

985,998.

D. L. HARRELL.
DIRIGIBLE HEADLIGHT.
APPLICATION FILED JULY 7, 1910.

Patented Mar. 7, 1911.

Fig. 1.

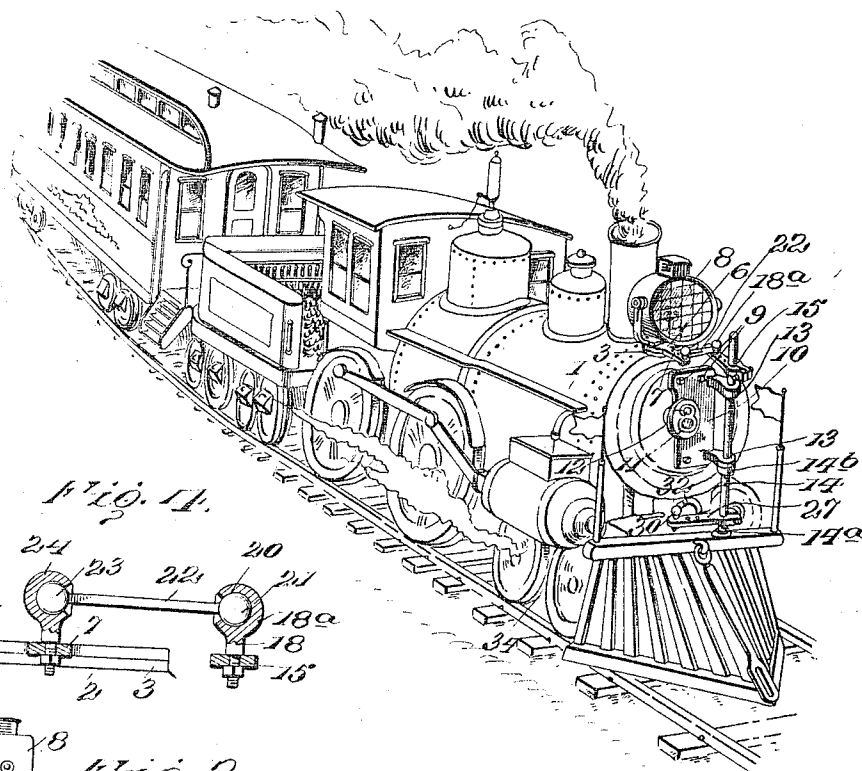


Fig. 11.

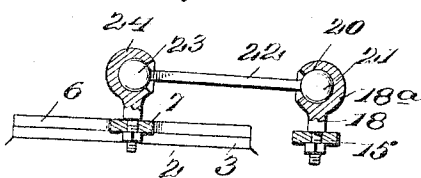


Fig. 2.

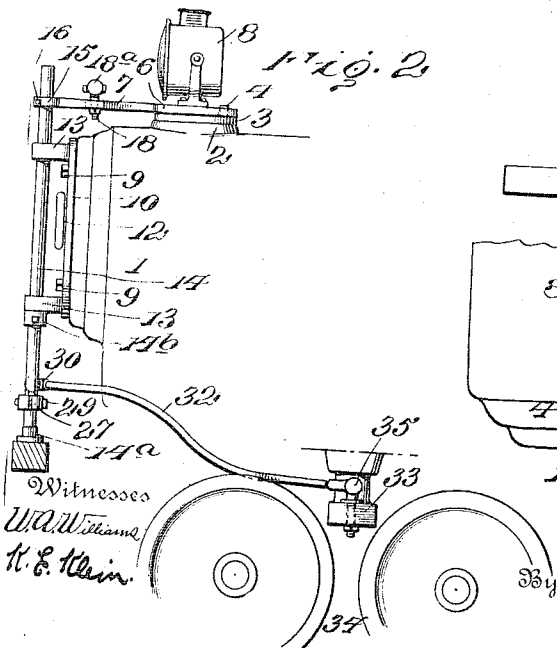
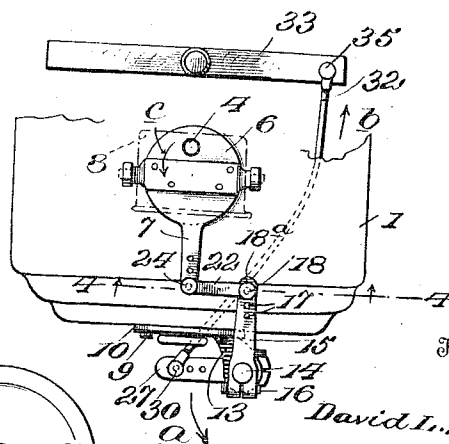


