

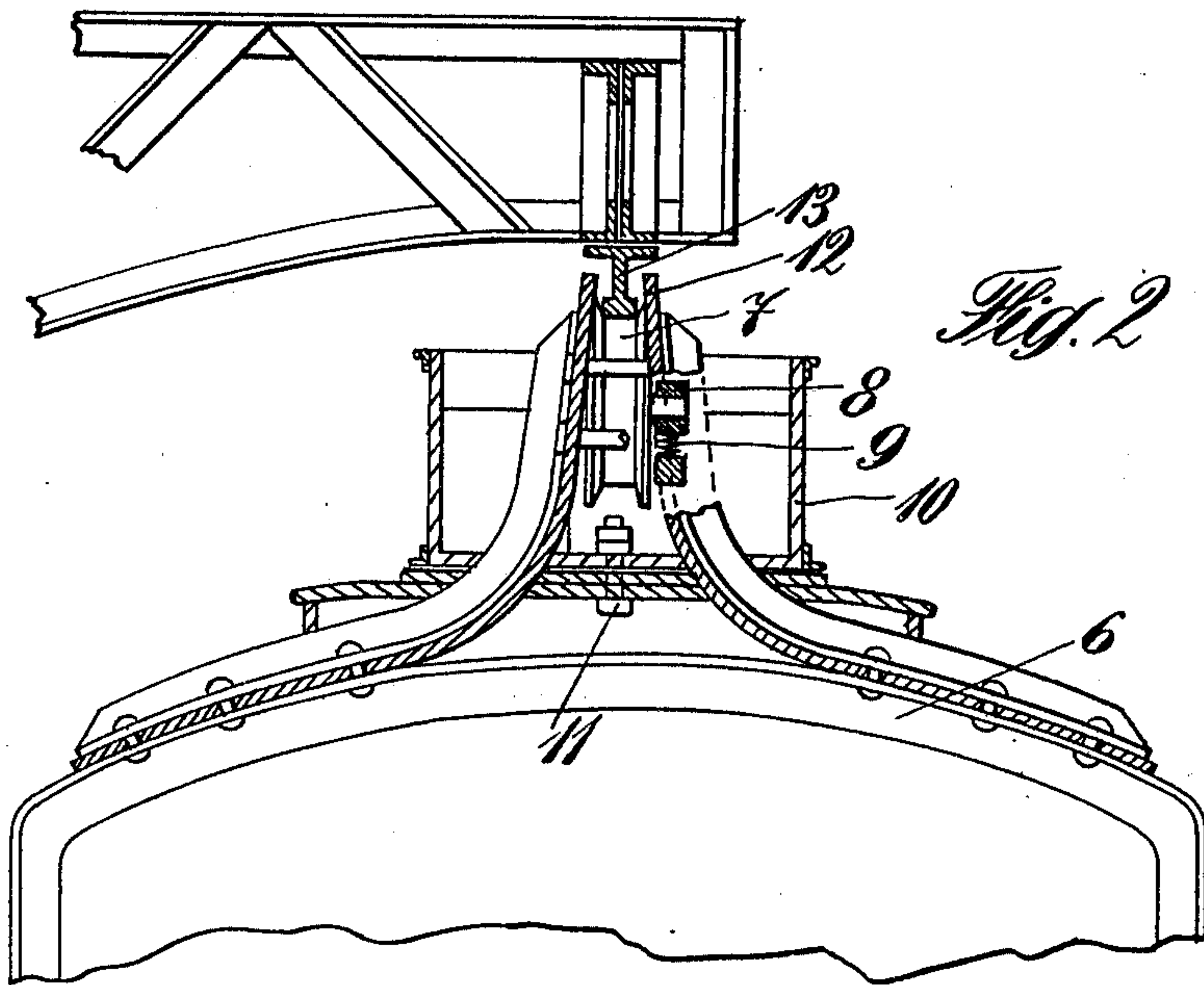
