

(No Model.)

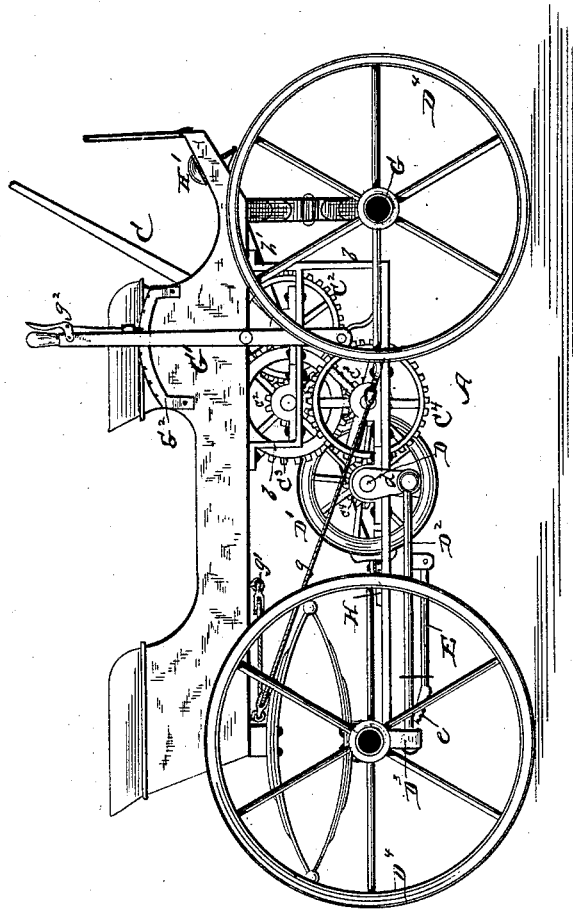
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C. A. RODINE & J. G. MALMGREN.

VELOCIPÈDE.

No. 304,960.

Patented Sept. 9, 1884.



Witnesses:
Chas. C. Carman
A. C. McArthur

per

Inventor:
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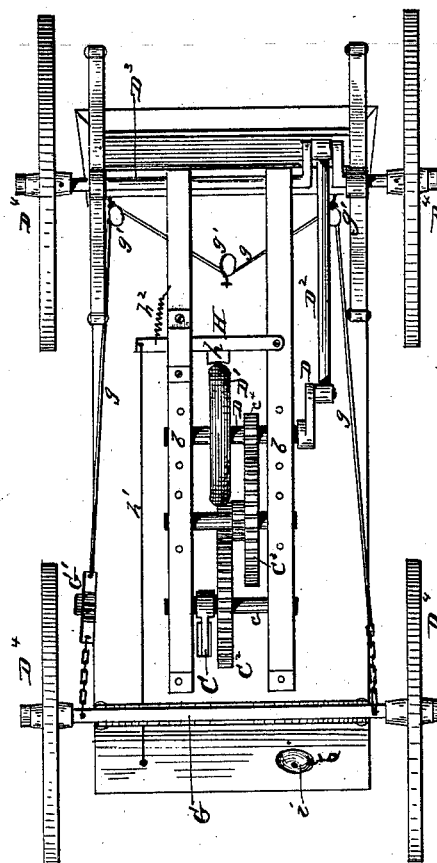


Fig. 2.

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(No Model.)

