

(No Model.)

C. J. VAN DEPOELE.
ELECTRIC LOCOMOTIVE.

No. 353,335.

Patented Nov. 30, 1886.

Fig. 1.

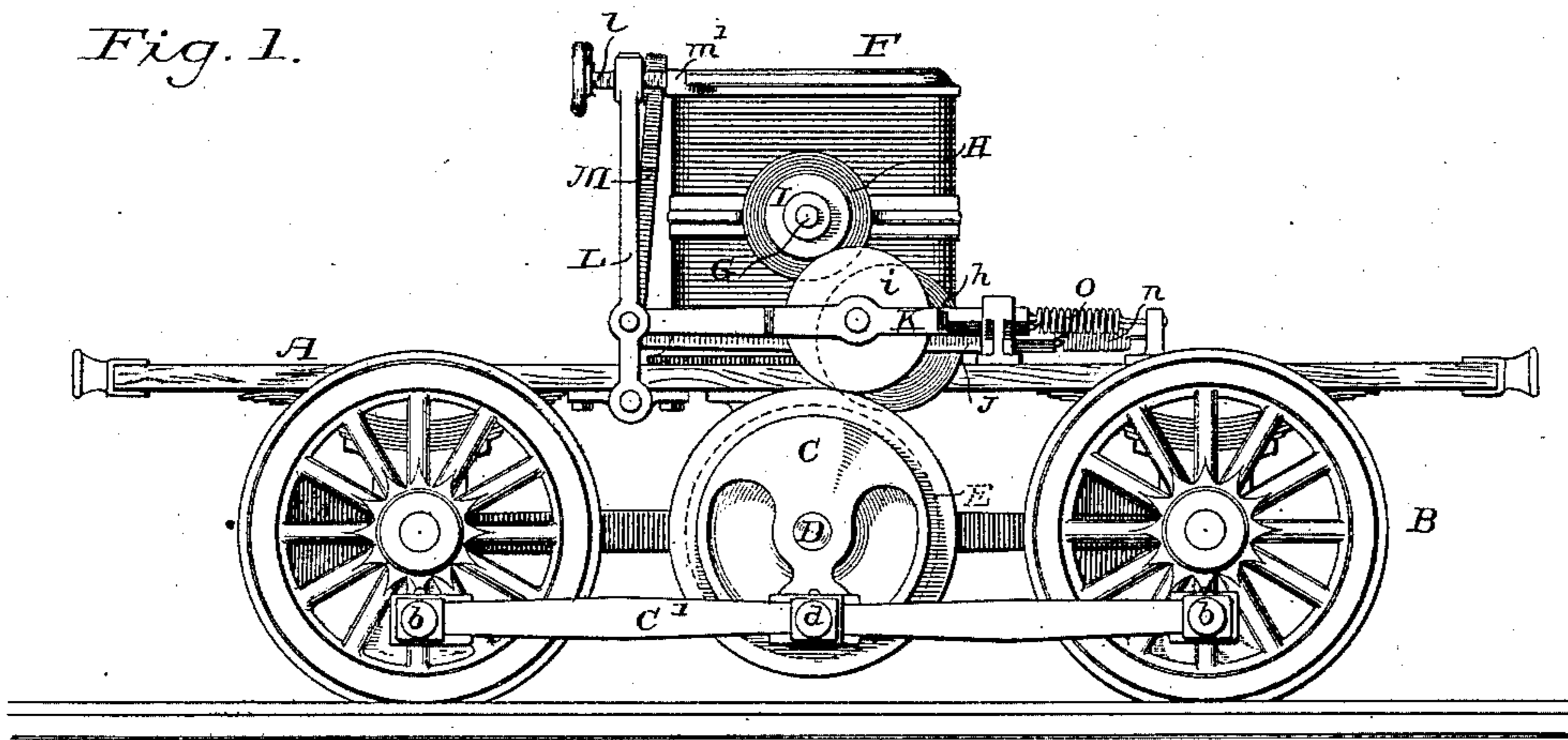


Fig. 2.

