(No Model.)

R. O. GERCKE.

CAR STARTER.

No. 385,800. Patented July 10, 1888.

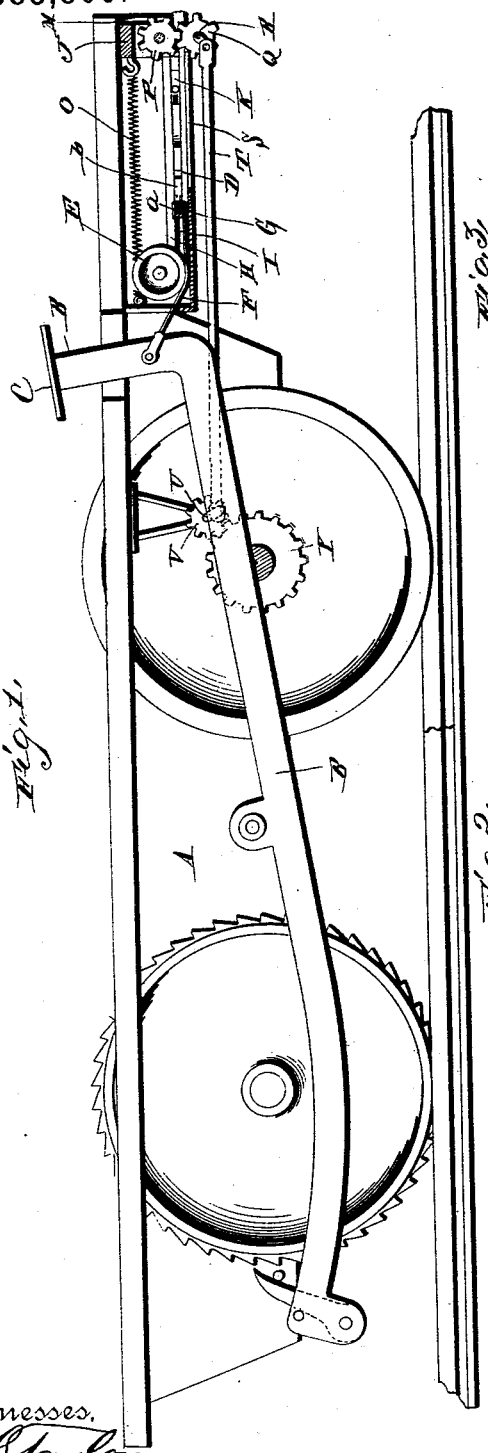

Fig. 1.

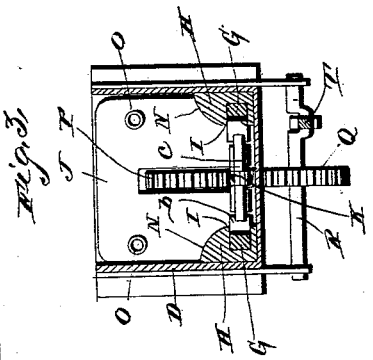

Fig. 3.

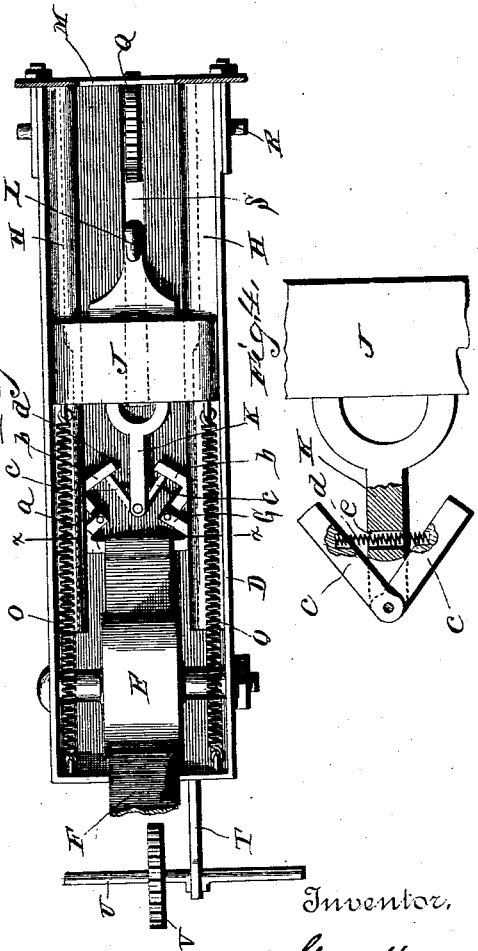

Fig. 2.

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UNITED STATES PATENT OFFICE.

RUDOLF OTTO GERCKE, OF AUGUSTA, GEORGIA.

CAR-STARTER.

SPECIFICATION forming part of Letters Patent No. 385,800, dated July 10, 1888.

Application filed November 1, 1887. Serial No. 253,993. (No model.)

To all whom it may concern:

Be it known that I, RUDOLF OTTO GERCKE, a citizen of the United States, residing at Augusta, in the county of Richmond and State of Georgia, have invented new and useful Improvements in Car-Starters, of which the following is a specification.

My invention relates to improvements in car-starters; and it consists in certain novel features, hereinafter described and claimed.

The object of my present invention is to provide an attachment for car-starters of the class shown in my patent No. 348,732, granted September 7, 1886, whereby the car will be started by the horses instead of the driver, and at the same time the labor of the horses in starting the car will be diminished. This object I accomplish by means of the device illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section of a portion of car having my improved device applied thereto. Fig. 2 is a plan view of my attachment removed from the car; and Fig. 3 is a transverse section of the same on the line *x x* of Fig. 2, looking in the direction of the arrow. Fig. 4 is a detail view of the cross head J and its parts.