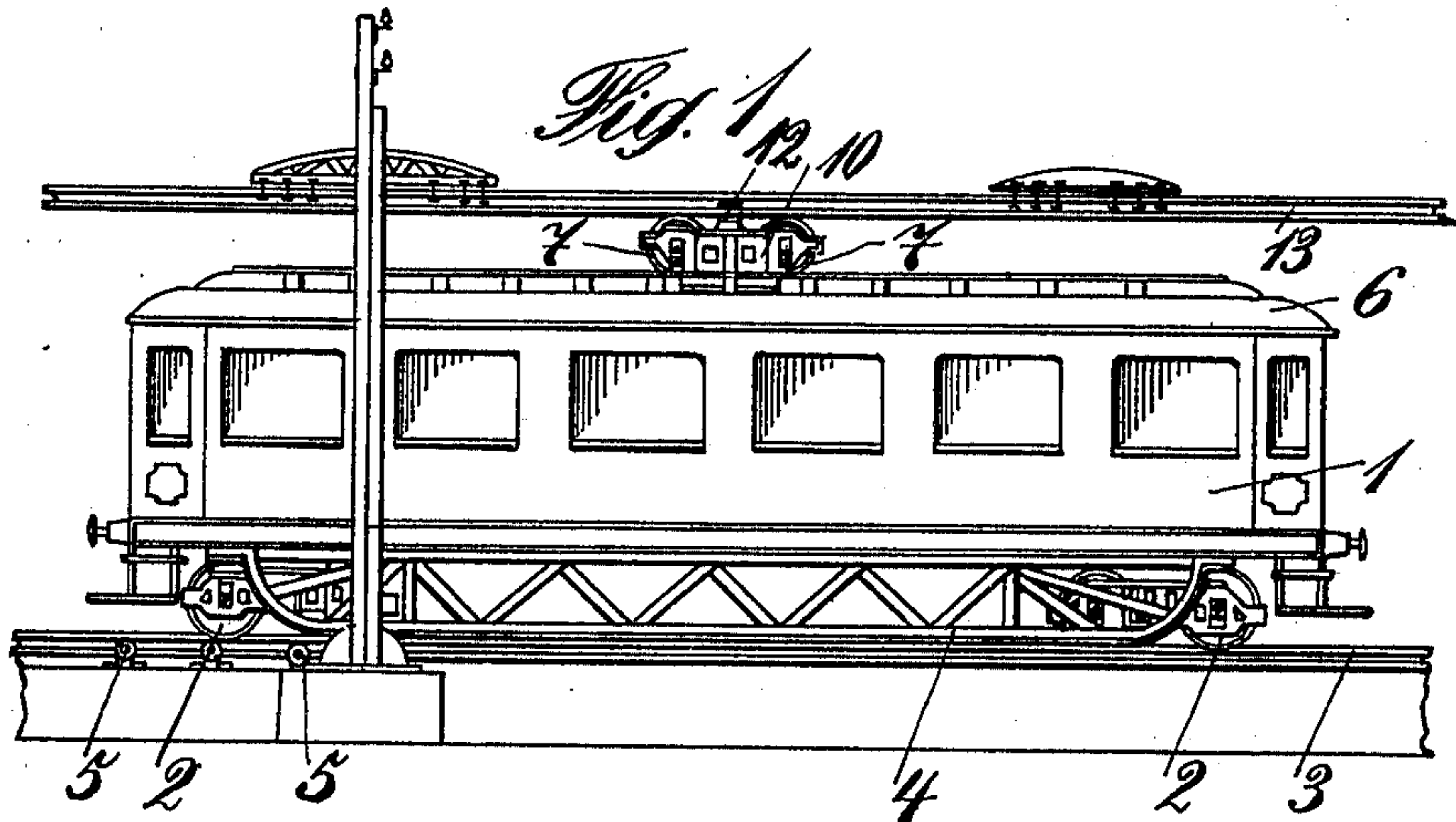
E. MITTAG.  
RAILWAY CAR.

