

(No Model.)

E. B. WEST.

CAR BRAKE AND STARTER.

No. 279,999.

Patented June 26, 1883.

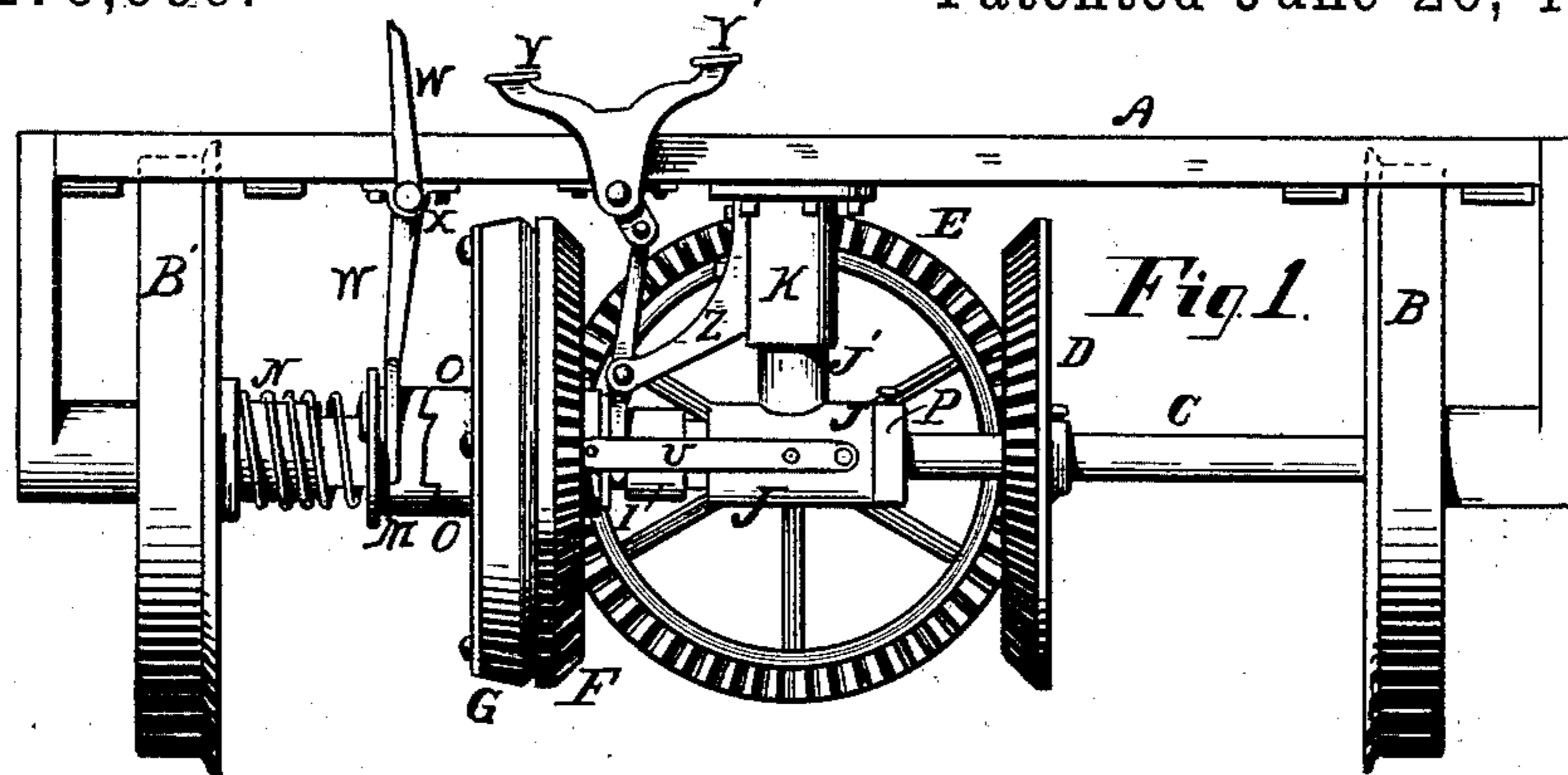


Fig. 2.

