

(No Model.)

2 Sheets—Sheet 1.

C. E. HEALY.
DRIVING MECHANISM FOR CARS.

No. 431,115.

Patented July 1, 1890.

Fig. 1.

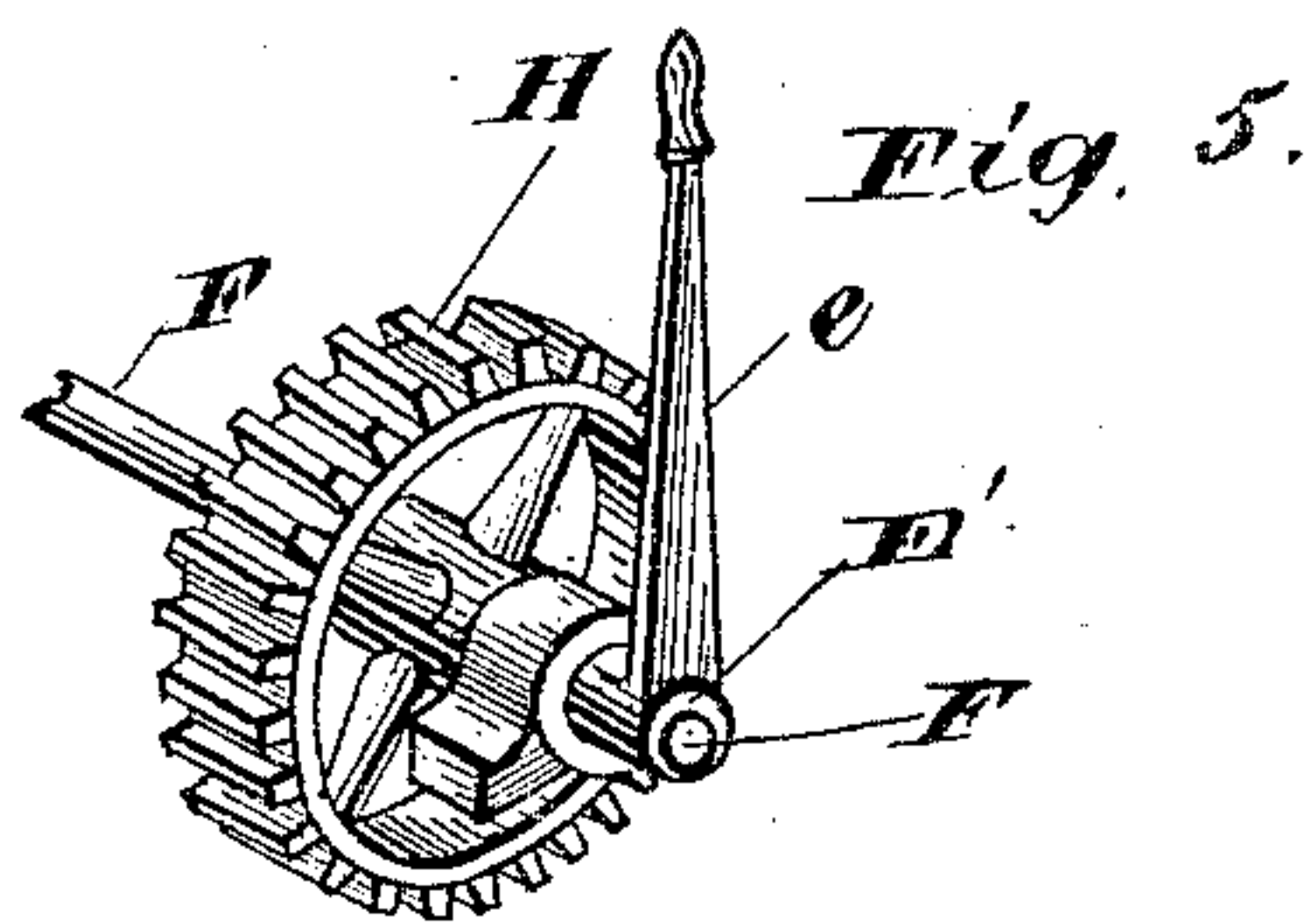
