(No Model.) 2 Sheets—Sheet 1.

E. FALES.

DEVICE FOR STARTING CARS.

No. 403,582. Patented May 21, 1889.

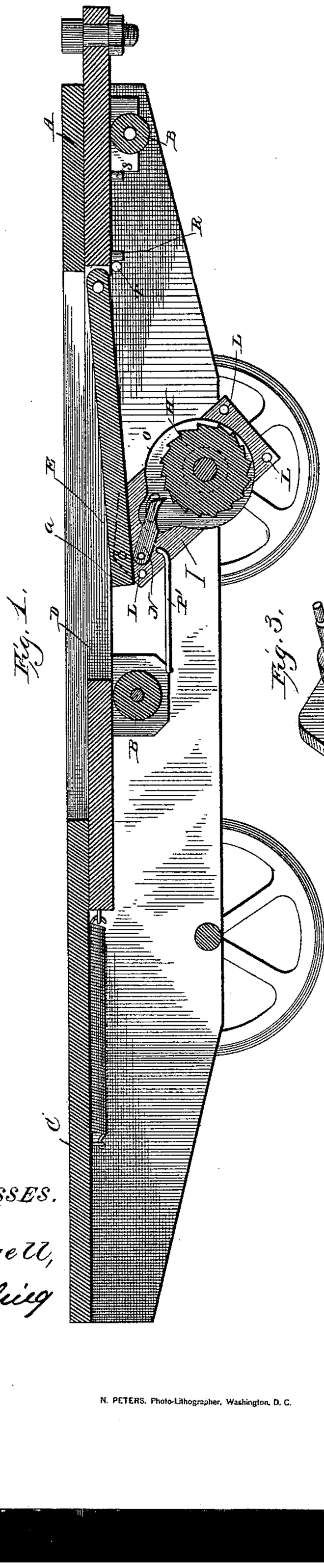

Fig. 1.

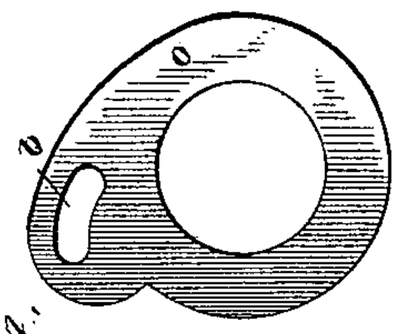

Fig. 4.

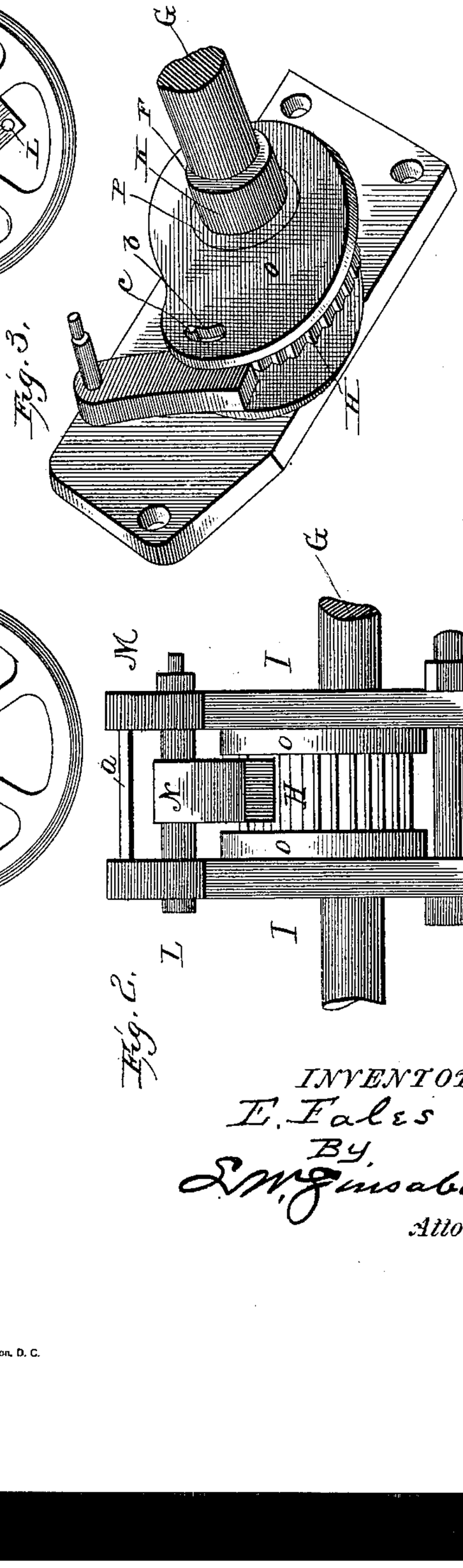

Fig. 3.

