

No. 768,634.

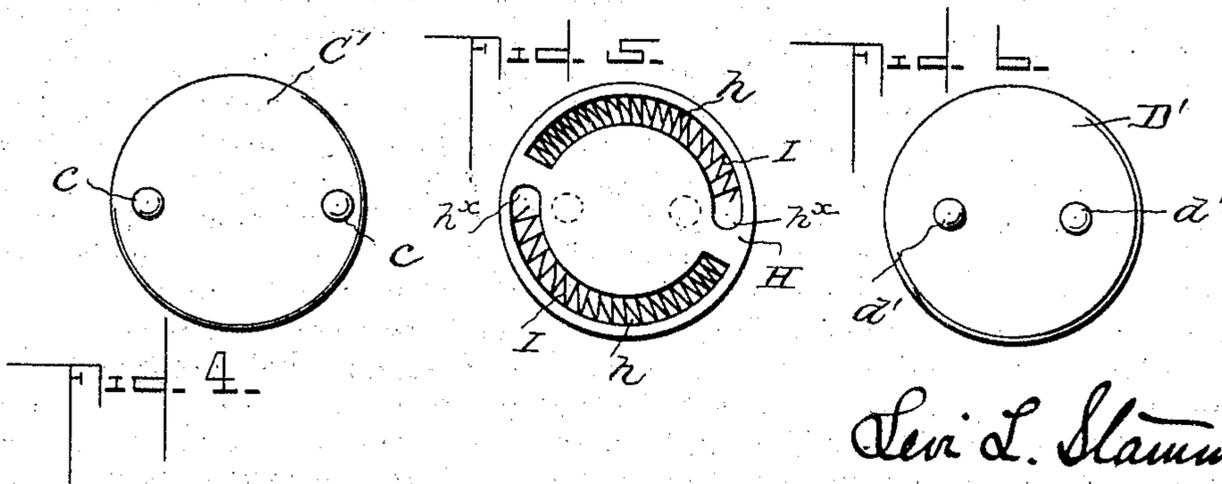
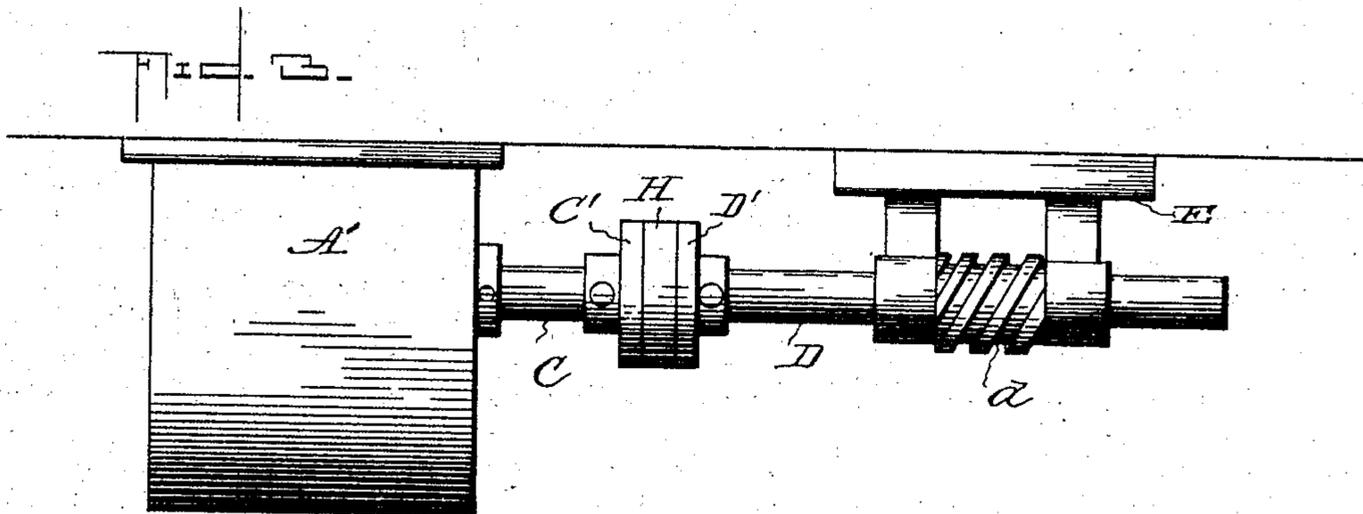
