Double-Deck Steel-Frame Car for Columbus, Ohio

Columbus Railway, Power & Light Company

THE J. G. Brill Company recently completed an extremely novel and interesting type of car for the Columbus Railway, Power & Light Company. As the illustrations indicate, it is of the double deck, center entrance, stepless type and is similar in some respects to the New York double-deck car, although differing considerably in a number of important details.

In designing this car, one of the principal objects was to provide for maximum strength and efficiency, and at the same time keep the weight within consistent limits. When it is considered that the total weight of the car, including trucks and air brake equipment, but exclusive of motors and cables, is 42,000 lbs., and that the frame is all steel, it will be appreciated that these conditions were fully met.

Another most important point to be considered was the fact that the car is intended for service on lines which pass under several viaducts and bridges, making it necessary to keep the height down to the lowest point consistent with the comfort of passengers. Although the height from the under side of the side sill over the trolley board is 5 in. less than that of the New York double-deck car, or 12 ft. 5 in., reference to the accompanying diagrams will demonstrate that there is no lack of head room.

Steel shapes and plates are used throughout in the frame construc-

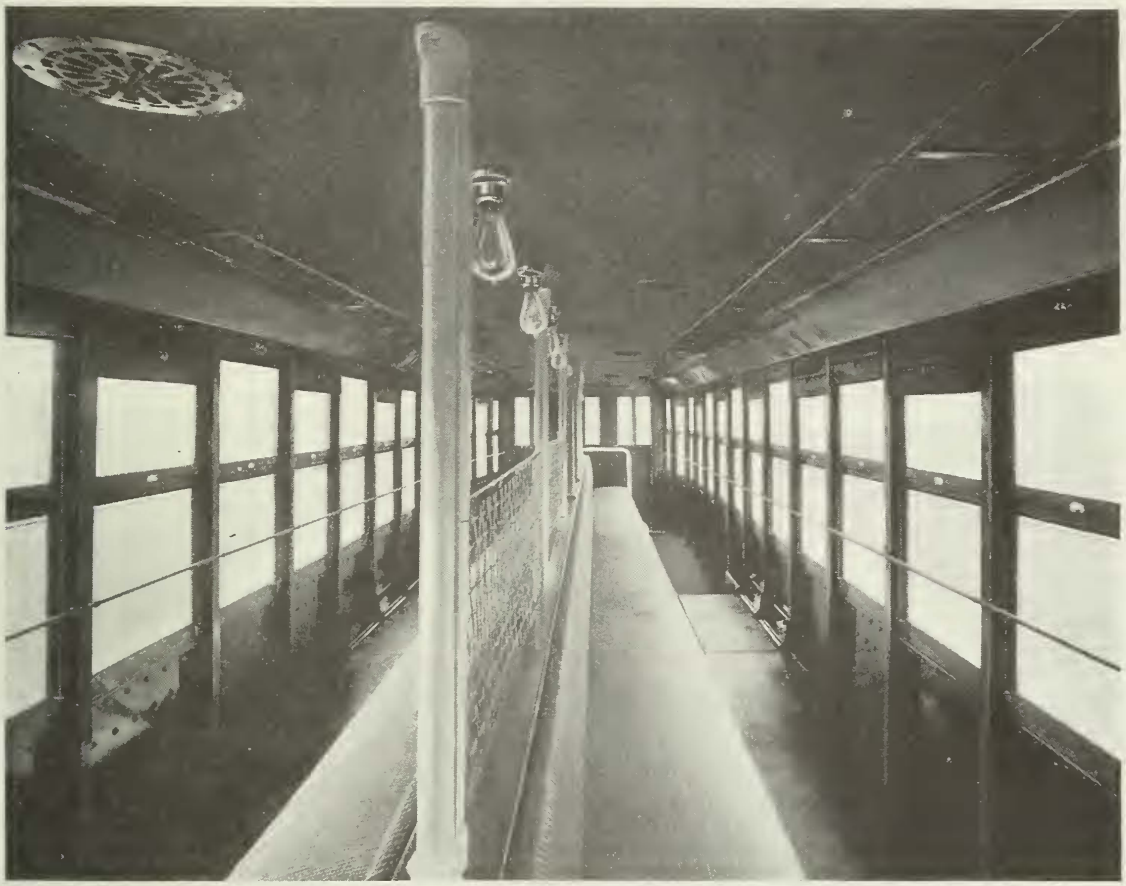
DOUBLE-DECK CAR FOR COLUMBUS. Brill Special No. 63-E Trucks permit a low-hanging car with plenty of headroom

