

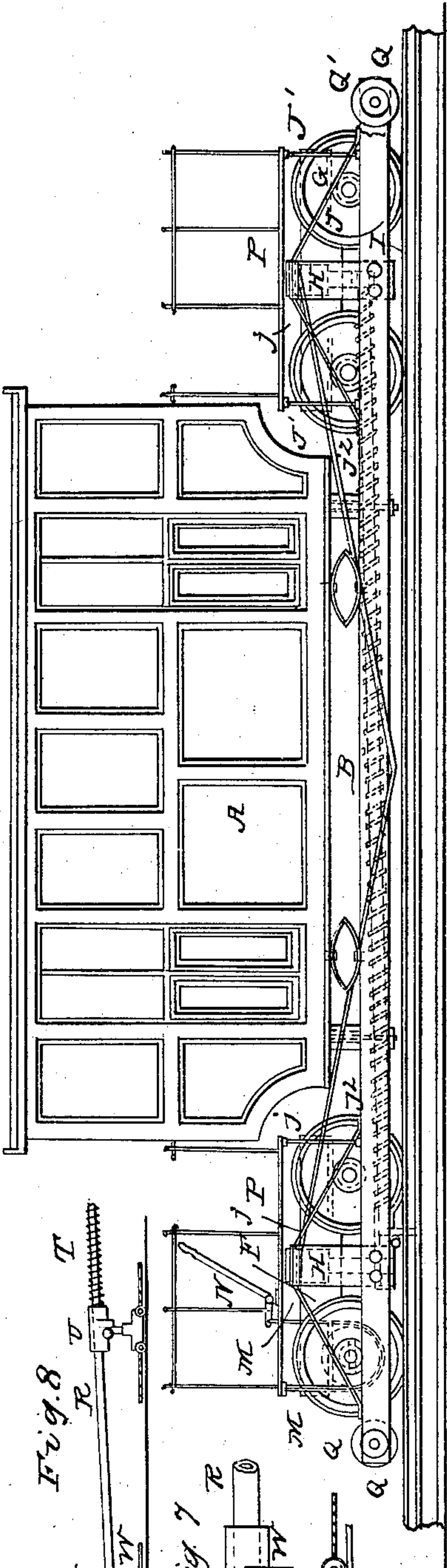
C. T. HARVEY.

Railway Car.

No. 79,756.

Patented July 7, 1868.

