May 17, 1927.

1,628,862

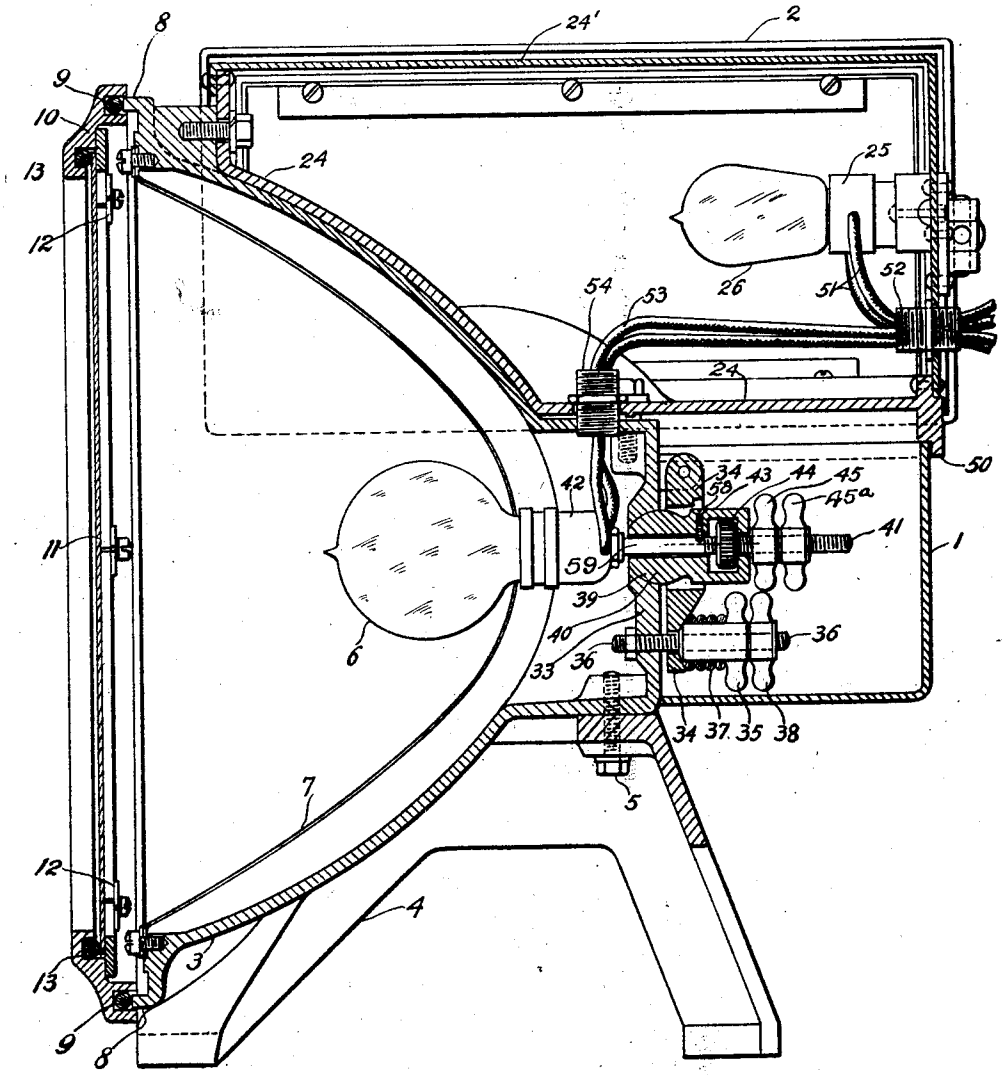
J. R. TOWNSEND

LOCOMOTIVE HEADLIGHT

Filed Dec. 20, 1923

3 Sheets-Sheet 1

Fig. 1.



