

No. 638,496.

Patented Dec. 5, 1899.

S. P. BUSH.  
CAR CONSTRUCTION.

(Application filed Mar. 6, 1899.)

(No Model.)

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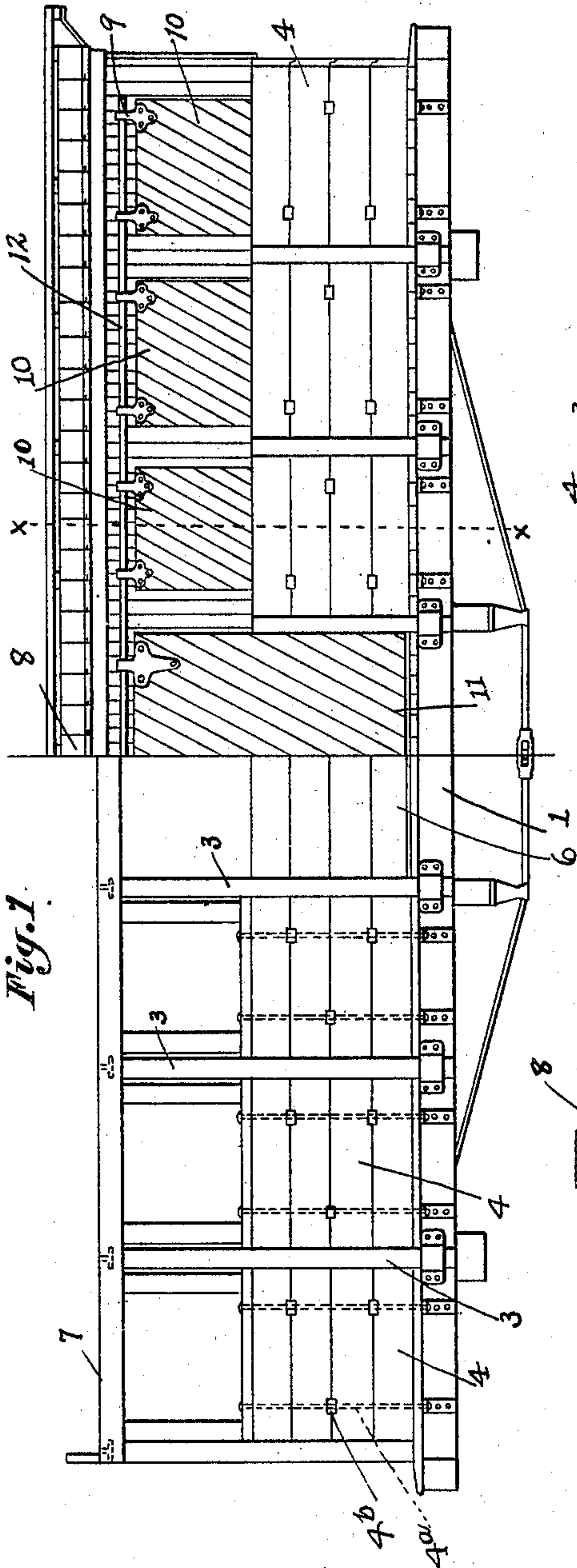


Fig. 1.

