No. 850,570. PATENTED APR. 16, 1907.

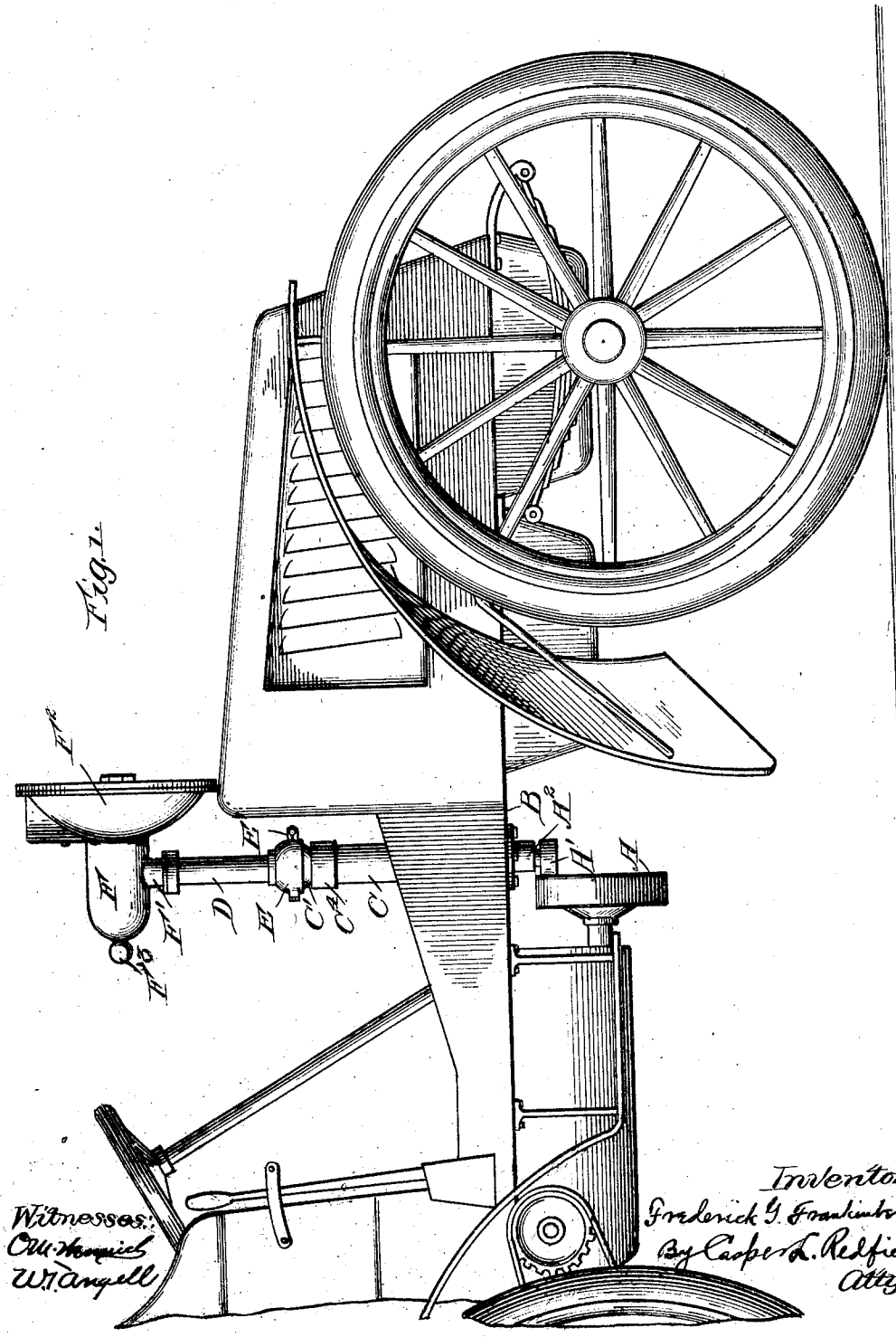
F. G. FRANKENBERG.

HEADLIGHT FOR VEHICLES.

APPLICATION FILED SEPT. 18, 1905.

3 SHEETS—SHEET 1.

Fig. 1.



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No. 850,570. PATENTED APR. 16, 1907.

