

(No Model.)

2 Sheets—Sheet 1.

D. CHAPEL.
HAND CAR.

No. 377,352.

Patented Jan. 31, 1888.

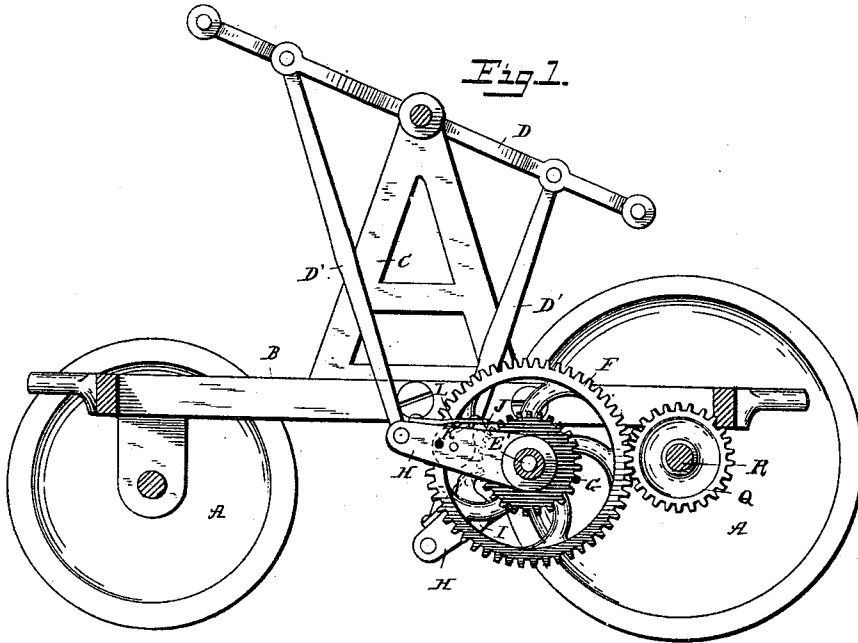


Fig. 1.

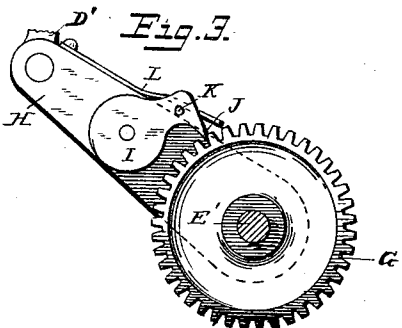


Fig. 3.

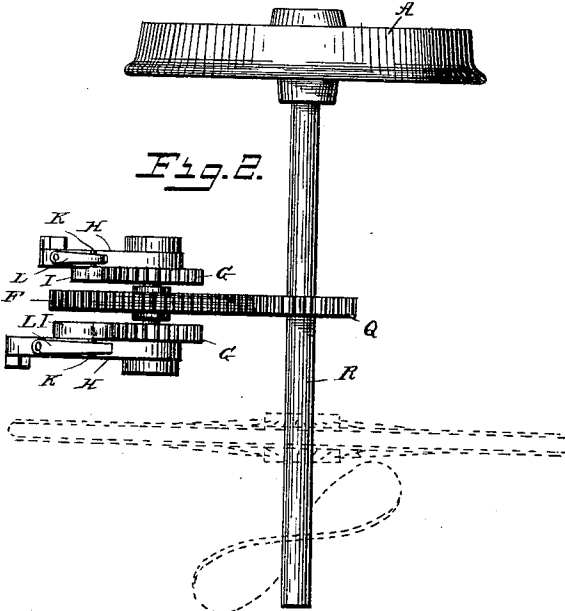


Fig. 2.

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Fig. 4.

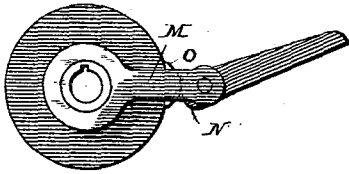


Fig. 5.

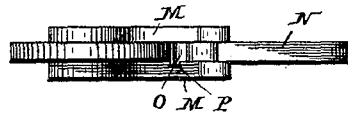
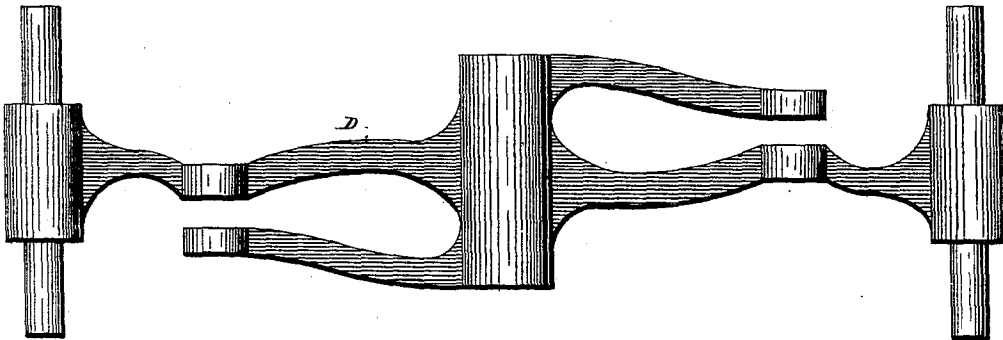


Fig. 6.



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UNITED STATES PATENT OFFICE.

DEODATUS CHAPEL, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO CALVIN NUTTING, JR., OF SAME PLACE.

HAND-CAR.

SPECIFICATION forming part of Letters Patent No. 377,352, dated January 31, 1888.

Application filed February 11, 1887. Serial No. 227,390. (No model.)