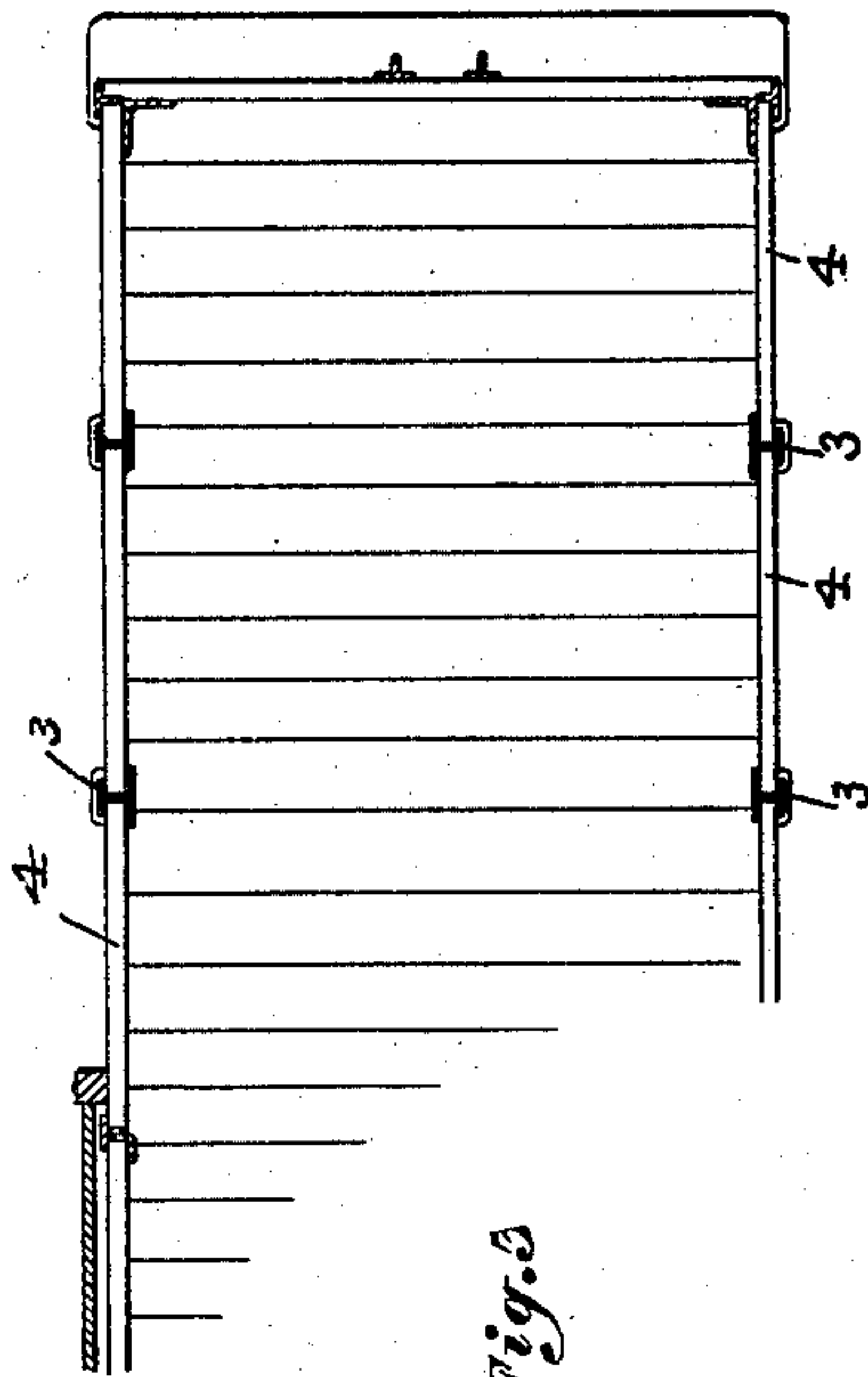


Fig. 3.

