the offset attaching lugs.

3. In a mine car, a body having a main bar, an auxiliary bar spaced therefrom having a vertical web and inwardly extending top flange, and an axle pedestal secured to the auxiliary bar in the angle formed by the web and flange, said pedestal having an axle receiving portion spaced inwardly from said web, and attaching portions adjacent said web, thereby defining a pocket for a bearing adjusting nut on said axle.

4. In a mine car, a pair of spaced longitudinal bars having webs extending substantially the length of the car, central flooring connected to the lower part of said bars, opposite side flooring extending outwardly from the upper part of said bars, said side flooring being depressed at each end of the car for a substantial distance to thereby provide increased capacity.

5. In a mine car, body side sills extending the full length of the car, a central flooring supported by said sills, side flooring secured to and extending outwardly from the side sills, gussets secured to the side sills and extending under and secured to the side flooring, auxiliary sills spaced from the side sills and connected to said gussets and side flooring wheel-carrying stub axles and alined axle bearings secured respectively to said side and auxiliary sills, said axle bearings being mounted on said axles.

6. In a mine car, body side sills extending the full length of the car, a central flooring supported by said side sills, side flooring secured to and extending outwardly from the side sills, supporting means for said side flooring secured to the side sills and underlying and secured to said side flooring, auxiliary body sills spaced outwardly from said side sills and secured to adjacent side flooring supporting means and said side flooring portion, wheel-carrying stub axles, and means for supporting the body comprising alined axle bearings in which said stub axles are mounted secured respectively to the body side sills and auxiliary sills.

7. In a stub axle mine car, body side sills extending the full length of the car and having inturned bottom flanges, a central floor portion supported by said sill flanges, side floor portions secured to the upper portions of said side sills and extending outwardly therefrom, gussets secured to the under surfaces of said side floor portions and to said body side sills, auxiliary body sills extending between adjacent gussets and secured thereto and to said side floor portions, alined axle bearings secured to said side sills and auxiliary sills, and wheel-carrying stub axles arranged in said axle bearings and positioned in a plane above the central floor portion.

HENRY P. FIELD.