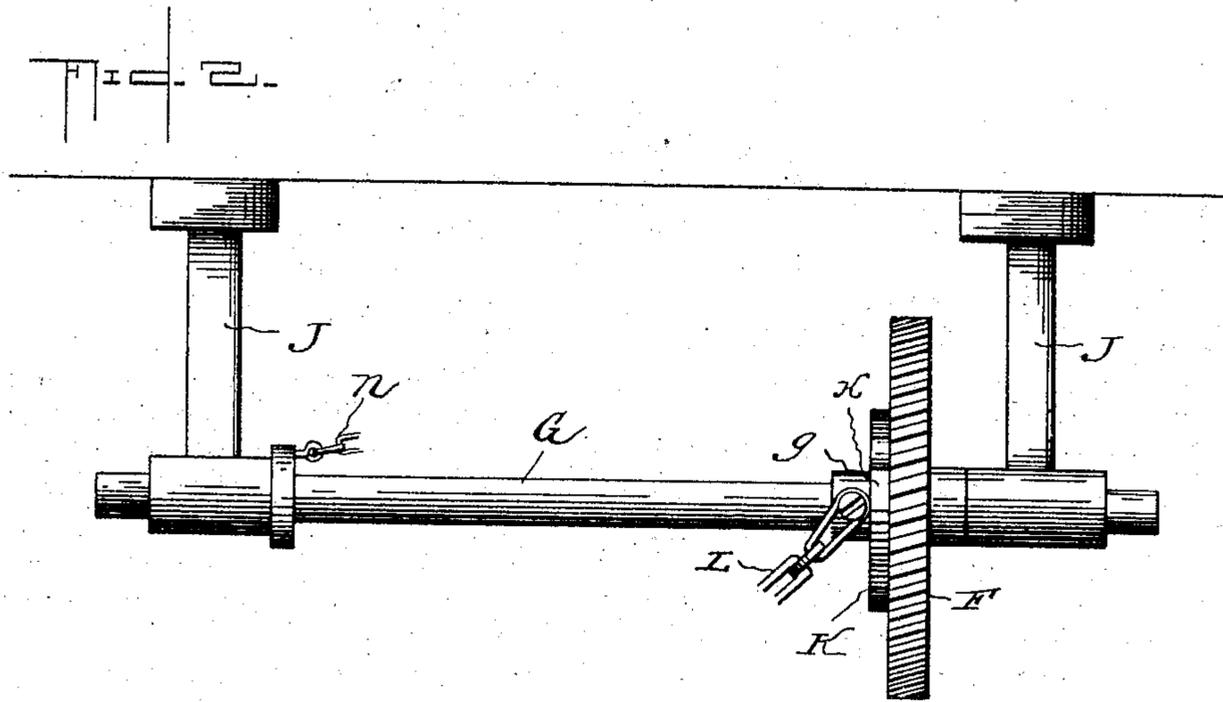
PATENTED AUG. 30, 1904.

