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W. B. DEAN ET AL.  
BODY FRAMEWORK FOR LARGE-CAPACITY  
VEHICLES, PARTICULARLY BUSES

2,735,714

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2 Sheets-Sheet 1

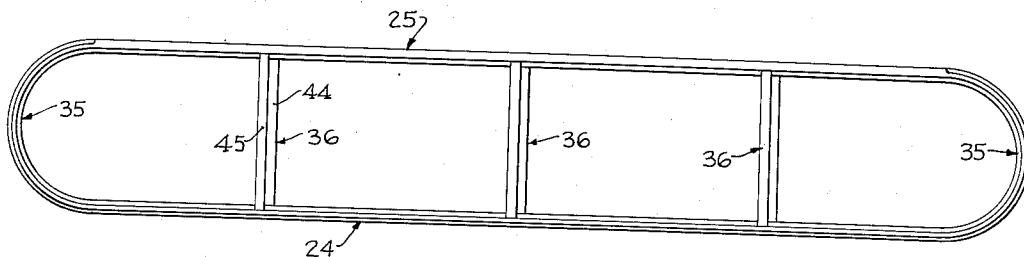
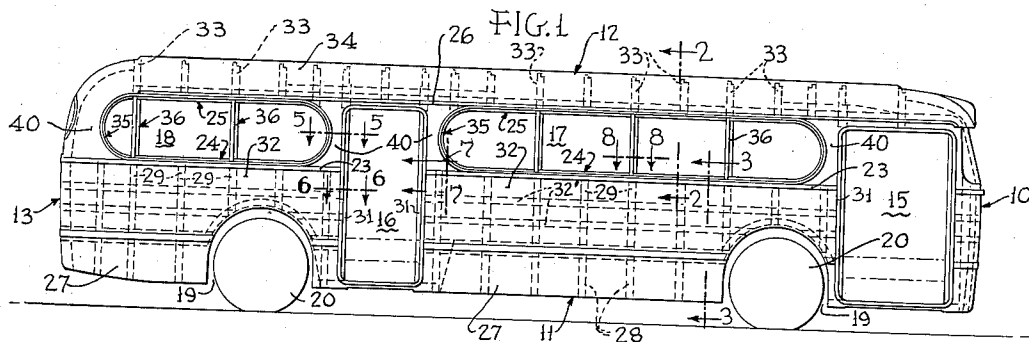


