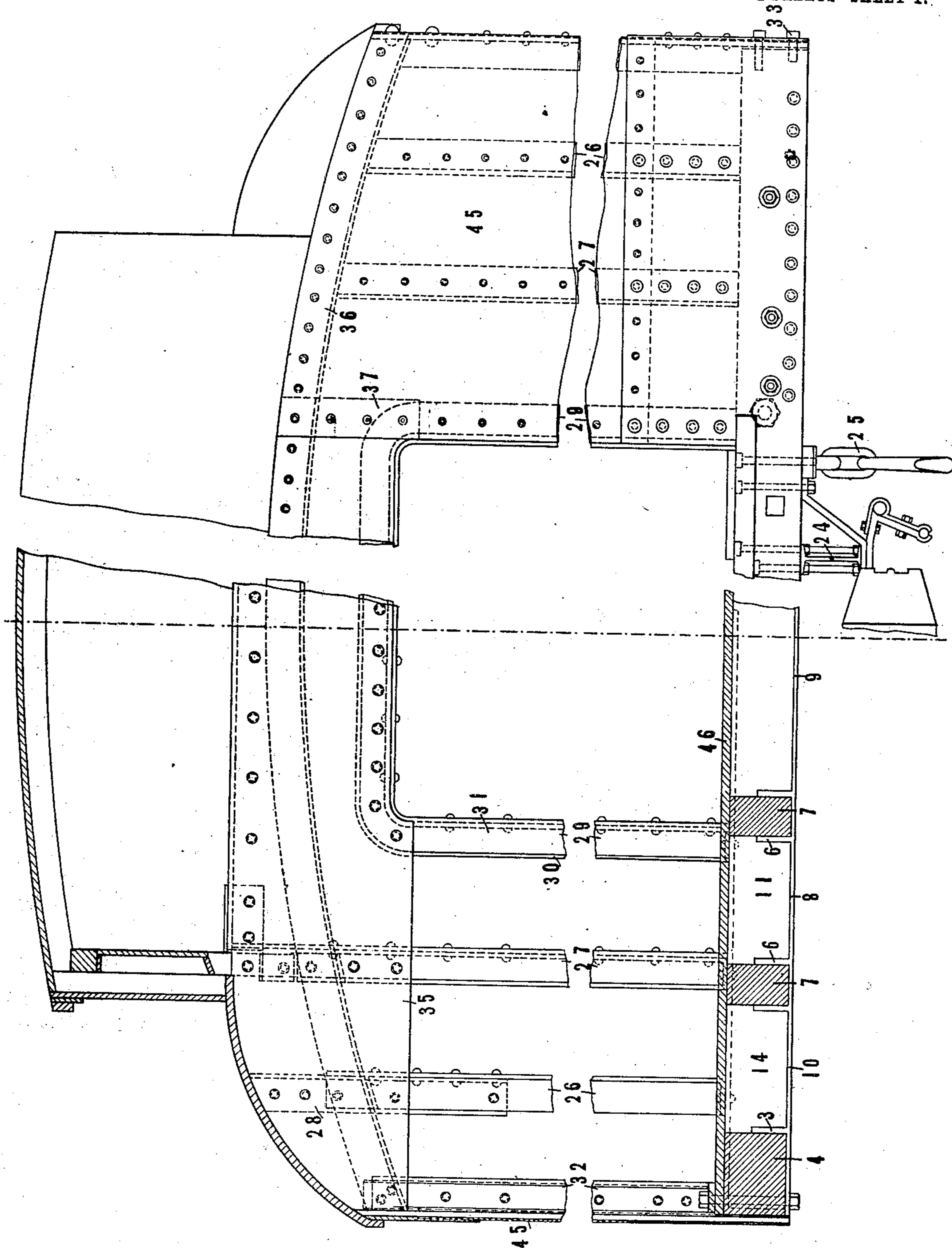


B. JULIEN & W. POINT.
CAR END CONSTRUCTION.
APPLICATION FILED JAN. 29, 1908.

914,727.

