(No Model.) 3 Sheets—Sheet 1.

J. M. BURTON.

FREIGHT CAR.

No. 472,158. Patented Apr. 5, 1892.

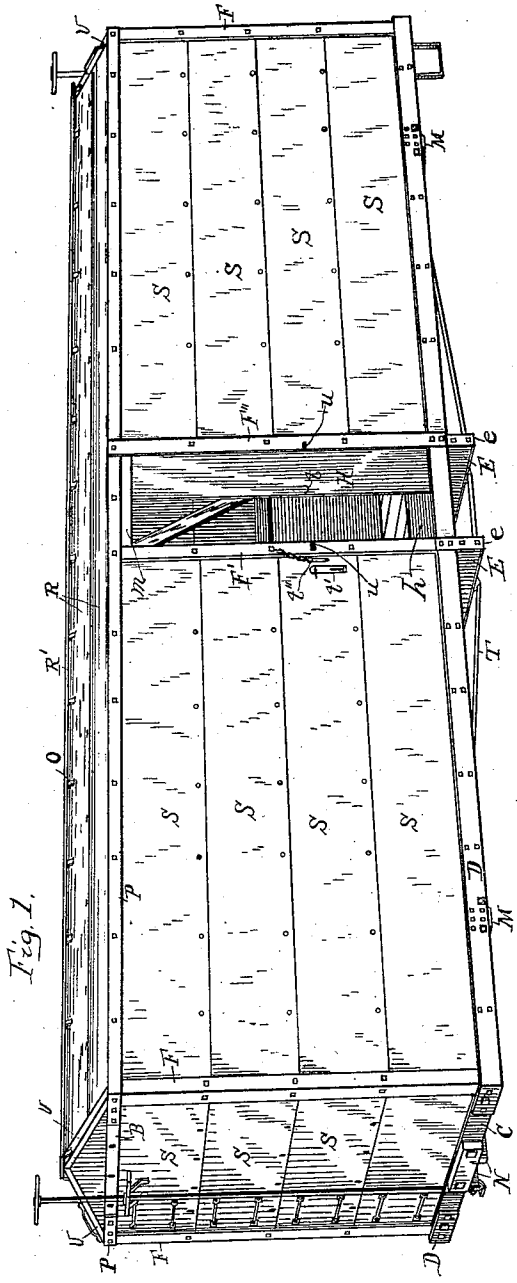

Fig. 1.

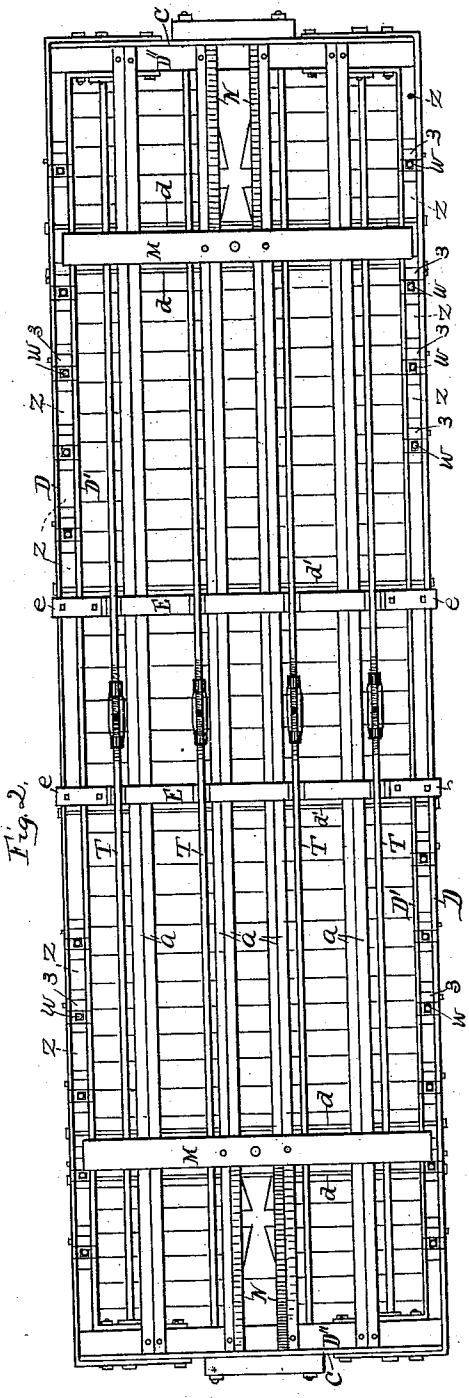

Fig. 2.

