

W. P. BETTENDORF, DEC'D.
 J. W. BETTENDORF, ADMINISTRATOR.
 BOX CAR CONSTRUCTION.
 APPLICATION FILED APR. 8, 1910.

1,036,786.

Patented Aug. 27, 1912.

4 SHEETS—SHEET 1.

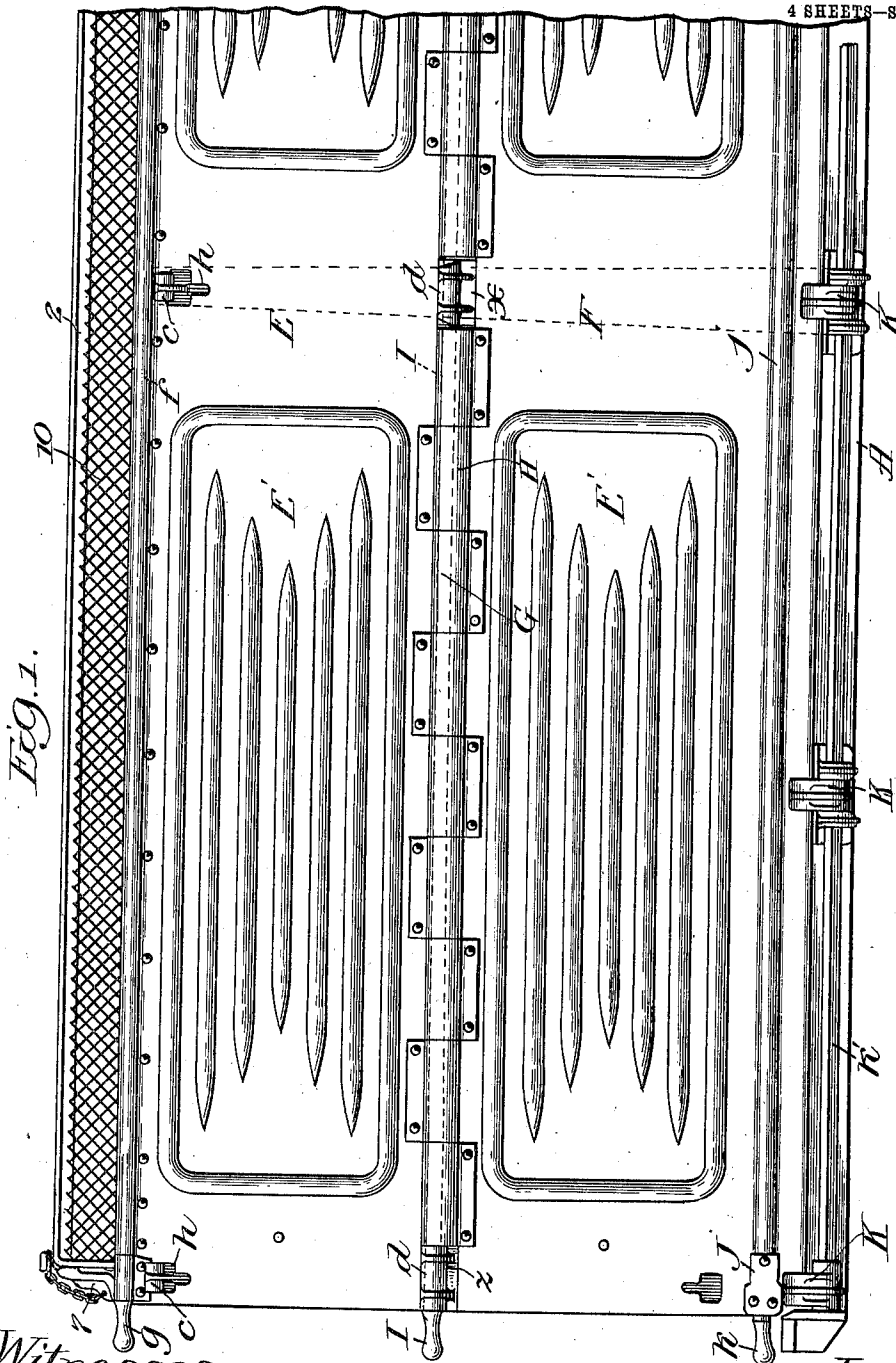


Fig. 1.

