

(No Model.)

C. W. PARKS.

TRACTION MECHANISM FOR SELF PROPELLING VEHICLES.

No. 551,472.

Patented Dec. 17, 1895.

Fig. 1.

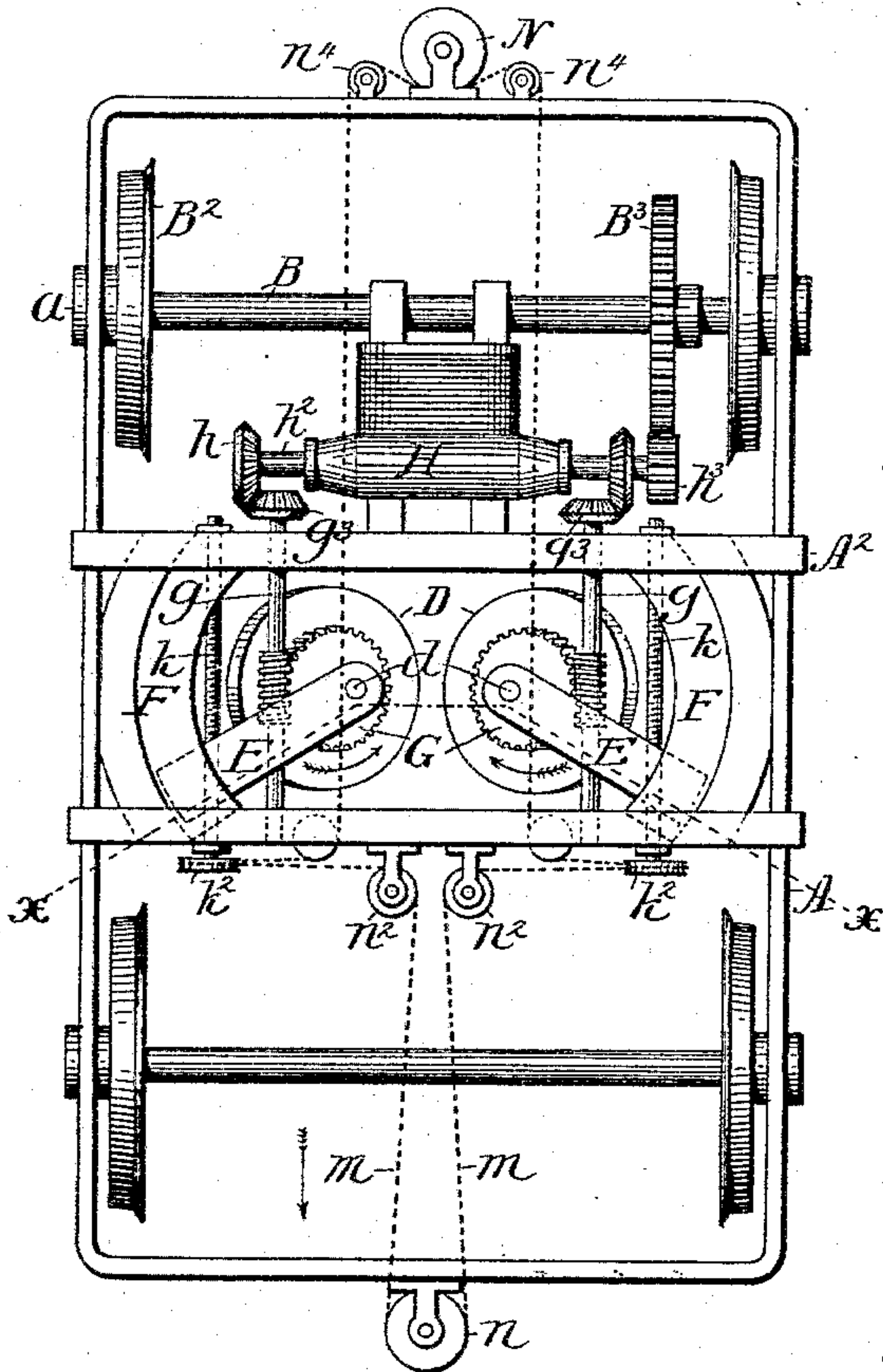


Fig. 3.

