

No. 731,364.

PATENTED JUNE 16, 1903.

A. A. HONEY.

ELECTROMAGNETIC TRACTION INCREASING APPARATUS.

APPLICATION FILED DEC. 28, 1901. RENEWED NOV. 25, 1902.

NO MODEL.

Fig. 1.

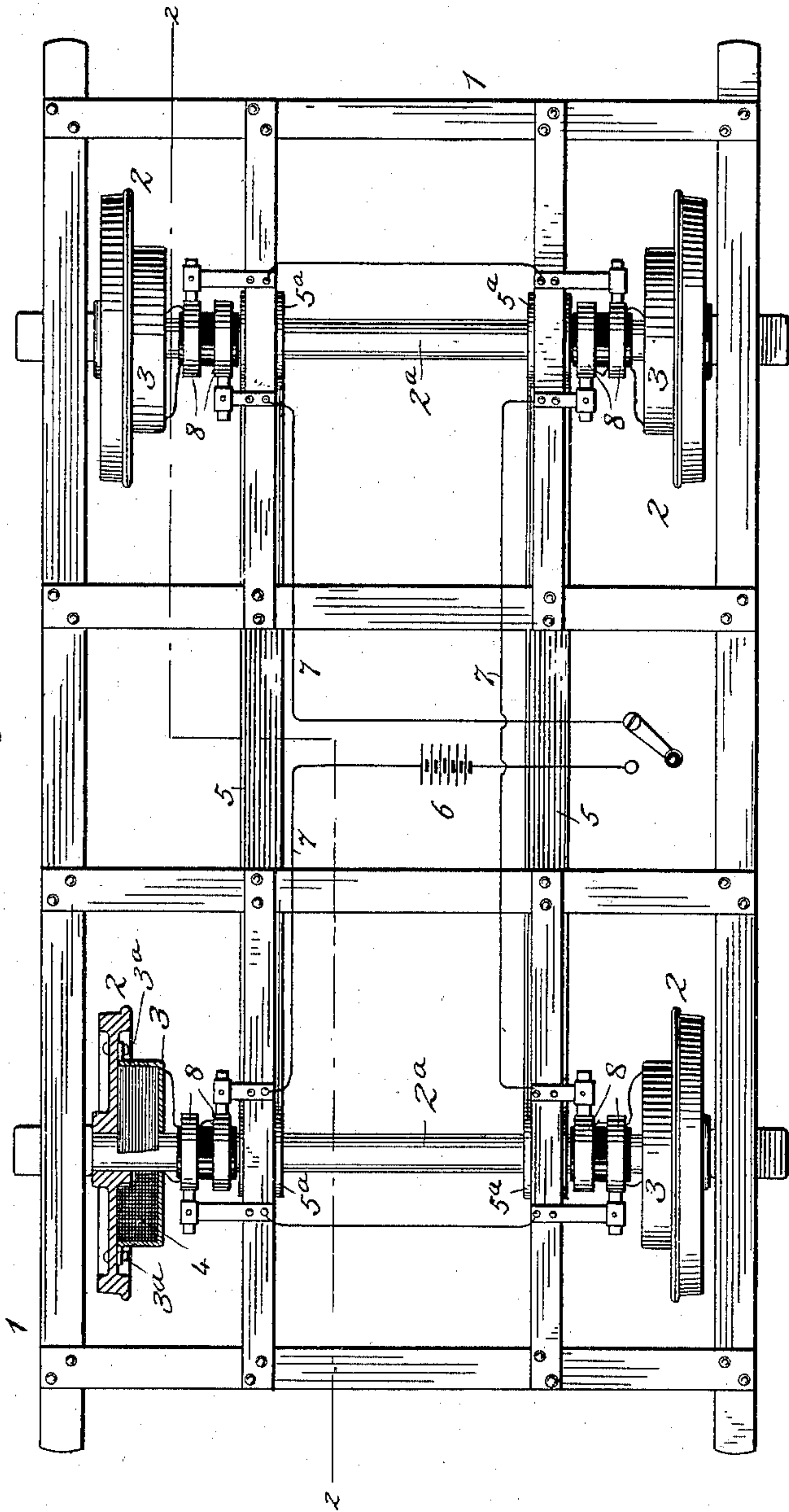
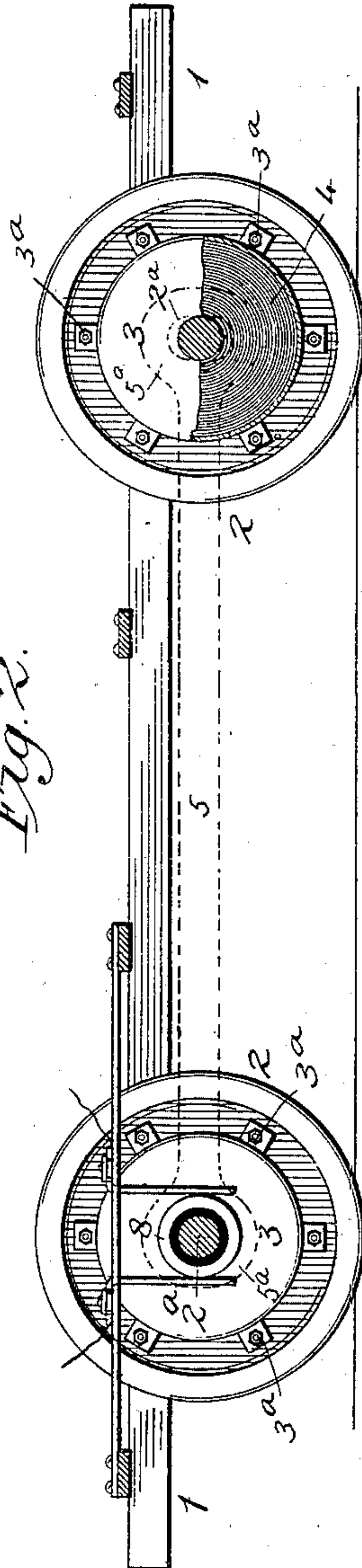


