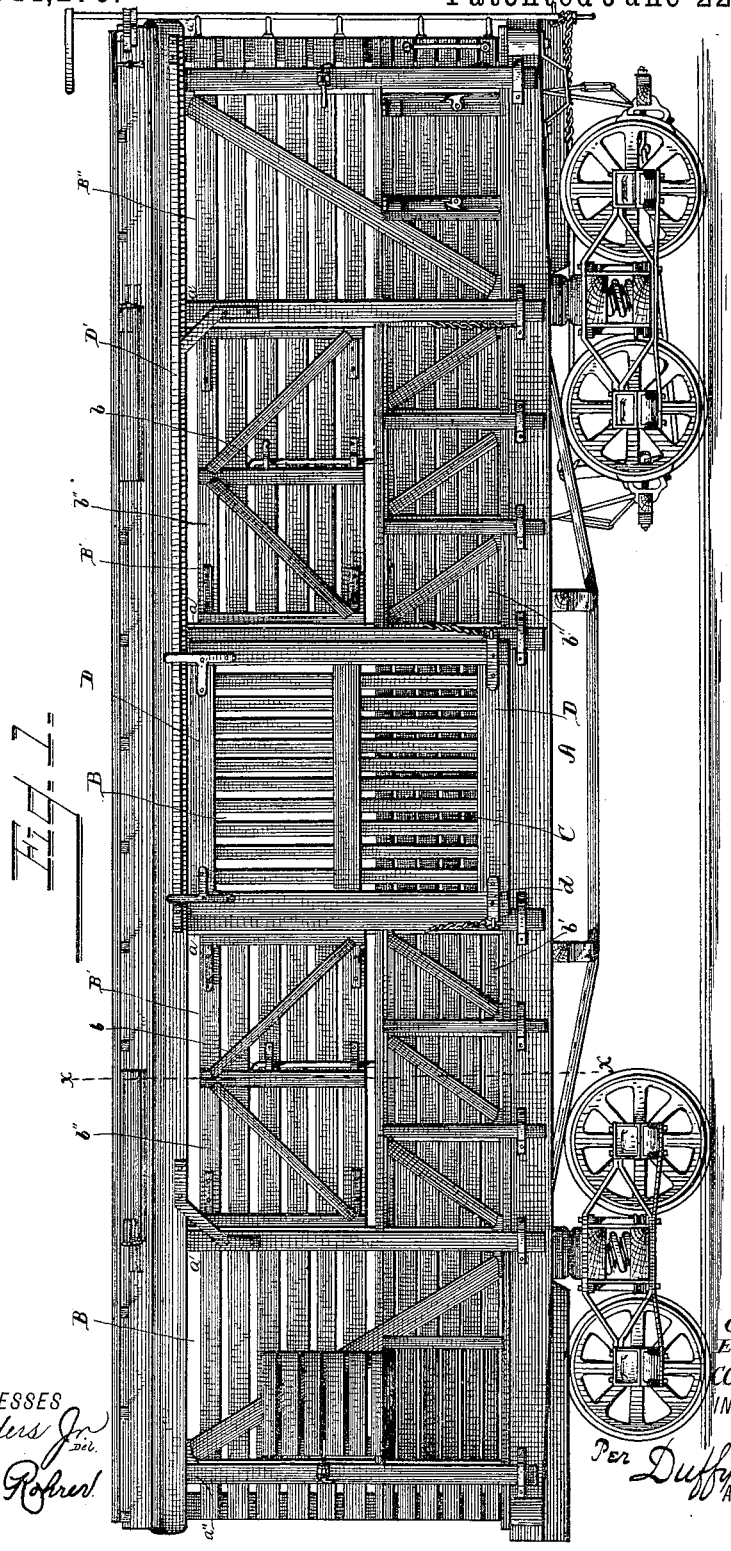
(No Model.) 3 Sheets—Sheet 1.