Fig. 1



WITNESSES

E. S. Kaetenhuber
J. B. Miller

Fig. 8



Fig. 7

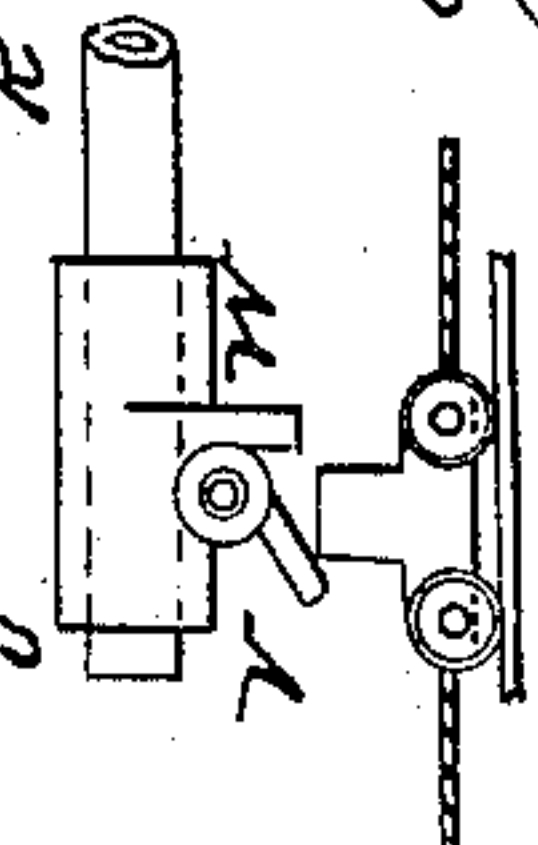


Fig. 6

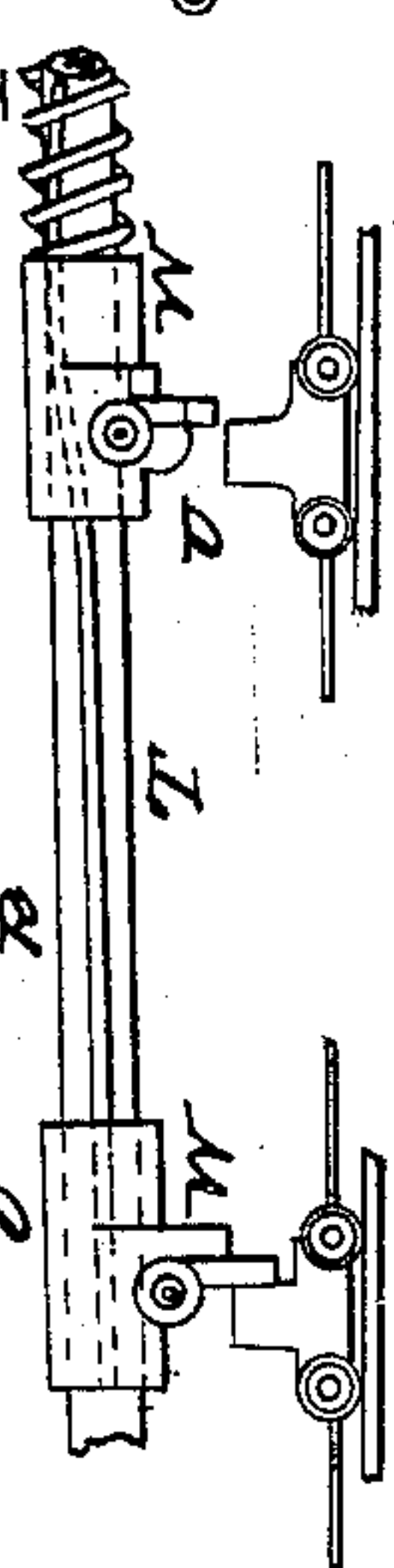


Fig. 4

