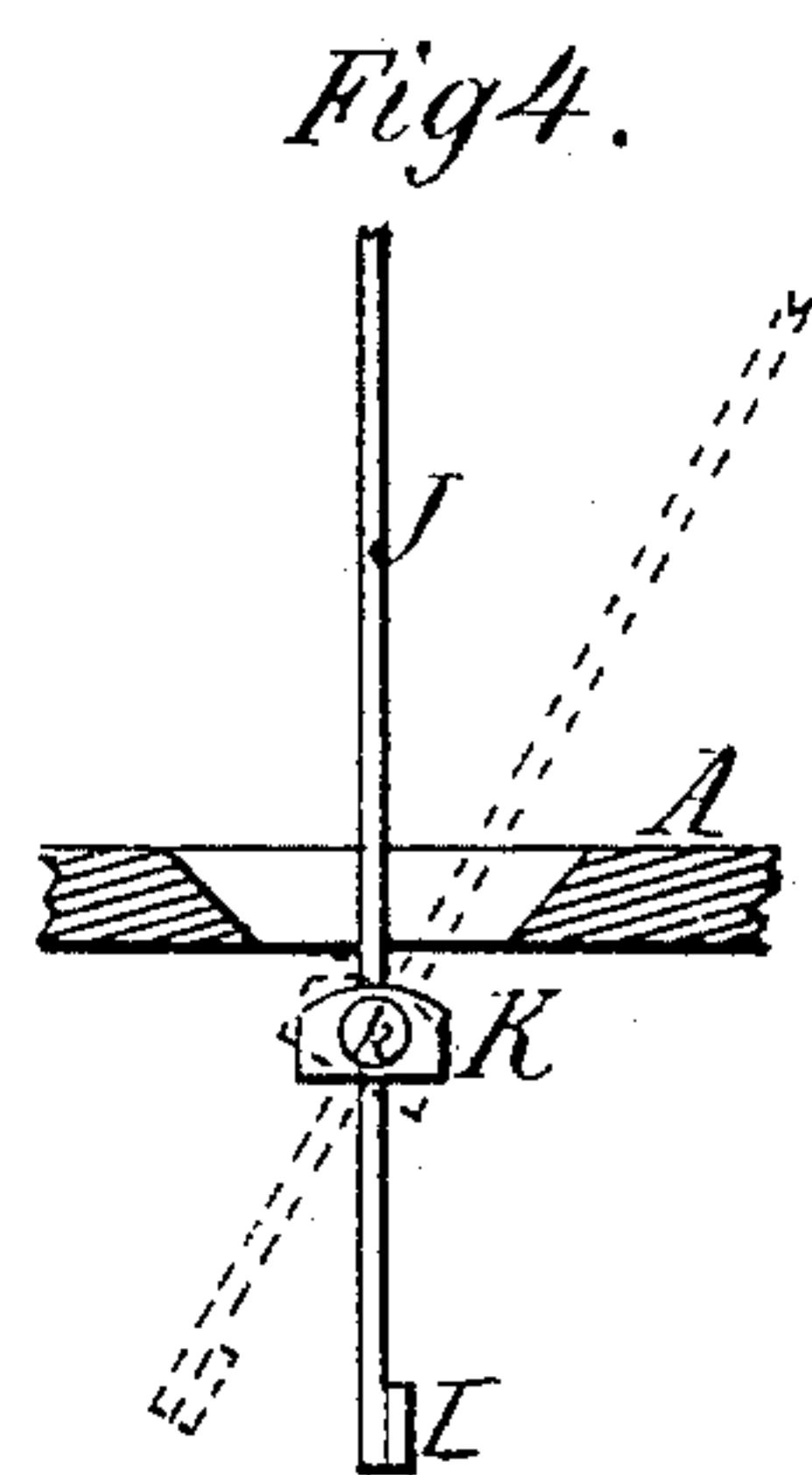
