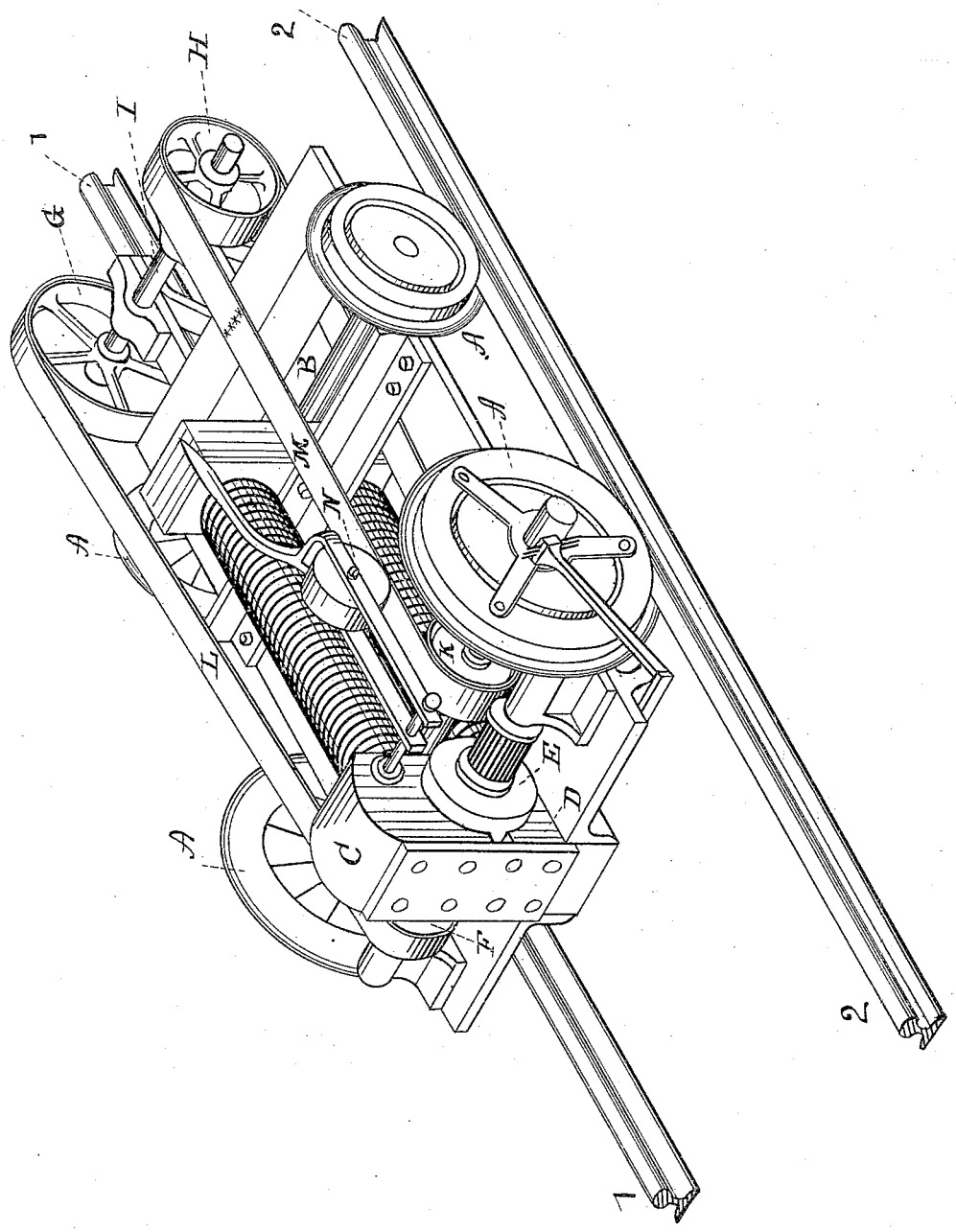
(No Model.)

T. A. EDISON.

LOCOMOTIVE FOR ELECTRIC RAILWAYS.

No. 446,667. Patented Feb. 17, 1891.



WITNESSES:

D. D. Mott

J. Ellis Clark

INVENTOR:

T. A. Edison,

BY Richd. A. Dyer,

ATTORNEY.

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY.

LOCOMOTIVE FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 446,667, dated February 17, 1891.

Application filed August 7, 1882. Serial No. 68,602. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Locomotives for Electric Railways; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing, and to the letters and figures of reference marked thereon.

In locomotives for electro-magnetic railways carrying electro-magnetic motors driven by the current from one or more stationary dynamo or magneto electric generators it is essential in order to obtain the greatest power that the armature of the electric engine should have an exceedingly high rate of speed, much higher than that of a car-wheel in running, say, from a thousand to two thousand five hundred revolutions a minute. In transmitting motion, therefore, from the armature to the car-axle this speed has to be considerably reduced, and it is especially desirable that means should be provided for that purpose which will run smoothly and with the minimum amount of wear, noise, and loss of power. The engine being mounted on a frame which has more or less movement upon the axle, it is also essential that the connection of the armature-shaft with the car axle or axles should be flexible to allow for this movement without undue friction and wear or unnecessary loss of power.

In starting the engine the full power is not developed until the armature has reached a high speed, and consequently means should be provided for allowing the armature to run independent of the car-axles until the requisite speed is attained and for applying the power gradually to move the car in order to avoid a jerking or uneven movement in starting.

The object of my present invention is to construct a locomotive for electro-magnetic railways which will fulfill these conditions. This I accomplish by connecting the armature-shaft with one or more car-axles by belts passing around wheels or pulleys of different size, so as to reduce the speed and increase the power at the car axle or axles, and by arranging one of such belts to slip freely on its wheels or pulleys, and providing a tightener to gradually apply the power of the engine to the car. These belts may be of leather, rubber, or sheet-steel, or wire ropes may be used, or chains, one of which works loosely on smooth-faced wheels, or any other analogous device having the feature of flexibility and permitting of a gradual application of the power.

The foregoing will be better understood from the drawing, in which the figure is a perspective view of a locomotive embodying my invention.

1 2 are the rails forming the conductors and connected with the dynamo or magneto electric generators at the station.

A represents the car-wheels, and B the car-axles, the car being electrically divided, as described in a previous application for patent.

C D are the polar extensions of the electro-magnet of the engine, and E the revolving armature of the engine connected with the electrically-divided portions of the car through a circuit breaker and reverser, so that the current will pass from rail to rail through the armature and magnet of the engine.

F is a pulley on the armature-shaft; G H, pulleys on a counter-shaft I, and K a pulley on the forward axle. These pulleys are connected by belts L M. Belt M is a loose belt, and is tightened by the swinging tightener N, which may be provided with any suita device for locking it in either a raised or depressed position,

What I claim is—

1. The combination of a car or truck, an electric motor mounted thereon, a counter-shaft having pulleys, a taut belt from the armature-shaft to said counter-shaft and a loose belt from said counter-shaft to a car-axle, and a belt-tightener for the latter belt, substantially as described.

2. The combination of a car or truck, an electric motor mounted thereon, a counter-shaft having pulleys, a taut belt from the armature-shaft to said counter-shaft and a loose belt from said counter-shaft to a car-axle, and a swinging belt-tightener for the latter belt, substantially as described.

This specification signed and witnessed this 11th day of October, 1881.

THOS. A. EDISON.

Witnesses:
RICHD. N. DYER,
H. W. SEELY.