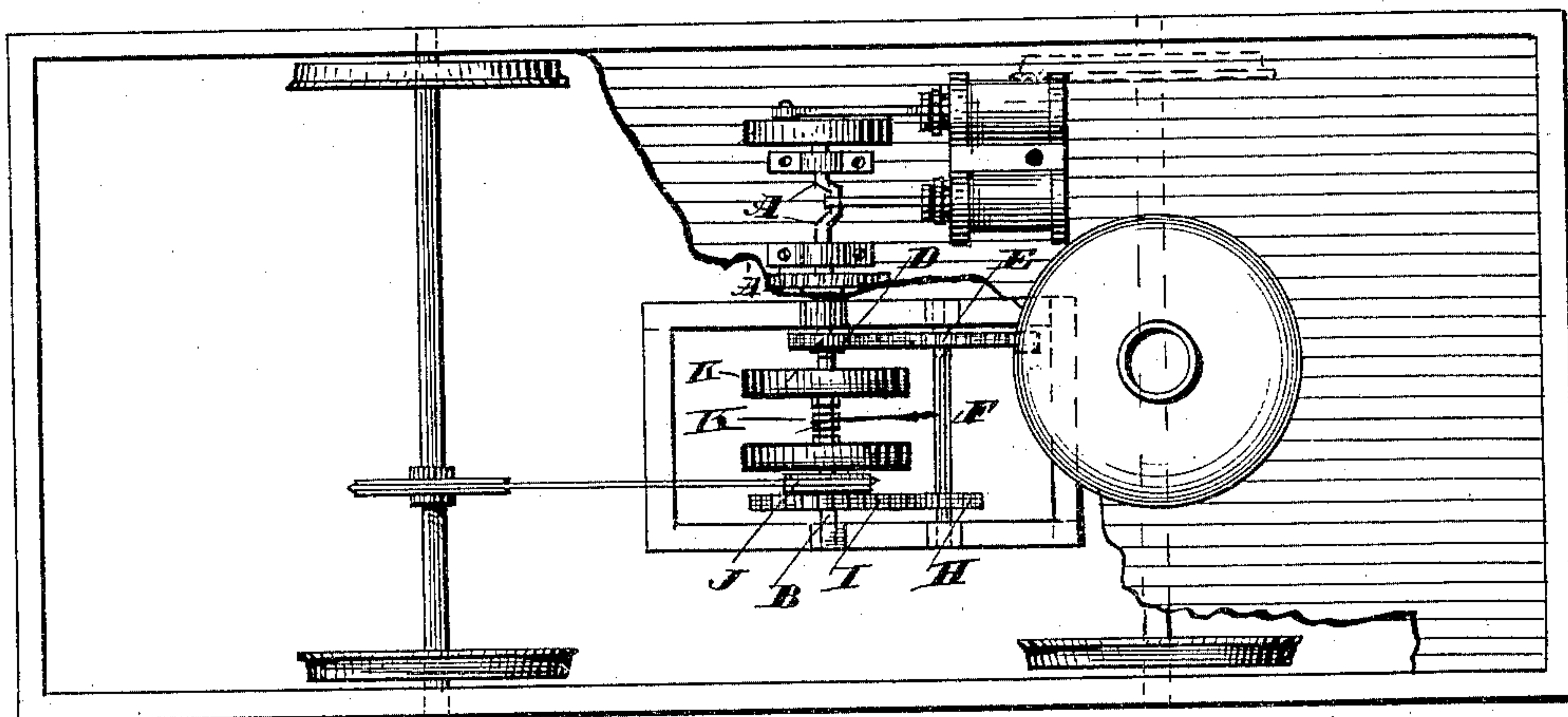
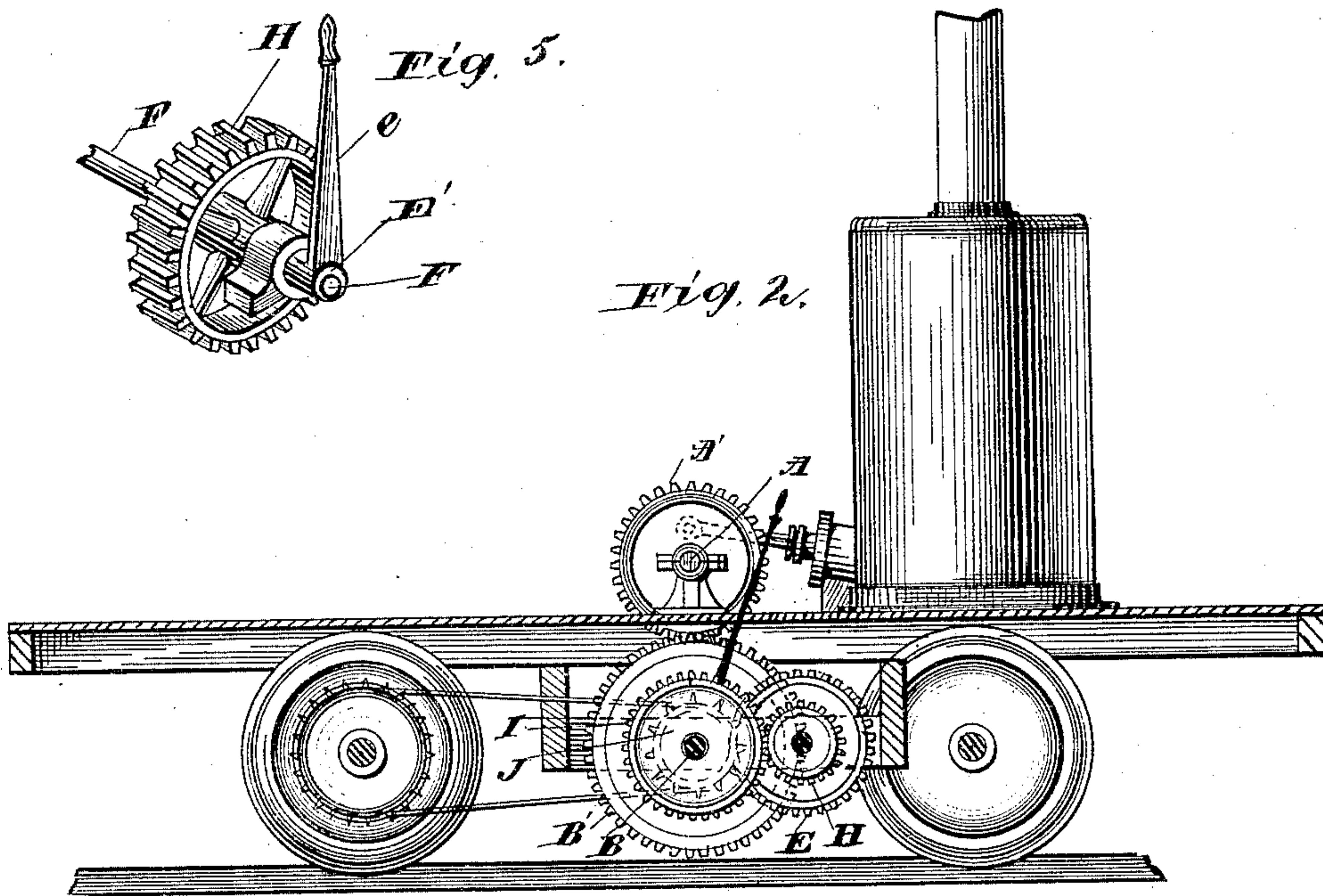