FIG. 4

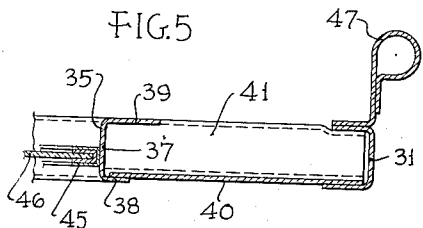


FIG. 5

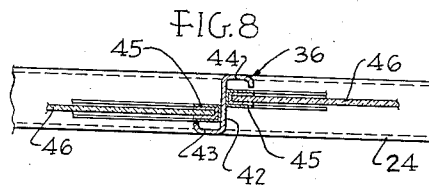


FIG. 8

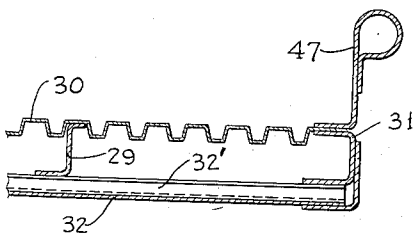


FIG. 6

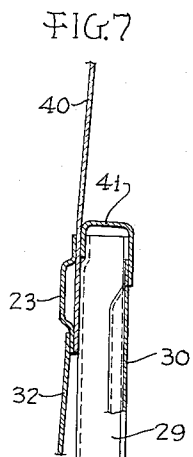


FIG. 7

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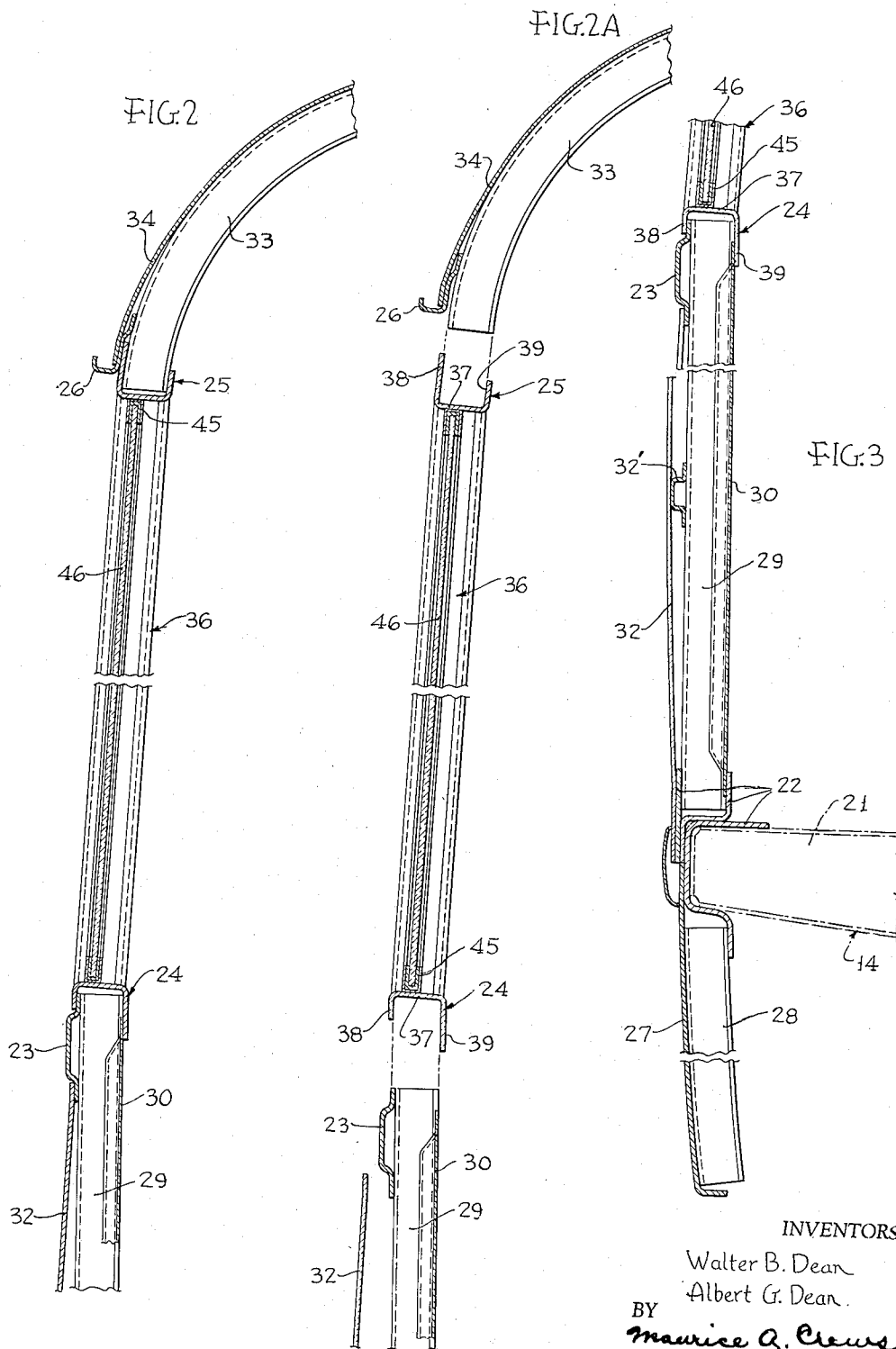
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1

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## BODY FRAMEWORK FOR LARGE-CAPACITY VEHICLES, PARTICULARLY BUSES

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3 Claims. (Cl. 296—28)

The invention relates to the framework of large-capacity vehicles, such as busses and trackless trolleys. More particularly, the invention relates to the formation of the framework around the door openings in the side walls of the indicated type of vehicles.

Among the objects of the invention are greater convenience and accuracy in assembling the framework, particularly around the window openings, and reduction of the danger of water seepage at the intersection of posts and longitudinal window rails.

According to the invention, it is contemplated to end the individual vertical and transverse frame members of the side walls and the roof at the margins of a window opening without extending them thereacross and to preassemble a window frame having a continuous peripheral rail and one or more vertical mullions, the latter, lining up with adjoining side wall posts and roof carlines.

The above and other objects, advantages, and features of the invention will be more fully understood or become apparent from the embodiment illustrated in the attached drawing and from the following description thereof.

In the drawings:

Fig. 1 is a small-scale, diagrammatic side elevation of a bus or trackless trolley;

Fig. 2 is a fragmentary section along line 2—2 of Fig. 1;

Fig. 2A is an exploded view of Fig. 2 showing the different units entering into the complete structure before final assembly thereof;

Fig. 3 is a fragmentary section along line 3—3 of Fig. 1;

Fig. 4 is a side elevation on a larger scale of window frame unit shown in Fig. 1 between the forward and rearward side wall door openings; and

Figs. 5 to 8 are fragmentary sections on a larger scale along the correspondingly numbered lines of Fig. 1.

The illustrated body has a front wall 10, side walls 11, a roof 12, a rear wall 13, and an underframe 14. The side wall 11 surrounds the forward and rearward door openings 15, 16, a large elongated forward window opening 17 between the door openings 16, 16, and a somewhat smaller elongated rearward window opening 18 between rearward door opening 16 and rear wall 13. Cutouts 19 accommodate the supporting wheels 20.

Transverse underframe beams 21 (Fig. 3) have their ends interconnected by longitudinal sills or chord structures 22. Horizontal chord structures are formed along the lower margins of the window openings by rub rail 23 and lower window frame members 24. An upper chord structure is formed by upper window frame member 25 and drip channel member 26. Skirt panels 27 and vertical braces 28 extend downwardly below structures 22. Vertical posts 29 and vertically corrugated shear panels 30 are secured to the inside of chords 22, 24, posts 29, and door posts 31 (Figs. 3, 6). Panels 32 are removably attached to the outside of the body between chord 22 and rub rail 23 and are bent over sections 32' interconnecting posts 29 and 31.

