

(No Model.)

3 Sheets—Sheet 1.

J. H. PENDLETON.

ATTACHMENT FOR CARS ON CABLE RAILWAYS.

No. 387,990.

Patented Aug. 14, 1888.

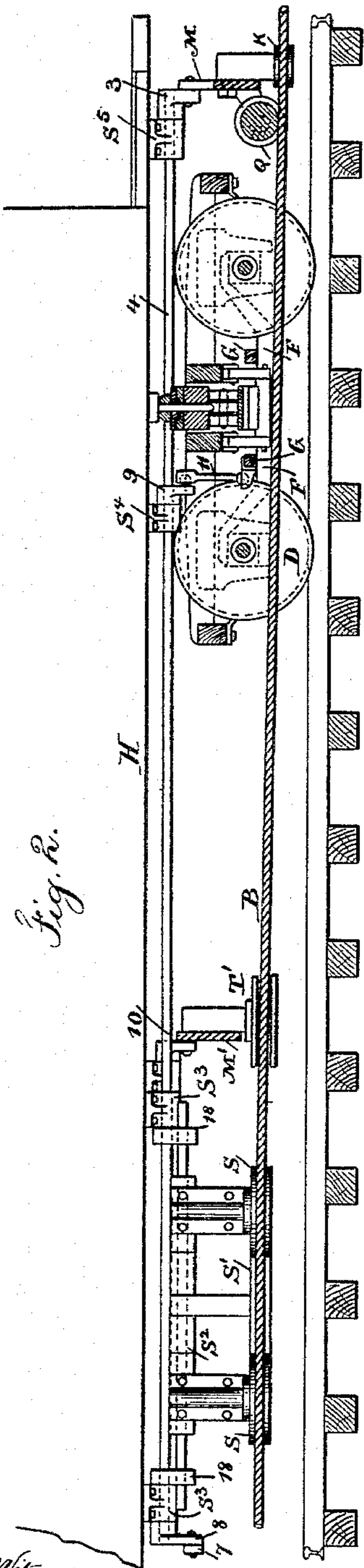


Fig. 2.

Witnesses.

Chas. H. Smith.

J. Staib.

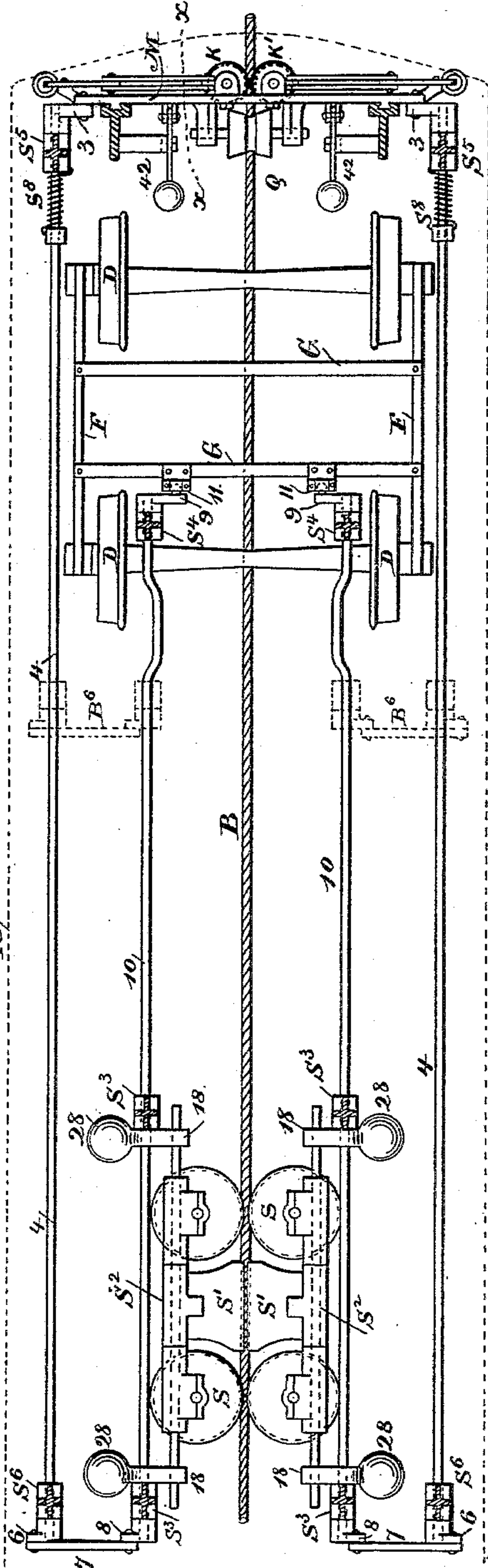


Fig. 1.

