

J. A. MOORE.  
Spring-Propelled Carriage.

No. 223,373.      Patented Jan 6, 1880.

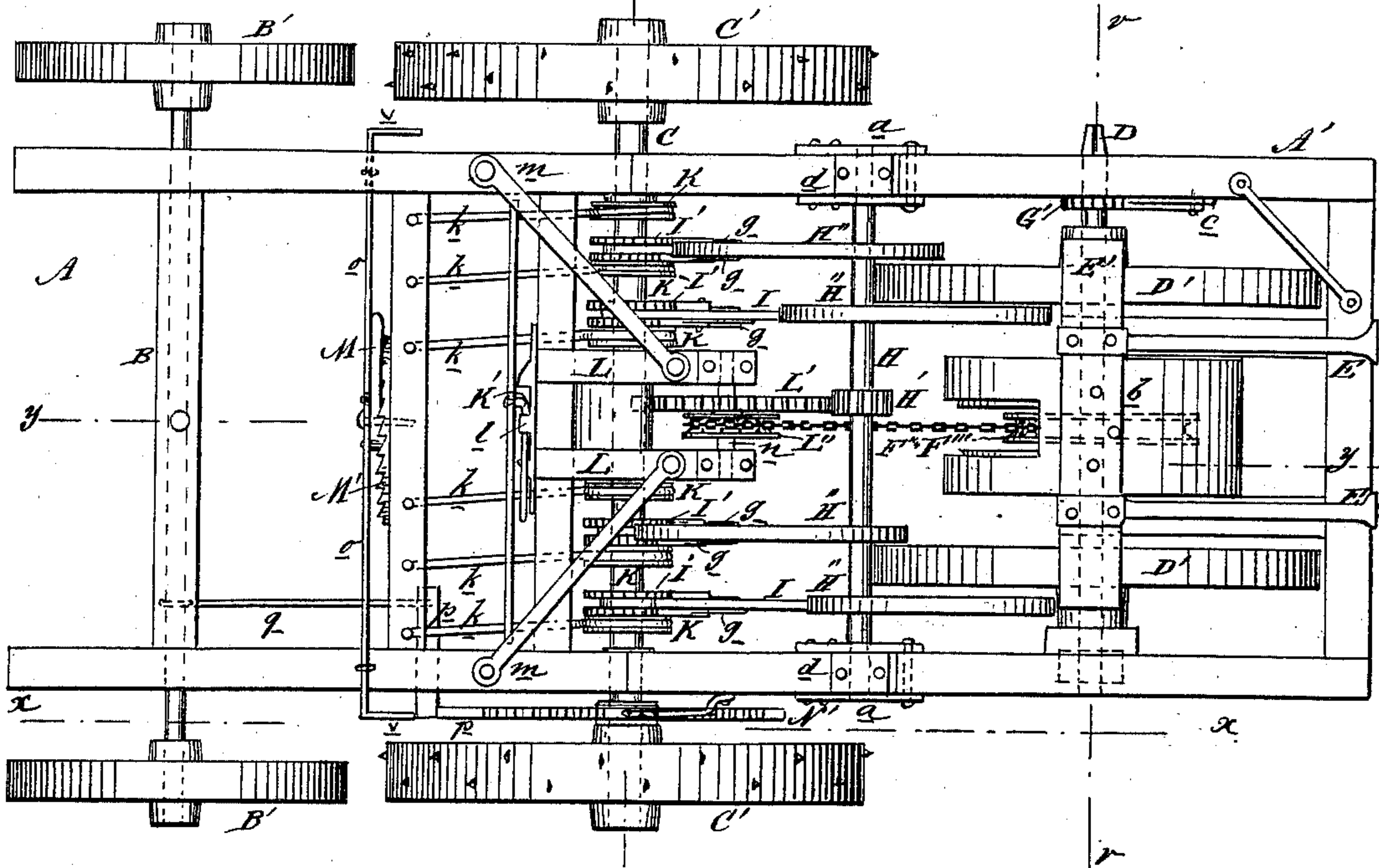
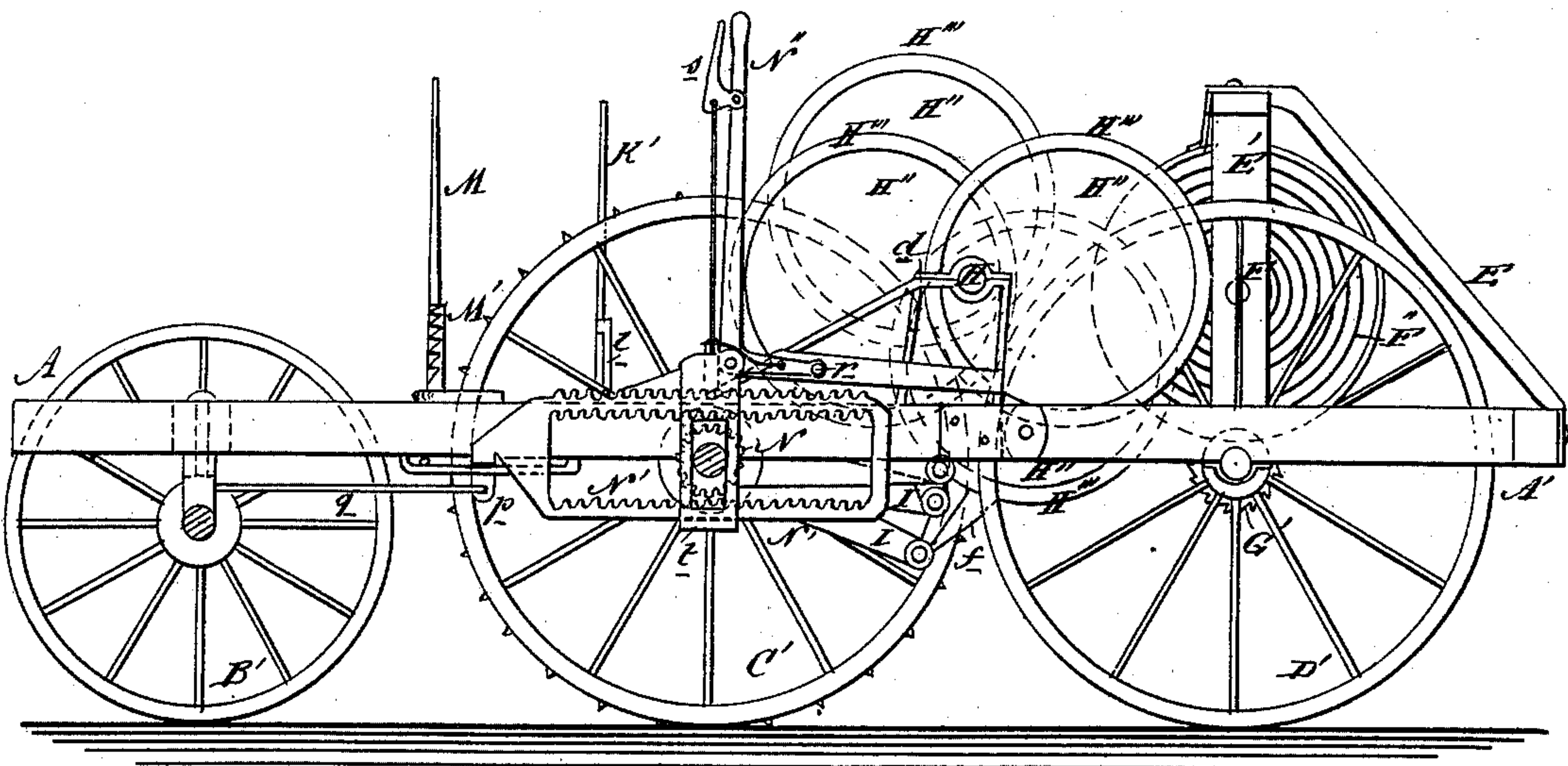