L. L. STAMM.
ELECTRIC RAILWAY BRAKE.

APPLICATION FILED DEC. 8, 1903.

NO MODEL.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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ELECTRIC RAILWAY-BRAKE.

SPECIFICATION forming part of Letters Patent No. 768,634, dated August 30, 1904.

Application filed December 8, 1903. Serial No. 184,296. (No model.)

To all whom it may concern:

Be it known that I, LEVI L. STAMM, a citizen of the United States, residing at Almond, in the county of Allegany and State of New York, have invented an Electric Railway-Brake, of which the following is a full, clear, and exact description.

The object of this invention is to provide a railway-brake especially adapted for electric-railway cars which shall be simple and cheap in construction, effective and durable in use, can be quickly and easily applied, will bring the car gradually to a full stop, and will operate to hold the car on any grade.

With these general objects in view the invention consists in the particular construction, arrangement, and combination of the parts constituting the invention, all as hereinafter fully described, and more specifically set forth in the appended claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a diagram view illustrating the application of the invention. Fig. 2 is an enlarged view in elevation showing the brake-shaft and its connections. Fig. 3 is a similar view of the sectional power-shaft. Fig. 4 is a face view of the driving-wheel carried by the motor-driven section of the power-shaft. Fig. 5 illustrates face views of the solid wheel or disk which is interposed between the wheels on the motor-driven and transmission sections of the power-driven shaft. Fig. 6 is a face view of the wheel which is carried by the transmission-section of the power-shaft.

Similar letters of reference indicate similar parts in all the figures of the drawings.

In carrying out my invention I employ in the first instance an electric motor which is of the usual pattern and is inclosed in a suitable casing A', securely bolted to the under side of the car; but inasmuch as I lay no claim to the construction of the motor—merely its combination with the other parts—any style of electric motor may be employed suitable for the purpose, and, as shown in the diagrammatic view, Fig. 1, its operations are controlled by the controller or double-throw switch B, which

latter is duplicated at either end of the car, as is usual.

C designates the motor-driven section of the power-shaft, which is suitably journaled in the casing A' and at one end extends beyond the same. On a line with this shaft and journaled in a hanger E is the transmission-shaft D, which latter is provided with a worm d , in mesh with a worm-wheel F on the brake-shaft G. The hanger E is bolted to the under side of the car, and the lower end thereof is bifurcated to receive the worm d , the said latter by this arrangement preventing longitudinal movement of the shaft.

The shafts C and D together form what I term the "power-shaft," and are connected in a peculiar manner, so as to turn in unison so that the motor-driven section thereof may have a limited rotatable movement before starting up the other section, for the purpose hereinafter set forth. To accomplish this, the contiguous ends of the shafts C and D are provided with similar wheels C' and D', respectively, fixed thereto and connected to an interposed solid wheel or disk H, the connection being by means of studs c and d' , projecting from the faces of the wheels C and D, respectively, and engaging openings or recesses therefor in the opposite faces of the aforementioned solid wheel or disk H. The latter is preferably composed of an insulating material, and in the face of the same, which is opposed to the face of the wheel C', are formed semicircular recesses h h , which are concentric with the axis of the disk and in which travel the lugs c c on said wheel C'. Seated in these recesses are helical expansion-springs I, against one end of which the said lugs are adapted to bear, and said springs are disposed in the recesses with respect to the lugs so that they will be compressed by the latter when the motor-driven section of the power-shaft is turned in the direction to set the brakes.

The brake-shaft G is journaled in hangers J J, bolted to the under side of the car, and loosely mounted on said shaft is the worm-wheel F, hereinbefore mentioned, and at one

side of the latter and fixed to the shaft is a ratchet-wheel K, with which engages a spring-actuated pawl *g* on the face of the worm-wheel. Beyond the ratchet-wheel there is
 5 sufficient space on the shaft upon which to wind the brake-chain L, one end of which latter is connected to the collar *k* of the ratchet-wheel, while the other end is attached to the brake-lever M. This brake-chain is
 10 provided with an extension-spring *m*, forming a part thereof and adapted to yield or give when the brakes are set and permit of a yielding pressure of the brake-shoes on the wheels.

15 In order to provide for automatically cutting out the circuit after the brakes are fully set, and thereby prevent the operator from "sticking" the motor and burning it out, I employ a chain or flexible connection *n*, which
 20 is attached at one end to the brake-shaft G and at the other end to a spring-actuated lever *o* of the cut-out O, the said chain being wound upon the shaft as the same is rotated to set the brakes and is of such length that
 25 when the brakes are fully set it will operate the cut-out.