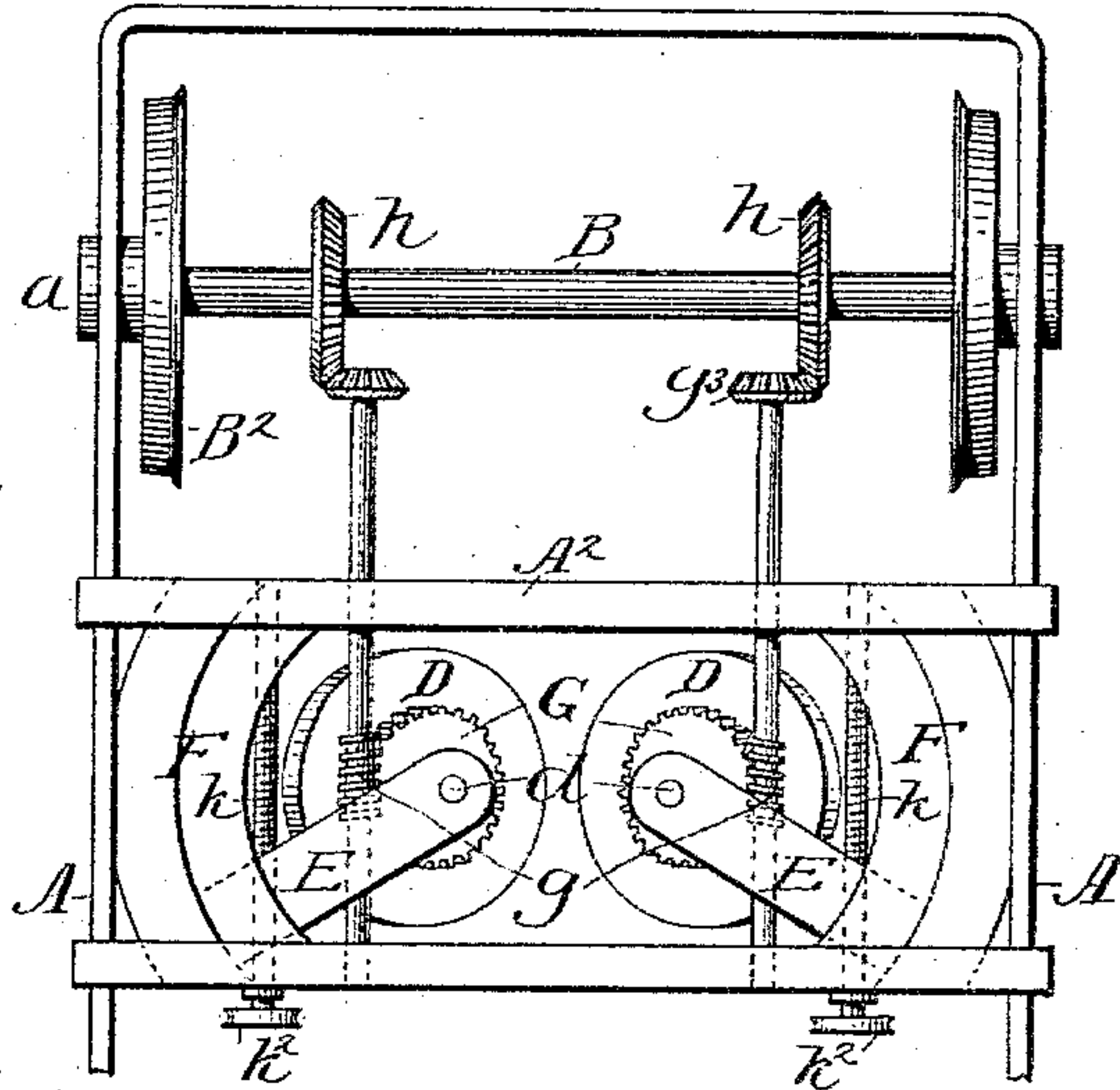


Fig. 4.