Fig. 3.



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UNITED STATES PATENT OFFICE.

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DIRIGIBLE HEADLIGHT.

985,998.

Specification of Letters Patent.

Patented Mar. 7, 1911.

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To all whom it may concern:

Be it known that I, DAVID L. HARRELL, a citizen of the United States, residing at Suffolk, in the county of Nansemond and State of Virginia, have invented certain new and useful Improvements in Dirigible Headlights, of which the following is a specification.

This invention relates to improvements in head-lights.

The object of the invention is to provide a simple, effective and economical construction whereby a head-light is automatically turned as the vehicle rounds a curve, the movement being imparted by a substantially flexible connection between the head-light and the truck of the vehicle.

A further object of the invention is to provide a connection between the head-light and the locomotive, or other vehicle which will yield to the jumping or bouncing of the same, and yet have sufficient rigidity to impart the necessary movement from the truck to the head-light when the vehicle rounds a curve.

The invention also relates to the specific details of construction and arrangement of parts which will be hereinafter described, and particularly pointed out in the claims.

In the drawings: Figure 1 is a perspective view of a locomotive illustrating the application of my invention. Fig. 2, is a side elevation of my invention, the front part of a locomotive and the truck being conventionally illustrated. Fig. 3 is a top plan view. Fig. 4 is a detail section on the line 4-4 Fig. 3.

The same numerals refer to like parts in all the figures.

1 indicates a locomotive on the top and near the front of which is a platform 2. To the platform is rigidly attached a plate 3, provided with a vertically disposed pin 4, the latter being located at a point some distance from the center of the platform as shown in Fig. 2. Pivotaly mounted on the pin 4, is a base 6, having a forwardly extended arm 7. The head-light 8, is attached to this base and is adapted to turn therewith.

On the front of the locomotive is secured by bolts 9, a plate 10, which is formed on one edge with a curved notch 11, to fit snugly around the stem 12 of a number plate usually employed on a locomotive. This construction serves to brace the plate

against lateral strain during the operation of the connections.

Projecting forwardly of the plate 10, are two horizontal bearings 13, in which a vertical shaft 14 is mounted. The lower end of the shaft fits in a step bearing 14^a and it is held therein by a collar 14^b, which bears on the under side of one of the bearings 13. On the upper end of the shaft 14 is a rearwardly projecting arm 15, which is split at its outer free end, the latter being perforated to receive a screw 16, by means of which the arm may be clamped on the shaft. The inner end of the rearwardly projecting arm is formed with a series of openings 17 any one of which is adapted to receive the threaded stem 18, of a universal joint 18^a, a nut engaging said stem to hold the joint in position on the arm. The upper end of the stem is formed with a concave seat 20, in which fits a ball 21, forming a part of the joint. The ball 21, is attached to a connecting link 22, interposed between the arms 7 and 15. On the opposite end of the link is a ball 23, which fits into a concave seat in a head 24, of a universal joint, the stem of the head 24, fitting in one of a series of openings 25, in the arm 7.