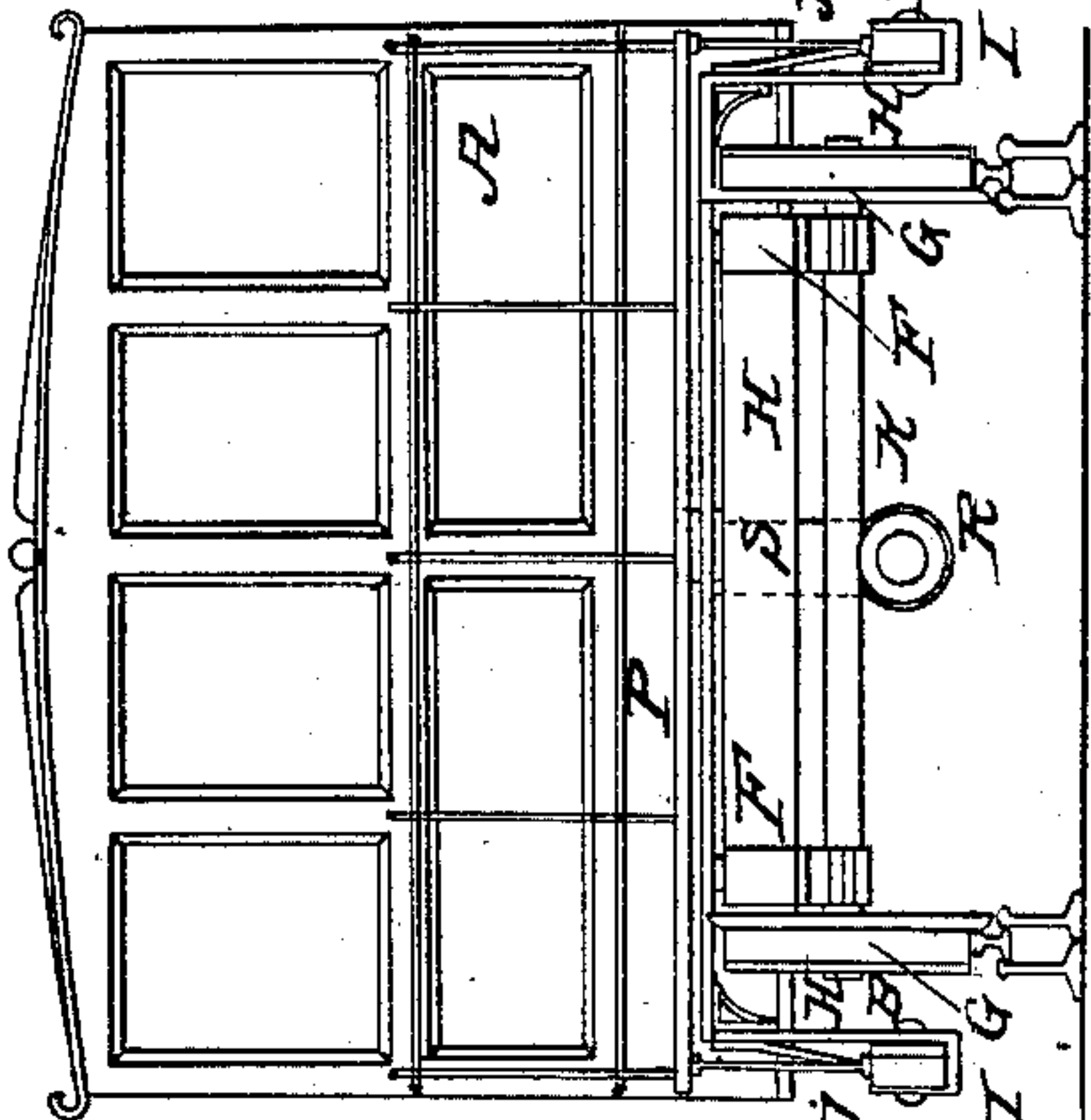


Fig. 2

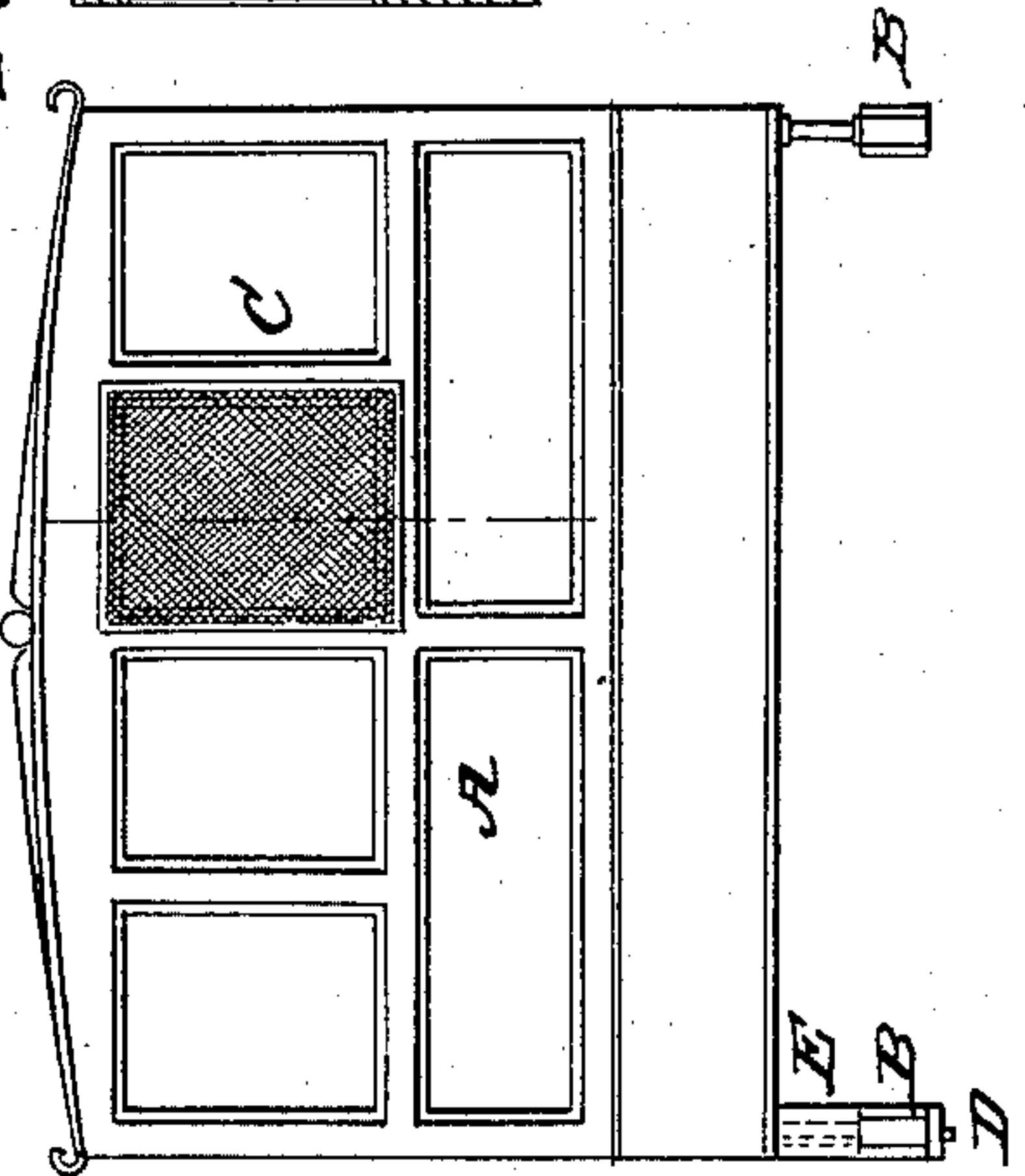