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(No Model.) 3 Sheets—Sheet 2.

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FREIGHT CAR.

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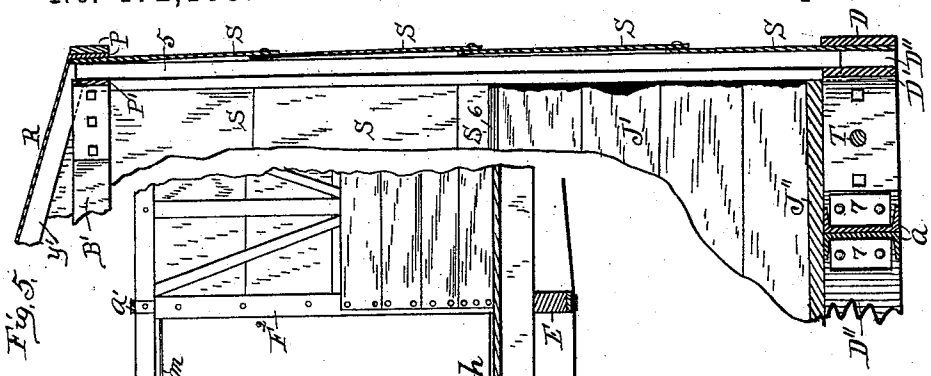

Fig. 5.

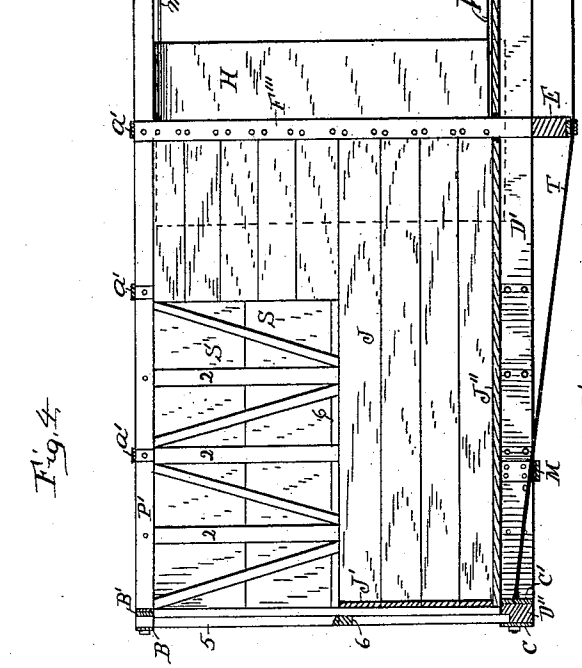

Fig. 4.

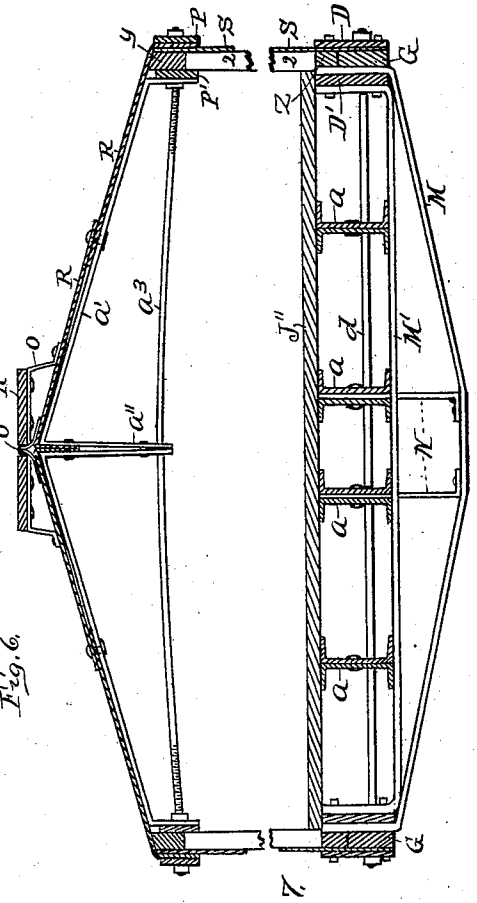

Fig. 6.