An arm 27 is secured to the lower end of the shaft 14, and is substantially at right angles to the position of the rearwardly extending arm 15. The arm 27, is split at one end, the latter being perforated transversely for the reception of a screw 29, by means of which it is clamped to the shaft. The opposite end of the arm is formed with a series of perforations, through any one of which passes the threaded stem of a universal joint 30. The upper end of the stem is formed with a head having a concave seat for the reception of a ball on the end of a connecting rod 32. The connecting rod extends rearwardly over the top of the cow-catcher of the locomotive and then downwardly toward one side to the outer end of the bolster 33 of the truck 34. A universal joint 35, connects the inner end of the connecting rod and the truck.

In operation, assuming the locomotive is to round a curve indicated by the arrow *a*, it follows that the truck will turn, correspondingly, hence the connecting rod 32 will be drawn in the direction of the arrow *b* thereby turning the shaft 14 and through the arms 7 and 15 and the link 22 will turn the head-light in the direction of the arrow

c, and thereby direct the light around the curved track. Obviously if the track should be curved in the opposite direction, the connections will so turn the head light as to correspondingly direct the light. By locating the pin 4 to one side of the center of the head light a greater amplitude of movement results, which insures the turning of the head-light to accommodate sharp curves. During the travel of the locomotive, it necessarily follows there will be considerable jolting between the boiler and the truck, and it is highly important that the connecting points between the various levers and arms be so arranged as to permit sufficient flexibility to prevent breaking and undue wearing of the parts. Hence I provide the universal joints described. It is furthermore necessary to provide means for adjusting the parts to accommodate the invention to various size locomotives. It will be seen that by extending the shaft 14, some distance above the upper bearing 13, the arm 15 can be vertically adjusted, while the openings in the arms 7, 15 and 27 will permit of the proper adjustment of the connections to effect the proper revolving of the head-light.

While I have described my invention in connection with a locomotive, it is apparent that the same can be used in connection with a power-driven car, such as a street car, an automobile, or any other vehicle in which the forward pair of trucks or wheels oscillate about a center.

I realize that considerable variation is possible in the details of construction and arrangement of parts without departing from the spirit of my invention, and I therefore do not intend to limit myself to the specific form shown and described.

What I claim is:

1. In combination, a head-light, a truck, a vertical shaft, a connection between said shaft and the head-light, an arm on said vertical shaft, a connecting rod, a universal joint connecting one end of said connecting rod to said arm, and a second universal joint connecting the other end of the connecting rod to the truck.

2. In combination, a head-light, a truck, a vertical shaft, an arm on the vertical shaft, a universal joint connection between said shaft and the head-light, a second arm on

said vertical shaft, a connecting rod, a universal joint connecting one end of said connecting rod to said arm, and a second universal joint connecting the other end of the connecting rod to the truck.

3. In combination, a head-light, a truck, a vertical shaft, an arm extending from the upper end of said shaft, a link, universal joints at the ends of the link, one connecting the link to the arm and the other connecting the link to the head-light, and connections between the shaft and the truck whereby the shaft will be turned by the turning movements of the truck.

4. In combination with a locomotive including a truck and head-light, a base on which the head light is supported, said base having a forwardly projecting arm formed with a series of perforations, a pin located to one side of the center of the head-light and on which the base is pivotally mounted, a vertical shaft on the front of the locomotive, an arm extending rearwardly therefrom and formed with a series of perforations, a link connecting said arm and the forwardly projecting arm of the base, universal joints at opposite ends of the link and including stems adapted to pass through the perforations in the arms, an arm near the bottom of the shaft, said latter arm being at substantially right angle to the previously mentioned arm on said shaft, and a connection between said lower arm and the truck.

5. In combination, a locomotive including a truck, head-light and forwardly extending stem on the front, the head-light being pivotally mounted to one side of its center and provided with an arm, a plate provided with a seat to engage the stem, means for securing the plate adjacent the stem, bearings projecting from the plate, a vertical shaft mounted in said bearings, upper and lower arms secured to said shaft and arranged substantially at right angles to each other, a connection between the upper arm and the arm on the head-light, and a connection between the truck and the lower arm.

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

DAVID L. HARRELL.

Witnesses:

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