

(No Model.)

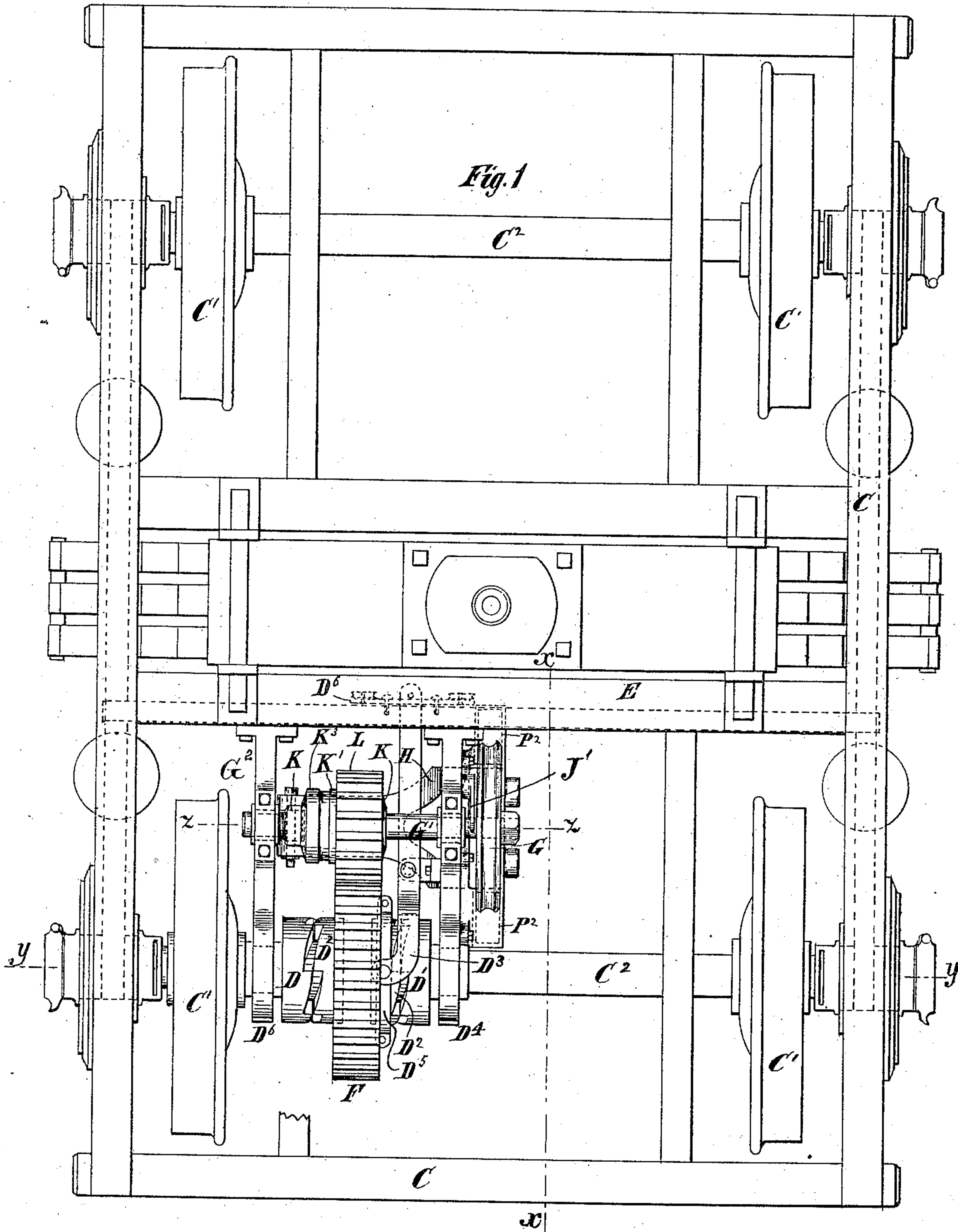
W. H. H. SISUM.

2 Sheets—Sheet 1.

ENDLESS ROPE RAILWAY.

No. 312,913.

Patented Feb. 24, 1885.



Witnesses
William G. Lipsey
Edward T. Rock

Inventor
William H. H. Sisum,
by his attorneys,
Gifford & Brown.

(No Model.)