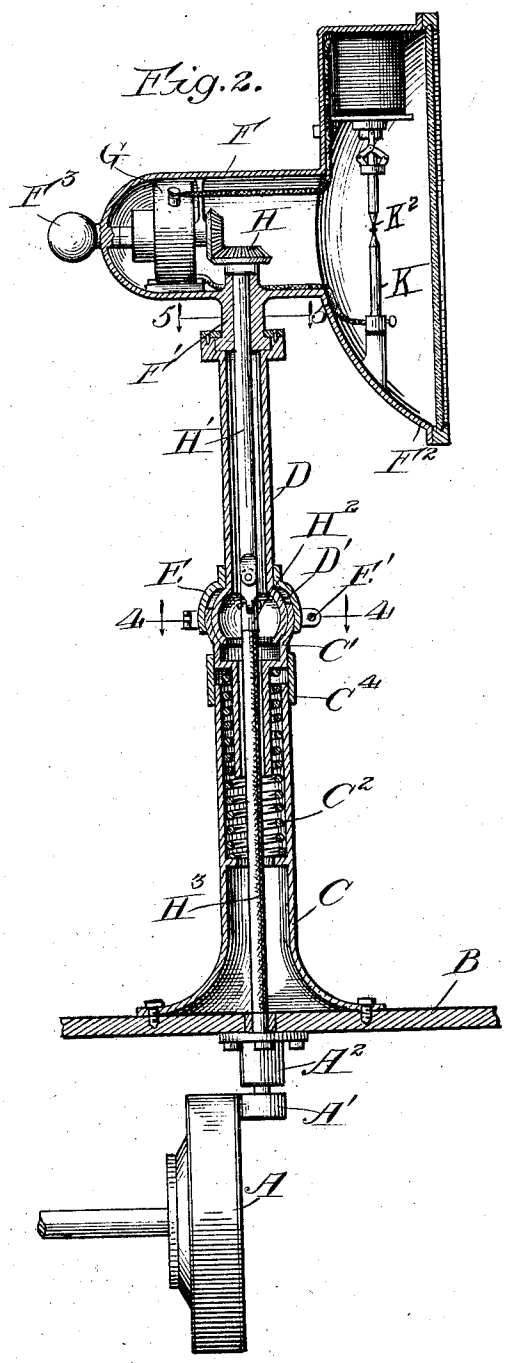
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 7.

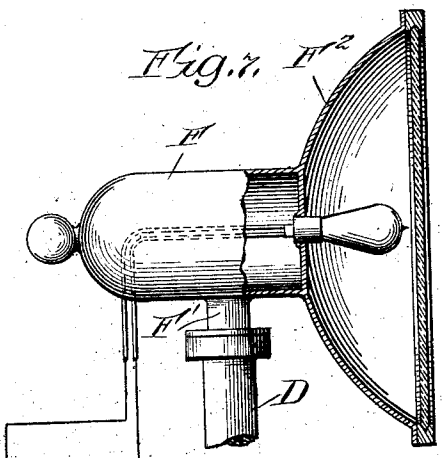


Fig. 3.

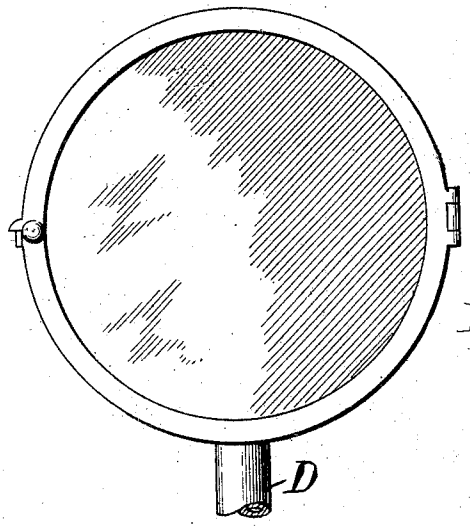


Fig. 5.

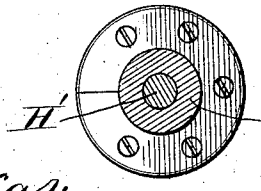
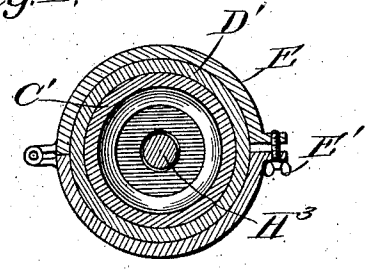
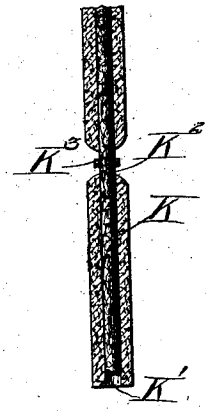


Fig. 4.