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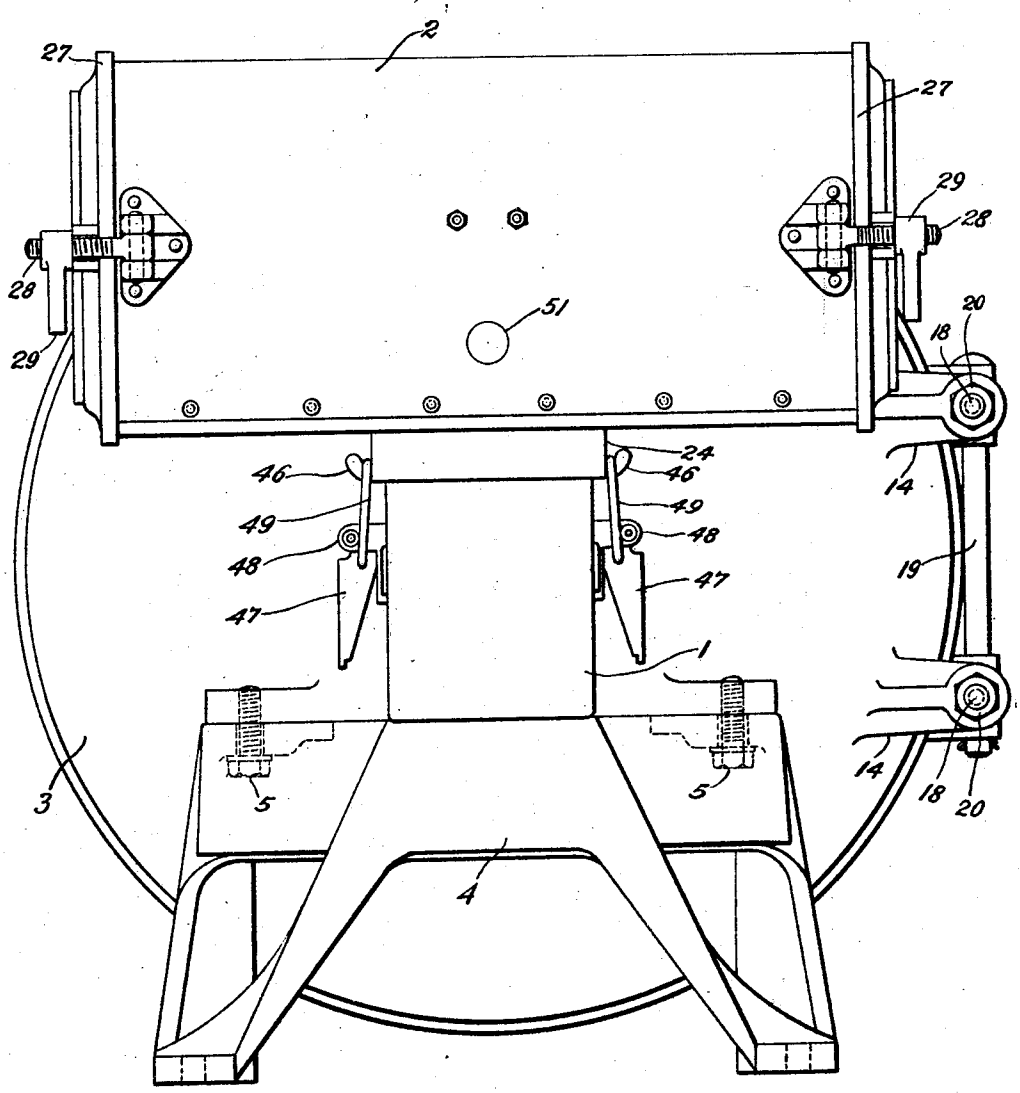
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Fig. 2.



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LOCOMOTIVE HEADLIGHT

Filed Dec. 20, 1923 3 Sheets-Sheet 3

Fig. 3.