Fig. 2



WITNESSES:  
*C. Severac*  
*C. Seagwick*

INVENTOR:  
*J. A. Moore*  
BY *Mum Co*  
ATTORNEYS.

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Fig. 3

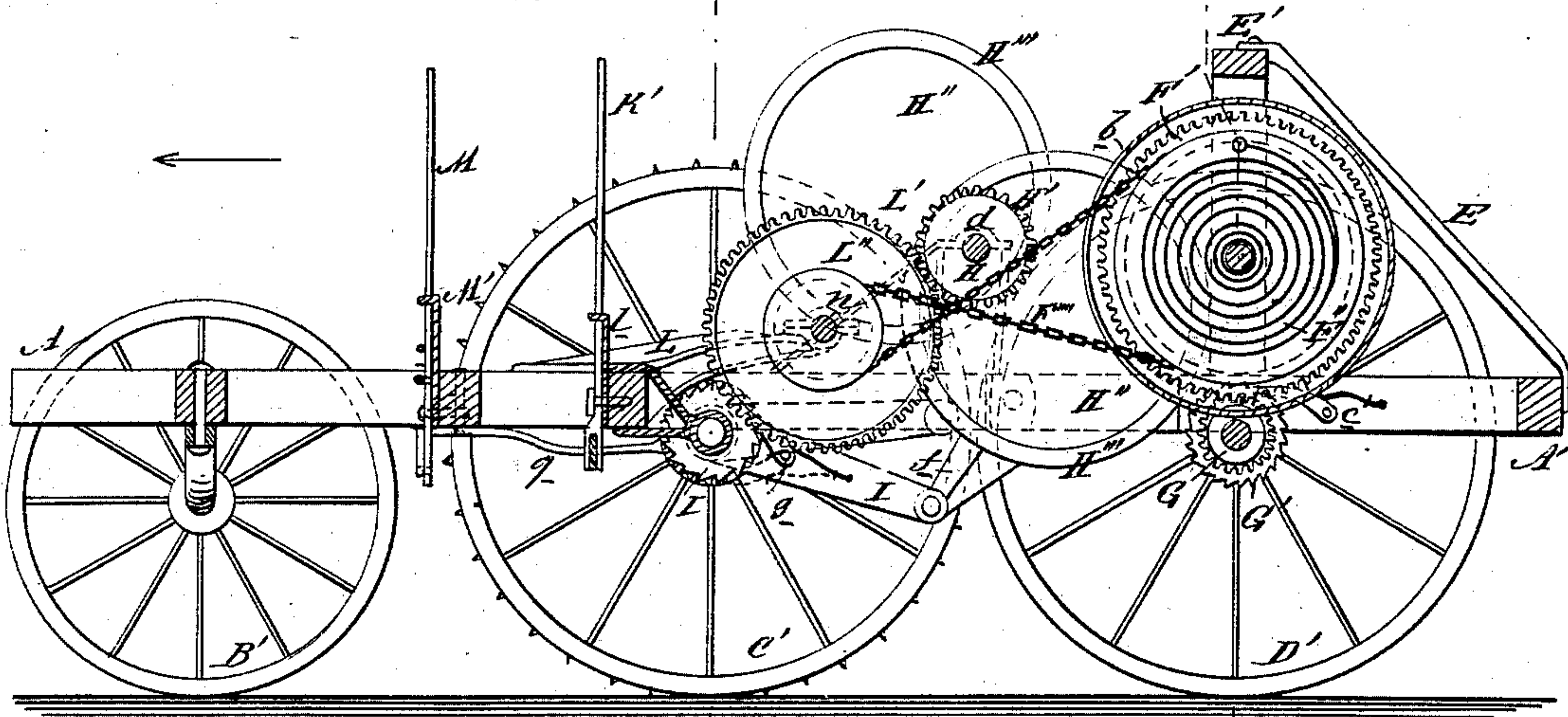


Fig. 4