Fig. 2.



Witnesses

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ALBERT A. HONEY, OF TACOMA, WASHINGTON, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MAGNETIC EQUIPMENT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF SOUTH DAKOTA.

ELECTROMAGNETIC-TRACTION-INCREASING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 731,364, dated June 16, 1903.

Application filed December 28, 1901. Renewed November 25, 1902. Serial No. 132,833. (No model.)

To all whom it may concern:

Be it known that I, ALBERT A. HONEY, a citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Electromagnetic-Traction-Increasing Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part thereof.

My invention relates to a system of electromagnetic traction for railways, having for its object the increase of the traction between the wheels of cars and the rails by the influence of magnetism, and is an improvement upon the device described in my Patent No. 683,283, granted September 24, 1901. In my said former patent is shown in an electromagnetic-traction-increasing apparatus sectional magnets or helices mounted upon each axle, occupying the greater amount of the space between the wheels, one section of each magnet being wound in one direction and the other in the opposite direction, there being a bridge of magnetizable metal connecting the magnets or helices of the two axles and wires for connecting them up in a common circuit.

In my present invention in order to utilize the axle for such purposes as bearing-gearing, motor-hangings, &c., I employ the inner side of each drive-wheel as a carrier for the magnets, whereby considerable space is left between the magnets upon the axle.

In the accompanying drawings, Figure 1 is a plan view, partly in section, of the frame and truck of an ordinary street-car, as is necessary to fully illustrate my invention. Fig. 2 is a sectional elevation on the line $x x$ of Fig. 1, a portion being broken away.

Similar numerals of reference indicate identical parts in the respective figures.