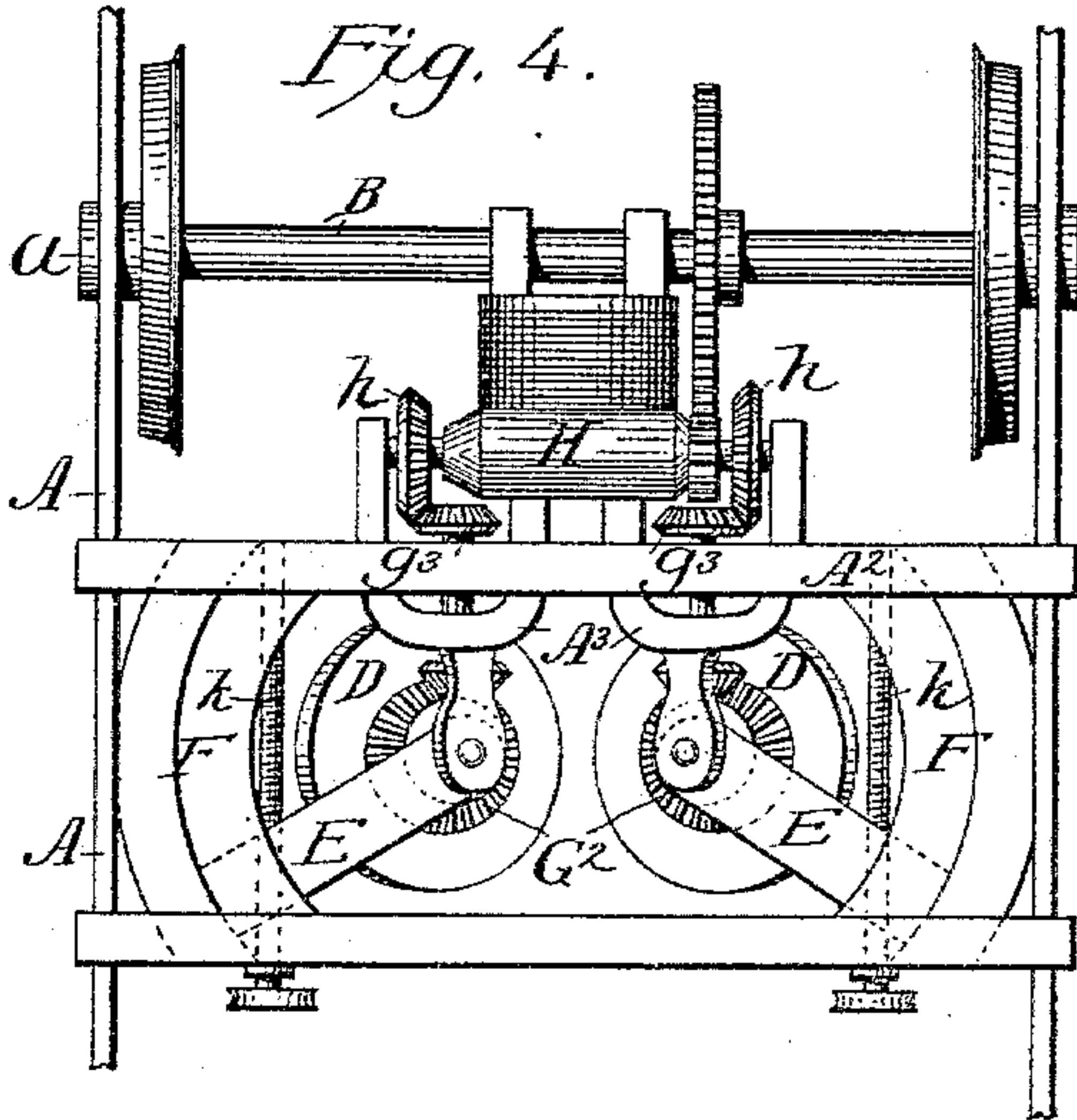


Fig. 2.

