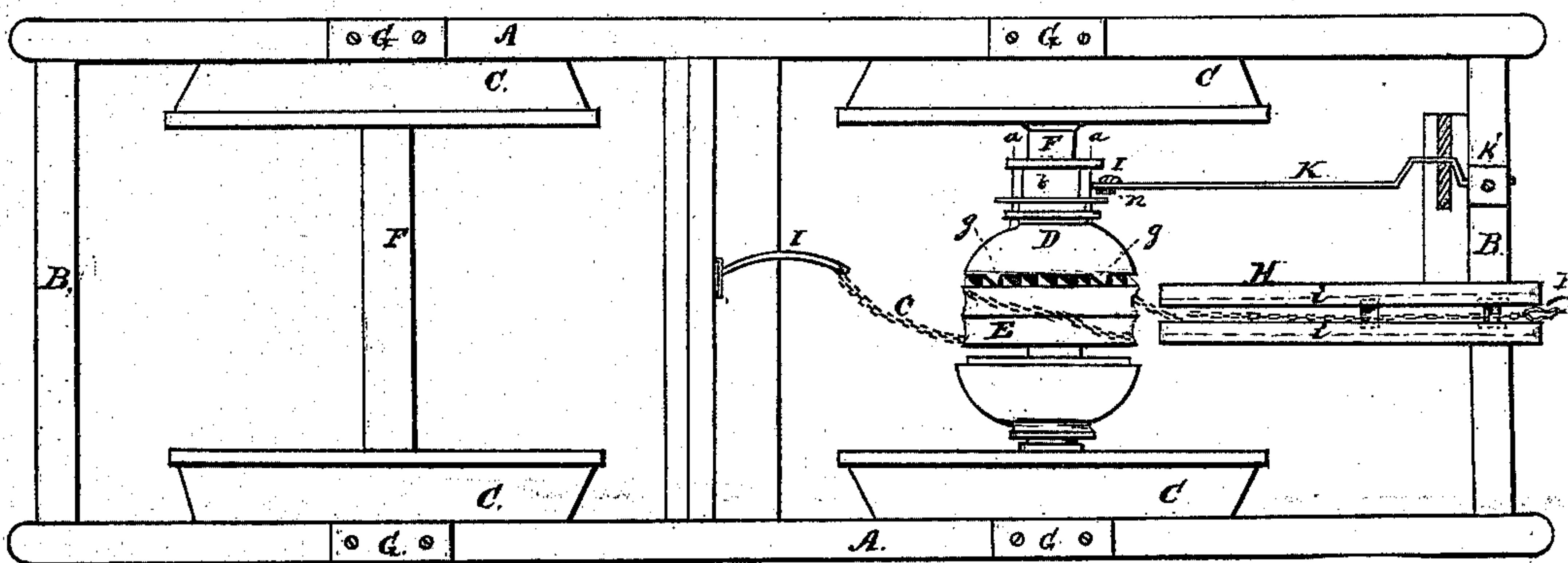


## Car Starter.

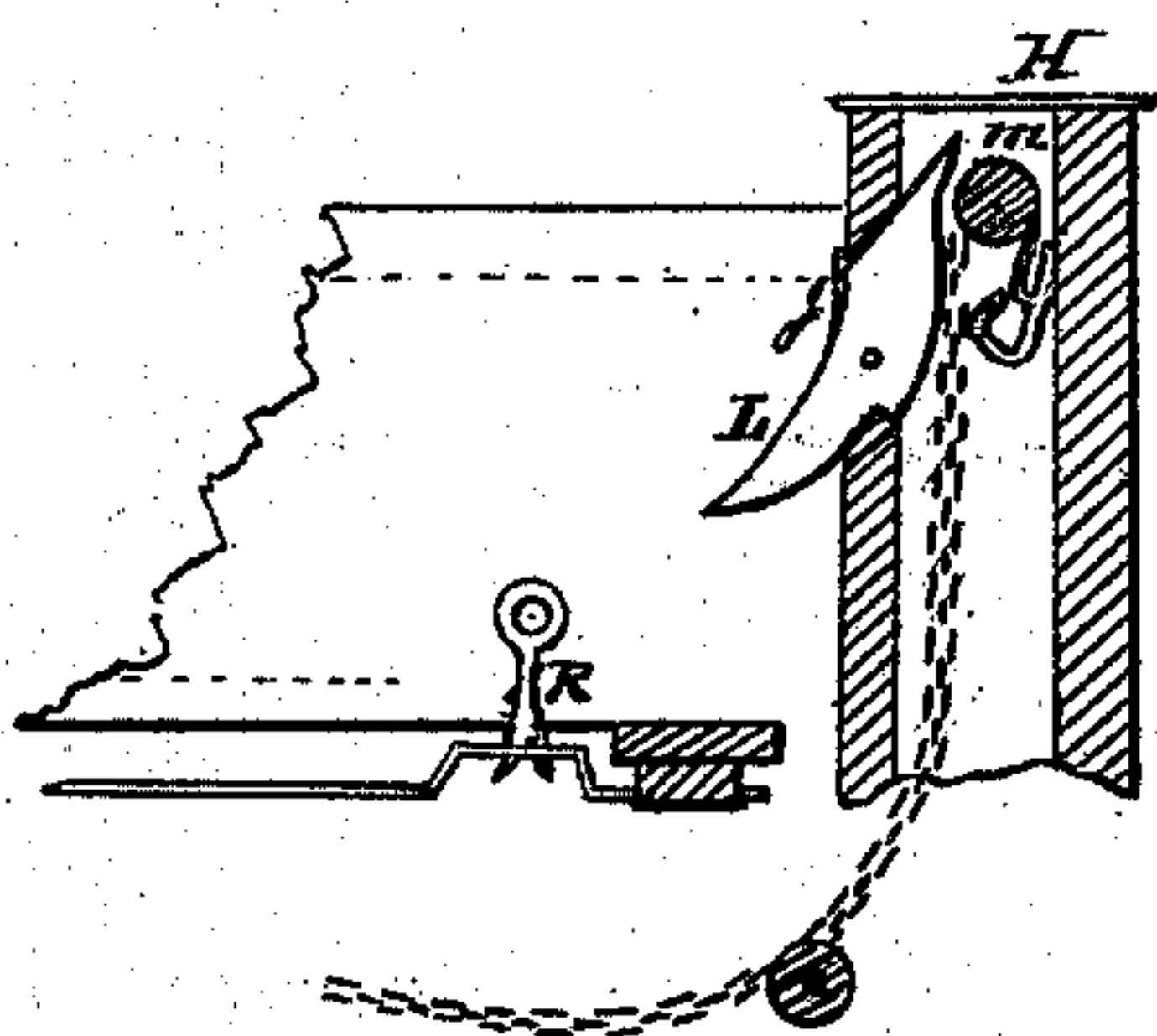
No. 104,411.

