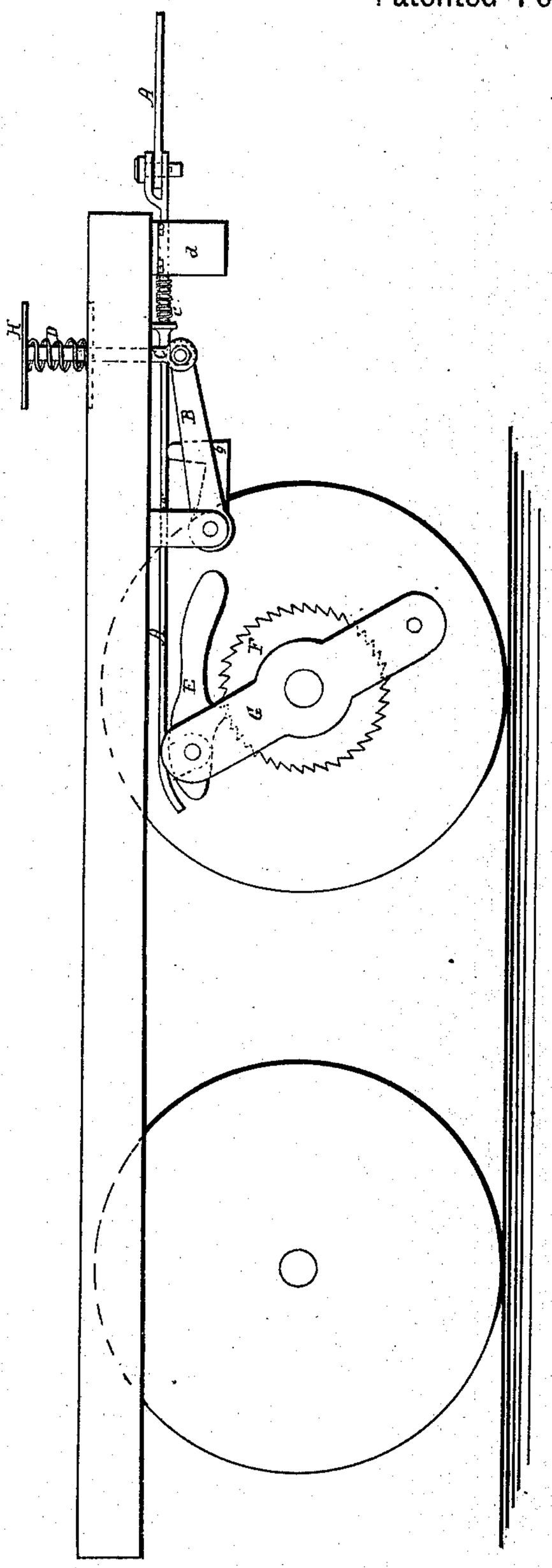
A. S. ARMSTRONG.

Car Starter.

No. 62.304. Patented Feb. 26, 1867.



Witnesses:

Rufus R Rhodes

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UNITED STATES PATENT OFFICE

AUGUSTUS S. ARMSTRONG, OF PARISH OF ST. BERNARD, LOUISIANA.

IMPROVED METHOD OF STARTING STREET-CARS.

Specification forming part of Letters Patent No. **62,304**, dated February 26, 1867.

To all whom it may concern:

Be it known that I, AUGUSTUS S. ARMSTRONG, of the parish of St. Bernard, State of Louisiana, have invented a new, useful, and Improved Apparatus for Starting Horse-Cars; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawing, making part of this specification.

On railroad-beds that are at all smooth or slippery, as is the case always when they are composed of square blocks of stone or granite, as in New Orleans and some other American cities, great difficulty is experienced in starting horse-cars that are heavily laden, and not unfrequently the horses or mules that are required to perform this duty fall, and are injured to a greater or lesser degree. Sometimes they are fatally injured. Even when the road-bed affords a firm and secure footing to the animal, the strain to which he is subjected in starting a heavy car at such frequently-recurring intervals as must always happen on street-railroads greatly impairs his strength and energy, and quickly wears him out.

My invention looks to remedying the evil thus briefly pointed out; and it consists of a combination of mechanical parts so adjusted and arranged as to enable the animal himself to start the car to which it is attached without the violent effort and strain to which he is subjected in starting a car that is unprovided with it.

Referring to the drawing, I now proceed to describe in detail the said mechanical parts.

A is the draft-bar, to which the animal is attached by the usual appliances for said purpose. In this bar is an oblong opening or slot, *a*, to receive the latch or catch *b*, and encircling it, and confined between cleats fixed securely to it and the part marked *d* upon the drawing, is the helical spring *c*, whose function it is to throw back the draft-bar, so as to place it in position to start the car. B is a lever, which, through its connection with the foot-bar C, operates catch *b*. D is a helical spring that encircles foot-bar C, and causes catch *b* to enter slot *a* whenever the latter is brought over or in position to receive the former. E is a clutch, secured by a pivoted connection to the draft-bar A and to the standards G in such manner as to increase the leverage that is brought into use in starting the car to the greatest possible limit allowed by the space underneath the car. F is a ratchet wheel or pinion, firmly secured to the fore axle of the car between movable standards G.

The manner in which my apparatus operates is as follows, namely: The animal being started draws forward the draft-bar A, compressing helical spring *c*, and through the agency of clutch E, which is also, of course, drawn forward, partially revolves pinion F, and with it the wheels of the car, until the said draft-bar has attained the point or position at which catch *b* enters slot *a*. The moment this occurs clutch E is disconnected from pinion F, and there is no further advance of the draft-bar, for it will be observed the helical spring D holds catch *b* in slot *a*, and prevents any further forward movement of the said bar. The draft-bar A, in fact, is held in a fixed or stationary position so long as catch *b* remains in slot *a*.

By the partial revolution of the pinion and car-wheels the car itself, it will be seen, has been started without strain to the animal, because of the powerful leverage exerted through the instrumentality of standards G and pinion F; and the clutch E being thrown out of connection with pinion F the car moves on without more noise than would a car unprovided with my invention.

To renew the operation or start the car again, supposing it to have been stopped to take up a passenger, or for any other purpose, it is only necessary for the driver to place his foot on cap H and press down foot-bar C. The instant this is done catch *b* leaves slot *a*, and the helical spring *c* throws back the draft-bar A, and with it the upper ends of the standards G, as well as the clutch E, and brings the latter again into connection with pinion F at a point which allows of another partial revolution of said pinion, with the same result as in the first instance. The same process is repeated as often as the car is stopped and started; but if the car be not heavily laden my apparatus need not be brought into operation at all.

The superiority of my invention over any other contrivance of which I have any knowl-

edge, looking to the accomplishment of the same ends, is due mainly to its extreme comparative simplicity and cheapness, and to the facility with which it may be applied to cars of ordinary construction that are already in use.

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

The combination of helical spring D, foot-bar C, lever B, and catch *b* with draft-bar A, provided with helical spring *c* and slot *a*, clutch E, movable standards G, and pinion F, when these several parts are constructed and arranged for conjoint operation, substantially as described, for the purpose set forth.

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Witnesses:

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