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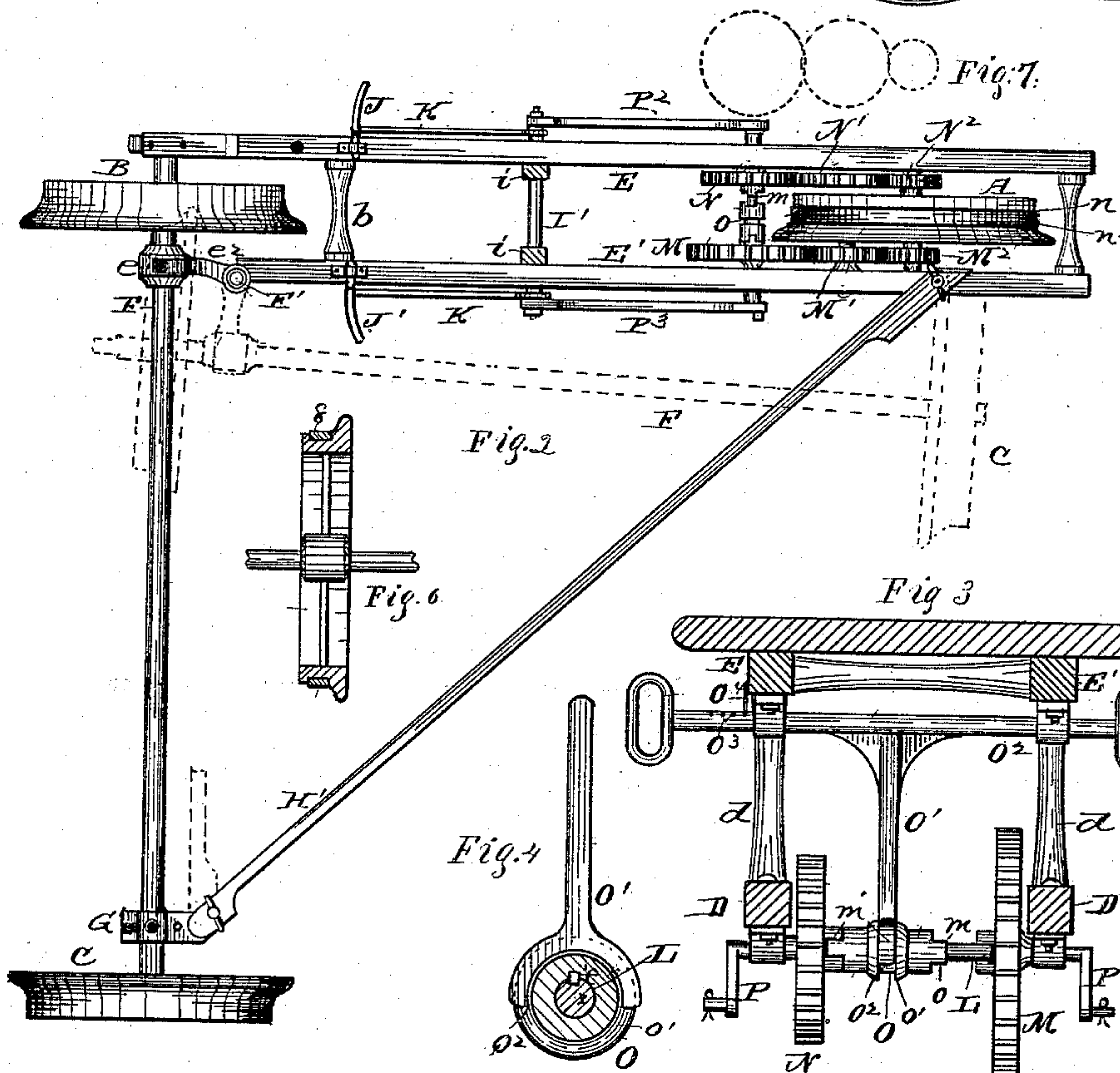
