

J. P. McELLIOTT.
 AUTOMATIC ADJUSTING MEANS FOR HEADLIGHTS.
 APPLICATION FILED MAR. 31, 1910.

988,008.

Patented Mar. 28, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

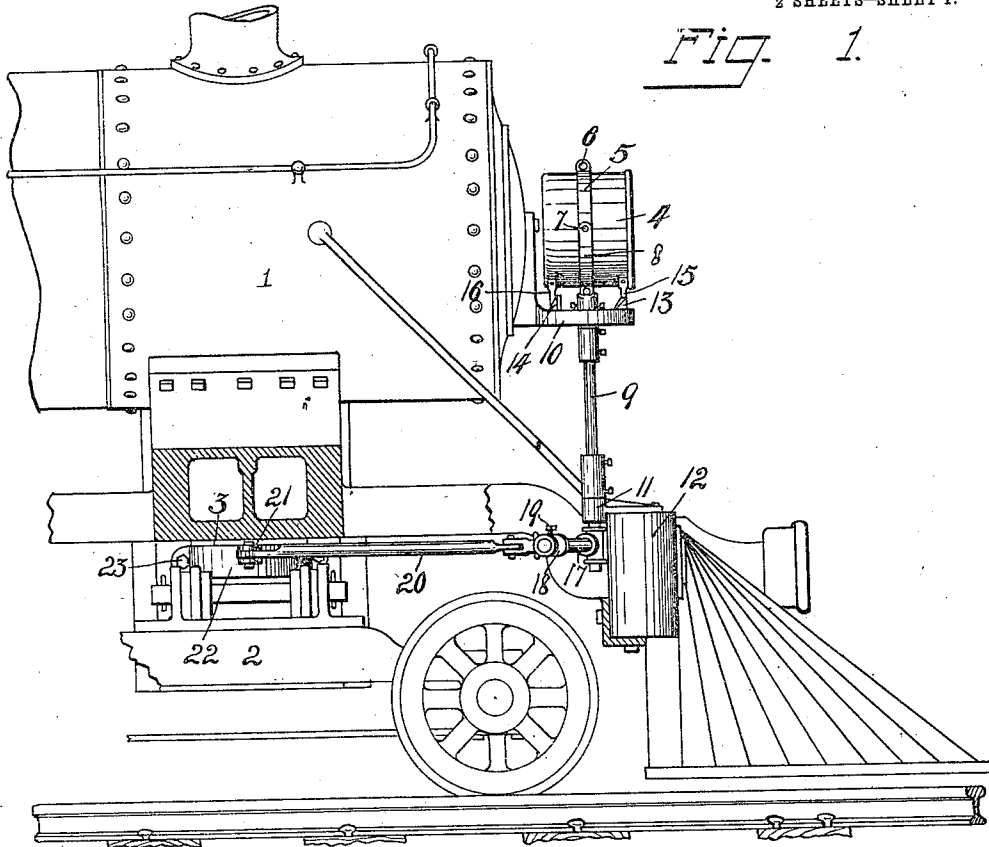


Fig. 5.

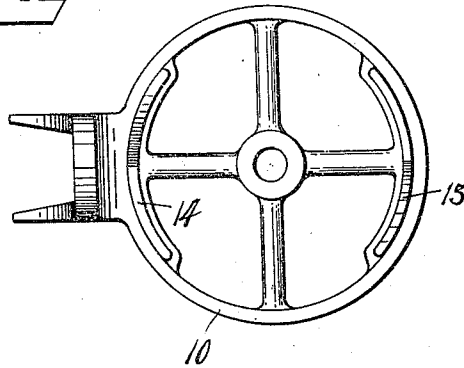
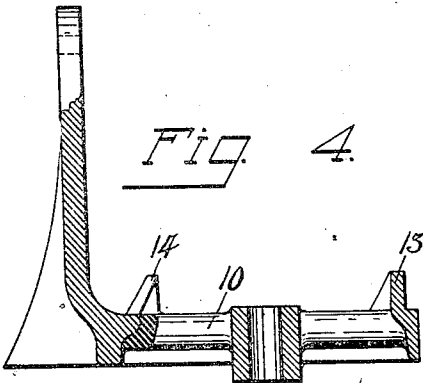


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 2.

