

DRAFTSMAN

No. 859,916.

PATENTED JULY 16, 1907.

H. C. BUHOUP.
CAR CONSTRUCTION.

APPLICATION FILED APR. 20, 1907.

3 SHEETS—SHEET 1.

Fig. 1.

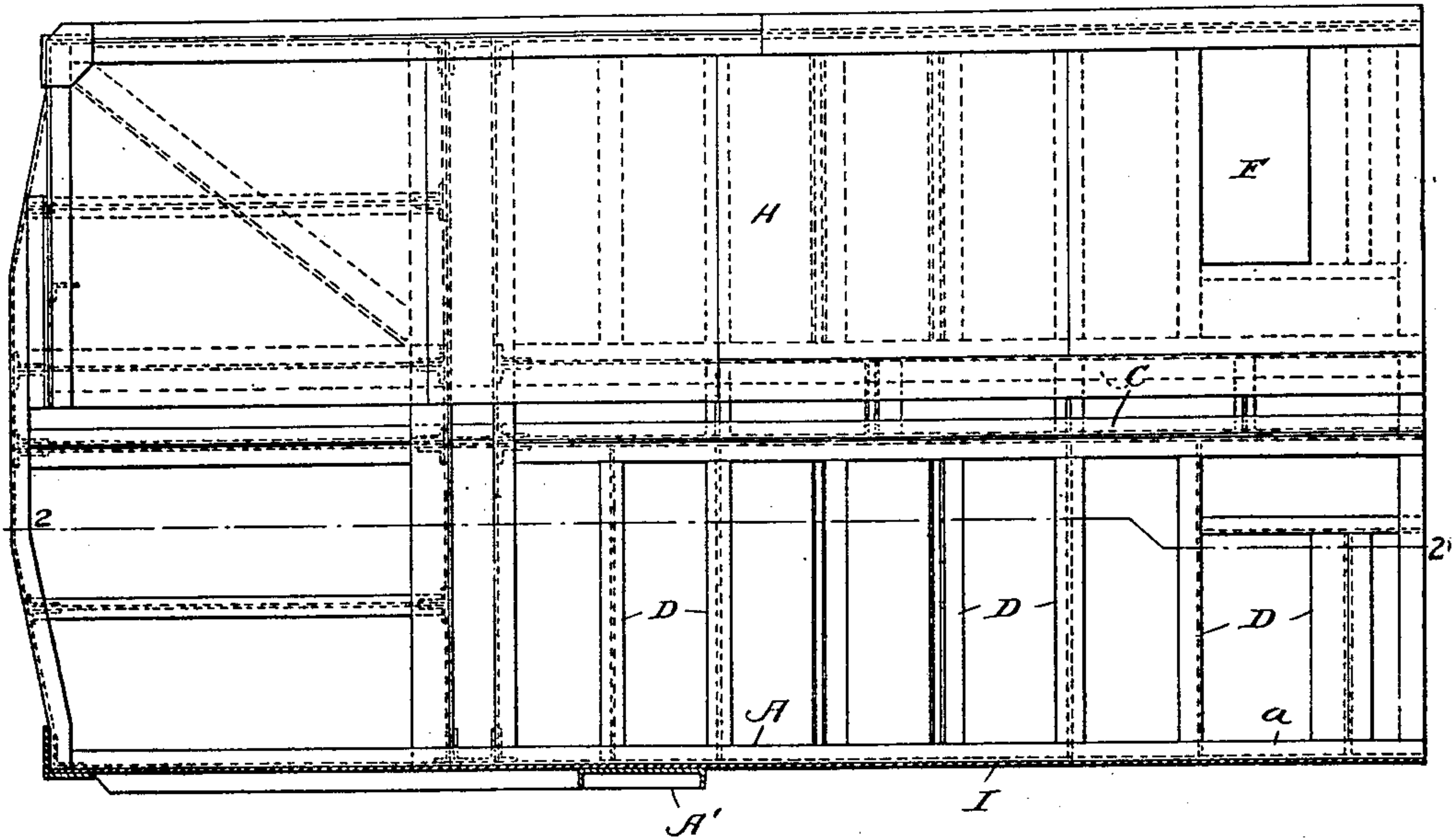
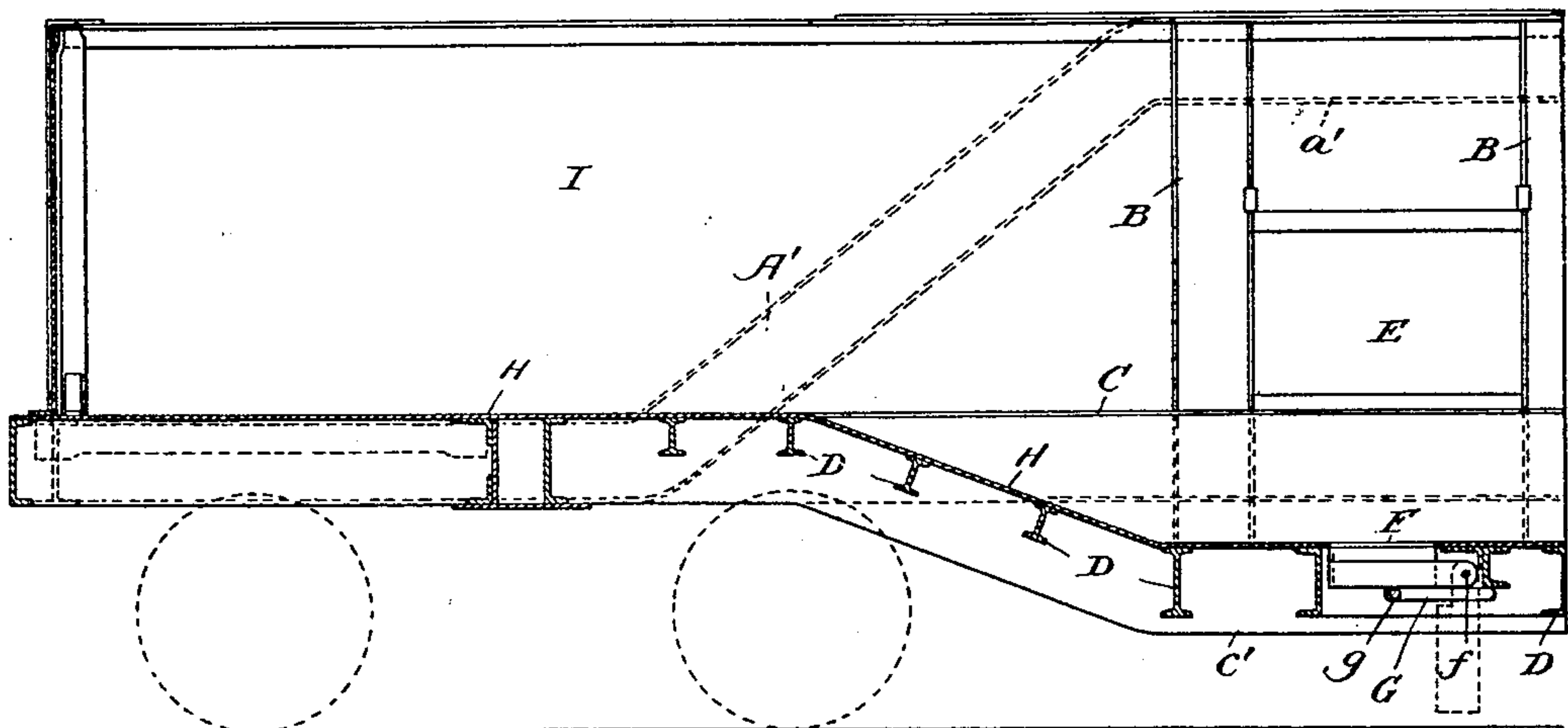