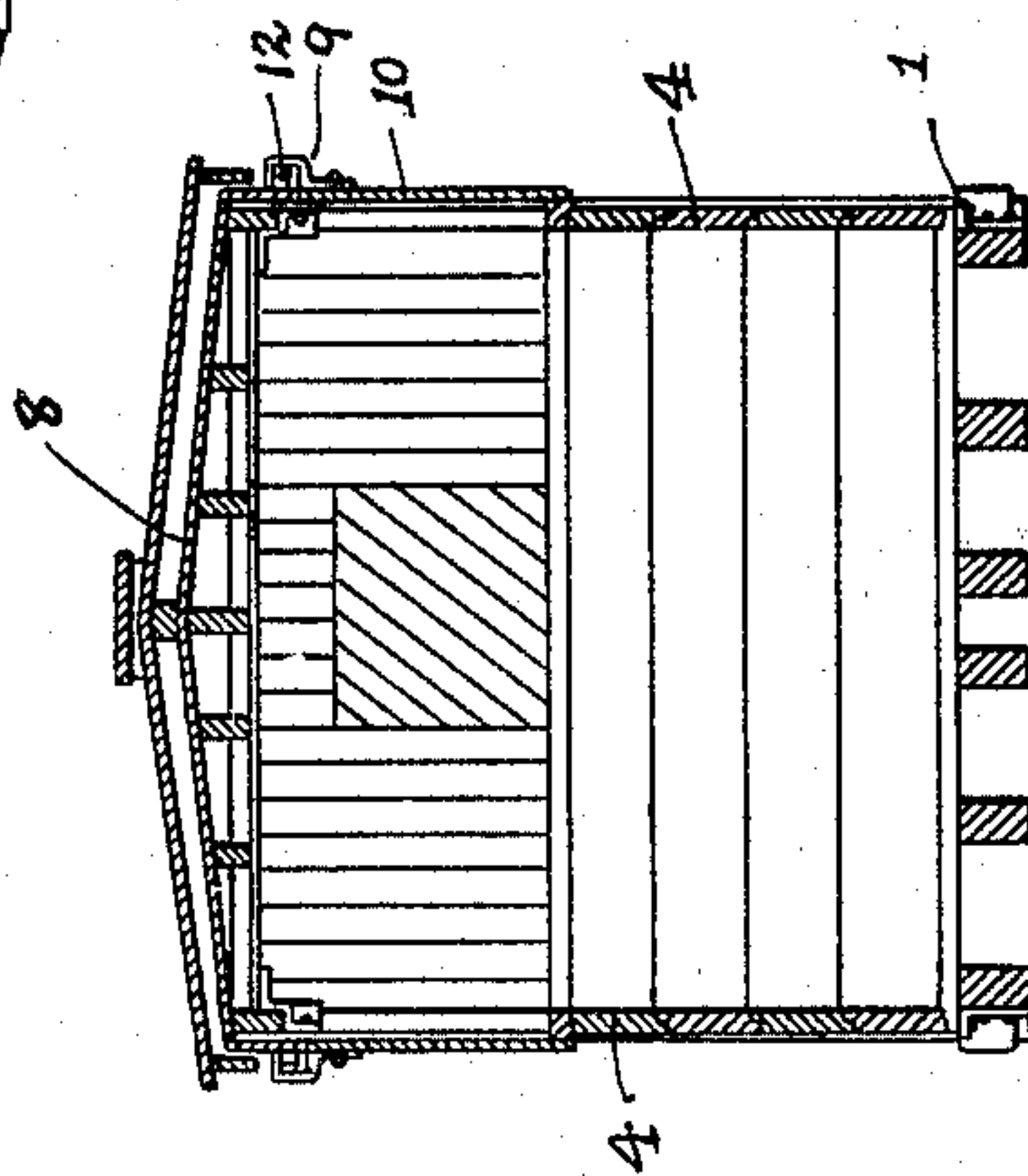


Fig. 2.