Fig. 3

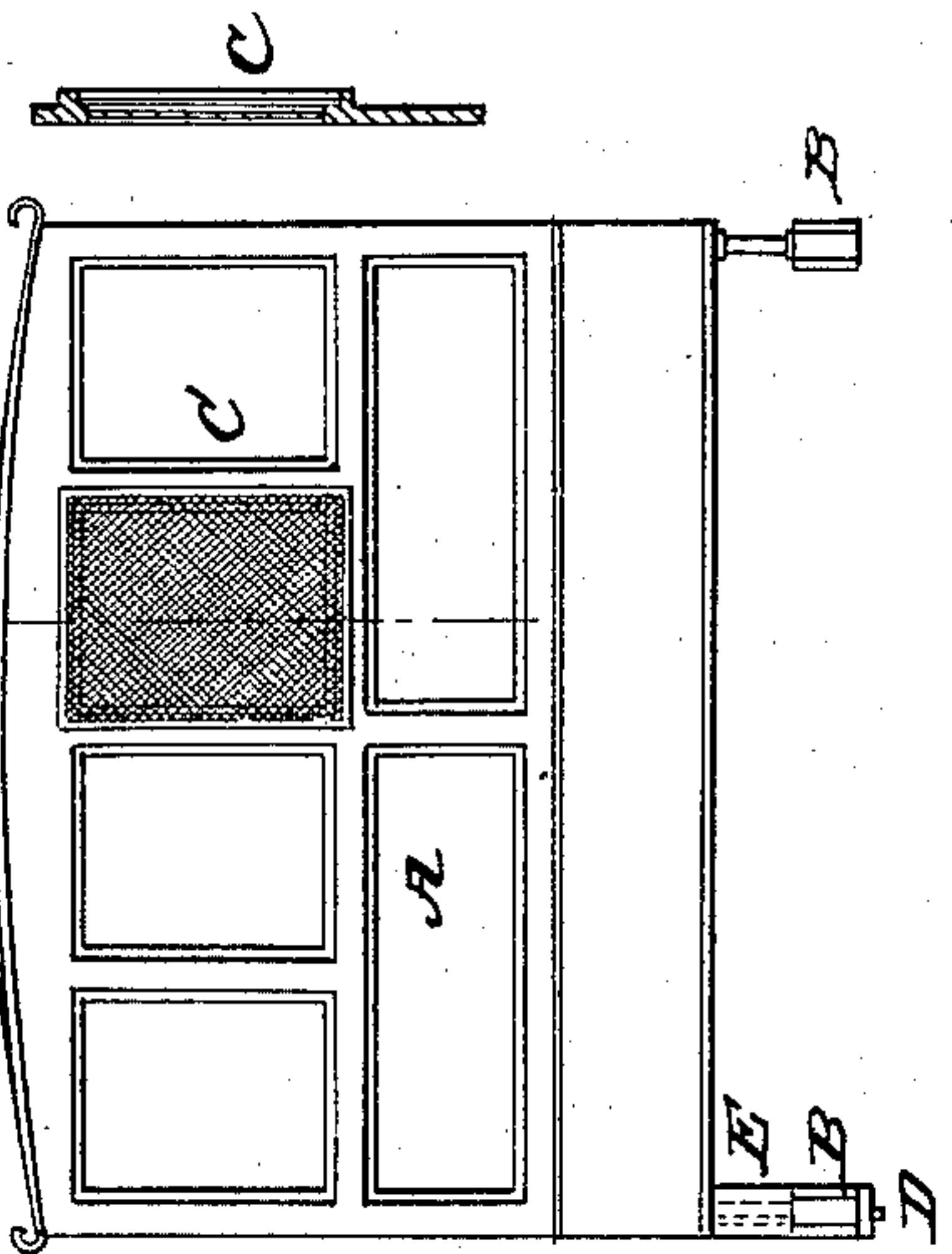
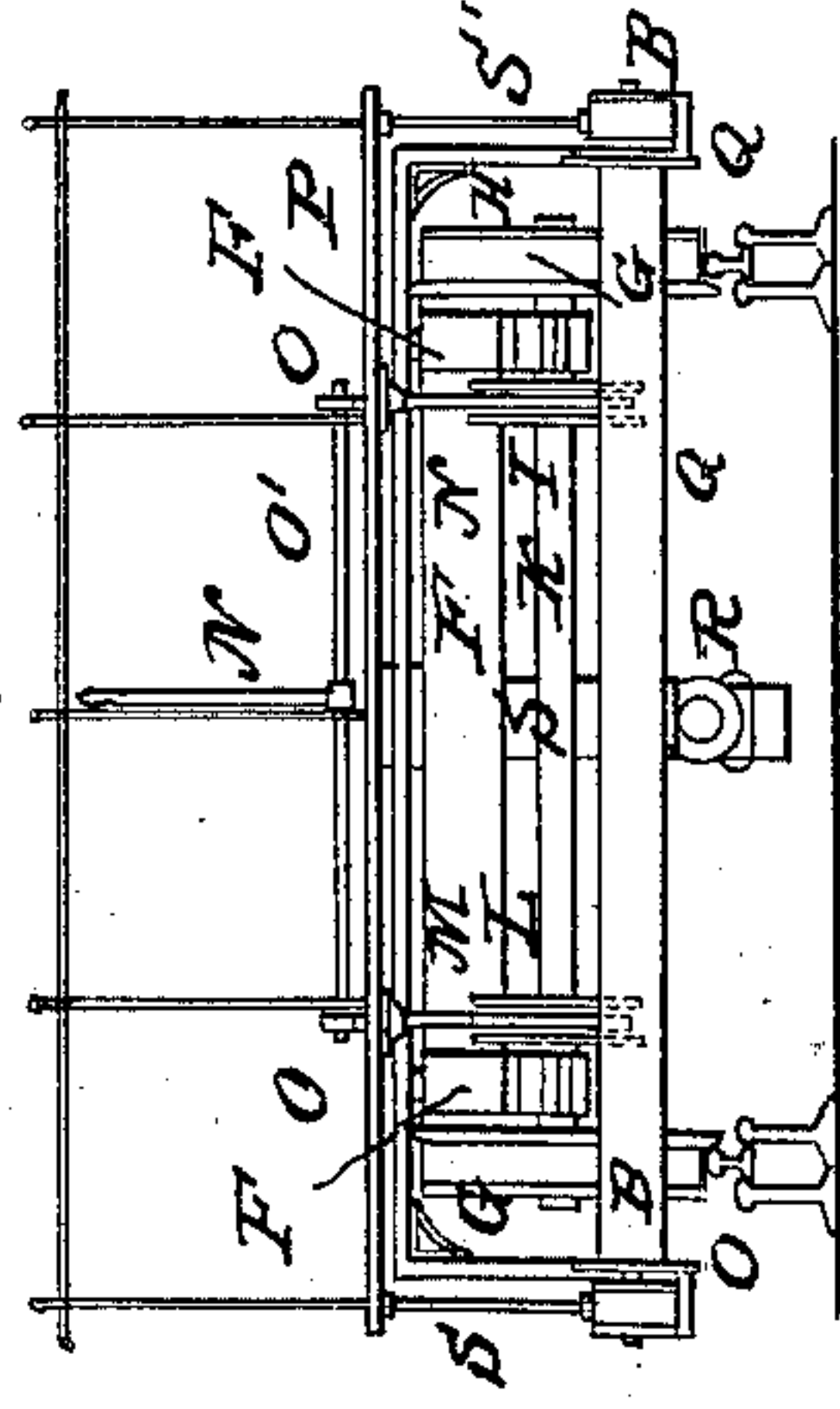