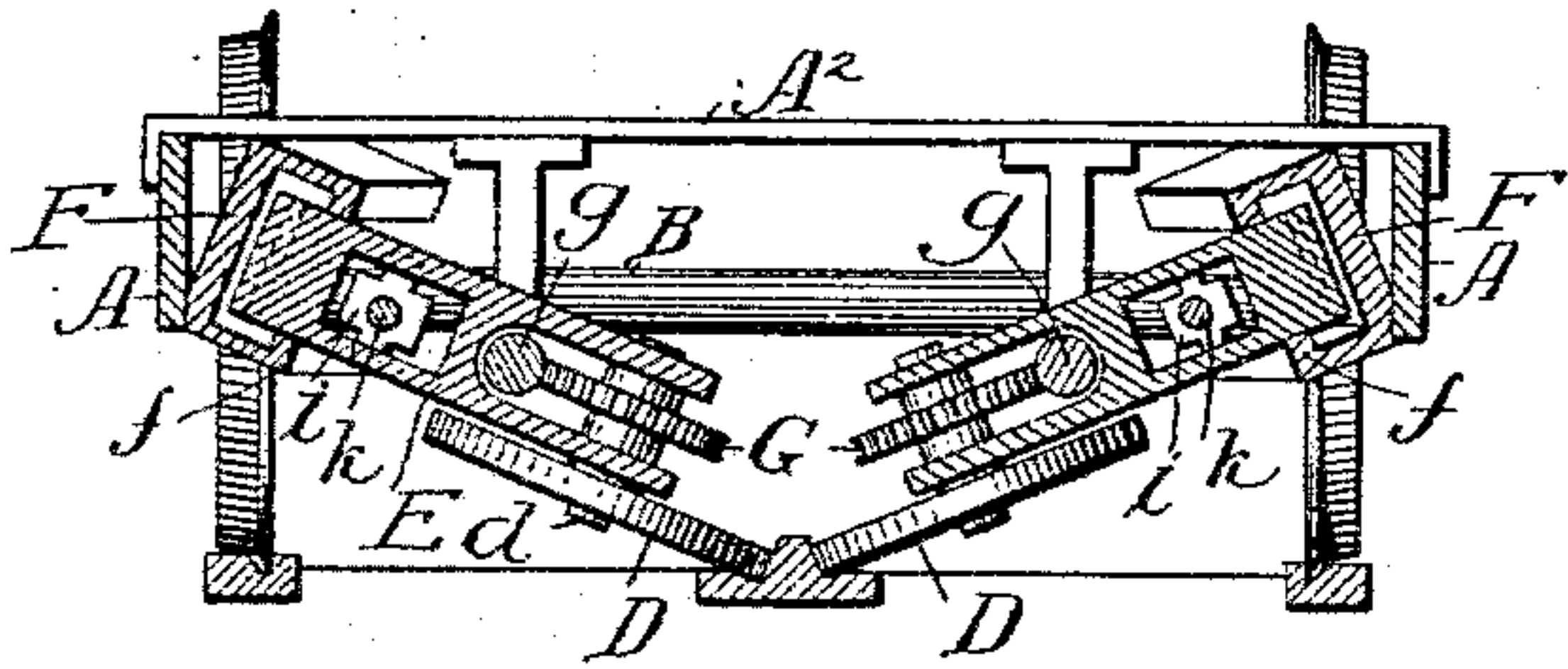
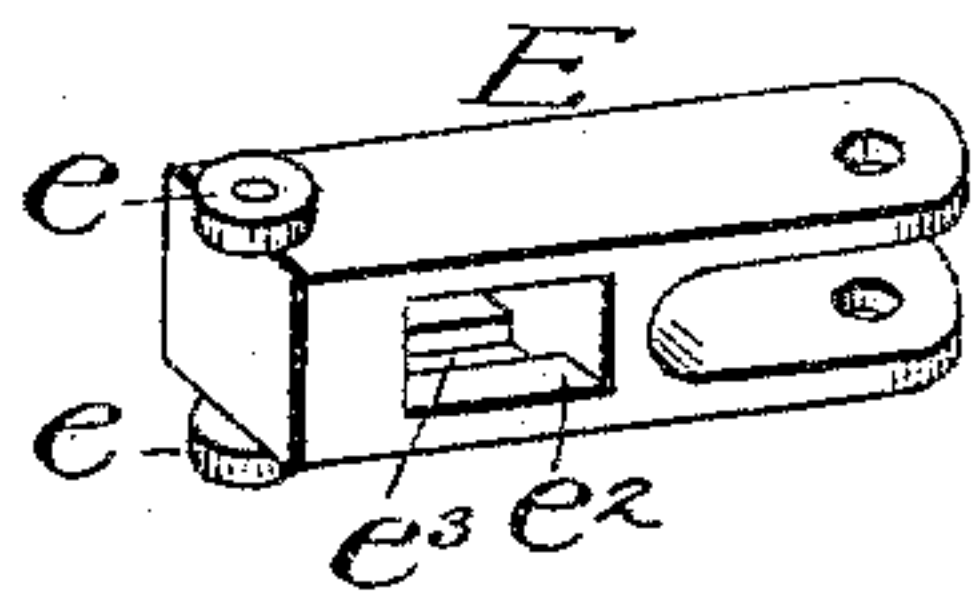