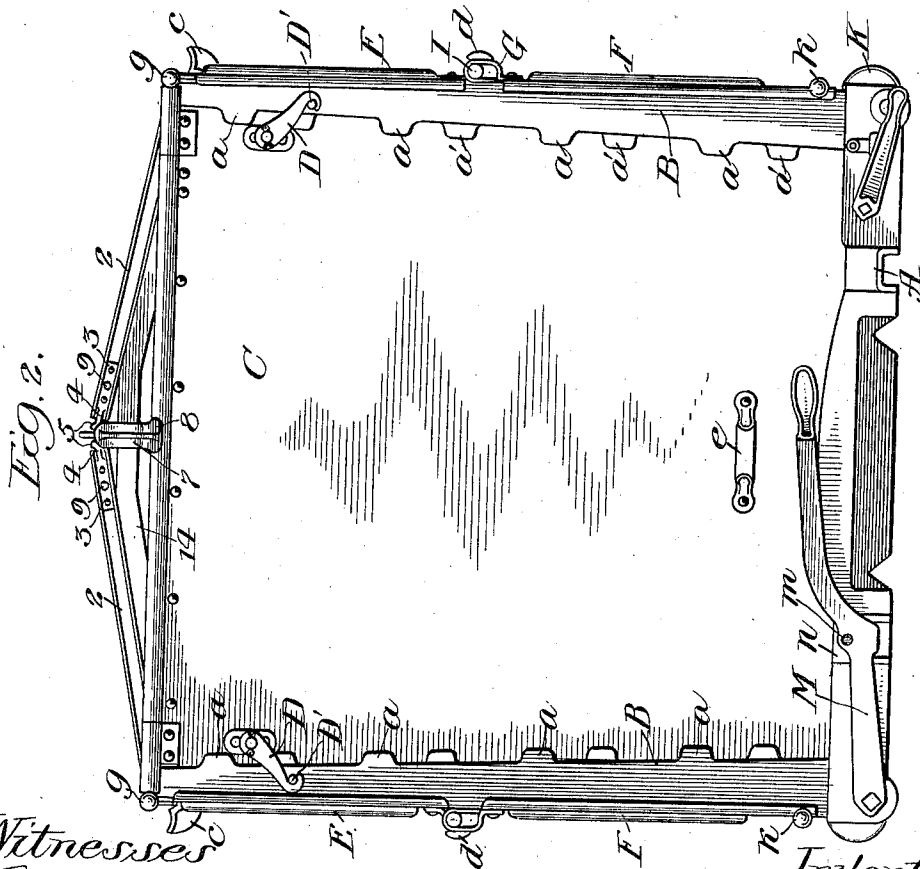
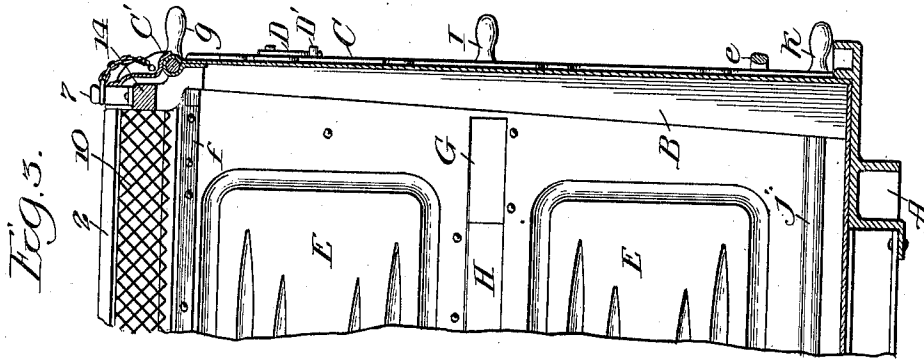
Witnesses
 Ch. W. Warrick
 E. Lundy.

Inventor
 William P. Bettendorf
 by Frank H. Harrison
 Atty

W. P. BETTENDORF, DEC'D.
 J. W. BETTENDORF, ADMINISTRATOR.
 BOX CAR CONSTRUCTION.
 APPLICATION FILED APR. 8, 1910.

1,036,786.

Patented Aug. 27, 1912.
 4 SHEETS—SHEET 2.



