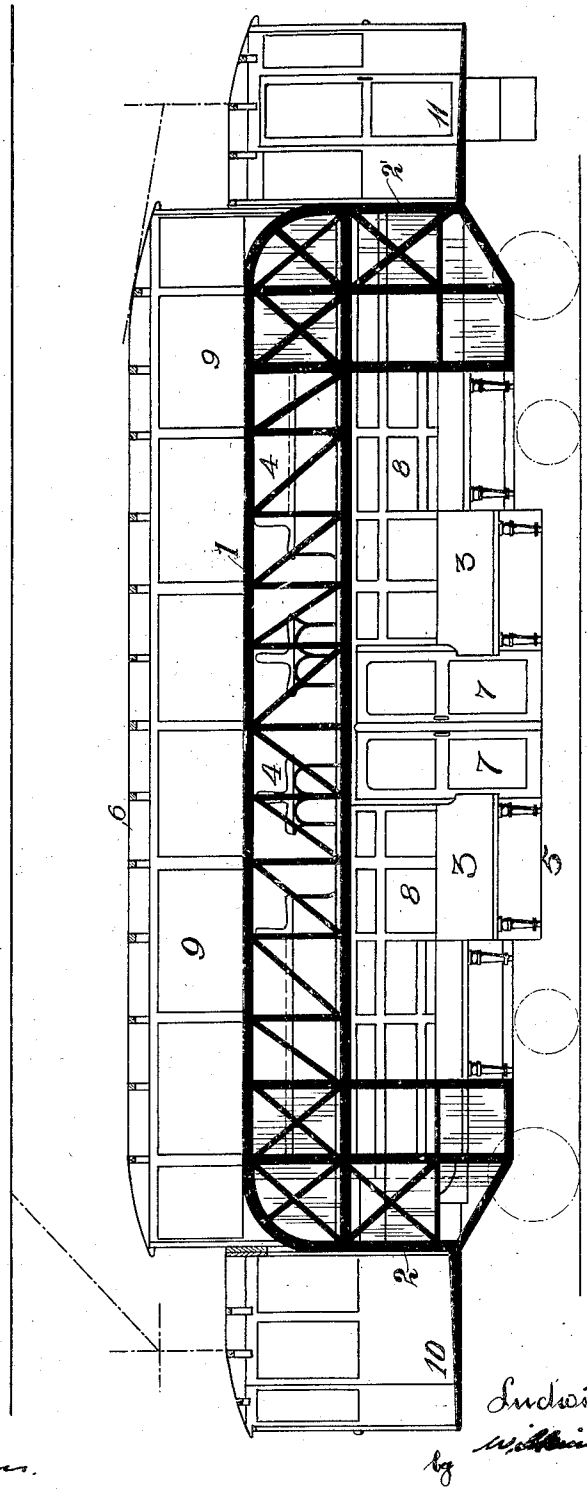
L. SPÄNGLER.

FRAMEWORK OF DOUBLE DECKED VEHICLES.

APPLICATION FILED MAR. 5, 1914.

1,108,634. Patented Aug. 25, 1914.



Witnesses
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UNITED STATES PATENT OFFICE.

LUDWIG SPÄNGLER, OF VIENNA, AUSTRIA-HUNGARY.

FRAMEWORK OF DOUBLE-DECKED VEHICLES.

1,108,634. Specification of Letters Patent. Patented Aug. 25, 1914.

Application filed March 5, 1914. Serial No. 822,737.

To all whom it may concern:

Be it known that I, LUDWIG SPÄNGLER, a subject of the Emperor of Austria-Hungary, residing at Vienna, Empire of Austria-Hungary, have invented certain new and useful Improvements in the Framework of Double-Decked Vehicles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to double-decked vehicles for tramways, railways or the like, and more particularly to an improved supporting frame-work for the carriage body of such vehicles.

