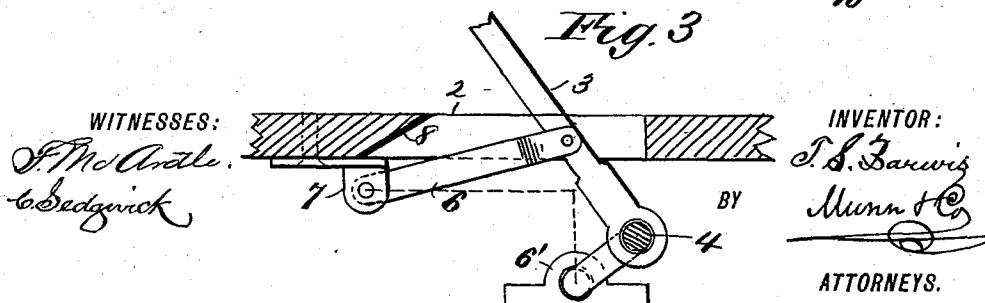
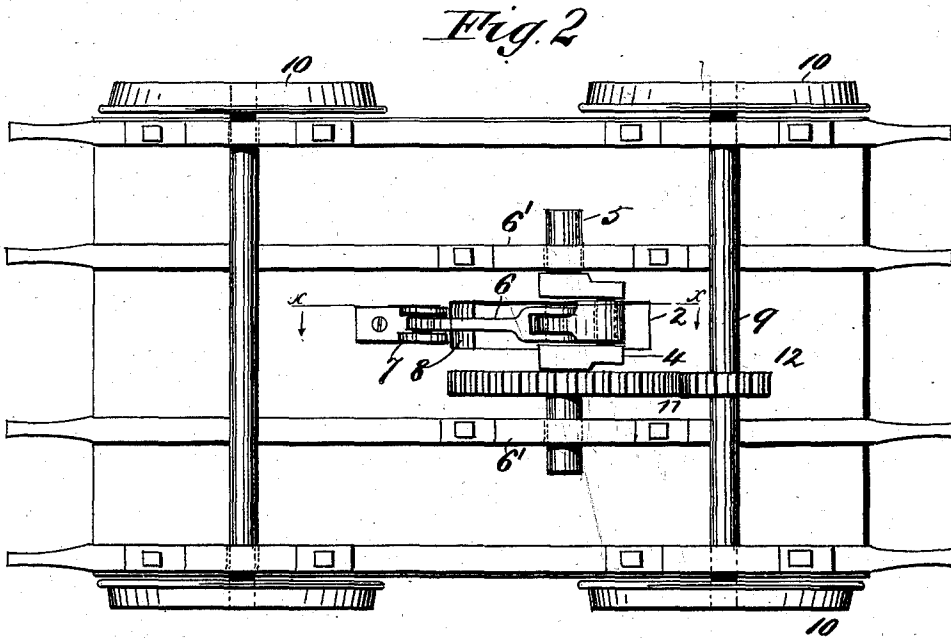
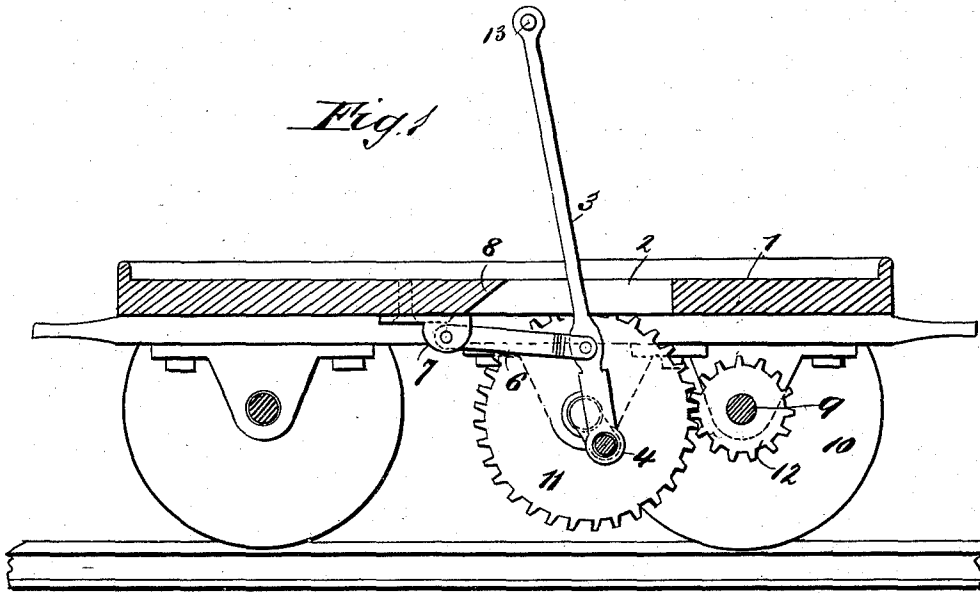