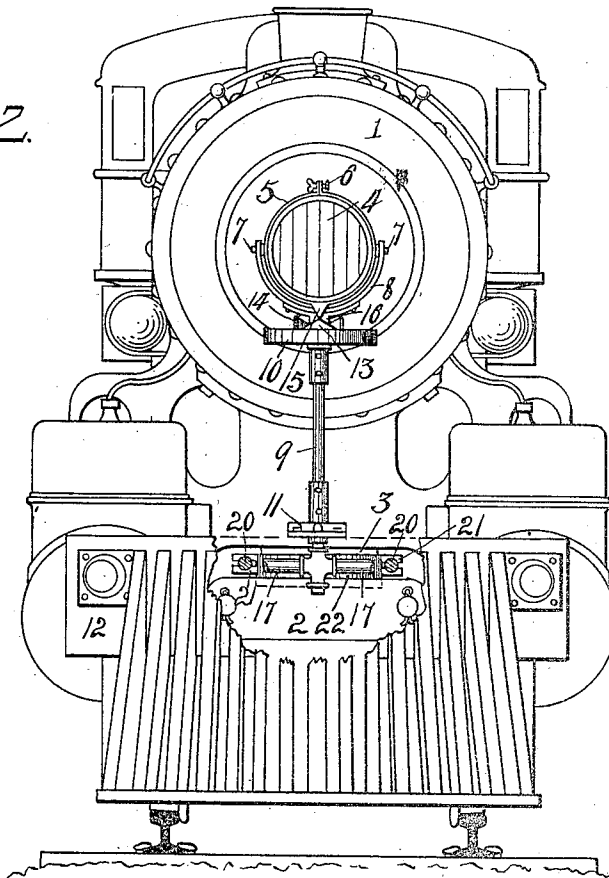
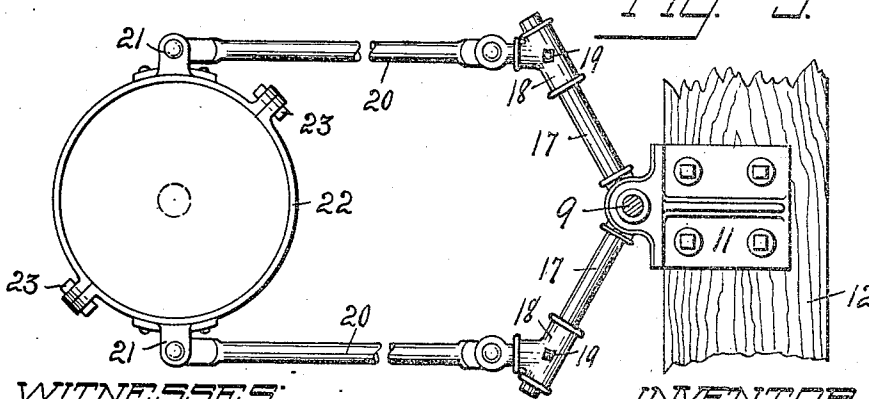


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH P. McELLIOTT, OF TOLEDO, OHIO, ASSIGNOR TO THE AUTOMATIC MOVABLE HEADLIGHT COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

AUTOMATIC ADJUSTING MEANS FOR HEADLIGHTS.

988,008.

Specification of Letters Patent.

Patented Mar. 28, 1911.

Application filed March 31, 1910. Serial No. 552,686.

To all whom it may concern:

Be it known that I, JOSEPH P. McELLIOTT, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Automatic Adjusting Means for Headlights; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to railway appliances, and has particular reference to means which is automatically actuated to move the headlight of a locomotive, electric car, or other vehicle of a self-propelled nature to cause the reflected light to follow the curves of a track over which the locomotive or the like is operating.

The object of my invention is the provision of a simple and efficient apparatus of the class described, which is an improvement upon the apparatus described and claimed in the application for United States Letters Patent filed by me on June 10th, 1909, being Serial No. 501,444, and which is economical in its construction, positive in its action and adapted to adjust the headlight vertically as well as horizontally to cause the light rays to be directed on the track as far in advance of the locomotive as the nature of a curve which the track is following will permit.

The invention is fully described in the following specification, and a preferred embodiment of the same illustrated in the accompanying drawings, in which,—

Figure 1 is a side elevation of the front portion of a locomotive, partly in section, with my invention in operative association therewith. Fig. 2 is a front elevation of the same with a portion of the locomotive broken away. Fig. 3 is a plan of the lower portion of my invention, and Figs. 4 and 5 are central sectional and plan views of the headlight supporting bracket.

Referring to the drawings, 1 designates any suitable form of locomotive, the front truck 2 of which is provided with a ver-

tically disposed axial trunnion or turning bolster 3, which is common in one form or another in most locomotives.

4 designates the locomotive headlight, which is shown as having its drum or casing circumferentially encircled by a band 5, the ends of which are detachably secured together by a bolt or screw 6. This band has trunnions 7 projecting therefrom at the sides of the headlight, which trunnions journal in the ends of a semi-circular supporting cradle 8, carried at the upper end of a vertical shaft 9, thus adapting the headlight for vertical oscillatory movements with the trunnions 7 as its axis, or for horizontal oscillatory movements with the shaft 9 as the axis.

