

July 28, 1953

T. E. McDOWELL
TWIN SEALED-BEAM TYPE HEADLIGHT WITH
ALIGNABLE AND REMOVABLE LAMP UNITS

2,647,204

Filed July 14, 1950

3 Sheets-Sheet 1

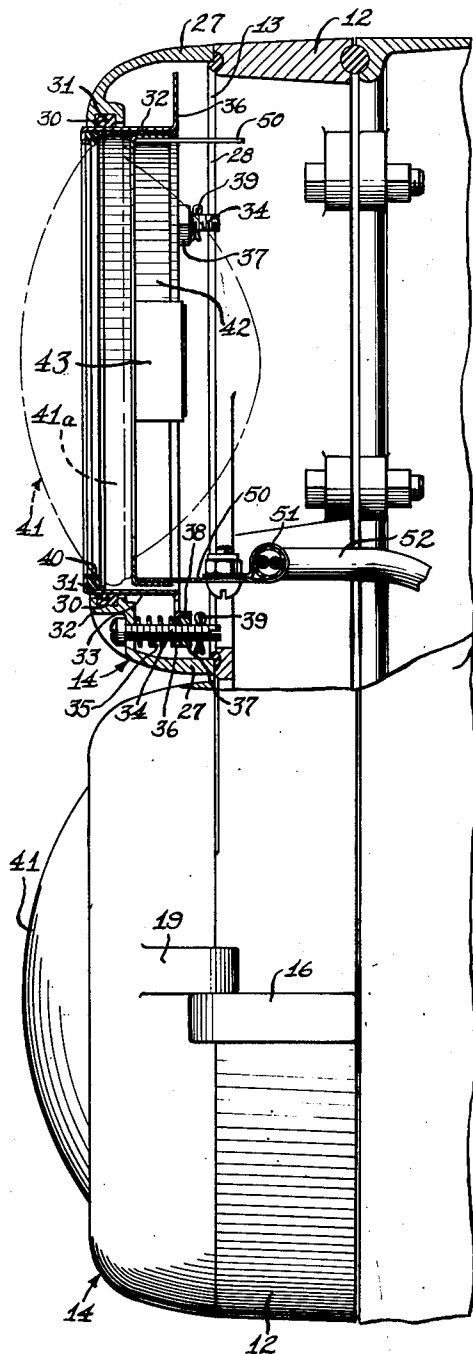


Fig. 3

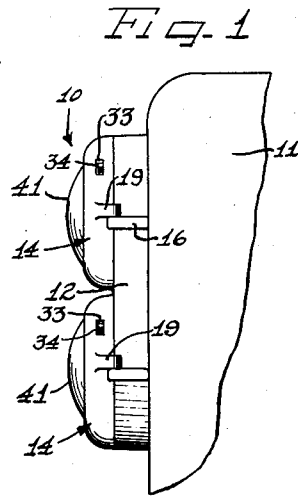


Fig. 1