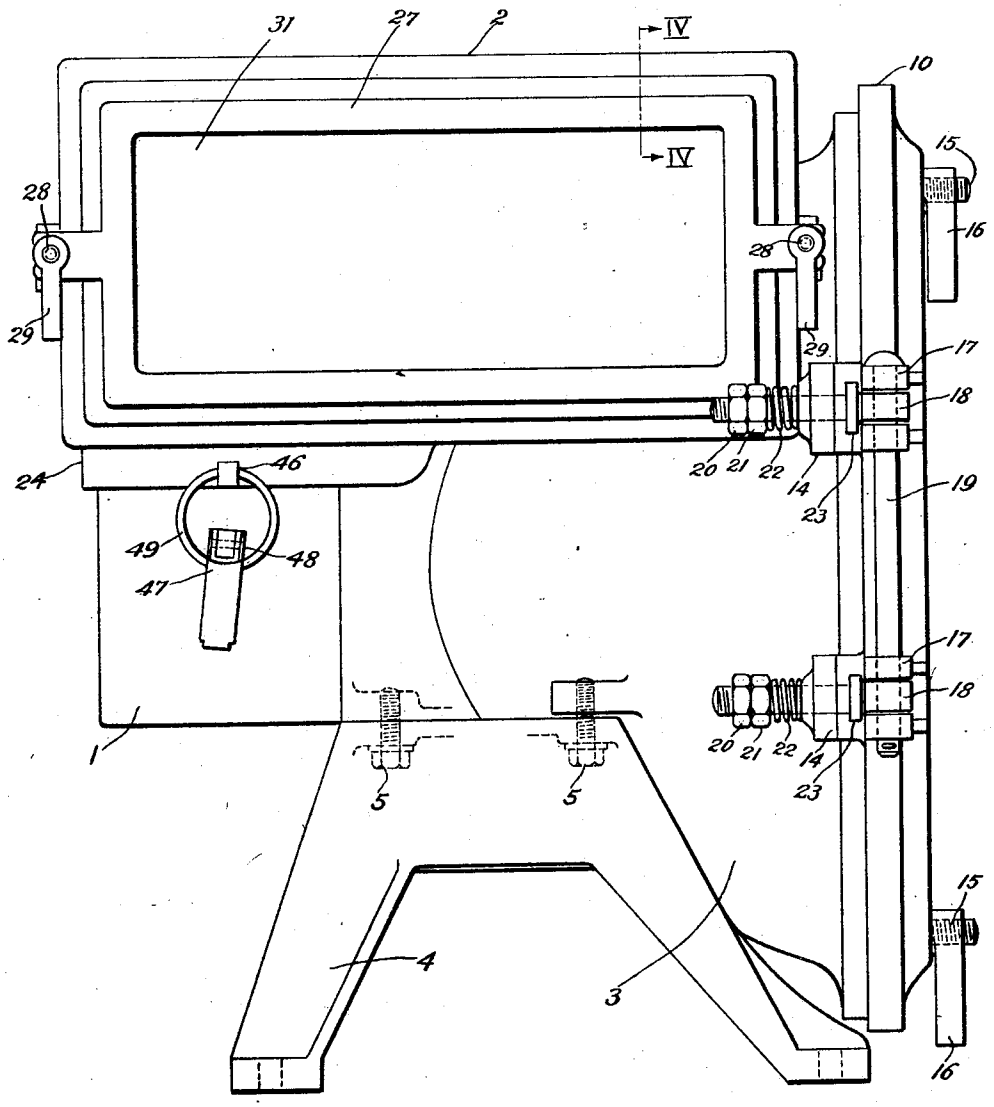
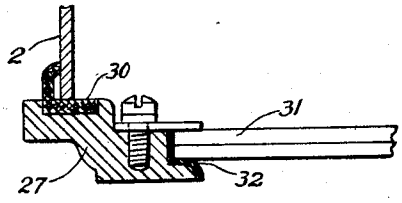


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN R. TOWNSEND, OF SOUTH BEND, INDIANA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

LOCOMOTIVE HEADLIGHT.

Application filed December 20, 1923. Serial No. 681,757.

My invention relates to headlights and particularly to headlights adapted for heavy duty, such as steam locomotive headlights.

In a headlight for steam locomotives, it is necessary to provide a structure which will withstand rough usage and will ensure adequate protection from breakage of the lamp, the reflector and the focusing device.

Another matter of great importance is to provide adequate protection of the above named units from dust and moisture, since the accumulation of dust and moisture in those parts rapidly decreased the efficiency of the headlight.

It is necessary also to provide a unit, the parts of which are easily accessible in order to make adjustments, replacements and the like.

It is, therefore, an object of my invention to provide a structure which shall protect the reflector and other parts from damage.

Another object of my invention is to provide a structure which shall exclude dust and moisture from the reflector and the lamp.

A further object of my invention is to provide a structure which shall protect the focusing device from dust and moisture.

A still further object of my invention is to provide a structure in which the several devices composing the headlight shall be easily accessible.

My invention is directed to a structure composed of several dust-and-moisture-proof compartments which are joined together to form the casing of the headlight. In the compartments, the lamps and control devices are mounted in such manner that the amount of illumination is practically independent of external conditions.

Specifically, I provide a headlight consisting of a marker light, a focusing device and a light-transmitting unit. Each unit is contained in a separate compartment and is easily accessible for replacements and adjustments. The compartment containing the reflector is provided with a hinged door in which the lens is mounted. The hinged door is so disposed that it is constantly held against a cushioned gasket mounted in the rim of the door, when in the closed position, by a set of floating hinges, thereby insuring a perfect seal. The lens is likewise set against a similar gasket so that dust and moisture are excluded.

A second compartment encloses the focusing mechanism. A third compartment contains the units of the marker light and is closed by cover plates which are also tightly sealed. These three compartments are combined into the headlight unit, and means are provided for introducing the lead wires or mounting a junction board in the marker-light case in a manner which contributes to the advantages mentioned above.

