No. 703,594. Patented July 1, 1902.

P. J. KAMPER.

HAND MOTOR.

(Application filed Apr. 19, 1901.)

(No Model.)

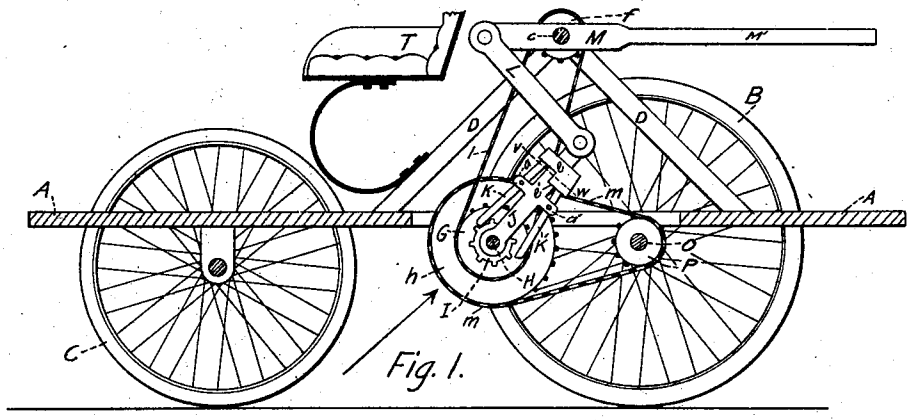

Fig. 1.

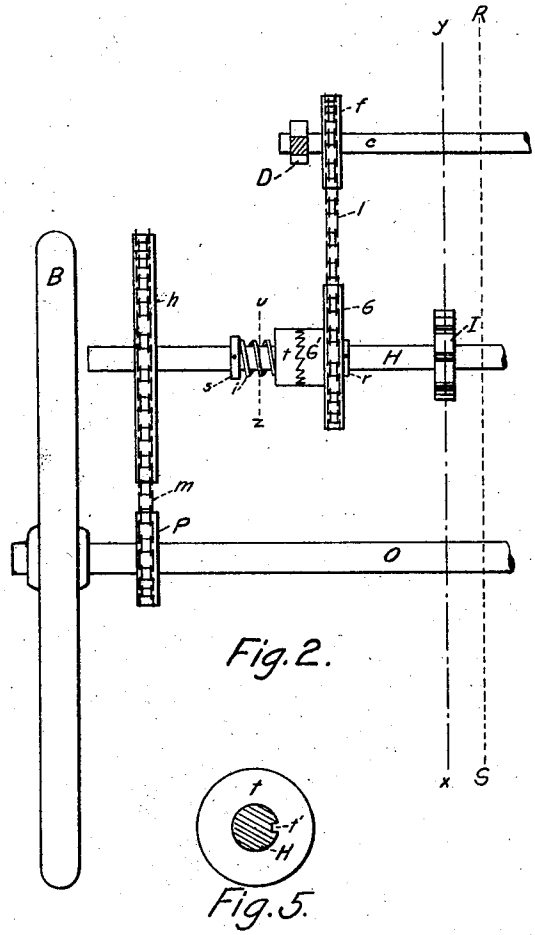

Fig. 2.

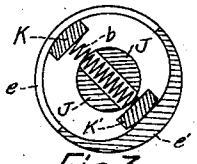

Fig. 3.

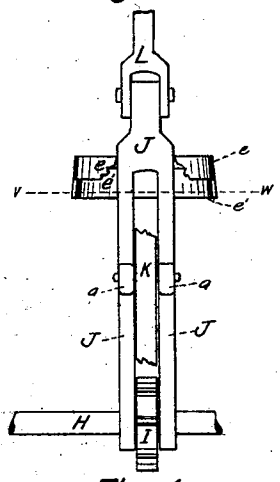

Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

PAUL J. KAMPER, OF SIOUX CITY, IOWA.

HAND-MOTOR.

SPECIFICATION forming part of Letters Patent No. 703,594, dated July 1, 1902.

Application filed April 19, 1901. Serial No. 56,600. (No model.)

To all whom it may concern:

Be it known that I, PAUL J. KAMPER, a citizen of the United States, residing at Sioux City, in the county of Woodbury and State of Iowa, (whose post-office address is Sioux City, Iowa,) have invented a new and useful Improvement in Hand-Motors; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to the motive power for the operation of vehicles, and especially to the power used in the operation of hand-cars for railways. Its objects are to furnish a means of propelling the vehicle which will enable it to attain a much higher speed than ordinarily possible and at the same time to reduce the amount of power required. These objects I attain by the construction shown in the accompanying drawings, forming a part of this application, in which—

Figure 1 is a sectional elevation of my invention, taken on the line R S in Fig. 2, showing also the front wheel and part of the frame of the motor. Fig. 2 is a half elevation of the working parts looking in the direction of the arrow in Fig. 1, the line Y X being the center line of the vehicle. Fig. 3 is a sectional view of pawls, cam-ring, and lever, taken on line V W of Figs. 1 and 4. Fig. 4 is a plan elevation of lever, showing parts of cam-ring and pawl cut away. Fig. 5 is a sectional view of clutch and shaft taken on the line U Z of Fig. 2.

Referring now to the illustrations, in which like parts are designated by similar letters of reference, A A is the frame or body of the vehicle.

B B are the rear wheels, and C C the front wheels.

D D is the elevated framework from which the operating machinery is suspended.