Patented June 21, 1870.

*Fig. 1.*



*Fig. 2.*



*Fig. 3.*

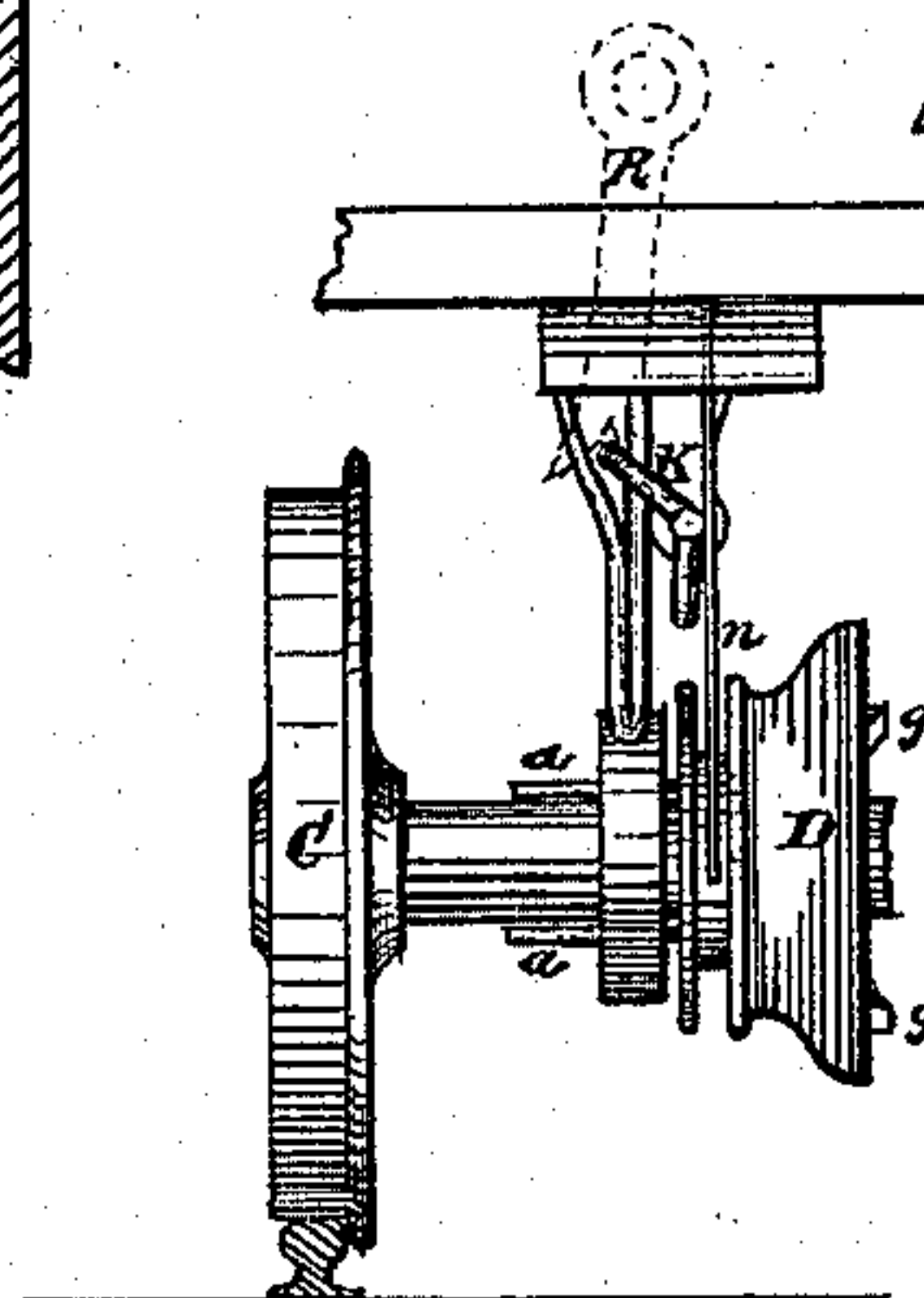
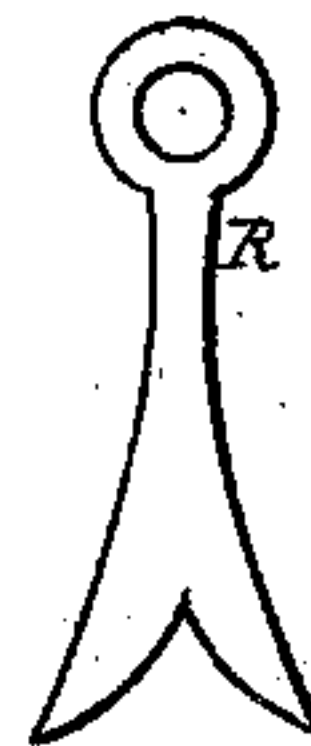