Witnesses
 C. W. Hennrich
 E. Lundy.

Inventor
 William P. Bettendorf
 by Frank D. Houssey
 Atty

W. P. BETTENDORF, DEC'D.
J. W. BETTENDORF, ADMINISTRATOR.

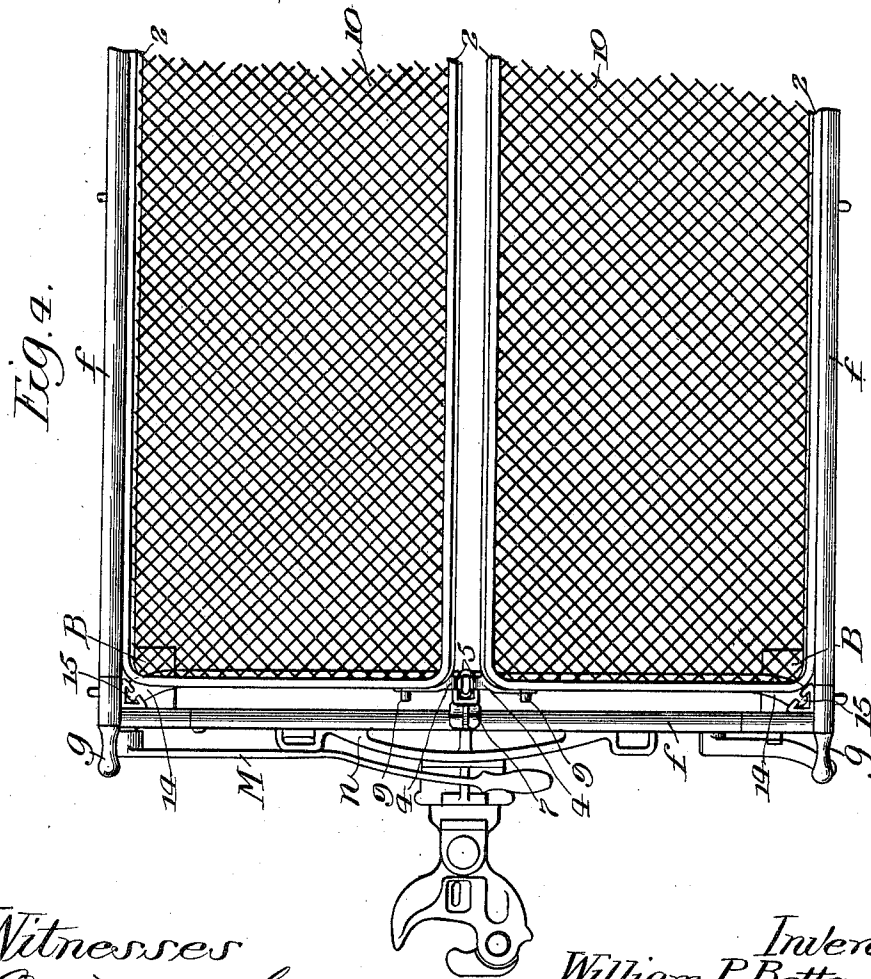
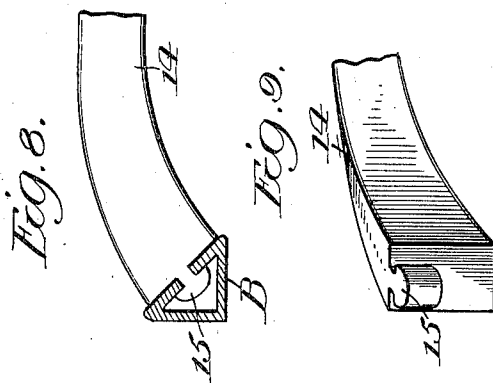
BOX CAR CONSTRUCTION.

APPLICATION FILED APR. 8, 1910.

1,036,786.

Patented Aug. 27, 1912.

4 SHEETS—SHEET 3.



Witnesses
Om. Murnick
E. Lundy

Inventor
William P. Bettendorf
by Frank D. Thomson
Atty

W. P. BETTENDORF, DEC'D.
 J. W. BETTENDORF, ADMINISTRATOR.
 BOX CAR CONSTRUCTION.
 APPLICATION FILED APR. 8, 1910.

1,036,786.