Inventor.

John H. Pendleton.  
per Lemuel W. Errell.

(No Model.)

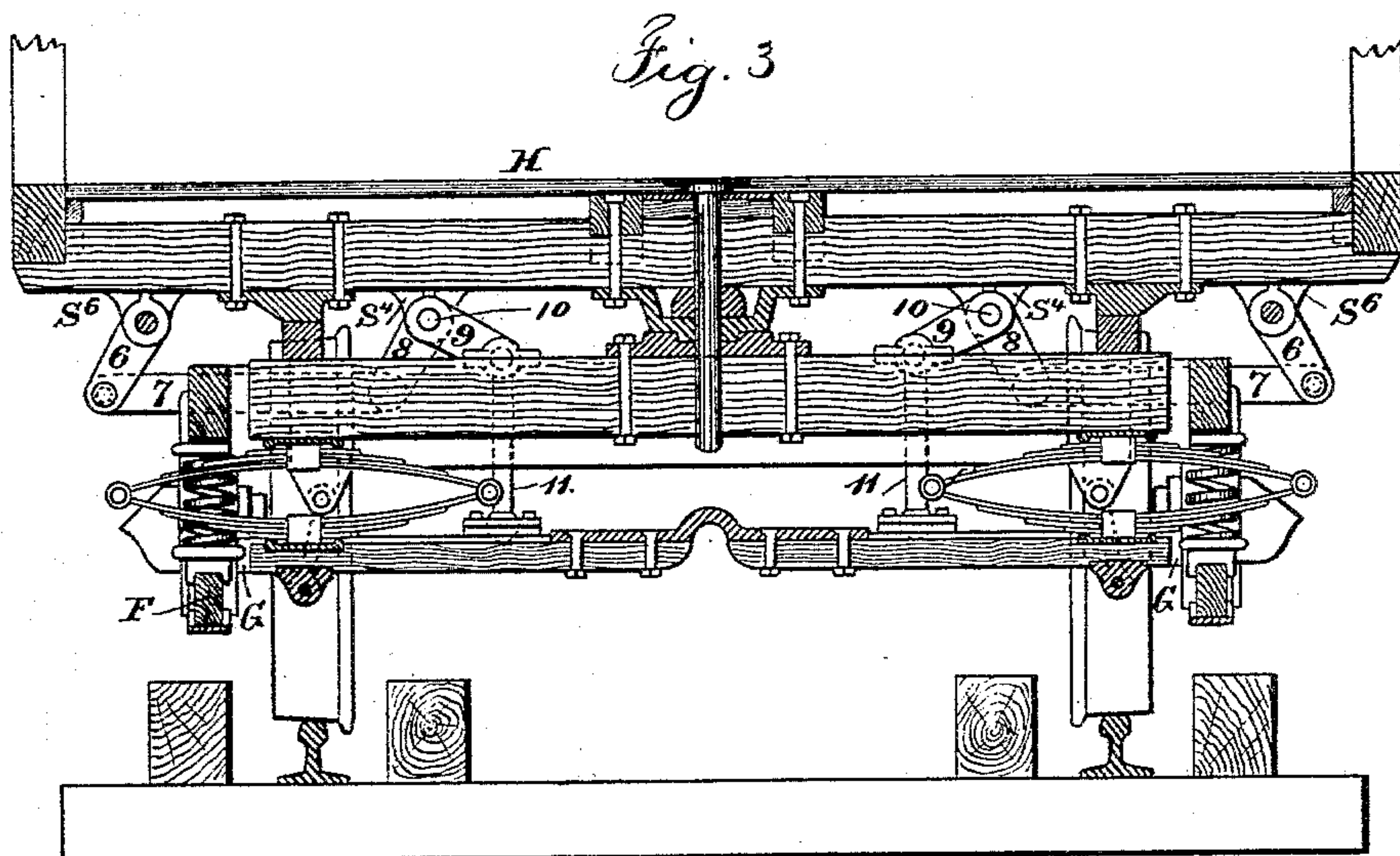