Fig. 6.





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UNITED STATES PATENT OFFICE.

FREDERICK G. FRANKENBERG, OF CHICAGO, ILLINOIS.

HEADLIGHT FOR VEHICLES.

No. 850,570. Specification of Letters Patent. Patented April 16, 1907.

Application filed September 18, 1905. Serial No. 278,840.

To all whom it may concern:

Be it known that I, FREDERICK G. FRANKENBERG, a citizen of the United States of America, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Headlights for Vehicles, of which the following is a specification.

My invention relates to headlights for vehicles, and more particularly for automobiles.

The object of my invention is to provide superior means for supporting and adjusting the light and for driving the dynamo for the production of an electric light.

In the accompanying drawings, Figure 1 is a partial view of an automoble, showing my invention in elevation. Fig. 2 is a vertical section through the headlight and the supporting and driving mechanism. Fig. 3 is a front elevation of the headlight itself. Fig. 4 is a section on line 4 4 of Fig. 2: Fig. 5 is a section on line 5 5 of Fig. 2. Fig. 6 shows an arrangement for holding the carbons in line when an arc-light is used, and Fig. 7 shows an incandescent light held in the headlight-case.

In Figs. 1 and 2, A is a friction-disk which is driven by the motor which drives the vehicle. This motor may be of any kind, the most common form in present use being a gasolene-engine. The disk A may, however, be driven by an auxiliary motor when so desired. The disk A engages and drives a roller A′, which is supported by a bearing A^2, secured to the floor B of the vehicle. Bevel-gears may be used instead of the friction device shown. On the top of the floor B is secured a standard C, which is hollow on the inside and finished on the outside. Arranged to slide on the outside of the standard C is a sleeve C^4, and secured to this is a piece C′, the upper end of which is a cup arranged to receive the globular portion D′ of the tubular extension D. Surrounding the parts C′ and D′ is a clamp E, secured by a screw E′. These parts form a ball-and-socket joint by which the extension D may be adjusted or inclined with respect to the standard C. The clamp associated with the ball-and-socket joint serves to secure the extension at any desired adjustment. Arranged to swivel on the upper part of the extension D is a bearing F′, which is secured to or forms part of the casing F. The swiveling-joint between D and F′ is provided with a moderate amount of friction, so that the casing F will stay in the place it is put; but the friction is not so great as to prevent the headlight being turned in any desired direction by hand. That part of the casing F which is over the swivel just described is hollow for the reception of a small dynamo G, while the part F^2 opposite the dynamo is flared out and forms the headlight proper. On the end of the casing F is a handle F^3 for convenience in turning the light in any direction.

From the roller A′ a shaft extends upward through the interior of the standard C, the extension D, and the bearing F′ and terminates in a bevel-gear H, which meshes with another bevel-gear on the shaft of the dynamo G. The part H′ of this shaft terminates in a universal joint H^2, which is located within the ball-and-socket joint C′ D′. The part of the shaft H^3 which connects the universal joint H^2 to the roller A′ is preferably a flexible shaft, though it may be a rigid shaft with a slip-joint.

Inside of the standard C and under the cup C′, is a spring C^2, the object of which is to support the weight of the upper parts. This spring relieves the headlight of a considerable part of the jar incidental to running a vehicle of this kind, the sleeve C^4 sliding up and down on the standard to accommodate variations in the compression of the spring C^2. The flexibility of the shaft H^3 also accommodates variations in the distance between the roller A′ and the universal joint H^2 due to vertical movements of the upper parts. The universal joint within the ball-and-socket joint permits the light to be projected in a greater variety of directions than would otherwise be possible. Thus if it be desirable to project the light downward at the side of the vehicle the ball-and-socket joint and the universal joint permit the extension D to be moved over to a nearly horizontal position, after which the swivel permits the light to be turned downward.

In case the source of power for driving the vehicle is a storage battery and electric motor the incandescent light shown in Fig. 7 may be used. In such a case the interior shaft with its universal joint is omitted, and the ball-and-socket joint and the swivel at the top of the extension are all that are neces-

sary to permit the light to be projected in any desired direction.