Fig. 2.



Inventor

Fig. 7.

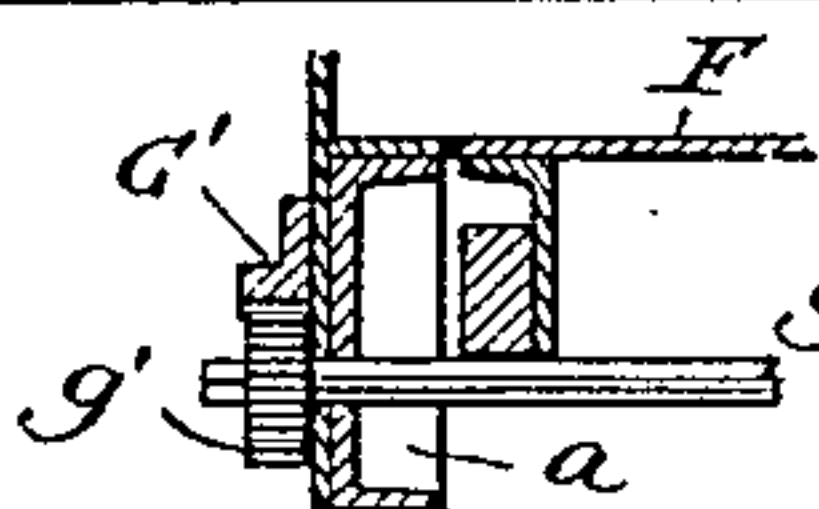
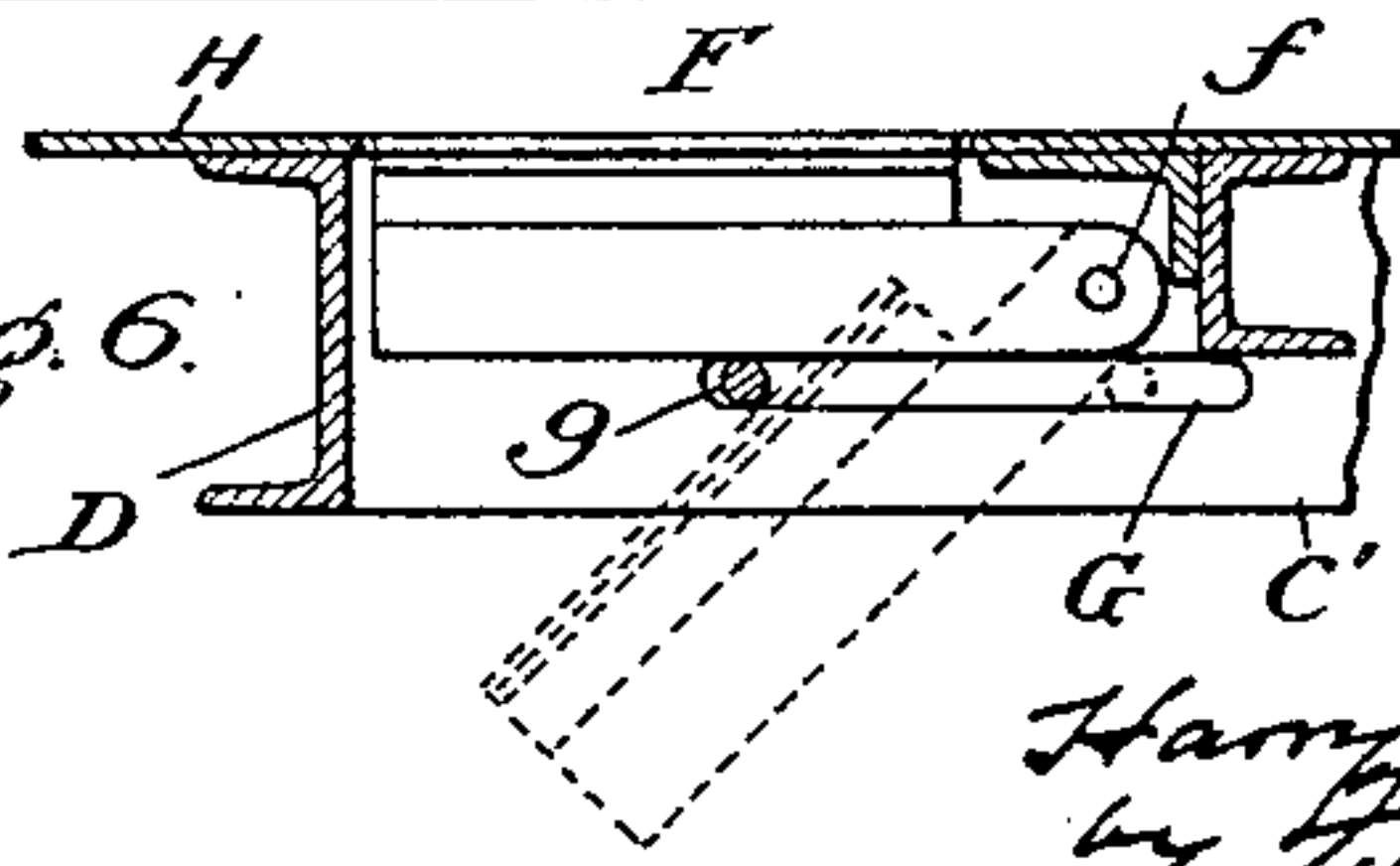


Fig. 6.



Witnesses

Edwin L. Bradford

G. F. Ritter

X Car. Freight. Frames

Harry C. Buhoup
by *G. F. Ritter*
Attorney

No. 859,916.

PATENTED JULY 16, 1907.

H. C. BUHOUP.
CAR CONSTRUCTION.

APPLICATION FILED APR. 20, 1907.

3 SHEETS—SHEET 2.

Fig. 3.