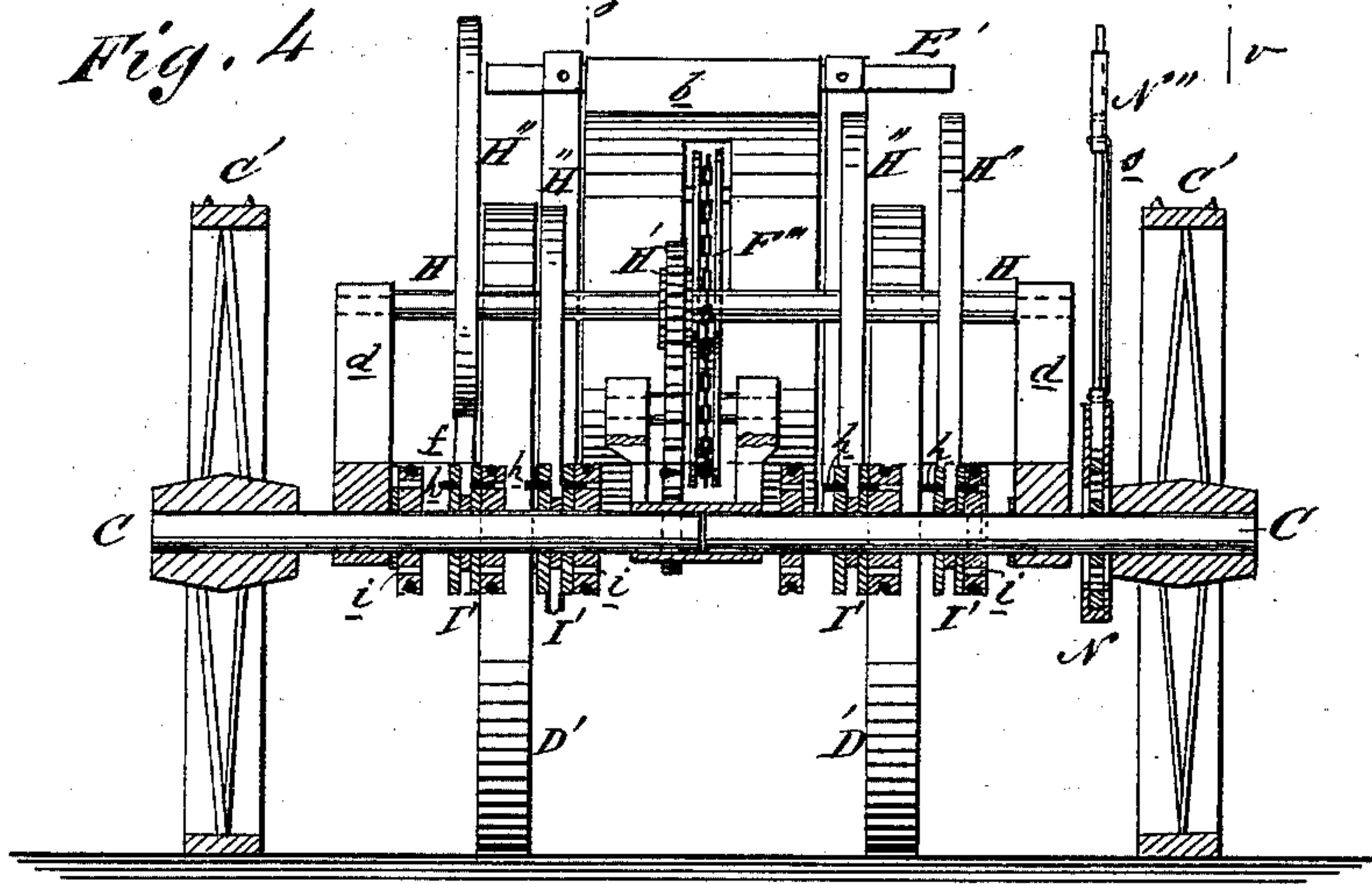


Fig. 5

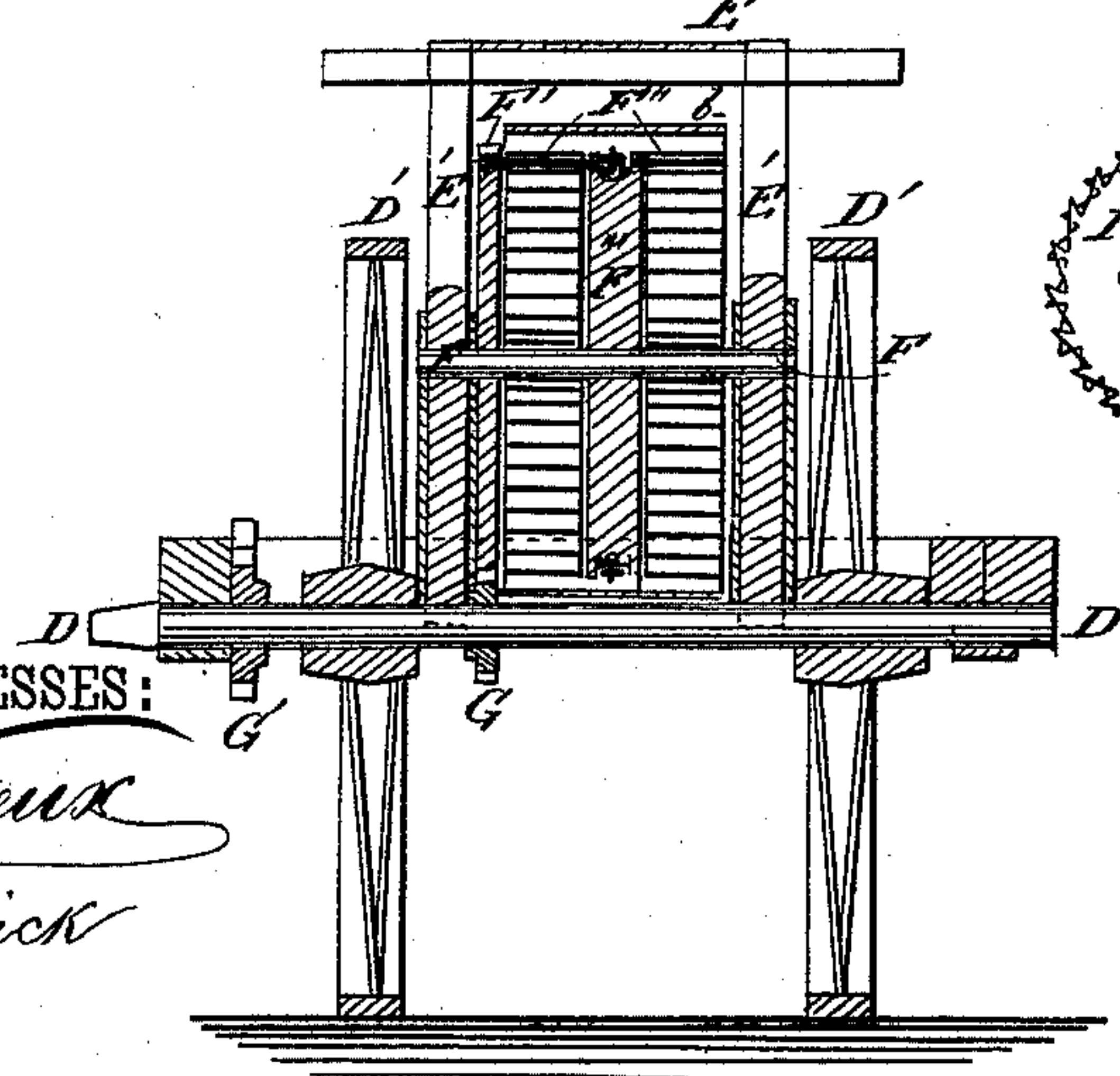
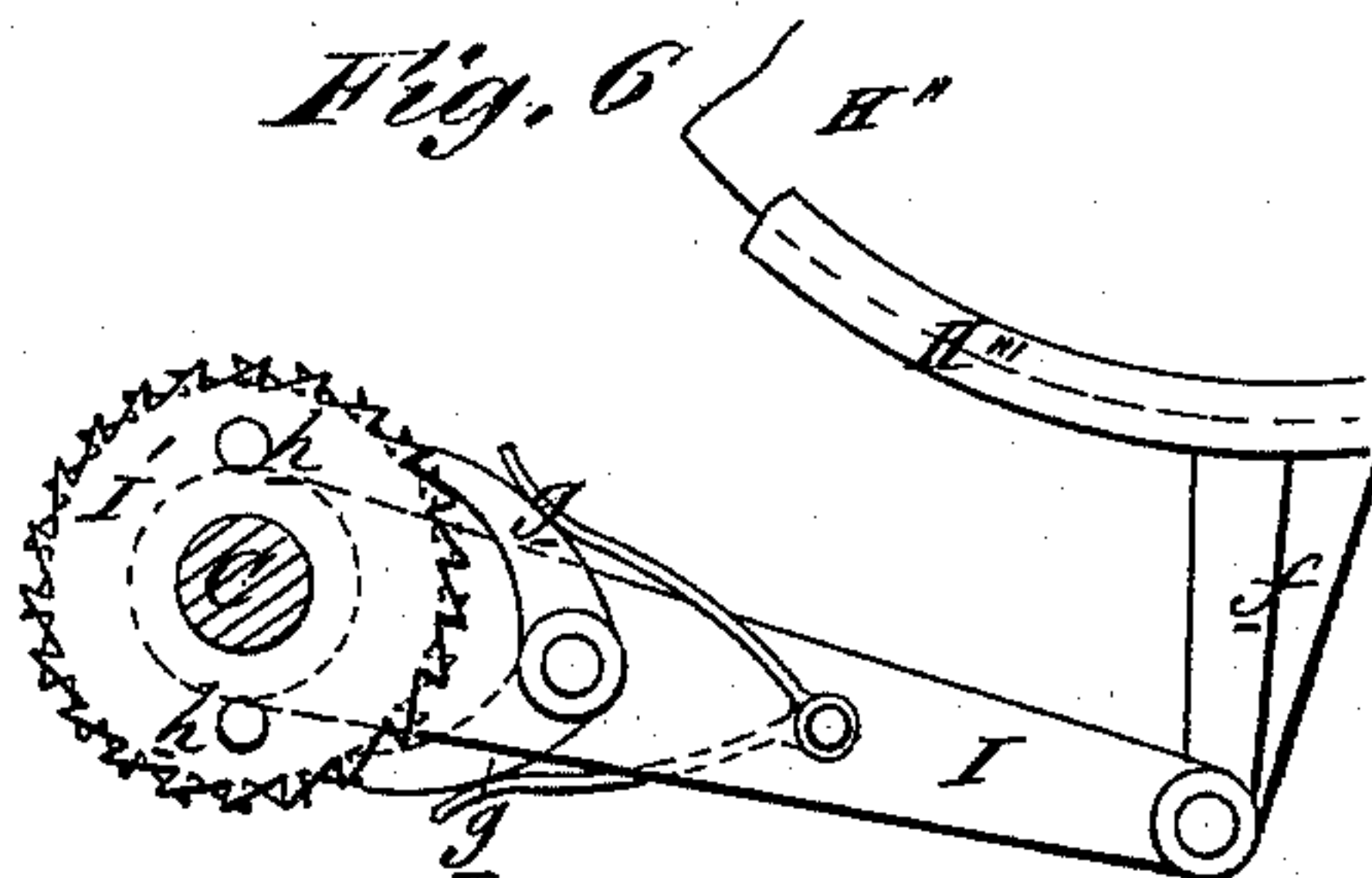


