

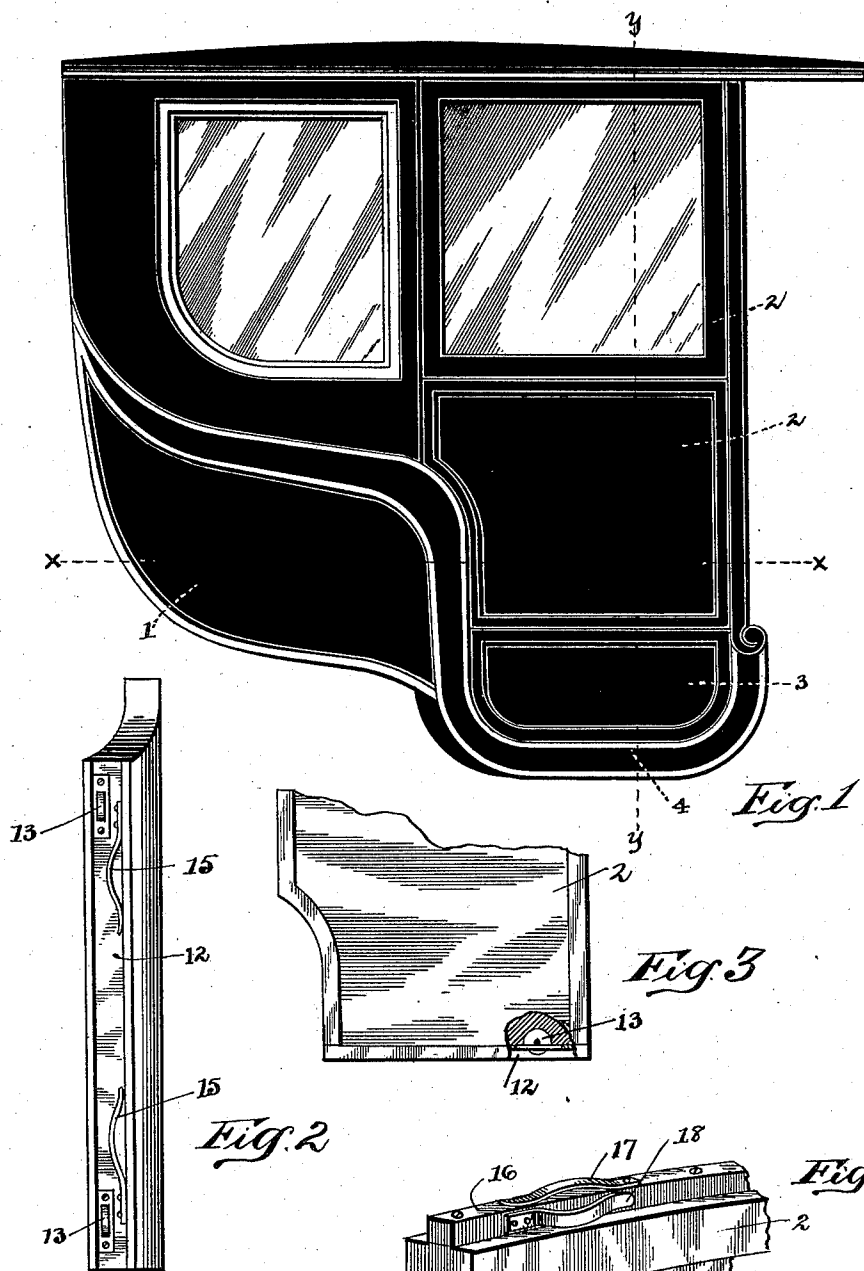
(No Model.)

2 Sheets—Sheet 1.

C. A. WARREN.
VEHICLE DOOR CONSTRUCTION.

No. 577,799.

Patented Feb. 23, 1897.



WITNESSES:
E. B. Bradshaw
J. H. Anderson.