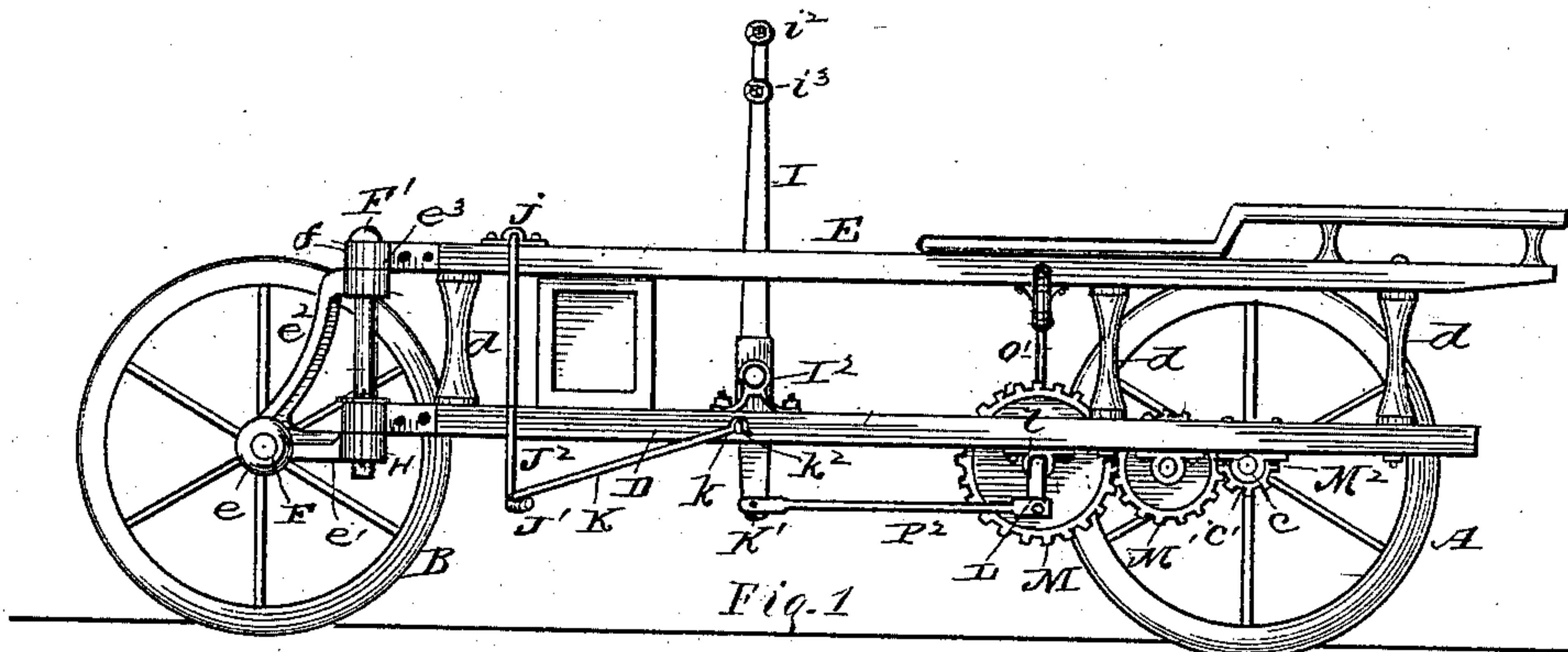
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E. B. LINSLEY.