Patented Mar. 9, 1909.

2 SHEETS—SHEET 1.



WITNESSES
Norris Perry
Samuel L. Albert

FIG. 1-

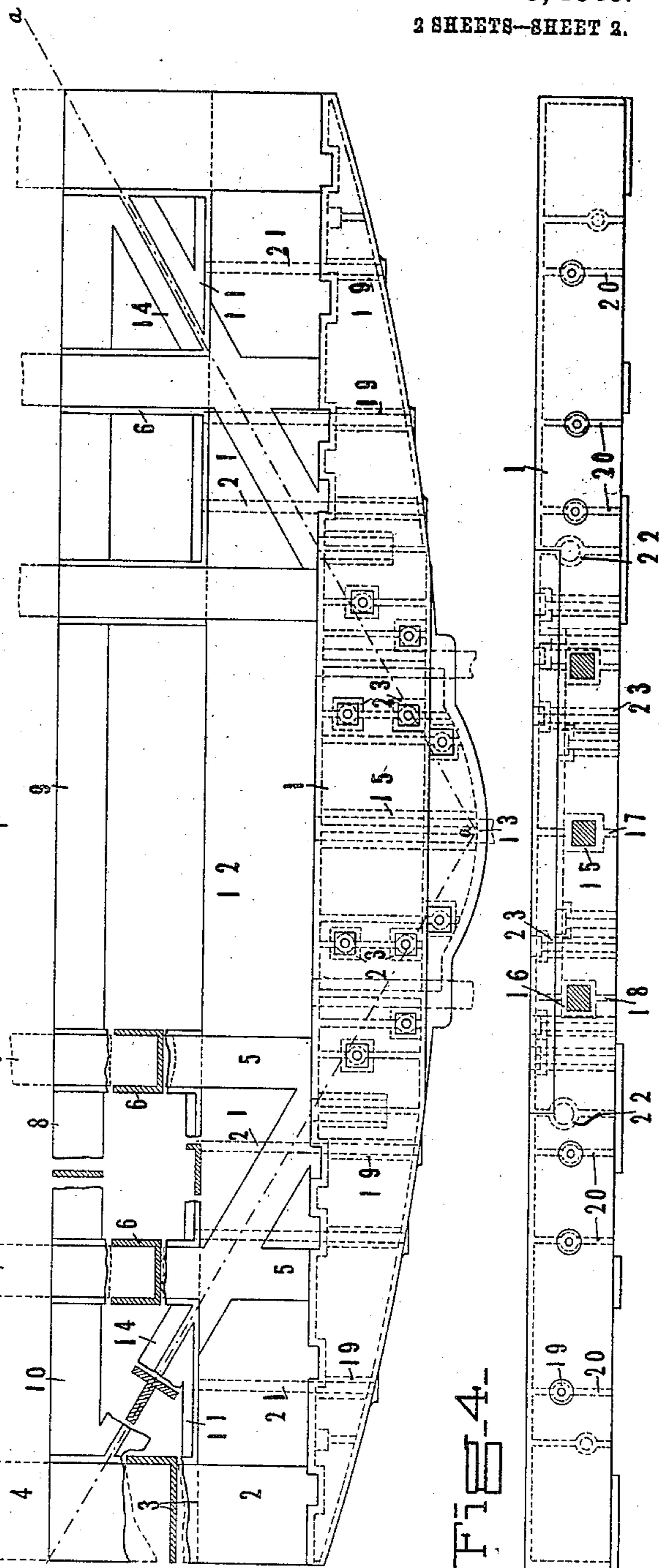
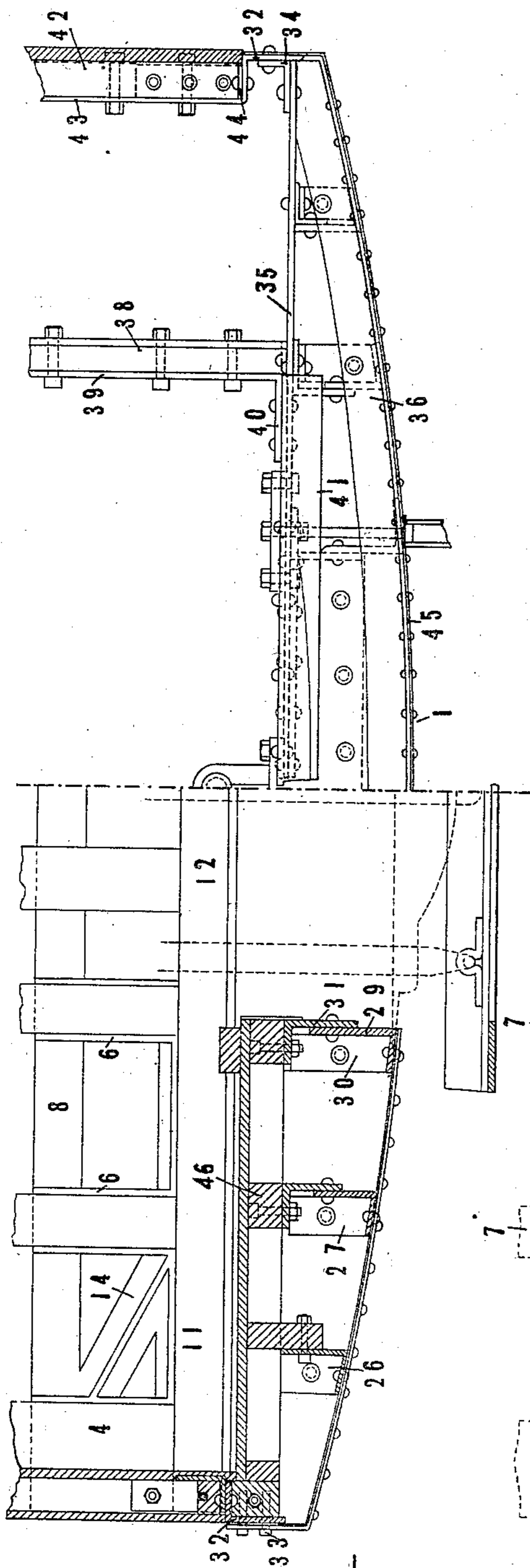
INVENTORS
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ATTORNEYS