INVENTOR
Charles A. Warren
BY *C. C. Shepherd,*
ATTORNEY

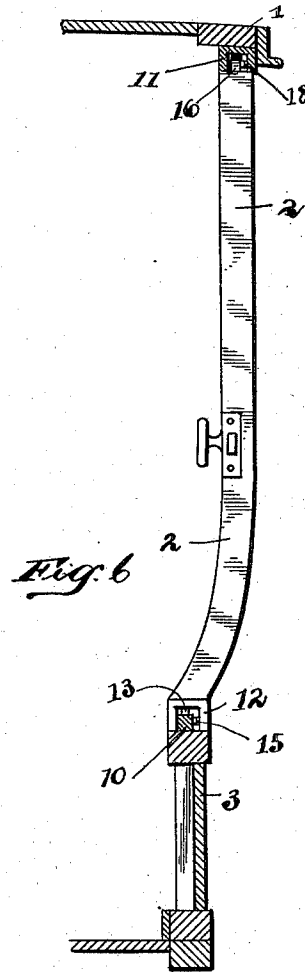
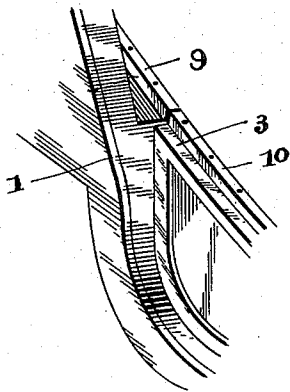
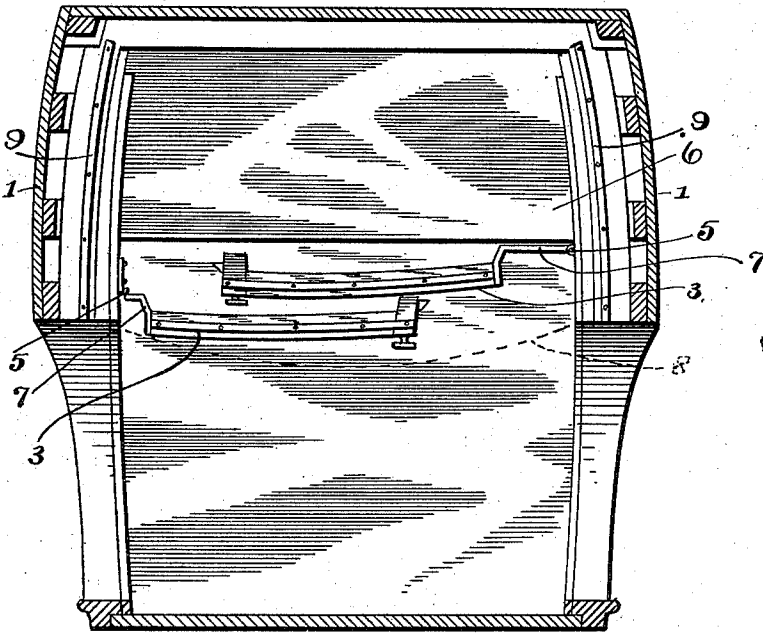
(No Model.)

2 Sheets—Sheet 2.

C. A. WARREN.
VEHICLE DOOR CONSTRUCTION.

No. 577,799.

Patented Feb. 23, 1897.



WITNESSES:

H. B. Bradshaw
J. H. Anderson

INVENTOR

Charles A. Warren
BY
C. C. Shepherd,
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES A. WARREN, OF COLUMBUS, OHIO.

VEHICLE-DOOR CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 577,799, dated February 23, 1897.

Application filed February 17, 1896. Serial No. 579,523. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. WARREN, 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 Vehicle-Door Constructions, of which the following is a specification.

My invention relates to the improvement of carriage-bodies, and has particular relation to the arrangement and construction of the doors therefor.

The objects of my invention are to provide a carriage-body of the style known as the "Barker quarter" of such construction as to admit of the employment of sliding doors, to provide a two-section or double-door construction on each side of the carriage of improved arrangement and operation, whereby the upper and larger door-section may be made to slide within the body and the lower door-section may be folded out of sight, and to produce other improvements in details of construction and arrangement of parts which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved vehicle-body, showing the doors closed. Fig. 2 is a bottom view of one of the upper and sliding doors. Fig. 3 is a face view of the lower portion of one of said upper doors, showing for the sake of illustration a portion of said door broken away. Fig. 4 is a view in perspective of the upper portion of one of said upper or sliding doors. Fig. 5 is a sectional view on line *xx* of Fig. 1 with the upper doors removed and showing the lower doors folded in their position beneath the seat-frame. Fig. 6 is an enlarged sectional view on line *yy* of Fig. 1, showing a sliding door in an open position; and Fig. 7 is a detail view in perspective of a portion of the side of the vehicle-body, showing the upper door removed.

Similar numerals refer to similar parts throughout the several views.

As set forth, my improved door construction is adapted for use in connection with the character of vehicle-body indicated at 1 in the drawings, this body being of that style

wherein the bottom or the rear seat portion is elevated above the floor or forward portion of the body, this style of body being known as the "Barker quarter."

Although sliding doors are desirable in vehicle-bodies of this character, it is evident that, owing to the difference in height of the front and rear portions of the body, a single sliding door cannot be employed in a desirable manner on each side of the vehicle, and in order to admit of the practical use of a sliding door and thus obviate the necessity of employing a door which swings outward I have constructed, as shown in the drawings, the door on each side of the vehicle-body in two sections, the upper section being indicated at 2 and the lower section at 3. Each of these lower door-sections 3 is adapted, as shown in the drawings, to fit within and close the lower portion of the doorway immediately above the sill 4, said lower door-sections having, as indicated more clearly in Fig. 5 of the drawings, at 5 their inner ends hinged to the inner sides or frame of the vehicle-body in rear of the doorway and in front of the seat-supporting frame 6. As indicated, the outer leaves 7 of the hinges thus employed are sufficiently extended and of such angles as to admit of the lower door-sections being folded inward, when desired, to points in front of the seat-supporting frame 6 and beneath the seat, the front line of the latter being indicated by a dotted line 8 in Fig. 5 of the drawings.