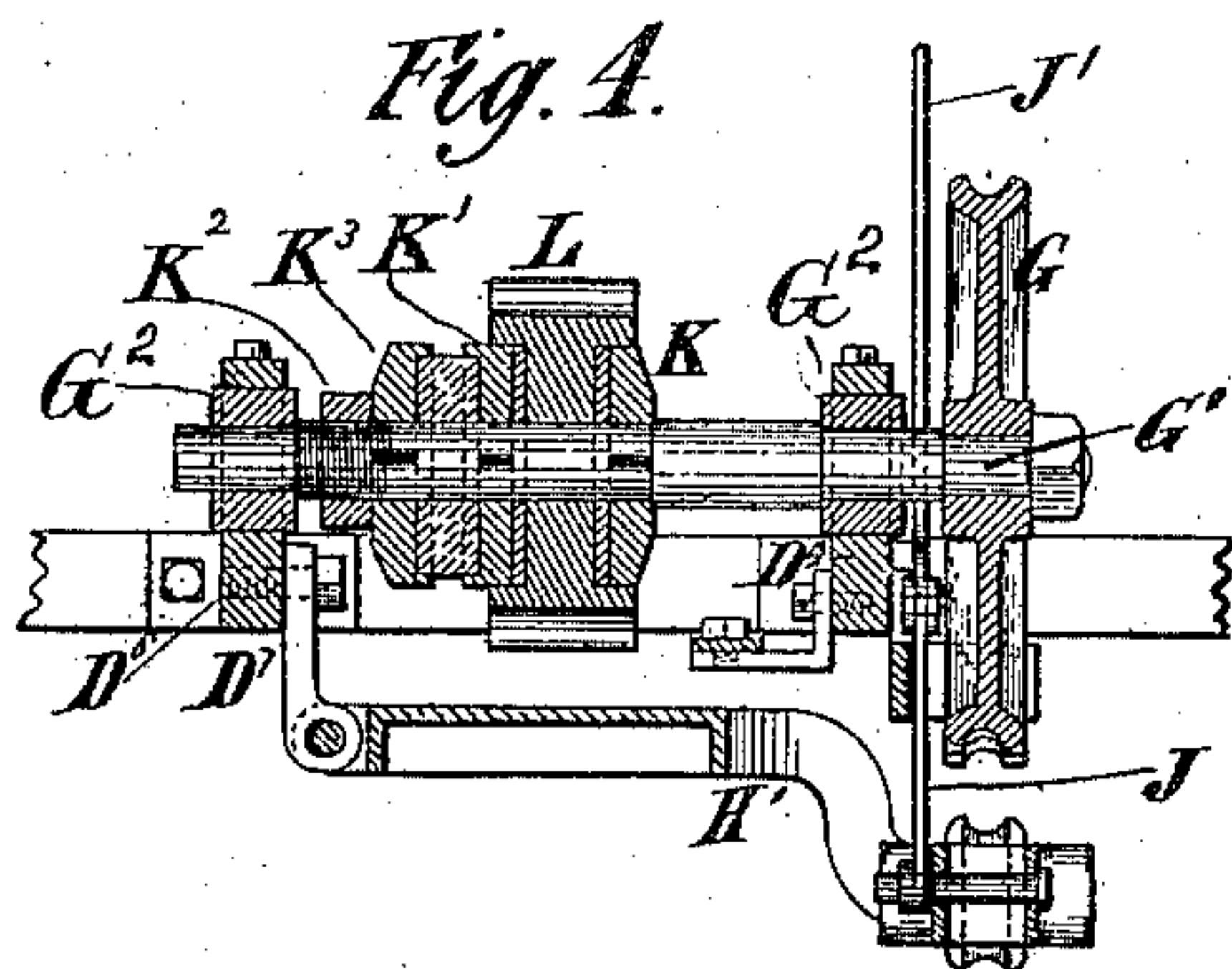
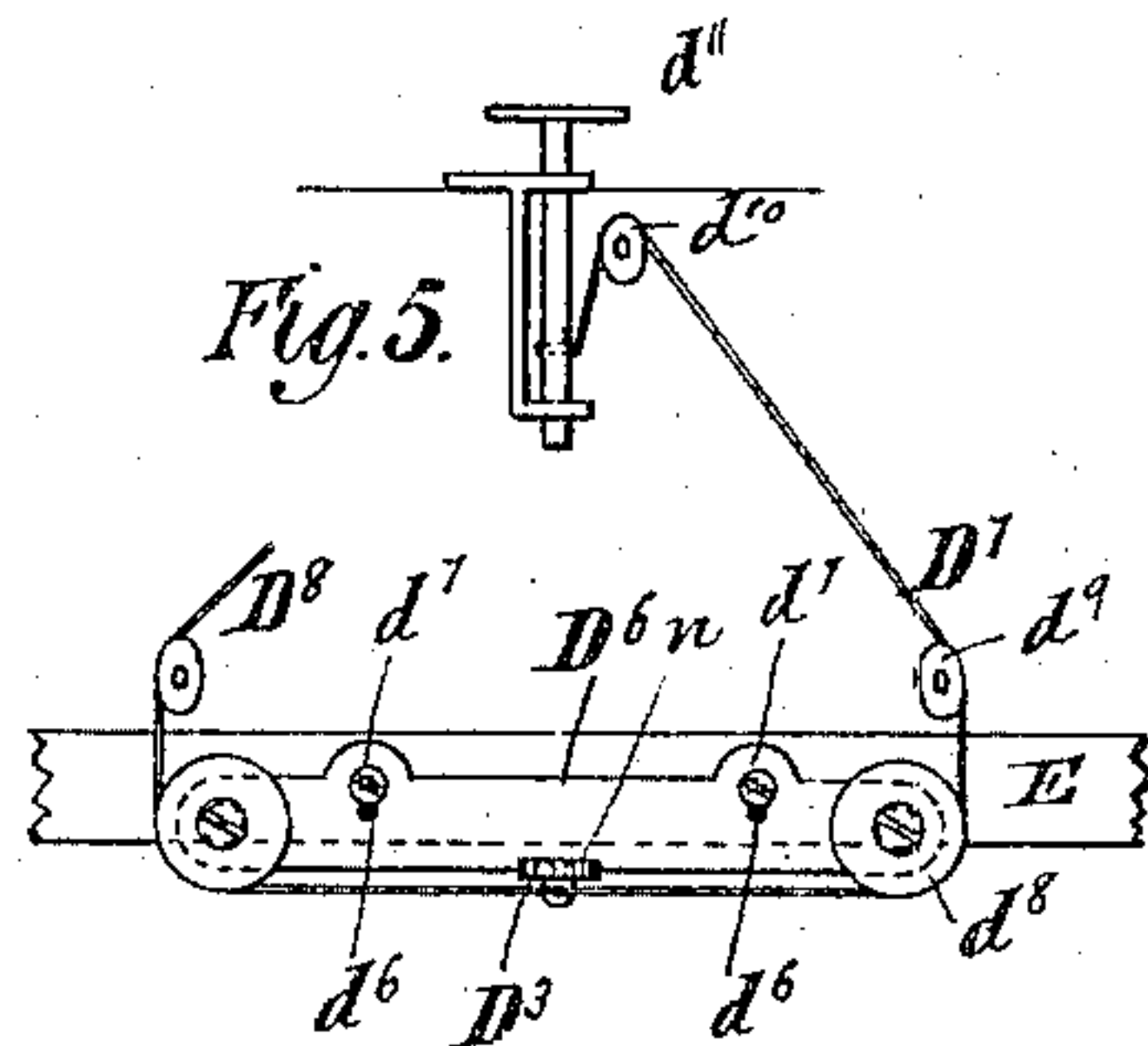