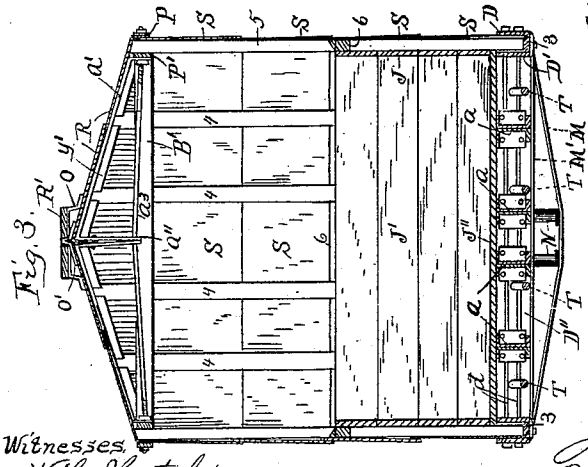

Fig. 3.

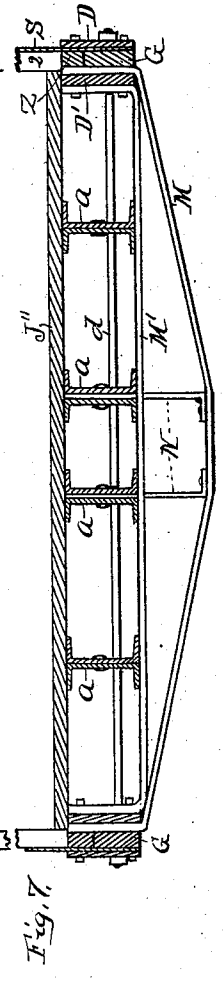

Fig. 7.

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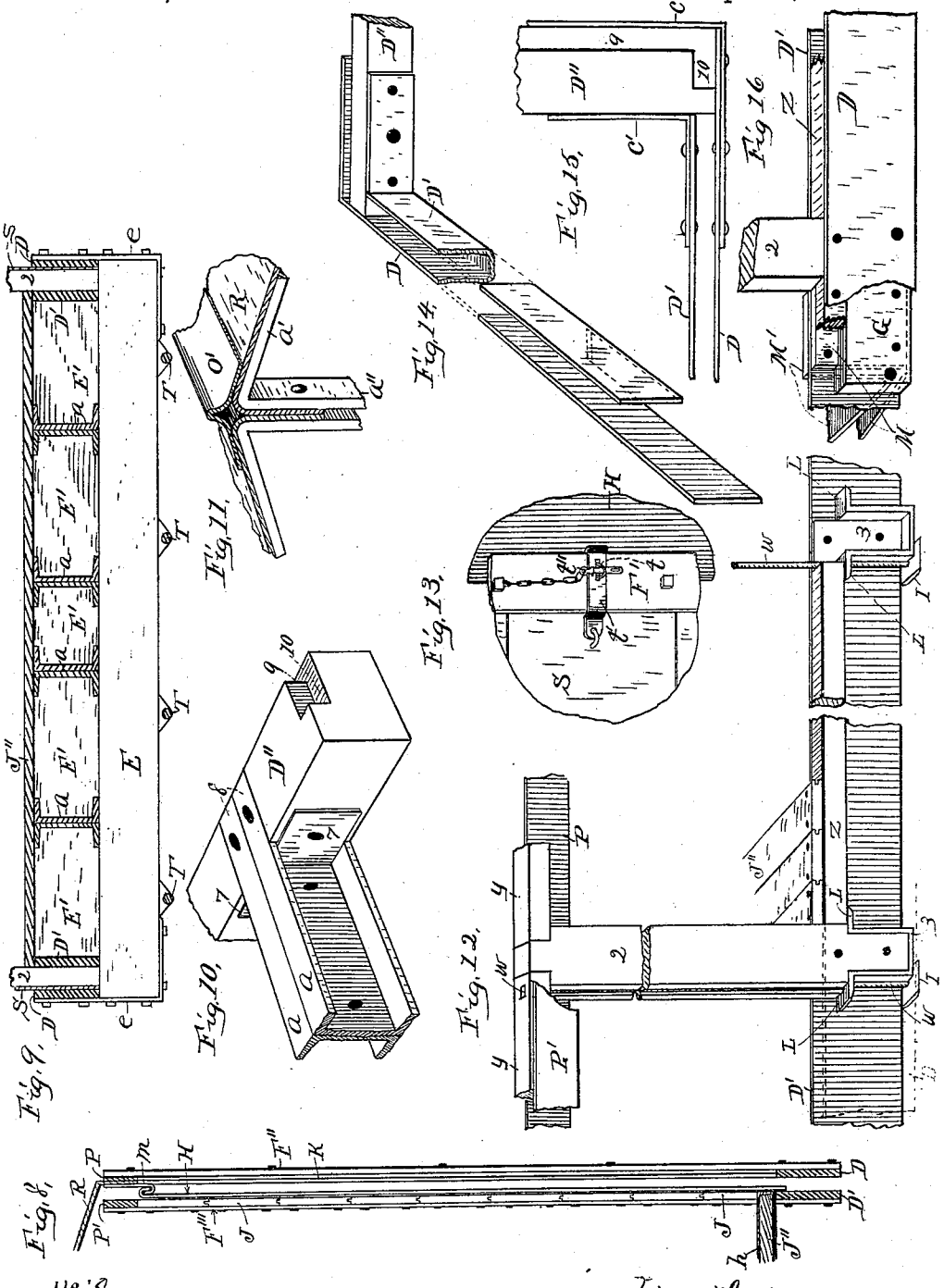