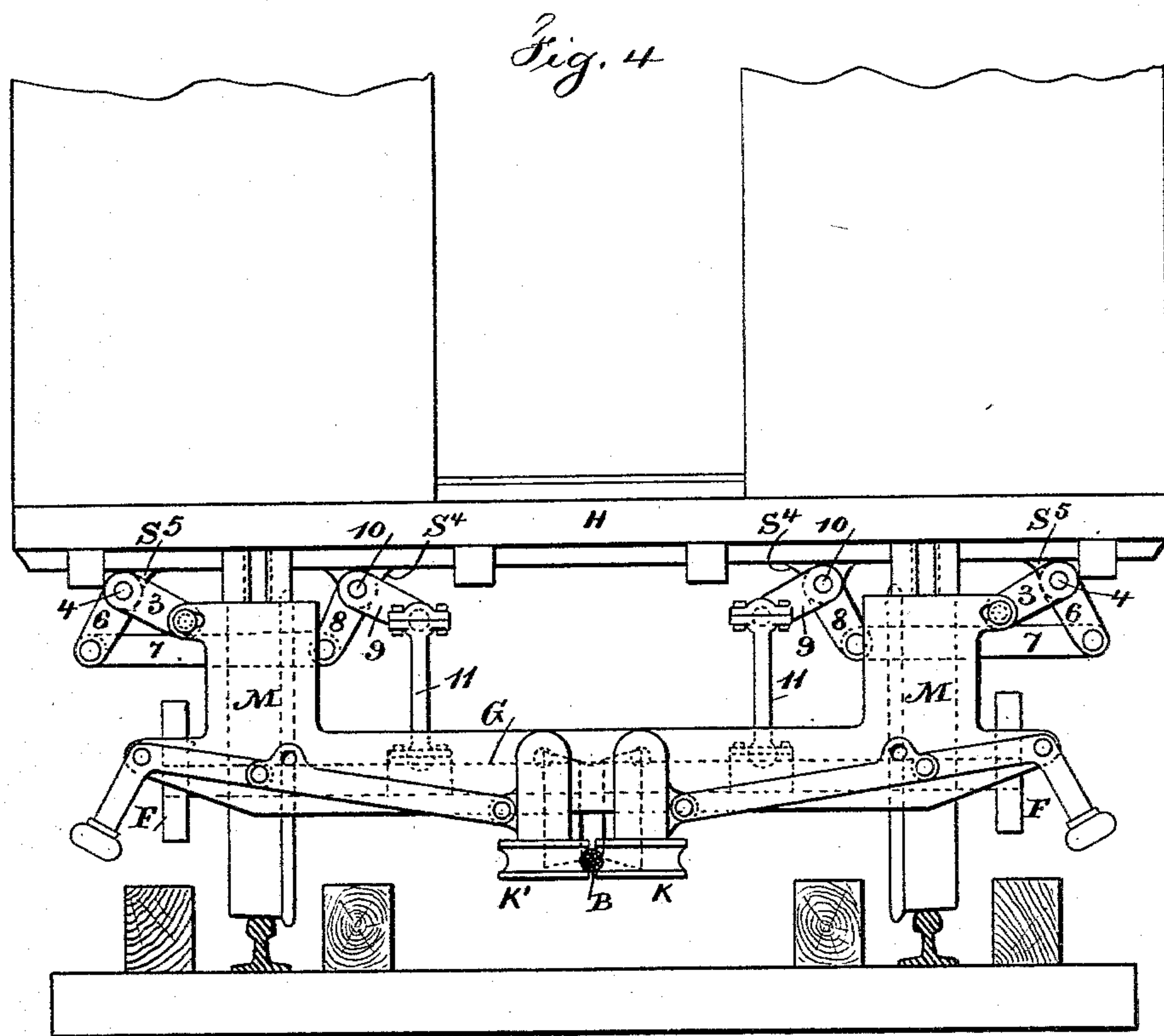
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3 Sheets—Sheet 3.