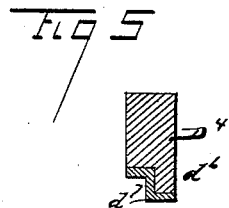
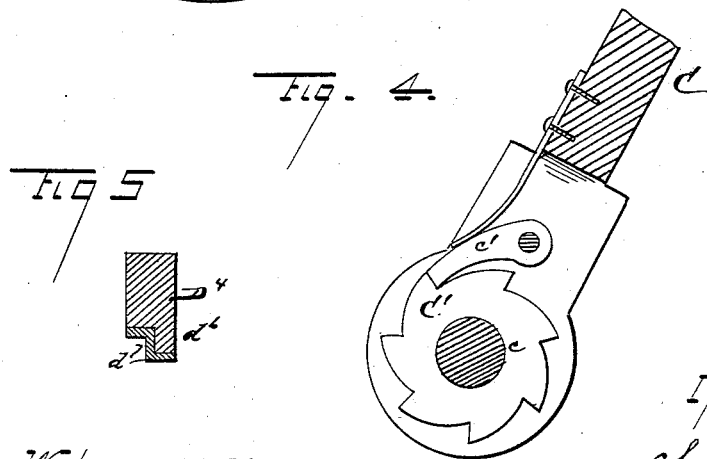
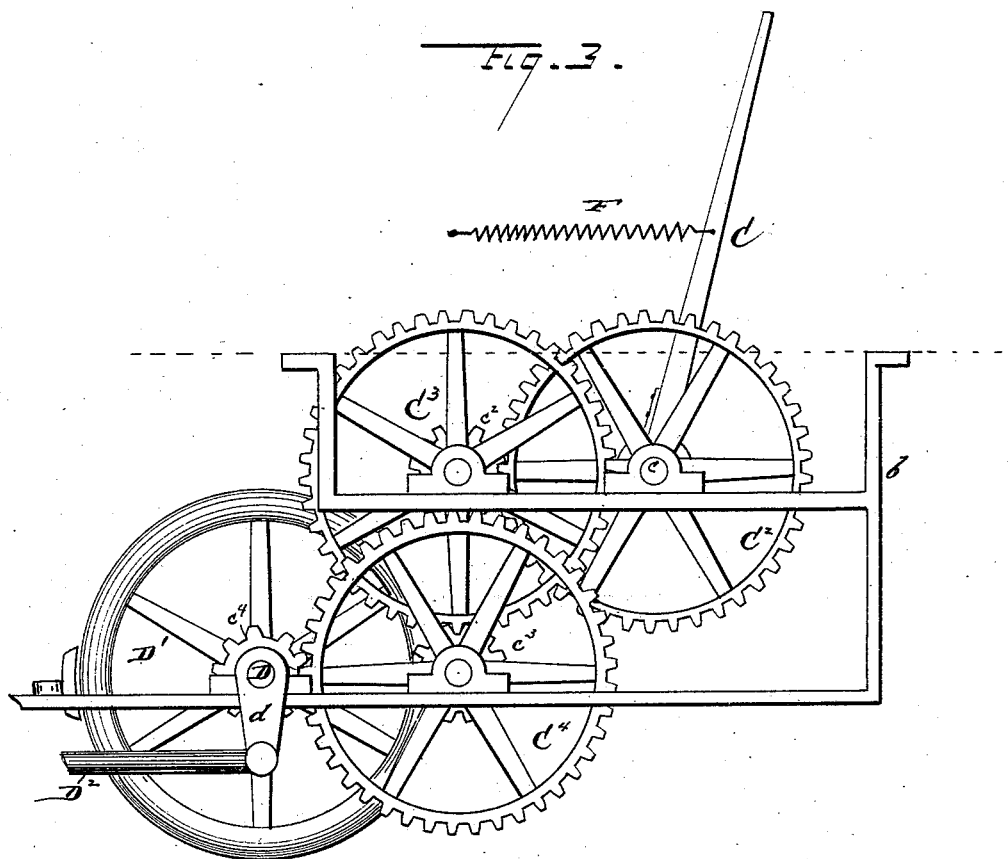
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UNITED STATES PATENT OFFICE.

CHARLES A. RODINE AND JOHN G. MALMGREN, OF CHICAGO, ILLINOIS.

VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 304,960, dated September 9, 1884.

Application filed February 27, 1884. (No model.)

To all whom it may concern:

Be it known that we, CHARLES A. RODINE and JOHN G. MALMGREN, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Motors, of which the following is a specification, to wit:

This invention relates to an improvement in motors; and it consists in the peculiar construction and arrangement of the same, substantially as will be hereinafter more fully set forth and claimed.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the accompanying drawings, in which—

Figure 1 is a side elevation of a vehicle having our motor applied. Fig. 2 is a bottom plan view of the same. Fig. 3 is a detail view of the mechanism of the motor, and Figs. 4 and 5 are details of parts of the device.