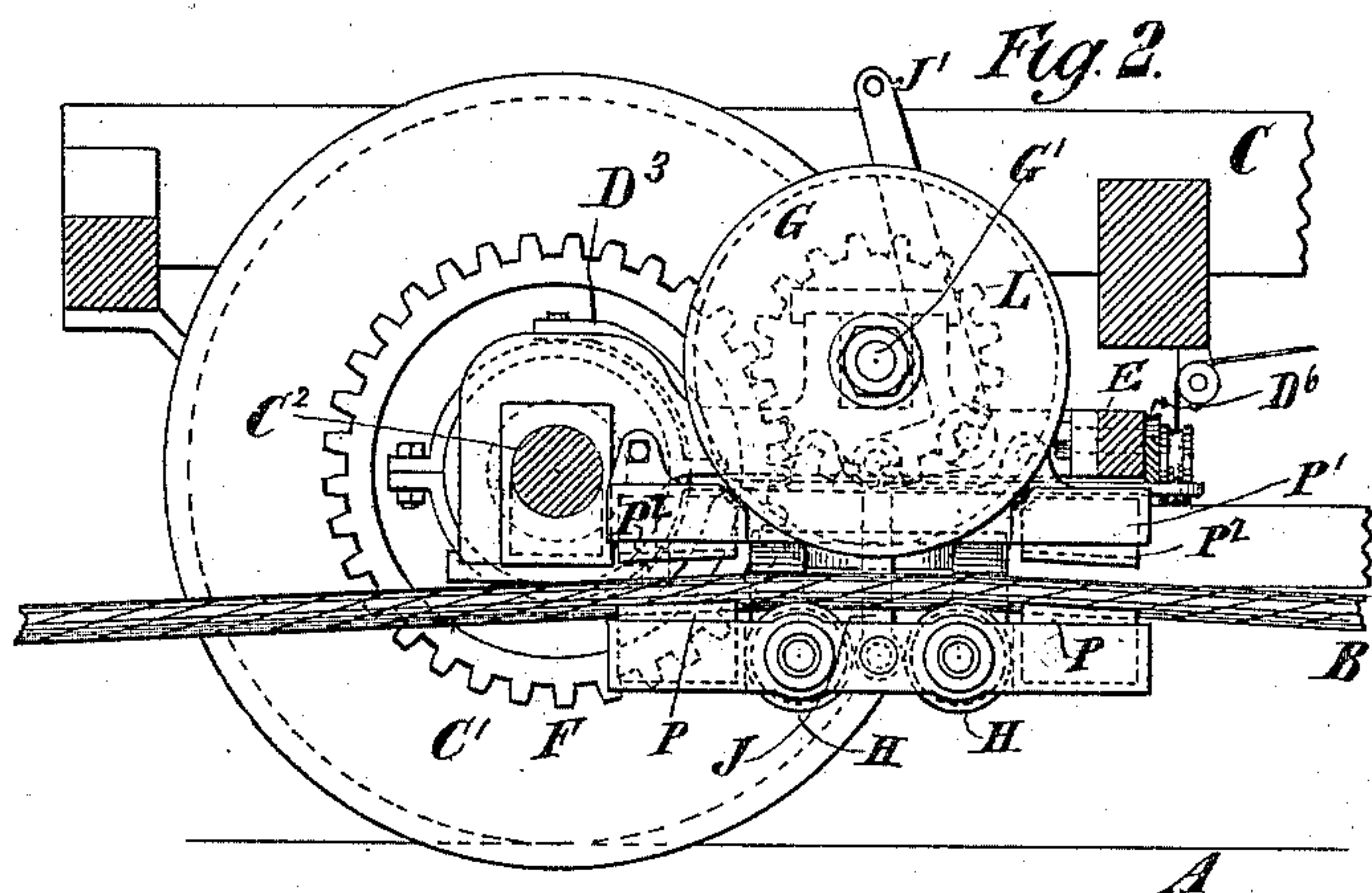
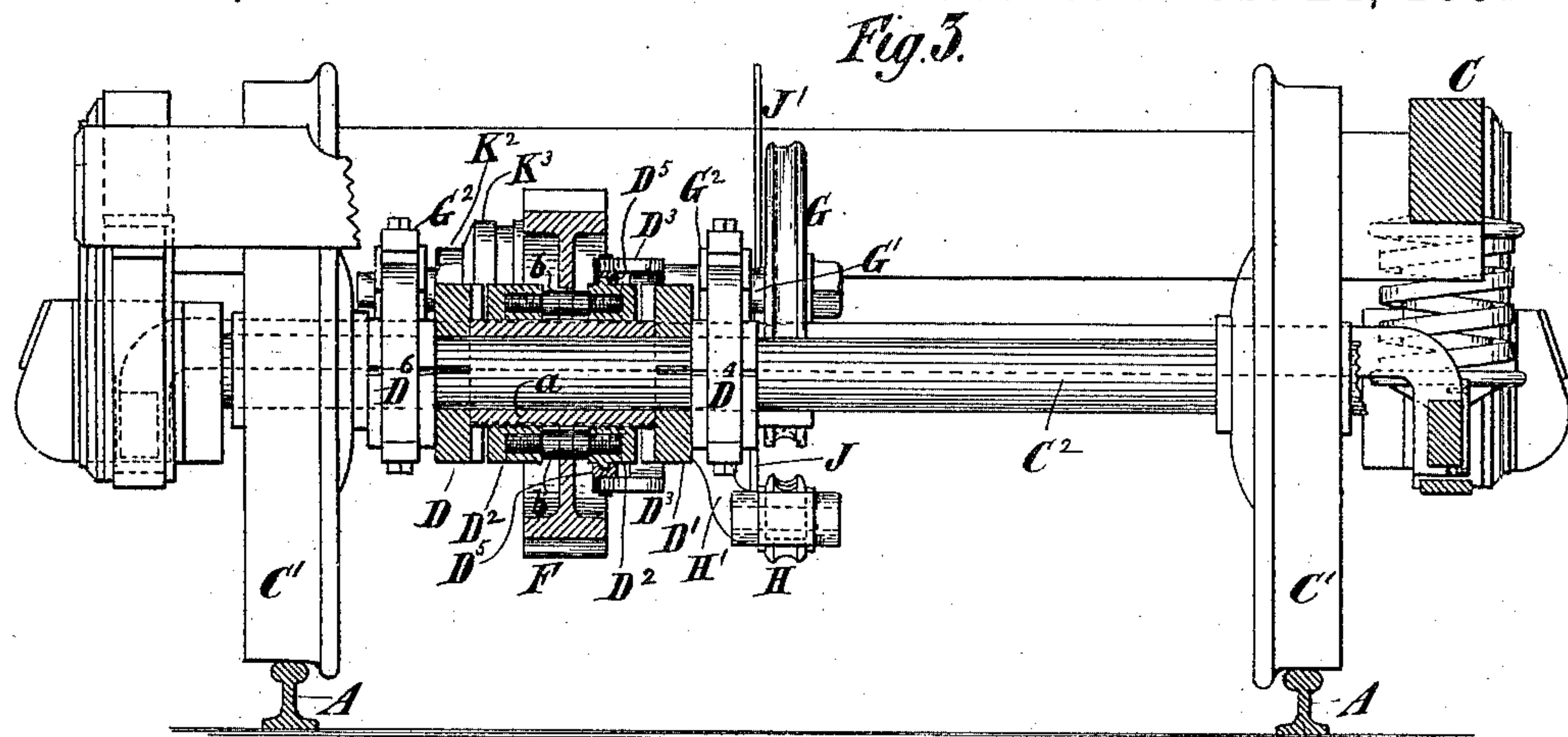
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

