A. HAMILL.

CHILD'S VELOCIPEDE WAGON.

APPLICATION FILED JULY 11, 1907.

904,062. Patented Nov. 17, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

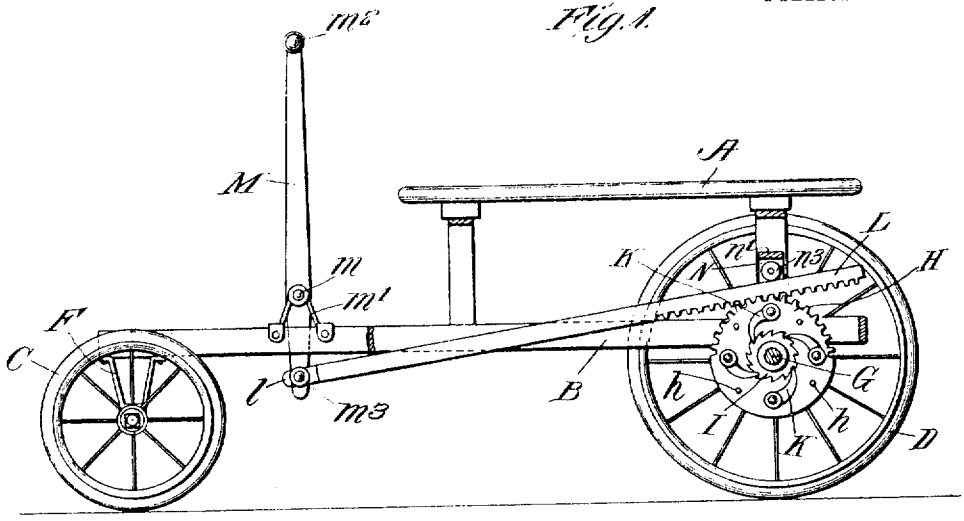


Fig. 2.

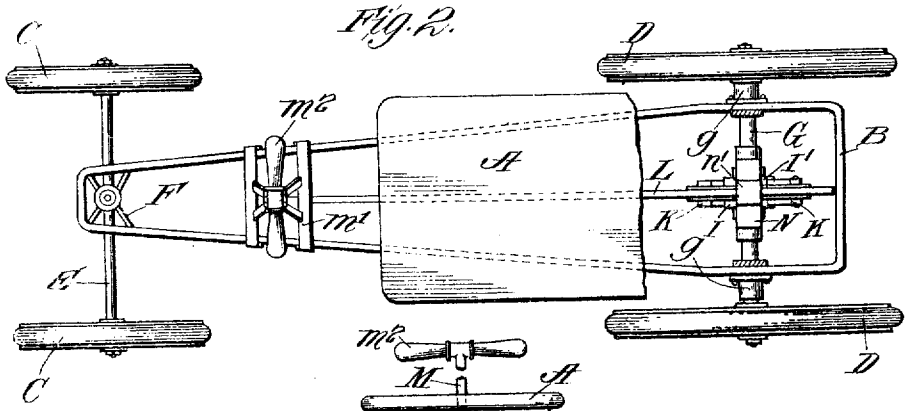
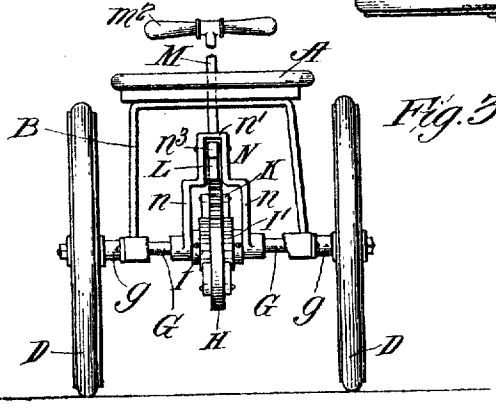


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 4.

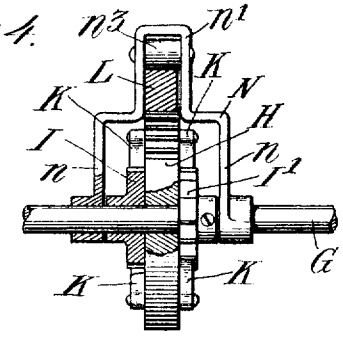


Fig. 5.

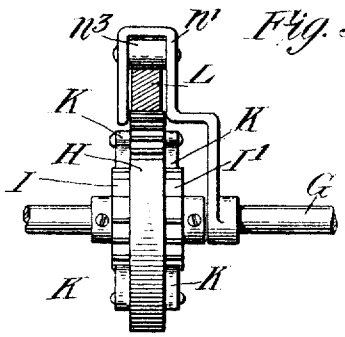


Fig. 6.

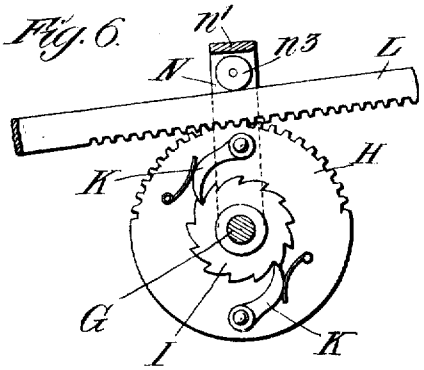


Fig. 7.

