

No. 631,988.

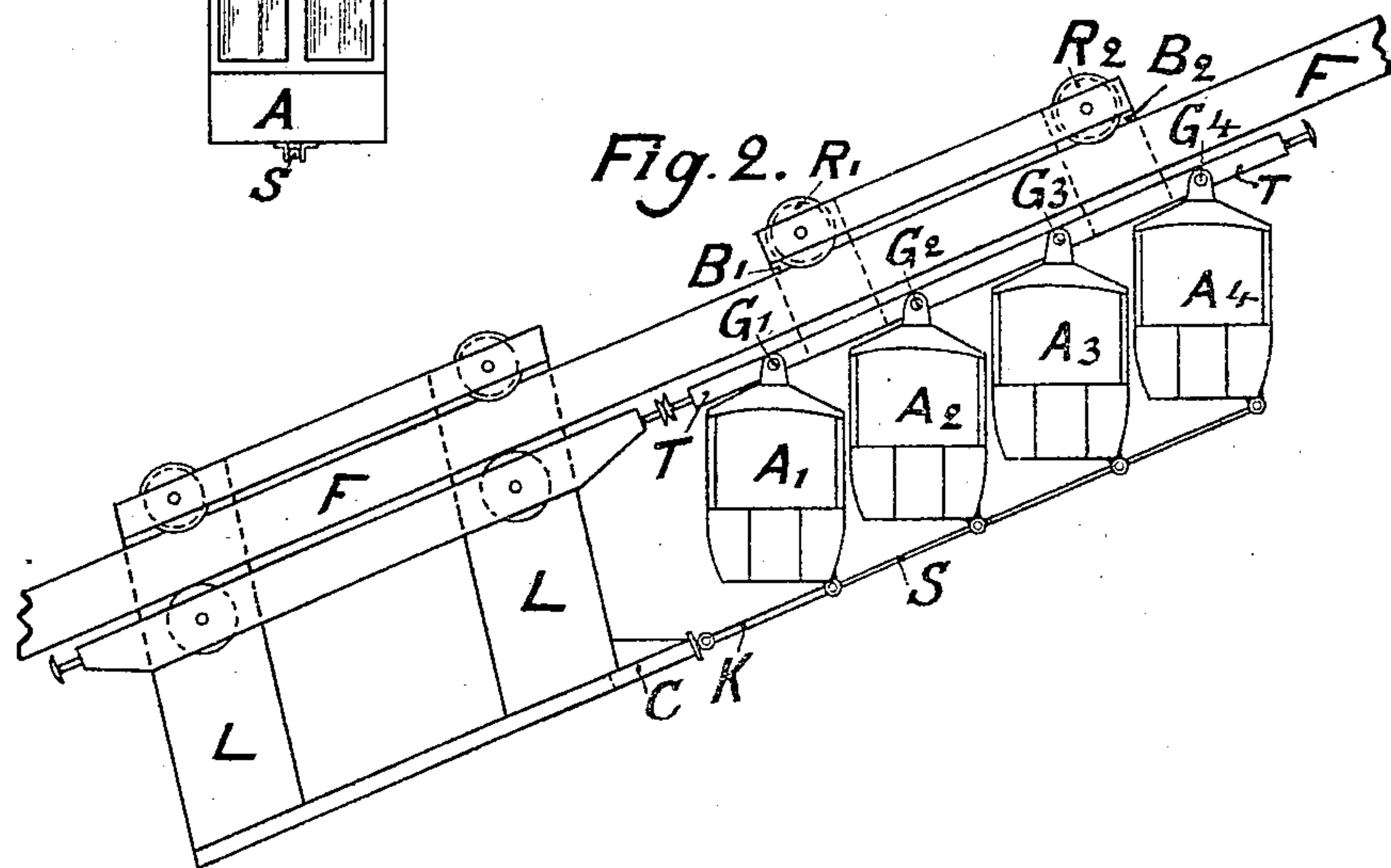
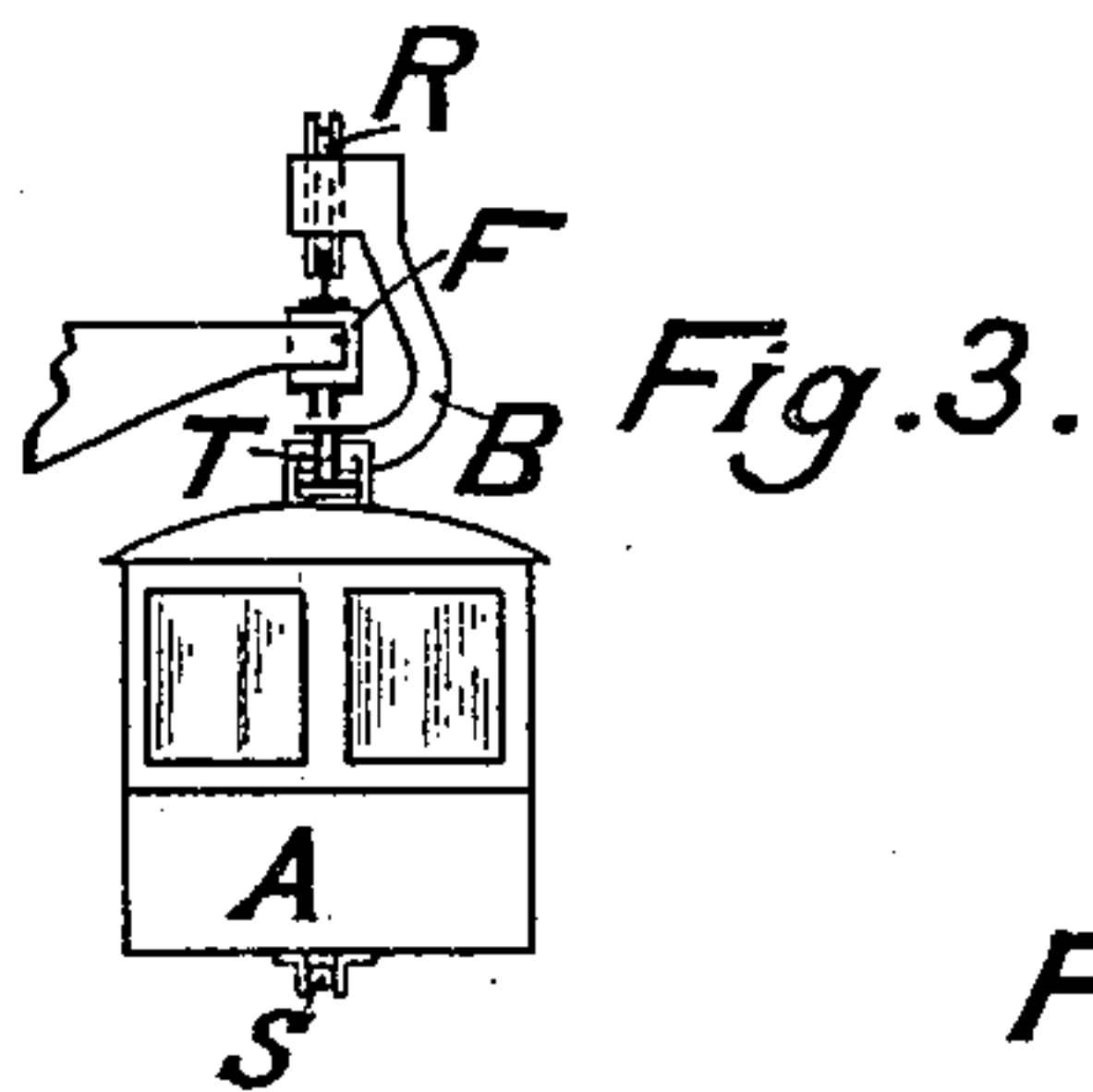