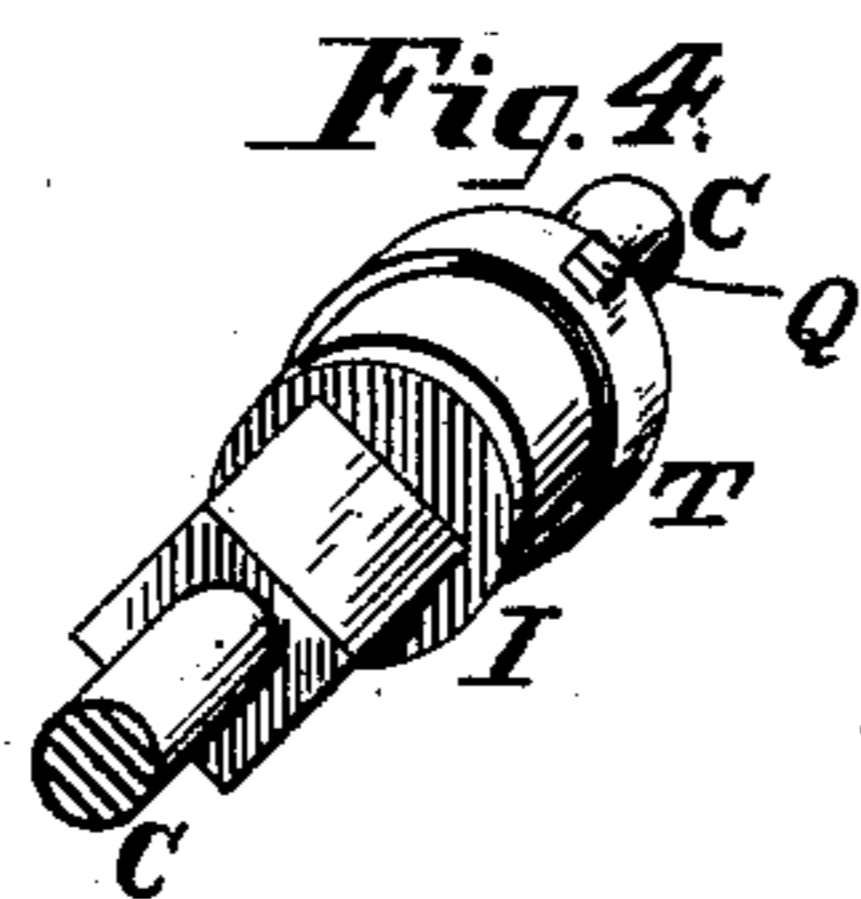
