Locomotives Equipped with Electric Searchlights

A HEADLIGHT for locomotives, which upon trial lighted the track bright as day for a distance of a mile, was installed last week on a large number of the engines of the Chicago, Milwaukee and St Paul Railroad. So strong is the new light, and to such a distance may its rays be projected, that photographs taken when the experiments were in progress revealed details of the tracks and the trees and shrubs and surrounding scenery while the engine was still so far away that it could not be seen.

In order to demonstrate the exceptional strength of the light, a series of photographs was taken. The subject for the pictures was a railroad bridge. At a distance of 1,000 yards from the light every detail was so illuminated by the headlight that even the glass caps on the cross arms of telegraph poles were distinctly visible, while the bridge itself stood clearly revealed.

The principle on which the new headlight is based is that of the searchlight used on warships. In appearance it is the same as those now seen on all big locomotives, and, in fact, the same casing or box, provided with a reflector, is used. Instead, however, of an ordinary kerosene lamp, an electric arc light burns in front of the reflector, and instead of an ordinary circular pane of glass at the face of the headlight, it is supplied with the glass prisms to be seen on the face of a big searchlight.

Electricity for the light is supplied by a small dynamo on the locomotive, either between the smokestack and the sand box or running lengthwise or immediately in front of the engineer's cab, in which case the dynamo is fastened crosswise to the boiler.

Two of the locomotives supplied with this new light, which, by the way, is of 6,000-candle power, are engines that haul fast express trains between Chicago and Milwaukee. The experimental tests were made at Morton Grove, a town about fifteen miles outside of Chicago. With the application of the light the track was lighted up so plainly that a man walking between the rails a mile away could be made out distinctly. So far was the man away that he was out of earshot of the whistle, and it was not until he noticed the brightness of the tracks about him that he turned and saw the locomotive in the far distance bearing down on him, all of which could be seen by those conducting the tests from the cab of the engine.

On another occasion, a rabbit, frightened by the glare, ran across the tracks at a distance which those who saw the animal estimated at half a mile.

The most remarkable, and one of the most important arrangements about the new light is what is known as an "auxiliary deflector," by means of which part of the rays are deflected from the track and thrown upward into the sky, showing a glare on a dark night by means of which it was possible to make out the location of the train miles away. The deflector is simply a reflector set at an angle of 45 degrees, and about 40 per cent. of the rays are thrown up against the clouds, whence they may be seen from afar.

One of the difficulties encountered with the new light was that, as it was fixed permanently to the smokestack, it shed its light straight ahead, and, therefore, when a locomotive came to a curve, the light was not on the track, but on one side or the other. In order to obviate this, the light has now been made to work on a hinge, so that the fireman, operating from the cab by means of a lever, can direct the course of the rays. Another objection at first was that when two locomotives equipped with the light approached each other, the light was so bright that both engineers were blinded. A curtain arrangement was therefore provided, and this, when lowered, has the same effect in tempering the intensity of the light as would be the case were a piece of ground glass made to intercept the course of the rays.

Compared to the old form of headlight, the new contrivance is said to be as far ahead of it as steamships are ahead of sailing vessels. By means of the old headlight no more than 400 feet of track was illuminated in front of the engine. The ordinary passenger train running at the rate of fifty miles an hour would need from 900 to 1,400 feet in which to stop suddenly to avoid accident. From these figures the advantage in regard to safer travel on railroads equipped with the new headlight may be appreciated.

The engine which produces the power necessary for the 6,000-candle power light is of the steam turbine type. It is claimed by the railroad which has adopted the headlight that the apparatus gives little or no trouble necessitating repairs.

The Limit.

Micky—Say, when me fadder died dere was all kinds of music at his funeral.

Patsy—Dat ain't narthing. When my old man died dere was a brass band and one hundred harps at his funeral.

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