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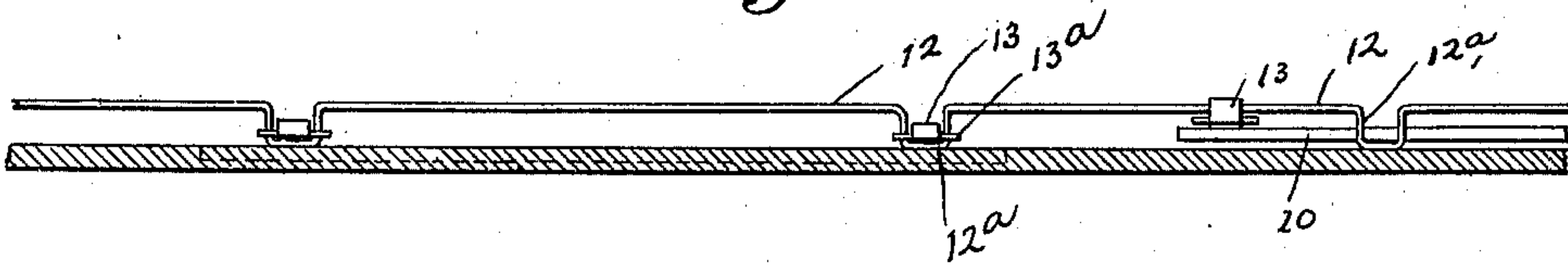
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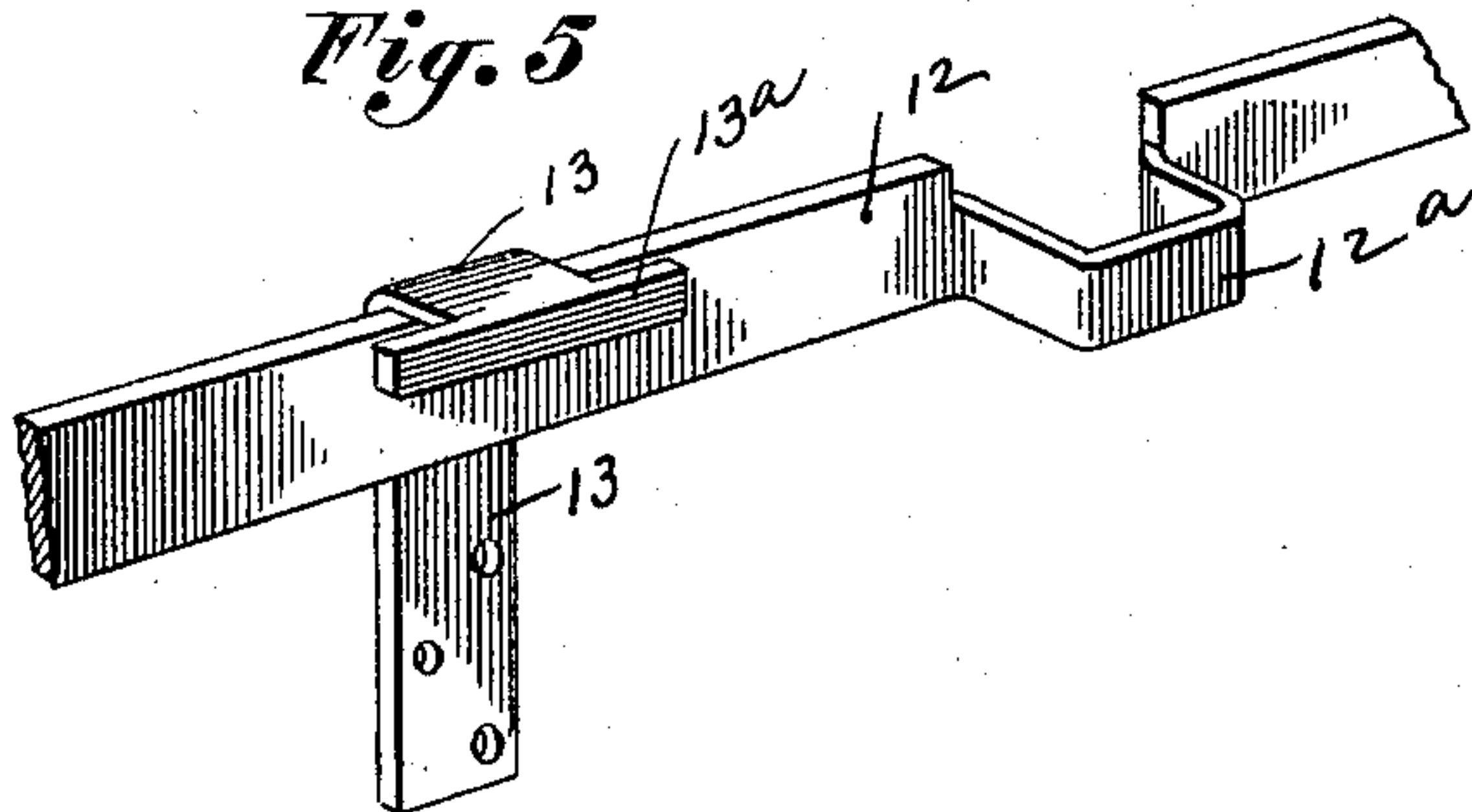
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*Fig. 4*



*Fig. 5*



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# UNITED STATES PATENT OFFICE.

SAMUEL P. BUSH, OF COLUMBUS, OHIO.

## CAR CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 638,496, dated December 5, 1899.

Application filed March 6, 1899. Serial No. 707,876. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL P. BUSH, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Car Construction, of which the following is a specification.