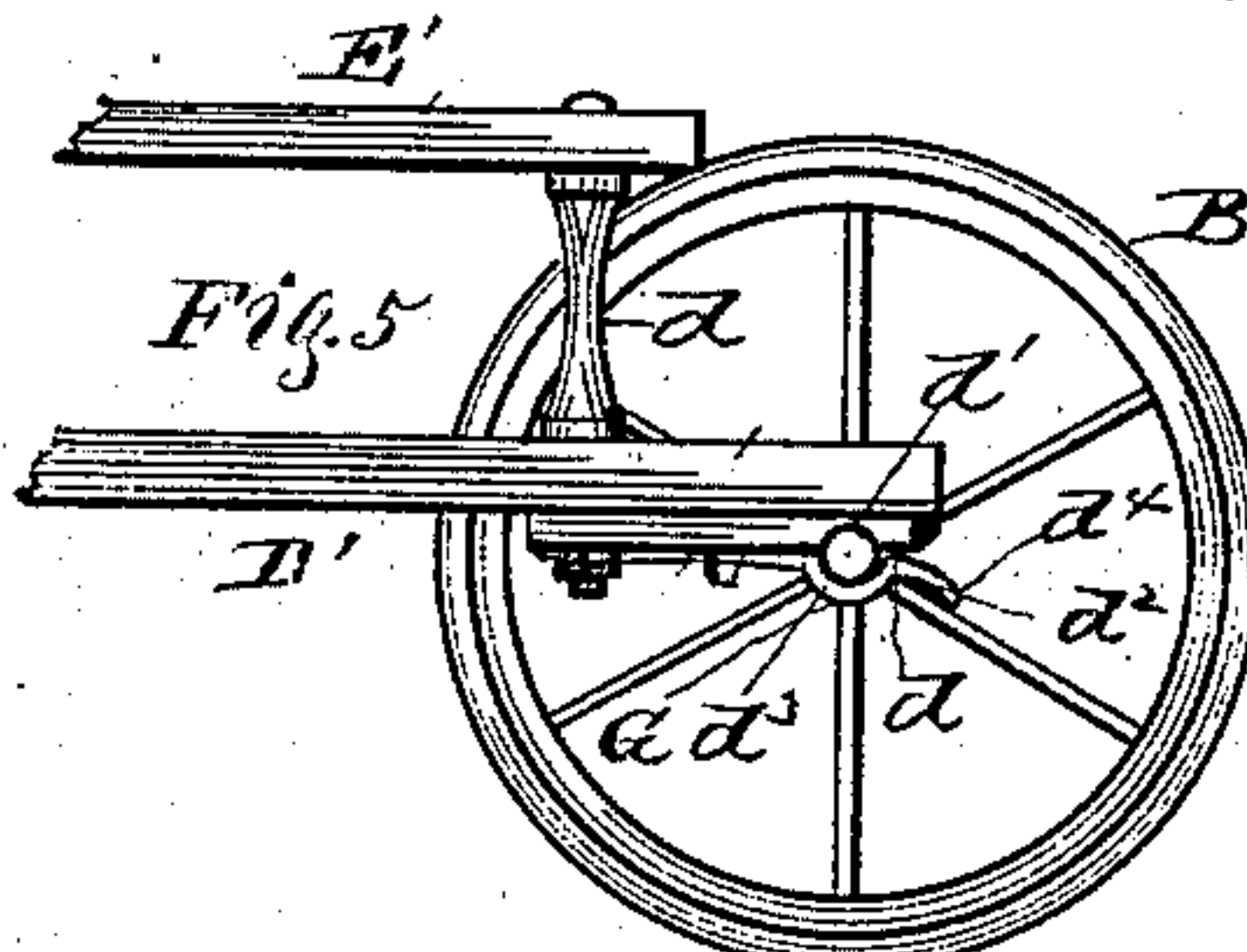
HAND CAR.