WILLIAM H. H. SISUM, OF BROOKLYN, NEW YORK.

ENDLESS-ROPE RAILWAY.

SPECIFICATION forming part of Letters Patent No. 312,913, dated February 24, 1885.

Application filed June 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. H. SISUM, of Brooklyn, in Kings county, and the State of New York, have invented a certain new and useful Improvement in Endless-Rope Railways, of which the following is a specification.

This improvement relates to endless-rope railways.

The object of the improvement is to provide in a simple and effective manner for gripping the rope from a car, so that the car will be gradually started and afterward positively connected with the rope.

I will describe in detail a railway-car having mechanism embodying my improvement, and then point out the features of the improvement in claims.

In the accompanying drawings, Figure 1 is a plan of a car-truck furnished with mechanism embodying my improvement. Fig. 2 is a longitudinal section of a portion of the same, taken on the plane of the dotted line *xx*, Fig. 1. Fig. 3 is a transverse partial section of the same, taken on the plane of the dotted line *yy*, Fig. 1. Fig. 4 is a sectional view of a portion of the latter, taken on the plane of the dotted line *zz*, Fig. 1; and Fig. 5 is a transverse section showing certain parts.

Similar letters of reference designate corresponding parts in all the figures.

A designates rails on which the car travels. They may be of any construction, and laid in the usual or any other approved manner.

B designates an endless rope or cable, which travels between the rails, suitable pulleys being employed to guide it, and any suitable means being used to drive it.

C designates the frame of a car-truck, C' the wheels thereof, and C² the axles of the wheels. The wheels are rigidly affixed to their axles, as is usual in railway-cars. The axles may be journaled in the truck-frame in any suitable manner.