APPLICATION FILED DEC. 12, 1910.

992,025.

Patented May 9, 1911.

3 SHEETS—SHEET 1.



Witnesses:  
F. Stapel  
M. Schmid.

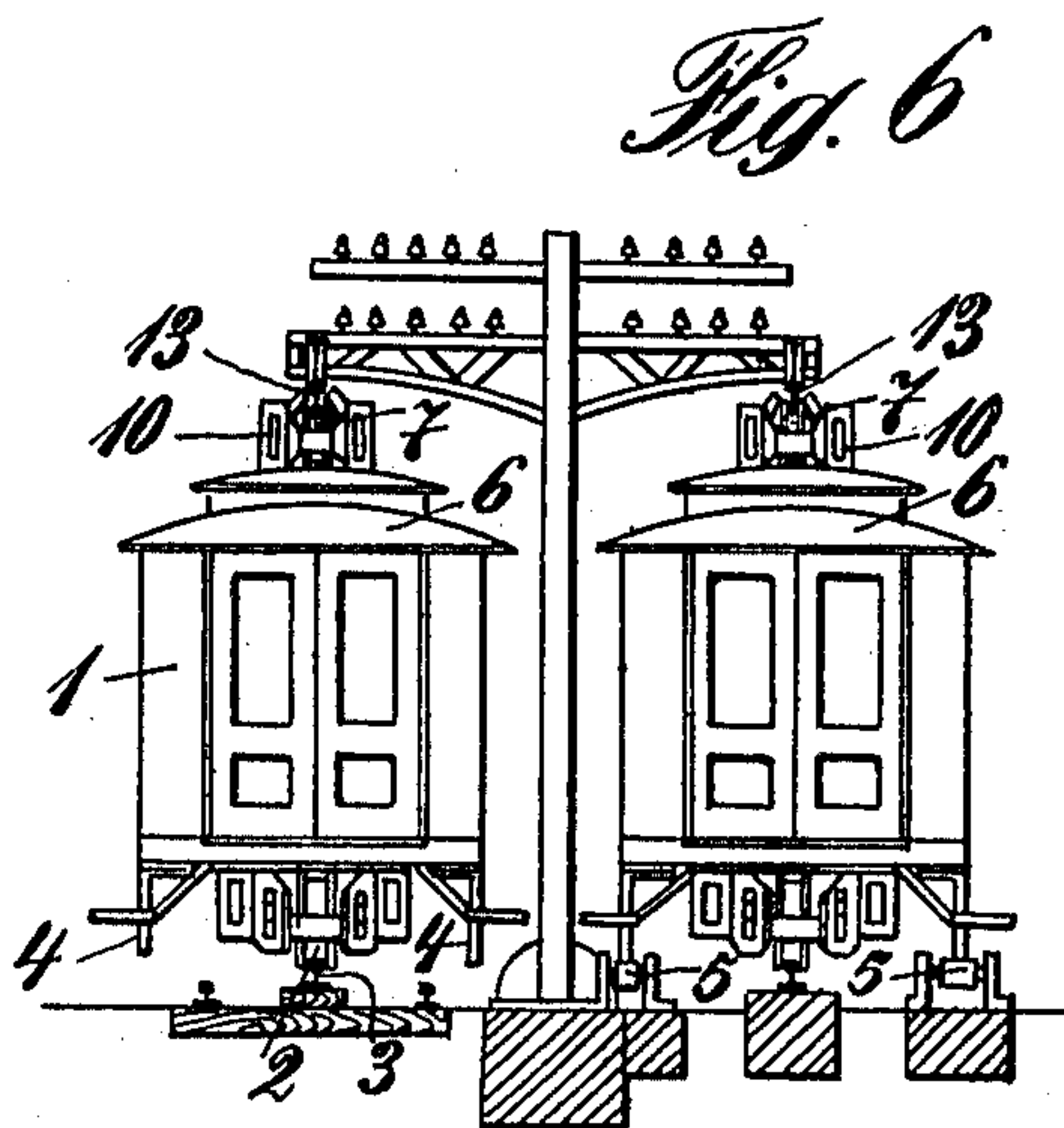