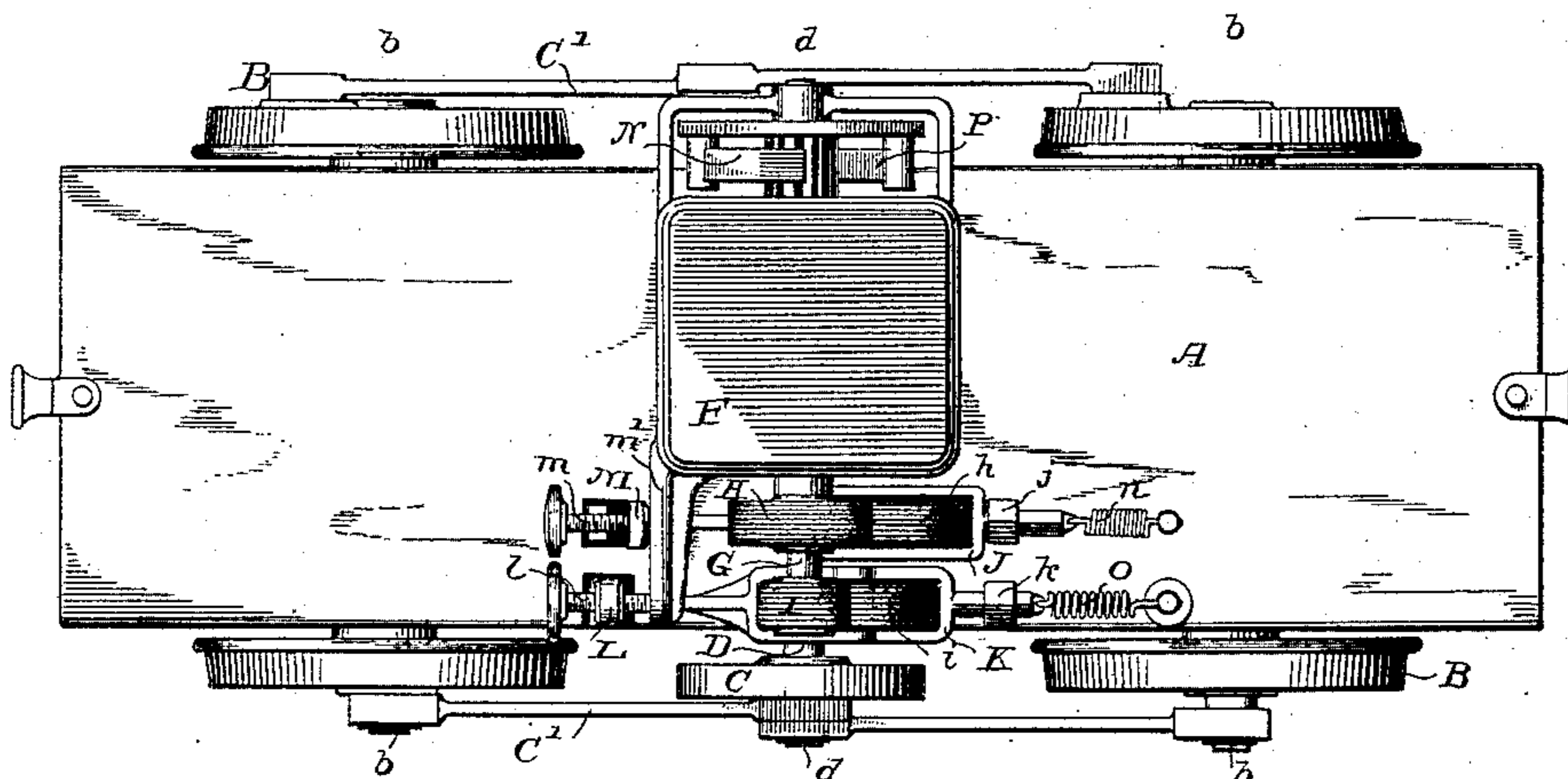
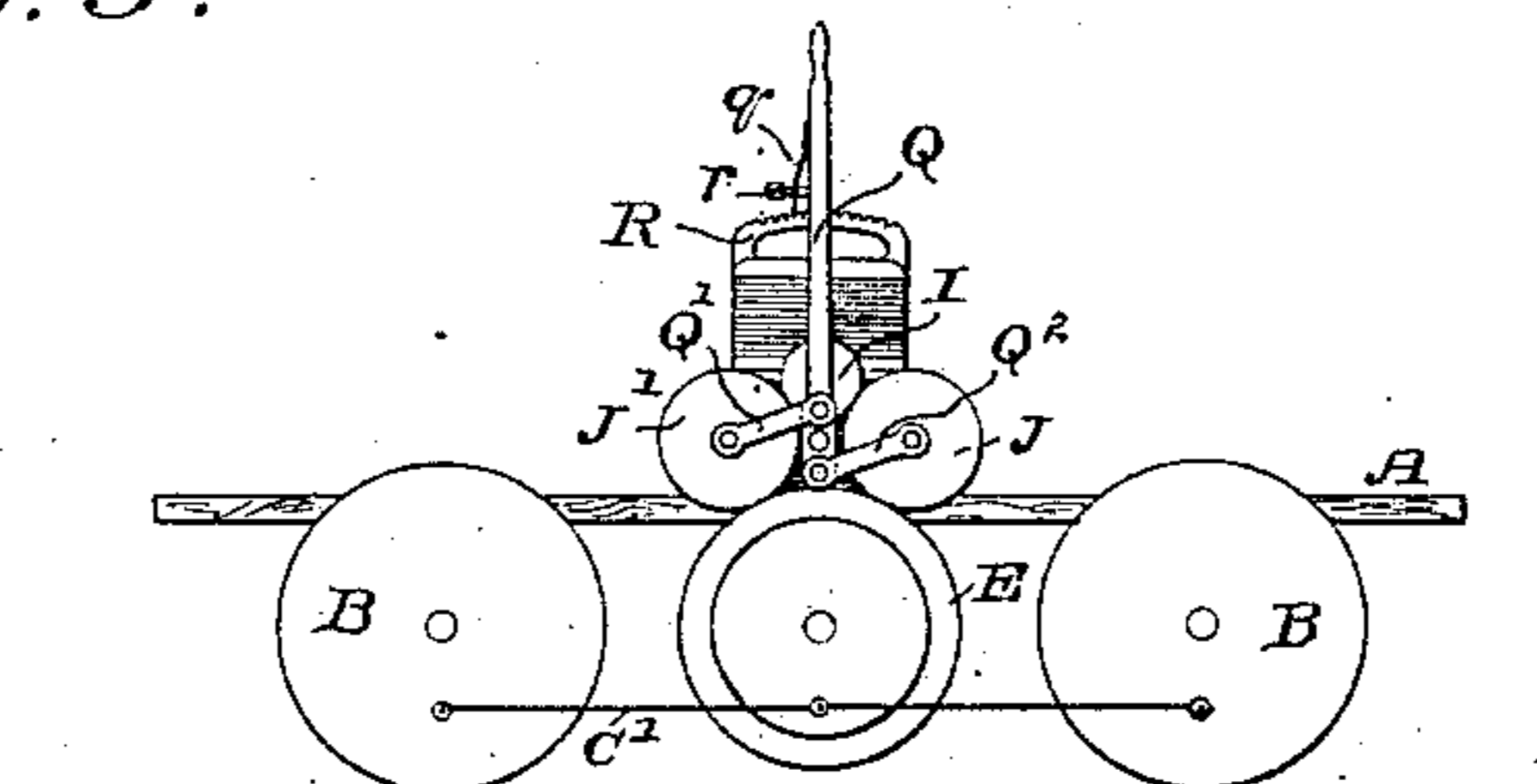


