

No. 636,429.

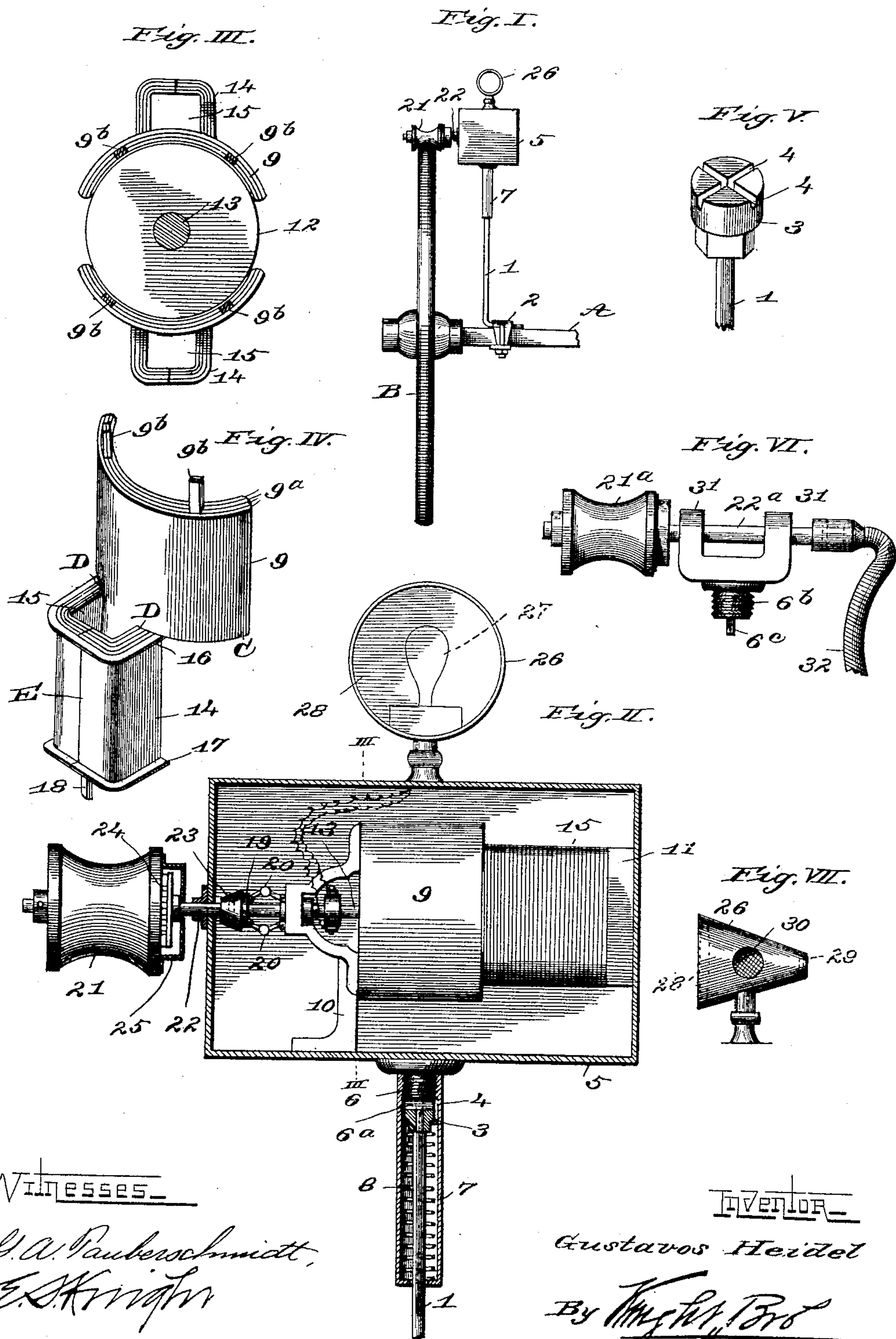
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ELECTRIC LIGHTING APPARATUS FOR VEHICLES.

(Application filed Feb. 13, 1899.)

(No Model.)



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## ELECTRIC-LIGHTING APPARATUS FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 636,429, dated November 7, 1899.

Application filed February 13, 1899. Serial No. 705,453. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAVOS HEIDEL, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have  
5 invented certain new and useful Improvements in Electric-Lighting Apparatus for Vehicles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of  
10 this specification.

My invention relates to an electric-lighting apparatus for vehicles in which the electrical current is generated by means of a dynamo operated by a roller arranged in frictional  
15 contact with the rim or tire of one of the wheels of the vehicle by which the apparatus is carried.

My invention consists in features of novelty hereinafter fully described, and pointed out  
20 in the claims.

Figure I is a view showing a vehicle-wheel and a portion of its axle in elevation with my apparatus shown carried by the wheel-axle and the friction-roller in contact with the  
25 wheel. Fig. II is an enlarged elevation of the apparatus with the casing shown in vertical section. Fig. III is an end view of the dynamo-armature and pole-pieces with the armature-shaft shown in section, taken on the  
30 line III III, Fig. II. Fig. IV is a perspective view of one of the pole-pieces of the dynamo. Fig. V is a perspective view of the upper head end of the standard on which the apparatus is mounted. Fig. VI is a view in elevation of a  
35 modified construction of drive-shaft by which the friction-roller is carried. Fig. VII is a detail side elevation of the lamp.

A designates a vehicle-axle, and B one of the wheels in which said axle is supported.