Patented Aug. 27, 1912.
 4 SHEETS—SHEET 4.

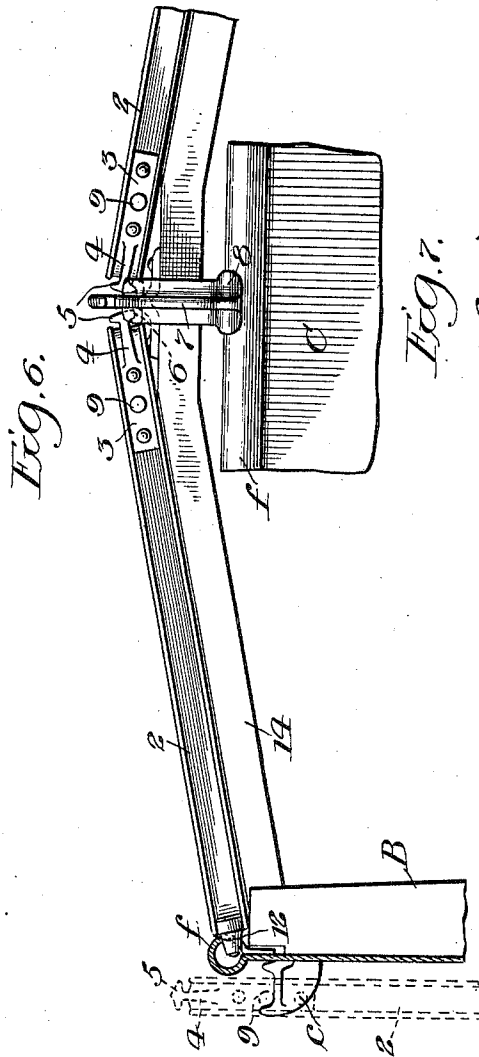
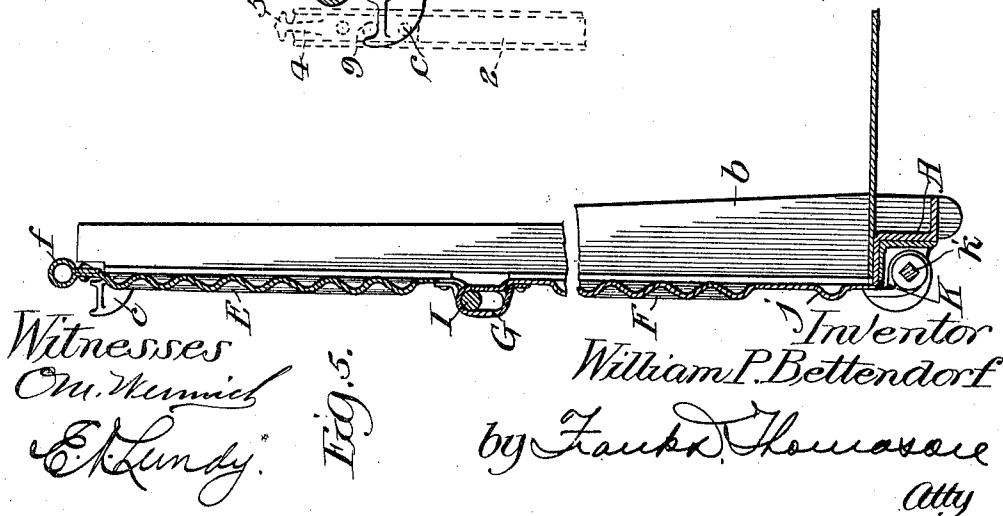
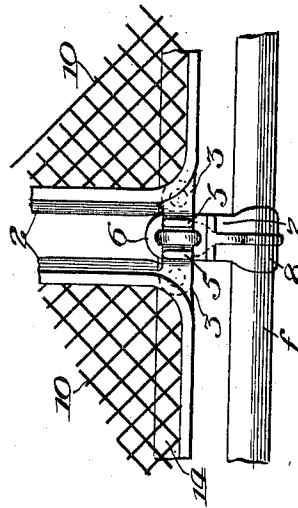


Fig. 7.



Witnesses
 Chas. Kimmich
 E. Lundy.

Fig. 5.