Fig. 3.



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ELECTRIC LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 353,335, dated November 30, 1886.

Application filed April 28, 1886. Serial No. 200,471. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. VAN DEPOELE, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Electric Locomotives, of which the following is a description.

My invention relates to improvements in electric locomotives; and it consists in means for connecting the driving-pulley of the electric motor, by which the electric current used in driving the locomotive is translated into mechanical energy, to the wheels upon which the apparatus is supported; and it further consists in such arrangements of the mechanical devices through which the power above referred to is transmitted that either the speed or power of the locomotive can be made to preponderate, according to the results desired, the details whereof will be fully hereinafter set forth.

In the accompanying drawings, which form part of this specification, Figure 1 is an elevation of an electric locomotive embodying my invention. Fig. 2 is a plan view thereof, and Fig. 3 is a diagrammatic view in elevation, and on a reduced scale, showing a modification of the devices illustrated in the preceding figures.

A is the platform or body, which is spring-supported upon the four driving-wheels B, which will be of a size most suited to the particular purpose for which the apparatus is designed. Suitably mounted upon an axle, D, journaled below the center of the body A, are a pair of intermediate drivers or crank-wheels, C, provided with crank-pins *d*. The intermediate drivers do not, of course, come in contact with the rails, but are provided with connecting-rods C', extending from the crank-pins *d* to the driving-wheels B, to which they are connected by crank-pins *b*, and by means thereof any movement that is imparted to the said intermediate driver will rotate the driving-wheels B and propel the locomotive.

Upon the shaft of the intermediate driver, C, are secured two friction-gear pulleys, (indicated by the dotted lines E in Fig. 1, and in full lines in Fig. 3.) These pulleys may vary in size, but do not necessarily do so, and when they are of even size, as in the present instance, a single pulley having an extra broad face will answer all purposes.