To all whom it may concern:

Be it known that I, DEODATUS CHAPEL, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Railway Hand-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain new and useful improvements in railway hand-cars; and it consists, essentially, of a counter-shaft carrying a driving gear-wheel and two operating-pinion or friction-disks mounted to rotate positively with the gear-wheel, and two arms mounted, respectively, in juxtaposition with the pinions or friction-disks and having each a clutch device to engage said pinions or disks when the arms are elevated, and also of an oscillating hand-lever connected by connecting-rods with the respective arms, the peculiarity and operation of which will be hereinafter explained.

In the accompanying drawings, forming a part of this specification, and on which similar letters of reference indicate the same or corresponding features, Figure 1 represents a side elevation of the operating mechanism and the wheels of the hand-car, the frame thereof being in section; Fig. 2, a plan view of the mechanism, showing a portion of the driving axle or shaft with the car-wheel thereon, and a tricycle-wheel, and also a screw-propeller, the latter two being in dotted lines; Fig. 3, a detached side elevation of one of the pinions, the arm, and pawl; Fig. 4, a like view of the friction-disk, its arm, and the friction-pawl; Fig. 5, a plan view of the same, and Fig. 6 a plan view of the oscillating lever.

The letter A designates the wheels of a hand-car, which may be of equal or unequal sizes, and upon which is mounted a car-frame, B, constructed in any approved manner. Upon two bars of the frame are mounted standards C, which serve as supports for the shaft of the operating-lever D. This lever is preferably constructed of metal, and to it, at convenient distances from the center of oscillation, are pivotally connected two depending pitmen, D'.

The disposition of these pitmen is such that they are brought, respectively, as nearly as possible over the operating-arms, presently to be described, and this is effected by constructing the lever D in the form shown in Fig. 6. Hangers E are secured to the bars which support the standards, and in the hangers is journaled a shaft, E', upon which is rigidly mounted a driving gear-wheel, F, and two driving-pinion or friction-disks, G, and to one side of either pinion or friction-disk is loosely mounted on the shaft E' an operating-arm, H, the free ends of each of which are pivotally connected with the pitmen D'. These arms each carry a stout pivoted pawl, I, having an end, J, constructed to engage with the teeth in the pinions on the upward stroke of the arms H, and to skip the teeth of said pinions on the downward stroke of said arms. Each pawl has a projecting stud, K, engaged by a spring, L, secured to the arms H, whereby the pawls are made to quickly enter the teeth of the pinions on reversing the stroke of the arms.

In lieu of the pawls and springs just described, and of the arms made, respectively, in one piece, the friction-disks above alluded to may be used in connection with the arms M, which are provided with an eccentric or cam lever, N, and a sliding friction pawl or clutch, O. This pawl O is fitted between the members of the arms M, and projects slightly over them at one or both sides, as seen at P in Fig. 5. The eccentric-levers N are pivotally connected with the pitmen D', and on the upward stroke of said pitmen the eccentricity of the levers N is turned against the sliding pawls O, whereby they are forced firmly against the peripheries of the friction-disks. On the downward stroke of the pitmen the eccentric-levers turn slightly on their pivots and release the pawls. By this means, and also by means of the pinions and pawls and arms already described, the shaft E' is given a continuous rotary motion by oscillating the lever D.

The letter Q designates a pinion mounted upon the driving-axle R of the car, or upon the driving-axle of a tricycle or the propeller-shaft of a small boat, and this pinion engages with the gear-wheel F, whereby motion is imparted to said axles or shafts, as the case may be. The

invention, however, is designed to be used particularly with a hand-car; and it should be observed that the car may run downgrade without affecting the operating mechanism other than the gear-wheel and pinions or friction-disks; also, that the car is capable of being attached to a train—a freight-train, for instance—with the same advantage. Again, the device is free from dead-centers. Furthermore, it has been ascertained that my improved mechanism will operate a car up a grade as steep as can be run by a locomotive without undue exertion on the part of the operators.

Another advantage is that the driving-axle and its wheels are locked against rotating in a reverse direction, so that in going up long grades, should the operators become tired, they have only to stop operating the lever D and the car is automatically prevented from running back.

I am aware that it is not broadly new to operate a hand-car through an opening in one of its axes, a gear-wheel mounted on a shaft carried by the frame of the car, and levers and pitmen connected so as to rotate the gear-wheel, and I therefore disclaim such in a broad sense.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the driving-shaft of a moving structure and a pinion on said shaft, another shaft mounted near the driving-shaft, a gear-wheel and two pinions—one at either side thereof—mounted upon said latter shaft, and arms also mounted upon said shaft and having pawls which engage with said pin-

ion on the upward stroke of the arms, of an oscillating lever having an opening near the middle to receive the fulcrum-shaft, and having openings between the center opening and its ends to receive the pitmen-fulcrums, the said latter openings being out of line with each other, and pitmen connected with the lever at said openings.

2. In a hand-car, the combination, with one of the axles and a pinion thereon, and a shaft carried by the frame and mounted near the axle, a gear-wheel, a pinion at each side thereof, and an arm at the side of either pinion mounted on said shaft, said pinions and gear-wheel rotating together, pawls carried by said arms, and springs to hold them in engagement with said pinions and standards carried by the frame, of an oscillating lever having an opening near the middle to receive the fulcrum-shaft, and having openings between the center opening and its ends to receive the pitmen-fulcrums, the said latter openings being out of line with each other, and pitmen connected with the lever at said openings.

3. The combination of a lever having an opening near the middle to receive the fulcrum-shaft, and having openings between the center opening and its ends to receive the pitmen-fulcrums, the said latter openings being out of line with each other, and a pitman connected with the lever at said openings.

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

DEODATUS CHAPEL.

Witnesses:

LINCOLN SONNTAG,
HENRY A. SONNTAG.