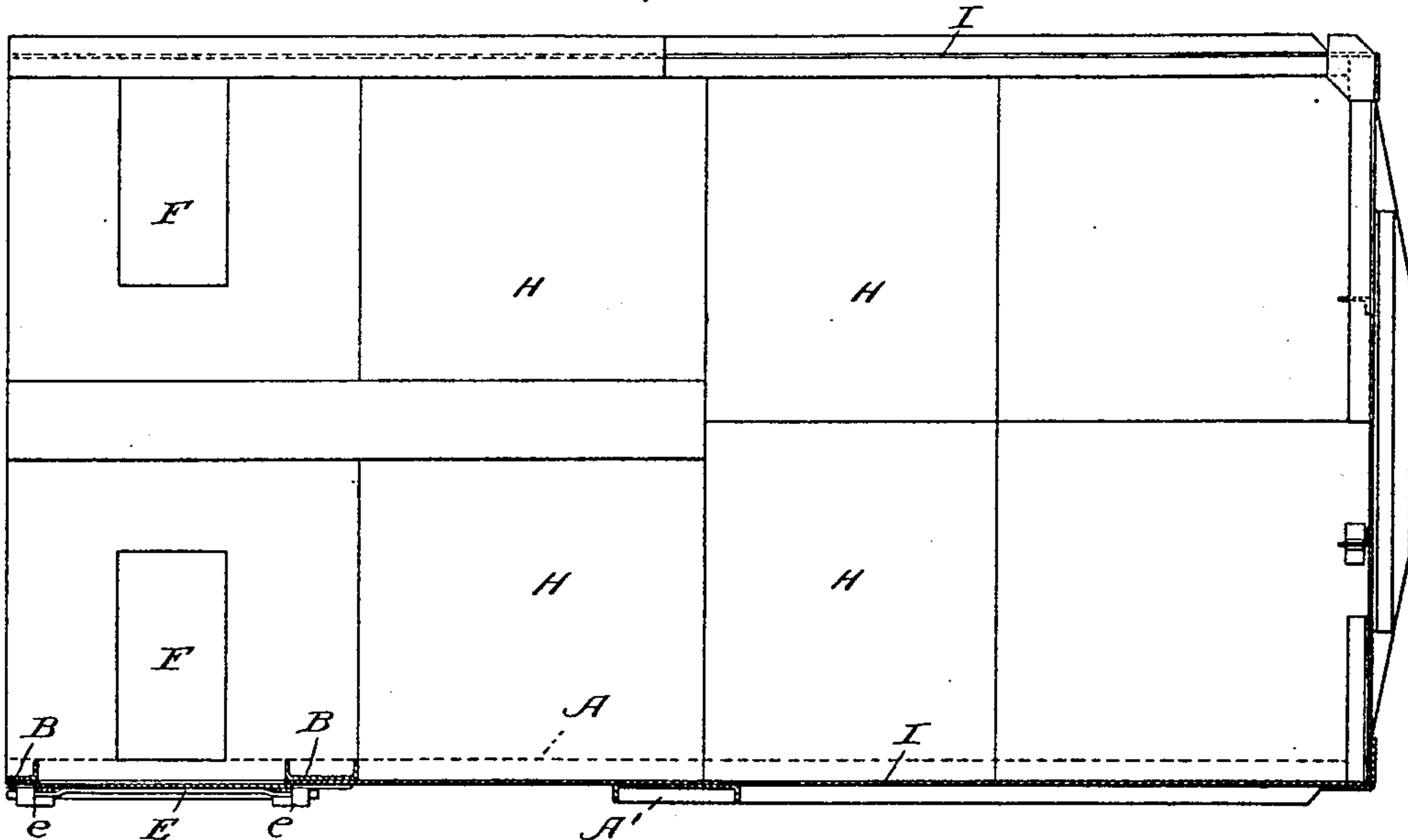
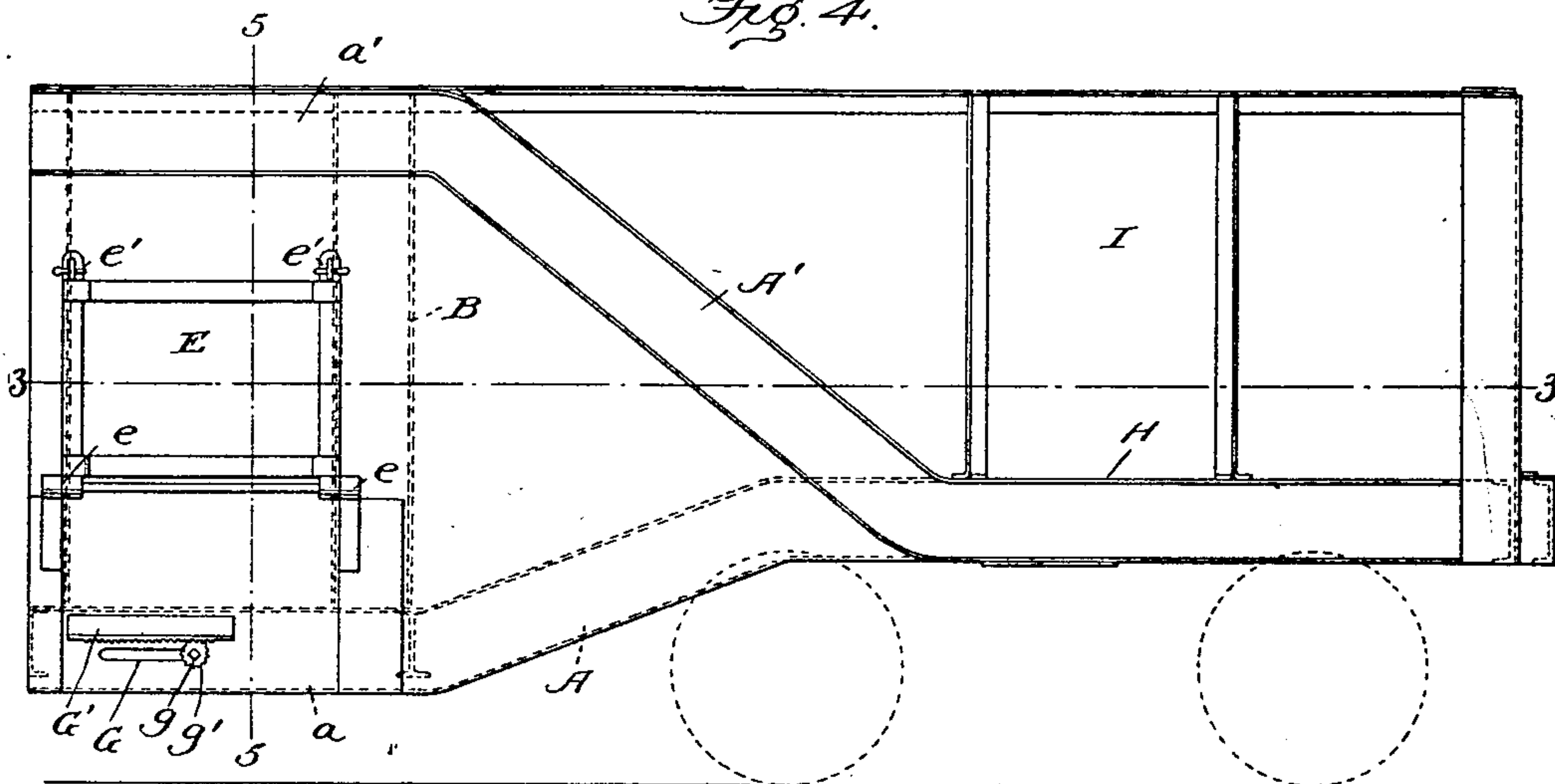