Although I have provided means for reducing the vibration of the headlight as much as possible, there is necessarily more or less vibration, which is injurious to electric lights. To overcome this difficulty, I have devised a special form of carbons for arc-lights to be used in headlights for vehicles. These carbons K have central longitudinal openings K′, and the two carbons of a light are loosely mounted upon an interior rod K^2, of hard asbestos or other similar substance, as shown in Fig. 6. This rod has a small collar K^3, the office of which is to prevent the carbon tips coming into contact with each other. This asbestos rod is a nonconductor of electricity and will resist the heat of the arc-light. It serves to keep the two carbons in line against the jarring action of the vehicle, while at the same time it permits the carbons to be freely fed toward each other as they wear away.

It will be evident that the standard C and the extension D taken together furnish an elevated support, or what may be called a "stand," upon which the headlight is swiveled; also, that this stand is jointed at a point intermediate its ends, so that the light may be inclined in any desired direction. Of course the sleeve C^4 might be secured to an elevated part of the vehicle, but in such a case the elevated part of the vehicle would itself be the equivalent of the standard C.

It will be apparent that mounting the dynamo G within the casing F not only furnishes a complete protection for the dynamo, but that the weight of the dynamo serves to counterbalance the enlarged part F^2; also that the bevel-gear connection between the shaft H′ and the dynamo permits the swiveling operation without affecting the light.

What I claim is—

1. The combination with a vehicle, of a stand mounted upon and secured to said vehicle, a headlight carried upon the upper end of said stand and swivelingly connected thereto, and a joint in said stand intermediate its ends whereby said headlight is manually adjustable to positions other than the swiveling positions.

2. The combination with a vehicle, of a standard supported by said vehicle, a second standard slidably supported above the first-named standard and provided with a joint intermediate its ends, a spring inclosed by the lower standard and serving to support the upper standard, and an electric light supported on the upper standard and operated by energy conveyed through the interior of said standards.

3. The combination with a vehicle, and a headlight therefor, of a support for said light consisting of a plurality of sections, one of said sections being slidably connected to another section, a spring between the sections and serving to support the weight of the upper one, a light supported on the upper end of the upper section, and a joint near the lower end of the upper section, substantially as described.

4. The combination with a casing, of a stand upon which said casing is swiveled, a joint in said stand intermediate its ends whereby said casing may be moved manually in different directions, electric-lighting devices in said casing, and means for conveying power through the jointed stand to cause the operation of the electric-lighting devices.

5. The combination with a casing, and a dynamo supported therein, of a stand upon which said casing is supported, a joint in said stand intermediate its ends whereby said casing may be moved manually in different directions, and means for conveying power through said jointed stand to cause the operation of said dynamo.

6. The combination with a vehicle furnishing a source of power, of an electric headlight yieldingly supported at an elevated position on said vehicle, means by which said headlight is manually adjustable to different positions, connections for conveying energy from the source of power to the electric headlight to cause its operation, and means provided in said connections for compensating for the variations in the elevation of said headlight due to the yielding character of its support.

7. The combination with a vehicle furnishing a source of power, of a jointed stand supported on said vehicle and manually adjustable to different positions, a dynamo supported on said stand, a shaft for conveying power from the source to the dynamo, and a joint in said shaft corresponding to the joint in said stand.

8. The combination with a vehicle furnishing a source of power, of a jointed stand supported on said vehicle and manually adjustable to different positions, a dynamo carried on said stand, a shaft extending through the interior of said stand for conveying power from the source to the dynamo, and a universal joint in said shaft coincident with the joint in said stand.

9. The combination with a vehicle furnishing a source of power, a stand divided into upper and lower sections, a spring between the sections, a dynamo supported on the upper section, a shaft extending through the sections for conveying power from the source to the dynamo, and means for compensating for variations in the driving distance between the source of power and the dynamo due to variations in compression of said spring.

10. The combination with a vehicle, and a headlight therefor, of a stand supported on said vehicle, said stand being provided at its upper end with a swiveling connection to said headlight and having a joint intermediate its ends whereby the swiveling connection may be moved in different directions.

Signed at Chicago, Illinois, this 16th day of September, 1905.

FREDERICK G. FRANKENBERG.

Witnesses:
A. L. BUCHANAN,
C. L. REDFIELD.