Inventor
 William P. Bettendorf
 by Frank Thomas
 Atty

UNITED STATES PATENT OFFICE.

WILLIAM P. BETTENDORF, OF BETTENDORF, IOWA; J. W. BETTENDORF ADMINISTRATOR OF SAID WILLIAM P. BETTENDORF, DECEASED.

BOX-CAR CONSTRUCTION.

1,036,786.

Specification of Letters Patent.

Patented Aug. 27, 1912.

Application filed April 8, 1910. Serial No. 554,185.

To all whom it may concern:

Be it known that I, WILLIAM P. BETTENDORF, a citizen of the United States, residing at Bettendorf, in the county of Scott and State of Iowa, have invented new and useful Improvements in Box-Car Construction, of which the following is a full, clear, and exact description.

My invention relates to the construction of the bodies of cars, and particularly "knock-down" car-bodies.

The object of my invention is to provide such a construction for a car-body of this character, that the roof, the side-walls and the end-walls thereof can be removed, and the car above the floor be dismantled, quickly and without the necessity of loosening nuts or removing bolts, and, be just as quickly and as easily assembled.

Another object of my invention is to so construct the side-walls of said "knock-down" body, that they can be adjusted either for a box-car, a dump-car, or a gondola car by the simple expedient of hinging the upper half and the lower half thereof together.

Another object is to permit of the removal of the roof elements of the car-body without disturbing the structural independence of the side-walls thereof.

This I accomplish by comparatively simple means, substantially as hereinafter fully described and as particularly pointed out in the claims.

In the drawings: Figure 1 is a side elevation of one end portion of my improved knock-down car-body. Fig. 2 is an end elevation thereof. Fig. 3 is a vertical longitudinal section of one end thereof. Fig. 4 is a plan view of the same. Fig. 5 is a vertical transverse section through the side of said car-body. Fig. 6 is an end elevation of part of the roof elements, and fragments of the cooperating body parts, drawn to a slightly larger scale. Fig. 7 is a plan view of a fragment of said roof including the union of the roof elements, and the ridge support. Fig. 8 is a detail view showing a plan, and Fig. 9 is a side of one end of the carlines, connecting the end-posts of my invention.

In the drawings A represents a suitable rectangular underframe, which, at the corners, is provided with metal corner-posts B, that are, preferably, angle shape in cross-section, and have their larger lower ends

suitably secured to the floor or underframe, and their smaller upper ends terminating just below the eaves of the roof members. The car is also provided with T-iron side-posts or stakes *b, b*, located at its center of length, which are likewise secured to the floor or underframes, and rise to the same height as the corner-posts. The transverse webs of the corner-posts B have equi-distant lugs *a, a*, projecting from the free edges thereof, and have cast metal brackets *c* projecting outward from the webs thereof, near their upper ends, and also have hook-shaped brackets, *d*, projecting outward therefrom just above their centers of height.

Each end-wall C of the car consists of a single plate of sheet metal, the width of which is slightly greater than the distance between the free edges of the transverse webs of the corner-posts, and the height of which slightly exceeds the height thereof. The upper edge of this end-wall is reinforced by a suitable bar *C'*, around which the upper portion of the plate constituting the same is rolled back onto itself, as shown in Fig. 3 of the drawings, and the ends of this bar extend beyond the vertical edges of said end-wall. The free transverse edges of the end-posts, as shown in the drawings are inclined slightly from their bases to the tops, and the vertical edges of the end-walls are inclined the obverse of the opposing edges of the posts, and are provided with a series of equi-distant recesses *a', a'*, corresponding in number to lugs *a*, of the posts, but so located that when said end-walls are in their proper positions they are staggered with said lugs *a*. When it is desired to assemble the end-walls they are raised such a distance higher than the position they finally occupy, that the lugs *a* of the posts can be passed through the recesses *a'* in their edges, and so that when lowered the extremities of the bar *C'* will rest against the outer surfaces of the posts at the top, and then said end-walls are retained in positions by hooks D, whose shanks are pivoted thereto and engage suitable studs *D'* projecting outward from the posts, substantially as shown. In order to facilitate the lifting of the end-walls, either when assembling the parts of the car-body or when dismantling the same, I have provided a suitable hand-grasp *e*, which is constructed on the principle of a drawer-pull,

and is secured to the lower central part of the end-wall.

