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G. B. GARDNER & F. M. FURBER.
OPERATING DEVICE FOR HEADLIGHTS.

APPLICATION FILED FEB. 24, 1906.

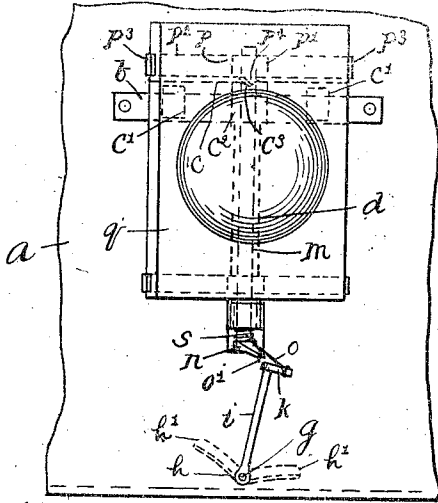


Fig. 1.

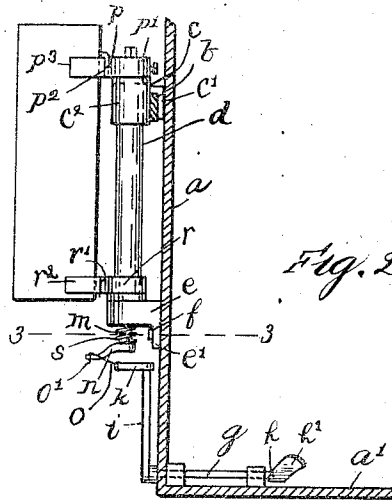


Fig. 2.

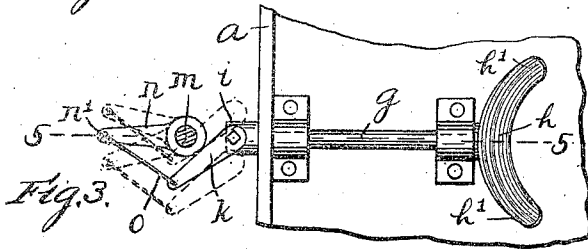


Fig. 3.

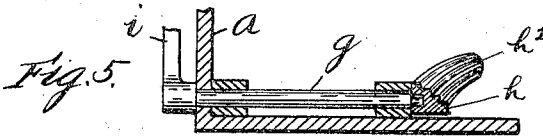


Fig. 5.

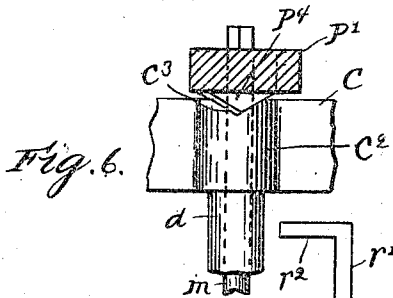


Fig. 6.

Fig. 8.

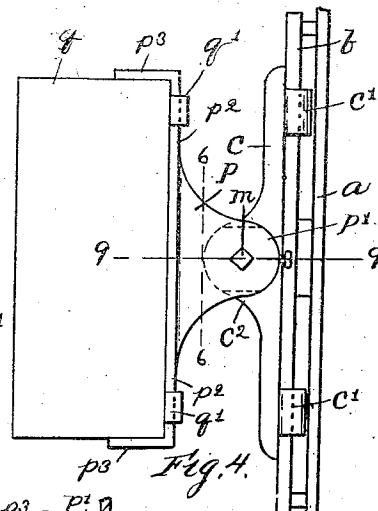
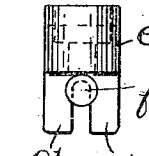


Fig. 4.

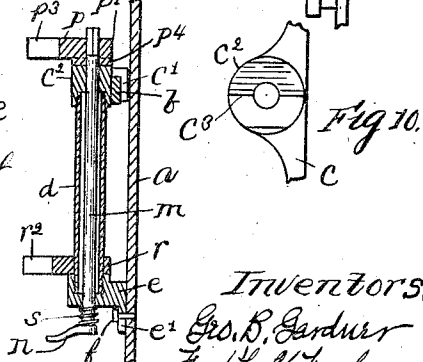


Fig. 9.

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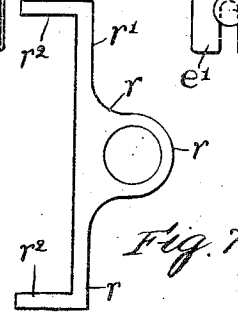
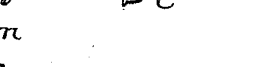


Fig. 7.

Fig. 10.



UNITED STATES PATENT OFFICE.

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OPERATING DEVICE FOR HEADLIGHTS.

No. 827,969.

Specification of Letters Patent.

Patented Aug. 7, 1906.