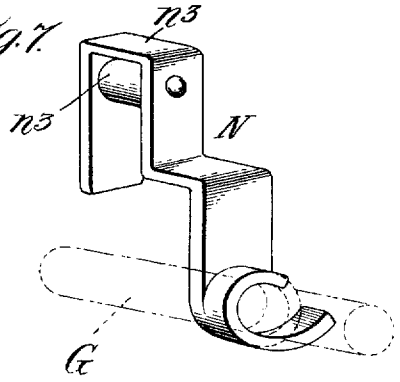
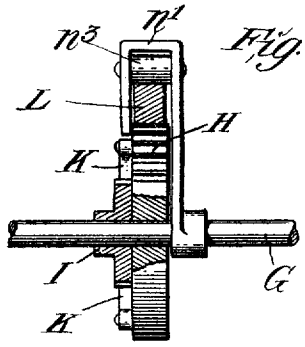


Fig. 8.



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UNITED STATES PATENT OFFICE.

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CHILD'S VELOCIPEDE-WAGON.

No. 904,062. Specification of Letters Patent. Patented Nov. 17, 1908.

Application filed July 11, 1907. Serial No. 383,224.

To all whom it may concern:

Be it known that I, ALEXANDER HAMILL, a citizen of the United States, residing at the Mount Royal Apartments, Baltimore, Maryland, have invented certain new and useful Improvements in Children's Velocipede-Wagons; 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.

My invention relates to improvements in children's velocipede wagons.

The object of my invention is to provide a velocipede wagon of a simple construction arranged to give a child substantially the exercise of rowing a boat, the propulsive power being applied by pulling with the hands, whereas during the return stroke no propulsive power is necessary.

A further object of the invention is to provide a construction so that when coasting, the hand-lever, which serves as a means of operating the wagon, will not itself be operated by the vehicle, but may remain stationary, thereby avoiding all danger of injury to the child and adding to its comfort.

With this general object in view, my invention consists in the features, details of construction, and combinations of parts which will first be described in connection with the accompanying drawings and then particularly pointed out in the claims.

In the drawings Figure 1 is a side elevation of a vehicle embodying my invention; Fig. 2 a plan view of the same, the platform being removed; Fig. 3 an end elevation of the vehicle; Fig. 4 a detail view partly in section, of one form of gear embodying my invention; Fig. 5 a detail elevation partly in section of another embodiment of the invention; Fig. 6 a detail view of a gear-wheel with spring-pressed pawls; Fig. 7 a detail perspective view of one form of yoke employed by me as it appears prior to being put in place; and Fig. 8 a detail view of a modified form of the device in which only one ratchet wheel is used.

Referring to the drawings, A is the platform, B the running gear or frame work, C the front wheels, and D the rear wheels of a child's wagon. The front wheels are arranged to turn loosely upon a front axle, E, which is pivoted at its center, upon a vertical pivot carried by a standard F secured to the frame work, whereby by placing the feet upon the axle E the vehicle may be steered by the operator in a well-known manner. The rear wheels D are fixed to a rear axle G which is revoluble in bearings g, secured to the frame-work.

A gear-wheel H is loosely mounted upon the rear axle G at an intermediate point of the latter. At each side of this gear-wheel the axle is provided with a ratchet-wheel, as indicated at I, I', these ratchet wheels being fixed to the axle and serving as collars to permit lateral displacement of the loosely mounted gear-wheel H.

The teeth of both ratchet-wheels point in the same direction and are arranged to be engaged by pawls K carried by the gear-wheel H. In the example shown, there are four pawls on each side of the gear-wheel, arranged in pairs, each pair being fixed to a pin or bolt which extends through a hole in the gear-wheel, as will be clear from Fig. 4. The movement of each pawl is limited by a suitable stop-device, as for example, pins or projections, h, carried by the gear-wheel H. This gear-wheel is engaged by a rack-bar L, which is pivotally connected at its front end to a hand lever M suitably fulcrumed at m, as for example, in a standard m' carried by the frame-work of the vehicle, the handle bar being provided with laterally extending handles m^2.

In order to connect the rack-bar L to the hand-lever, in a simple manner, I provide the front end of said rack-bar with a fork as indicated at l into which enters the lower end of the hand-lever M, a pin or bolt m^3 passing loosely through the fork and hand-lever and serving as a pivot to connect the two.

It will be observed that in the construction thus far described, the oscillation of the hand-lever will not only produce a reciprocation of the rack-bar, but will also cause the front end of the rack-bar to swing up and down.

In order to retain the rack-bar in contact with the gear-wheel H while at the same time permitting it to swing in the manner described, I provide a guide device specially adapted for this purpose. The preferred embodiment of the invention comprises a swinging guide device, and more especially a swinging guide device which is journaled concentrically with the gear-wheel H. In the em-

bodiment of the invention illustrated, this swinging guide device is formed as a yoke which is journaled on the rear axle at each side of the ratchet-wheel. This yoke piece is indicated at N and is provided with two arms *n* which at their lower ends are bent into a circle to surround the axle. The yoke-piece has a top portion *n'* which passes over the rack-bar. An anti-friction roller *n*³ may be journaled in the yoke so as to bear on the top of the rack-bar, as shown in Figs. 3 and 4.

