

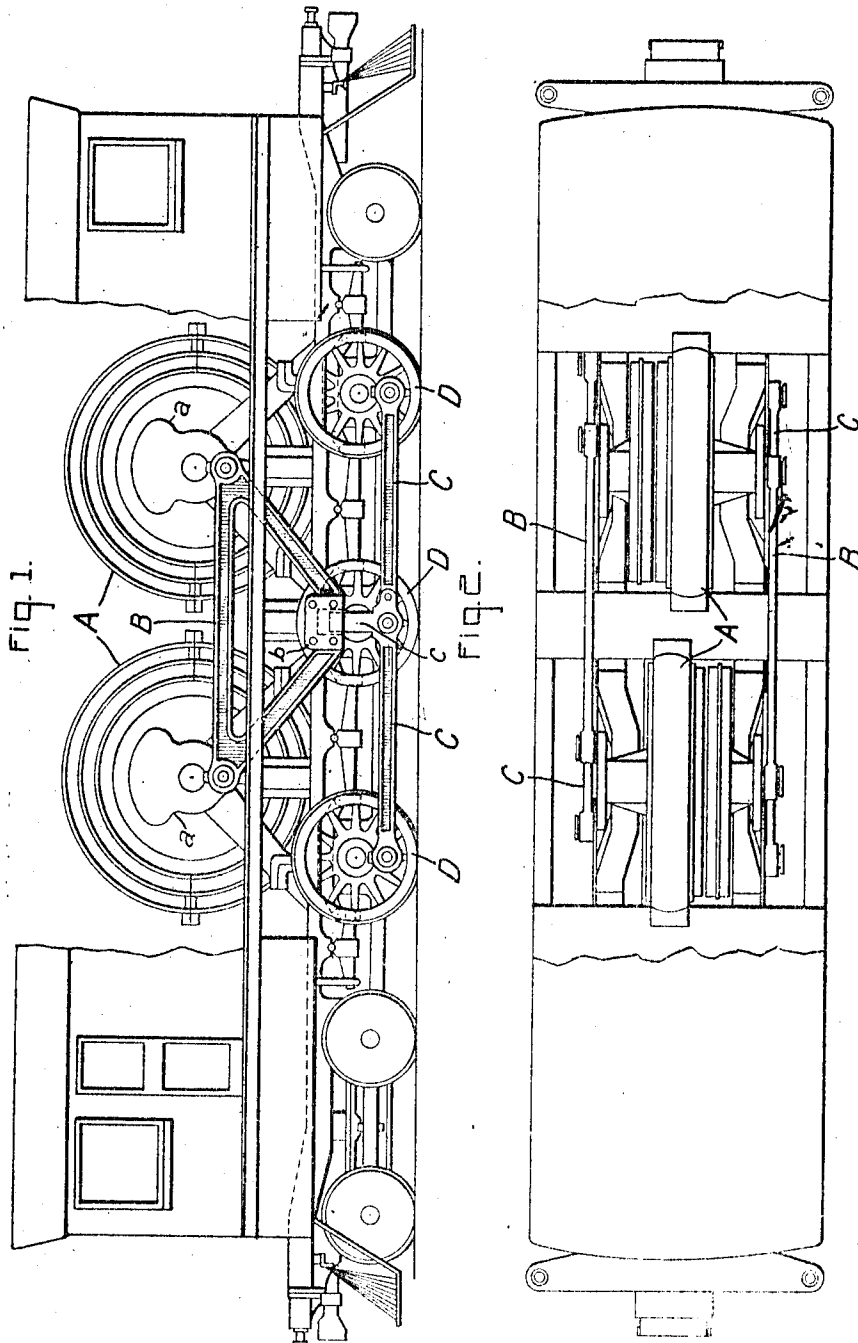
E. F. W. ALEXANDERSON.

ELECTRIC LOCOMOTIVE.

APPLICATION FILED NOV. 11, 1909.

949,347.

Patented Feb. 15, 1910.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ERNST F. W. ALEXANDERSON, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ELECTRIC LOCOMOTIVE.

949,347.

Specification of Letters Patent.

Patented Feb. 15, 1910.

Application filed November 11, 1909. Serial No. 527,361.

To all whom it may concern:

Be it known that I, ERNST F. W. ALEXANDERSON, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Electric Locomotives, of which the following is a specification.

My invention relates to electric locomotives of the side rod type having a plurality of pairs of driving wheels and a plurality of electric motors carried on the locomotive frame with their axles in a plane above that of the driving wheel axles.