Fig. 5.



Witnesses.

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TRACTION MECHANISM FOR SELF-PROPELLING VEHICLES.

SPECIFICATION forming part of Letters Patent No. 551,472, dated December 17, 1895.

Application filed May 14, 1891. Serial No. 392,653. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WELLMAN PARKS, a citizen of the United States, residing at Troy, in the county of Rensselaer, State of New York, have invented certain new and useful Improvements in Traction Mechanism for Self-Propelling Vehicles, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a mechanism for the tractional propulsion of cars, locomotives, and other vehicles designed to be used in connection with a three-way track in which two of the rails are arranged to support the weight of the vehicle, and for its propulsion when desired, and a center rail employed in connection with driving-wheels made to engage with the sides of the center rail; and the objects of my improvement are to provide suitable means for varying the pressure of the driving-wheels upon the central friction-rail and for guiding and supporting said wheels while permitting their lateral adjustment. I attain these objects by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a top view of a locomotive-truck having the driving-wheels carried and controlled in accordance with my invention. Fig. 2 is a transverse vertical section on line $x x$ of Fig. 1. Fig. 3 is a top view of a portion of a truck having the driving-wheels carried and controlled in accordance with my invention, but with the power shown as taken from the axles of one pair of supporting-wheels. Fig. 4 is a top view of a portion of a truck having the driving-wheels carried and controlled in accordance with my invention, but showing a modification of the means for transmitting power to said driving-wheels. Fig. 5 is a perspective view of one of the arms used to carry a driving-wheel.

In said drawings, A represents the truck-frame, which may be of any suitable form and construction. Said frame has attached thereto the boxes a that rest upon the axles B of the supporting-wheels B^2 . The sides of the frame are united together by straps or beams A^2 to support a portion of the driving mechanism in the center of the truck-frame. The driving mechanism consists mainly of

driving-wheels D in connection with the center rail C of the track against the sides of which they bear. Said wheels D have their axles d carried by arms E, having their inner ends projected rearwardly relatively to the direction in which the car is advancing, as shown by the arrow in Fig. 1, and are making a tangent engagement with the opposite sides of the center rail. To permit the wheels D to remain in engagement with said center rail at a point substantially in the center of the truck-frame and with the inner ends of the arms E pointing rearwardly whatever may be the direction in which the car is traveling, the outer ends of said arms are so mounted, guided, and retained as to be capable of being swung in an arc of a circle, so that their inner ends may be made to point rearwardly at either end of the track of a railroad line without requiring the car to be turned around end for end. The same controlling mechanism also permits the angle made by the arms E with the rail C, and consequently the pressure of the wheels D with said rail, to be varied to suit the conditions of the weather, the track, &c., as the thrust of the worms upon the worm-wheels is resolved into two component forces, one of which revolves said worm-wheels and the other has a constant tendency to force their axles in the direction the car is advancing.