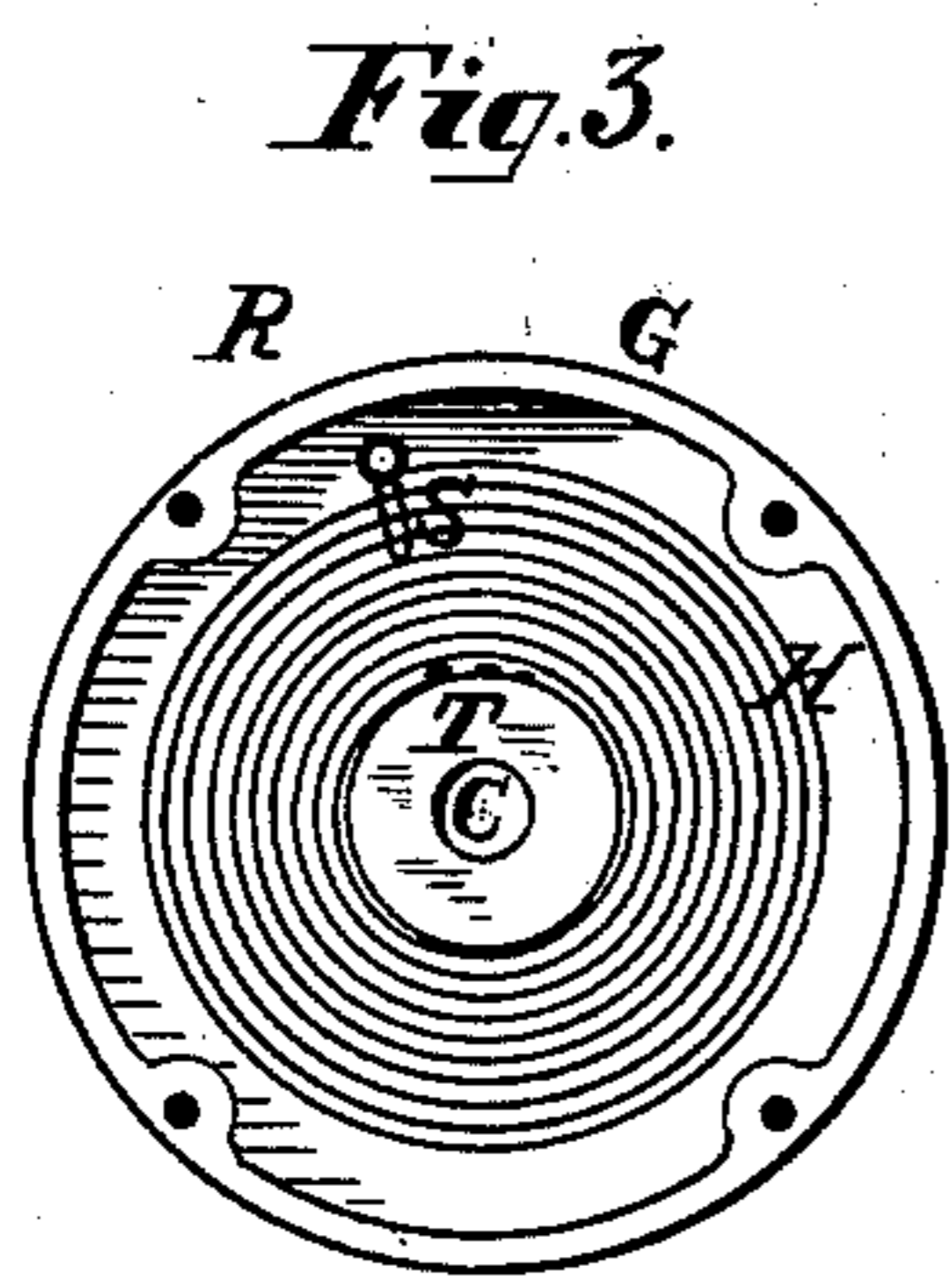
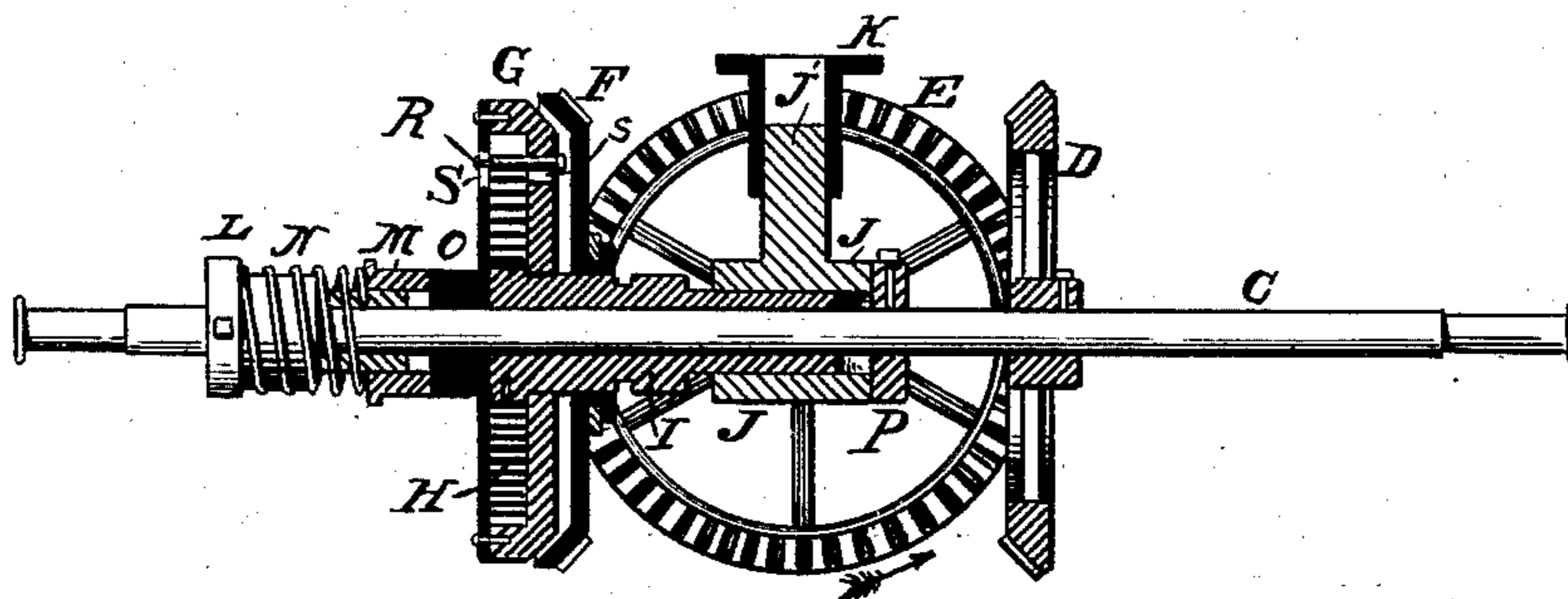
