

W. L. RUSSELL.
HEADLIGHT CURTAIN.
APPLICATION FILED JAN. 2, 1912.

1,026,703.

Patented May 21, 1912.

Fig. 1.

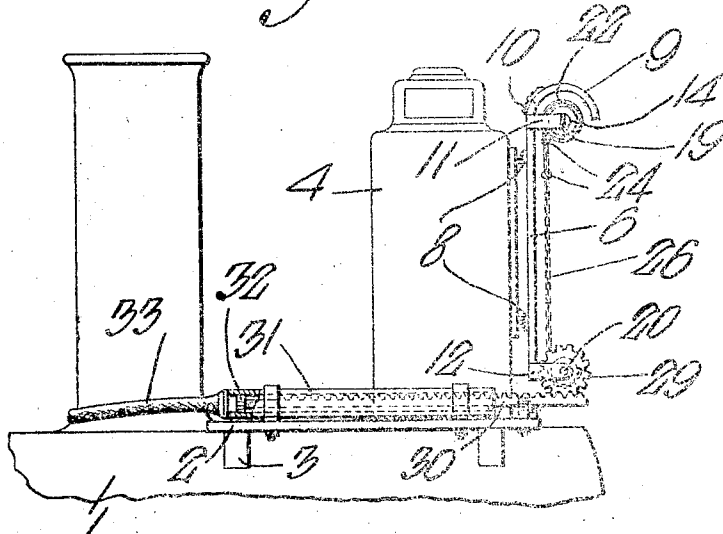


Fig. 2.

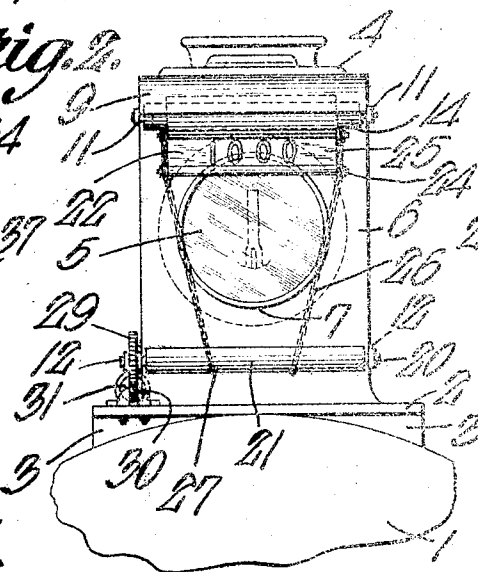


Fig. 3.

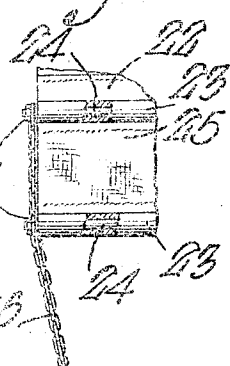


Fig. 5.

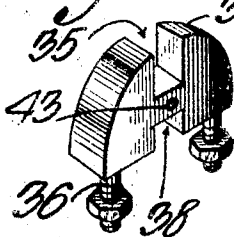


Fig. 6.

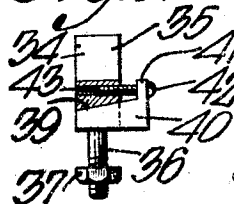
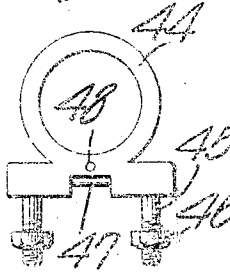


Fig. 4.



Fig. 7.



Witnesses

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WILLIAM L. RUSSELL, OF WELLSBORO, PENNSYLVANIA.

HEADLIGHT-CURTAIN.

1,026,703.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed January 2, 1912. Serial No. 669,085.

To all whom it may concern:

Be it known that I, WILLIAM L. RUSSELL, a citizen of the United States, residing at Wellsboro, in the county of Tioga and State of Pennsylvania, have invented a new and useful Headlight-Curtain, of which the following is a specification.

The present invention aims to provide a mechanism, actuable by fluid pressure to lower a curtain in front of the headlight of a locomotive, spring means being provided for reeling up the curtain.

A further object of the invention is to provide a device of this type which may readily be assembled with standard makes of headlights, without altering the construction of such headlights.