C. W. & C. C. JAMES.

E. C. JAMES Administrator of C. C. JAMES, Deceased.

DOOR FOR COMBINATION CARS.

No. 344,276. Patented June 22, 1886.



WITNESSES
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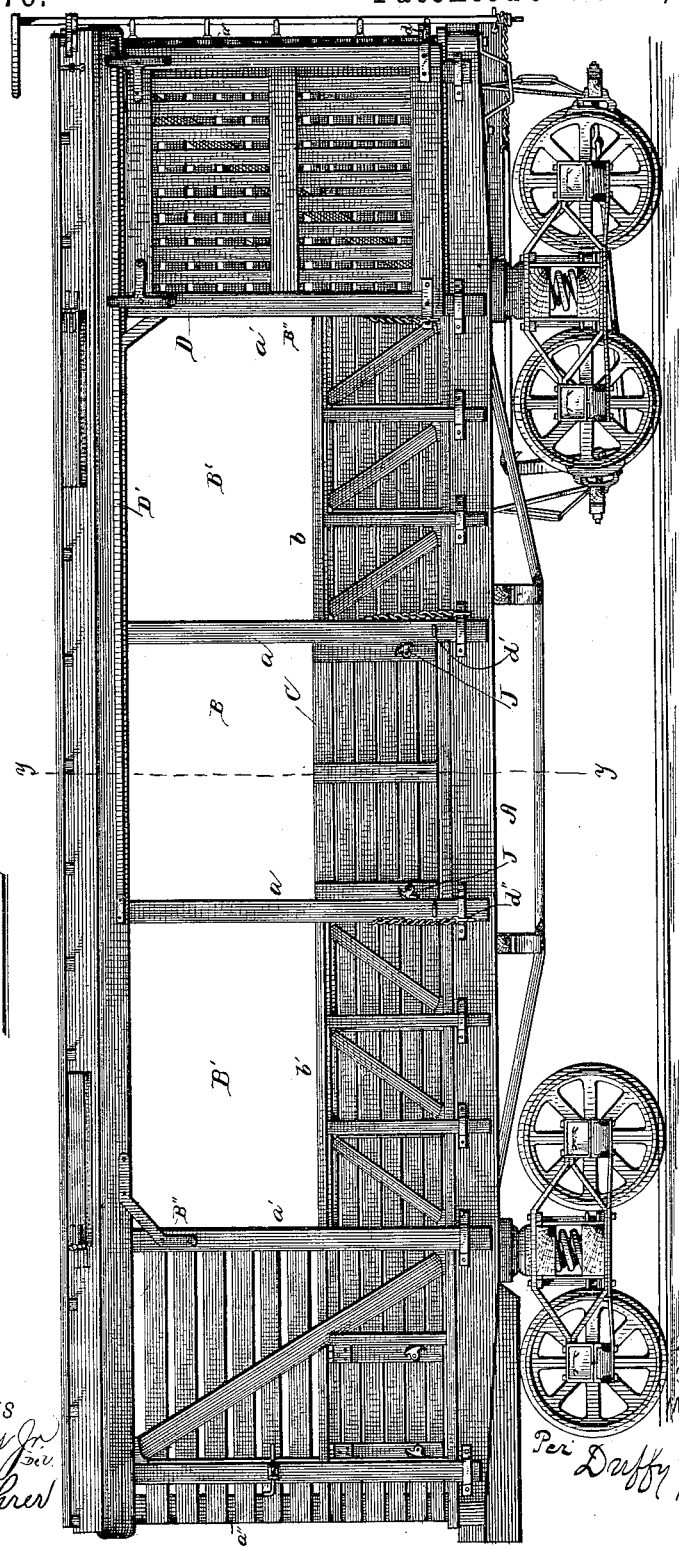

Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

C. W. & C. C. JAMES.

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DOOR FOR COMBINATION CARS.