J. H. PENDLETON

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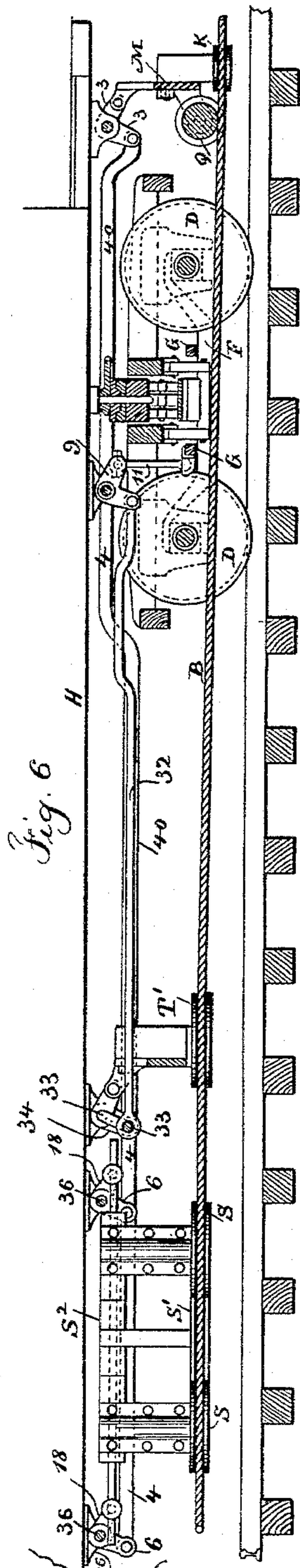