Adjacent to the inner side or framework of the vehicle-body and on each side of the seat portion thereof I support horizontal track-rails 9, the latter preferably conforming to the curvature of the sides of the body and extending from the doorway to a point in the rear portion of said body. As shown more clearly in Fig. 7 of the drawings, the supporting-framework of the track 9 is substantially flush or on a level with the upper side of the lower door-section 3 when the latter is closed. Each of these lower door-sections has its upper side provided with a track-rail 10, which is adapted, when said door-section is in a closed position, to form substantially a continuation of the track 9.

In the upper portion of the body 1, adjacent to each of the outer sides thereof, I se-

cure a channel-bar 11, the sides or flanges of the latter projecting downward.

Each of the sliding or upper doors 2 of my improved door construction is provided on its under side with a channel or trackway 12. Within the lower portion of each of the doors 2 I journal at desirable distances one from the other rollers 13, the latter projecting, as indicated more clearly in Figs. 2 and 3 of the drawings, slightly within the channel 12 and being arranged to one side of the center of the width of the latter. On the opposite side of the channel 12 from that occupied by the rollers 13 I secure at such point as may be desirable one end of an outwardly-bowed spring-strip 15.

On the upper side of the door I provide an upwardly-projecting track or guide bar 16, which conforms to the curvature of said door, said bar 16 having on its upper side at desirable intervals upwardly-bowed spring-strips 17, each of which is secured at one of its ends to the upper side of said track-bar. On one side of said track-bar are similarly secured, at such points as may be desired, outwardly-bowed spring-strips 18.

In embracing the track-sections 9 and 10, or either of them, the rollers of the channel 12 bear upon said track-sections, while the sides of the latter are in frictional contact with the spring-strips 15. The lower end of the door 2 being in this position, its upper track-bars 16 are embraced by the channels 11 in the upper portion of the body, the spring-strips 17 and 18 of said upper track-bar being adapted to bear, respectively, against the upper and outer side of the channel. From the above description it is obvious that the weight of the upper door-sections 2 will be carried by the rollers 13, which are adapted to bear upon the track-sections 9 and 10, and that owing to the employment of the spring-strips 15, 17, and 18 any undesirable or lateral movement of the door when the same is at rest or when a sliding movement is imparted thereto will be entirely obviated.

It is evident that when the lower door-sections 3 are closed to the positions indicated in Figs. 1 and 7 of the drawings the upper door-sections 2 may be made to slide forward from the supporting-tracks 9 onto the tracks 10 of said lower sections, said sections thus being made to form a complete closure of the doorway to the vehicle. When it is desired to open said doorway, the upper door-section 2 may be slid back upon the tracks 9 and on each side of the seat, after which the smaller and lower door-sections 3 may be folded inward to overlapping positions beneath the forward portion of the seat in the manner indicated in the drawings. It is obvious that this construction will obviate the necessity of the employment of outwardly-swinging doors

and provide for the disposal of both the door-sections within unoccupied spaces.

It is evident that the door construction herein shown and described will be of great utility in conjunction with vehicle-bodies of the character shown, wherein the employment of a single sliding door on each side of the body would be manifestly undesirable, if not impractical.

It will be observed that my improved door construction is simple and that the operation of the same may be readily and easily accomplished.

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

1. In a door construction for vehicle-bodies the combination with the body having doorways in its forward portion, of an upper and lower door-section adapted to close one of said doorways, said upper door-section being adapted to slide within said body and upon the upper side of said lower section and said lower section being adapted to fold within said body substantially as and for the purpose specified.

2. In a door construction for vehicles the combination with the body the latter having its rear portion elevated above its forward portion, and track-rails fixed on the inner sides of said body, of lower door-sections adapted to close the lower portions of the body-doorways and to be folded inward within said body, track-rails on said lower door-sections in line with the body track-rail and a sliding-door section provided with trackways in its upper and lower portions, said sliding-door section being adapted to travel on the track-rails of said body and lower door-section, substantially as and for the purpose specified.

3. In a vehicle-door construction the combination with the body 1, track-rails in the lower portion thereof and guideways in the upper portion, of lower door-sections 3 adapted to close the lower portions of the doorways and to be folded inward therefrom, track-rails on said lower doorways, sliding-door sections 2 having channels on their lower ends, rollers journaled in said sliding-door sections and projecting within said channels, spring-strips projecting from the inner sides of said channels, bars 16 on the upper sides of said sliding doors and spring-strips projecting therefrom, said door-channels adapted to embrace the body and lower-door track-rails and said track-rails 16 adapted to travel in the channel-strips of said body, substantially as and for the purpose specified.

CHARLES A. WARREN.

In presence of—

C. C. SHEPHERD,
A. L. PHELPS.