Fig. 4.



Inventor

Witnesses
Edwin L. Bradford
J. P. Ritter

By

Harry C. Buhoup
J. W. Ritter, Jr.

Attorney

No. 859,916.

PATENTED JULY 16, 1907.

H. O. BUHOUP.
CAR CONSTRUCTION.

APPLICATION FILED APR. 20, 1907.

3 SHEETS—SHEET 3.

Fig. 5.

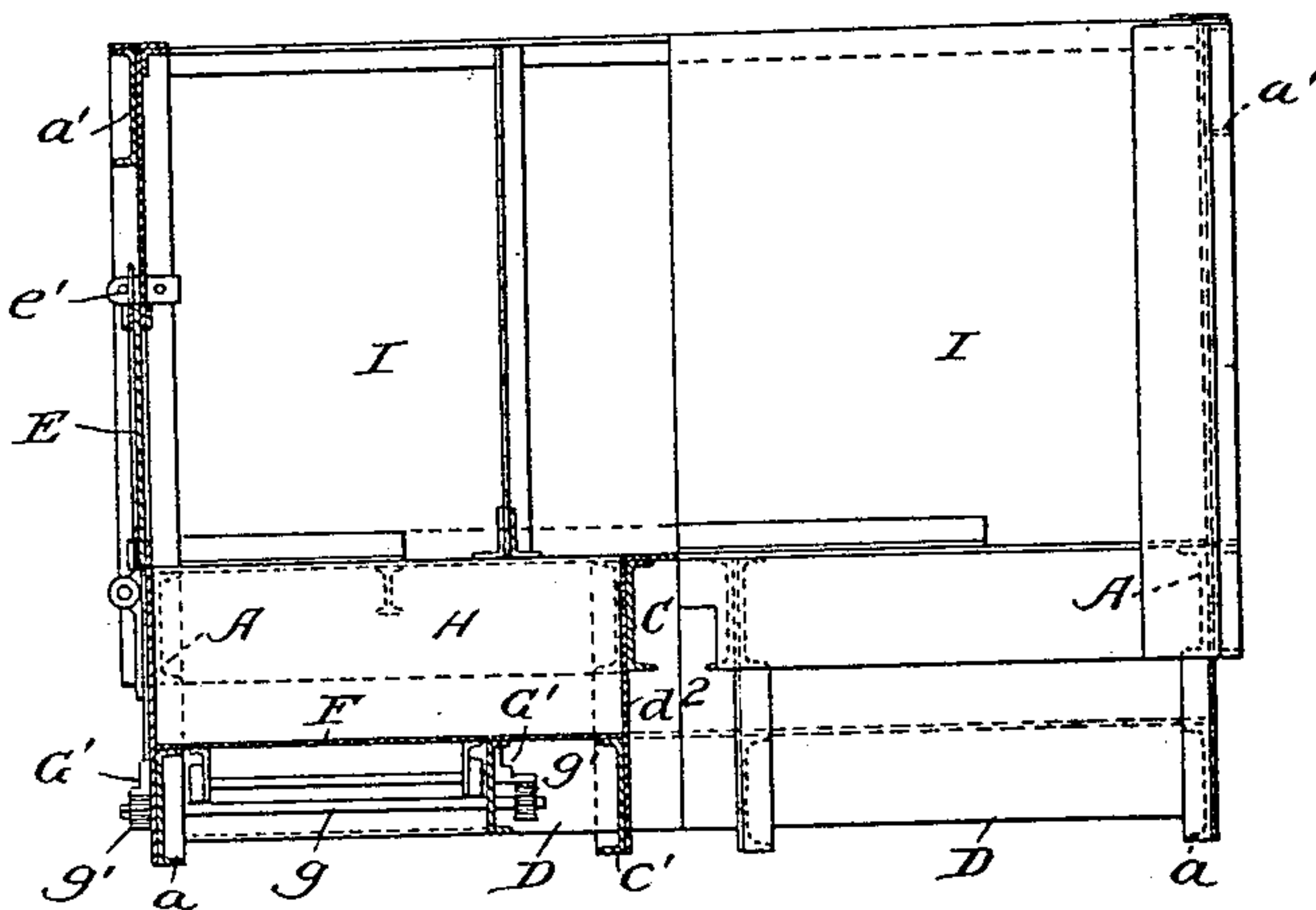


Fig. 8.