In double-decked vehicles for tramways, railways or the like with a central entrance, it is desirable that the central platform serving for entering and leaving the car should be arranged at a very low level as near the top of the rails as possible, so as to make the car low, and render the entering and leaving of the same very convenient, and thus facilitate a rapid circulation of passengers. For this reason there is only little space beneath the central platform for the construction and accommodation of a supporting frame-work for the carriage body, which latter is preferably arranged between trucks or bogies. If it is intended to select a structure which renders it possible to strengthen the continuous girders arranged beneath the carriage body in any desired manner, for instance by providing a through-girder above the door and the side windows of the car, said girder being interconnected with the bottom girder by uprights, then the difficulty will be encountered that it is not possible to arrange any diagonals between the upper girder and the lower girder, partly on account of the central doors, where it is impossible to arrange diagonals, so that therefore it is necessary to design the horizontal girders and the uprights in such a manner that they possess very large dimensions and consequently great weight.

According to this invention the space in the side wall of the car between the bottom-deck doors and windows and the windows in the upper deck, is utilized for accommodating the longitudinal girders of the carriage body. The height of the space at disposal amounts to about 800 to 1000 millimeters, so that therefore a very high girder may be used which has the advantage that diagonals may be arranged in a most convenient manner, as throughout the entire length of the car, the continuity of this girder need not be interrupted by any apertures. The lower deck with the floor is then suspended from this girder and need only have very slight dimensions, which feature involves the great advantage that the floor of the car may be arranged at a very low level.

One form of carrying the invention into effect is shown.

The accompanying drawing shows a side elevation of a four-axled two-decked car with central platform for entering and leaving the same, and with two end platforms for standing accommodation, the supporting frame-work for the carriage body being shown in thick black lines.

The main longitudinal girder 1 adjoins at either end two uprights 2, 2′ which are connected with the supporting structure resting on the trucks or bogies. The longitudinal girders on both sides of the car are connected and braced together by the floor between the lower deck and the upper deck 4. The floor 5 of the lower deck which is suspended from the upper girder by means of uprights, (not shown) only forms a secondary structure, which remark also applies to the roof of the upper deck which also is supported by uprights (not shown). 7 are the central doors of the lower deck; 8 are the windows thereof.

9 are the windows of the upper deck, and 10, 11 are the platforms at the ends of the car.

The two uprights 2, 2′ are interconnected at the bottom by the floor of the car and in the longitudinal direction of the car they need only be made of such a width sufficient to insure strength and stability. The end uprights arranged in front of the stairs may, if required, be provided throughout with diagonals, for as a matter of fact it is not very advisable to provide side windows at these places. If it is desired to employ a second or third panel or bay for strengthening the upright, then in view of the windows it is necessary to provide at these points sufficiently strong connections and, most important of all, also sufficiently strong nodal junctions. To the sides of the uprights 2, 2′ there are attached the girders for the end platforms which may be constructed in the usual manner. The actual

supporting frame-work for the carriage body, therefore, represents a portal girder which is well braced at the bottom by the floor structure of the lower deck of the car, which, however, is only of secondary importance from the designer's point of view. For this reason no massive pillars are required in the lower deck and particularly no large joints or nodal junctions are required which is particularly of great importance in the door aperture.

Claims:

1. In a double decked vehicle the combination of a lower deck having windows and central entrance doors at the sides and an upper deck having windows at the sides with longitudinal girders located on both sides of the vehicle between the lower edges of the windows in the upper deck and the upper edges of the windows and entrance doors of the lower deck, and uprights connected to the ends of the said longitudinal girders, such uprights being supported by the trucks at both ends of the vehicle.

2. In a double decked vehicle the combination of a lower deck having windows and central entrance doors at the sides and an upper deck having windows at the sides with longitudinal girders located on both sides of the vehicle between the lower edges of the windows in the upper deck and the upper edges of the windows and entrance doors of the lower deck, and uprights connected to the ends of the said longitudinal girders, such uprights being supported by the trucks at both ends of the vehicle and end platforms extending beyond and supported by the said end uprights.

In testimony whereof, I affix my signature, in presence of two witnesses.

LUDWIG SPÄNGLER.

Witnesses:

ARTHUR BAUMANN,

AUGUST FUGGER.