Fig. 2.

WITNESSES.

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(No Model.) 2 Sheets—Sheet 2.

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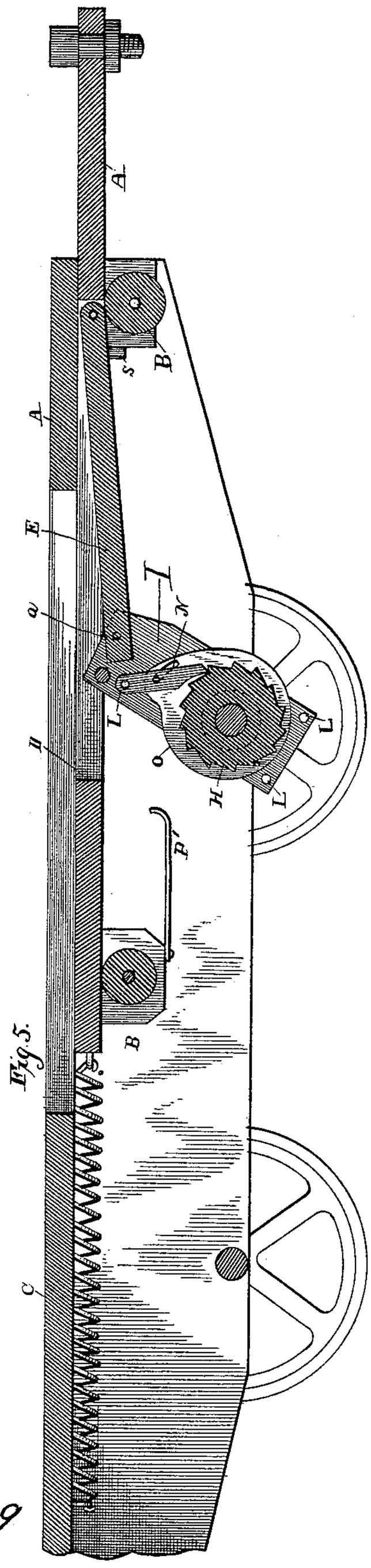

Fig. 5.

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UNITED STATES PATENT OFFICE.

EDWARD FALES, OF CLEVELAND, OHIO.

DEVICE FOR STARTING CARS.

SPECIFICATION forming part of Letters Patent No. 403,582, dated May 21, 1889.

Application filed August 6, 1888. Serial No. 282,105. (No model.)

To all whom it may concern:

Be it known that I, EDWARD FALES, a citizen of the United States, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Devices for Starting Cars and for other Purposes; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in devices for starting cars and for other purposes.

The object of my invention is to provide a cheap and reliable device for starting cars and other bodies from a state of rest, as will be fully described hereinafter, and pointed out in the claims.

Referring to the drawings, Figure 1 is a sectional view of my device, together with a longitudinal sectional view of a car. Fig. 2 is a front view of my device. Fig. 3 is a view in perspective of my device with one side removed. Fig. 4 is a detached view of one of the pawl-operating disks. Fig. 5 is a longitudinal sectional view of a car with my device, showing the draw-bar in forward position.

A indicates a bar or frame mounted on friction-rollers B and adapted to work back and forth in a suitable chamber located below the floor of the car. The front end of the bar A is provided with any suitable device for the convenient attachment of the double or single trees ordinarily used.

C is a spring, one end of which is secured to the rear end of the bar or frame A, while the other end of the spring is secured to the under side of the floor of the car or other stationary object.

The central portion of the bar or frame A is provided with an opening, D, in which is pivoted at one end the bar or pitman E, the function of which will be more fully described hereinafter.

F is a sleeve or hub adapted to be slipped onto the axle G, and is rigidly secured to the same in any convenient manner, said sleeve being provided with a series of offsets or enlarged portions to receive the pawl-operating levers and the disks for controlling the pawl, in a manner which will presently appear, while the periphery of the central and largest part of the sleeve or hub F is notched to form the ratchet-teeth H.

I are levers adapted to fit loosely on the offsets K at the outer ends of the hub or sleeve F, said levers being joined together by means of suitable shouldered bolts, L, so as to form a rigid frame, M.