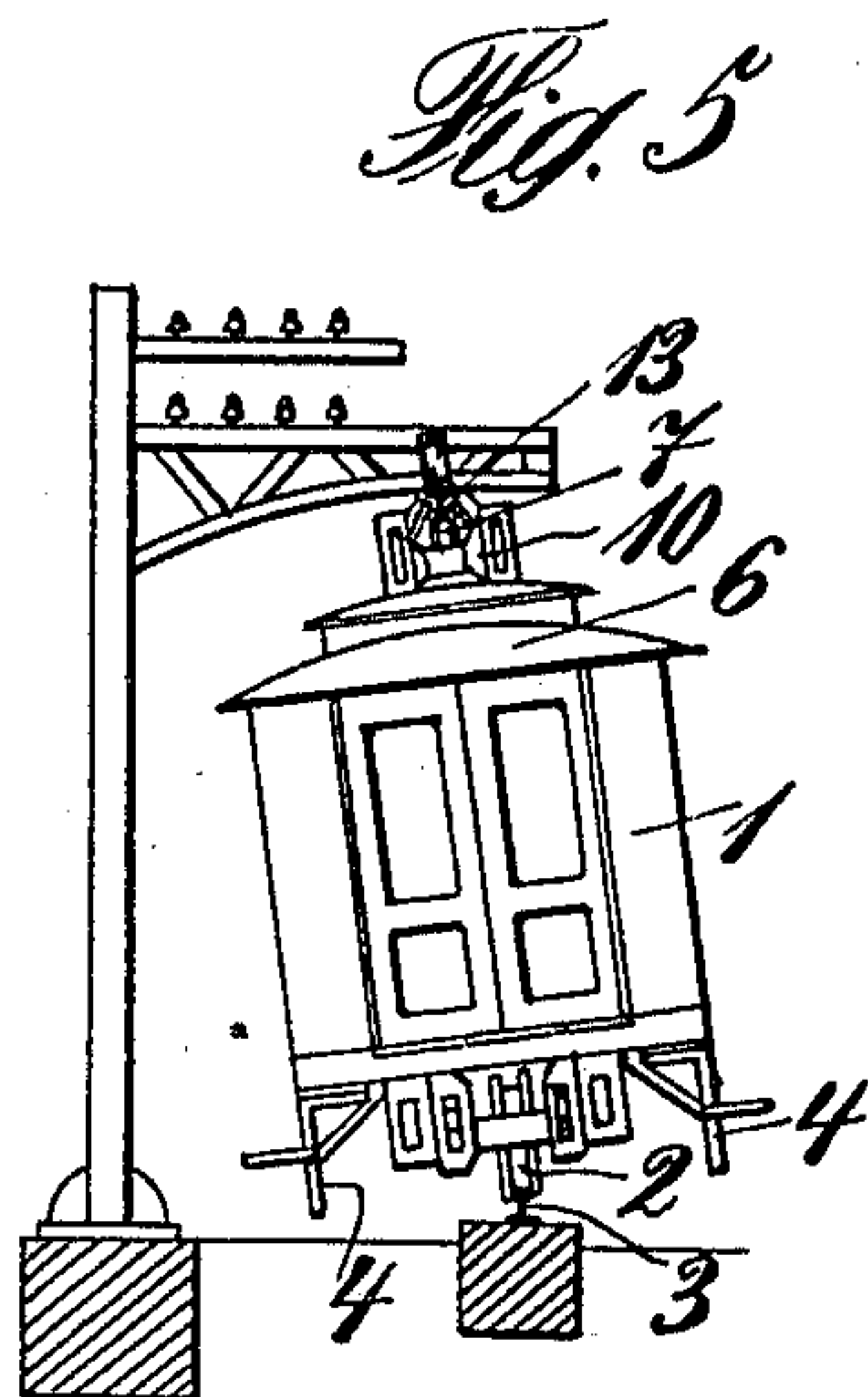
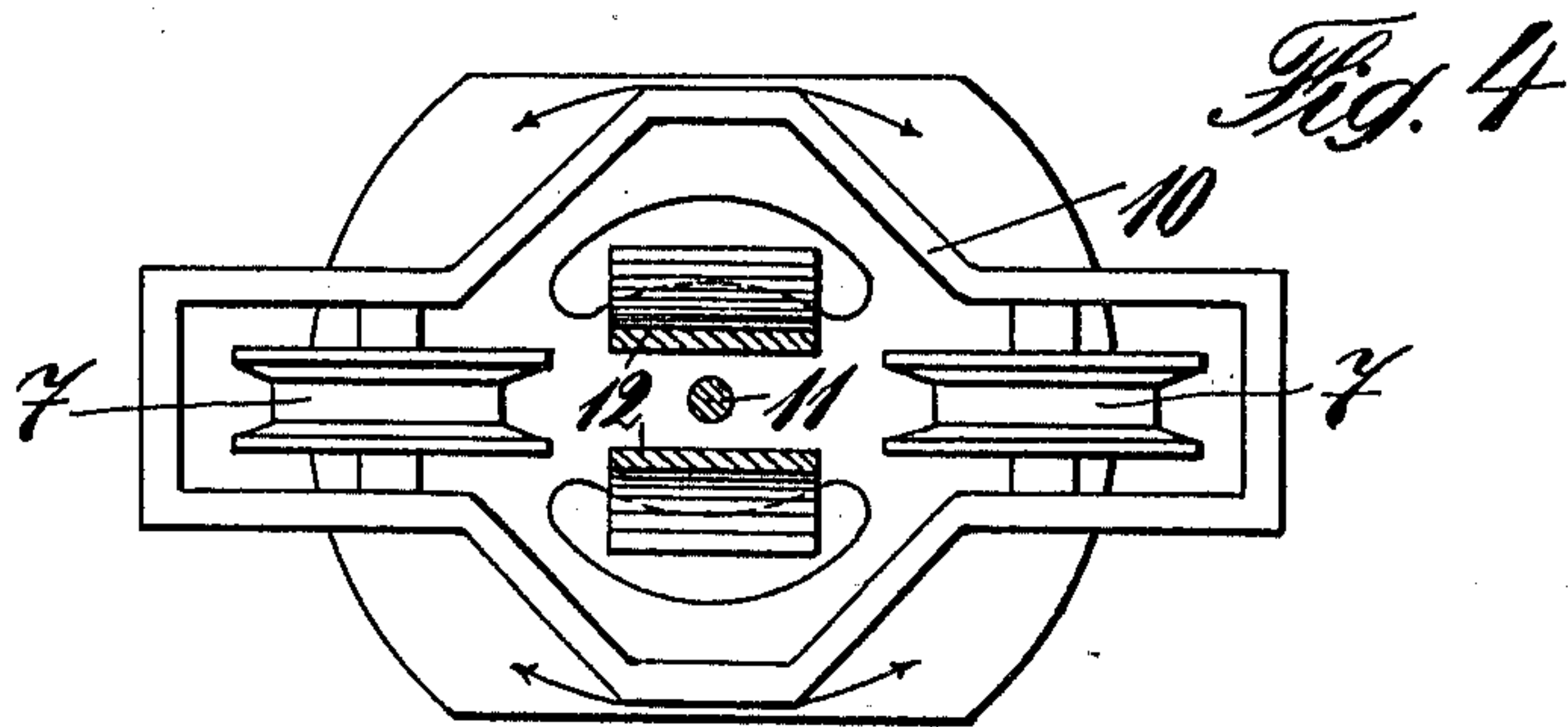