Each side-wall of my improved car-body comprises an upper portion or drop-wall E and a lower door F, each of which consists of a single plate of sheet metal corresponding in length to the length of the car, and of a height corresponding to one half that of the sides of the same. These sheet metal parts of the side-walls are strengthened by being provided with suitable embossments E', that are located on either side of the center of length of the same and are arranged in the shape of panels, substantially as shown in the drawings. These embossments may be of any suitable design desired, however, and may be of the same length as those shown, or longer. The upper edges f of the drop-walls E are reinforced by being rolled back and riveted, so as to make them tubular, and the ends of this tubular edge afford sockets into which the shanks of suitable handles g, are fastened, to facilitate the handling thereof. Near each end and near the center of length of said drop-walls they are provided with vertically elongated openings h, out through which the hook-shaped brackets c, hereinbefore referred to, project, and upon which said side-walls are hung. The upper edges of the lower door F and the lower edges of the drop-walls E are provided with corresponding staggered knuckles G and H, the vertical diameters of the bores of which are greater than the horizontal diameters. These knuckles are connected by a longitudinal pintle-bar I, whose ends extend beyond the end edges of the upper and lower parts of the side-walls and are formed into handles to assist in handling them. There is an opening x between plates E and F in the transverse plane of the side-stakes, and it will be noticed that the end knuckles of said doors terminate a short distance from the end edges thereof, and leave a space z between the horizontal edges of the same. When the side-walls are in position brackets d project through spaces z and the portion of the pintle-bar traversing this space rests upon said brackets, d. The central portion of said pintle-bar traverses opening x and rests upon and is supported by the brackets d that project through said opening. All of these brackets d have their upper surfaces concaved so as to retain the same and form the principal support for the parts of the side-walls and because of this concavity of brackets d and likewise of brackets c, it is necessary to vertically elongate or enlarge the openings out through which they project, in order to permit the side-walls to be lifted vertically when it is desired to remove them from the cars.

Near their lower edges and parallel therewith the lower doors of the side-walls are

each provided with a longitudinal horizontal bead j, and at the ends of said beads, said doors are provided with suitable socket plates J, for the reception of the shank of handles k, the shape and the projection of which corresponds to the handle g of the upper plate and the extended ends of the pintle-bar I. Below beads j the lower portions of the lower doors F are plain, and when said doors are closed down against the side-sills of the underframe, they can be confined and clamped in this position by a series of comma-shaped clamping arm K, which latter are secured upon a rock-shaft k', that extends longitudinally alongside of the side-sill, below the lower edges of the doors. Rock-shaft k' is journaled in suitable bearings secured to said side-sills, and arms K are, preferably, secured thereon at equal distances apart. At one end rock-shaft k' extends through its bearings in the end-sill of the underframe, and has a lever M secured to the extended end thereof, which latter, when the clamping-arms engage the lower door, will be disposed in the position shown in Fig. 2 of the drawings. When in this position it can be locked by means of a padlock, the yoke of which extends through an opening m therein and through a suitable opening in the projection of a suitable casting n secured to said end-sill.

I prefer to make the roof of my improved car-body of two rectangular screens, 10, each of which is bounded by a suitable channel-iron frame 2, and each of which is of a length corresponding to the distance between the end-walls of the car, and is of a width corresponding to the width of one side of slope of the roof. At this point it may be mentioned that instead of screening, solid plates might be employed, for these roof elements. For convenience, however, these elements will hereinafter be called "screens." At the ends of the car, these screens are supported by carlines, 14, that arch over from the top of one corner-post to the other. These carlines are arranged in transverse vertical planes just inside those of the end-walls, and their ends are bent laterally toward and have T-shaped dowels 15, that enter suitable recesses in the angular webs connecting the outer webs of the top of the corner-posts. In order to lock the ridge of said screens together, at their ends, frames 2 have suitable plates 3 secured to the outer surfaces of the webs thereof, which latter are provided with fingers 4 projecting in transverse alinement with the ends of frames 2, beyond the adjacent longitudinal edges thereof, a short distance, which fingers are provided with heads 5, having greater vertical dimensions. When the screens are assembled, the heads of said fingers are adapted to be dropped

into depressed seats made in the horizontally projecting members 6 of standards 7, each of which is preferably, Y-shaped in cross-section and extends down to and is provided with a concaved foot 8 that rests upon the top of the end-wall at the center of width of the car. The plate 3 is also provided with laterally projecting studs 9 the function of which when said screens are lifted off the top of the car is to be caught upon the brackets *c* projecting outward from the outer ends of the end-posts, as hereinbefore stated and carry said screens alongside of the upper portions of the sides of the car in the position shown in dotted lines in Fig. 6 of the drawings.