2

The roof 12 has transverse carlines 33, an outer stress-transmitting roof sheathing 34 and a strong, generally angle-section drip channel 26 secured to the carlines near their lower ends and to the margin of the roof sheathing (Figs. 2, 2A).

The frames around the window openings 17, 18 have curved, generally vertical end members 35 interconnecting the longitudinal frame members 24, 25, and are subdivided by vertical frame members or mullions 36. Mullions 36 are preferably fusion-, e. g. arc-welded to the peripheral frame.

The respective posts 29, carlines 33, and mullions 36 line up with each other, as shown in Fig. 1, so as to form in effect, upon final assembly of the body, continuous transverse frame structures extending from the bottom at one side of the car to the bottom at the other side thereof, even though the posts, the carlines, and the vertical window frame members 25, 26 below to different, independently preassembled sub-units (Figs. 2A, 4).

The window frame members 24, 25, 35, 36 present one continuous, closed-figure U-section rail having a web or bottom wall 37, an outer wall or leg 38, and an inner wall or leg 39. Walls 38, 39 face away from the window opening and are overlappingly secured to adjoining portions of rub rail 23, posts 29, drip channel 26, carlines 33, and deadlight panels 40 between the window openings 27, 28 and the door openings 25, 26 or rear wall 13, respectively (Figs. 1, 5, 7). The lower frame member 24 is extended to the adjoining door posts 31 by channel sections 41 (Figs. 1, 7).

Mullions 36 are Z-sections having a transverse web 42, an outer rearwardly-directed leg 43, and an inner forwardly-directed leg 44. Secured to the webs 37 and 42 of the outer window frame members and of the mullions are guide or holding channels 45 for longitudinally movable or stationarily-installed window panes 46.

The window frames each constitute a bench-assembled sub-unit as shown in Fig. 4.

Roof 12 with its carlines 33, sheathing 34 and drip channel 26 is preassembled as a sub-unit (Fig. 2A). The vertical walls below the window openings 17, 18, with or without the door frames, and with or without the underframe 14, are preassembled as one or more sub-units.

These sub-units—roof, lower side walls, and window frames—are connected with each other in final assembly by telescopingly fitting the upper margins of the side walls and the lower margins of the roof into the open channel sections of the window frame members 24, 25 and by making permanent final assembly connections between them.

Deadlights 40 and the extensions 41 may form part of the respective preassembled window frame units or may be connected with them in final assembly.

The frames around the door openings 15, 16 transfer the stresses around these openings. To assist in this transfer, they may be reinforced on their inner side by narrow partition members 47 tied into the underframe beams and the roof carlines.

The invention is not restricted to the illustrated embodiment but is susceptible to modifications and adaptations which will easily occur to those skilled in the art.

What is claimed is:

1. In a bus or similar large-capacity passenger vehicle: a side wall, a roof, a window opening in said side wall adjoining by said roof; a window frame surrounding said opening and comprising a continuous, closed-figure rail; side wall posts secured to, ending at and extending downwardly from the lower marginal portion of said rail; roof carlines secured to, ending at and extending upwardly and inwardly from the upper marginal portion of said rail; mullions interconnecting and ending at said upper

3

and lower marginal portions of said rail; at least certain ones of said posts, carlines, and mullions being arranged in a common transverse plane so as to present together a continuous vertical and transverse body frame structure with said rail extending uninterruptedly between their adjacent ends.

2. In a bus or similar large-capacity passenger vehicle: a side wall, a roof, a window opening in said side wall having its upper margin defined by the lower margin of said roof; a window frame surrounding said opening and comprising a continuous, closed-figure channel section rail, the open side of the channel section facing away from the center of the window opening; side wall posts telescopically fitted into, secured to and extending downwardly from the lower marginal portion of said rail; roof carlines telescopically fitted into, secured to and extending upwardly and inwardly from the upper marginal portion of said rail; mullions extending between and connected to said upper and lower marginal portions of said rail; at least certain of said posts, carlines, and mullions ending at said rail and being arranged in one transverse plane so as to present together continuous vertical and transverse body frame structures with said rail extending uninterruptedly between adjoining ends of said posts, carlines and mullions.

3. In a vehicle body for busses or similar vehicles surrounding a large elongated window opening: a first pre-assembled sub-unit including an upright wall portion with

4

vertical posts terminating at the lower margin of said opening; a second preassembled sub-unit comprising roof carlines; and a third preassembled sub-unit comprising a closed-figure continuous rail presenting the outer margins of the window opening and including vertical mullions ending at and interconnecting upper and lower marginal portions of said rail; at least certain ones of said posts, carlines and mullions being arranged so that, upon final assembly of the three sub-units with each other, they are located in common vertical planes so as to constitute in effect continuous frame structures while leaving the rail uninterrupted between adjacent ends of said posts, carlines and mullions.

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