No. 270,320.

Patented Jan. 9, 1883.



Attest.  
John C. Perkins  
George Cook



Inventor.  
Edward B. Linsley.  
By H. A. Sugrue  
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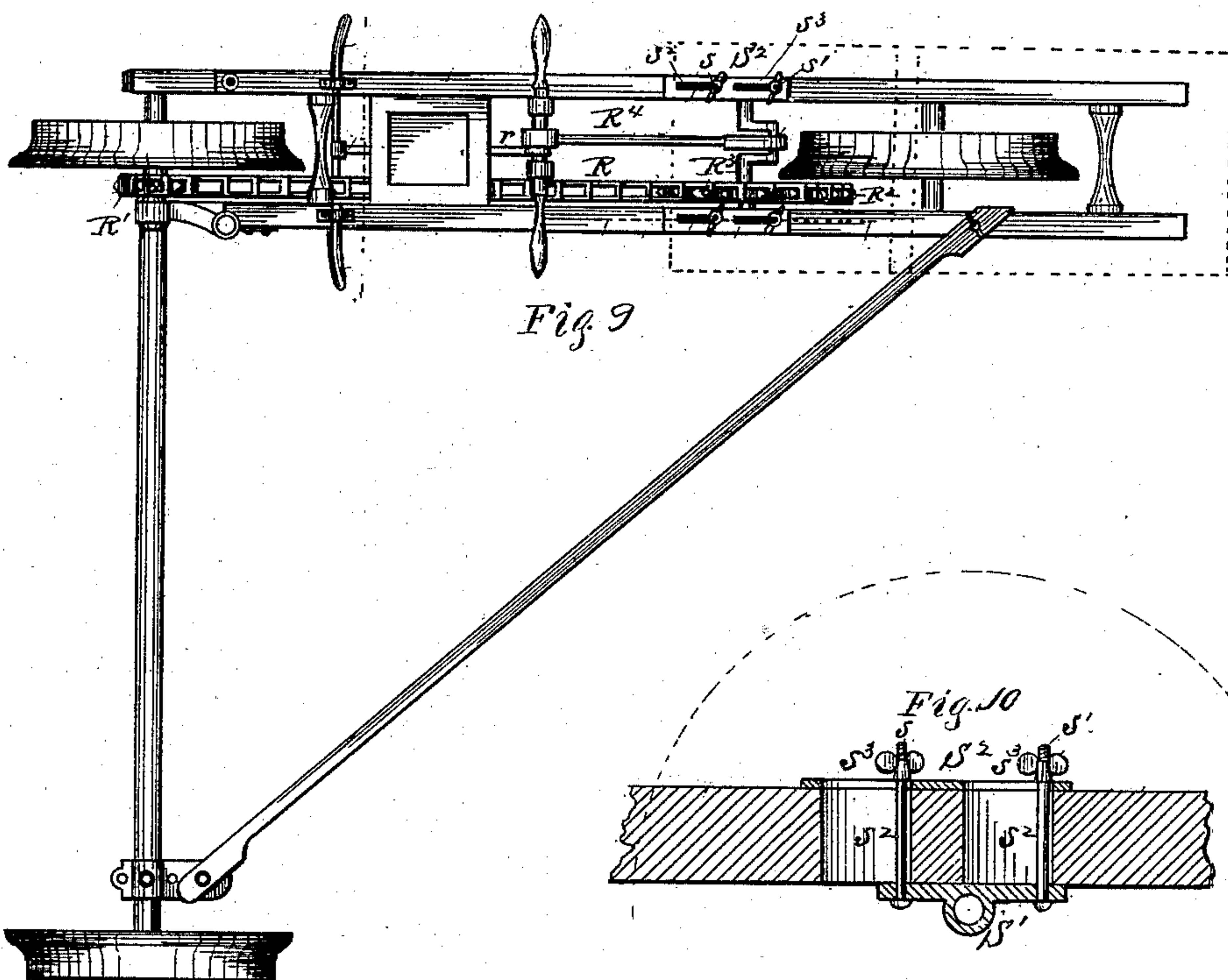
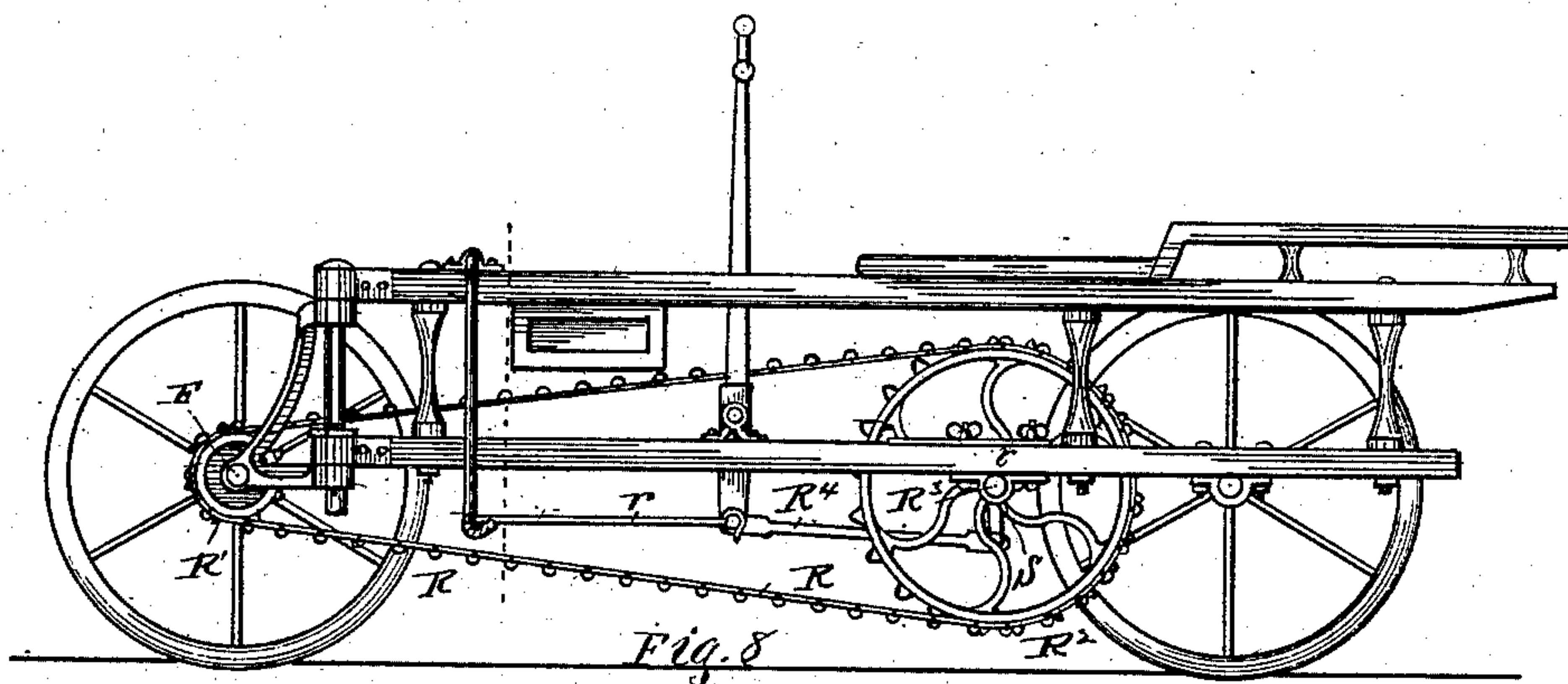
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