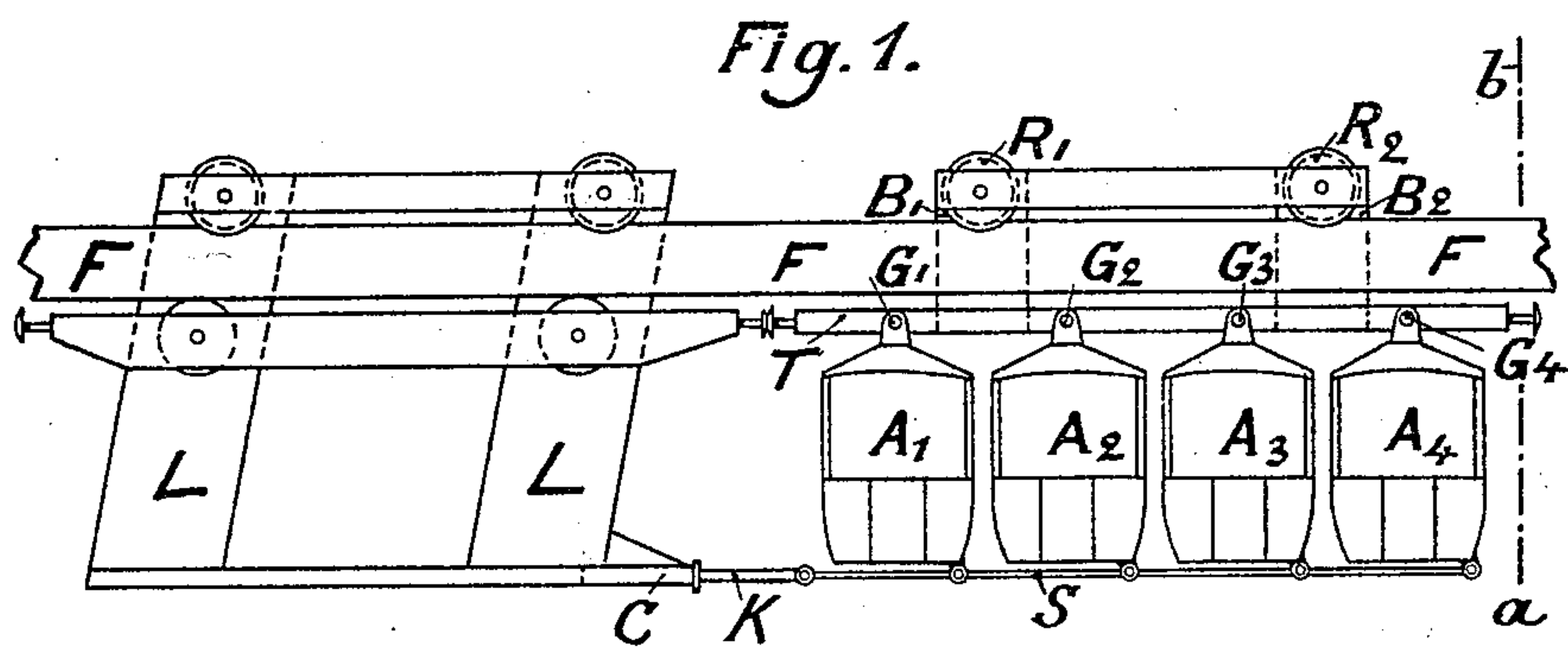
Patented Aug. 29, 1899.