A represents a vehicle of an ordinary and well-known kind, to which our motor is applied. Below the body of the vehicle is secured a frame, *b*, in which are journaled a series of gear-wheels constituting the main portion of the motor. C represents a hand-lever provided at its lower end with a ratchet-wheel, *C'*, secured to a shaft, *c*, and with which a spring-pawl, *c'*, upon the lever engages, as in Fig. 4. Upon the shaft *c* is a gear, *C²*, meshing with a pinion, *c²*, upon a second shaft, which latter also carries a gear, *C³*, engaging a pinion, *c³*, upon a third shaft journaled in the frame, as will be fully shown in Fig. 3. This shaft is also provided with a gear, *C⁴*, meshing with and giving motion to a pinion, *c⁴*, upon a shaft, *D*, which also carries a fly or balance wheel, *D'*. In the drawings this shaft *D* is provided with two cranks, *d d*, connected by pitmen *D²* with the rear axle, *D³*, which is also cranked, and has rigidly secured to it the driving-wheels *D⁴*, as shown. We do not, however, desire to confine ourselves to the crank-and-pitman connection between the motor and the driving-axle, but for light carriages will use a chain-belt connection with driving-pulleys upon the shaft *D* and axle *D³*, as will be at once understood.

For heavy work and climbing steep grades, we hinge to each pitman *D²* a push-arm, *E*, having its lower end formed with teeth or serrations *ee*, as in Fig. 1. This arm is normally lifted and secured to the pitman; but when desired for use its rear end is dropped upon the ground, and, engaging therewith, aids in propelling the vehicle forward. This will not be necessary, however, except upon heavily-loaded vehicles upon steep grades.

The lever *C* is provided with a spiral spring, *F*, attached to the rear side of the lever, and also to the body or bed of the vehicle, and while the lever is easily pushed forward and the force of this spring overcome, by reason of its length of leverage, the spring exerts a force in pulling it back again, which, by means of the intermediate train of gearing, is communicated to the wheels of the vehicle and moves it forward. The lever is pushed forward by the attendant as often as may be necessary, and the device is thus kept in motion.

The front axle, *G*, of the vehicle is pivoted as usual, and its ends connected by a flexible chain or rope, *g*, running over pulleys *g'*, under the rear of the bed. This chain or cord is connected to the lower end of a hand-lever, *G'*, which is pivoted upon the side of the bed or body and provided with a thumb-latch, *g²*, engaging with a notched segment-rack, *G²*, by which the machine is guided in any direction, and is held in any position by engaging with the rack, as will be at once seen by reference to Fig. 1.

Upon the frame which supports the gearing is pivoted, at one end, a brake-bar, *H*, having a shoe, *h*, adapted to bear against the balance-wheel, and the free end of this bar is by a cord, *h'*, connected to a foot-pedal, *H'*, which, on being pushed down, draws forward the brake against the fly-wheel and stops the machine at any time. The brake-bar is drawn back again by means of a spring, *h²*, secured to its free end, as in Fig. 2.

The wheels *D⁴* *D⁴* of this vehicle are formed with a flange, *d⁶*, and are thus enabled to run with equal facility upon the bare ground or upon a car-track, a tire, *d⁷*, of the same form being placed around them for protection, as usual.

An alarm-bell, *i*, may be attached and op-

erated by a foot-lever, and, if found desirable, the lever C may be extended below its shaft and be supplied with a second torsion-spring, similar in all respects to the first, and working in the opposite direction, which will of course increase the power and speed of the machine.

It will seldom be found necessary to reverse the motion of this motor; but should it be desired, the lever may be slipped off the shaft and reversed, when the ratchet will of course act in a reverse direction.

It is obvious that the peculiar arrangement of gearing shown is not an arbitrary one, but may be varied somewhat—as, for instance, the gearing may be laid horizontal and connected to the ratchet-lever, to operate in the same manner, and occupy less room below the bed of the vehicle.

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

1. The frame A, having the cranked axle D², and the lever C, with its spiral spring F, in combination with an intermediate system of gearing connected to the axle by pitmen, substantially as and for the purpose set forth.

2. The combination, with the balance-wheel B', of the brake-lever H, having a retracting spring, h², and the cord h', and foot-pedal H', substantially as and for the purposes set forth.

3. The lever C, connected by a ratchet and pawl to the shaft c, and provided with a torsion-spring, F, in combination with the gearing C² C³ C⁴, connected to the driving-axle, substantially as shown and described.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES A. RODINE.
JOHN G. MALMGREN.

Witnesses:

W. C. MCARTHUR,
CHAS. KRESSMANN.