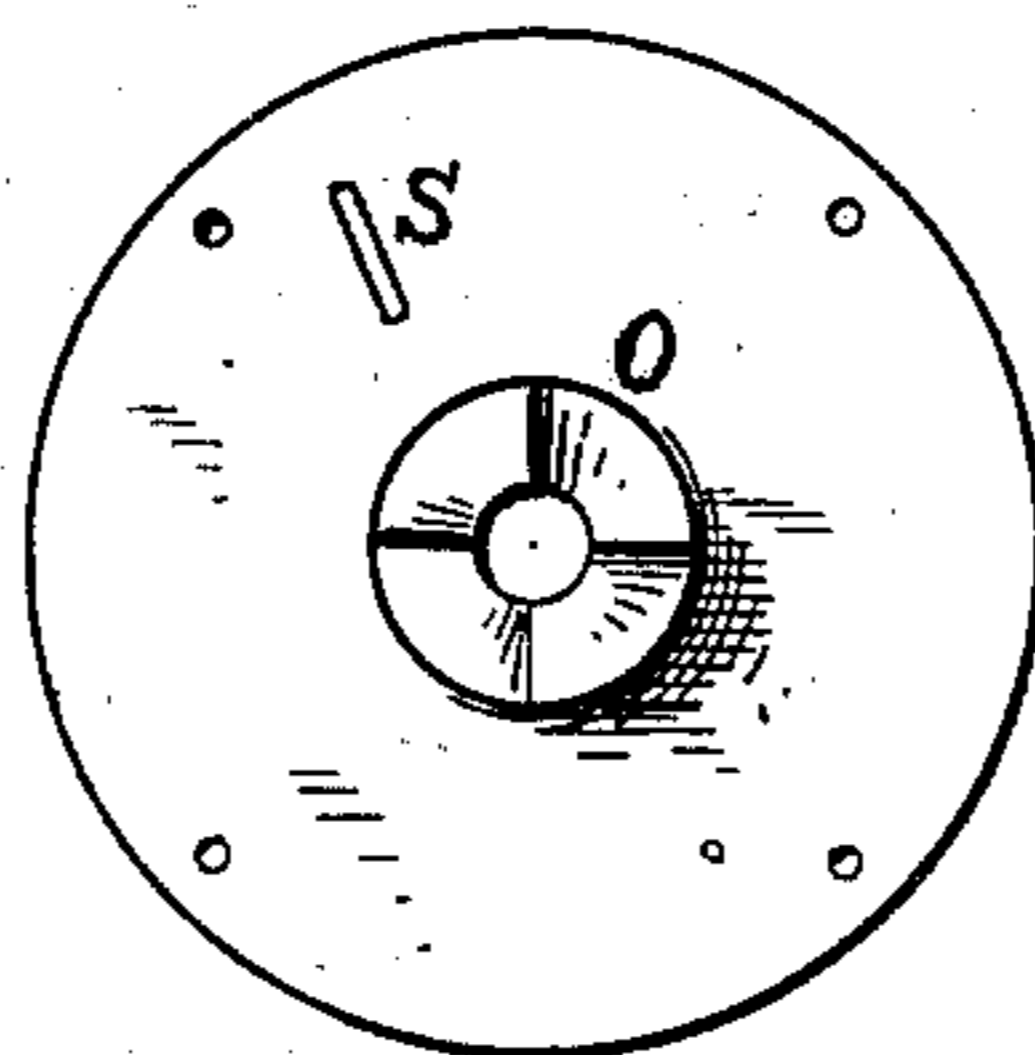