To retain the arms E under adjustable control their outer ends are received within hollow segmental guides F secured to the truck-frame or to its beams A^2 , and the top and bottom of said outer ends have projections or preferably rollers e that are received within the chambered guides F, the latter having flanged edges f to retain said rollers within the guides. To rotate the driving-wheels D, various means may be used, but I prefer to employ worm-wheels and worms, as shown in Figs. 1, 2 and 3. The worm-wheels being shown at G are placed within the forked inner ends of the arms E and are mounted upon the axles d . The worms g are made to pass also loosely through the arms E, but have their shafts carried at each end in bearings g^2 pendent from the beams A^2 , and upon one end of the worm-shafts are placed bevel-pinions g^3 , which are rotated as shown in Fig. 1 by means of bevel-gears h upon the shaft h^2

of an electric motor H. The shaft h^2 is also shown as carrying a pinion h^3 meshing with a gear-wheel B^3 upon the axle of the supporting-wheels by which the latter can be rotated.

5 In Fig. 3 the bevel-pinions g^3 of the worm-shafts mesh with bevel-gears upon the axles B, and the latter can be rotated by any suitable means.

In Fig. 4 bevel-gears are used in place of
10 worm-wheel and worm to transmit rotation from the electric motor to the driving-wheels D. The bevel-gears G^2 , being within the forked end of the arms E, mesh with bevel-pinions upon one end of the shafts carrying the bevel-
15 pinion g^3 at the other end. In this construction the ends of the axles d are retained in bearing-arms A^3 secured to the truck-frame, but the bearings in said arms for the axles d are slightly in the form of slots across said
20 arms to permit the wheels D to bear with more or less force against the rail C.

To have the arms E under the control of the driver or engineer they are provided with nut i located within a transverse rectangular
25 perforation e^2 in said arms, and said nuts are provided with trunnions to permit them to rotate thereon, said trunnions being received in grooves e^3 in the top and bottom of the perforation e^2 . Through the nut i passes a
30 screw k that is received adjacent to its ends in bearings pendent from the beams A^2 . Upon one end of said screws are mounted pulleys k^2 , around which passes an endless
35 chain m to a pulley n at the end of the car or car-truck, and the shaft of the end pulley n can have a hand wheel or crank for its rotation, and by rotating it the chain will pass from said pulley n around guide-pulleys n^2 ,

and thence around one of the pulleys k^2 , the guide-pulleys n^3 n^4 to the controlling-pulley 40 N, and from the latter back to the pulley n , as shown and above described.

Having now fully described my invention, I claim—

1. The combination with a car or locomotive truck provided with wheels to support its weight, of hollow segmental guides secured to said truck, arms having one end adjustably retained in said guides, driving wheels carried at the opposite end of said
50 arms, and means to operate and retain said arms, substantially as described.

2. The combination of a car or locomotive truck provided with wheels to support its weight, hollow segmental guides secured to
55 said truck, arms having one end adjustably retained in said guides, driving wheels carried at the opposite end of said arms, each arm provided with a pivoted nut and a screw passing through said nut, substantially as described. 60

3. The combination of a car or locomotive truck provided with wheels to support its weight, hollow segmental guides secured to said truck, arms having one end adjustably
65 retained in said guides, driving wheels and worm wheels carried at the opposite end of said arms, and worms in engagement with said worm wheels, substantially as described.

In testimony whereof I affix my signature 70 in presence of two witnesses.

CHARLES WELLMAN PARKS.

Witnesses:

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