Let 1 represent the main portions of the framework of a street-car, to which my invention is shown adapted, although it is equally adaptable to railway or other cars of a different type.

2 2 represent the wheels, which are suitably mounted on axles 2^a, having bearing-

boxes. (Not shown.) To each of the wheels 2 2 is a box 3, made of non-magnetizable metal, securely bolted to the web of the wheel by means of bolts 3^a.

4 represents a magnet or helix which is mounted in two sections on each axle, each section of each magnet or helix being mounted upon a wheel within a box 3. Instead of using the sleeves which surround the axles in my prior patent, upon which the sections of the magnets or helices are wound, I employ the construction herein shown, in which each magnet or helix properly wound is confined within and supported by the non-magnetizable box 3, secured to the wheel 2, as shown.

5 is the bridge, of which two are shown in lieu of the single one shown in my prior Letters Patent. Each bridge is of course made of magnetizable metal and engages at its extremities with the axle in the form of a bearing 5^a. This bearing has sufficient surface and a close enough fit so as not to seriously interrupt the magnetic current, which will pass through the horseshoe-magnet thus formed, of which the wheels form the poles and the intervening section of rail the armature. It is to be noted that the coils in the two sections forming a magnet are wound in the proper direction.

6 is a source of electrical supply, and 7 the wire forming the circuit. In order that the circuit may not be broken between the fixed framework 1 and the rotating helices 4, an arrangement of brushes attached to the framework in connection with the rings 8, insulated from the axles, is employed. This is a well-known expedient and need not be further described. It will be noted that the length of the axle illustrated in my former patent which is practically occupied by the two sections of the helix is in my present invention left for the occupancy of the necessary gearing, motor-hangings, &c. It will also be noted that as the helices are mounted upon the wheels the location of the magnetic field is much nearer the armature than in the former Letters Patent.

The form in which my invention is here shown is one of many in which it may be em-

bodied. As here illustrated, the bridges are shown as being attached inside of the wheels. They may be, if desired, attached outside of the wheels or may form part of the framing

5 1. These are not necessary features of my invention. Other changes in construction and arrangement may be made in this device without departing from the spirit of my invention; but such changes or deviations as
10 may suggest themselves to the skilled mechanic without the exercise of invention are considered by me to be within the scope of my invention.

What I claim as my invention, and desire
15 to secure by Letters Patent, is—

1. In an electromagnetic-traction-increasing apparatus, the combination of wheels and axles, a magnet or helix mounted upon each wheel, a bridge of magnetizable metal connecting the two axles, and wires by means
20 of which the magnets are connected in the common circuit, so that a plurality of horseshoe-magnets will be formed, each having two coils, substantially as set forth.

25 2. In an electromagnetic-traction-increasing apparatus, the combination of wheels and axles, a magnet or helix mounted upon each wheel, two bridges of magnetizable metal adjacent to the wheels, connecting the two axles,
30 and wires by means of which the magnets are connected in the common circuit, so that a

plurality of horseshoe-magnets will be formed, each having two coils, substantially as set forth.

3. In an electromagnetic-traction-increasing apparatus, the combination of wheels and axles, a magnet or helix mounted upon each wheel, a non-magnetizable metallic box covering each helix, a bridge of magnetizable metal connecting the two axles, and wires by
40 means of which the magnets are connected in the common circuit, so that a plurality of horseshoe-magnets will be formed, each having two coils, substantially as set forth.

4. In an electromagnetic-traction-increasing apparatus, the combination of wheels and axles, a magnet or helix mounted upon each wheel, a non-magnetizable metallic box covering each helix, two bridges of magnetizable metal adjacent to the wheels, connecting the
50 two axles, and wires by means of which the magnets are connected in the common circuit, so that a plurality of horseshoe-magnets will be formed, each having two coils, substantially as set forth.

In testimony whereof I hereunto set my hand.

ALBERT A. HONEY.

Witnesses:

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