The object of my invention is to provide a novel arrangement of the connection between the motors and the driving wheels such that the leverage tending to lift one motor axle and depress the other is less than in locomotives of this type as heretofore designed.

If the motors are connected to each other by a system of cranks and connecting rod and the driving wheels are connected to each other by a separate system of cranks and connecting rod and the two systems are connected to each other in the plane of the driving wheel connecting rod, as has been common heretofore, the point of connection through which the driving force is transmitted is so much lower than the motor axles that a couple is produced tending to raise one motor axle and lower the other. If on the other hand the connection were made in the plane of the motor connecting rod, a leverage would be produced tending to depress certain of the driving wheels and to raise the others.

By my invention the point of connection is made between the two connecting rods; that is, above the plane of the driving wheel connecting rod and below that of the motor connecting rod. In this way the leverage on both the motor axles and on the driving wheels is reduced to a minimum.

My invention will best be understood by reference to the accompanying drawing, in which—

Figure 1 shows a side elevation of an electric locomotive constructed in accordance with my invention, and Fig. 2 shows a modification. In both cases the cab is partly broken away.

AA represent a pair of motors carried on the locomotive frame with their axles in a

plane above that of the driving wheels. The armatures of the motors are connected at both ends of the motor shafts by connecting rods BB connected to the motor armatures through cranks balanced as indicated at *aa*.

DD represent the driving wheels which are connected to each other by connecting rods CC.

The connecting rod B carries a downwardly extending V-shaped member provided at its lower end with a fork shaped guide *b*. Into this guide extends the upwardly projecting member *c* carried by the driving wheel connecting rods. Through these two members *b* and *c* the power is transmitted from the motors to the driving wheels. The construction of these members permits a relative vertical movement of the two members to compensate for compression of the springs which support the locomotive frame on the trucks. The driving connection being at a point between the connecting rod C and the connecting rod B the leverage on the motor axles tending to raise one and depress the other is much less than it would be if the point of connection were in the plane of the rod C.

As will be seen from Fig. 2, the crank connections of both motor armatures and driving wheels are displaced 90 degrees from each other on opposite sides of the locomotive so as to give uniform torque.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In an electric locomotive having a plurality of driving wheels and a plurality of electric motors carried on the locomotive frame with their axles in a plane above that of the driving wheels, a system of cranks and connecting rod for the driving wheels, a system of cranks and connecting rod for the motors, and a connection through which power is transferred from one system to the other located above the plane of the wheel connecting rod and below the plane of the motor connecting rod.

2. In an electric locomotive having a plurality of driving wheels and a plurality of electric motors carried on the locomotive frame with their axles in a plane above that of the driving wheels, a system of cranks and connecting rod for the driving wheels, a system of cranks and connecting rod for the motors, and a connection through which power is transferred from one system to the

other located above the plane of the wheel connecting rod and below the plane of the motor connecting rod, said connection permitting relative vertical motion of said systems.

3. In an electric locomotive having a plurality of driving wheels and a plurality of electric motors carried on the locomotive frame with their axles in a plane above that of the driving wheels, a system of cranks and connecting rod for the driving wheels, a system of cranks and connecting rod for the motors, and a connection through which power is transferred from one system to the other located above the plane of the wheel connecting rod and below the plane of the motor connecting rod, said connection comprising a forked guide carried by one system and a block or projection carried by the other system capable of free vertical movement in said guide.

4. In an electric locomotive having a plurality of driving wheels and a plurality of electric motors carried on the locomotive frame with their axles in a plane above that of the driving wheels, a system of cranks and connecting rod for the driving wheels,

a system of cranks and connecting rod for the motors, an upwardly extending member carried by the wheel connecting rod, and a downwardly extending member carried by the motor connecting rod engaging the first member at a point between said rods.

5. In an electric locomotive having a plurality of driving wheels and a plurality of electric motors carried on the locomotive frame with their axles in a plane above that of the driving wheels, a system of cranks and connecting rod for the driving wheels, a system of cranks and connecting rod for the motors, an upwardly extending member carried by the wheel connecting rod, and a downwardly extending member carried by the motor connecting rod engaging the first member at a point between said rods, and permitting a relative free vertical movement of the first member.

In witness whereof, I have hereunto set my hand this 9th day of November, 1909.

ERNST F. W. ALEXANDERSON.

Witnesses:

BENJAMIN B. HULL;
HELEN ORFORD.