40 1 designates a standard on which my lighting apparatus is mounted and which is preferably connected to the axle A by a clip 2, but may be attached to the axle in any other suitable manner. On the upper end of the  
45 standard 1 is a head 3, provided with crossing grooves 4. (See particularly Fig. V.)

50 5 designates a casing provided on its under side with a screw 6, that is seated in the upper end of a sleeve 7, surrounding the upper end of the standard 1 and inclosing the head 3 of the standard. The lower end of

the sleeve 7 is closed, and within the sleeve is a spring 8, that rests upon the bottom of the sleeve and bears against the head 3. On the under side of the screw 6 is a tongue 6<sup>a</sup>,  
55 (see dotted lines, Fig. II,) that is designed to seat in either of the grooves 4 in the head 3. By raising the casing 5 the sleeve 7 may be elevated on the standard 1 against the action of the spring 8 and the tongue 6<sup>a</sup>, carried by  
60 the screw 6, withdrawn from the groove 4 of the standard-head 3, in which it was previously seated, and the casing can then be swung to either side, as may be desirable in the use of the apparatus, as will hereinafter appear. 65

9 designates the pole-pieces of the dynamo, mounted within the casing 5 and supported by a standard 10 and a plate 11. These pole-pieces are composed of a series of plates 9<sup>a</sup>, that are curved to conform to the armature  
70 12, (see Fig. III,) so as to bear in contact with said armature. The armature is mounted on an armature-shaft 13. The pole-pieces 9 are supported in the standard 10 by prongs 9<sup>b</sup>, formed from the plates 9<sup>a</sup> and seated in open-  
75 ings in the standard 10. The plates 9<sup>a</sup> are cut at a line C to a point D from either side and are bent outwardly and inwardly to bring their edges together at a point E (see Fig. IV) to form field-cores 14 for the armature-wires  
80 15. (See Fig. II.) By forming the cores 14 in the manner described an aperture 15 is produced in each core, by virtue of which I am enabled to obtain a greater degree of utility in the field-pieces and derive an in-  
85 creased amount of electrical energy over what can be obtained in the absence of such an aperture. At the inner end of the core 14 I apply a plate 16 to confine the wiring 15, and at the opposite end of the core 14 the inner plate  
90 9<sup>a</sup> is bent outwardly to form a flange 17, (see Fig. IV,) by which the wiring is confined at that end of the core.

18 is a prong formed from the plates 9<sup>a</sup> at the outer end of the core 14, that is inserted  
95 in the supporting-plate 11 to support the core of the pole-pieces. The armature-shaft 13 is supported in the standard 10 and plate 11 and is provided with a clutch member 19, controlled by governor-arms 20. 100

21 designates a friction-roller adapted to bear on the rim or tire of the vehicle-wheel,



(see Fig. I,) so as to receive motion from said wheel. This friction-roller is mounted on a drive-shaft 22, that extends into the casing 5, and is provided with a clutch member 5 23, adapted to engage the clutch member 19 on the armature-shaft 13, so that by the operation of said friction-roller 21 motion is transmitted through the drive-shaft 22 to the clutch members 23 and 19 to drive the armature 12 and generate electrical current in the dynamo.

On the drive-shaft 22 and friction-roller 21 is a pawl and ratchet 24, that permits of a retrograde movement of the friction-roller 15 without affecting the operation of the armature-shaft. This pawl and ratchet is inclosed within a casing 25.

26 designates a lamp-housing mounted on the casing 5, to which wires lead from the dynamo within the casing. This housing contains a lamp 27 and is provided with a forward lens 28 and also rear and side colored lenses or jewels 29 and 30. (See Fig. VII.)

In the apparatus as thus far described the lamp is designed to be supported alongside of the vehicle-wheel, as is illustrated in Fig. I. It is possible, however, to locate the lamp-casing 5 on the dashboard of the vehicle, and for this arrangement I have shown in Fig. 30 VI a drive-shaft 22<sup>a</sup>, mounted in bearings 31, that are supported by the screw, which is designed to be supported in the sleeve 7 in a similar manner to that illustrated in Fig. II. The screw 6 is provided with a tongue to 35 engage in the grooved head 3 of the standard 1, so that in the main form of the device the entire apparatus may be turned to one side by raising the casing, so that the friction-wheel 21 may be thrown out of contact with

the rim or tire of the wheel. The drive-shaft 22<sup>a</sup> bears a pulley 21<sup>a</sup>, corresponding to that 21, and has attached to it a flexible shaft 32, that leads to the armature-shaft, so as to drive it irrespective of the alinement of the shaft 22<sup>a</sup> and the armature-shaft. 45

I claim as my invention—

1. In an electric-lighting apparatus for vehicles, a casing, a lamp carried by said casing, a dynamo mounted within said casing, a friction-roller adapted to bear against the rim 50 of one of the vehicle-wheels, and provided with connection to the armature-shaft of said dynamo, a standard on which said casing is supported, a sleeve carried by said casing surrounding said standard and having a slot- 55 ted head at its upper end adapted to receive a tongue carried by said casing, and a spring within said sleeve, substantially as and for the purpose set forth.

2. In an electric-lighting apparatus for vehicles, a casing, a friction-roller adapted to bear against the rim of one of the vehicle-wheels and having a shaft extending into said casing, a dynamo having an armature-shaft arranged to be engaged and driven by the 65 drive-shaft of said roller, the pole-pieces of said dynamo being composed of a series of plates from which the field-cores are formed by cutting said plates intermediate of their ends and bending the material outwardly and 70 toward each other to form an aperture within the field-core, substantially as and for the purpose set forth.

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In presence of—

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