On one of the axles C² are rigidly fastened two clutch-pieces, D D', having reversely-arranged ratchet-teeth. Between these clutch-pieces D D' a clutch-piece, D², is mounted on the same axle in such manner that it may be slid longitudinally into engagement with either of the clutch-pieces D D'. At its ends the clutch-piece D² is provided with ratchet-teeth

arranged reversely to the ratchet-teeth of the adjacent clutch-pieces D D', so that when rotated in either direction it may be engaged with one or the other of the clutch-pieces D D', to rotate the same, and consequently the axle to which they are affixed, either one way or the other, as may be desirable.

A lever, D³, is fulcrumed to a fixed bracket arranged on a bar, D⁴, here shown as supported at one end by a cross-bar, E, sustained from the journal-boxes, and at the other by the adjacent axle C². One end of this lever is forked or bifurcated, so as to embrace a hoop, D⁵, which internally is provided with a circumferential groove engaging with a circumferential rib on the clutch-piece D². The bifurcated end of the lever is pivotally secured to the said hoop by pins or screws passing through it and entering said hoop. The other end of this lever may have combined with it any suitable device whereby a swinging or oscillating motion may be imparted to it. By oscillating the lever the clutch-piece D² may be shifted longitudinally, and, owing to the manner in which the lever is connected to this clutch-piece D², the lever will not interfere with the rotation of the clutch-piece.

F designates a gear-wheel, which is arranged on the same axle as the clutch-pieces D D' and between said clutch-pieces. This gear-wheel is not affixed to the axle so as to turn therewith, but may turn thereon freely. It is, however, connected to the clutch-piece D² so as to turn in unison therewith. As here shown, the gear-wheel has a long hub, *a*, extending from each side of it. The clutch-piece D² is made in two sections, arranged on the hubs one on each side of the gear-wheel, and bolts *b* extend into the two sections of the clutch-piece and pass loosely through the gear-wheel. In effect I therefore make a single clutch-piece D², having two sets of ratchet-teeth, and although it is arranged directly upon the hub of the gear-wheel, yet it is indirectly supported by the axle upon which the gear-wheel is arranged. These parts may be combined in other ways to attain the same result.

G designates a grip-pulley, which is rigidly affixed to a shaft, G', journaled in bearings G², erected one upon the bar D⁴ and another

on a similarly-supported bar, D^6 . It will of course be understood that the bars D^4 D^6 are supported on the axle C^2 in such manner that they will not interfere with the rotation of the latter.

H designates grip-pulleys arranged so that they will be approximately in the same vertical plane as the grip-pulley G, and having their shafts supported at one end in a bar carried by a lever, H' , that is hung on a bracket, D^7 , extending from the bar D^6 , as shown in Fig. 4. If necessary, the bearing of the pin which connects this lever to the said bracket may be elongated to prevent the pulleys from being moved materially out of the plane of the pulley G when the lever is swung or oscillated. The lower end of the lever H' is connected by a link, J, to a bell-crank lever, J' . The lever J' is fulcrumed to the bar D^4 , and may have its upper end fastened to a cord or chain connected with a windlass. The turning of the windlass will then operate the lever and cause it to raise or lower the lever H' . When the lever H' is raised, the pulleys H will be drawn up into a position in which they will bear tightly upon the endless rope or cable and cause the latter to bear forcibly against the pulley G. The lever H' will descend by gravity when the pull or strain on the lever J' is relaxed.

The shaft G' has mounted on it a gear-wheel, L, that engages with the gear-wheel F. The gear-wheel L is not rigidly secured to the shaft G' , but is clamped thereto by friction-plates K K' , which are locked on the shaft, so that they will turn therewith. One of these friction-plates, K, abuts against a shoulder on the shaft, and the other, K' , is free to slide lengthwise of the shaft. The plate K' may be forced toward the plate K by a nut, K^2 , screwed on the shaft and acting against a plate, K^3 . Between the plate K^3 and the plate K' is interposed a piece of india-rubber or analogous material. The plates K K' are faced with leather or like material. By manipulating the nut K^2 the wheel L may be secured more or less forcibly to the shaft G' . The wheel L can be allowed to slip on the shaft under very severe strains.

On the bar in which the rollers H are supported are fixed grippers P, and on a bar, P' , above said bar, are affixed corresponding grippers, P^2 . The bar P' may be secured to the bar D^4 . The grippers P P^2 may be made of wood or like material or metal.

