C. L. HEYWOOD.

Car-Starter.

No. 216,407. Patented June 10, 1879.

Fig. 1.

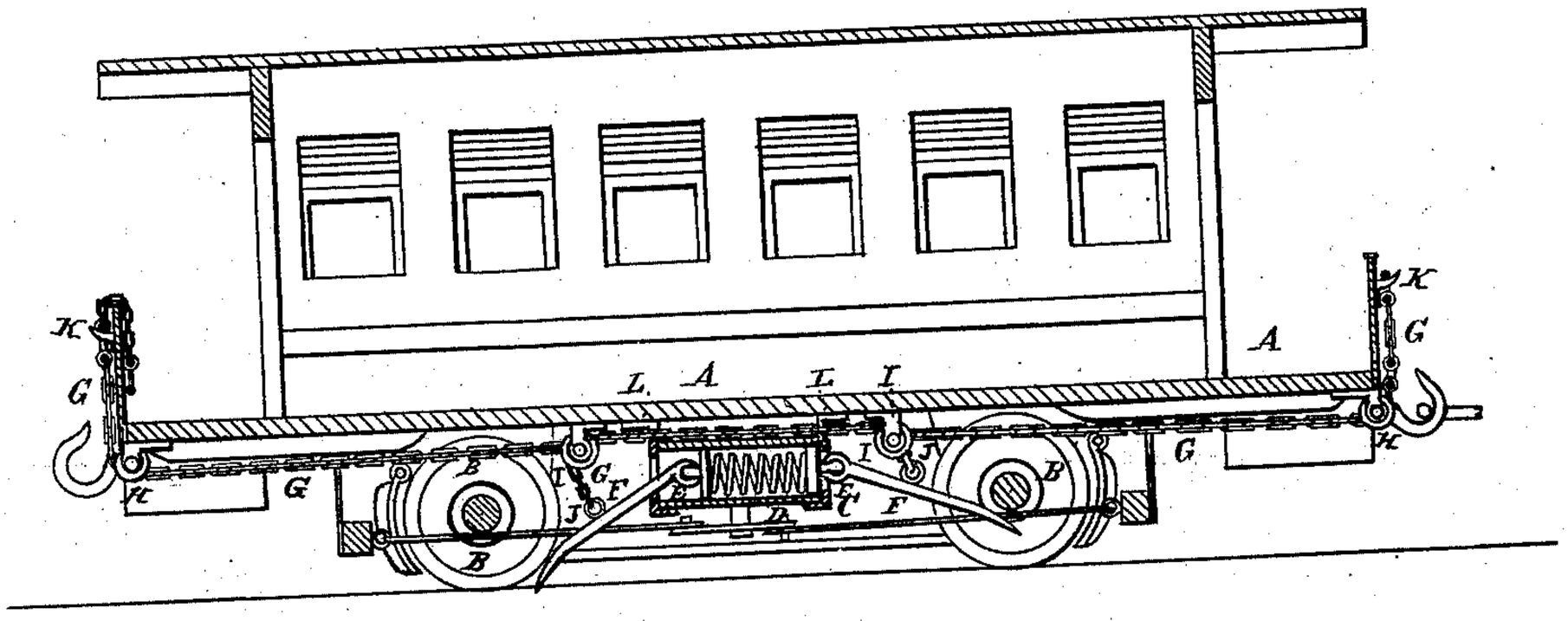


Fig. 3.

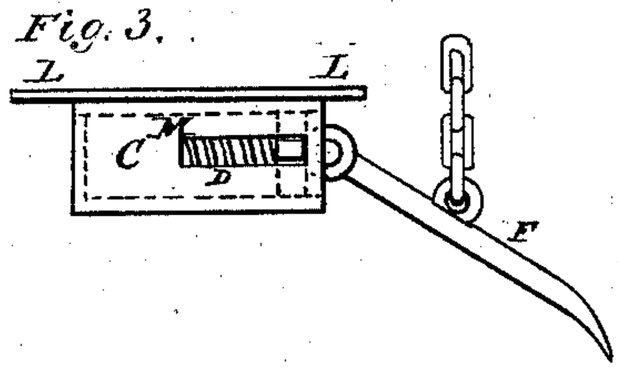


Fig. 2.