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To all whom it may concern:

Be it known that we, GEORGE B. GARDNER and FREDERICK M. FURBER, of Haverhill, county of Essex, State of Massachusetts, have invented an Improvement in Operating Devices for Headlights, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to an apparatus for controlling the direction in which the light shall be thrown from the headlight of an electric car or other vehicle, and has for its object to produce an improved form of foot-operating device for such apparatus which will enable the light to be thrown in different directions by merely tipping the foot or swinging it on the heel as a pivot.

For an understanding of our invention reference is made to the accompanying drawings, in which—

Figure 1 is a front elevation of a section of the dashboard of a car provided with a device made according to our invention. Fig. 2 is a side elevation thereof. Fig. 3 is a sectional view on the line 3 3 of Fig. 2. Fig. 4 is a top plan view of the lantern-holder. Fig. 5 is a detail sectional view on line 5 5 of Fig. 3. Fig. 6 is a detail view, partly in section, on line 6 6 of Fig. 4. Fig. 7 is a detail plan view of the lower lantern-engaging bracket. Fig. 8 is a detail front view of the lower base-bracket. Fig. 9 is a central sectional view on line 9 9 of Fig. 4. Fig. 10 is a top view of a portion of the upper base-bracket.

The dashboard *a* of the car is provided with the usual hanger-bar *b*, which is connected thereto at each end and extends parallel therewith at a short distance therefrom.

The headlight or lantern holding devices illustrated comprise an upper base-bracket *c*, provided with a pair of hooks *c'* on its rear side, similarly arranged to the hanger-hooks on an ordinary car-lantern and adapted to engage the hanger-bar *b*, so that said bracket may be hung on the bar *b* in the same manner as the lantern. Said base-bracket *c* is provided with a centrally-disposed forwardly-extending projection *c''*, into the under side of which a vertically-disposed tube *d* is threaded. Said tube *d* is also threaded at its lower end into a base-bracket *e*, said bracket being provided with a pair of depending ears *e'*, be-

tween which a vertical slot is formed adapted to receive a stud *f*, fixed in the dashboard *a*. A shaft *g* is journaled in the dashboard *a* and on the floor *a'* of the car in a horizontal position, and the rear end of said shaft is rigidly connected to a treadle *h* at the middle thereof. Said treadle is of approximately crescent shape or is transversely or horizontally curved, so that it is concave at its rear edge, and it is also longitudinally or vertically curved, so that it is concave on its upper side, said upper side constituting a foot-engaging face, and it is convex on its lower side, so as not to interfere with the oscillation of the shaft *g* within certain limits. Said upper side or foot-engaging face of said treadle is provided with a series of corrugations or ribs *h'*, which are curved horizontally from the same center as the curve of the front and rear edges of the treadle, said center being approximately in the line of said shaft and at a short distance in the rear of the rear end thereof. Said face is also inclined downwardly and rearwardly, the inclination being such that the motorman may conveniently place the fore part of his shoe on the treadle, with his heel resting on the floor. With this arrangement he may then swing his foot in opposite directions, with his heel as a pivot, and easily tilt the treadle and turn shaft *g* in opposite directions as he moves the fore part of his foot from one side to the other of the center line thereof. The treadle may also be easily tilted to some extent by placing the foot on the treadle centrally thereof, so that the fore part bears on the face of the treadle at each side of the shaft, and then tilting or canting the foot slightly, so that more weight is thrown on one arm of the treadle than the other. The center of the curves of corrugations *h'* will therefore be approximately at the point where the heel of the operator would ordinarily rest on the floor. The curved longitudinally-extending corrugations *h'* permit the shoe of the operator to slide easily over the treadle.

An arm *i* is rigidly connected to the front end of the rod *g* closely adjacent the front side of the dashboard and extends vertically when the treadle *h* is in its middle position—that is, when both end portions thereof are elevated to the same extent. An arm *k* is rigidly connected to the arm *i* and extends at right angles thereto and forwardly in an

oblique direction with reference to the front of the car when the arm *i* is in the vertical position. A rod *m* passes through the tube *d* and base-brackets *c* and *e*, and an arm *n* is rigidly connected to the lower end thereof, said arm *n* normally extending forwardly at right angles to the dashboard and downwardly, as shown in Figs. 2 and 3. A link *o* is pivotally connected to the end of the arm *k* and is provided with a hook-shaped end portion *o'*, which is adapted to pass through an aperture *n'*, formed in the front end of the arm *n*. A lantern-bracket *p* is provided with a rearwardly-projecting collar-piece *p'*, into which the upper end of rod *m* is fitted, said rod being made square at its upper end, so that neither can turn with relation to the other, a set-screw or other suitable means for forming a suitable connection therebetween being provided. Said bracket *p* is provided with flat-faced horizontal arms *p²*, which extend in opposite directions from the middle thereof, said arms being provided with forwardly-projecting fingers *p³* at their ends, as shown in Fig. 4. A headlight-lantern *q* of suitable form, having hooks *q'* on its back side, is adapted to be hung upon said arms *p²* between fingers *p³*, as shown in Figs. 1, 2, and 4, said fingers *p³* being adapted to engage the sides of the lantern to hold the same in position. The upper side of the base-piece *c* is provided with a V-shaped groove *c³*, which extends transversely thereof and perpendicularly to the front of the car, the line of the bottom of said groove intersecting the axis of rod *m*. The under side of the base portion *p²* of the lantern-bracket *p* is provided with a V-shaped tooth *p⁴*, which is normally adapted to fit closely in the groove *c³* when its under side is resting on the upper side of the base-bracket *e* and the parts are in their middle or normal position. A lantern-holding bracket *r* is swiveled on the tube *d* and is adapted to rest on the upper side of bracket *e*, said bracket being provided with horizontal arms *r'*, having forwardly-projecting fingers *r²* at their ends, adapted to engage the sides of the lantern and hold it from swinging on its hooks *q'*. A spring *s* is interposed between the under sides of the bracket *e* and the arm *n* and acts normally to hold the tooth *p⁴* in the notch *c³*.