(No Model.)

T. S. BARWIS.  
HAND CAR.

No. 406,696.

Patented July 9, 1889.



# UNITED STATES PATENT OFFICE.

THOMAS S. BARWIS, OF ARTHABASKAVILLE, QUEBEC, CANADA.

## HAND-CAR.

SPECIFICATION forming part of Letters Patent No. 406,696, dated July 9, 1889.

Application filed October 23, 1888. Serial No. 288,907. (No model.)

### *To all whom it may concern:*

Be it known that I, THOMAS S. BARWIS, of Arthabaskaville, in the Province of Quebec and Dominion of Canada, have invented a new and useful Improvement in Hand-Cars, of which the following is a full, clear, and exact description.

The invention will be first described, and then specifically pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of a hand-car, in longitudinal section, on the line  $x x$ , Fig. 2, showing the invention applied thereto. Fig. 2 is a plan view of the hand-car upside down with invention applied, and Fig. 3 is a detail of the driving mechanism with parts in section and broken away.

For the purpose of illustrating the manner of applying the invention it is shown, in connection with a hand-car of the ordinary type, constructed with a platform 1, having a slot 2, through which projects to a suitable height above platform 1 a vertical long-armed hand operating-lever 3, the slot 2 being sufficiently long to permit the lever 3 to have a vibrating movement lengthwise of the slot 2. The lower end of lever 3 is pivoted to the crank 4 of a double-crank shaft 5, extending across the slot 2 and mounted in bearings 6', bolted to the under side of platform 1. To the lever 3, adjacent to its lower end, is pivoted one end of a horizontally-vibrating short-armed lever 6, the other end of lever 6 being pivoted in a bracket 7, bolted to the under side of platform 1, adjacent to an end of slot 2. The end of slot 2 just referred to is beveled or inclined, as at 8, so as to permit the end of lever 6 adjacent to bracket 7 to swing up into slot 4 in an inclined direction in the upward movement of lever 6 with lever 3. It will thus be seen that the lever 6 serves as a vibrating lever support and guide for the lever 3.

The relative arrangement and the pivotal

connection of the levers 6 and 3 are such that a line drawn through the lever 6 and a line equal to the distance from the pivotal point of lever 6 with lever 3 to a point located in the axis of the crank-shaft 5, each form the side of a square when the crank 4 is in its lowest depending position. By this means the lever 3 and crank 4 are never left on the dead-center. With the long-armed lever 3, connected at its lower end to crank 4 and having the supporting guide-lever 6, a simple arrangement of parts is provided, by means of which the crank-shaft 5 may be easily and rapidly caused to turn a great number of revolutions, and power obtained to drive an axle 9 of a pair of wheels 10 of a hand-car by a large wheel 11, engaging a pinion 12, mounted on the axle 9.

The hand-car may be effectively and rapidly driven by one or more persons on the platform 1 operating the lever 3 by a handle 13 at its upper end. The lever 3 is moved back and forth with a rising-and-falling movement in the slot 2, and communicates, through crank-shaft 5, gear-wheel 11, and pinion 12, motion to the axle 9.

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

The combination, with the hand-car having the slot 2 in its platform and a transverse crank-shaft journaled under the platform between the front and rear axles, of the upwardly-projecting lever 3, extending down through said slot and connected with the crank, and the longitudinally-extending lever 6, pivoted to the under side of the platform at one end of the slot to work therein, and at its other end pivoted to the lower end of lever 3 above the crank, and gearing connecting the crank-shaft with an axle of the car, substantially as set forth.

THOMAS S. BARWIS.

Witnesses:

EDWARD W. CODY,  
C. SEDGWICK.