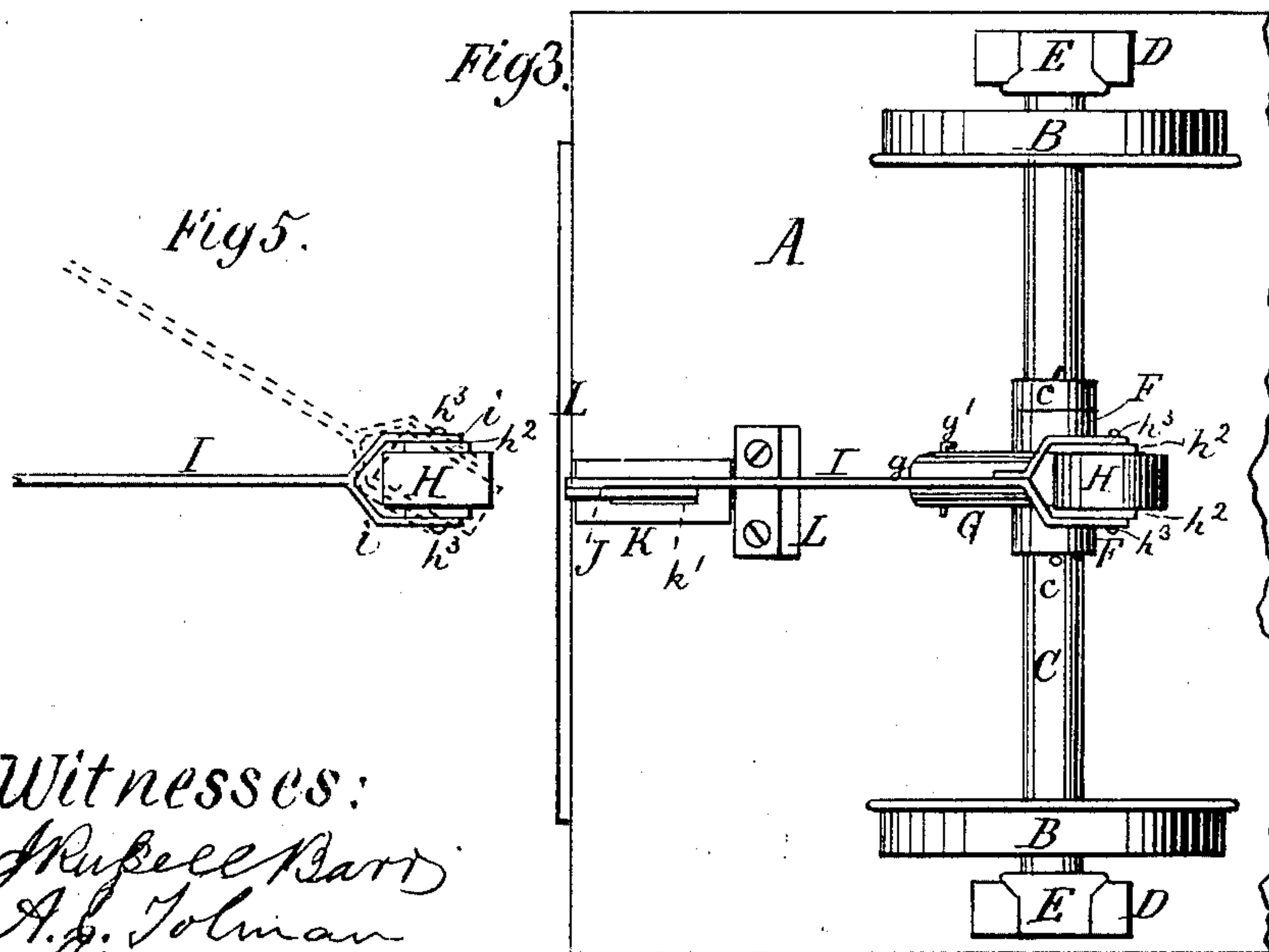
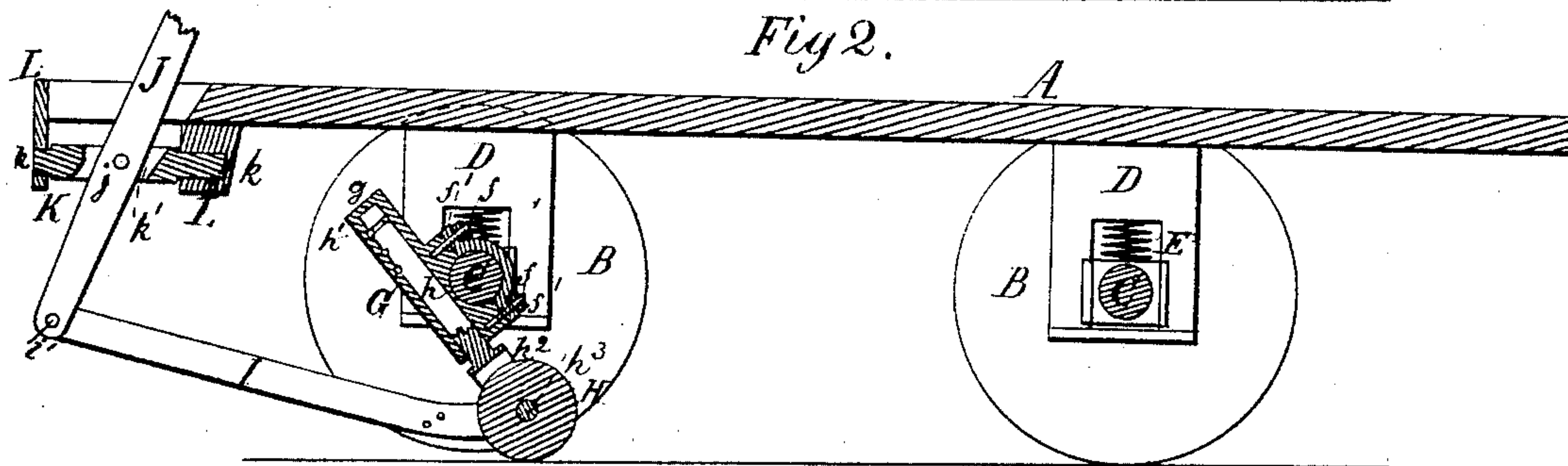