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UNITED STATES PATENT OFFICE.

JOHN M. BURTON, OF WICHITA, KANSAS.

FREIGHT-CAR.

SPECIFICATION forming part of Letters Patent No. 472,158, dated April 5, 1892.

Application filed December 16, 1890. Serial No. 374,882. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. BURTON, a citizen of the United States of America, residing at Wichita, in the county of Sedgwick and State of Kansas, have invented certain new and useful Improvements in Freight-Cars, of which the following is a specification, reference being had therein to the accompanying drawings and the letters and figures of reference thereon, forming a part of this specification, in which—

Figure 1 is a perspective elevation of the car; Fig. 2, a bottom plan of the same; Fig. 3, a cross-sectional elevation of the same; Fig. 4, an interior side plan of a portion thereof, representing parts connecting the sides in section. Fig. 5 is a detailed vertical section of one side of the car, adjacent one corner, showing a portion of one end and sections of the roof and flooring and lower frame-work of the car. Fig. 6 is a cross-section of the car-roof and a portion of the side walls adjacent the roof. Fig. 7 is a similar view of the lower portion of the car. Fig. 8 is a vertical section of the car side at the doorway, showing the door thereof in hanging. Fig. 9 is a cross-section of the lower portion of the car, taken at a point near the car center, a distance from that shown in Fig. 7; and Figs. 10, 11, 12, 13, 14, 15, and 16 are detailed views of several portions of the car, showing the detailed construction thereof.

This invention relates to certain improvements in railway freight-cars, wherein the car exterior is inclosed and protected against fire at all exposed parts by means of steel or other metallic covering and sheathing; and it consists in the particular construction and arrangement of parts as set forth, and explained in the following specification and claims.

Referring to the drawings, the lower frame-work of the car consists of the parallel pairs of side sill-bars D D′, a pair at either side of the car, and the bars of each pair being a short distance apart, sufficient to admit of the side post of the car between them; of the wooden end cross-sills D″, which are held into position relatively with the sill-bars D D′ by bending each end of said bars at right angles with their body, thus providing them with feet so arranged that the said feet of the outer bars D will bear against the outer side of said cross-sills and the inner bars D′ will correspondingly bear against the inner side of said cross-sills, and are firmly secured in such position to said cross-sills by means of bolts in the manner shown; also, of the stringers or beams *a*, arranged parallel with and between the side sill-bars, which beams consist of two parts of channel-iron placed with their back or plain surfaces together, as shown, held together by means of rivets, and when thus united form **I**-beams, and they are formed at their ends with laterally-extending feet 7 (see Fig. 10) made by slitting the beam metal at their channel-angles and bending their body metal, thus leaving the flange portions 8 (see also Fig. 10) projecting beyond said feet 7, and are secured to the cross-sills D″ by placing the said cross-sills between said flange-extensions 8 and against the feet 7, where they are firmly secured by means of bolts passing both ways through the feet and through said flange-extensions, as shown.