To cause the car to derive motion from the endless rope or cable, the clutch-piece D^2 is shifted into engagement with the clutch-piece D, and the lever H' is canted to cause the pulleys G H to grip the endless rope or cable. The grip-pulleys will then be caused by the rope or cable to rotate. Thereupon the gear-wheel L transmits motion through the gear-wheel F to the axle onto which the gear-wheel F is affixed. The grip-pulleys continue to act in this way until the gear-wheel F has acquired its maxi-

mum speed. When this gear-wheel has attained such speed, it rotates with sufficient rapidity to cause the clutch-piece D to move faster than the clutch-piece D^2 , whereupon the said clutch-piece D^2 will be thrown out of engagement with the clutch-piece D. The motion of the car will have been gradually augmented, so that by this time its momentum will be such that its drag on the rope or cable will be insufficient to cause the rotation of the grip-pulleys. The lever H' may now be swung up still farther, to cause the grippers P^2 and the grippers P to securely grip the rope or cable.

When the car is to be stopped, the lever H' will be lowered, and brakes of the usual or any suitable kind are applied to the wheels of the car.

When the car is to be propelled in the reverse direction upon another portion of the endless rope or cable moving in the opposite direction to that of the portion to which the car was formerly fastened, the clutch-piece D^2 is shifted into engagement with the clutch-piece D' , and the lever H' is raised to cause the endless rope or cable to be gripped, as before.

I will now describe a means whereby the lever D^3 is operated.

D^6 designates a latch-bar, whereby the lever D^3 is normally kept in such position that the clutch-piece D^2 will be maintained by it out of contact with the clutch-pieces D D' . The latch-bar has at or about its middle a notch, n , which, when the said bar is in a horizontal position, engages with the lever D^3 , and thus secures it in position. The latch-bar is provided with approximately-vertical slots d^5 . Screws d^7 pass loosely through the slots d^6 and enter the bar E. The latch-bar is therefore hung on the screws d^7 in such manner that either end may be raised, the latch-bar being meanwhile turning on the screw d^7 , which is the farther from it. When either end of the latch-bar is thus elevated, the notch n of such bar will be disengaged from the lever D^3 , whereupon the latter can be shifted.

I provide for raising the latch-bar D^6 and shifting the lever D^3 by one motion. D^7 is a cord or equivalent device, which is secured at one end to the lever D^3 . From the lever D^3 it passes around a pulley, d^8 , on one end of the latch-bar, thence around a pulley, d^9 , which will be supported on a fixed part of the car-truck, thence around another pulley, d^{10} , arranged on the car-truck, and is finally attached to a push-piece, d^{11} . By depressing the push-piece d^{11} the latch-bar will be raised and the lever D^3 pulled over. A cord, D^8 , passes from the other end of the latch-bar around pulleys to another push-piece, whereby the last-referred-to lever may be operated. After pressure is removed from the push-pieces the latch-bar can descend to its normal position.

When the clutch-piece D^2 is thrown out by either of the clutch-pieces D D' , the lever D^3

will be swung into a central position, and then will engage with the notch *n* of the latch-bar.

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

1. In a car adapted to be propelled by an endless rope or cable, the combination of pulleys for gripping the rope or cable, a gear-wheel deriving motion from one of the grip-pulleys and having a frictional connection with its shaft, and a gear-wheel on one of the axles, deriving motion from the gear-wheel first named, substantially as specified.

2. In a car adapted to be propelled by an endless rope or cable, the combination of a grip-pulley and a non-rotary grip-piece arranged at one side of the rope or cable, a grip-pulley and a non-rotary grip-piece arranged

at an opposite side of the rope or cable, a gear-wheel deriving motion from one of the grip-pulleys, and a gear-wheel on one of the axles, deriving motion from the gear-wheel first named and transmitting it to the axle, substantially as specified.

3. The combination, with the lever D^3 , of the latch-bar D^6 , substantially as specified.

4. The combination, with the lever D^3 , of the latch-bar D^6 , and a cord or equivalent device fastened to the lever, and extending from one end thereof to a device whereby it may be pulled and relaxed, substantially as specified.

WM. H. H. SISUM.

Witnesses:

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WILLIAM G. LIPSEY.