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2 SHEETS—SHEET 2.



WITNESSES
Samuel J. Albert
Figs. 2-3-

INVENTORS
B. Julien
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Figs. 3-4-

UNITED STATES PATENT OFFICE.

BARTHOLOMEW JULIEN AND WILLIAM POINT, OF OMAHA, NEBRASKA.

CAR-END CONSTRUCTION.

No. 914,727.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed January 29, 1908. Serial No. 413,276.

To all whom it may concern:

Be it known that we, BARTHOLOMEW JULIEN and WILLIAM POINT, citizens of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Car-End Construction, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to the construction of cars, and, with regard to the more specific features thereof, to the construction of the end portions of baggage or mail cars and the like.

One of the objects thereof is to provide a strong, light and rigid floor frame construction adapted to act as a unit in resisting stresses.

Another object is to provide an upper frame characterized by lightness and stiffness.

Another object is to provide a car end of simple, inexpensive and practical construction susceptible of ready repair, and adapted to maintain its original form and condition under all conditions of use.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings wherein is shown one of various possible embodiments of this invention, Figure 1 is an end view partially in section to show the interior construction of the remote end of the car. Fig. 2 is a plan showing end construction in section at the left side, and upon the right side the details of the upper portion of the frame work. Fig. 3 is a plan of a buffer beam and associated parts showing various details in cross-section. Fig. 4 is an end view of the same.

Similar reference characters refer to similar parts throughout the several views of the drawings.