E and E are a pair of cross truss-beams arranged under the sill-bars D D′ and beams *a* and are held into position by means of the strap-plates *e*, which are bolted to the under side of the said cross-beams adjacent the ends of the beams and are formed with upright portions extending up and bolted to the outer side of the sill-bars D, as shown; and in Fig. 9, E′ represents wooden blocks resting upon the cross-beams E and are fitted between the beams *a*, so as to hold them from lateral movement, and thereby brace and strengthen the beams *a*.

M M are the transom-bars of the car, one at either end portion of the car, and each are formed with upturned ends, extending up at the outer side of the inner sill-bars between the two sill-bars, and as the space between the sill-bars is greater than the thickness of the transom-bar metal a cast block G (see Fig. 16) is placed at the side of said upturned portions, which fills the space sufficiently high between the sill-bars so that the parts may be firmly bolted together; but said blocks are not sufficiently high to fill or extend the entire width of the sill-bars, thereby leaving a space for a wooden securing-block, which will hereinafter be explained. Each of said transom-bars are supplemented by a second bar M′

above and engaging along the under side of beams *a*, as shown, and has upturned ends arranged at the inner side of the inner sill-bars and provided with bolt or rivet holes registering with corresponding holes of the fellow bars M, the blocks G, and sill-bars D D′, and all of said parts are firmly secured by bolts or rivets arranged in said holes and also by means of the cross tie-rods *d d*, which pass through said sill-bars and through the beams *a* in the manner shown.

C C′ are metal plate-bars fitted to the outer side of the end sills D″ and are held by means of the bolts which secure the end feet of the side sill-bars, which exclude the wood parts from exterior view, strengthen, and also protect said sills D″.

N represents the draw-bars of the car, and consist of flat metal plates, rectangular in plan and provided along one side with a flange at right angles with the body portion and are held into position by placing their plain opposite side portions up between the two channel parts of beams *a*, as shown in Fig. 7, where they are held secure by means of rivets through holes therein and through corresponding holes in beams *a* and are arranged with their flanges extending toward each other to form a support for the draw-heads.

d′ d′ represent cross tie-rods arranged in like manner as rods *d*, but are located at the cross truss-beams E and serve as a strengthener for the car, and T represents the truss-rods of the car, which are four in number and arranged in the usual manner, as shown.

The side posts of the car are represented at 2 and are grooved along one side for the reception of tie-rods and are shouldered at each end on each side, as shown in Fig. 12, and are set at their lower end into cast sockets 3, which have one open side, and, together with said sockets, their lower ends are placed between the side sill-bars D D′, where they are firmly secured by means of bolts passing through corresponding holes of said sill-bars, of the posts, and of the sockets 3.

Each socket 3 is provided with two laterally-extending wings L, one in each direction in direction with the length of the sill-bars, which form a support for a series of wooden blocks Z, which are placed between the sill-bars and to which the car-floor J″ is secured, and I represents an integral cross-plate of each socket 3, which extend across under the sill-bars and form a bearing, against which the nuts of the vertical tie-rods bear, which rods are shown at *w*.

The plates of the car at the upper end of the side posts 2 and adjacent the upper end of the end posts 4 are of like construction and of metal, same as the car-sills, but of lighter material, with the change only in substituting a metal bar in place of the wooden end sill, which plates are shown at P P′, connected and secured together by the cross or end bars B and B′, and the side posts 2 extend up between said plate-bars P P′ and are held by cross-bolts, as shown, and support on their shoulders a series of blocks *y*, which are partially held between the plate-bars and form a support for the margin of the car-roof and also provide a bearing for the upper end of the vertical tie-rods *w*, as shown. The end posts 4 are stepped into a rabbet 9 of the end sills D″ (see Figs. 10 and 15) and held adjacent their upper end between the plate-bars B B′ and are shouldered at their upper end and support on said shoulders the series of blocks *y′*, which form a support for the end portions of the car-roof. The corner-posts 5 of the car are formed angling or L-shaped in cross-section and are stepped into a corresponding recess 10 of the sills D″ (see Figs. 10 and 15) and are some shorter than the side posts and support on their top the adjacent portions of the blocks *y y′*.