Fig. 2.



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Fig. 3.

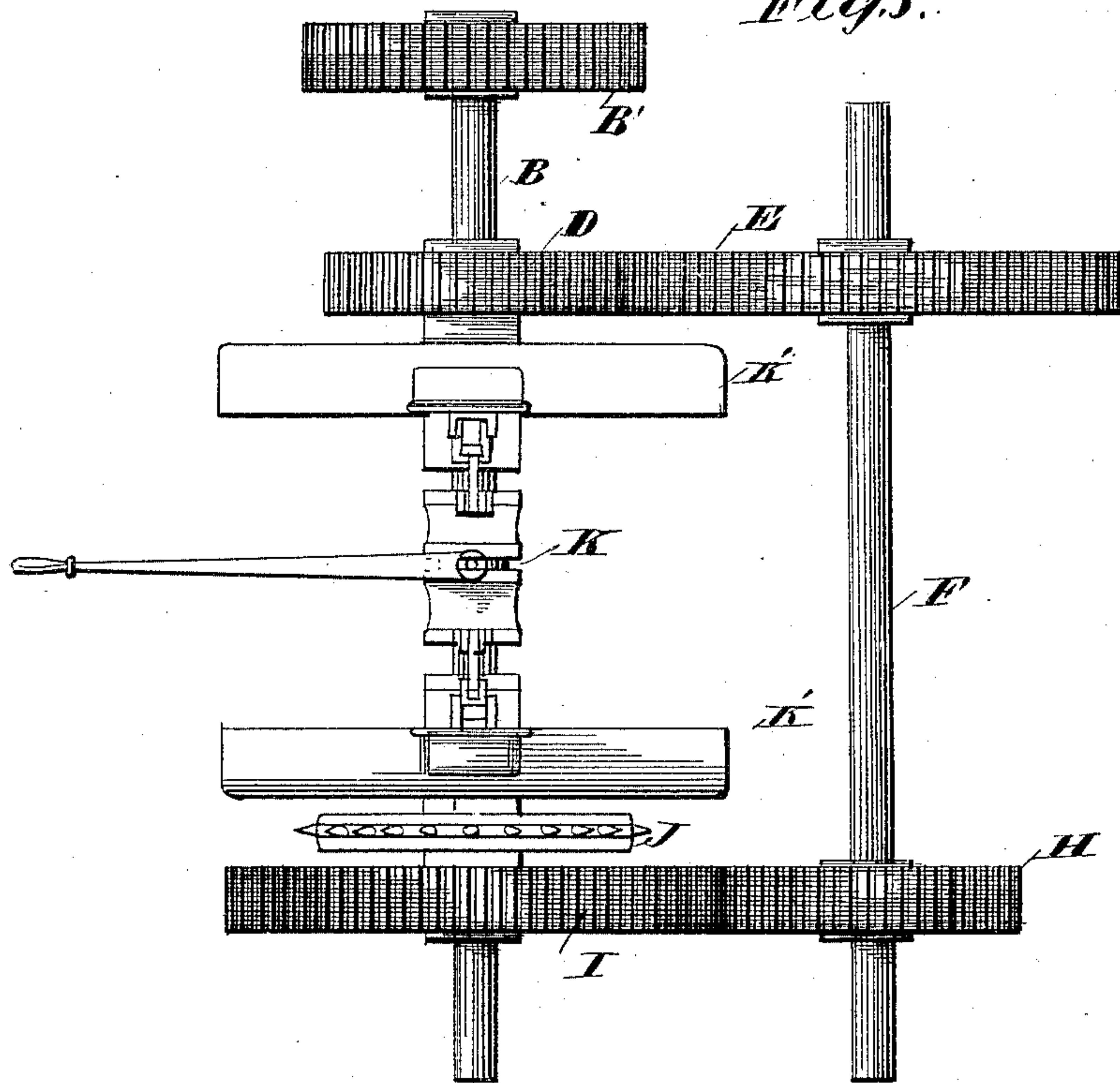
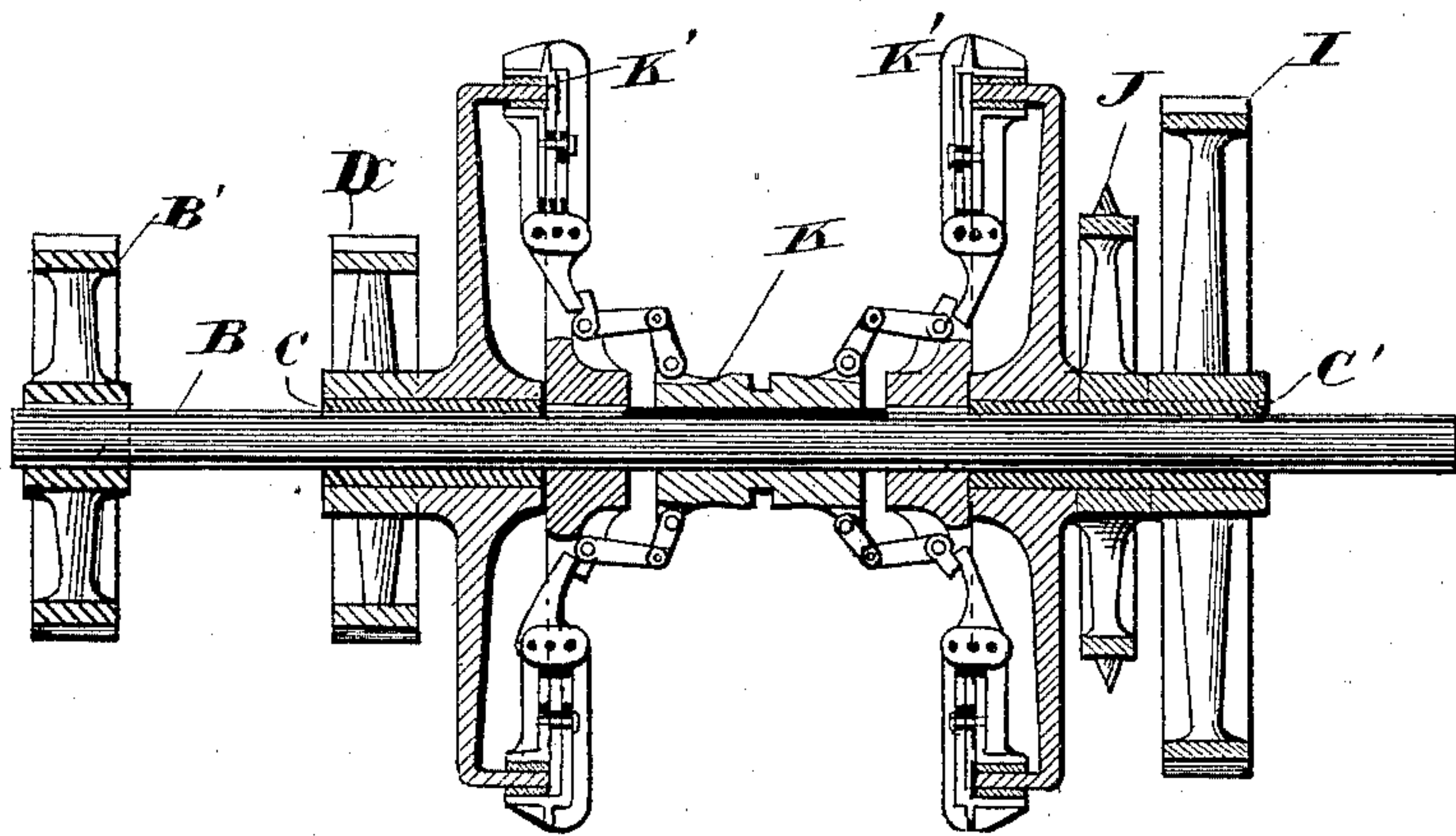