Fig. 5



INVENTOR

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United States Patent Office.

CHARLES T. HARVEY, OF TARRYTOWN, NEW YORK.

Letters Patent No. 79,756, dated July 7, 1868.

IMPROVEMENT IN RAILROAD-CARS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, CHARLES T. HARVEY, of Tarrytown, in the county of Westchester, and the State of New York, have invented a new and useful Improvement in Railroad-Cars; and I do hereby declare the following to be a full, clear, and exact description thereof, enabling those skilled in the art to make and use the same, reference being had to the accompanying drawing, in which drawing—

Figure 1 is a side elevation of a railroad-car and appurtenances containing my improvement.

Figure 2 is an end view of the body of the car.

Figure 3 is a view of a vertical section of one of the windows detached.

Figure 4 is an end view of the car looking towards the right-hand end of fig. 1, the girders being seen in cross-section.

Figure 5 is an end view looking towards the left-hand end of fig. 1.

Figure 6 is a detailed side view of a portion of the shaft R detached, including two of the hinged coupling-arms which receive the impact of the cable-heads or spurs.

Figure 7 is also a detailed side view of a portion of said shaft R, including one of the hinged coupling-arms.

Figure 8 is a detailed view of said shaft R when arranged in an inclined position.

This invention relates to cars for elevated and other railroads.

The letter A designates the body of a railroad-car, which is connected to the trucks or running-gear of the car by means of longitudinal girders, B B, two or more in number, that extend beneath the car, and are themselves connected to the trucks at each end by iron saddle-bars H H, which reach across the trucks, to whose frames, F, they are firmly attached, the outer ends of said bars being carried outwards beyond the line of the wheels, and then bent downwards to a level with the bottoms of the girders, beneath which they are again bent in such a manner that the girders rest upon them for support, the bars and girders being fastened to each other by bolts, so as to form a rigid frame. The said bars H H cross the trucks under the end-platforms, P, of the car, and said platforms are attached to the bars in any proper manner.

The connection of the car-body to the girders is by means of headed bolts D, which go loosely through the girders, and which bolts are surrounded by tubular springs E, made of rubber, or of any other suitable material, that sustain the weight of the car-body, and enable it to ride upon the girders with a yielding motion. These bolts and springs are as numerous as are found to be necessary or desirable, and, in addition thereto, I can use elliptical springs, as is shown in red outline in fig. 1.