The usual carlings of a car are herein substituted by a series of trusses consisting of the duplicate pairs of bars *a′ a′*, which are arranged at an angle corresponding with the slant of the car-roof and meeting at the center of the car and slanting each way from such center and are provided with the downturned portions *a″*, reaching down into the car to a point midway between the plates P′ and with downturned end portions forming feet, bearing against said plate-bars P′, and of the truss-rods a^3, which pass through the depending portions *a″* of bars *a′* and through their feet portions and the plate-bars P P′ and are screw-threaded a distance at each end and have turned thereon a nut bearing against each foot portion of the bars *a′* at the car interior and a nut turned on each end against each outer plate-bar P, as shown more fully in Fig. 6, and thus by passing such truss-rod through the car at each side-post section and also through the side posts the plate-bars and trusses are firmly held fixed to the side posts.

R represents the car-roofing and consists of sheet-steel or other suitable metal laid lengthwise along the roof frame-work, the upper sheets having their upper edge turned down and arranged between the downturned portions *a″* of the truss-bars *a′*, where they are clamped by means of cross-rivets, and the lower edge of the lower sheets are turned down and held clamped between the car sides and the outer plate-bars P, and the plates overlap each other and are riveted at such overlaps to the truss-bars *a′*, as shown in Fig. 6, and as a means of covering the center junction of said roof-plates I have provided an inverted-V-shaped metal covering-strip, (shown at *o′*,) which is held into position by means of the run-boards R′, as shown, said run-boards being supported by means of the benches *o*.

S represents the side sheathing and also the end sheathing of the car, and consists of the overlapping sheets of plate-steel or other sheet metal held to the posts 2 and 4 by means of bolts or rivets at their overlaps, as shown, and held at the upper edge by placing under the downturned edge of the roof-plates, as

shown, and held at their lower edge by being clamped under the outer sill-bars, as shown. The corners of the car at the junction of the roof and the end walls are protected by means of angle plates or bars *v*, which are secured into position by means of bolts or rivets, and the vertical corners are likewise protected by means of like angle-plates F, and at the side doorways I have similarly secured the vertical bars F′ and F″, which clamp the ends of the sheathing-plates S and give rigidity to that portion of the car, and to the inner side of bar F″ at the side where the doors H slide back I have set in a similar bar K to fill the space between the plate and sill-bars of the car, and also as a part to which the clamping bolts or rivets of bar F″ are secured for holding the sheathing-plates S, the opposite bars F′ being secured to a door-post F^2, (see Fig. 4,) and at the car interior I have provided a metal bar F‴, connecting the plate P′ at its upper end and the sill-bar D′ at its lower end, and have arranged such a one at each doorway at the side where the side doors H of the car slide back for the purpose of supporting the inner sheathing of the car at such places and provide a way between said bars F″ and F‴ for the doors H to slide back into, and said doors consist of sheets or plates of steel or other sheet metal bent at their upper edge to provide a longitudinal hooked portion which are arranged to be hooked into and to slide upon corresponding inverted hooked portions *m*, which are secured to the car sides in like manner as sheathing S, and between the sill-bars at the said doorways it is left open so that dirt or the like may not collect and obstruct the sliding of the doors.

As a means of fastening the doors, I have provided them each with a staple *t*, which, when the door is open, enters a recess *u* of bar F″ and when closed enters a like recess *u* of bar F′, and when thus closed I have provided a hasp, which is placed over the staple and secured by means of a pin *t*′. (See Fig. 13.)

The car interior is provided with a floor J″ of wood spiked down at either side to the blocks Z with side sheathing J, which terminate at the belt-rails 6, which rails are in sections fitted between the posts. Excepting, however, at the sides of the doorways where the doors H slide back said sheathing extends to the car-roof as a protector for the doors when open. The end sheathing J′ is similar to the side sheathing and terminates at a like belt-rail 6, and otherwise the car is braced to give strength and rigidity to its construction.

h represents a metal plate fixed to the car-floor adjacent each side doorway for the purpose of a shield to protect the floor from wear at such places.

In Fig. 15 I have shown the sill-bars D D′ not provided with the lateral extending portions, and have shown the cross plate-bars C C′ as provided with such lateral extensions in substitute for those of the sill-bars shown in other figures.