My invention relates to the improvement of railway-cars; and the objects of my invention are to provide an improved car construction which will be equally adapted for the purposes of carrying coal, ore, or other similar material and grain or freight, such as is ordinarily carried in a box-car, and to provide other improvements which will effect important economies in transportation by railway, the details of which will be more specifically pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a view in elevation of my improved car, showing for the sake of clearness the siding and roofwork of the extension removed from a portion thereof. Fig. 2 is a transverse section on line *xx* of Fig. 1. Fig. 3 is a plan view of a portion of the car with the roof or top portion of the car removed. Fig. 4 is a horizontal section of a portion of the upper section or housing taken above the door-supporting rail, and Fig. 5 is a detail view in perspective of a portion of the said rail and one of the hangers.

Similar numerals refer to similar parts throughout the several views.

In carrying out my invention I combine with an ordinary open coal or ore carrying car, known as a "gondola," an upper section or housing having to some extent the form and construction of an ordinary box-car. In order to properly accomplish the objects of my invention, however, certain improvements are made, as hereinafter described, in both portions of this united construction.

Of the lower portion or gondola section of my improved car, 1 represents the longitudinal bottom sills, and 2 the cross-sills. Rising from the outer sides of these sills at suitable intervals are vertical standards 3, the latter being arranged at suitable intervals one from the other, said standards extending to a desirable box-car height and preferably being formed of I-sections, as indicated, although

it is obvious that other forms of standards, such as T or channel forms, may be employed, if desired.

4 represents the horizontal side and end boards, which in the usual manner form the sides and ends of the gondola or lower section of the car, said boards being of wood or in the form of metal plates, if desired. Instead, however, of the comparatively long side boards, which are employed in the ordinary gondola-car construction, the side boards are cut into sections or lengths equal to the distance between the central rib portions of each pair of standards 3, said boards being arranged one upon the other to the desired or ordinary gondola-car height. In this manner the ends of the side boards are made to fit within the channels of the standards 3, as indicated more clearly in Fig. 3 of the drawings, the inner faces of the standards thus being brought approximately flush with the inner surfaces of said boards, thus providing a flush or substantially flush inner side surface for the car. As shown in dotted lines in a portion of Fig. 1 of the drawings, I preferably employ vertical tie-rods 4<sup>a</sup>, which at desired intervals pass downward through the side and end boards 4 and at the same time through tie-blocks 4<sup>b</sup>, which are inserted at intervals into sockets formed in the adjoining edges of the boards 4.

As indicated more clearly in Fig. 2, the adjoining edges of the side boards are preferably formed angular or made to interlock one with the other to insure a construction which shall be weatherproof and at the same time provide a substantially integral side and end wall which will not only be proof against the shifting of grain or other material there-through, but will be proof against theft. As shown in Fig. 1 of the drawings, the central portion of each side of the car has two of its vertical standards 3 arranged at such distance one from the other as to provide a doorway which extends from the floor of the car upward, as shown at 6. Supported on the tops or upper portions of the standards 3 are the top side sills or plates 7 of the upper section or portion of my improved car, this upper section being provided with a suitably-formed roof portion 8. As indicated at 9, the side and end spaces between the upper side



boards 4 and upper frame-sills are adapted to receive vertical or other car siding, such as that ordinarily used on box-cars. Those spaces, however, which are between said upper sill and upper side boards and between the standards 3 are provided with the desired number of window or upper door openings, which are adapted to be closed by doors 10. Although one of these upper side doors is shown in each of the spaces mentioned, it is obvious that any desired number of the same may be employed. The central doorways 6 may also be provided with the usual or any desirable form of doors 11.

As shown in the drawings, the smaller doors 10 are adapted to be supported on extensions of the horizontal rails 12, which form the support of the larger central doors 11, and in order to permit the sliding of these smaller doors past each other I have constructed said rail extensions as follows: Each of the side rails is supported suitably from the car-body and is provided at intervals equal in distance from each other to the distances between the hangers of the doors 10 with inwardly-extending U-shaped projections or offsets 12<sup>a</sup> of less height than the body of the rail. 13 represents the door-hangers, the upper hook or in-turned ends of which are provided with transverse heads or bars 13<sup>a</sup>, while the lower portions are secured to the doors in the usual manner. Owing to this construction, it will be seen that when the upper portions or heads of the hangers of one door are seated back in the rail projections or offsets 12<sup>a</sup> the said door will be so located as to permit the sliding of an adjoining door past the same without conflict.