The shaft 9 has its upper end journaled in a bracket 10 projecting horizontally from the front end of the locomotive boiler, and has its lower end journaled in a bracket 11 carried by the usual front cross-beam 12 of the locomotive. The horizontally projecting portion or ledge of the bracket 10 is provided on its upper surface beneath the forward portion of the headlight with a segmental inverted V-shaped cam 13 the point or apex of which is disposed beneath the central portion of the headlight when directed straight ahead. Beneath the rear edge of the headlight the bracket 10 is provided with a segmental V-shaped cam 14 the top or cam surface of which is exactly the reverse of the top or cam surface of the front cam 13. The headlight is provided on its under side adjacent its front and rear edges with substantially V-shaped lugs 15 and 16, respectively, which rest upon the respective cams 13 and 14 as indicated. The cams 13 and 14 and the lugs 15 and 16 are so relatively arranged that when the headlight is in straight-ahead position it is at a neutral point of its vertical oscillatory adjustment with the front lug coacting with the central or highest point of the cam 13 and the rear lug coacting with the central or lowest point of the cam 14. A turning of the headlight in either way upon its vertical axis will cause the front lug to ride down one of the downwardly declining planes of the cam 13 and the rear lug to ride up the reverse upwardly inclined plane of

the cam 14, thus effecting a predetermined vertical oscillatory adjustment of the headlight on its horizontal axis for a predetermined degree of horizontal turning in either direction.

The lower end of the shaft 9 has arms 17 projecting horizontally from opposite sides thereof laterally of the locomotive, such arms being preferably angled rearwardly from the shaft to provide a space between them and the cross-beam 12 in which the arms may rock. A coupling member 18 is carried by each arm 17 for longitudinal adjustment thereon, it being secured in adjusted position by a set-screw 19.

Links or rods 20, 20 extend rearwardly from the arms 17, 17 being pivotally attached thereto through the medium of the couplings 18, 18, or in any other suitable manner, and have their rear ends extending on opposite sides of the truck trunnion or bolster 3 and pivotally attached to ears 21 projecting from opposite sides of a band or ring 22, which encircles and is firmly clamped to such trunnion to turn therewith. For this purpose the band is shown as being made in two parts clamped together by bolts 23. The degree of turning of the shaft 9 for a predetermined turning of the trunnion 3 is regulated by an adjustment of the couplings 18 on the arms 17.

It is apparent in the use of my apparatus that upon a turning of the truck 2 to follow the curve of a track, the band 22, which turns therewith, will move the links or rods 20, 20 to communicate rocking movements to the arms 17, 17 and shaft 9. The turning of the shaft 9 causes the headlight at the upper end thereof to turn horizontally therewith, which moves the lugs 15 and 16 over the reversely formed cams 13 and 14 and effects a vertical tilting of the headlight to direct the light rays upon the track at a point nearer the locomotive than for straight-way running. The range of the headlight is so regulated relative to the horizontal turning of the same that the shorter the curve the greater is the tilting of the headlight to direct the rays closer to the locomotive, or in other words, the tilting is sufficient to always keep the objective point of the light rays within the confines of the track.

I wish it understood that my invention is not limited to any specific construction or arrangement of the parts except in so far as such limitations are specified in the claims, and also that while particularly shown and described in connection with a railway locomotive it may be used in all other connections for which it may be adapted or appropriate, as, for instance, with electric cars, automobiles or the like.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent, is,—

1. The combination with a vehicle having a part which turns relative thereto in following a curved course, of a headlight, means carrying said headlight for horizontal and vertical oscillatory movements, means acting on the headlight to impart predetermined vertical tilting movements thereto when horizontally oscillated, an arm projecting from said headlight carrying means, a band encircling said vehicle part and fixed thereto, and a bar connecting said arm and band and pivoted thereto at its respective ends and adapted to communicate a rotary movement to the headlight carrying means from said part.

2. The combination with a vehicle having a part which turns relative thereto in following a curved course, of a headlight, a vertical shaft having a cradle at its upper end pivotally supporting the headlight for vertical oscillatory movements, means connecting said shaft and part for imparting predetermined horizontal oscillatory movements to the shaft and headlight when said part is turned, and cams of reverse formation disposed adjacent the forward and rear edges of the headlight, said headlight having portions which cooperate with said cams to impart predetermined vertical tilting movements to the headlight when horizontally oscillated.

3. The combination with a vehicle having a part which turns relative thereto in following a curved course, of a vertically disposed shaft carried by the vehicle, a headlight carried at the upper end of said shaft for horizontal rocking movements therewith and vertical tilting movements relative thereto, means connecting said shaft and part for communicating predetermined oscillatory movements from one to the other, and a bracket subjacent to the headlight having an inverted V-shaped cam and a V-shaped cam adjacent the lower forward and rear edges, respectively, of the headlight to coact with portions of such headlight to impart predetermined vertical tilting movements thereto when horizontally oscillated.

4. The combination with a locomotive having a part which turns relative thereto in following a curved course, of a vertical shaft journaled at the front end of a locomotive, a cradle carried at the upper end of such shaft, a headlight carried by said cradle for vertical tilting movements relative thereto and having lugs projecting from its under side adjacent its forward and rear edges, a bracket fixed to an adjacent part of the locomotive and projecting beneath the headlight, said bracket having reversely formed V-shaped cams for cooperating with said

lugs to impart vertical tilting movements to the headlight when horizontally oscillated, arms projecting in opposite directions from said shaft, means clamped to said locomotive part and means adjustably connecting said part and arms to communicate oscillatory movements from said part to said arm, substantially as described.

In testimony whereof, I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH P. McELLIOTT.

Witnesses:

WM. B. DUCK,
C. W. OWEN.