Fig. 4.



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UNITED STATES PATENT OFFICE.

CALEB E. HEALY, OF NEW LONDON, OHIO.

DRIVING MECHANISM FOR CARS.

SPECIFICATION forming part of Letters Patent No. 431,115, dated July 1, 1890.

Application filed May 2, 1890. Serial No. 350,399. (No model.)

To all whom it may concern:

Be it known that I, CALEB E. HEALY, a citizen of the United States, and a resident of New London, county of Huron, State of Ohio, have invented certain new and useful Improvements in Driving Mechanism for Cars, of which I hereby declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in driving mechanism for cars; and its objects are to produce a simple, positive, and efficient device by means of which the car may be started under a full load, maintained at a uniform high speed for travel, or assisted in climbing steep gradients, or conveying heavy loads without detaching the motor from the driving-shaft or main shaft or altering the speed of the driving-shaft.

My invention consists in the application of auxiliary gearing and shaft, with the accompanying sleeves, clutches, details of construction, and combination of parts, as are herein-after described, shown in the drawings, and more particularly pointed out in the claims.

In the accompanying drawings, Figure 1 shows a plan view of an engine-platform and my improved device attached. Fig. 2 is a side elevation, in longitudinal section, of the same. Fig. 3 is an enlarged plan view of the portions embodying my invention. Fig. 4 is a vertical longitudinal section through line A A, Fig. 3; and Fig. 5 is a modification in detail. A in the drawings represents the engine-shaft.

B is a main shaft gearing directly to the engine-shaft.

C and C', Fig. 4, are loose sleeves upon either end of the shaft B, inside of its bearings, to which are keyed the pinion D, (and to the outer sleeve C',) the gear-wheel I, and sprocket-wheel J. Gear E and pinion H, respectively, connect this pinion D and gear I with the shaft F, which lies in parallel bearings to the shaft B. Clutches, as K', keyed to the shaft B, connect the loose sleeves C and C' with the shaft. These clutches are operated at K centrally on the shaft, and release one sleeve while securing the other.

The operation of the mechanism and its effects on the speed of the car will be seen to

be as follows: The engine-shaft A and main shaft B being in motion, supposing the clutches K' to be centrally placed, it will be seen that both sleeves with superimposed gearing will remain stationary upon the shaft and will not revolve until one of the clutches K' operates to secure the corresponding sleeve to the shaft. If the sleeve C' is secured, the sprocket-wheel J comes into play and drives the car-axle, as shown in Figs. 1 and 2. The sprocket-wheel J travels at the same speed as the shaft B. If, however, the sleeve C is secured to the shaft B, the pinion D, meshing with the wheel E, then drives the shaft F and pinion H, which in turn communicates with the wheel I and sprocket-wheel J, both rigid on the sleeve C'. By the means last described any desired speed can be given the sprocket-wheel J, since any proportion of pinions D and H to spur-wheels E and I may be employed. As shown, the pinions are so reduced as to lessen the speed of the wheel J to about one-third of the speed of the shaft B. It will readily be seen that the gearing on either end of the shaft B may be engaged or dropped at pleasure quite regardless of the movements of the engine or the shaft B.

In Fig. 5 a method is shown for detaching the gearing on the auxiliary shaft F when it is not in use, as in a stretch of level country where full speed can be maintained, the advantage being that the gears will not revolve and become worn when disengaged, and the consequent noise will be prevented. The device, it will be seen, consists of the eccentric sleeve-bearing E' and lever e'. Other devices, however, may be used for this purpose equally well.

The advantages of the device shown are obvious from its simplicity and perfection of movement. It will be seen that it can not only be utilized in overcoming the inertia of the car in starting and put it in motion without strain upon the engine, but by including the train of gear at any time the power may be increased as needed for extra loads, steep inclines, &c.

I do not confine myself entirely to either the form of clutches or detaching device shown, nor to the specific forms of any of the parts or details of construction as shown; but

What I claim as new, and desire to secure by Letters Patent, is—

1. In car-driving mechanism, a main shaft, as B, provided with clutches, as K' K', sleeves, 5 as C and C', loose upon the shaft, the sleeve C provided with the pinion D and sleeve C' provided with the spur-wheel I and sprocket J, in combination with the auxiliary shaft F, and gear and pinion E and H, substantially 10 as described.

2. In car-driving mechanism, means for changing the speed, consisting of an auxiliary shaft to the main shaft, gears upon the auxiliary shaft communicating with gears upon

loose sleeves upon the main shaft, a driving- 15 wheel upon one of the sleeves, and means for disconnecting the driving-shaft from one or both of the sleeves, in combination with means for disengaging one or more of the gears on the auxiliary shaft from the corresponding 20 gear on the main shaft when the reduction in speed is not required, substantially as and in the manner described.

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