The operation is as follows: When it is desired to direct the rays of light to one side or the other, the motorman presses on the corresponding end of the treadle, rotating the shaft *g* in that direction—as, for instance, if he presses on the left-hand end of the treadle-piece *h* the arm *i* will be swung to the left, swinging the arm *n*, through arm *k* and link *o*, in the same direction. This will cause the rod *m* to be rotated to the left, which will in turn swing the lantern-bracket *p*, and therefore the lantern, in the same direction. (See Fig. 1.) This will cause the tooth *p⁴* to

ride up on the corresponding side of the notch *c³*, lifting the lantern and rod *m* slightly and compressing the spring *s*, as shown in Fig. 6. As soon as the pressure on the treadle is relieved the force of gravity and the spring *s* will immediately cause the lantern to be returned to its middle position. The same operation takes place when the opposite end of the treadle is depressed, except that the parts will be swung to the right, as will be obvious. By this means the motorman may without lifting his heel from the floor and by simply swinging or tilting the fore part of his foot, with his heel as a pivot, direct the rays of light in either direction, the lantern automatically returning to the middle position when the pressure on either arm of the treadle is relieved.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with a shaft, a horizontally-extending support on which said shaft is rotatably mounted, and which extends beyond the end of said shaft, a treadle mounted on said shaft at its end and comprising a pair of rigidly-connected arms extending transversely of the shaft at each side thereof and disposed to be simultaneously engaged by the fore part of the foot while the heel part is resting on said support, substantially as described.

2. In combination with a shaft, a horizontally-extending support on which said shaft is rotatably mounted, and which extends beyond the end of said shaft, a treadle mounted on said shaft at its end and comprising a pair of rigidly-connected arms extending transversely of the shaft at each side thereof and having a continuous foot-engaging face disposed to be simultaneously engaged by the fore part of the foot at each side of the shaft while the heel part is resting on said support, substantially as described.

3. In combination with a shaft, a treadle connected thereto having a concave, foot-engaging face extending at each side of said shaft, substantially as described.

4. In combination with a shaft, a treadle connected thereto having a longitudinally and transversely curved foot-engaging face extending at each side of said shaft, substantially as described.

5. In combination with a shaft a longitudinally-curved treadle connected to said shaft and extending transversely at each side thereof, substantially as described.

6. In combination with a support, a shaft rotatably mounted thereon, and a treadle connected to said shaft and extending transversely at each side thereof and obliquely with relation to said support, substantially as described.

7. In combination with a horizontally-extending shaft, a treadle connected to one end

of said shaft and having a foot-engaging face on its upper side extending at each side of said shaft, the opposite edge of said face from said shaft being inwardly curved on a center 5 located in the line of said shaft, substantially as described.

8. In combination with a horizontally-extending shaft, a treadle connected to one end of said shaft and having a concaved foot-engaging face on its upper side extending at 10 each side of said shaft, the opposite edge of said face from said shaft being inwardly curved the centers of the curves of said face and its rear edge lying approximately in the 15 vertical plane of the axis of said shaft, substantially as described.

9. In combination with a shaft, a treadle connected thereto extending on opposite sides of said shaft and having a correspond- 20 ingly-extending foot-engaging face, said face having a series of corrugations extending transversely of the shaft, substantially as described.

10. In combination with a shaft, a treadle

to which said shaft is connected, said treadle 25 extending on opposite sides of said shaft, and having a correspondingly-extending foot-engaging face, said face having a series of curved corrugations, the approximate center of which is in the line of the shaft at a distance 30 from the point at which the treadle is connected thereto, substantially as described.

11. In combination with a support, a shaft rotatably mounted thereon, and a treadle for oscillating said shaft connected to the rear 35 end and extending transversely at each side thereof, said treadle having a correspondingly-extending foot-engaging face inclined downwardly from front to rear, substantially 40 as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

GEORGE B. GARDNER.
FREDERICK M. FURBER.

Witnesses:

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