At their lower corners screens, 10, are provided with studs, 12, that are secured in the marginal frame, 2, thereof and project transversely outward therefrom. When the screens are in their proper positions, these studs enter suitable apertures made to receive the same in the tubular upper edges of the upper drop-walls, and when the screens are locked by means of a padlock or otherwise, engaging the vertical extension 15 arising from standard 7 between fingers 4, the screens will be locked in position.

What I claim as new is:—

1. A car-body comprising corner posts, brackets secured to and projecting from said posts near their upper ends, and side-walls each consisting of an upper and lower portion having their adjacent edges hinged together, and having suitable openings therein through which said brackets project, and means for holding the lower portions against said posts.

2. A car-body comprising corner-posts, brackets secured to and projecting from said posts near their upper ends, and near their centers of height, side-walls each consisting of an upper and lower portion the adjacent edges of which are provided with staggered knuckles and have openings in the upper portions through which the upper brackets project, a pintle-bar engaging said knuckles, having its ends extended beyond said knuckles and supported upon the lower brackets, and means for securing the lower edges of the lower portion of each side-wall against said posts.

3. A car-body comprising corner-posts, and side-walls each consisting of an upper and lower portion suitably supported by said posts and having their adjacent parallel edges provided with staggered knuckles the vertical diameters of whose bores are greater than the horizontal diameters, and a pintle-bar threading said knuckles and whose ends are removably supported by said posts.

4. A car-body comprising corner-posts, end-walls removably secured thereto, brackets secured to and projecting from

said posts near their upper ends, and side-walls each consisting of an upper and lower portion having their adjacent edges hinged together and having suitable openings therein through which said brackets project, and means for holding the lower portions against said posts.

5. A car-body comprising corner-posts, end-walls placed between said posts, dogs pivotally secured to said end-walls and adapted to secure the same to the posts, brackets secured to and projecting from said posts near their upper ends, and side-walls each consisting of an upper and lower portion having their adjacent edges hinged together, and having suitable openings therein through which said brackets project, and means for holding the lower portions against said posts.

6. A car-body comprising corner-posts having lugs projecting from the inner edges of their transverse webs, removable walls having recesses in their vertical edges located in staggered relation to said lugs, brackets secured to and projecting from said posts near their upper ends, and side-walls each consisting of an upper and lower portion having their adjacent edges hinged together, and having suitable openings therein through which said brackets project, and means for holding the lower portions against said posts.

7. A car-body comprising corner-posts having lugs projecting from the inner edges of their transverse webs, removable end-walls having recesses in their vertical edges located in staggered relation to said lugs, dogs pivoted to said end-walls and adapted to secure the same to the posts, brackets secured to and projecting from said posts near their upper ends, and side-walls each consisting of an upper and lower portion having their adjacent edges hinged together and having suitable openings therein through which said brackets project, and means for holding the lower portions against said posts.

8. A car-body comprising corner-posts, end-walls removably secured thereto, brackets secured to and projecting from about the center of height of said posts, side-walls each consisting of an upper and a lower portion, the adjacent edges of which are provided with staggered knuckles, a pintle-bar engaging said knuckles and having its ends extend beyond the end knuckles, and supported upon said brackets, and means for holding the upper edge of said upper portion and the lower edge of said lower portion of each side-wall against the posts.

9. A car-body comprising corner-posts, end-walls placed between said posts, dogs pivotally secured to said end-walls and adapted to secure the same to the posts, brackets secured to and projecting from

about the center of height of said posts, side-walls each consisting of an upper and a lower portion, the adjacent edges of which are provided with staggered knuckles, a pintle-bar engaging said knuckles and having its ends extend beyond the end knuckles and supported upon said brackets, and means for holding the upper edge of said upper portion and the lower edge of said lower portion of each side-wall against the posts.