In the accompanying drawing constituting a part hereof and in which like reference characters indicate like parts,

Figure 1 is a vertical cross sectional view of my headlight showing the relation of the different compartments;

Fig. 2 is a rear elevational view, showing the relation of the parts,

Fig. 3 is a side elevational view thereof, and

Fig. 4 is an enlarged fragmentary sectional view of the marker-light construction.

The headlight comprises the lighting, focusing and marker element contained in three compartments. The focusing compartment or case 1 and the marker-light compartment or box 2 are both mounted on a reflector casing 3 and the whole structure is attached to the standard 4 by means of screws 5.

The lighting unit (Fig. 1), comprises a lamp 6 and a reflector 7 mounted in the reflector casing 3. The reflector casing is provided with a rim or flange 8 adapted to engage a rubber or felt gasket 9 in the door 10 of the casing which is provided with a lens 11 suitably mounted therein. The lens 11 is retained in the door by suitable clamps 12 which press the lens against another gasket or washer 13 mounted in a channel in the door.

The door 10 is supported on a pair of brackets 14 attached to the casing 3 and it is held in a closed position by suitably disposed bolts 15 and wing nuts 16. Upon the door 10 and the brackets 14 on the casing, a pair of floating hinges are mounted which cooperate with the gasket 9 in the door to maintain a dust and moisture proof seal.

The door is provided with brackets 17 which are attached to floating hinge bolts 18 by means of a pin 19. The floating hinge bolts 18 are slidably mounted in brackets 14 attached to the casing 3 and are secured

thereto by lock nuts 20 and 21. A coil spring 22 is mounted on each hinge bolt between the lock nut 21 and the bracket 14 in such a manner that, when the door is closed, the springs are compressed.

Therefore, in the closed position, the door floats between the springs 22 and the flexible gasket 9 in the door. In opening the door, the springs draw the hinge bolts 18 through the casing brackets 14 until the shoulders 23 on the hinge bolts engage the casing brackets 14 thereby providing a stationary hinge for the door to swing on.

A saddle 24, removably attached to the top of the lamp casing 3, comprises the bottom wall of the marker-light compartment 2 and the top wall of the compartment 1 containing the focusing device.

The top and rear of the marker-light casing is an L-shaped metal sheet 24′ which may be attached to the saddle 24 in any appropriate manner. A lamp socket 25 is attached to the rear wall of the marker-light casing and a lamp 26 is mounted therein. The two opposite sides of the marker-light casing are closing by cover plates 27 secured to the casing 2 by means of swivel bolts 28 and wing nuts 29, the said plates being mounted on the casing against resilient gaskets 30 in order to exclude dust and moisture.

The cover plates are apertured and transparent markers 31 are mounted therein against resilient washers 32, as shown in Fig. 4.

The focusing device is attached to the rear wall 33 of the reflector casing 3 by means of a hinged clamp 34, a wing nut 35 and a bolt 36. A coil spring 37 compressed between the wing nut 35 and the clamp 34 holds the focusing device in frictional engagement with the casing when the wing nut is not screwed down, and a second wing nut 38 serves as a lock nut.

The focusing device comprises a ball and socket and a movable spindle mounted therein. A socket 39, formed in the rear wall 33 of the reflector casing, cooperates with the ball member 40 which is held between the wall 33 and the resiliently mounted clamp 34. One end of a movable spindle 41, mounted in ball 40, projects into the reflector case and has a lamp socket 42 mounted thereon. The other end of the spindle is threaded and passes through a yoke 43 on the ball and is held in adjustable position by nut 44 in the yoke and by lock nuts 45 and 45ª external thereto. A screw 58 in the yoke 43 extends into the central spindle opening in the ball 40 and cooperates with a flattened or slotted portion 59 of the spindle 41 and prevents turning thereof.

The compartment is enclosed by the casing 1 suspended from hooks 46 on the saddle 24 and is retained by means of a flange 50 in saddle 24. A pair of cam levers 47 attached to brackets 48 on the casing cooperate with spring rings 49 to hold the casing tightly against the saddle and the back of the reflector casing 3. The cam levers are obliquely disposed relative to the top bearing edge of the casing to provide a pressure tending to maintain the casing 1 against the casing 3 and the saddle 24. When the cam levers are in the released position, the casing is loosely suspended on the spring rings which may be removed from the hooks 46, as desired. This structure prevents accidental disengagement of the casing and obviates the danger of dropping the casing.

The lead wires 51 for the marker-light lamp 26 are introduced through a bushing 52 in the rear wall of the marker-light casing. Lead wires 53 for the lamp 6 in the reflector casing are also brought through the bushing 52, threaded through bushing 54 in the saddle 24 and are connected to the lamp socket 42. I may place a junction box (not shown) in the marker-light casing and connect the several lead wires thereto.