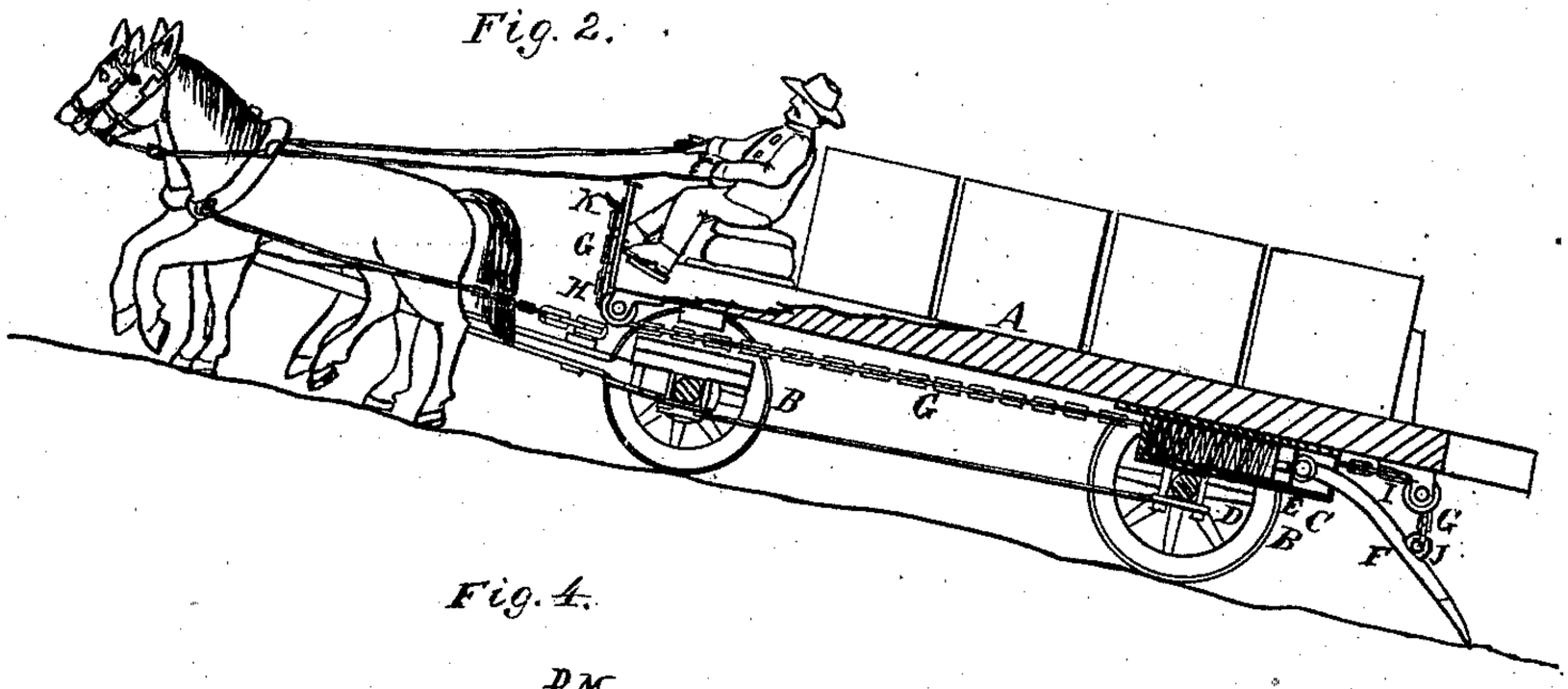
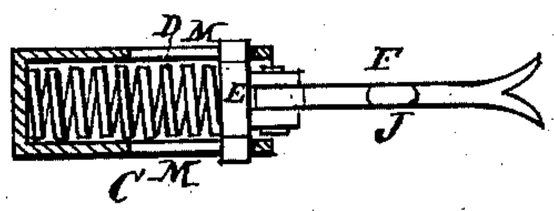


Fig. 4.



Witnesses.
Jno. E. Smith
R Bockler

Charles L. Heywood Inventor.

UNITED STATES PATENT OFFICE.

CHARLES L. HEYWOOD, OF BELMONT, MASSACHUSETTS.

IMPROVEMENT IN CAR-STARTERS.

Specification forming part of Letters Patent No. **216,407**, dated June 10, 1879; application filed December 24, 1878.

To all whom it may concern:

Be it known that I, CHARLES L. HEYWOOD, of Belmont, county of Middlesex, State of Massachusetts, have invented a new and useful Improvement in Devices for Starting Cars and other Vehicles, which improvement is fully set forth in the annexed specification and accompanying drawings, in which—

Figure 1 represents a vertical longitudinal section of horse-car with my device for starting applied to it. Fig. 2 is a side view of a wagon with my device for starting, a portion of the same being shown bisected to exhibit its construction. Fig. 3 is a detached side view of the starting device. Fig. 4 is a central horizontal section of the same.