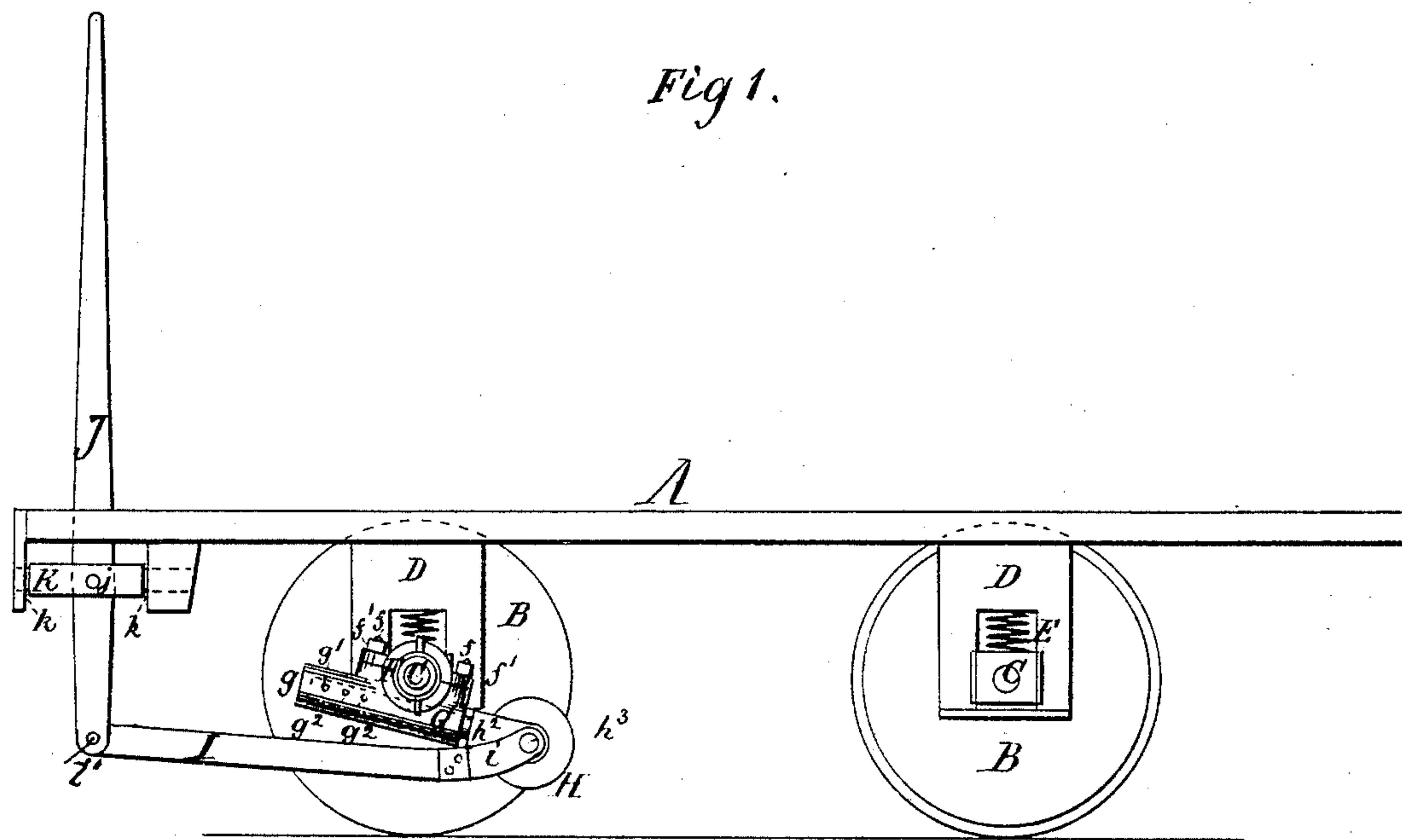