In order to render more readily and fully understood certain features of this invention, it may here be noted that in construction of the ends of modern cars, by reason of the

necessity of using large frame members and heavy accessories, the space left for the buffer beam is crowded and cut up, and difficulty is experienced in securely tying the parts together. In the face of this it is requisite that a high degree of strength and stiffness be present in the resultant structure, and that the individual parts be susceptible of ready removal for purposes of repair. If it be attempted to achieve this end by the substitution of metal for wood, we have found that each part must reinforce the others, and all portions of the metal must be arranged to meet some particular stress and must be so formed and disposed as best to meet this stress, or there will be a tendency to a heavy and cumbersome construction by reason of the great weight of the metal. The above and other aims are accomplished in constructions of the nature of that hereinafter described.

Referring now to Fig. 3 of the drawings, there is shown a metallic buffer beam 1 preferably of substantially channel cross-section, and open at the bottom as indicated by dotted lines. Formed integral with the buffer beam is an extension comprising the flat portions 2 leading to angle pockets 3 for the side sills 4, and similar portions 5 leading to channel pockets 6 for the intermediate sills 7. The pockets 6 are connected one with another as at 8 and 9, and are connected with the pockets 3 as at 10. At the inner ends of these pockets are provided angle connections 11 adapted to rest against the end sill 12 and hold the same against the body of the buffer beam. In this manner there is provided a strong, rigid casting adapted to receive the ends of the longitudinal sills, and it may here be noted that by the term "longitudinal sill" is meant any longitudinal member of the floor frame, whether a side sill, center sill or intermediate sill. The outer face of the buffer beam presents the point 13 to receive end thrusts, and from this point as indicated by the lines *a-a* there are carried inclined integral braces 14 to the side sill pockets 3. These braces are flat beneath the end sill 12, but are preferably of T cross-section between the pockets 6 and 3. The buffer beam 1 is provided with guides 15 and 16 in the webs 17 and 18 for the center and side stems of the buffer, and is also formed with sleeves 19 in the vertical webs 20 for the bolts 21 leading to the end sill, and with similarly mounted sleeves 22 for truss rods.

There are also provided vertical sleeves 23 for bolts to support the draft sills 24, safety chains 25 and other accessories, as best indicated in Fig. 1 of the drawings. Mounted on the buffer beam 1, and preferably provided with suitable steps are the end posts 26 and 27, the latter comprising two angle irons riveted together throughout substantially their entire length, and the former having an additional angle 28 riveted thereto at its upper portion as indicated in Fig. 1. Also secured to the buffer beam and extending upwardly therefrom is a door frame 29 built up of the angles 30 and 31 in a manner substantially identical with that of the end post 27. The corner posts 32 are of angle section and preferably connected as by the lag screws 33 with the end sill 12. These posts at their upper ends are connected by angles 34 with the end plate 35 which is riveted to the upper end of the door frame 29 and to the end posts 26 and 27. A face carline 36 is connected at its ends with the end plate 35, and is curved to conform with the general contour of the buffer beam as indicated at the right side of Fig. 2 of the drawings. This carline is of heavy angle iron, and is riveted to the end posts 26 and 27, and to extensions 37 upon the door frame 29. The deck sill 38 abuts against the end plate 35, and extending along the same for a considerable distance, though not necessarily throughout its entire length, is a strap 39 bolted thereto and flanged as at 40 to rest against the end plate to which it is riveted. Also mounted upon the upper portion of the end plate is an angle iron 41 which tends to stiffen this part. The upper side plate 42 has bolted thereto and extending along the same for some distance a strap 43 flanged as at 44, and riveted to the corresponding corner post 32 as shown at the right-hand side of Fig. 2 of the drawings. Over the entire end of the car is stretched metallic sheathing 45 riveted to the buffer beam, face carline, corner posts, end posts and door frame. The interior wood work and trim of the car indicated at 46 is bolted to the frame work above described, and will not be herein set forth in detail, as the same forms in itself no part of the present invention.