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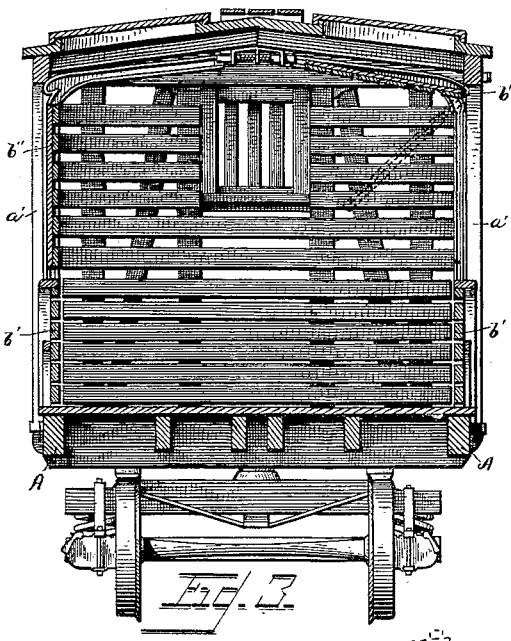

Fig. 3.

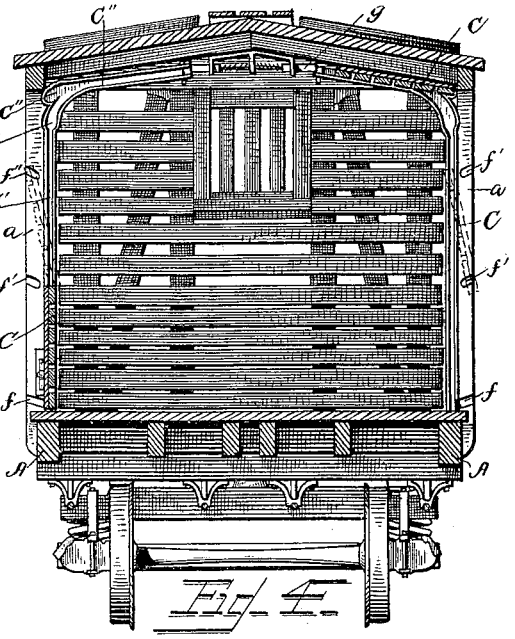

Fig. 4.

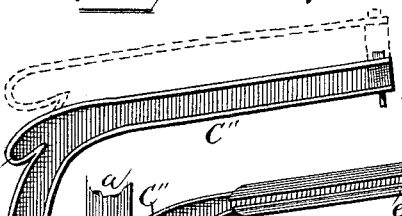

Fig. 5.

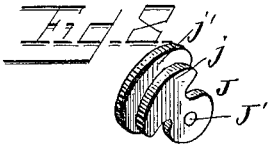

Fig. 8.

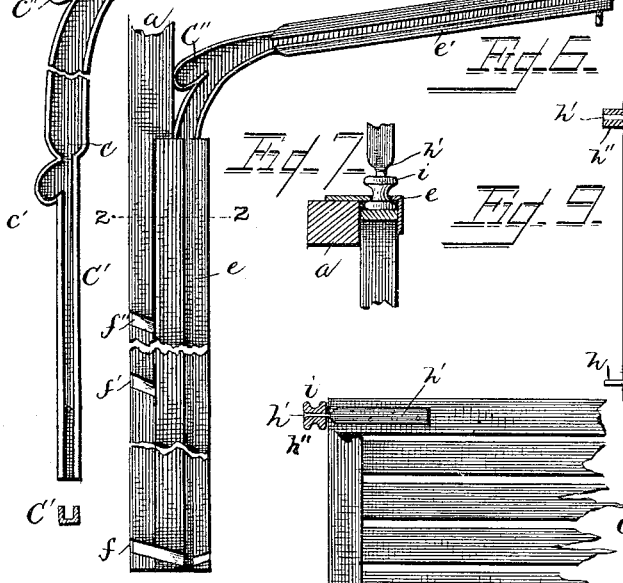

Fig. 6.

Fig. 7.