J. P. T. LANG.
Car-Replacer.

No. 223,290.

Patented Jan. 6, 1880.



Witnesses:
Russell Barr
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UNITED STATES PATENT OFFICE.

J. P. THEODORE LANG, OF WASHINGTON, DISTRICT OF COLUMBIA.

CAR-REPLACER.

SPECIFICATION forming part of Letters Patent No. 223,290, dated January 6, 1880.

Application filed November 13, 1879.

To all whom it may concern:

Be it known that I, J. P. THEODORE LANG, of the city of Washington, in the District of Columbia, have invented a new and useful Improvement in Car-Replacers, of which the following is a specification.

My invention is a device for facilitating the replacement of street-cars upon their tracks and for preventing said cars from leaving their tracks in turning short curves.

The first and chief object of my invention is to enable the driver of the car to lift the car axle and wheels which have left the track from the ground by one motion of his hand, and without leaving the car or his place upon the platform, and without stopping the car or releasing his hold on the reins, and to guide the car easily and quickly to its track. This is accomplished by a caster-wheel made to swing around the car-axle by means of a hand-lever on the platform with suitable connections, which caster-wheel treads the ground at a greater distance from the center of the axle than the flanges of the car-wheels.

The other object of my invention is to enable the driver to prevent the car, while turning a short curve of the track or while passing over casual obstructions upon the track, from being thrown from the track. This is accomplished by giving the above-mentioned hand-lever a laterally-swinging motion upon a universal-joint fulcrum, whereby the caster-wheel can be turned at an angle with the center line of the car, and when thus turned and forced upon the ground without lifting the wheels the caster-wheel will guide the car in a direction counteracting the wrong direction of the car.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a car-platform provided with my improved car-replacer, one wheel being removed to expose the parts otherwise hidden from view. Fig. 2 is a vertical central longitudinal section of the same. Fig. 3 is a detail bottom view of my replacer and therewith-immediately-connected parts of the car. Fig. 4 is a detail view of the operating hand-lever. Fig. 5 is a detail view of the caster-wheel and its connecting-rod.

A represents an ordinary car-platform; B,

the wheels; C, axles; D, housings, and E spring-bearings.

One of the axles C, as shown, is provided with a divided sleeve, F, screwed together by bolts *f* and nuts *f'*, and upon this sleeve, at a right angle, a tube-socket, G, is formed, into which socket the shank *h* of a caster-wheel, H, is inserted. The upper end, *g*, of the socket G is closed, and serves as abutment of the shank *h*, and a little distance below the end *g* the shank *h* is provided with an annular groove, *h'*, and a tangent-pin, *g'*, bearing in said groove, and, by passing through the socket at *g*², keeping the shank from falling out of the socket.