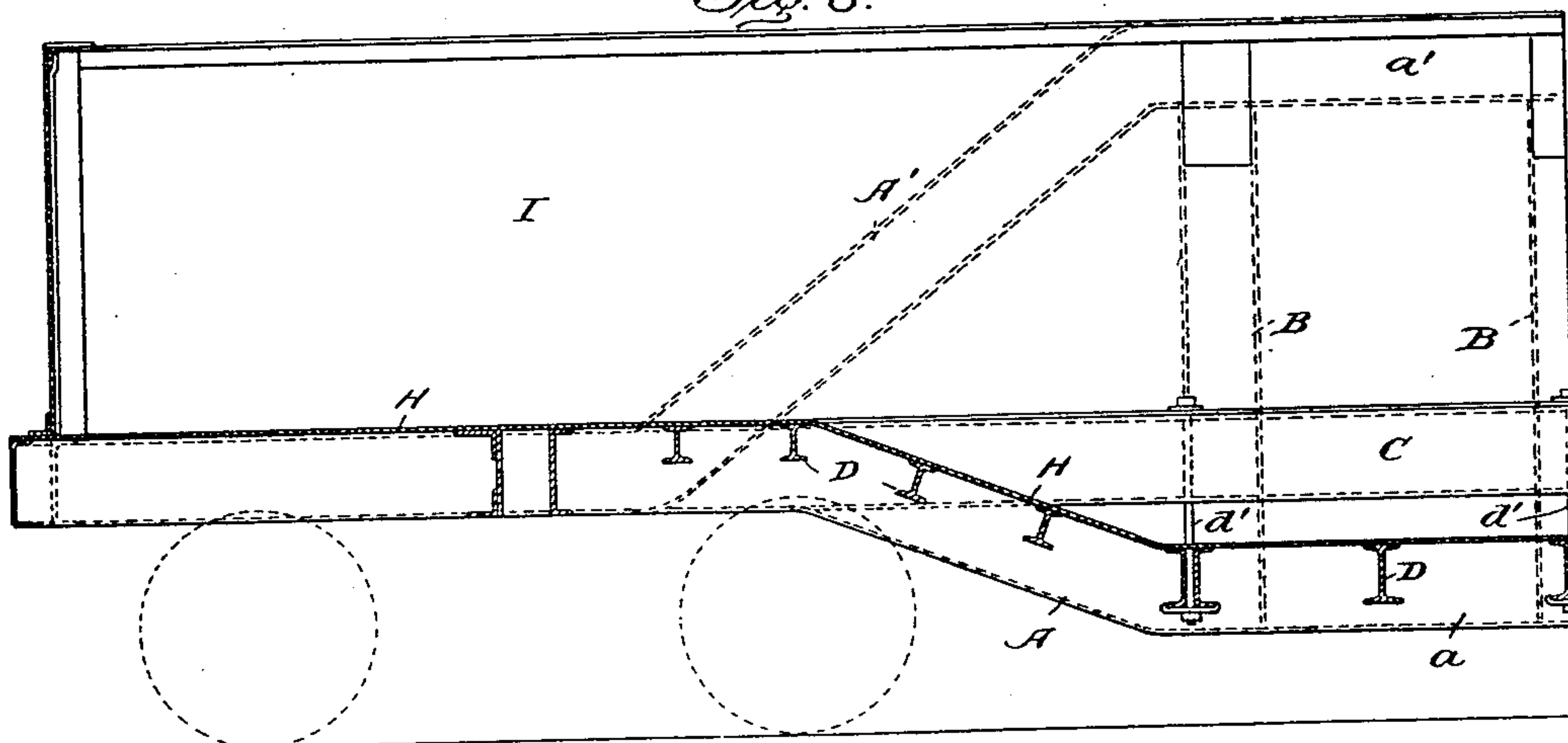
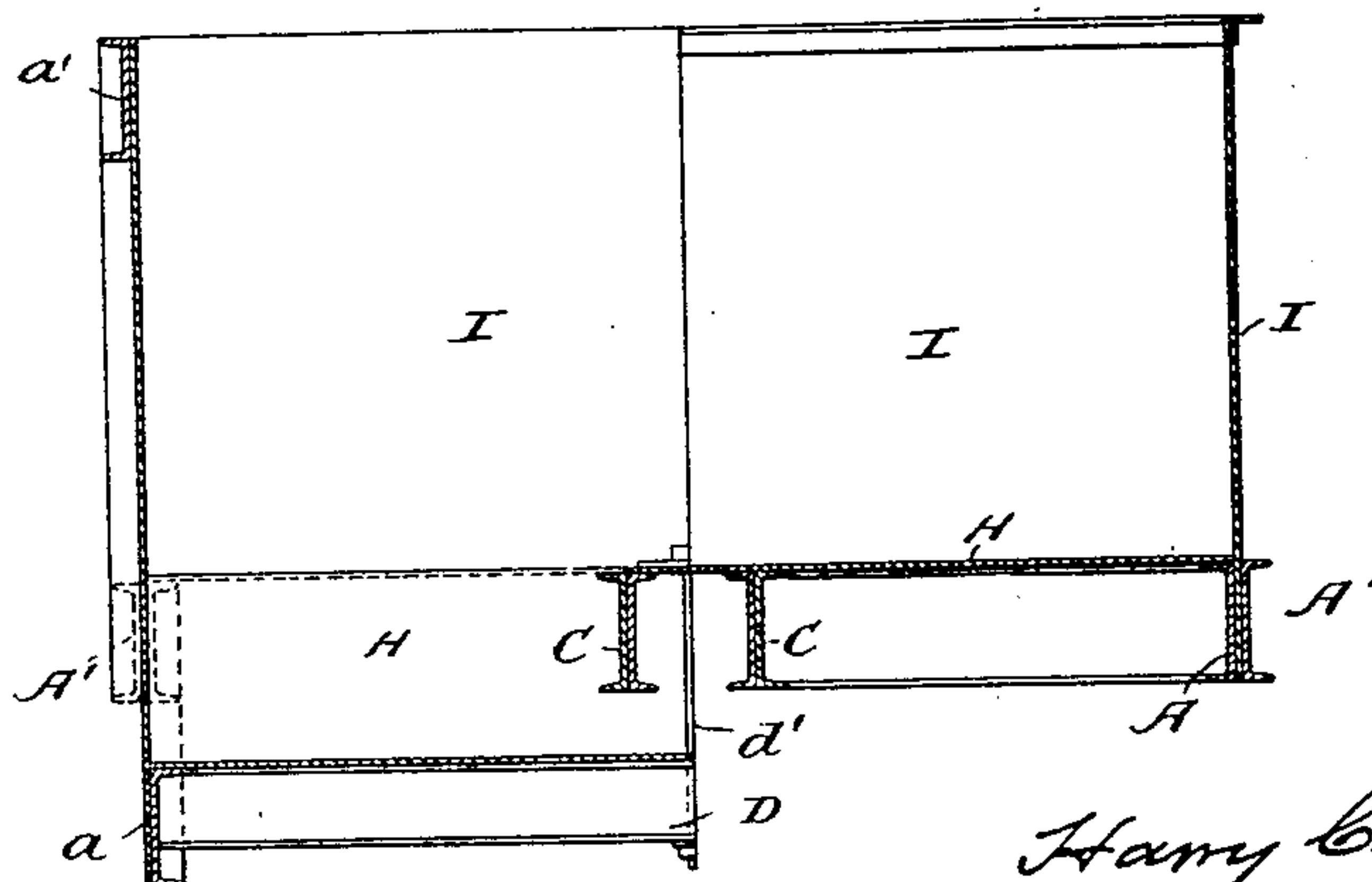