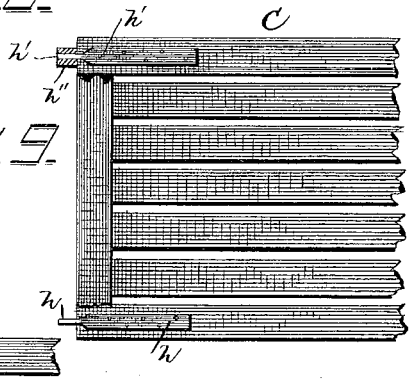

Fig. 9.

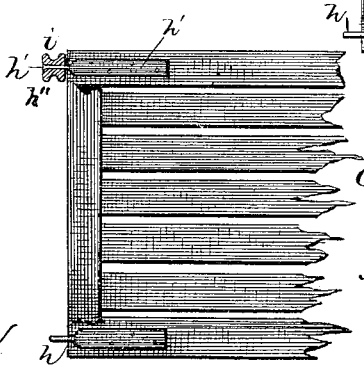

Fig. 10.

WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES W. JAMES, AND EDWIN C. JAMES, (ADMINISTRATOR OF CHARLES C. JAMES, DECEASED,) OF DAYTON, OHIO.

DOOR FOR COMBINATION-CARS.

SPECIFICATION forming part of Letters Patent No. 344,276, dated June 22, 1886.

Application filed February 4, 1886. Serial No. 190,852. (No model.)

To all whom it may concern:

Be it known that CHARLES W. JAMES, of Dayton, in the county of Montgomery and State of Ohio, and CHARLES C. JAMES, deceased, late of Dayton, in the county of Montgomery and State of Ohio, (EDWIN C. JAMES administrator of said CHARLES C. JAMES,) did invent certain new and useful Improvements in Doors for Combination-Cars; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention designs a combination-car for transportation of cattle, coal, lumber, grain, or other kinds of freight, in which, by means of a combination of doors or movable sections, any kind of freight as above mentioned may be loaded, unloaded, and transported at will in a single form of car.

Cars heretofore in use for carrying freight have been open lattice-work cars for transporting cattle or stock, uncovered platform-cars, with or without low sides, for carrying coal, lumber, or other kinds of heavy freight, and closed or box cars for perishable and other kinds of freight.

It is a great desideratum to obtain a single form of car which may be adapted at will to the uses of all the three forms of cars above described; and the object of this invention is to simplify, cheapen, and improve in other respects the class of cars designed to be so converted, and to render them thoroughly practicable and easy of manipulation.

With these objects in view the improvements in which the invention consists have been devised, and which we shall now proceed to fully describe, and afterward specifically point out in the claims appended to this specification.

We have illustrated the invention in the accompanying drawings, in which Figure 1 is a view in side elevation of a car embodying the improvements, the parts being in the positions in which they are placed when the car is in transit, the car to be open-slatted, as shown in the drawings, or a tight or closed car. Fig. 2 is a view in side elevation of a car embodying the improvements, the parts being in the positions they are placed while loading or unloading a car, the car being always supposed to be closed and locked when loaded. Fig. 3 is a transverse vertical section on line *x x* of Fig. 1. Fig. 4 is a transverse vertical section on line *y y*, Fig. 2. Fig. 5 is a view in elevation of one form of grooved guideways for the improved doors. Fig. 6 is a view in elevation of another form of grooved guideways for said doors. Fig. 7 is a horizontal section on line *z z* of Fig. 6, the door-supporting pin or roller being in position. Fig. 8 is a view in perspective of the improved cam-latch or fastening-button. Fig. 9 is a view in side elevation of a fragment of a door having one of its supporting-pins provided with a plain roller; and Fig. 10 is a similar view of a similar fragment, the pin being provided with a grooved roller.

Like letters of reference mark the same parts wherever they occur in the several figures.

