

S. W. EMERY.
LOCOMOTIVE HEADLIGHT.
APPLICATION FILED MAY 17, 1907.

940,446.

Patented Nov. 16, 1909.

2 SHEETS—SHEET 1.

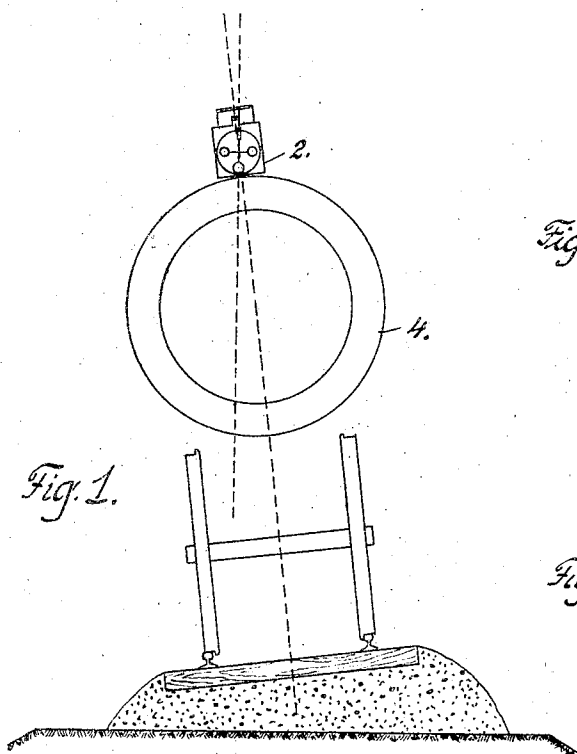


Fig. 2.

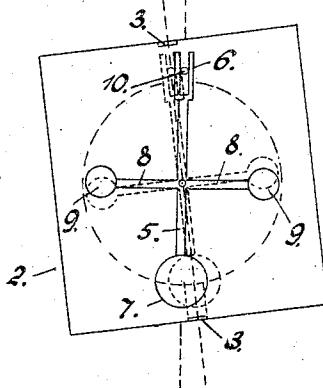


Fig. 3.

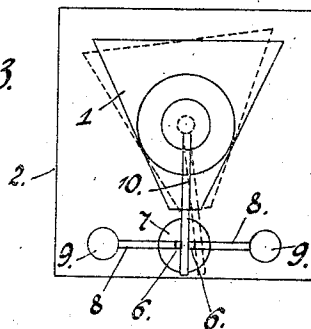
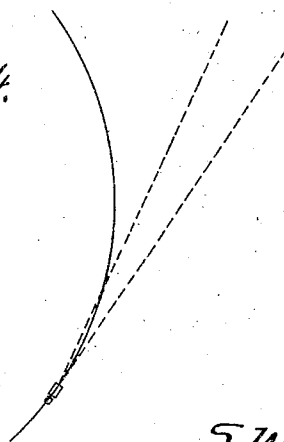


Fig. 4.



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FIG. 5

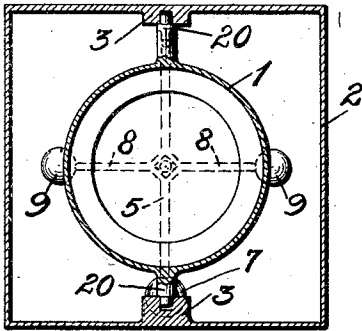


FIG. 6

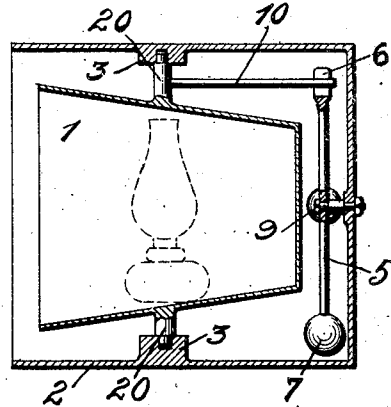


FIG. 7

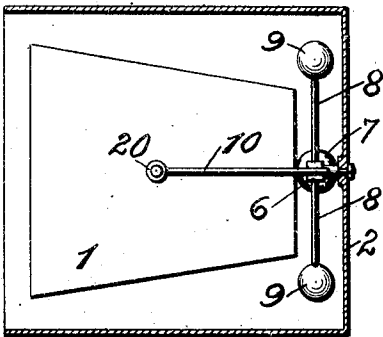
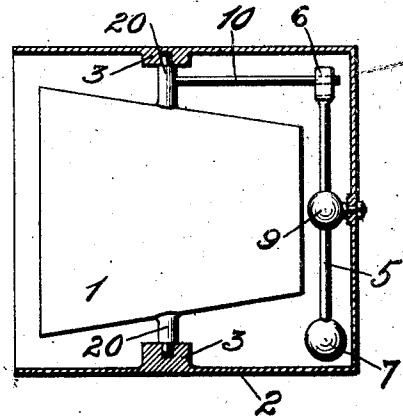


FIG. 8



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UNITED STATES PATENT OFFICE.

SILAS W. EMERY, OF BIG RUN, PENNSYLVANIA.

LOCOMOTIVE-HEADLIGHT.

Specification of Letters Patent.

Patented Nov. 16, 1909.

940,446.

Application filed May 17, 1907. Serial No. 374,206.