Fig. 9.



Inventor

Witnesses

Edwin L. Bradford
J. F. Ritter

By

Harry C. Buhoop
J. F. Ritter, Jr.
Attorney

UNITED STATES PATENT OFFICE.

HARRY C. BUHOUP, OF CHICAGO, ILLINOIS.

CAR CONSTRUCTION.

No. 859,916.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed April 20, 1907. Serial No. 369,231.

To all whom it may concern:

Be it known that I, HARRY C. BUHOUP, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car Construction; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the construction of cars, especially freight cars, coal cars and the like, and has for its object to increase the carrying capacity of the car without adding to the length thereof so as to require additional track room, or power for moving a train of a given number of cars; and without materially increasing the weight of the car or cost of construction.

The invention generally stated relates to that class of cars having depressed bottoms between the bolsters or trucks whereby the capacity of the car as well as its stability is secured, and my present invention is directed to such a trussed construction of the under framing to wit, the side and center sills as shall insure the strength and rigidity of the structure, prevent sagging when loaded and buckling when empty, and also facilitate the unloading of the car whether on a level or on an elevated track.

To this end the main feature of my invention embraces the combination in a car framing for depressed bottom cars, of raised and depressed side sills, and depressed center sills, said depressed side and center sills adapted to carry the cross sills which support the flooring, whereby a trussing effect is secured which strengthens the car both vertically and longitudinally.

A secondary feature of my invention embraces the combination in a framing for depressed bottom cars, of depressed side and center sills and straight or horizontal center sills secured to the depressed center sills whereby a trussed effect is produced which will obviate the tendency to upward buckling of the car floor when not loaded as well as support the floor against sagging under the load.

There are other, minor features, of invention, relating particularly to the support of the cross sills and depressed flooring, all as will hereinafter more fully appear, and which together with the main features of invention will be pointed out in the claims.