A number of holes, *g*², may be provided at different elevations to meet emergencies, as will be seen.

A forked head, *h*², of the shank *h* supports the caster-wheel H by means of its shaft *h*³, which shaft extends with both ends beyond the forked head *h*², and thus serves as means for connecting the forked end *i* of a connecting-rod, I, with said head.

The connecting-rod I is, by means of a pin, *i'*, attached to the lower arm of a hand-lever, J, and this hand-lever has a horizontal transverse fulcrum-pin, *j*, in a transversely-swinging fulcrum-box, K. The fulcrum-box K is provided with longitudinal horizontal journal-bearings *k*, hung in suitable bearing-blocks L on the car-platform, and with a longitudinal slot, *k'*, in which the hand-lever J is inserted.

The sleeve G is kept in a central position upon the car-axle by means of pins or collars *c'*.

The sleeve G may be made in one piece, and will then be slipped upon the car-axle before the wheels are fastened to it.

My invention may be modified by connecting a lever-arm with the swinging socket G at about a right angle with it and connecting it with the short arm of a bell-crank hand-lever. This modification will, however, only serve to lift the car without turning the shaft of the caster-wheel.

In applying my invention to steam-railway cars supported by trucks, my device would not need to be permanently fastened to the car, and on trucks with three axles a caster on the middle axle would suffice.

In practice, the car will be provided with a suitable spring-catch for holding the hand-le-

ver J in such position that it keeps the caster-wheel from the ground as long as its operation is not required. As this is an ordinary appliance used in all similar cases, a special illustration is not deemed necessary.

Operation: When the car has left the track the driver removes his hand from the crank of the brake-spindle, and, freeing the hand-lever J from its hold, moves it over until he finds that the car-wheels do not support the car. When the car is on the left side of the track, he swings the hand-lever laterally to the right side, as the dotted lines in Fig. 4 indicate, thereby causing the caster-wheel to be turned toward the track, as the dotted lines of the bottom view in Fig. 5 indicate, and vice versa. The caster-wheel thus acts as a rudder on a ship, and easily guides the car back to the track. The driver at the same time will allow the lifted car-wheels to graze the ground slightly, so as to be made aware by his feeling when the wheel-flanges pass over the high surfaces of the track, whereupon he quickly moves the lever back to its normal position, and the car is replaced on the track.

When the driver sees ahead of the car a curve in the track, which generally causes the cars to run off or be displaced, he turns the caster-wheel tangentially with the curve and bears on the hand-lever J with more or less force, whereby he deprives the car-wheels of the greater part of their supporting-weight and transmits it upon the caster-wheel, which, by means of its direction, has a tendency to firmly keep its course between the rails of the track.

In case the tracks are temporarily obstructed by mud, ice, gravel, or small stones, the car-driver can easily and with a little judgment prevent a displacement of the car.

This invention distinguishes itself from other inventions known to me for a similar purpose, inasmuch as in case of displacement of a car,

or in case of an effort to prevent such displacement, the ordinary functions of the driver and the horses are in no manner interrupted. The car need not be stopped. It is even not necessary to slack its speed.

It will also be seen that during its replacement the car-body rests upon the spring-bearings E, and thus the passengers are not subjected to the jolts of a caster-wheel fastened directly to the car-platform.

It will further be seen that with my invention it requires a lift of the car of no more than the height of the wheel-flanges—say one and a half inch—to begin the replacement of the car, while with caster-wheels on the car-body the play of the axle-bearings in their housings must be overcome, which sometimes necessitates a lift of from six to eight inches, thus making the operation difficult and slow, and causing inconvenience to passengers.

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

1. In combination with a car-axle, a caster-wheel constructed to swing vertically around the car-axle and horizontally with its shank, and suitable connections for its operation by hand, substantially as and for the purpose set forth.

2. The combination of the caster H, lever J, and swinging fulcrum K, and connection I, substantially as and for the purpose set forth.

3. The combination, with a car-axle, of a caster-wheel hung thereon, and adapted to swing around the same and raise the truck to which it is applied from the ground, and suitable means in the control of the driver for operating the same, substantially as described.

J. P. THEODORE LANG.

Witnesses:

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