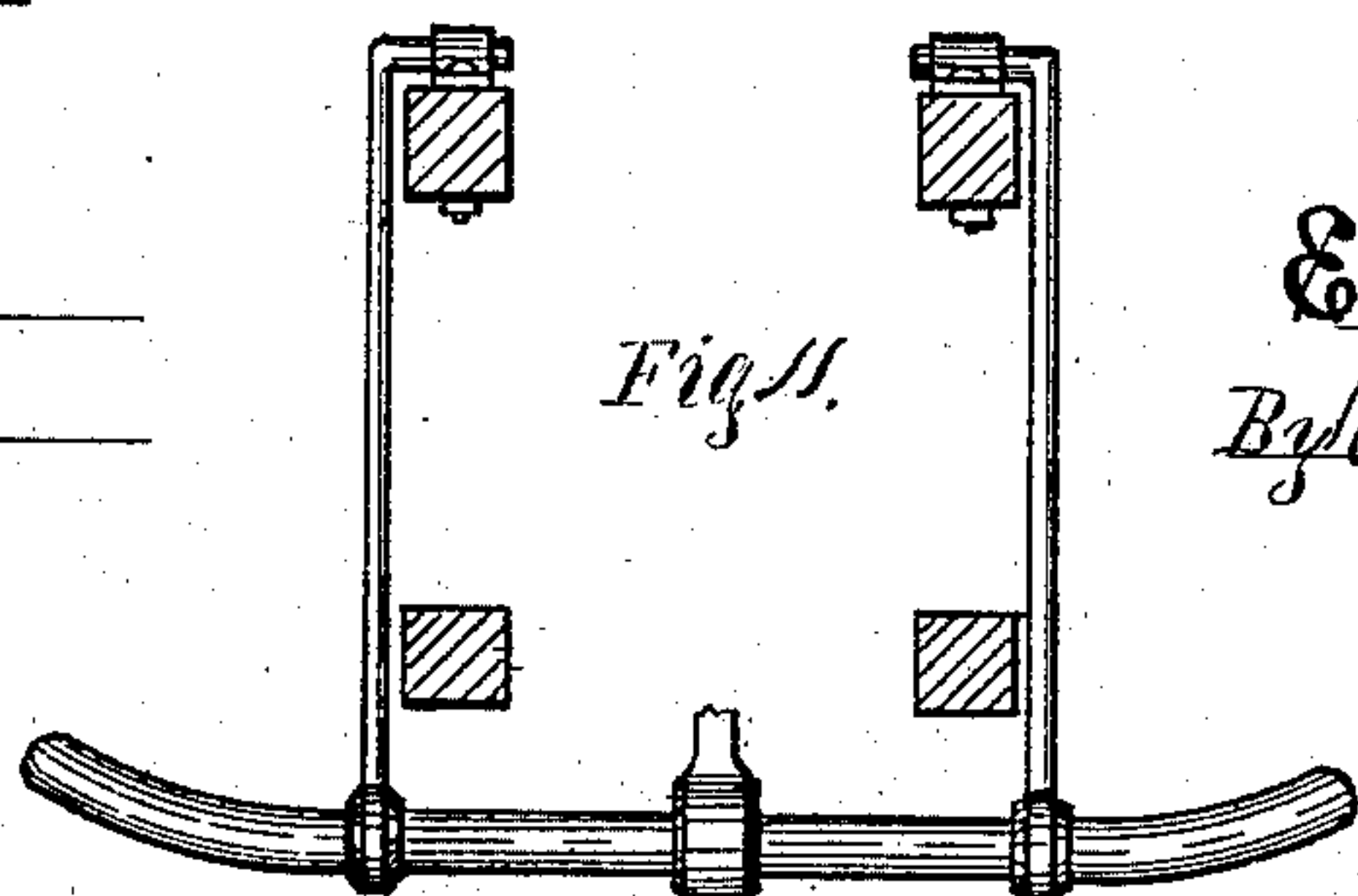
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By H. A. Symonds  
Atty-