The truck-frames F and the girders or beams B are also connected to each other by means of the rigid braces J J, which extend, in this example, from the upper parts of the saddle-bars H downwards to the upper sides of said saddle-bars, to which they are securely bolted.

The platforms P, in addition to the support they receive from the truck-frames F, are also sustained by the girders B, by means of rods J J, that extend upwards from said girders to the corners of the platforms.

It will be observed from this construction that the car-body A is supported directly upon the girders B, which in turn are supported from the truck-frames F. One object of this construction and arrangement is to enable me to support the car-body between the trucks, instead of above or upon them, and to bring it also near to the track.

The girders B are extended beyond the trucks, and their ends are connected by rollers or cylinders Q, which are arranged so as to revolve in their bearings, and whose diameter and positions are such that they are above and clear of the rails of the track, while the wheels G of the trucks are in their proper places on the rails, but when the car-wheels G are thrown off the rails, the rollers or cylinders Q immediately take their places upon the rails, and the forward movement of the car is allowed to continue, without violent shocks or concussions. The ends of the rollers or cylinders Q are provided with strong outside flanges, Q', which prevent them from running off the track.

By means of the construction and arrangement above described, the common dangers which attend the

movements of cars upon a track composed of rails are removed to a great extent, and by means of the safety-cylinders Q, I am enabled to prevent the instant destruction which occurs on surface-railroads when their cars leave the track, and I am further enabled to keep the cars on the track until time has been allowed to detach or take off the propelling power. Like rollers, Q, can be placed also at points intermediate the ends of the girders.

The letter G designates the car-wheels, which are mounted on axles K in the usual manner. Upon one or more of said axles I fix a brake-pulley or pulleys, L, beneath which I pass a powerful metallic or other suitable strap or band, M, one end of which is made fast on the platform, or on the frame of the truck, while the other is connected, directly or indirectly, to a lever, by operating which the band or strap is drawn tight against the pulley or pulleys L, so as to retard and stop the revolution of the axles on which they are fixed. In this illustration, I have placed two such brake-pulleys on one of the axles K of the left-hand truck, observing fig. 1, and have passed straps or bands M around each of them, the fixed ends of said straps being secured to the platform, while their movable ends are connected to the ends of arms O, that extend from a rock-shaft, O', which is operated by a brake-lever, N, fixed on said shaft. When the lever N is moved in the direction of the arrow, the straps or bands M are tightened around the brake-pulleys, and a powerful resistance to the revolution of the axle K is thereby produced. The lever N is retained in any desired position by means of a detent or pawl and ratchet, (not here shown,) or the detent can be applied to the rock-shaft O'.

The car here shown is arranged to be propelled by means of a moving cable or chain, whose heads or spurs are allowed to come in contact with some portion of the car, as, for example, against a coupling-arm, and by that means push or propel the car along.

The letter V designates such a coupling-arm, and the same is formed on the under side of a collar, U, which slides upon the coupling-shaft R. This shaft is suspended from the under side of the car in strong supports, S, between which supports the coupling-arm has its motion.

The coupling-arm V is hinged to its collar, U, in such a manner as to be capable of swinging backwards, or in a direction the reverse of that in which the propelling cable moves, so that when the car is pushed backwards, the arm will yield, and pass over the cable-heads or spurs; but the said coupling-arm is prevented from swinging the other way by a shoulder, W, which extends downwards in front of it from the under side of the collar, and sustains it against the push of the cable.

The sliding collar U slides on the shaft R, against a spring, T, which is placed around said shaft, and arranged in such a manner as to resist the forward movement of the collar and coupling-arm, when they are acted on by the cable. Said spring T can be assisted by auxiliary springs, as many as necessary, which can extend from the collar U, or from said spring, to the frame of the car.

After the coupling-arm and collar are relieved from the action of the cable, they are pushed backwards towards their former position on the shaft by the said spring, in readiness to be again acted upon by the cable when the movement of the car is to be resumed.