The method of action of the above described embodiment of this invention should be substantially obvious. The parts are readily assembled in the form shown, and if it becomes necessary to replace any part this is quickly accomplished without injury to itself or the neighboring members. The construction is simple and inexpensive, and all parts coact in providing a car end which is well adapted to resist not only the shocks incident to ordinary use, but all except the most severe collisions. In so far as the floor frame is concerned, there is provided a light, and yet strongly-built, member which receives the longitudinal elements, and sup-

ports the same in such manner that their end portions, instead of being the weakest part of the frame, are its point of its greatest strength. Not only is additional strength lent to the several wooden sills by the metal construction, but the same are so embraced and held together as to prevent splitting and materially increase their transverse strength. The upper portion of the frame, moreover, is so light as to do away with any tendency to topheaviness, and yet possesses a stiffness consistent with the great strength of the lower frame portion. The upright members and the connections are such as to tie the upper and lower portions of the frame into unitary relation, and to complete a car end well adapted to meet any and all incidents to hard practical use.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. In construction of the class described, a metallic buffer beam having formed integral therewith an extension provided with a pocket adapted to receive and support a longitudinal sill of the car said pocket being so formed as to extend beneath said sill and upwardly at each side thereof.

2. In construction of the class described, a metallic buffer beam having formed integral therewith an extension provided with pockets formed to extend about and support side and intermediate sills of the car said pockets being so formed as to extend beneath the sills supported thereby and upwardly at each side thereof.

3. In construction of the class described, a metallic buffer beam having formed integral therewith an extension adapted to receive and support the end sill of the car said extension being so formed as to extend beneath said sill and upwardly at the side thereof remote from said buffer beam.

4. In construction of the class described, a metallic buffer beam having formed integral therewith an extension adapted to extend about the end sill of the car and hold the same substantially against the body of the buffer beam.

5. In construction of the class described, a

metallic buffer beam having formed integral therewith an extension adapted to receive and support the end sill and a longitudinal sill of the car.

5 6. In construction of the class described, a metallic buffer beam having formed integral therewith an extension formed to extend about the end sill and hold the same substantially against the body of the buffer
10 beam and provided with means adapted to extend about and support side and intermediate sills of the car.

7. In construction of the class described, in combination, a metallic buffer beam, an
15 end sill, longitudinal sills and means connected with said buffer beam adapted to extend about said end sill and hold the same substantially against the body of the buffer
20 beam and provided with pockets adapted to receive said longitudinal sills.

8. In construction of the class described, in combination, a buffer beam, an end sill, longitudinal sills, and a metallic member
25 formed to extend about said end sill and hold the same substantially against said buffer beam and provided with pockets adapted to receive said longitudinal sills.

9. In construction of the class described, in combination, an end sill, longitudinal
30 sills, and a metallic member forming pockets within which said end sill and said longitudinal sills fit.

10. In construction of the class described, in combination, an end sill, side sills, in-
35 termediate sills, and a metallic member forming pockets of channel section within which said intermediate sills fit, and flanged pockets within which said side sills fit and formed
40 to extend under and support said end sill and having metallic tie portions connecting said several pockets one with another.

11. In construction of the class described, in combination, side sills and a metallic
45 buffer beam having formed integral therewith an extension adapted to receive and support said side sills, said buffer beam having its outer face curved to present a plate to receive end thrusts and said extension comprising inclined members leading from said
50 point toward the side sill receiving portions thereof.

12. In construction of the class described, in combination, side sills, an end sill and a
55 metallic buffer beam having formed integral therewith an extension adapted to extend about and support said end sill and form pockets for said side sills, said buffer beam formed to present a point to receive end thrusts and said extension comprising in-
60 clined members leading from said point toward said pockets.

13. In construction of the class described, in combination, an end plate extending across the car from side to side, a face car-

line, and upright members extending there- 65 between and secured to both of the same.

14. In construction of the class described, in combination, a metallic end plate extend-
ing across the car from side to side, a metal-
lic face carline, and flanged metallic upright 70 members extending between said plate and said carline and riveted to both of the same.