Referring to the drawings by letters, (the trucks and brakes and their immediate connections being of ordinary construction, and forming no part of the invention, will not be lettered,) A marks the floor beams or sills of the car running longitudinally thereof, upon which are mounted the studding or pillars *a a' a''*, by means of which the side walls of the car are divided into five sections, more or less. These sections are all provided with open-slotted or tight weather-boarding, as may be desired. The sections may be all movable, if desired, or part left rigid. A small door of ordinary construction, hinged at its top or bottom, is shown in one of these sections, open in Fig. 1, and closed in Fig. 2, which is used for various purposes—such as clearing out the car, removing special lots of freight, small stock, &c.; but as it forms no part of the invention no further mention will be made of it.

B B' B' mark the three inner or central sections or recesses lying, respectively, between the pillars *a a*, as clearly shown, and all of these sections are provided with doors, to close them or partially close them at will, as will

be hereinafter explained, the lower portions of each of the sections B′ B′ being either stationary or movable at will.

D is a sliding door hung on the outside of the car on a rail, D′, which extends from one end of the car to the other or from one end of the car to the further side of the central section, B, as desired, so that the door may be moved into position, as in Fig. 1, to close the opening B, or, as in Fig. 2, to the end of the car, resting out of the way. Near the bottom or between the bottom and the top, or both, as may be desired, on each side is a hasp, *d*, to engage staples *d′* on the side of the car, so that by means of pins *d″*, or suitable locks, the doors may be secured in either position, as desired. Instead of single upper rail, as described, the door may be hung on the upper and lower rail in the ordinary manner, if desired, each rail being of the length and in the position of the rail D′, as shown. It is not essential that the rail be located at either end particularly, as this may be determined by circumstances. Usually, however, the rail on the opposite sides of the car will be located at opposite ends.

In the drawings we have shown the lower portions, *b′ b′*, of sections B′ B′ rigid, while their upper sections *b″ b″*, are movable, and are provided with latch devices *b b*, by which to secure them.

On both sides of the standards or pillars *a a* are fixed grooved guideways or tracks C′ C′, those on the inner sides of standards *a a* forming a pair in which the movable section C slides, while those located on the outer sides of said standards and the inner sides of standards *a′ a′* form two more pairs, in which the movable sections *b″* slide, each guideway or track having a portion, C″, which is secured to the rafters of the car, thus lying in substantially a horizontal plane of the roof of the car in which portion the sliding section rests when not in use. These guideways are peculiarly constructed, and a description of the pair located on the inner sides of the standards *a* will be sufficient for a proper understanding of all of them. They are illustrated in enlarged detail in Figs. 5, 6, and 7, and may be described as follows: Each of them is composed of a trough-like iron structure set on the inside of the standard to receive the guide pintles and rollers *h h′ h″*, attached to and projecting from the sides of the sliding sections C. At the lower end of Fig. 5 a section through this is shown. The upright portion is of an equal gage or width and at the point *c* this gage is increased, the guideway widening, as shown, and continuing of the wide gage up to the top and throughout the horizontal portion C″ attached to the rafters. The uses of this construction will be explained hereinafter.

At the points *c′ c″* seats are formed in which the pintles or rollers may rest, as hereinafter set forth. As before stated, the sliding section C is provided with a pintle at the top and bottom, each side projecting laterally therefrom. The upper ones, *h′*, only of these pintles are provided with rollers, as at *h″*, which move in the position of the guide above the construction *c*, and when the sliding section is at its lowest position the rollers rest on the shoulders, thereby forming bearings upon which the said rollers rest. Immediately in coincidence with the point at which the lower pintles rest when the rollers are on these bearings the outer side of the guide-groove is cut away, and a groove cut into the standard *a*. This permits this section to swing outward on the friction-roll *h″* as a pivot or hinge, so that its lower end may pass out of the guideway and beyond the edge of the standards. It may then be slid up and the lower pintle passed into a groove, *f′*, in the side of the standard *a*, where it will be suspended above the floor for purposes hereinbefore mentioned. The section C may also be swung entirely over on its roller-pivot, and the pintle passed into a groove, *f″*, high up on standard *a*, in which position it will form a rump-plank in using the car for stock. This section may also be held in a like manner by raising it with both pintles and rollers in the guideways until the pintles come opposite seats *c′*, into which they may be dropped, and where they will be held. When desired, the roller *h″* is made grooved or sheave-shaped, as seen at *i* in Figs. 7 and 10. In this case the guideway is partially covered by a slotted bar, *e*, on the upright portion, and the similar slotted bar, *e′*, on the roof portion, thus forming an undercut groove instead of a plain one, and preventing any accidental displacement of the doors or sections.