To all whom it may concern:

Be it known that I, SILAS W. EMERY, a citizen of the United States of America, residing at Big Run, in the county of Jefferson and State of Pennsylvania, have invented certain new and useful Improvements in Locomotive-Headlights, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to locomotive headlights, and its object is to provide improved means for automatically adjusting the headlight reflector when the locomotive is rounding a curve to direct the rays of light along the center of the railway track.

As is well known the inner rail of a track at a curve is lower than the outer rail, and if the headlight maintains its normal position as the locomotive passes around a curve, the rays of light are projected away from the track. The present invention aims to avoid this objection to the ordinary rigidly supported headlight, and it consists in the novel means hereinafter described for automatically adjusting the headlight and causing it to follow the lateral tilting movement of the locomotive at curves, and thus insure a projection of the light rays along the center of the track when rounding curves as well as when traveling along a straight-away course.

In the accompanying drawing which forms a portion of this application, Figure 1 is a front elevation in which a road-bed, locomotive wheels and axles, and a boiler equipped with my improved adjusting mechanism are conventionally and diagrammatically represented, Fig. 2 is a rear elevation on an enlarged scale of the adjusting mechanism, Fig. 3 is a plan view of the headlight reflector and its adjusting mechanism, and, Fig. 4 is a diagram illustrating the difference in the radii of a stationary headlight, and one capable of automatic adjustment with relation to the tilting movement of a locomotive when rounding a curve. Fig. 5 is a vertical cross sectional view of the headlight. Fig. 6 is a longitudinal sectional view of the same. Fig. 7 is a plan view partly in section, and, Fig. 8 is a side elevation of the headlight partly in section.

The reference numeral 1 designates a headlight reflector of the usual conical contour, arranged within a box or housing 2, and pivotally supported therein by verti-

cally disposed pivots having bearings in brackets 3 secured to the top and bottom walls of the housing. The housing 2 which preferably consists of a square box open at its front side, is suitably secured upon the locomotive boiler 4, and to the rear wall of the said housing is pivoted a pendulum 5, forked or bifurcated at its upper end 6, and provided at its lower end with a ball weight 7.

Projecting from opposite sides of the pendulum 5 at its pivotal point are arms 8 in horizontal alinement with each other, and each provided at its outer end with a weight 9, said weights serving as counter-balances to maintain the pendulum in vertical position when the locomotive is traveling on a straight track, and to restore the pendulum to a perpendicular position after it has been tilted from such position by its weight 7.

Projecting rearward from the upper pivot of the reflector is a horizontal arm 10 the rear end of which is received in the fork 6 of the pendulum. From this construction, it is apparent that the reflector is restrained from tilting, and is capable of swinging upon a horizontal plane, being propelled by the oscillations of the pendulum.

The utility and operation of the adjusting mechanism will be readily understood. As long as the locomotive is traveling upon a straight course the pendulum will be maintained in perpendicular position by the counter-balance weights 9, and the headlight reflector will remain in the position shown by the full lines on Fig. 3. When however, the locomotive strikes a curve where the inner rail is lower than the outer rail as shown in Fig. 1, the pendulum will swing upon its pivotal support and through the intermediacy of the upper end of said pendulum and the rearwardly extending arm 10 the reflector will be tilted laterally as illustrated by the dotted lines in Fig. 3, and thus the rays of light will follow the path of the curve of the track, and be directed along the center of the track instead of away from the latter at a tangent.

The diagram in Fig. 4 illustrates the variations of the radii of the light rays with relation to the arc of a circle by the employment of the improved automatic adjusting mechanism.

It will be obvious that as soon as the locomotive passes the curve and reaches a level track the pendulum returns to its per-

pendicular position which restores the reflector to its normal position.

Having fully described my invention what I claim and desire to secure by Letters Patent is:—

1. The combination in an attachment for headlights, of a vertically pivoted conical reflector, a rearwardly-extending arm carried thereby, a pendulum-arm weighted at its lower end and having an upwardly-extending arm forked to receive said rearwardly-extending arm, and weighted-arms carried by and projecting in opposite directions from the pendulum-arm at the pivotal point of the latter.

2. The combination with a locomotive boiler, of a housing secured thereto, a conical headlight reflector, pivots disposed upon the top and bottom of said reflector, brackets interiorly of said housing and upon the top and bottom thereof, said pivots positioned within said brackets, the upper of said pivots provided with a rearwardly-extending arm, a pendulum pivotally-secured to the rear wall of said housing at a point below the level of said arm, said pendulum having a bifurcated upper end adapted to slidably embrace the free end of said arm, a weight provided at the lower end of said pendulum, oppositely - extending alining arms carried by the sides of said pendulum at the pivotal point of the latter and a counterbalance weight provided at the opposite

ends of each of said arms.

3. The combination with a locomotive boiler, of a housing secured thereto, a conical headlight reflector, pivots disposed upon the top and bottom of said reflector, brackets interiorly of said housing and upon the top and bottom thereof, said pivots positioned within said brackets, the upper of said pivots provided with a rearwardly-extending arm, a pendulum pivotally-secured to the rear wall of said housing at a point below the level of said arm, said pendulum having a bifurcated upper end adapted to slidably embrace the free end of said arm, a weight provided at the lower end of said pendulum, oppositely - extending alining arms carried by the sides of said pendulum at the pivotal point of the latter and a counterbalance weight provided at the opposite ends of each of said arms, said pendulum arms below the pivot point being of greater length than the counterweight arms, the said pivots being disposed in vertical alignment.

In testimony whereof I affix my signature in the presence of two witnesses.

SILAS W. EMERY.

Witnesses:

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