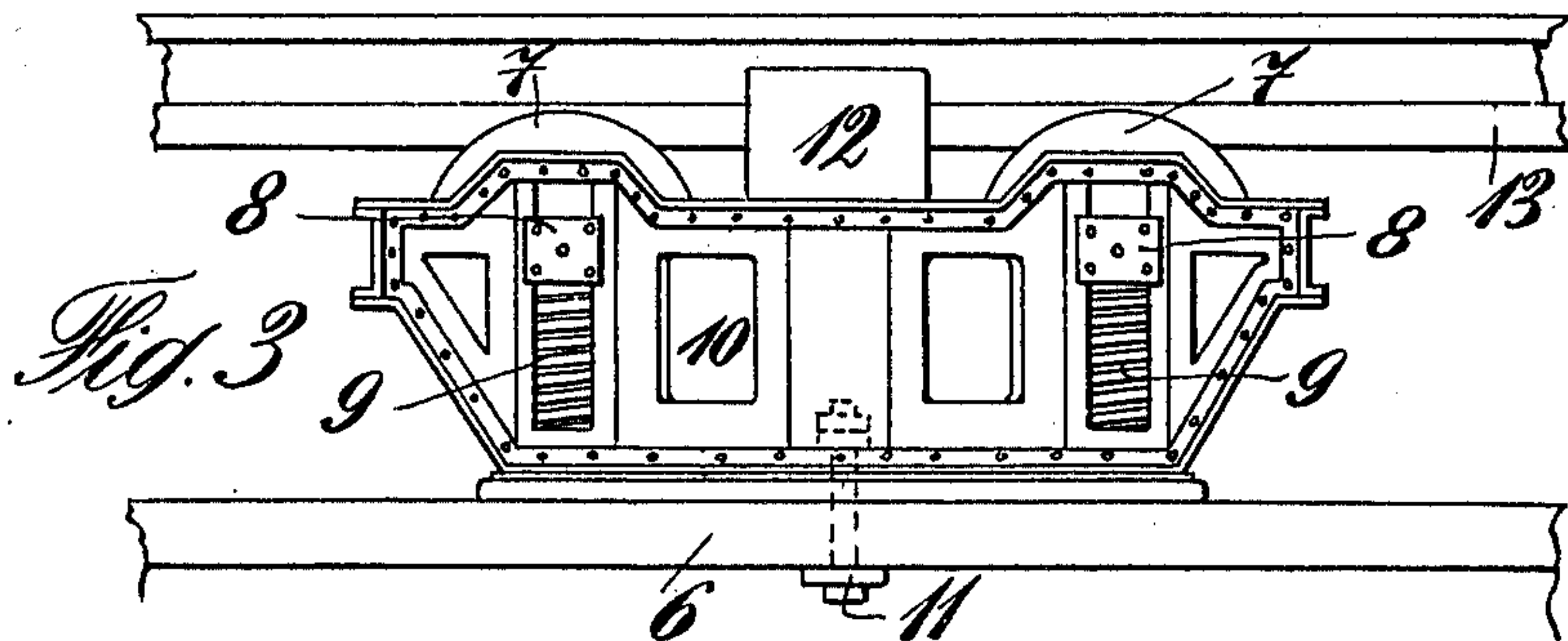
Inventor:  
Ernst Mittag  
by B. Singer,  
Attorney.