Fig. 4.

Witnesses,  
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# United States Patent Office.

ROBERT BOGARDUS, OF NEW YORK, N. Y.

Letters Patent No. 104,411, dated June 21, 1870.

## IMPROVEMENT IN CAR-STARTERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ROBERT BOGARDUS, of the city of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Car-Starters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention consists of certain mechanism used in operating the starters of railroad-cars, which will be fully described hereafter.

In order to enable others to make and use my invention, I will proceed to describe its construction and operation with reference to the accompanying drawings, viz:

Figure 1 is an inverted plan view.

Figure 2 is a sectional elevation showing the method of operating the starter.

Figure 3 shows the key used to operate the spring which acts upon the disk D.

Figure 4 is a sectional view, showing the action of the spring *n* upon the disk D.

A A are the side beams, and B B the end beams, forming together the frame-work of a railroad car, this frame carrying the usual wheels C C, on the axle F, the ends of which turn in appropriate boxes in the brackets G.

E is a pulley, which is allowed to turn freely on the axis F, until it is clutched by the disk D, when the motion imparted to it by the traction-chain C is transmitted to the axle F, which is thereby caused to revolve.

Upon the axle F is arranged a sleeve, *b*, upon which is secured a disk, D, on the face of which are formed two or more annular V-shaped ridges, *g*, which coincide with a similarly-shaped depression formed in the double pulley E.

*a a* are rods or wires, on which the disk D slides when operated by the spring *n*.

Upon the pulley E are arranged two grooves, crossing each other at certain points, for the chain to play in, said chain being fastened at one end to a spring, I, or, if preferable, a weight, or the use of an endless chain, or by any equivalent means which will accomplish the same result of drawing the chain back when desired.

The other end of the chain has a hook, P, which is attached to a roller, *m*, playing in the ways *i i*.

H is a slotted projection arranged perpendicularly or oblique, as may be desirable, in which the chain *c* works.

This is an important part of my invention, and one which is believed to be entirely new, always keeping the horse in close proximity to the car.

K is a cranked shaft which works in the bearings I *k*.

By the use of the key R, shown in fig. 3, one of the cranks is forced against the spring *n*, which drives the disk D, having the V-shaped ridges *g* against the serrated face of the pulley E, thereby coupling the starter or loose pulley E to the axle of the car.

L is a lever, worked by the hand or foot, which operates upon the chain to free it when desired, said lever being kept in place by the springs J J.

The operation of my starter is as follows:

The car being at rest, and the hook P being at the lower part of the guides, if it is desired to start the car the cranked shaft K is depressed, which acts against the spring *n* and throws the clutch or disk D into gear with the pulley E.

The draft of the team then acts through the pulley E to revolve the wheels and start the car, and, as the axle revolves, the chain C and roller *m* follow up the ways in the slotted projections H, until, catching upon the cam L, and then being detached from the cam L, each part of the starter returns to its former position.

Having thus fully described my invention,

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

1. The disk D, when arranged to slide upon the bars or wires *a a* and pulley E, in combination with the cranked shaft K and spring *n*, arranged to operate substantially as described.

2. The projection H, having the roller *m*, cam L, springs J J, substantially as and for the purpose described.

3. The cam L and springs J, when arranged in combination with the chain C, hook P, and roller *m*, as and for the purpose set forth.

Witnesses:

ROBT. BOGARDUS.

M. FRIEDSAM,  
CALVIN W. SMITH.