Referring to the drawings, A indicates the car-truck, and B the lever, of my above-mentioned car-starter, having the pedal C at its front end.

D designates the closing box or case of my attachment, which is secured to the under side of the platform, as clearly shown. At the rear end of this inclosing-case I journal a small pulley or roller, E, under which passes a band, F, having one end secured to the pedal C and its other end secured to grippers G, sliding in longitudinal ways or guides H, secured in the lower angles of the box or casing. The grooves I in these guides or ways are of a greater depth at their front ends than at their rear ends, so that the grippers are prevented from releasing their hold on the cross-head until the same has been drawn nearly to the front end of the casing, as will be hereinafter more particularly referred to. The grippers consist of a cross-bar, *a*, to which the band is secured, and the arms *b*, pivoted to the front side of said cross-bar.

The cross-head J is arranged between the grippers and the front end of the box or casing, and has an integral offset, K, on its rear side, which is engaged by the grippers, as shown in Fig. 2. The offset K has the vertically-disposed plates *c c* pivotally secured to its front end, the said plates extending forward and outward from the said offset. The offset is further provided with a transverse opening, *e*, through which I pass a coiled spring, *d*, having its opposite ends secured to the plates *c c*. This spring serves to hold the said plates *c c* out from the offset K, so that they will be positively engaged by the arms *b b* of the gripper. On its front side the cross-head has a forwardly-projecting hook, L, to which the horses are attached, the trace or hitching-chain passing through an opening, M, in the front end of the box. The edges of the cross-head, near the bottom thereof, are provided with grooves N, by which the cross-head is fitted to the guides or ways and enabled to slide therealong.

O O are coiled springs having their front ends secured to the rear side of the cross-head and their rear ends secured to the rear end of the box or casing, the function of these springs being to draw the cross-head to the rear end of the box when the car is stopped. In the lower portion of the cross-head I journal a cog-wheel, P, which, when the cross-head is at the front end of the box, meshes with a cog-wheel, Q, which is mounted on a crank-shaft, R, journaled beneath the box, and projects through a longitudinal slot, S, in the bottom of the box. A connecting-rod, T, extends from the shaft R to a similar shaft, U, journaled on the bottom of the car and carrying a cog-wheel, V, which meshes with a cog-wheel, Y, on the axle of the front car-wheels.

The operation of my invention will be readily understood. When the horses are started, they draw upon the cross-head and pull it toward the front end of the box or casing. The gripper will also be drawn forward and through the medium of the band connected thereto will operate the car-starting lever, so as to start the car, as will be readily understood. When the gripper is being drawn forward, the pull exerted upon the arms *b b* thereof will tend to release the said arms from the plates *c c*, as will be

readily understood. This tendency is resisted by the back walls of the guides or ways in which the grippers move until the grippers have been drawn to the deeper portion of the said ways, when they will instantly disengage themselves from the cross-head and will be drawn back to their position in front of the roller, as will be readily understood. The cross-head, however, will be drawn to the front end of the box and by contacting with the said front end will propel the car forward. It is obvious from the drawings that while the car is in motion the cross-head will be held at the front end of the box by means of the cog-wheels shown and described; but when the car is stopped the cross-head will be drawn back into engagement with the grippers by the spring secured to its rear side.

It will be seen that my device is simple in construction and certain and efficient in its operation.

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

1. The combination, with the car-starting lever, of the grippers, means for connecting said grippers to the lever, and the cross-head engaged by the grippers and adapted to receive the draft, substantially as set forth.

2. The combination, with the car and the car-starting lever, of the box secured to the car, the grippers sliding in ways in said box, means for connecting said grippers to the lever, and the cross-head, also sliding in said ways and engaged by the grippers, as set forth.

3. The combination of the car-starting lever, the band secured thereto, the pulley E, around which said band passes, the grippers secured to the free end of said band, and the cross-head engaged by said grippers and adapted to receive the draft, as set forth.

4. The combination of the car-starting lever, the grippers connected thereto, the cross-head engaged by said grippers and adapted to receive the draft, the springs connected to said cross-head and acting in opposition to the draft, the gear-wheels carried by the cross-head, and gear-wheels connected to the car-wheels and adapted to mesh with the wheels in the cross-head when it is drawn forward to prevent retrograde movement of the cross-head, substantially as described.

5. The combination of the car-starting lever, the grippers connected thereto and having the pivoted arms *b*, the cross-head having the offset K, the plates *c c*, pivoted to said offset and engaged by the gripper-arms *b*, the spring *d*, holding said plates normally apart, the draft-hook on the front side of the cross-head, and the springs connected to the rear side of the cross-head and acting in opposition to the draft, substantially as specified.

6. In a car-starter, the combination, with the starting-lever, of the sliding cross-head connected thereto, whereby the draft on the cross-head operates the starting-lever, as set forth.

7. In a car starter, the combination of the starting-lever, the sliding cross-head to which the draft is applied, connections between the cross-head and the starting-lever, and a spring to return the cross-head to its normal position when the draft is relieved, as set forth.

8. In a car-starter, the combination of the starting-lever, the sliding cross-head to which the draft is applied, the said cross-head being connected to the starting devices and being drawn forward by the draft on the car, a spring for returning the cross-head to its initial position when the draft is relieved, and gearing carried by the cross-head, and gearing connecting with the wheels of the car to mesh with the gearing carried by the cross-head when the latter is drawn forward by the draft.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

RUDOLF OTTO GERCKE.

Witnesses:
THOMAS J. MILLER,
LEWIS E. DOOLITTLE.