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3 SHEETS—SHEET 2.



Witnesses:  
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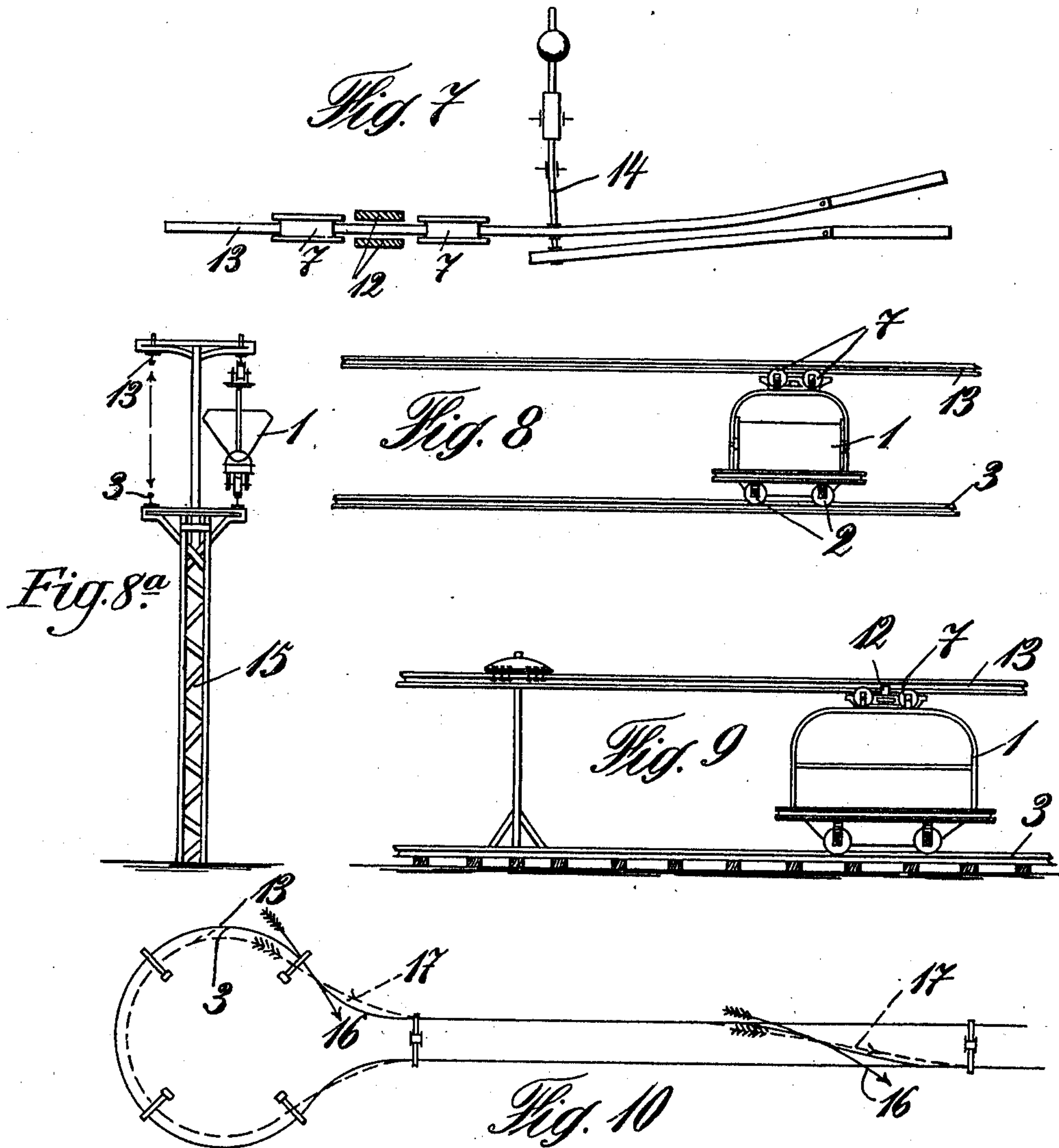
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3 SHEETS-SHEET 3.