Fig. 6.



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CAR BRAKE AND STARTER.

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To all whom it may concern:

Be it known that I, EDMUND B. WEST, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented a new and useful Improvement in a Combined Car Brake and Starter; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making part hereof.

The nature of my invention will fully appear from the following description and claims.

In the drawings, Figure 1 is a front view of my device; Fig. 2, a partial section of the same and part front view; Fig. 3, a detached view of the hollow friction drum or wheel, showing the interior coiled spring; Fig. 4, a detached perspective view of the sleeve which envelops the car-axle and to the head of which is attached the inner end of the coiled spring, the hollow drum, and the beveled cog-wheel which imparts motion directly to the drum. This beveled cog-wheel turns upon this hollow sleeve, which is also used to throw the hollow drum into and out of frictional contact with its actuating cog-wheel; Fig. 5, a detached perspective view of a hollow sleeve having a square bore, which receives the square end of the sleeve shown in Fig. 4, in which square bore the said square end reciprocates and is prevented from turning. An upwardly-projecting lug from the square-bored sleeve fits loosely into a socket above and prevents the last-named sleeve from turning. This socket is composed of a short cylinder secured to the bottom of the car. A yoke and collar are also attached to this sleeve, which collar sets around a flanged neck attached to the friction cog-wheel to hold the latter in place; Fig. 6, a detached view of the covering-plate for the hollow drum containing the spring, showing, also, in front view, the ratchet-hub secured thereto; Fig. 7, a detached perspective view of a ratchet-sleeve designed to be thrown into and out of gear with the ratchet-hub shown in Fig. 6 by a spiral spring set behind it. This ratchet-sleeve has a square bore, and is turned by means of a square collar secured rigidly to the axle of the car, as will be more fully hereinafter set forth.

A, Fig. 1, represents the bottom planking of the car-platform, to which the brake-lever is attached.

B B' are the wheels of the car; C, the axle, attached rigidly to the wheels; D, a beveled cog-wheel, secured rigidly, by a set-screw or otherwise, upon axle C; E, a beveled cog-wheel to communicate motion from wheel D to the beveled friction cog-wheel F; G, a hollow friction-drum containing the coiled spring H. (See Figs. 2 and 3.)

I is a hollow sleeve enveloping part of the axle C, and in which the latter turns. The drum G turns upon one end of this hollow sleeve, being held in place by an enlargement or flange upon the head of the latter. (See Figs. 2 and 4.)

J is a square-bored hollow sleeve, receiving the square end of sleeve I, and having attached to it the outwardly-projecting lug or piston J', which latter sets in the cylindrical socket K, said cylindrical socket being rigidly attached to the bottom of the car by means of a flange and bolts. The object of this projection J' and sleeve K is to allow for the upward and downward movement of the body of the car upon the car-springs.

The revolving cog-wheel E turns upon a pin projecting from the lower end of a hanger, which is rigidly attached at its upper end to the bottom of the car. This hanger is not shown in the drawings, but is of ordinary construction.

L is an enlargement of the axle, or a collar set rigidly upon the same, the inner end of which is square, and has set upon it the reciprocating square ratchet-collar M. A spiral spring, N, acts to throw or press this ratchet-collar against the ratchet-hub O of the hollow drum G.

P is a collar fixed upon the axle to hold the parts in place.

Q, Fig. 4, represents the bolt or screw by means of which the inner end of the coiled spring H is attached to the enlarged end of the sleeve I, within the drum G. The outer end of this coiled spring is attached to a cross-pin, R, which at each end rests in slots S S in the two opposite plates of the drum G, to enable the coil to contract or decrease in diameter as it is more tightly wound upon the enlarged end

of sleeve I. I designate this enlarged end of sleeve I by the letter T in the drawings. (See Fig. 4.)

U U (see Figs. 1 and 5) are yoke-arms, secured by screws or other suitable means to the square-bored sleeve J, and sustaining at their other ends the ring or collar V, which surrounds a flanged neck upon the beveled friction-cog F to hold the latter in place.

W, Fig. 1, is a lever pivoted at X, by the lateral motion of which in one direction the ratchet-sleeve M is thrown out of gear with the ratchet-hub O, thus permitting the said ratchet-sleeve to turn freely with the axle.

Y Y', Fig. 1, is a pivoted foot-lever, having attached thereto suitably-jointed rods, as shown, the lower one terminating in a forked or U-shaped end, which latter loosely clasps the sleeve I by a groove or neck in the latter, this lever and its connecting-arms being designed by lateral movement to shift or reciprocate the sleeve I, whereby the drum G is thrown into and out of frictional contact with the smooth face of friction cog-wheel F. A hand-lever could be substituted for the foot-lever above described.