A further object of the invention is to provide novel means for adjusting portions of the device, in order to take up wear.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings,—Figure 1 denotes in side elevation, a portion of a locomotive engine to which the device of the present invention has been applied; Fig. 2 is a front elevation of the structure shown in Fig. 1; Fig. 3 is a detail enlarged from Fig. 2, parts being broken away; Fig. 4 is a sectional elevation of one end of the upper roller upon which the curtain is wound; Fig. 5 is a perspective of the adjustable bearing in which the rack bar is mounted; Fig. 6 is a section of the bearing which carries the rack bar; and Fig. 7 is an elevation of one of the standards in which the cylinder is mounted.

Referring to the drawings, the numeral 1 indicates a portion of the boiler of a locomotive engine, a supporting platform 2 being upheld upon the boiler 1, by means of brackets 3, or in other suitable manner. The platform 2 supports the lamp housing 4, the lens thereof being denoted by the numeral 5.

Disposed in front of the lens 5 is a plate 6 having an opening 7 through which the lens 5 is visible. The plate 6 may be sup-

ported by means of brackets 8, connected with the lamp housing 4. A curved, outwardly extended hood 9 is united with the upper edge of the plate 6 by means of a hinge 10. Arms 11 project forwardly from the edges of the plate 6, adjacent the upper end of the plate, and other arms 12 project from the edges of the plate 6, adjacent the lower end of the plate. An upper roller 14 is supported for rotation in the arms 11. This roller 14 is spring-actuated, and does not differ greatly from the common and well known Hartshorne type. In the interior of the roller 14 there is a rod 15, surrounded by a helical spring 16, the inner end of which is secured to the roller 14, the outer end of which is secured to the rod 15, as shown at 17. The outer end of the rod 15 is equipped with a flattened head 18, adapted to register against rotation in a notch 19 formed in the upper edge of one of the arms 11. The other end of the roller 14 is journaled for rotation in the other arm 11, the construction being well known and meriting no specific delineation or description.

In the lower arms 12, a shaft 20 is journaled for rotation, the shaft 20 carrying the roller 21. The curtain 22 is secured to the upper roller 14. Adjacent its lower end, the curtain 22 is equipped with a pair of spaced tubular pockets 23. In these pockets 23 are located reinforcing rods 24, the ends of which protrude beyond the edges of the curtain 22. The space 25 between the pockets 23 constitutes a convenient place for the inscription of the engine number, as clearly shown in Fig. 2. A pair of flexible elements 26, and preferably light chains, are provided. The lower ends of the chains 26 are secured to the roller 21, as shown at 27. The upper ends of the chains 26 are united with the protruding ends of the rods 24, as indicated at 28.

Fixed to one end of the shaft 20 is a pinion 29, meshing into a rack bar 30, the rear end of which operates in a fluid pressure cylinder 31, and is provided with a piston head 32. The fluid pressure within the cylinder 31 is controlled through a pipe 33, entering the rear end of the cylinder 31.

The operation of the device as thus far described, is as follows:—Presupposing that the parts are positioned as shown in Fig. 1, it will be understood that when, through the medium of the pipe 33, an increase of fluid pressure is effected within the cylinder 31,

to the rear of the piston head 32, the rack bar 30 will be forced forwardly, the rack bar 30, in its forward movement causing a rotation of the pinion 29, and consequently a rotation of the shaft 20 and the lower roller 21. Upon the lower roller 21, the chains 26 will be wound, causing a lowering of the curtain 22, so that the lens 5 is hidden. When the fluid pressure within the cylinder 31 is diminished, the spring 16 which has been put under tension by the lowering of the curtain 22, will act to elevate the curtain, and to retract the rack bar 30 into the position shown in Fig. 1. In devices of this type there is, of necessity, a considerable strain upon the curtain 22, and in order that the curtain need not be torn or distorted, the two rods 24, the ends of which are connected by the chains 26, are provided. Owing to the presence of the rods 24, connected by the chains 26, the portion 25 of the curtain will not be distorted, and therefore the number which is carried upon the curtain will at all times be readable. When it is desired to remove the upper roller 14, the hood 9 may be swung rearwardly upon its hinged mounting 10, permitting the roller 14 to be lifted out of the arms 11. In structures of this character, operated by a rack and pinion movement, the most frequent source of difficulty has arisen from the fact that a considerable amount of lost motion occurs between the rack and the pinion after a brief interval of use. In the present invention, a means is provided whereby this lost motion may be taken up.