I desire to state that should the process of electric welding become successful to such an extent as to weld together sheets of steel, I would prefer that the roofing and sheathing plates of this car be welded together at their overlapping portions and other unions and thereby produce a perfectly-united covering and sheathing, which would increase the strength and durability of a car and dispense with the use of many bolts and rivets.

I also desire to refer to Fig. 15 of the drawings, wherein I have shown the two parts of the sills D D′ as having an integral base-connection, which form increases the strength and rigidity of the sills.

I finally desire to state that I have contemplated using a grain door or doors in the car, which would be in exact duplicate to doors H, excepting of less height, and would slide in the opposite direction to doors H into a like recess as said doors, and therefore as said grain-doors would be duplicating I do not deem it necessary to show them in drawings.

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

1. A railway-car provided with side sills, consisting of the pairs of parallel metal bars D D′, with wooden end sills provided with the metal side plate-bars C and C′, having their end portions bent at right angle with their body portion and riveted or bolted to said sill-bars for connecting them with the end sills, substantially as described and shown.

2. A railway-car provided with stringers or intermediate sills, consisting individually of two parts of channel-iron united by placing their plain surfaces together in such manner as to present the appearance of **I**-beams, and terminating with laterally-extending portions and with parallel portions extending beyond the lateral extensions, by means of which they are secured into position, substantially as set forth.

3. In a railway-car, the combination, with the intermediate sills *a a*, consisting of two parts of channel-iron, of the draw-bar plates N, secured between the parts of and depending from said sills, substantially as set forth.

4. The combination, with the side sill-bars D D′ and posts 2, of the post-sockets provided with side supports and tie-rod bearings and arranged between said sill-bars, and of the floor-supporting blocks arranged between said sill-bars and supported by said socket-supports, substantially as set forth.

5. The combination, with the side sill-bars D D′ and the plate-bars P P′, of the supporting-blocks arranged between said bars and supported between the side posts of the car, substantially as and for the purpose set forth.

6. The combination, with the side sill-bars D D′, of the transom-bars fixed to the inner

bars thereof, the blocks G, fixed between said transom-bar connections and the outer bars thereof, wherein the space between said sill-bars is filled, and a support is provided for the floor securing-blocks, substantially as set forth.

7. In the railway-car described, the combination, with the side sill-bars and the intermediate sills, of the cross truss-beams E E, secured to said side sills and surmounted by the brace-blocks E′, fitted between said sills, substantially as set forth.

8. A railway-car provided with a series of roof-supporting trusses, consisting of the respective pairs of oppositely-inclined bars of horizontal tie-rods crossing the car below each pair of said truss-bars, and of a hanger bar or arm depending from the junction of each pair of said truss-bars for connecting and supporting the center portion of the tie-rods, substantially as set forth.

9. A railway-car provided with a series of roof-supporting trusses, consisting of the two inclined bars a', terminating at their outer end with downturned perforated plate-bearing at their inner end with depending arms, and of the cross-rods screw-threaded at their ends and arranged through the perforated terminals of said truss-bars and the car-plates, and centrally connecting the depending arms of said truss-bars, and held into position by means of nuts turned thereon, substantially as set forth.

10. The combination, with the side walls of the car, of the bars F″ and K, arranged clamping the car-sheathing metal adjacent the side doorway between them and fixed to the outer bars of the car-plate and sill, as shown, and the bar F‴, likewise fixed to the inner bars of the said plate and sill and supporting the inner sheathing of the car adjacent the doorway where the door slides back, whereby a recess is provided between the inner and outer sheathing of the car to admit the door entering therein, substantially as set forth.

11. A railway-car provided with double sill-bars and double plate-bars, the outer and inner bars thereof being respectively connected adjacent the doorways at the side where the doors slide back by means of vertical metal bars for respectively supporting the outer and inner sheathing, thereby providing a recess between said sheathing-walls for the admission of the doors when sliding open, substantially as set forth.

12. A railway-car provided with sliding side doors, consisting of a sheet or plate of steel or like metal provided at its upper edge with a longitudinal hooked portion, and with an inverted corresponding hooked portion secured to the car upon which the door hangs and is adapted to slide, substantially as set forth.

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