The operation of my device is as follows: When the car to which my device has been attached is running free, the drum G is allowed to remain out of contact with the face of wheel F, and the spring H is therefore in a relaxed condition. The motion of the car will turn the axle C and set the beveled cogs D E F in motion. The motion of the car being forward, the direction of the movement of the cog-wheels will be such as will be deduced from the direction of the turn of cog-wheel E, as indicated by the arrow in Fig. 2. When it is designed to brake or stop the car, the foot of the driver is pressed upon the arm Y' of the foot-lever, which will throw the sleeve I toward the middle of the axle, and thus draw the drum G into frictional contact with the cog wheel or plate F, which latter is revolving in a direction contrary to that of the car-wheels and of cog-wheel D. As the sleeve I, with its stationary head T, to which the inner end of the coiled spring H is secured, is stationary, and as the drum G, by friction with the cog-wheel F, is by its contact made to revolve rapidly backward, it follows that the spring H will be quickly and tightly wound upon the motionless head T. When the spring is tightly wound up the cog-wheel F will be no longer capable of turning it, which will check and stop the cog-wheel F, and consequently wheels E and D and the axle C, which latter, being rigidly set in the car-wheels, will prevent the car-wheels from turning. When it is desired to start the car again, the action of the lever Y Y' is reversed by forcing down the arm Y of the same. This pushes the sleeve I in a direction away from the middle of the axle, and the drum G is thus removed from contact with wheel F; but the ratchet-hub O of the latter is thus brought into operative

contact with the ratchet-sleeve M, which has a square bore, and is set upon a square enlargement of the axle, or upon a square collar rigidly secured to the axle. Now, as the spring H is wound up tightly its tendency is to uncoil and relax, and in its effort to do so it will reverse the motion of the drum G by which it was wound up, and consequently of the hub O and square-bored ratchet-sleeve M, which will operate or tend to start the car. If, after the spring H has been tightly wound up, it is desired to back the car for a short distance, the drum G is allowed to remain in frictional contact with the wheel F, and the ratchet-sleeve M is thrown out of gear with the hub O by means of a lateral movement of the lever W. The reverse action of the spring in uncoiling will now tend to reverse the motion of the wheels by whose movement it was coiled up. The motion of wheels F, E, and D, and consequently of the axle C and the car-wheels, will thus be reversed and the car moved backward. The cog-wheel F turns freely upon the round part of sleeve I, upon which it is set. When the car is running freely, there is no pressure applied to the lever Y Y', which will permit the faces of drum G and wheel F to traverse without friction, and the movement of sleeve M turning with the axle is in such a direction that its teeth do not engage with those of hub O. The drum G in such case remains stationary. The pressure of the spiral spring N against the sleeve M is too light to cause the pressure of the latter, by friction, to move the hub O.

Wherever I have mentioned in this description, and in my claims, "square ends reciprocating in square bored sleeves," I wish it to be understood that I do not confine myself to that precise construction, but desire thereby to embrace equivalent methods of securing the results thereby achieved. Any other polygonal form of said ends and bores could be substituted; or round ends in round-bored sleeves could be used, and feathers or keys and slots substituted for the polygonal forms described.

What I claim as new is—

1. In combination with the revolving axle C of a car, the cog-wheel F, revolved by suitable gearing, D E, the gear D being set rigidly upon said axle C, the laterally-reciprocating sleeve I, upon which cog-wheel F revolves, and friction-drum G, containing the coiled spring H, said spring being secured at its inner end to sleeve I, and at its outer end to drum G, the said drum being drawn into and out of frictional contact with the cog-wheel F by means of the lateral movement of sleeve I, operated by a lever from above, substantially as described.

2. In combination with the revolving axle C of a car, the cog-wheel F, revolved by suitable gearing, D E, the gear D being set rigidly upon the said axle C, the laterally-reciprocating sleeve I, upon which cog-wheel F re-

volves, and friction drum G, containing the coiled spring H, said spring being secured at its inner end to sleeve I, and at its outer end to the drum G, the said drum being drawn 5 into and out of frictional contact with the cog-wheel F by means of the lateral movement of sleeve I, operated by a lever from above, and the loose ratchet-sleeve M, set upon a sleeve secured rigidly upon the axle and turning 10 with the latter, substantially as described.

3. In combination with the revolving axle C of a car, the cog-wheel F, revolved by suitable gearing, D E, the gear D being set rigidly upon the said axle C, the laterally-reciprocating sleeve I, upon which cog-wheel F re- 15 volves, said sleeve I terminating at one end in

an enlarged head, O, within the drum G, and made square at the other end to reciprocate in the laterally-fixed square-bored sleeve J, to prevent sleeve I turning with the axle C, and 20 friction-drum G, containing the coiled spring H, said spring being secured at its inner end to sleeve I, and at its outer end to the drum G, the said drum being drawn into and out of frictional contact with the cog-wheel F by 25 means of the lateral movement of sleeve I, operated by a lever from above, substantially as described.

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Witnesses:

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