W. FELDMANN.

ARTICULATED SUSPENSION APPLIANCE FOR CARS FOR ELEVATED RAILWAYS.

(Application filed Apr. 29, 1898.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILHELM FELDMANN, OF NUREMBERG, GERMANY.

ARTICULATED SUSPENSION APPLIANCE FOR CARS FOR ELEVATED RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 631,988, dated August 29, 1899.

Application filed April 29, 1898. Serial No. 679,211. (No model.)

*To all whom it may concern:*

Be it known that I, WILHELM FELDMANN, a subject of the German Emperor, and a resident of Nuremberg, in the Kingdom of Bavaria, German Empire, have invented certain new and useful improvements in articulated suspension appliances for cars of elevated railways to retain their vertical position on inclines without assuming an oscillating motion, of which the following is a specification.

This invention relates to elevated railways with vehicles suspended below the rails.

The present improvements have reference to an articulated suspension device for the vehicles of such railways that have considerable inclines, such as for mountain railways, by means of which device the floor and seats of the passenger-cars are always maintained horizontal and the sides vertical, even when the car passes from a horizontal part of the line onto a steep upward or downward incline, while at the same time the device effectually prevents the vehicles from assuming an oscillating motion.

I will describe the said invention with reference to the accompanying drawings, in which—

Figure 1 shows a side view of a horizontal part of the railway with a train thereon. Fig. 2 shows the same train on an incline. Fig. 3 shows a cross-section on line *a b*, Fig. 1.

The several car-sections  $A^1 A^2 A^3 A^4$  are each separately suspended by means of transverse swivel-bolts  $G^1 G^2 G^3 G^4$  from the longitudinal bearer *T*, which is in its turn hung by means of suspension-brackets  $B^1 B^2$  from the wheels  $R^1 R^2$ , running on rails on the railway-girder *F*, so that the car-bearer *T* and the railway-girder *F* always remain parallel to each other. Thus while the rail-girder *F* is horizontal at the horizontal part of the railway, as at Fig. 1, and is inclined at the inclined parts of the railway, as at Fig. 2, the car-compartments *A* always hang in the same vertical position. In each compartment the center of gravity is always vertically below the pivot *G*.

In order to prevent the compartments *A* from oscillating, they are all connected to-

gether by the articulated connecting-bar *S*, which is connected at one end to the rod *K* of a piston working in a cylinder *C*. This cylinder is fixed to the locomotive *L*, which has a rigid suspension-frame. The cylinder *C* therefore has a fixed position relatively to the bar *S* and piston-rod *K*, so that according to the variations in the inclination of the railway the piston-rod will be pushed to a greater or less extent into the cylinder *C*. The cylinder is filled with liquid, such as glycerin, and the piston has a passage through it of such restricted size as only to admit of the motion of the piston in the cylinder at a speed slower than the speed at which the compartments *A* tend to oscillate. By this arrangement, although it admits of the compartments *A* varying their position relatively to the bearer *T* according to the varying inclination of the line, yet this change of position takes place so slowly that no oscillatory motion can be produced. The same action will also be produced if the cylinder be only filled with air and the piston is made to fit nearly air-tight therein.

Having now particularly described and ascertained the nature of this invention and in what manner the same is to be performed, I declare that what I claim is—

Appliance for the articulated suspension of passenger-cars from elevated railways with considerable inclines, consisting in connecting together the separate pivotally-suspended car-compartments *A* by means of an articulated bar *S*, one end of which is attached to a piston working in a cylinder *C* filled with fluid, so that on the cars passing onto an incline they are able to retain their vertical position but are prevented by the cylinder and piston from assuming an oscillating motion, substantially as described.

Signed at Nuremberg, in the Kingdom of Bavaria, German Empire, this 16th day of April, 1898.

WILHELM FELDMANN.

Witnesses:

WALTER DIETZ,  
OSCAR BOCK.