F is an electric motor, the armature-shaft G of which is provided with two friction-pulleys, H I, which are of different sizes, and, when connected to the intermediate driver through the pulley or pulleys E, will for a constant speed of the motor impart a different ratio of speed and power thereto, and thence to the main drivers B, as may be desired. The connection between the pulleys H and I on the armature-shaft and the intermediate driving-shaft is made through movable idle-pulleys *h i*, which are mounted in longitudinal movable frames J K, carried upon the platform A, their inner ends passing through posts or bearings *j k*, and their outer ends being articulated to vertical pivoted levers L N, which are provided with adjusting-screws *l* at their free extremities, which screws *m* bear against a projection, *m'*, or some solid portion of the frame-work. The idle-pulleys *h i* being thus supported in the paths, respectively, of the driving-pulleys H I and the pulley or pulleys E on the intermediate driving-shaft, when either of the adjusting-screws *l m* is operated, the idle-pulley controlled thereby will be drawn into position of contact and wedged in between the motor-pulley and pulley on the intermediate shaft, connecting them, so that the rotation of the armature of the motor is communicated directly through either one of the described trains of friction-gearing to the intermediate driver, and thence to the main driving-wheels.

Retracting-springs *n O* are attached to the rear end of the frame J K, by means whereof the pulleys are drawn away from their operative position when the adjusting-screws are released; but the said adjusting-screws can of course be connected to the point against which they thrust, and in that manner be used to force the idle-pulleys out of action.

It will be evident that the sizes of the driving-pulleys on both the motor and intermediate shafts, as well as of the idle-pulleys by which they are connected, may possess any ratio or relationship to each other that may be found most advantageous for the particular service desired, the working relationship required being such that by changing the connections the speed of the locomotive will be decreased, but the power thereof very much increased.

In Fig. 3 I have shown a means whereby

the idle-wheels J K may be duplicated, and instead of a single one being wedged in between the motor and intermediate pulleys, a double set thereof is provided, one being wedged in from each side, so as to afford an ample margin of contact for the transmission of large powers. As shown, pulleys J J' are connected to a vertically-pivoted lever, Q, by links Q' Q², and when the lever is moved in the proper direction the said pulleys J J' are wedged in between the motor-pulleys I and intermediate pulley, E. The lever Q is shown as provided with a catch, q, engaging a segmental rack, R, above the motor, and further provided with an adjusting-screw, r. It may, however, be cut off at any convenient height and provided with a connecting-rod, or be bent in appropriate form and then pivotally connected to a vertical lever, L, controlled by a screw, precisely as described with reference to Figs. 1 and 2. This arrangement should of course also be in duplicate.

P N represent the positive and negative commutator-brushes of the motor, which may be of any well-known form, since the particular construction thereof is not involved in the present invention.

Various other modifications of the above-described invention will naturally occur to one skilled in the art to which this invention relates without in any way departing therefrom.

As will be seen, the motor and gearing are spring-mounted upon the axles of the main driving-wheels, so that the pounding of the wheels upon the rails is not transmitted to the electric motor, as in the case where the motor runs directly upon the driver. In order to allow of up-and-down motion of the motor and crank-wheel without putting strain upon the side connecting-bars, the latter are jointed in the middle of their length.

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

1. In an electric locomotive, the combination of an electric motor having one or more driving-pulleys, main driving-wheels and connections, an intermediate shaft, to which the driving-wheels are mechanically connected, and which is provided with one or more friction-pulleys, one or more idle-pulleys, and pivoted levers, to which the idle-pulleys are connected, said levers being provided with adjusting-screws, substantially as shown and described, whereby the idle-pulleys are held between the motor and intermediate pulleys with the desired degree of pressure.

2. In an electric locomotive, the combination of an electric motor having a plurality of driving-pulleys and of various sizes, driving-wheels supporting the locomotive, an intermediate driving-shaft provided with friction-pulleys, and also mechanically connected to the driving-wheels, a plurality of idle-pulleys supported in movable frames, pivoted levers controlling the longitudinal movements of the pulley-bearing frames, and adjusting-screws arranged to act directly upon the pivoted levers for bringing the desired connecting-pulley into action, as set forth.

3. In an electric locomotive, the combination of an electric motor and an intermediate driving-shaft, to which it is mechanically connected, main driving-wheels, supporting-springs between the said wheels and the intermediate shaft and motor, and vertically-yielding mechanical connections between the main and intermediate driving-wheels, as set forth.

In testimony whereof I hereto affix my signature in presence of two witnesses.

CHARLES J. VAN DEPOELE.

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