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M. Schmid.

Inventor:  
Ernst Mittag  
by B. Singer,  
Attorney.



# UNITED STATES PATENT OFFICE.

ERNST MITTAG, OF BERLIN, GERMANY.

## RAILWAY-CAR.

992,025.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed December 12, 1910. Serial No. 596,965.

*To all whom it may concern:*

Be it known that I, ERNST MITTAG, a citizen of the German Empire, residing at Berlin, in the Kingdom of Prussia, in the German Empire, have invented certain new and useful Improvements in Railway-Cars; 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.

My invention relates to improvements in railway cars, and more particularly to railway cars which are used in railway systems of the character described in the United States Patent Nr. 968,384 dated August 23, 1910, previously granted to me, in which system the car is provided with upper and lower wheels running on upper and lower single rails.

The object of the present improvements is to so construct the car that it can more easily run in an inclined position through curves or through switches, for which purpose the upper wheels of the car are mounted on a truck which has a slight play about a vertical axis, so that it can follow the said curved parts of the track.

For the purpose of explaining the invention an example embodying the same has been shown in the accompanying drawings, in which the same letters of reference have been used in all the views to indicate corresponding parts.

In said drawings,—Figure 1, is a side view of a car designed for use in my single rail system and embodying my present invention, Fig. 2, is a vertical cross-section on an enlarged scale of the upper truck and the upper rail forming a guide for the same, Fig. 3, is a side view of the parts shown in Fig. 2, Fig. 4, is a plan of the truck, Figs. 5 and 6, are end views of the system showing cars and parts of the upper and lower single rails, the road bed, and the supports for the upper single rail, Fig. 7, is a diagrammatical view of a switch, Figs. 8 and 8<sup>a</sup> are examples of the system as applied to an elevated railway, Fig. 9, is an example of the system as applied to an ordinary railway, and Fig. 10, is a diagrammatical view illustrating the relative position of the upper and lower single rails in curves.

Referring to the example illustrated in the drawings, the body 1 of the car is provided with two pairs of lower wheels 2, 2 disposed

centrally of the car and in line with each other, and arranged to run on a suitably supported lower single rail 3. At both sides the car is equipped at its lower side with guides 4 which preferably have the form of the runners of a sledge, and which are arranged to prevent the car from falling sideways in case of a derailment. While the car is at a station the said guides can rest on rollers 5, as is shown in Fig. 6. On the roof of the car and centrally of the same upper wheels 7 are mounted in bearings 8 which are constantly forced against the upper rail by means of springs 9. The wheels are disposed on a truck 10 which has a swiveling movement about a vertical pivot 11 and which adapts itself to the inclinations of the car and to the variations in the relative position of the upper and lower rails.

Between the wheels 7 means are provided to prevent a derailment, and the said means are so constructed, that they can easily pass through the spaces left between different parts of the switches and along curved parts of the rail. In the example shown the said means consist of curved arms 12 which are rigidly secured to the roof of the car. At their upper ends the said arms are adjacent to both sides of the rail 13, so as to embrace the same, and they are spaced away from the rail to permit the necessary play of the truck relatively to the rail. If the wheels 7 are disengaged from the rail 13 the car is guided on the said rail by means of the arms 12, so that it can not fall.

In Fig. 7, I have illustrated the form of a switch for the upper rail 13. As shown the construction of the switch is such, that the wheels 7 and the arms 12 can freely pass. Figs. 8 and 8<sup>a</sup> show an elevated railway which is supported on pillars 15. Fig. 9 shows the construction of an ordinary railway, and Fig. 10 shows the relative position of the upper and lower rails in curves and in switches. As shown in curves the upper rail 13 is so displaced relatively to the lower rail 3, that the car can not securely pass through the curve, unless the upper wheels are disposed on a truck which has a slight play about a vertical axis. In this case the truck which carries the upper wheels assumes the direction of the arrow 17 while the car travels in the direction of the arrow 16.

I claim herein as my invention:

1. In a railway car, the combination with



the car body, of lower wheels arranged centrally of the car and in line with each other, upper wheels arranged on the roof of the car and in line with each other, said upper  
5 and lower wheels being adapted to run on upper and lower single rails, and a truck carrying the upper wheels and having a swiveling movement about a vertical axis.

2. In railway car, the combination with  
10 the car body, of lower wheels arranged centrally of the car and in line with each other, upper wheels arranged on the roof of the car and in line with each other, said upper and lower wheels being adapted to run on

upper and lower single rails, and a truck 15 carrying the upper wheels and having a swiveling movement about a vertical axis, and guides secured to the top of the car and extending through the said truck and embracing the upper rail at a suitable distance 20 therefrom.

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

ERNST MITTAG.

Witnesses:

HENRY HASPER,  
WOLDEMAR HAUPT.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."

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