The movable sections *b″* can be operated in the same manner as the section C just described, and the guideway at the lower end inside being cut away in the same manner as at *f*, allowing the section *b″* to swing or hinge toward center of car inside, and to fasten up under roof with suitable catches.

When the sliding sections are not in use, they are pushed up until the roller passes into and reaches the inner end of the roof portion C″ of the guideway, when the forward portion of the section comes in contact with a spring-dumper and latch device *g*. (See Figs. 3 and 4.) The rear or lower pintles, *h*, are now dropped into seat *c″* at the point or angle of the guideways, and are held therein by the spring-latch device, as described.

Fig. 8, as before stated, is a view in perspective of the improved fastening-cam. Its construction embraces a main body, J, having perforation J′, a cam, *j*, and flange *j′*. Perforations J′ receive a pin by which the device is pivoted to the door, as seen in Fig. 2, on the central sectional door. The flanges *j′* engage in a slot in the standard or in any suitable plate secured thereto, which is sufficiently deep to permit the cam-surface J′ to engage the surface of the standard. The flange in the slot prevents any swinging outward or inward of the door to which it is attached, and

the cam engaging the surface of the standard prevents any sidewise or upward movement, the cam wedging against the standards. The cam-fastening is also seen in Fig. 1 applied to the small door in the closed section B″ of the car.

The guideways hereinbefore described extend to the bottom of the standards; but those on the outer sides of standards *a a* are only long enough to reach the top of the rigid sections *b′ b′*. This is for the obvious reason that they are useless below this point when rigid lower sections exist, and, as a further natural consequence, the journal-bearings formed by constructing the guideway is higher up, and sufficiently so to cause the upper movable sections, *b″ b″*, to hang clear of the top of the rigid sections *b′ b′*, to which it may be secured at will by the sliding and turning bolts *b b*, as shown in Fig. 1, the lower hoop or bent end of which bolt passes into a slot in a plate on top of sections *b′ b′*, and, passing through the same into a recess in the top of the rigid section, is turned under the plate, thus securing and holding the upper section against rising. The latches *b b* are fitted in staples, and have handles at their upper ends, by which they may be turned or pressed downward. These handles are shaped to form hasps, which fit over staples inside the car, whereby they may be secured by pins or padlocks.

The operation of the invention may be described as follows, viz: The car, with the doors in the position shown in Fig. 1, when open-slotted, like drawings, is a stock-car—that is to say, a car in which to transport live stock—but can be used for coal, coke, and all other kinds of freight not perishable; but when the car is made tight, without open slots, it is commonly called a "box" or "freight" car, in which to haul grain, merchandise, and all other kinds of freight they may desire. The movable or sliding upper sections, *b″ b″*, are at the bottom of their movement, and serve, in connection with the lower sections, *b′ b′*, to fill up the opening B′ B′, and the outer door, D, has been moved along rod D′ until it closes the central opening, B. Now, to load or unload the car with coal, coke, lumber, merchandise, or any kinds of freight, the door D is slid along the bar D′ until it assumes the position shown in Fig. 2 at the end of the car, outside the end sections, B″ B″. The upper movable sections, *b″ b″*, are released from engagement (by means of their latch-bolts) with the rigid sections *b′ b′*, and are pushed up under the roof, the pintles *h* resting in seats *c″*, and held therein by the spring devices described. This brings the device to the position as shown in Fig. 2, which is the position desired to unload freight. The car thus adjusted possesses many advantages, among which may be enumerated the following: First, three-fifths of the length of the car or more, as may be desired, has open upper sections, through which coal, coke, or grain and all other kinds of freight may be loaded from wagons or chutes without the necessity of carrying or throwing it a long distance into the ends, as is necessary in such cars as are ordinarily used for these purposes; second, lumber of greater length by the width of one of the sections B′ may be loaded through such sections; third, the central section when the car is partially unloaded may be raised to the position in which the pintle *h* rests in seat *c′* or groove *f′*, so that the contents of the car may be passed under it; fourth, the rigid sections *b′* may be made movable and operated in the same manner.