10. A car-body comprising corner-posts having lugs projecting from the inner edges of their transverse webs, removable end-walls having recesses in their vertical edges located in staggered relation to said lugs, brackets secured to and projecting from about the center of height of said posts, side-walls each consisting of an upper and a lower portion the adjacent edges of which are provided with staggered knuckles, a pintle-bar engaging said knuckles and having its ends extend beyond the end knuckles and supported upon said brackets, and means for holding the upper edge of said upper portion and the lower edge of said lower portion of each side-wall against the posts.

11. A car-body comprising corner-posts having lugs projecting from the inner edges of their transverse webs, removable end-walls having recesses in their vertical edges located in staggered relation to said lugs, dogs pivoted to said end-walls and adapted to secure the same to the posts, brackets secured to and projecting from about the center of height of said posts, side-walls each consisting of an upper and a lower portion, the adjacent edges of which are provided with staggered knuckles, a pintle-bar engaging said knuckles and having its ends extend beyond the end knuckles and supported upon said brackets, and means for holding the upper edge of said upper portion and the lower edge of said lower portion of each side-wall against the posts.

12. A car-body comprising corner-posts, end-walls placed between said posts, dogs pivotally secured to said end-walls and adapted to secure the same to the posts, and side-walls each consisting of an upper and lower portion suitably supported by said posts and having their adjacent parallel edges provided with staggered knuckles the vertical diameters of whose bores are greater than the horizontal diameters, and a pintle-bar threading said knuckles and whose ends are removably supported by said posts.

13. A car-body comprising corner-posts having lugs projecting from the inner edges of their transverse webs, removable end-walls having recesses in their vertical edges located in staggered relation to said lugs, and side-walls each consisting of an upper

and lower portion suitably supported by said posts and having their adjacent parallel edges provided with staggered knuckles the vertical diameters of whose bores are greater than the horizontal diameters, and a pintle-bar threading said knuckles and whose ends are removably supported by said posts.

14. A car-body comprising corner-posts, end-walls placed between said posts, dogs pivotally secured to said end-walls and adapted to secure the same to the posts, and side-walls each consisting of an upper and lower portion, the adjacent horizontal edges of which have pivotal connection with said posts, and a series of clamping arms adapted to removably hold the lower edges of said lower portions against said posts.

15. A car-body comprising corner-posts, having lugs projecting from the inner edges of their transverse webs, removable end-walls having recesses in their vertical edges located in staggered relation to said lugs, and side-walls each consisting of an upper and lower portion, the adjacent horizontal edges of which have pivotal connection with said posts, and a series of clamping arms adapted to removably hold the lower edges of said lower portions against said posts.

16. A body for box-cars comprising a suitable underframe, corner-posts connected thereto, side-walls supported by said posts and consisting of an upper and lower door the longitudinal edges of which are hinged together and pivotally connected to said posts, end-walls removably secured to said posts rectangular roof members each corresponding in dimensions to one side of the roof and each having its outer edge engaging its respective side-wall and connecting the same to the roof ridge, and standards supporting the ends of said roof members at the ends of the roof ridge, which standards are removably supported on said end-walls.

17. A knock-down car-body for box-cars comprising an underframe, corner-posts, end-walls secured to said posts, side-walls pivotally and removably secured to said posts, carlines secured to and arching from one post to the other, rectangular roof elements, studs projecting from the outer longitudinal edges thereof and adapted to enter apertures in the upper edge portion of said side-walls and support the outer edges of said roof elements, and standards resting upon said end-walls, the upper ends of which are adapted to be engaged by said roof elements.

18. A knock-down car-body for box-cars comprising an under-frame, corner-posts, end-walls secured to said posts, removable side-walls, carlines removably secured to and arching from one post to the other, half roof members removably supported upon said carlines the outer edges of which engage said side-walls and standards resting

upon said end-walls the upper ends of which are engaged by the corners of said half roof members.

of which engage said side-walls, and standards resting upon said end-walls the upper ends of which are engaged by the corners of said half roof members.

In witness whereof I have hereunto set my hand this 1st day of April, 1910.

WILLIAM P. BETTENDORF.

Witnesses:

A. B. FRENIER,
O. C. STABY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."