Fig. 6

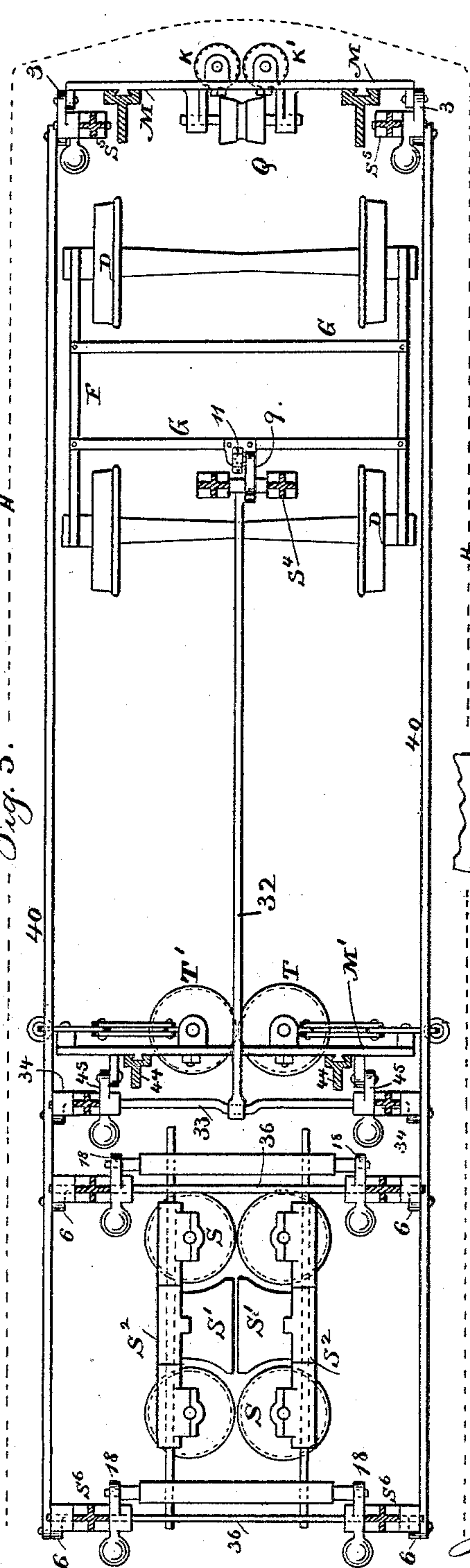


Fig. 5

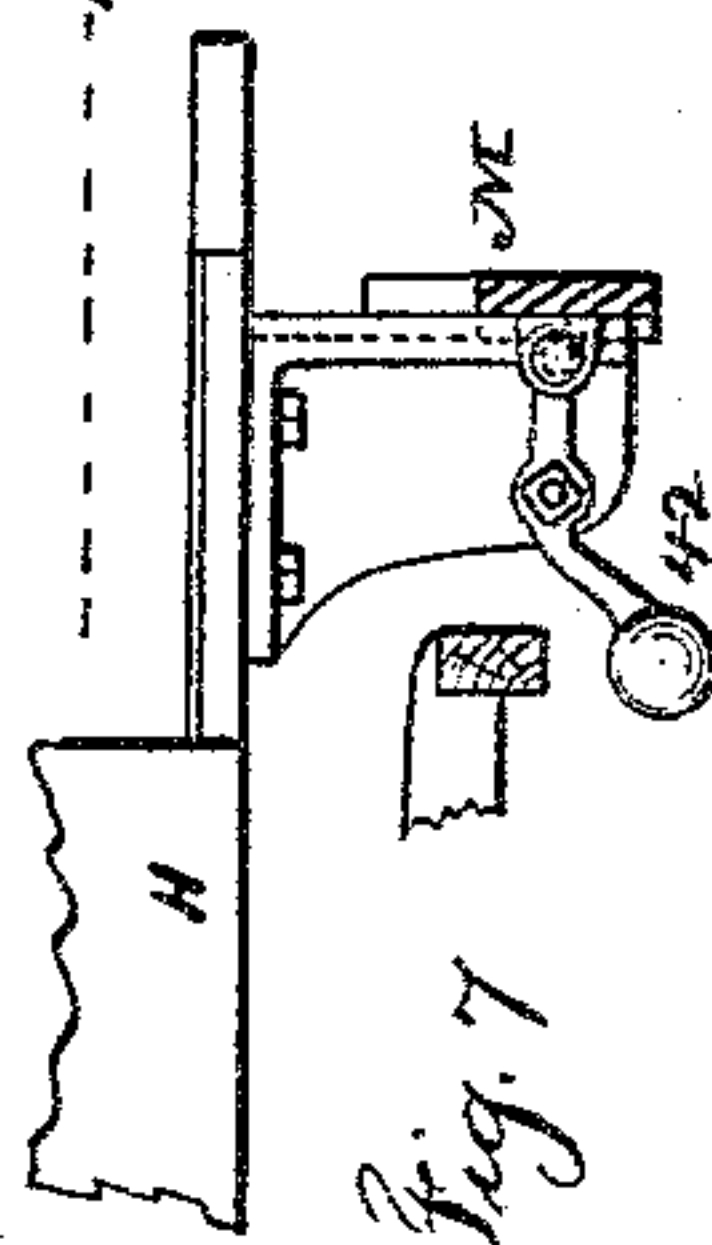


Fig. 7

Witnesses.  
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# UNITED STATES PATENT OFFICE.

JOHN H. PENDLETON, OF BROOKLYN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE RAPID TRANSIT CABLE COMPANY, OF NEW YORK, N. Y.

## ATTACHMENT FOR CARS ON CABLE RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 387,990, dated August 14, 1888.

Application filed November 5, 1886. Renewed June 13, 1888. Serial No. 276,930. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN H. PENDLETON, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Attachments for Cars on Cable Railways, of which the following is a specification.

In cable railways the gripping devices have usually been applied directly to a frame supported by the car-axles, so that they will maintain the proper relation to the track and not rise and fall by the action of the car-body on its springs.

In elevated railways, especially where the cable runs upon rollers or wheels above the cross-ties, it is important to support the gripping devices and the guide-rollers from the car-body itself, so that the gripping device can be in the middle beneath the car and the guide rollers or wheels can be at the ends of the car, and at the same time these rollers and gripping devices must not rise and fall with the car-body.

My present invention is made for holding the gripping devices or the guide-rollers, or both, in the proper relation to the tracks and at the same time supporting them upon the car-body, but allowing such car-body to rise and fall without the grip or guide-rollers thereby being raised or lowered.