This invention relates to that class of car-starters in which a pawl catches in the ground and thereby compresses a spring as the car stops.

It consists in the use of a fixed cylinder containing a spring and a slide moving in said cylinder against the power of the spring, to which is pivoted a pawl, the whole so arranged that when the car or other vehicle to which it is attached stops the claw of the pawl catches in the ground or pavement and compresses the spring, so that the latter may be ready to assist in starting the car when it next begins to move, the device being so constructed as to require no effort of the driver to bring it into action, except the dropping of the pawl.

In the drawings, the letter A represents the car or vehicle body, and B the wheels of the same. On the under side of this body is secured permanently a cylindrical case, C, in which a spiral or rubber spring, D, is guided and held; and said spring is made sufficiently strong, so that it does not entirely compress from the weight of the vehicle against it on the most extreme up-grade over which the vehicle is intended to travel.

Whenever the starting device is used for cars intended to run either end forward, the aforesaid case C is made open on both ends, and in each end is employed a plunger, E, upon the end of the spring, by which the spring may be compressed; but when said device is used for ordinary vehicles the front end of said case is closed, and only one plunger is employed on the rear end of the spring and case, as shown in Fig. 2. In either case to each plunger E is attached by a loose or pivot joint a long pawl, F, having its outer end shaped with two claws, as seen in Figs. 3 and 4, to take hold in the street or road over which the vehicle travels as soon as said pawl is allowed to drop for operation; and to raise or drop said pawl I employ a chain or rope, or a rod with a chain or rope, G, on each end, and employ a guide-pulley, H, under the dash-board of the vehicle, and also a similar pulley, I, on the bottom side of the vehicle over the pawl F, which has an eye, J, formed or secured to it. In said eye one end of the rope G is secured, and from it the same is passed over the pulley I. The other end of the rope or chain passes forward to the dash-board under the guide-pulley H, and is secured over a hook, K, on the dash-board. The guide-pulleys H and I are pivoted and held each in a proper bearing-block, which has a base secured firmly by bolts or screws to the bottom of the car or vehicle.

The loose end, J, of the rope or chain has two rings or links, of which one is on the extreme end and serves to attach over the hook K when the pawl is dropped to gripe the street. The secondary ring or link on said end of the rope is far enough from the extreme end to keep the said pawl raised from the street out of any contact with it when engaged over the hook K.

As before alluded to, when my device is used for vehicles only, one plunger, E, and consequently only one pawl, F, and one chain, G, or rope, with its guide-pulleys H and I, are used.

With a horse-car having two dash-boards, to change the horses from one end to the other, said device for starting is made with a plunger, E, on each end of the spring D, and for each plunger is employed a pawl, F, and a rope or chain, G, its guide-pulleys and hook K, on each dash-board.

When the car is about to stop on an up-grade the driver lowers the pawl, and as soon as the car stops and begins to back the claws of the pawl catch in the road or pavement, and cause the plunger E to compress the spring, ready to help start the car when it again moves forward.

Although I prefer to raise the pawl immediately after each forward movement, to prevent noise and the wearing of the claw of the pawl by friction on the ground, yet it is obvious that with slow-moving vehicles it may be allowed to remain on the ground during the whole time the vehicle may be ascending a hill, in which case the device will require no attention whatever from the driver during the ascent, no matter how frequently the vehicle may be stopped. The case C, containing the spring D, has a flange or legs, L, to secure it to the vehicle.

To keep the plunger E in its place I may use open heads on the ends of the case, as shown in Fig. 1; but I prefer in most cases to have slots M in the sides of the case, and have opposite arms on the plunger, guided and sliding in said slots M, which terminate before the end of the case, and thereby stop the plunger from detaching from the case. By attaching the case fixedly to the car and using a pawl hinged to the plunger moving in the cylinder, not only is the apparatus much stronger, but the driver has only to lift the weight of the pawl instead of the whole apparatus.

I am aware of the patent of Ransom and Doyle, April 28, 1874; but the device shown in that patent differs essentially in construction from mine.

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

The combination, with the fixed cylinder C, of a pawl, F, pivoted to the plunger E, compressing the spring D, the whole constructed and arranged to operate substantially as shown and described.

In witness whereof I hereunto set my hand this 30th day of November, 1878.

CHARLES L. HEYWOOD.

In presence of—

GEO. E. SMITH,

MARCUS STARBUCK.