In the drawings of the construction chosen for illustrating my invention, Figure 1 is a part plan and part horizontal sectional view of one end of a car embodying my invention, part of the flooring removed to show the cross sills. Fig. 2 is a vertical longitudinal section of the portion of the car shown in Fig. 1, the section taken on the line 2—2 of said Fig. 1. Fig. 3 is a view partly in plan and partly in horizontal section on the line 3—3 Fig. 4, of a modification of the car construction shown in Figs. 1 and 2. Fig. 4 is a side eleva-

tion of the portion of the car shown in Figs. 2 and 3. Fig. 5 is a view partly in end elevation and partly in vertical transverse section on the line 5—5 Fig. 4 of the car construction illustrated in Figs. 3 and 4. Figs. 6 and 7 are enlarged detail views of the construction for lowering, raising and securing the drop doors of the depressed bottom of the car. Fig. 8 is a longitudinal vertical central section of one end of a car showing a modification in the manner of supporting the cross sills from the center sills. Fig. 9 is a view partly in end elevation and partly in vertical section of a car embodying the construction shown in Fig. 8.

Like symbols refer to like parts wherever they occur.

In the drawings, A, A' indicate the compound side-sill of a depressed bottom car which sill is comprised of two channel beams arranged in juxtaposition and which extend from end to end of the car frame being the one depressed between the bolsters or trucks as at *a* and the other elevated as at *a'*. The members A, A' will be riveted together, and especially so at their points of divergence, and intermediate of said points of divergence will be braced by vertically placed channel beams or posts B, or equivalent struts so placed as to permit of the location of side-doors E in the depressed portion of the car between the trucks.

C, C' indicate the center sills of the framing of which the member C extends horizontally from end to end of the car, while the other member C' is preferably depressed between the bolsters or trucks as at *c'*, the two members C, C' which are arranged in juxtaposition are usually channel beams being riveted, bolted, or otherwise connected together at the points of their divergence and throughout their parallel portions.

The depressed portions *a* of the side sills and *c'* of the center sills are in substantial alinement so that the cross-sills D of the under framing will extend between and be supported thereby; and the depressed sill member *c'* will be supported from the horizontal sill member C, by either suspension bolts *d'* (Fig. 8) or suspension straps *d''* (Fig. 5), and in case of the latter or straps *d''* the same may form side plates extending the length of the depressed portion of the car bottom so as to divide the same into substantially two compartments. If, however, it is desired to omit the depressed member C' of the center sills with their depressed portions *c'*, and avoid the longitudinal division of the depressed portion of the car into two compartments, the cross sills D may extend the whole width of the car, being supported at the ends by the depressed side sills A' *a*, and at intermediate points by suspension bolts or rods *d'* (see Fig. 9).

E, E indicate side doors horizontally hinged below as at *e* so as to drop downwardly and outwardly, and when closed to be held in position by pins *e'* or in any other suitable manner.

F, F indicate trap doors or drop doors located in the

depressed portion of the car bottom, and horizontally hinged as at *f* to swing downward and inward, said doors being lifted when down and supported in elevated position thereafter by transverse bars or rods *g* adapted to traverse longitudinal slots *G* in the depressed portion *a* of side sills *A*.

The slots *G* extend from a point at or near the middle of the door back to a point in rear of the hinge *f* of the door, and the rod *g* which may extend across the whole width of the car and to the outside of the sills *A*, is provided at each end with a pinion *g'* arranged to engage a rack *G'* secured to said depressed sill member *A*. When therefore, a suitable crank is applied to the rod *g* and the same rotated, by reason of the rack and pinion, said rods are easily made to travel from the center to beyond the hinge of the drop door *F* and according to the position of said rod and said door, the door will either be dropped, or raised and held in position as the case may be. The flooring *H* and sides *I* may be constructed entirely of steel, or either the floor or sides, or both, may be of wood, after the style of what is known as a "composite car", if desired.

The relative arrangement and combination of the depressed center and side sills with the elevated or bridged side sill members and the vertical posts, and the combination and arrangement of the horizontal and depressed center sills and support bolts or straps not only provide for a depressed bottom car but permits such a relative arrangement of the side doors and trap doors as will facilitate the unloading of the car by hand labor in the usual manner when the car is on a level and also by dumping when the car is on an elevated track, and further, serves to strengthen and

stiffen the car not only when loaded but also as against upward bending or buckling under heavy shocks when empty.

In addition to the foregoing the load capacity of the car is increased from twenty to twenty-five per cent without increasing the length or height thereof, or materially increasing the weight or cost of construction, or requiring a correspondingly increased track space of from three hundred to five hundred feet for every fifty car train, and by reason of said saving in the length of the train for a given load, a corresponding saving in power required to move the loaded train is effected.

Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. In a car-framing for depressed bottom cars, the combination of depressed side sills, correspondingly depressed center sills, cross sills which extend between the depressed side and center sills, horizontal center sills connected with the depressed center sills, elevated side sills, and intermediate posts which connect the elevated and depressed side sills.

2. In a depressed bottom car construction the combination of depressed side sills, depressed center sills, cross sills which extend between the depressed center sills and the depressed side sills, and horizontal center sills connected with the depressed center sills.

3. In a depressed bottom car the combination of depressed side sills, horizontal center sills, cross sills which extend from depressed side sill to depressed side sill, and intermediate supports for suspending the cross sills from the center sills.

In testimony whereof I affix my signature, in presence of two subscribing witnesses.

HARRY C. BUHOUP.

Witnesses:

D. B. MASON,
S. F. KLOBS.