The operation of the brake mechanism will be readily understood from the foregoing description in connection with the accompanying drawings, for when the electric motor is
 30 started up the shaft C will be turned until the springs I of the shaft connection are compressed to the extent of imparting the motion of the shaft C to the shaft D, when
 35 the worm-wheel F will be turned by the worm *d*, and the pawls on said worm-wheel engaging the ratchet-wheel K will turn the shaft G, to which said ratchet-wheel is fixed, thus winding the brake-chain on said shaft and applying the brakes. If the brakes are fully
 40 set, the chain *n* will operate the cut-out, and the mechanism will be held by the motor until the current is shut off by the controller. In releasing the brakes the motor is reversed,
 45 and the spring which returns the brake-beam to its normal position will operate to unwind the chain from the brake-shaft, in which latter operation the shaft G is permitted to turn backward to its proper extent.

50 The particular construction of the shaft connection permits the motor to be started up before the brake mechanism is put in motion, and when the parts are in their normal condition, with the brake mechanism released,
 55 the springs I will be expanded and the lugs *c* then located in the ends *h*^x of the semicircular recess *h*, so that the shaft C may be turned or started before the shaft D.

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

1. In an electric brake mechanism, the combination, of an electric-motor and its shaft, a shaft forming part of the gearing to the brake-
 65 shaft, wheels on the contiguous ends of said

shafts, one of the wheels having semicircular recesses and lugs on the other wheel traveling in said semicircular recesses and by which said shafts are connected to permit
 70 a limited movement of the motor-shaft in advance of the other shaft, and helical springs mounted in the recesses between the end walls thereof and the aforesaid lugs, substantially as shown and for the purpose set forth.

2. In an electric brake mechanism, the combination, of a power-shaft comprising two sections, wheels on the contiguous ends of said shafts and provided with projecting lugs, and an interposed solid wheel or disk having recesses with which said lugs engage, the recesses in one face of the disk being semicircular to permit of a movement of one section of the shaft in advance of the other, substantially as shown and for the purpose set forth.

3. In an electric brake mechanism, the combination, of a power-shaft comprising two sections, wheels on the contiguous ends of said shafts and provided with projecting lugs, an interposed solid wheel or disk of insulating material having recesses with which said lugs engage, the recesses in one face of the disk being semicircular to permit of a movement of one section in advance of the other, and springs seated in said semicircular recesses and against which the lugs bear when the shaft is turned to set the brakes, substantially as shown and for the purpose set forth.

4. In an electric brake mechanism, the combination, of the power-shaft comprising two sections, wheels on the contiguous ends of said shafts and provided with projecting lugs, an interposed solid wheel or disk having recesses with which said lugs engage, the recesses in one face of the disk being semicircular to permit of a movement of one section in advance of the other section, and springs seated in said semicircular recesses and against which the lugs therein bear when the shaft is turned to set the brakes; together with a worm on the power-shaft, a brake-shaft having a worm-wheel loosely mounted thereon and in mesh with the aforesaid worm, a ratchet-wheel on the brake-shaft, and pawls on the worm-wheel in engagement with the ratchet-wheel.

5. In an electric brake mechanism, the combination, of the power-shaft comprising two sections, wheels on the contiguous ends of said sections and provided with projecting lugs, an interposed solid wheel or disk having recesses with which said lugs engage, the recesses in one face of said disk being semicircular to permit movement of one of the sections of the power-shaft in advance of the other section thereof, and springs seated in said semicircular recesses and against which the lugs therein bear when the shaft is turned to set the brakes; together with the brake-shaft and gearing between the same and the power-shaft, a chain extending from the

brake-shaft to the brake-lever, and an extension-spring forming a part of said chain, substantially as shown and for the purpose set forth.

5 6. In an electric brake mechanism, the combination with an electric motor and its shaft, a brake-shaft geared to the aforesaid shaft, a cut-out having a spring-actuated lever, and a chain or flexible connection between said lever and the brake-shaft, substantially as shown
10 and for the purpose set forth.

7. In an electric brake mechanism, the combination, of the electric motor and its shaft, a controller for said motor, gearing between

the shaft and brake-shaft, a chain extending 15
from said brake-shaft to the brake-lever, a cut-out for the motor, a spring-actuated lever for operating the cut-out, and a chain or flexible connection attached to the lever and to the brake-shaft, substantially as shown 20
and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LEVI L. STAMM.

Witnesses:

E. D. LEWIS,
LEMAN MARKHAM.