# UNITED STATES PATENT OFFICE.

EDWARD B. LINSLEY, OF THREE RIVERS, MICHIGAN, ASSIGNOR TO THE  
SHEFFIELD VELOCIPEDE CAR COMPANY, OF SAME PLACE.

## HAND-CAR.

SPECIFICATION forming part of Letters Patent No. 270,320, dated January 9, 1883.

Application filed October 20, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD B. LINSLEY, of Three Rivers, in the county of St. Joseph and State of Michigan, have invented certain new and useful Improvements in Three-Wheel 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 pertains to make and use the same.

My invention relates to an improvement in hand-cars, the object being to provide an improved construction of three-wheel hand-cars, whereby they may be folded into small compass; further, to provide improved means for propelling the car and regulating its speed; and, further, to provide certain improvements in other features, as will hereinafter appear.

With these ends in view my invention consists in certain features of construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of a three-wheeled hand-car embodying my invention. Fig. 2 is a plan view. Fig. 3 is a transverse section, showing the gearing and clutch mechanism. Fig. 4 is a detached view of the clutch and clutch-rod. Fig. 5 is a detached view of the forward wheel and spring-box. Fig. 6 is a vertical section of the driving-wheel. Fig. 7 shows an outline of the gears. Figs. 8, 9, 10, and 11 illustrate modifications.

A represents the driving-wheel; B, the forward wheel, and C the guide wheel.

D D' are the lower, and E E' the upper, side bars of the car-frame, which parts are connected together by the posts *a* and cross-bars *b*.

The driving-wheel A is fastened to an axle, *e*, which is mounted in bearings *e'* *e*<sup>2</sup>, secured to the lower side bars, D D'. The forward wheel is fastened to the extended axle F, one end of which is supported in the spring-box G, attached to the forward end of the side bar, D'. Spring-box G consists of a metal plate, *d*, fastened to the under side of the side bar, D', and provided with a half-bearing, *d'*.

To the under side of the plate *d* is secured the spring-bar *d*<sup>2</sup>, formed with a half-bearing, *d*<sup>3</sup>, and having its outer end downwardly curved, as at *d*<sup>4</sup>. The extended axle F is also sup-

ported by a swiveled bearing, H, consisting of the box *e*, provided with the arms *e'* *e*<sup>2</sup>, which are provided with bearings *e*<sup>3</sup>, to receive the pin, bolt, or rod F', which is inserted through the stationary bearings or eyes *f*, fastened to the upper and lower bars, D E. By these means the swiveled bearing is firmly secured in place.

On the outer end of the axle F is placed a box, G', to which is pivoted the forward end of the diagonal brace H', the rear end thereof being removably secured to the main frame. By detaching the diagonal bar from the main frame or from the box G' the axle F may be folded into the position indicated by the dotted lines in Fig. 2, which causes the end of the axle to enter the spring-box and be retained therein by the force of the spring-box section; or, if desired, additional fastening devices may be employed for preventing the accidental displacement of the parts.

Instead of constructing the spring box with its lower section made to yield, the latter may be made stationary and the upper section made to yield and receive the axle. This construction and arrangement of parts is simple and durable, as it allows of the employment of a single rigid axle, and yet enables the axle and guide-wheel to be folded against the main frame when it is desired to pack the car into small compass for storage or transportation.

I represents the operating-lever, and consists of the bars *i* *i'*, mounted on the rock-shaft I', and provided with the handles *i*<sup>2</sup> *i*<sup>3</sup>. The rock-shaft I' is supported in bearings I<sup>2</sup>, fastened to the lower side bars of the main frame.

J J' are foot-rests secured to the lower ends of swinging links J<sup>2</sup>, the upper ends of which are journaled in bearings *j*, secured to the upper side bars.

K K' are links connected at one end to the foot-rests outside of the main frame, and provided at their opposite ends with hooks *k*, by which they are removably secured to the cross-bar *k'*, connecting the lower ends of the bars forming the operating-lever. Thus it will be observed that the operator may employ both his feet and hands in propelling the car.

If it is desired to have stationary instead of oscillating foot-rests, the links K K' are unhooked from the operating-lever and hooked



over pins  $k^2$ , attached to the main frame, and in this position the foot-rests are retained in a stationary position.

L is a crank-shaft, mounted in bearings  $l$ , secured to the lower side bars of the main frame, and has secured thereto the large gear, M, and smaller gear, N. The large gear, M, meshes into an idle-gear,  $M'$ , which in turn meshes with a gear,  $M^2$ , attached to the axle of the drive-wheel. The small gear, N, on the opposite side of the crank-shaft, meshes with an idle-gear,  $N'$ , which in turn meshes with a gear,  $N^2$ , secured to the axle of the drive-wheel.

Gears M N are each provided with a hub having notches or recesses  $m$  formed therein. Between these gears a sliding clutch, O, is loosely mounted on the crank-shaft, the ends of the clutch being provided with projections or fingers  $o$ , adapted to engage in the recesses or notches in the hubs of the gear-wheels M N.