The movable sections, by virtue of being provided with rollers on their upper pintles, *h*, move freely and easily in the guideways, and may be easily raised, and when the roof-section is reached move rapidly through it. When at the end of the stroke or guideway, and lying under the roof, it is only necessary to allow the spring device full play, when it will be automatically pushed toward the side of the car, the pintle *h* taking position and being held in seat *c″*, out of the way. It is released by simply pushing it toward the center of the car against the action of the spring, and then allowing it to drop to position, where it may be securely held against movement in any direction by the cam-fastening device. By omitting rollers from pintles *h* there is afforded plenty of play, and consequently easy movements in the slots and constriction of the lower portions of the guideways, whereby bearings for the rollers or pintles *h* are formed, as set forth.

Having thus fully described the invention, what is claimed, and desired to be secured by Letters Patent of the United States, is—

1. A combination freight and stock car having its sides composed of sections, the lower portions of which are either stationary or movable and the upper sections of which are mounted on hinges, whereby they may be swung inward and secured against the roof of the car, as set forth.

2. A combination-car having an opening in the side thereof, an outside sliding door adapted to close said opening, side sections between said opening and the ends of the car, formed with rigid lower portions, and inward-swinging doors to close the upper portions, as set forth.

3. The side of a car composed of five or more sections separated by standards or pillars, the central one of which sections is open and the other sections being wholly or partially open, an outside sliding door to close the central section, and sliding and swinging doors to close the other sections, as set forth.

4. A combination-car having an ordinary side door and opening sections on the sides thereof, which are provided with lower rigid portions, and open upper sections having inward-swinging doors, as set forth.

5. In combination, a sliding door or section

having laterally-projecting pintles, a way wherein such pintles slide, and having a lateral seat, and a spring device for forcing and holding the section in position with the pintle in the seat, as set forth.

6. A grooved guideway whose upper portion is wider than its lower portion, in combination with a door having upper and lower laterally-projecting pintles, the upper ones fitting the wide portion of the guideway, but being too large to enter the lower portion, the shoulder at the junction of the two widths of groove forming a bearing, upon which said upper pintle may rest, as set forth.

7. In combination, a sliding section having laterally-projecting pintles *h h'*, the last named being located near the top and provided with anti-friction rollers, and the guideways C', having the upper wide portion and narrow lower portion, the shoulders formed by such constriction serving as bearings for the friction-rollers on pintles *h'*, as set forth.

8. In combination, the sliding section having pintle *h'*, with its groove-roll, and the guideway attached to the standards, and having undercut groove to receive said sheave-roll, as set forth.

9. In combination, the standard having groove *f* therein, the guideway C', cut away coincidently with said groove, and the sliding section having pintles to engage said guideway, as set forth.

10. In combination, the standard having grooves *f f'* therein, the guideway C', cut away coincidently with the groove *f*, and the sliding section having lateral pintles *h h'*, as set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

CHAS. W. JAMES.
EDWIN C. JAMES,
Administrator of Chas. C. James, deceased.

Witnesses to signature of Chas. W. James:
SHIPLEY BRASHEARS,
O. E. DUFFY.

Witnesses to signature of Edwin C. James, administrator:
W. J. H. KNEISLY,
CHAS. J. MCKEE.