15. In construction of the class described, in combination, a metallic end plate extend-
ing across the car from side to side, a metal- 75 lic face carline, outwardly curved with respect thereto, means connecting the ends of said face carline to the ends of said end plate, and metallic upright members extending between said carline and said plate and secured to 80 both of the same.

16. In construction of the class described, in combination, an end plate, a deck sill and a
metallic member extending along and secured
to said deck sill and extending along and 85 secured to said end plate.

17. In construction of the class described, in combination, an end plate, a side plate,
and a metallic member extending along and
secured to said side plate and connected with 90 said end plate.

18. In construction of the class described, in combination, a metallic buffer beam and a
metallic door frame member secured to said
buffer beam at one point and extending up- 95 wardly and thence downwardly to form a door frame and having its other end secured to said beam at another point.

19. In construction of the class described, in combination, a metallic buffer beam hav- 100 ing formed integral therewith an extension adapted to receive and support longitudinal sills of the car, and a continuous metallic frame member secured to said buffer beam at two points and extending upwardly to 105 form a door frame and secured at its upper portion to the frame of the car.

20. In construction of the class described, in combination, a metallic end plate extend-
ing across the car from side to side, a me- 110 tallic face carline, a lower frame member, and upright flanged members secured to said lower member and extending between said end plate and carline and secured to both of the same. 115

21. In construction of the class described, in combination, a metallic end plate, a me-
tallic face carline, a lower frame member,
upright flanged members secured to said
lower member and extending between said 120 end plate and carline and secured to both of the same, and a metallic frame member secured to said lower member and extending upwardly therefrom to form a door frame and secured to said end plate. 125

22. In construction of the class described, in combination, an end sill, metallic corner posts, upper side plates, an end plate, means

securing said corner posts at their lower ends to said end sill, means securing said corner posts at their upper ends to said end plate, and metallic members secured to and extending along said side plates and secured to the corresponding corner posts.

23. In construction of the class described, in combination, a metallic end plate, a metallic lower frame member, and a metallic member secured to said lower member at two points and extending upwardly to form a door frame and secured adjacent its upper end to said end plate.

24. In construction of the class described, in combination, a metallic buffer beam having formed integral therewith an extension adapted to receive and support longitudinal sills of the car, a metallic end plate extending across the car from side to side, a metallic face carline, and metallic end posts connected with said buffer beam and extending upwardly between said end plate and carline and secured to both of the same.

25. In construction of the class described, in combination, a metallic buffer beam having formed integral therewith an extension adapted to extend about and support side and intermediate sills of the car, a metallic end plate, a metallic face carline, and metallic upright members secured to said buffer beam and extending between the said plate and said carline and secured to both of the same.

26. In construction of the class described, in combination, an end sill, a metallic buffer beam having formed integral therewith an extension adapted to receive and support

said end sill, corner posts connected with said end sill, upper side plates, a metallic end plate, and means connecting said corner posts adjacent their upper ends with said side plates and said end plate.

27. In construction of the class described, in combination, an end sill, a metallic buffer beam having formed integral therewith an extension adapted to receive and support said end sill, corner posts connected with said end sill, upper side plates, a metallic end plate, means connecting said corner posts adjacent their upper ends with said side plates and said end plate, a face carline, and metallic upright members extending adjacent said buffer beam and passing between said end plate and said carline and secured to both of the same.

28. In construction of the class described, in combination, a metallic end plate, a metallic face carline, a lower frame member, upright flanged members secured to said lower member and extending between said end plate and carline and secured to both of the same, and a metallic frame member secured to said lower member and extending upwardly therefrom to form a door frame, said lower frame member having formed integral therewith an extension adapted to receive longitudinal sills of the car.

In testimony whereof we affix our signatures, in the presence of two witnesses.

BARTHOLOMEW JULIEN.
WILLIAM POINT.

Witnesses:

H. P. VAN ARSDALE,
N. F. HARRIMAN.