tion. The side consists of a girder formed of the side sill angles, the pressed steel belt rail and the steel plate sheathing. This girder is carried over the doorway by a truss formed of two ¼-in. steel plates with two 3-in. by ⅞-in. bars as spacers. Crossings are formed of two 3-in. channels, placed back to back. Center stringers consist of angles and lighter angles are used as supports for the lower floor. Bolsters consist of Z-bars reinforced top and bottom with 1-in. plates. Two longitudinal arms formed of Z-bars, extend from bolster to end sill and, in addition to supporting the center plate, act as platform supports. The side frame load is transferred to the center plate partly by the bolster and partly by a steel girder, which forms the lower portion of a bulkhead dividing the car body from the motorman's cab.

Corner posts are formed of ¼-in. plates bent into the shape of angles and the side posts consist of T-sections, continuous from side sill to top rail, with wood fillers.

The lower deck rafters consist of steel plates bent into the shape of Z-bars and running from post to post, being so shaped as to conform to the peculiar shape of the roof required for this type of car. The upper deck rafters are steel bars running from top rail to top rail,

DOUBLE-DECK CAR FOR COLUMBUS Stairway arrangement occupies a minimum of seating space



DOUBLE-DECK CAR FOR COLUMBUS. Arrangement of seats on upper deck provides ample aisle room

except at the center, where four rafters formed of angles are used to give the necessary support for the trolley apparatus.

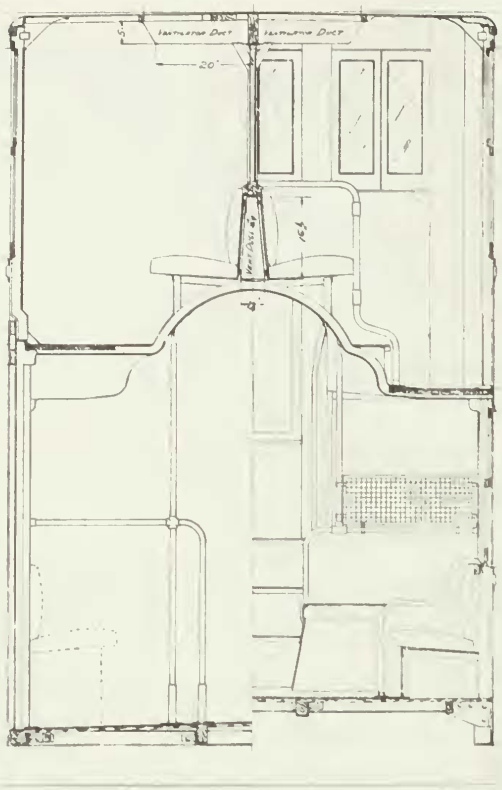
The ventilating system is extremely interesting. A motor, placed under the hood at one end, operates an exhaust fan connecting with the air ducts of both decks. The air from the lower deck exhausts through the ceiling ventilators into a duct between the upper deck seat backs, as shown in the small diagram on page 76.

Center doors are of the double sliding type, air actuated with electric control. While these doors are operated from the conductor's position, the arrangement is such that the motorman cannot receive the starting signal until all doors are closed.