The coupling-apparatus of the car is disconnected from the cable by removing the apparatus automatically out of the plane of movement or path of the cable-heads or spurs, the agent by which it is so removed being the force or pressure exerted by the cable against the said apparatus.

I have in this example shown two modes or plans of carrying out into operation this part of my invention, one of which is shown in fig. 6, and the other in fig. 8.

In the plan shown in fig. 6, I guide and control the coupling-arm and its collar by the device of a groove and feather, such feather being placed upon the collar, and projecting into a groove, z, formed along the shaft. Said groove (there may be more than one, if desired) is made straight for that distance or to that point on the shaft which is taken or determined on as the limit of the application of the propelling power against a car, that is to say, the point at which, for the sake of safety, the cable shall be caused to cease its action against a car. From such point or limit, the course of the groove is a gradual spiral for a suitable distance, said groove being continued, if necessary, to the other end of the shaft. The object of this construction is to cause the coupling-arm, when the impelling force of the cable or its speed is excessive, or when the car is suddenly checked or stopped, to be rotated or turned on its shaft, and be thereby taken out of the path of the cable-heads or spurs, so that they cannot act upon the car; the cable continuing its motion without endangering the car or its passengers. The groove may be provided in its spiral part with a spring-detent or catch, which shall prevent the coupling-arm and collar from returning to the straight part of the groove until released from the detent or catch. I have not shown such a detent or catch, because it is a familiar device, and can be applied by any skillful mechanic.

In fig. 8, I have shown the other plan, whereby the same result is obtained by raising the coupling-arm out of engagement with the cable-heads or spurs. In this plan, the coupling-arm shaft R is arranged in an inclined position, that end which is at the forward end of the car being higher than the other end, so that when the coupling-arm is pushed beyond a certain distance which shall be chosen as the point of safety, the said arm is taken, owing to the inclination of the shaft, above the plane in which the tops of the cable-heads or spurs move, and this disengagement of the arm is thereby accomplished. In both plans, the coupling-arm is restored to an operative position by the spring T, and its auxiliary springs, as soon as the locking-detent or catch is unfastened.

Instead of the feather and groove of the plan shown in fig. 6, a spiral rib or ribs may be formed on the shaft R, fitting in a groove or grooves in the collar U.

I do not confine myself to the details shown in figs. 6 and 8, but claim the automatic disengagement of the coupling-arm V from the cable, whenever the cable exerts a force in excess of that degree of force which is before determined on as the limit of prudence or safety, whether such excess is caused or occasioned by the high speed or force of the cable, or by the immobility of the car, or by the sudden stopping of the car. The strength of the spring T and that of its auxiliary springs must not exceed by their power of resistance the

degree of force which is to be allowed as the limit of propelling force which the cable should exert against the car.

The girders B and the trucks of the car are connected to each other by hog-chains J², so called, in addition to the connecting-devices before described, such hog-chains being taken from one truck to the middle of the length of the girders, and thence to the other truck of the car. As many such connecting-devices, and similar means of bracing and connecting the trucks and girders, may be employed as are desirable.

In order to prevent passengers from annoying those persons who may be in the street through or above which a car is moving, and also in order to secure safety to passengers, I provide windows, C, of wire gauze or other open work, which are placed outside of the usual glass windows, as shown in figs. 2 and 3. Said wire-gauze windows C are fixed to the window-casings, and are independent of the transparent inner windows. The windows C allow of the free ingress of air to the car, while they prevent objects from falling outside, and from being ejected by the passengers.

What I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of the coupling-arm V of a car in such a manner that it will be automatically disengaged from the cable when the arm is moved beyond a certain point, substantially as described.
2. The construction and arrangement of car-trucks or running-gear of a car in such a manner as will admit of the placing or hanging of the car-body between the trucks, substantially as described.
3. The combination of the girders, saddle-bars H, and trucks, substantially as described and shown.
4. Hinging the coupling-arm V in such a manner that it will swing upward, and allow the car to be moved in a reverse direction to the motion of a propelling cable, substantially as shown.

Witnesses:

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CHARLES T. HARVEY.