My invention comprises a headlight structure in which three closed compartments are combined in a single unit. The headlight is so constituted that all the compartments are moisture and dust proof, and the lighting units are thus rendered practically independent of external conditions. Each compartment is readily and independently accessible for the purpose of replacement and adjustment of parts. The casings are so combined that any one of them may be opened without subjecting the others to external conditions. A feature of particular importance is that it is seldom necessary to open the reflector casing inasmuch as all adjustments except that of replacing the lamp are performed from a point external to the casing. The reflector is thereby protected from corrosion and other depreciating agencies, and the efficiency of the unit is maintained.

I claim as my invention:

1. The combination with a reflector casing having an opening therein, said casing being adapted to mount a light-supporting device in said opening, of an enclosing member for a portion of said device for rendering said casing moisture and dust proof, said enclosing member including a detachable saddle mounted on the exterior of said casing for partially supporting said member and for forming a wall thereof and a walled member detachably mounted on said saddle and adapted to form a complete enclosure for said casing.

2. The combination with a reflector casing, a marker-light casing and an auxiliary casing, of a saddle detachably secured to said reflector casing, said saddle providing a means of support and a common wall for said marker-light and auxiliary casings and

means in said saddle and in said auxiliary casing for securing said auxiliary casing to said saddle and reflector casing and forming an enclosure exterior to said reflector casing.

3. In an illuminating device, a reflector case, a light-transmitting door thereon, means in said door to effect a moisture-and-dust-proof closure of said door, means exterior to said case to effect a moisture-and-dust-proof closure thereof, a detachable saddle mounted on said case, a marker-light casing detachably mounted on said saddle, said saddle constituting a part of said marker-light casing and light-transmitting means mounted in said marker-light casing.

4. In an illuminating device, a reflector casing, a light-transmitting door thereon, means in said door to effect a moisture-and-dust-proof closure thereof, means exterior of said casing to effect a moisture-and-dust-proof closure thereof, a detachable saddle mounted on said casing, a marker-light casing detachably mounted on said saddle, said saddle constituting a part of said marker-light casing, light-transmitting means in said marker-light casing and detachable means to effect a dust-and-moisture-proof closure of said marker-light casing.

5. In an illuminating device, a reflector casing, a light-transmitting door therein, means in said door and means exterior to said casing for effecting a dust-and-moisture-proof closure thereof, a detachable saddle mounted on said case and constituting one wall of an auxiliary casing, spring clamps on the auxiliary casing and hooks on the saddle member to removably secure the auxiliary casing, said saddle member and said reflector casing constituting a part of the auxiliary casing.

6. In an illuminating device, a reflector casing, a light-transmitting door mounted on floating hinges, resilient means on said door cooperating with said floating hinges to effect a dust-and-moisture-proof closure, said floating hinges tending to open the door locks to retain the door in its closed position, a saddle, a detachable marker-light casing mounted on the saddle, said saddle constituting two walls of the marker-light casing and an auxiliary casing detachably suspended and in engagement with the saddle and with the reflector casing.

7. In an illuminating device, a reflector casing, a light-transmitting door having external floating hinges, resilient means on said door co-operating with said floating hinges to effect a dust-and-moisture-proof closure, said floating hinges tending to open the door, locks to retain the door in its closed position, a detachable saddle, a detachable marker-light casing mounted on said saddle which constitutes two walls of said casing, cover plates, transparent markers mounted in said cover plates, locks to effect a dust-and-moisture-proof closure of the marker-light casing, an auxiliary casing detachably suspended and in engagement with the saddle and with the reflector casing and a resilient clamping means to effect a closure thereof.

8. In an illuminating device, a reflector casing, a light-transmitting door in said casing, means for effecting a dust-and-moisture-proof closure thereof, a saddle detachably mounted on said reflector casing, a marker-light casing mounted on said saddle and an auxiliary casing detachably secured to said saddle.

9. In an illuminating device, a reflector casing, a portion of which constitutes one wall of an auxiliary casing, a light-transmitting door therein, resilient means to effect a dust-and-moisture-proof closure of said door, a saddle detachably mounted on said reflector casing, a marker-light casing detachably mounted on said saddle which constitutes a part of said marker-light casing and said auxiliary casing, light-transmitting means in said marker-light casing, means to effect a dust-and-moisture-proof closure thereof, said auxiliary casing being detachably supported on said saddle by means of resilient clamps and hooks.

In testimony whereof, I have hereunto subscribed my name this 10th day of Dec. 1923.

JOHN R. TOWNSEND.