Fig. 6



WITNESSES:

C. N. Newell  
C. Sedgwick

INVENTOR:

J. A. Moore  
BY Munn & Co.  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

JAMES A. MOORE, OF KEWANNA, INDIANA.

## SPRING-PROPELLED CARRIAGE.

SPECIFICATION forming part of Letters Patent No. 223,373, dated January 6, 1880.

Application filed October 1, 1879.

*To all whom it may concern:*

Be it known that I, JAMES A. MOORE, of Kewanna, in the county of Fulton and State of Indiana, have invented a new and Improved Spring-Propelled Carriage, of which the following is a specification.

Figure 1 is a plan of the device. Fig. 2 is a sectional longitudinal elevation of the same on line *x x*, Fig. 1. Fig. 3 is a sectional longitudinal elevation of the same on line *y y*, Fig. 1. Fig. 4 is a transverse sectional elevation of the same on line *z z* of Figs. 1 and 3. Fig. 5 is a transverse sectional elevation on line *v v*, Figs. 1 and 3. Fig. 6 is an enlarged side elevation of the ratchet-levers, pawls, and ratchets.

Similar letters of reference indicate corresponding parts.

This invention relates to that class of motors whose motive power is contained in a combination of coiled springs, levers, eccentrics, &c.

The invention consists, essentially, of a combination of springs, eccentrics, ratchets, levers, and chains so arranged upon a carriage as to be capable of exerting sufficient force after the springs are wound up to effect a long-continued and economical propulsion of the carriage.

In the drawings, A and A' are, respectively, the front and rear sections of the horizontal frame, that are hinged to each other, in order that the sections may independently adjust themselves to the irregularities of the ground.

The front section, A, rests on the axles B and C of the guiding-wheels B' and the driving-wheels C', respectively, while the rear section, A', rests on the axle D of the wheels D'. Fixed centrally within the section A', and stayed by the braces E, is the frame E', between whose uprights is journaled the axle F, on which is keyed the gear-wheel F', and upon which is secured one end of each of the coiled springs F'', while set loosely upon the axle F, and between the springs F'', is the large chain-wheel F''', to the sides of which, near its periphery, are fastened the outer ends of the springs F''.

A shield, b, is set over the springs F'' and the chain-wheel F''', to protect them from the weather. Upon the axle D is keyed the pin-

ion G, that engages in the gear-wheel F', and near the outer end of the said axle D is keyed the ratchet-wheel G', that is held from turning backward by the pawl and spring c.