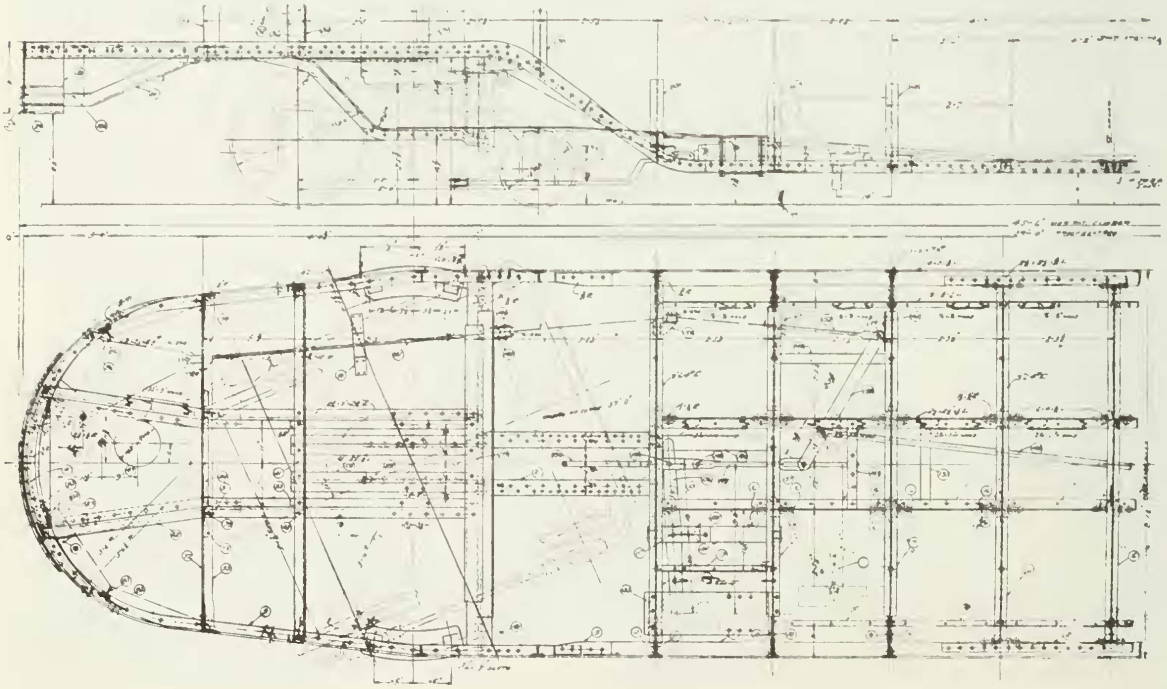
Lower deck windows are of the double sash type, the upper sashes being stationary, with the lower sashes arranged to raise. On the upper deck, the windows are single sash, but in two sections, with the upper section arranged to drop over that below. These upper deck windows may be entirely removed during warm weather. Wire-mesh screens are provided for both upper and lower deck windows, and, in addition, a hand-rail runs along these on the upper deck. The end windows on the upper deck are in two sections, arranged to swing out-

wardly and are controlled by a single lever.