For ease in assembling the parts the yoke-piece is formed with its journals open as shown in Fig. 7 in order that it may be put into place after the gear-wheel, the two ratchet-wheels and the rack-bar are assembled, after which the open journals are bent round the axle to their final form. To permit this the yoke-piece may be made of malleable material such as wrought iron or malleable cast iron.

Instead of providing the yoke-piece with two journals for the axle, one only may be employed, as shown in Figs. 5 and 7.

As the handles of the handle-bar are drawn backward during the time when the vehicle is propelled and are free to move forward without load, the operation of the vehicle resembles the rowing of a boat and thereby furnishes excellent exercise for a child. Moreover, and this is an important feature of my invention, when the vehicle is allowed to coast down a slope, the handle-bar does not oscillate, thus reducing the inconvenience and danger which would otherwise arise if the handle-bar were positively coupled to the wheels at all times and thereby reciprocated during coasting.

It will be noted that I employ a plurality of pawls for each ratchet-wheel. The purpose of this is to avoid the use of springs and yet insure that always at least one pawl for each ratchet-wheel will be ready to engage the ratchet teeth. This will be the pawl at the upper side of the respective ratchet-wheels, which will be held down toward its ratchet wheel by the action of gravity.

Of course, springs may be employed if desired for the purpose of holding the pawls into yielding engagement with the ratchet-wheels. Such a construction is shown as an example in Fig. 6, in which case, however, a lesser number of pawls will suffice, two being shown in said figure. I do not consider this so satisfactory as the plurality of pawls without springs. Moreover, instead of employing two ratchet wheels, one on each side of the gear-wheel, only one ratchet wheel may be employed, if desired, as illustrated in Fig. 8.

The rack-bar, gear-wheel and ratchet-wheels may be made of any suitable material, but I prefer to make the rack-bar of cast steel and the gear-wheel and ratchet-wheels of compressed raw hide or fiber, in order to avoid noise.

It is to be understood, of course, that roller or ball bearings may be employed to reduce friction.

Having thus fully described my invention, what I claim is:—

1. In a vehicle of the kind described, the combination, with an axle, and a vehicle-wheel fixed to the axle, of a gear-wheel loosely mounted on said axle, a ratchet-wheel fixed to the axle, a pawl carried by the gear-wheel and arranged to coact with the ratchet-wheel, a rack-bar in mesh with the gear-wheel, an oscillatory lever connected to the rack-bar, and a guide device angularly movable in the plane of the rack-bar and concentrically with the axle, said guide device engaging the rack-bar, whereby the latter is held in mesh with the gear-wheel.

2. In a vehicle of the kind described, the combination, with an axle, and a vehicle wheel fixed to the axle, of a gear-wheel loosely mounted on said axle, a ratchet-wheel fixed to the axle, a pawl carried by the gear-wheel and arranged to coact with the ratchet-wheel, a rack-bar in mesh with the gear-wheel, an oscillatory lever connected to the rack-bar and a guide device journaled on the axle and arranged to hold the rack-bar in mesh with the gear-wheel.

3. In a vehicle of the kind described, the combination, with an axle, and a vehicle-wheel fixed to the axle, of a gear-wheel loosely mounted on said axle, a pair of ratchet-wheels fixed to the axle, one on each side of the gear-wheel, two sets of pawls carried by the gear-wheel, one set on each side of the same, each set arranged to coact with its respective ratchet-wheel, a rack-bar in mesh with the gear-wheel, means for reciprocating said rack-bar, and a guide device angularly movable in the plane of the rack-bar and concentrically with the axle, said guide device engaging the rack-bar, whereby the latter is held in mesh with the gear-wheel.

4. In a vehicle of the class described, the combination, with a movable axle, a pair of vehicle wheels fixed to the axle, a gear-wheel loosely mounted upon the axle, and a ratchet-wheel fixed to the axle adjacent to the gear-wheel, of a plurality of gravity-actuated pawls pivoted to the gear-wheel and arranged around the ratchet-wheel, a rack-bar in mesh with the gear-wheel, means for reciprocating the rack-bar, and an angular movable guide-device pivoted upon the axle and arranged to engage the rack-bar, whereby it is held in continuous engagement with the gear-wheel.

5. In a vehicle of the class described, the combination, with an axle, and a vehicle wheel fixed to the axle, of a gear-wheel

loosely mounted on said axle, a ratchet-wheel fixed to the axle, a pawl carried by the gear-wheel and arranged to coact with the ratchet-wheel, a rack-bar in mesh with the gear-wheel, an oscillatory lever connected to the rack-bar, and a yoke-piece having a journal mounted on the axle, and having an anti-friction roller riding upon the rack-bar, whereby the latter is maintained in continuous engagement with the gear-wheel.

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

ALEXANDER HAMILL.

Witnesses:
WILLIAM T. HALL,
MARIE A. KELL.