Clutch O is provided with a groove,  $o'$ , within which engages the fingers  $o^2$  of a rod,  $O'$ , attached to a sliding bar,  $O^2$ , which is provided with a series of notches,  $O^3$ , in which engage a spring-holding device,  $O^4$ , for retaining the clutch in any desired adjustment. This sliding bar  $O^2$  is located beneath the operator's seat, and hence is within easy reach of the operator. The cranks P P' of the crank-shaft are connected with the operating-lever by means of the pitman P<sup>2</sup> P<sup>3</sup>.

When it is desired to throw the driving mechanism out of gear the clutch is adjusted so as to be out of engagement with both of the gears M N. When it is desired to propel the car at a comparatively slow rate of speed the clutch is thrown into engagement with the small gear, N, and, if a high rate of speed is desired, the clutch is thrown into engagement with the large gear, M.

As represented in Figs. 2 and 6, the driving-wheel is constructed with an annular groove,  $n$ , within which is placed a rubber tire,  $n'$ , which insures increased traction on the rails, and thereby preventing the driving-wheel from slipping and facilitating the propulsion of the car. In Figs. 8 and 9 I have shown views in side elevation and plan of a modified construction of hand-car. In this construction I employ the single axle, the spring, and swiveled bearings for folding the parts together in the manner hereinbefore explained.

Instead of employing the gearing for high and low speed, I use a driving-chain, R, which encircles a small sprocket-wheel,  $R'$ , on the axle F, and a sprocket-wheel,  $R^2$ , and the crank-shaft  $R^3$ , the latter being connected with the operating-lever by a single pitman,  $R^4$ , while the foot-rests are connected to the operating-lever by a single link,  $r$ . In this instance the connecting devices are located beneath and between the side bars of the main frame, instead of being on the outside thereof. Crank-shaft  $R^3$  is mounted in boxes S S', which are fastened to the side bars by bolts  $s$   $s'$ , extend-

ing through elongated slots  $s^2$   $s^2$  in the side bars of the frame, and similar slots,  $s^3$ , in the cap-plates S<sup>2</sup>. When it is desired to fold the axle F around against the main frame the crank-shaft boxes S S' are loosened, thereby giving sufficient slack chain for this purpose. The adjustable boxes also allow for the taking up of any slack chain caused by wear or stretching.

It is evident that many slight changes in the construction and relative arrangement of parts might be resorted to without departing from the spirit of my invention, and hence I would have it understood that I do not limit myself to the exact construction and arrangement of parts shown and described.

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

1. In a three-wheel hand-car, the combination, with the main frame and an axle, having one of the main wheels secured to one end thereof, and a guide-wheel to its opposite end, of a swiveled bearing attached to the main frame and connected to said axle, substantially as set forth.

2. In a three-wheel hand-car, the combination, with the main frame and an axle, having the guide-wheel and one of the main wheels secured thereto, of a swivel-bearing provided with two arms jointed to supporting bearings fastened to the upper and lower side frame-pieces, substantially as set forth.

3. In a three-wheel hand-car, the combination, with a folding axle, of a spring or yielding box secured to the main frame, substantially as set forth.

4. In a three-wheel hand-car, the combination, with the main frame provided with a spring or yielding box, of an axle connected to the main frame by a swivel-bearing, substantially as set forth.

5. In a three-wheel hand-car, the combination, with the driving-wheel having gear-wheels attached to its axle on opposite sides of the wheel, of an operating-lever, a crank-shaft connected with the operating-lever so as to be operated thereby, gear-wheels attached to the crank-shaft for transmitting motion to the driving-wheel, and a clutch mounted on the crank-shaft for throwing either train of gearing into operation, substantially as set forth.

6. In a three-wheel hand-car, the combination, with the main frame, of a rigid axle carrying the guide-wheel and one of the main wheels, a stationary bearing for supporting one end of the axle, and a hinged bearing forming a support for the axle, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

EDWARD B. LINSLEY.

Witnesses:

A. E. BILLIMAN,

O. P. SLOTE.