In the drawings, Figure 1 is a plan view below the platform, representing the devices made use of by me. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a transverse section through the truck and track. Fig. 4 is an end view of the truck. Fig. 5 represents a modification in the arrangement of the connections. Fig. 6 is a vertical section of the devices shown in Fig. 5; and Fig. 7 is a detached view of the counterpoise for the cross-bar carrying the rollers, said cross-bar being in section at the line  $x x$ , Fig. 1.

The gripping device is to be of any desired character for grasping the traction rope or cable B.

At  $S'$ , I have shown a gripping device with rollers S at either side of the same, and the frames  $S^2$  serve to support the gripping devices and the mechanism made use of in applying or releasing the grip.

At  $S^3$  are hanging brackets below the car

frame or platform H, and there are crank-levers 18 upon the shafts 10, which shafts pass through bearings in the hanging brackets  $S^3$ , and it is preferable to counterpoise the grip and frame by weights 28 at the opposite ends of the crank-levers 18. These cranks 18 are fastened to the shafts 10, so that such shafts and crank-levers turn together. The ends of the shafts 10 nearest the truck-frame E are supported in hanging brackets  $S^4$  from beneath the car-platform, and upon the ends of said shafts 10 there are crank-arms 9 with links 11, connected at their lower ends, preferably by ball-joints, to the cross-bearer G of the truck-frame, and this bearer G rests at its ends upon the inverted-arch bearers F upon the axle-boxes of the car-wheels D. It will now be apparent that the wheels D, resting upon the track, and the cross-bearer G, receiving its support from the axle-boxes and bearers F, said cross-bearer G does not rise or fall in relation to the track, but the hanging brackets  $S^3 S^4$  move up and down along with the car body or platform, because they are directly connected with the same. As the car-body descends, the links 11 hold the outer ends of the cranks 9, so that they do not descend; but the shafts 10 are partially rotated in their bearings, and said shafts 10 and the cranks 18 hold the grip and the grip-frames  $S^2$  at a uniform height from the track, because the crank-pins of the cranks 9 and 18 are in a line with each other. In consequence of this construction the car-body can rise and fall according to the conditions of its load without varying the height of the gripping devices, such gripping devices receiving their support from the lower ends of the links 11, where they rest upon the bearer G.

I have shown the guide-rollers K, K', and Q as supported upon the cross-frame M, and this frame and the guide-rollers are held at the proper position in relation to the track by the crank-arms 3 and shafts 4, supported in hanging brackets  $S^5 S^6$ , from the under side of the car, and the cranks 6 upon the ends of the shafts 4, near the hanging brackets  $S^6$ , and links 7, connecting the cranks 6 and 8 together, the cranks 8 being upon the ends of the shafts 10. These devices are alike at each side of the car, so that as the car rises and falls upon



its springs the links 11, acting through the cranks and connections, will cause the shafts 10 and 4 to partially revolve in their hanging brackets or bearings, and the frame M will be kept at the proper height above the track, because the points of connection of the links 11 to the bearer G do not rise or fall in relation to the track.

It will be apparent that in case of either shaft becoming bent or broken the gripping mechanism might fall so as to come into contact with the guide-rollers upon the track. I therefore prefer to counterpoise the parts, so that the gripping mechanism may be raised in case of injury.

The counterpoise may be in the form of a weighted lever, as seen at 28 and 42, or springs may be employed in place of weights, the springs  $S^s$  being coiled around the shafts 4; with one end attached to one of the hanging brackets and the other to a collar upon the shaft. By revolving the collar the power of the spring may be increased or lessened until the parts of the gripping mechanism or the guide-rollers, or both, are counterpoised and lifted, so that when the weight of the traction-cable is added, that also may be raised, if desired; hence the link 11 has but little strain upon it and the parts will be moved with great freedom by the same.

The devices for moving the rollers K K' Q to grasp or release the cable form the subject of a separate application, and do not, therefore, require further description herein.

It is to be understood that the arrangements of the cranks and shafts may be varied considerably, and at the same time the gripping devices or the guide-wheels, or both, will be held in their proper relation to the track, although connected to the car-platform and partially supported by the same.