N is a pawl, pivoted at its upper end in the frame M, while its lower end is adapted to engage the teeth H of the ratchet-wheel when the upper end of the frame M is drawn forward.

The pawl N is so constructed that the rear side comes in contact with the teeth of the ratchet-wheel, as shown in Fig. 1, so that the body of the pawl will not come in contact with any other portion of the ratchet-wheel except at the point of impingement on the teeth.

The upper end of the frame M is secured to the rear end of the bar E by means of the pin *a*, and by which means the upper end of the frame M is drawn forward when the draft is applied to the end of the bar or frame A.

O are wheels or disks loosely mounted on the offsets P of the hub or sleeve F and between the levers I and the enlarged portion of the sleeve, forming the ratchet-wheel, said disks being provided with eccentric slots *b* to receive the ends of the pin *c*, which passes through the pawl N, the shape of the slots *b* being such that the pawl is raised and held from engagement with the ratchet when the top of the lever-frame M is drawn to the rear by the force of the spring C; but when the top of the lever-frame is drawn forward the slots, acting on the end of the pin *c*, will bring the pawl into contact with one of the teeth of the ratchet-wheel.

P′ is a bar or rod, one end of which is secured to the cross-timbers of the car, while the other end projects forward and comes in contact with the under side of the pawl and holds the same up when the bar A has been drawn back by the spring and thus allow the car to move backward and forward by hand; but when the car is moved forward, by the application of power to the end of the bar A, the

pawl is freed from contact with the bar P and engages with the teeth of the ratchet-wheel, and thus obviates any lost motion.

R is a pin or stud secured in the under side of the bar or frame A, and is adapted to come in contact with the cross-piece S, and thus prevent the bar from being drawn out too far; and in practice I place one of these studs or pins on each side of the frame A.

T are pins (one at each side of the bar or frame) secured in the timbers, forming the bottom of the car, the office or function of these pins being to stop the bar or frame and limit its rearward movement, when the studs R come in contact therewith.

The operation of my device is as follows: When power is applied to the bar A to move the car forward, the top of the frame M is drawn forward. This causes the pin *c* of the pawl to move downward in the slots *b* and bring the pawl into contact with the ratchet-wheel, and the continued application of the power from the draft of the animals or from any other source turns the ratchet-wheel and starts and moves the car or other body, the frame M acting as a lever. When the bar A has moved forward so as to bring the pins R in contact with the cross-bar or hanger S, the friction of the wheels or disks O on the sleeve F, being greater than the friction of the pins *c* in the slots *b*, causes them to move forward until arrested by said pin *c* on the pawl, the eccentric shape of the slots *b* serving to hold the pawl out of engagement with the ratchet-teeth, and thus prevent the clicking sound incident to devices of this kind, and also prevent the wearing off of the ratchet-teeth and the end of the pawl.

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

1. In a device for starting cars and for analogous uses, the disks O, mounted on the hub of the ratchet-wheel, so as to offer a slight frictional resistance, as described, and the pawl flexibly connected to said disks, whereby the pawl is thrown into or out of engagement with the teeth of the ratchet-wheel by the movement of the axle.

2. In a device for starting cars and for analogous uses, the wheels or disks O, movably mounted on the hub or sleeve F, said disks being provided with eccentric slots to receive the pins for holding the pawl, as set forth.

3. In a device for starting cars and for analogous uses, the wheels or disks O, provided with eccentric slots and mounted on the hub F and in the frame M, as described, and the pawl provided with the pin *c*, for engagement with the slots *b* in said disks, as set forth.

4. In a device for starting cars and for analogous uses, the ratchet-wheel rigidly secured to the axle, the disks or wheels O, mounted loosely on the hub of the ratchet-wheel, and the pawl connected to the disks, so as to be thrown in or out of engagement with the teeth of the ratchet-wheel, as set forth.

5. In a device for starting cars and for analogous uses, the ratchet sleeve or hub F, having the offsets, said offsets being adapted to receive the bars I, forming the lever-frame M, and the wheels or disks for operating the pawl carried by said frame, as set forth.

6. In a device for starting cars, the swinging frame provided with the pawl for engagement with the ratchet-wheel, in combination with the rod for holding the pawl out of engagement with the ratchet, as set forth.

7. The bar A, mounted on friction-rollers B, and provided with pin R, in combination with the stops S and T and spring C, as set forth.

In testimony whereof I affix my signature in presence of two subscribing witnesses.

EDWARD FALES.

Witnesses:
L. W. SINSABAUGH,
D. B. GALLATIN.