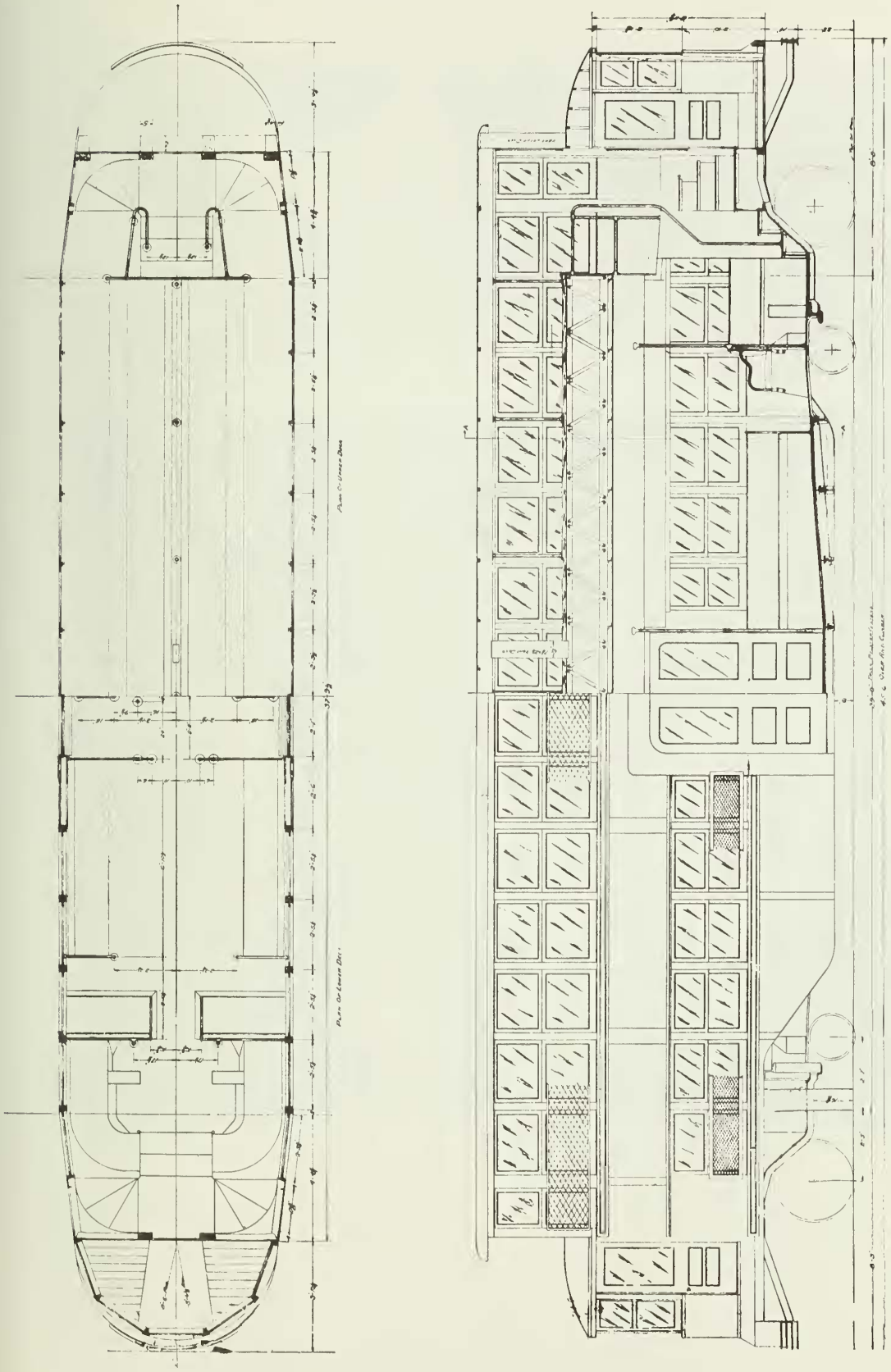
The stairway at each end ascends three steps to a landing, from either side of which a flight runs to the upper deck. The interior finish of the car is cherry, where wood is used, and the metal parts are painted to match. The pipe stanchions at the entrances, as well as those at the stairways and at the backs of the stationary transverse seats, are white enameled. All seats are of Brill manufacture, upholstered in rattan. Brass grilles surmount the backs of the transverse seats on the lower deck and of the double longitudinal seat above. There are no hand straps, but hand rails are provided over the longitudinal seats on the lower deck. As is the custom with center entrance cars, the conductor's position is opposite the entrance and is provided with a desk, and a raised folding seat and footrest.



DOUBLE-DECK CAR FOR COLUMBUS. Floor to center of headlining, lower deck, 7 ft. 3⅝ in.; upper deck, 6 ft. 3 $\frac{3}{16}$ in.



DOUBLE-DECK CAR FOR COLUMBUS. Frame plan, showing Z bar construction carrying part of side frame strain



DOUBLE-DECK CAR FOR COLUMBUS. Track to side sill, 8 in.; side sill to trolley board, 12 ft. 5 in. Track to step, $11\frac{3}{16}$ in. Weight of body, less electrical equipment, but including air-brake equipment, 31,640 lb. Seating capacity, lower deck, 45; upper deck, 40