The means for taking up the lost motion between the rack and the pinion, may take a wide variety of forms. It is to be noted that the rack bar 30 is mounted to slide in a bearing 34, having in its upper edge a notch 35 adapted to receive the rack bar. The bearing 34 may be equipped with threaded lugs 36, protruding through the platform 2, the lugs 36 being equipped with nuts 37. In the lower face of the bearing 34 there is a key-way 38, the upper face of which is inclined, as shown at 39. Slidably mounted in the key-way 38 is a wedge 40, adapted to bear against the platform 2, and provided at its upper end with a flange 41. Through this flange 41 extends an adjusting member, preferably taking the form of a screw 42, threaded into an opening 43 in the face of the bearing 34. As will be readily understood, by loosening the nuts 37, the bearing 34 will be set free for vertical adjustment. This vertical adjustment may be effected by rotating the screw 42, so as to advance the wedge 40 into the key-way 38. Thus, the rack bar 30 may be elevated, when worn, so as to mesh, without loss of motion, into the pinion 29. Obviously, if the rack bar 30 is adjusted, vertically, the cylinder 31 must be

adjusted vertically also. In the present instance, although not necessarily, the adjustment of the cylinder 31 is provided for, by mounting the cylinder in the standards 44, from the lower face of which the lugs 45 project, the lugs 45 carrying nuts 46, adapted, as before, to engage the lower face of the platform 2. The standard 44 is provided with a key-way 47, corresponding to the key-way 38 and with an opening 48, corresponding to the opening 43. In the case of the standard 44, the adjusting wedge 40 and the screw 42 are employed, as before, the vertical adjustment of the standard 44 being carried out in the manner hereinbefore described, in connection with the bearing in which the rack bar 30 is mounted.

Attention is directed to the fact that the fluid pressure cylinder 31 is located outside of the lamp housing 4. This consideration is of importance for the reason that if the fluid pressure cylinder 31 be located within the lamp housing 4, a deterioration of the piston head 32, under the heat of the lamp soon occurs. Moreover, by locating the fluid pressure cylinder outside of the lamp housing 4, no alteration in the form of the lamp housing, in order to accommodate the fluid pressure cylinder 31, is necessary. Likewise, the fluid pressure cylinder 31 may be adjusted, cleaned and repaired, without interfering with the internal arrangement of the lamp 4. The illuminating medium employed in the lamp housing 4 is frequently electricity, and in the present instance there is no danger of injury to the operator, or to the illuminating mechanism, while the fluid pressure cylinder and its accessory parts are being adjusted.

Having thus described the invention, what is claimed is:—

1. The combination with a lamp housing, of a spring-actuated roller journaled adjacent the top of the housing; a secondary roller journaled adjacent the bottom of the housing; a curtain wound about the spring-actuated roller and connected with the secondary roller; a pinion connected with the secondary roller; a rack bar supported for sliding movement and meshing into the pinion; a fluid pressure cylinder into which the rack bar protrudes; and a piston head upon the rack bar, within the cylinder; the cylinder being located outside of the lamp housing.

2. In a device of the class described, a supporting plate having an opening to disclose the lens of a lamp housing; upper and lower arms projecting from the edges of the plate; a spring-actuated roller removably journaled in the upper arms; a roller journaled for rotation in the lower arms; a curtain connected with the spring-actuated roller and also connected with the other roller; a pinion connected with said other

roller; a rack bar mounted for sliding movement, and meshing into the pinion; a fluid pressure cylinder in which the rack bar reciprocates; and a piston head upon the rack bar, operating within the cylinder.

3. In a device of the class described, a supporting structure; spaced rollers carried thereby; a curtain connected with the rollers; one of said rollers being equipped with a pinion; a rack bar adapted to mesh into the pinion; a fluid pressure cylinder into which the rack bar protrudes; a platform; an adjustable bearing upon the platform, for maintaining the rack bar in mesh with the pinion; and an adjustable standard upon the platform, supporting the cylinder, whereby the cylinder may be adjusted to correspond with the adjustment of the rack bar.

4. In a device of the class described, a supporting structure; spaced rollers journaled thereon; a curtain engaged with the rollers; a pinion carried by one of the rollers; a platform; a rack bar meshing into the pinion; a fluid-pressure cylinder in which the rack bar operates; and means

upon the platform for moving the cylinder and the rack bar transversely, with respect to the platform and the pinion.

5. In a device of the class described, a supporting structure; a spring-actuated roller journaled for rotation thereon; a secondary roller journaled for rotation upon the supporting structure; a curtain wound about the spring-actuated roller; spaced rods connected with the curtain, adjacent the lower end of the curtain, the ends of the rods protruding beyond the edges of the curtain; spaced flexible elements connected at their lower ends with the secondary roller, and at their upper ends connected with the protruding ends of the rods; and fluid-pressure means for actuating the secondary roller.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM L. RUSSELL.

Witnesses:

HARRY BARRETT,
J. P. TORRY.