In Figs. 5 and 6 I have represented the link 11 as resting upon a cross-bearer, G, nearly below the king-bolt, so that the turning of the truck upon the king-bolt has very little swinging action upon the link, and the bent lever 9 is sustained by a short shaft in a hanging bracket,  $S^t$ , beneath the car, and the link 32, extending from the bent lever 9 to a crank upon the cross-shaft 33, turns this cross-shaft as the car rises and falls; and the cranks 34 at the ends of the shaft 33 are provided with connecting-rods 40, extending to the bent levers 3 for supporting the cross-frame M, and to the cranks 6 upon the cross-shaft 36, which cross-shafts are provided with the cranks 18, that connect the said cross-shafts to the frame  $S^2$  of the gripping devices. In all these arrangements the gripping devices and the guide-rollers cannot rise and fall in relation to the track, although suspended from a car-body, because the cranks and shafts are turned by the rise and fall of the car-body and the point of support is transferred through such cranks and shafts to the cross-bearer G, that does not rise or fall with the car.

I have shown at 42 levers with weights, that serve to counterpoise the frame M and the parts carried by the same, and I remark that the connecting-rods 40 take the place of and become the equivalents of the shafts 4 in connecting the respective cranks that support the gripping devices and the guide-rollers. I have also represented guide-rollers T T' for the traveling cable as supported by a frame, M', that is held in position by the vertical hanging standards 44, having V-guides, that allow the said frame M' to remain in a fixed position relatively to the tracks as the hanging standards 44 rise and fall with the car, and the cranks 45, that are upon the cross-shaft 33, are connected with this frame M' and maintain the guide-rollers T T' in the same longitudinal plane as the gripping devices  $S S'$ .

The cranks 6 and 8 and links 7, instead of being at the ends of the shafts 4 and 10, may be placed as indicated by dotted lines at B<sup>6</sup>, Fig. 1, and thereby reduce the length of the shafts 4.

The rollers S S' should be filled with yielding material, such as gutta-percha, as shown in my patent, No. 341,501, and the grooves are not deep enough for the edges of the wheels in the pairs to touch, thereby allowing for gripping the cable by the wheel; but the guide-wheels T should have deep grooves, so as to hold the cable between the wheels and allow it to travel when the car is standing at a station without risk of getting out from between such wheels; and hence the cable is always held in position ready to be grasped by the grip without the cable first having to be lifted. These guide-wheels T, being horizontal and at the lower ends of vertical shafts, pass clear of the wheels upon the track that support and guide the cable.

I claim as my invention—

1. The combination, with the grip for the cable and the truck-wheels for the car, of shafts supported in hanging brackets below the car-platform, cranks and connection for suspending the gripping devices and the frames for the same, and a crank and link resting at its end upon a portion of the truck that does not rise or fall, substantially as set forth.

2. The combination, with the car-truck and car, of shafts and hanging brackets beneath the car-platform for supporting the shafts, rollers for guiding the cable and a frame for supporting the same, cranks upon the shafts for supporting the frame and rollers, and crank-connections between the shafts and the cross-bearer or other part of the truck that does not rise or fall in relation to the track, substantially as set forth.

3. The combination, with a traction-cable, of guide-rollers for the same supported by the car, and a gripping device and cranks and shafts and hanging brackets beneath the car-platform, and a connection from one or more of the cranks to a portion of the truck that does not rise or fall, whereby the respective



parts of the guide-roller frame and gripping devices are sustained at a definite distance from the track regardless of the rise and fall of the car in consequence of varying loads upon the same, substantially as set forth.

4. The combination, with the gripping device, of the independent horizontal grooved guide-wheels T T' for supporting the cable and allowing it to move freely, substantially as set forth.

5. The combination, with the guide-wheels for the cable, of a frame for supporting such guide-wheels, mechanism for suspending the said frame and guide-wheels beneath the car, and a counterpoise tending to raise the said

frame and guide-wheels, substantially as set forth.

6. The combination, with a traction-cable, of a grip for the same, a frame for supporting the grip mechanism for suspending the grip and its frame beneath the car at a uniform height in relation to the track, and a counterpoise tending to lift the frame and grip, substantially as set forth.

Signed by me this 4th day of November, 1886.

J. H. PENDLETON.

Witnesses:

GEO. T. PINCKNEY,  
WILLIAM G. MOTT.