From the above-described construction it will readily be seen that in accomplishing the objects of my invention I have practically converted a gondola car into a box-car for general purposes, the production of said gondola being, as described, such as to provide a substantially weather and grain proof body which will admit of the same being loaded with grain or ordinary merchandise as well as coal, ore, or other products.

Another feature of my improvement lies in the fact that not only is a flush inner or wall surface provided for the gondola portion of the car, but that by the omission of the ordinary side stakes of the gondola and by the securing of the side boards in line with and between the standards 3 a considerable addition to the width of the car is afforded, this additional width being ordinarily taken up by the thickness of the usual outer side stakes.

It will be observed that the lower section or gondola portion of my improved car is by the construction described of such strength and rigidity as to form an exceedingly substantial base or substructure for the support of the housing or upper box-section, and this construction, together with the rigid side and end standards, is such as to obviate the neces-

sity of employing the usual diagonal braces with which box-cars are ordinarily provided. Through the relative arrangement and connection of the side and end boards, car-base frame, and standards hereinbefore described it will be observed that said standards are so thoroughly braced as to resist strain or pressure in any direction and as to insure a desirable rigid support of the upper housing and roof.

It is well known that where the ordinary form of gondola car is employed large numbers of such cars are often subjected to long runs for the purpose of carrying coal, ore, or similar products in one direction and that these cars, owing to their lack of adaptation for carrying ordinary or general freight, are of necessity returned empty.

It is well known that in cases where an ordinary box-car is employed to carry material such as ore, ordinarily carried in a gondola car, the same must of necessity be loaded into and unloaded from the car through the usual central doorways and through a small end door, which is sometimes provided in box-cars. In order to provide an equal or desirable distribution of the load within the car, as well as to unload the same, much additional shoveling or moving of the load within the car is required, which greatly adds to the inconvenience, expense, and labor.

In case my improved car is employed for carrying coal, ore, stone, sand, &c., it is obvious that the difficulty usually experienced in carrying such material in box-cars will be obviated, inasmuch as the numerous additional doorways which are provided in the upper section of the car in conjunction with the main central doorways will be such as to admit of the convenient loading and unloading of the car therethrough and admit of a uniform distribution of the load on the car-floor without additional labor or expense. It is also evident that the construction of my improved car is such as to admit of the same being returned loaded with grain, merchandise in cases, or other freight ordinarily carried in box-cars.

It is evident that a car of the general construction herein shown and described will not only provide a safe and desirable means for transferring freight of all characters, and thereby become of great utility to railway-cars, but that by its use one car may often be utilized where ordinarily two cars of different construction would be employed, thus providing a great saving both in car construction and transportation.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a car construction, the combination with a lower frame or substructure and standards rising at intervals therefrom, of a box-like body formed of sections which are firmly secured to said frame and the ends of which



abut opposite sides of said standards whereby the latter are braced in the direction of the length of the car, substantially as specified.

2. In a car construction, the combination  
5 with a lower frame or substructure and standards rising at intervals therefrom of a box-like body firmly secured to said subframe and so constructed that the siding thereof also forms the lining therefor and serves to brace  
10 the standards, with which the siding sections are connected, in the direction of the length of the car, of an upper fixed housing supported by extensions of said standards, substantially as specified.

15 3. In a car construction, the combination with a lower frame or substructure and standards rising at intervals therefrom, of a siding formed in sections which extend between and abut said standards, each of said sections  
20 consisting of planks placed one upon the other and so united as to form a substantially integral body and each of the sections so formed being firmly united with said lower frame, substantially as specified.

25 4. In a car construction, the combination

with a car-body having central main doorways and additional doorways on opposite sides of said central doorways, a door-supporting rail projecting from the upper portion of said car-body, said rail having inwardly-  
30 extending yokes or offsets, doors for said doorways having hangers adapted to slide on said rail or rest in said offsets, substantially as specified.

5. In a car construction, the combination  
35 with a lower gondola-section, of a housing or upper section rising from said lower section, a central doorway formed partially in both of said sections and additional doorways on opposite sides thereof in the upper section, a  
40 door-supporting rail projecting from said upper section, said rail having inwardly-projecting yokes or offsets, doors for said doorways having hangers adapted to slide on said  
45 rail or rest in said offsets, substantially as specified.

SAMUEL P. BUSH.

In presence of—

C. C. SHEPHERD,

C. M. MORROW.