Next in front of the parts above described, and supported in the elevated boxes *d d*, that are set upon the frame-section A, is the revolving shaft H, upon which are keyed the pinion H' and the eccentrics H'' H'', whose peripheries are encircled by the grooved straps H''' H''', that are provided with radial arms *f f*, to the ends of which arms *f f* are attached the ratchet-levers I I, whose other ends encircle the axle or shaft C between each pair of ratchets I' I', that are set loosely on said shaft H, and provided with pins *h h*, and each ratchet-lever I is provided on each side with spring and pawl *g*, for operating the said ratchets I' I'.

When the device is in operation, one ratchet, I', of each pair is revolved in one direction by the engagement of a pawl, *g*, while the other is revolved in the opposite direction by the engagement of the opposite pawl *g* in the teeth of the said ratchet I'; so it is evident that by means of the pawls *g* the driving-wheel C' can be turned backward or forward, and the motion of the carriage be thereby reversed, according to which set of the ratchets I' is clutched to the said shaft C.

K K are the double-faced clutches, made to slide over splines on the shaft C, and provided with holes that receive the pins *h h* of the ratchets I', and these clutches K K are thrown into gear with either set of ratchets I' by the rods *k k*, that are moved by the lever K', which is held in position in notches in the plate *l*.

Secured upon a transverse timber of the frame A, and braced by the rods *m m*, are two rearward-projecting supports L L, that afford bearings for the shaft *n*, on which are secured the gear-wheel L' and small chain-wheel L''.

M is the brake-lever, M' the brake-lever-holding plate, and *o* the brake-rods, whose shoes *v* are to operate against the edges of the wheels C'.

The device for guiding the carriage, or determining the direction in which it shall move, consists of a pinion, N, that is keyed on the axle C, and of a triple-toothed rack, N', with its bent finger *p*, and the rod *q*, connecting



said finger *p* with the axle B, and the lever N'', provided with spring and pawl *r*, and the auxiliary lever and rod *s* and guide *t*.

Should it be desired, when the device or carriage is in motion forward, to change its direction, the operator may, by taking hold of the handles of the levers N'' and *s* and moving them backward, disengage the pawl *r* from the upper row of rack-teeth, and at the same time lift the said rack N', so that its lower row of teeth will become engaged with the pinion N, so that the said pinion N, in turning, will draw back the rack N', and by this means swing the front axle, B, and its attached wheels B' to the left hand. As soon as the rack N' has been moved sufficiently the levers N'' and *s* are moved forward again to disengage the said rack N' from the pinion N, and to hold it (the rack N') up securely in place. To turn the device to the right the rack N' is pressed down so that its central row of teeth are engaged by the pinion N.

To operate this device a key is applied to the projecting end of the axle D to turn it, and operates, through the pinion G, gear-wheel F', and chain-wheel F''', to wind up the springs F''. Then the key is removed and the said springs F'' uncoil, and in doing so impart motion, through the chain-wheel F''', chain F''', small chain-wheel L'', gear-wheel L', pinion H', eccentrics H'', ratchet-levers I, ratchets I', and axle C, in the order herein named, to the driving-wheels C', to revolve the said driving-wheels C' and move the whole device.

This device may be applied to the propulsion of paddle-wheels for steamboats, if desired.

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

1. The combination of the axle D, pinion G, gear-wheel F', springs F'', chain-wheel F''', chain F''', chain-wheel L'', gear-wheel L', pinion H', eccentrics H'', ratchet-levers I, ratchets I', axles C, and driving-wheel C', constructed and arranged substantially as herein shown and described.

2. The combination of the axle D, wheels D', ratchet G', pawl and spring *e*, pinion G, gear-wheel F', frame E', springs F'', chain-wheel F''', and chain F''', with the hinged frame-section A', substantially as and for the purpose described.

3. The combination of the chain-wheel L'', gear-wheel L', pinion H', eccentrics H'', ratchet-levers I, ratchets I', and axle C, substantially as herein shown and described, for the purpose of driving the wheels C'.

4. In combination with the axles C and B, the pinion N, rack N', levers N'' and *s*, rod *q*, and guide *t*, substantially as herein shown and described, for changing the direction of the carriage.

5. The combination of the brake-lever M, plate M', and brake-rod *o*, substantially as herein shown and described, that operate to force the brake-shoes *v* in contact with the edges of the wheels C'.

JAMES A. MOORE.

Witnesses:

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ISAAC EDWIN HENDRICKSON.