T is a seat located upon the front of the elevated framework.

H is a shaft running parallel with the axles and located near the central part of the vehicle, the ends of the shaft revolving in suitable bearings attached to the frame A. I is a ratchet-wheel firmly secured to said shaft at the center. A lever J, forked at the lower portion, embraces said ratchet-wheel between the lower ends of said forks, and the shaft H extends through the lower ends of said forks and is adapted to revolve therein. Pivotally secured to said lever at the lugs a a', respectively, are two pawls K and K', which are adapted to engage the ratchet-wheel I. Said pawls are made to engage the ratchet-wheel by means of a spring b, extending between the upper ends of said pawls, Fig. 3, and either of said pawls may be thrown out of engagement with the wheel by means presently described. A link L is pivotally secured to the upper end of said lever, J and a lever M, having a handle M', is also pivotally secured to the opposite end of said link. The lever M is pivotally situated upon a shaft c, extending between the upper extremities of the frame D. The lever J is a jointed extension of the link L, and the pawls are freely jointed at the points a a' to said lever J. The lower ends of the pawls are adapted to abut against the teeth of the ratchet-wheel for the purpose of imparting a continuous motion to said wheel, the levers being reciprocating drivers of the pawls, which in turn impart the motion to the ratchet-wheel. Firmly secured to the respective sides of said lever M and adapted to turn on said shaft c are chain-wheels f f. Situated upon the shaft H on either side of the ratchet-wheel and under the wheels f f in the same plane are chain-wheels G G, adapted to revolve upon said shaft, said chain-wheels having ratchet-clutches. Near the ends of the shaft H, within the frame, are large chain-wheels h h, which are firmly secured to said shaft and turn therewith. Ratchet-clutches t t, adapted to engage with the clutches upon the wheels G G, are keyed upon said shaft H by means of the lugs t' t' and turn therewith, being capable of sliding thereon. The coil-springs i i, abutting against the collars s s, secured to said shaft H, force said ratchets together, and the collars r r, secured to the shaft H on the opposite side of the wheels G G, hold said wheels firmly in position. The rear wheels are firmly secured to the axle O, which revolves in suitable bearings upon the framework. Firmly secured to said axle within the frame in the plane of the wheels h h are the chain-wheels P P. Chains l l extend, respectively, from the chain-wheels f f

to the chain-wheels G G, and chains *m m* extend from the large wheels *h h* to the chain-wheels P P upon the rear axle. When the lever M is raised to a vertical position, the chain-wheels *f f*, secured thereto, are turned forward, and the chains *l l* cause the wheels G G and the large wheels *h h* to turn in the same direction, while the chains *m m* impart the same forward motion to the wheels P P, which causes the rear wheels to turn forward. As the lever M is brought toward a horizontal position the chain-wheels G G are turned backward upon the shaft H, slipping past the ratchets. As the lever M is brought down the lever J assumes a vertical position, and if the forward pawl is engaged the ratchet-wheel I is turned forward, and being firmly secured to the shaft H a forward motion is imparted to the vehicle. In Fig. 1 of the drawings the front pawl is shown engaged, which would cause a forward motion of the vehicle. The driving means consist of both the pawls and the chains attached to the chain-wheels, both being operated by the lever M. When the lever M is lowered, the pawl operates, and when raised the chain-wheels are utilized. The ratchets permit the shaft H to revolve free of the chain-wheels. When the lever M is brought down, the chain-wheels G G are turned backward, thus moving in the opposite direction from the shaft H and slipping past the ratchets *t t*. As the ratchet-wheel I has a continuous motion, the pawl slips over the wheel when brought to a horizontal position for the purpose of resuming a new contact with the teeth of the wheel. The upper part of the lever J is encircled by a movable cam-ring *e*, having a lug or extension *e'* projecting downward and adapted to press upon the upper end of either of said pawls, which forces the opposite end of said pawl out of engagement with the wheel I. By turning the ring so that the lug is not in contact with the pawl the free pawl is engaged with the ratchet-wheel and the vehicle propelled in either direction.

My invention is especially adapted for use upon railways as a hand-car, and if so used the running-wheels of the vehicle should be provided with flanges. I do not, however, limit myself to this particular adaptation, but claim for my invention the right to its exclusive use upon any kind of road or highway. Neither is my invention limited to the particular construction here shown or described; but it is applicable to any form of vehicle where propelling power is used.

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

A horizontal shaft secured to the frame of a vehicle adapted to revolve in suitable bearings thereon, a ratchet-wheel secured to said shaft, pawls abutting against the teeth of said ratchet-wheel, an operating-lever pivotally secured in bearings supported by the frame of the vehicle, levers connecting said operating-lever with said horizontal shaft, said pawls being pivotally secured to the lever connected to said shaft, the end of said connecting-lever freely encircling said shaft, in combination with chain-wheels firmly secured to said operating-lever, chain-wheels freely encircling said horizontal shaft, said last chain-wheels having ratchet-clutches adapted to enmesh with ratchet-clutches secured to said horizontal shaft and adapted to slide thereon, springs for pressing said ratchets into engagement with each other, chains connecting the wheels on said horizontal shaft with the wheels secured to said operating-lever, and means for imparting the motion of said horizontal shaft to the axle of the vehicle when the shaft is turned, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses.

PAUL J. KAMPER.

Witnesses:
H. C. GARDINER,
F. W. LOHR.