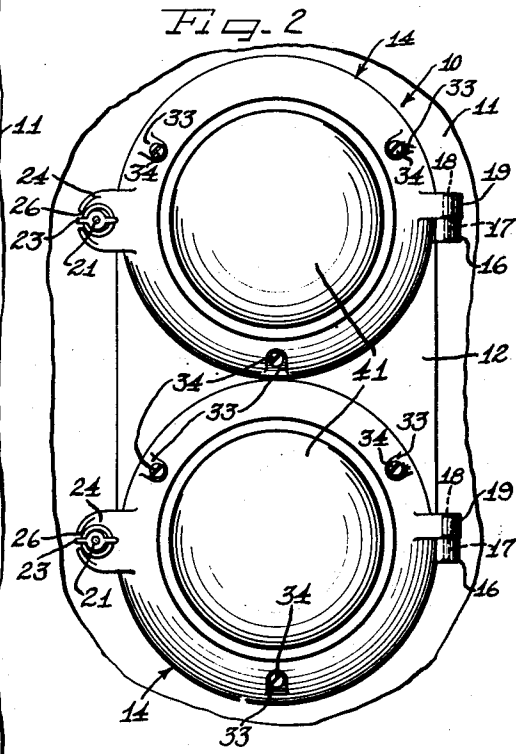


Fig. 2

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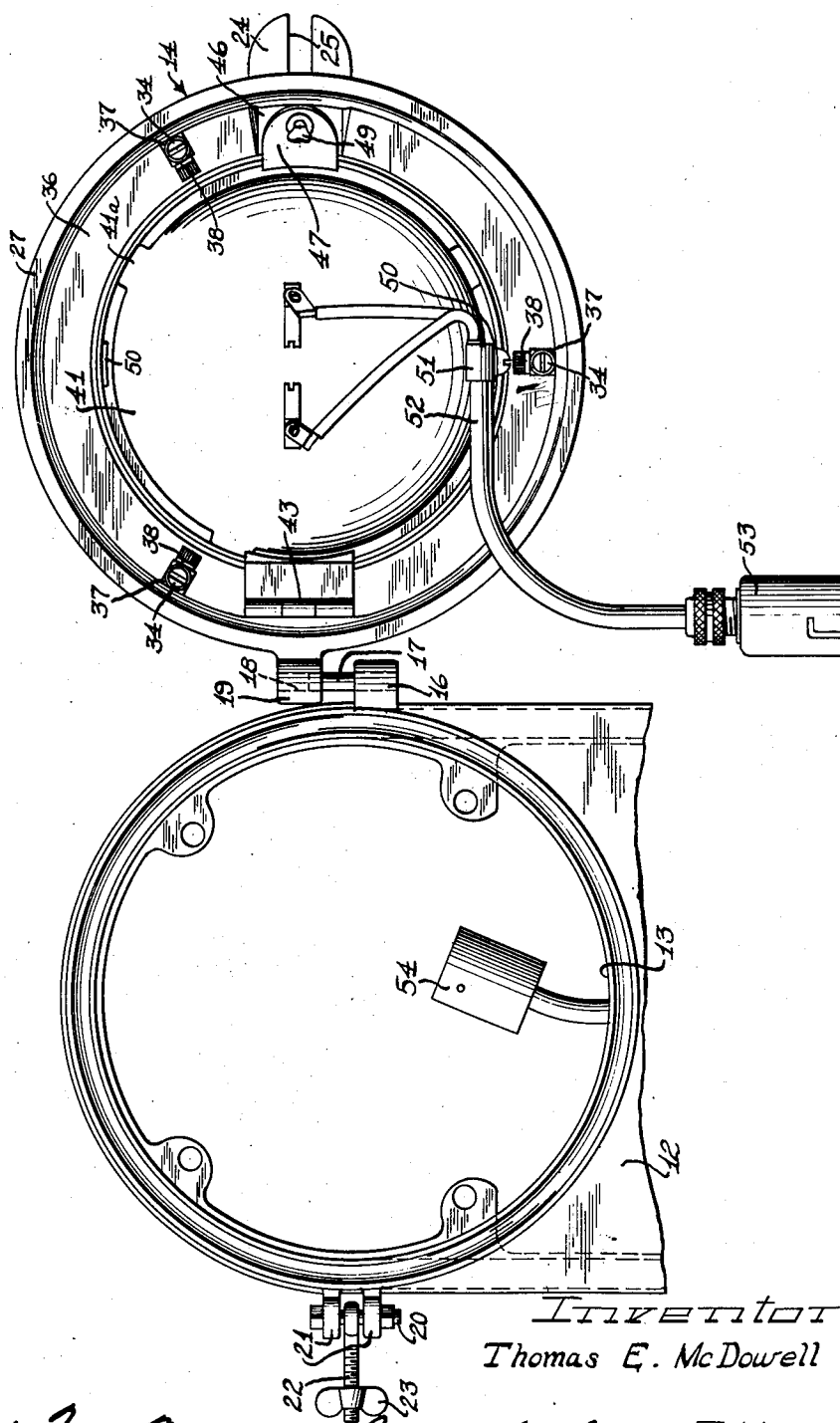
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FIG. 4



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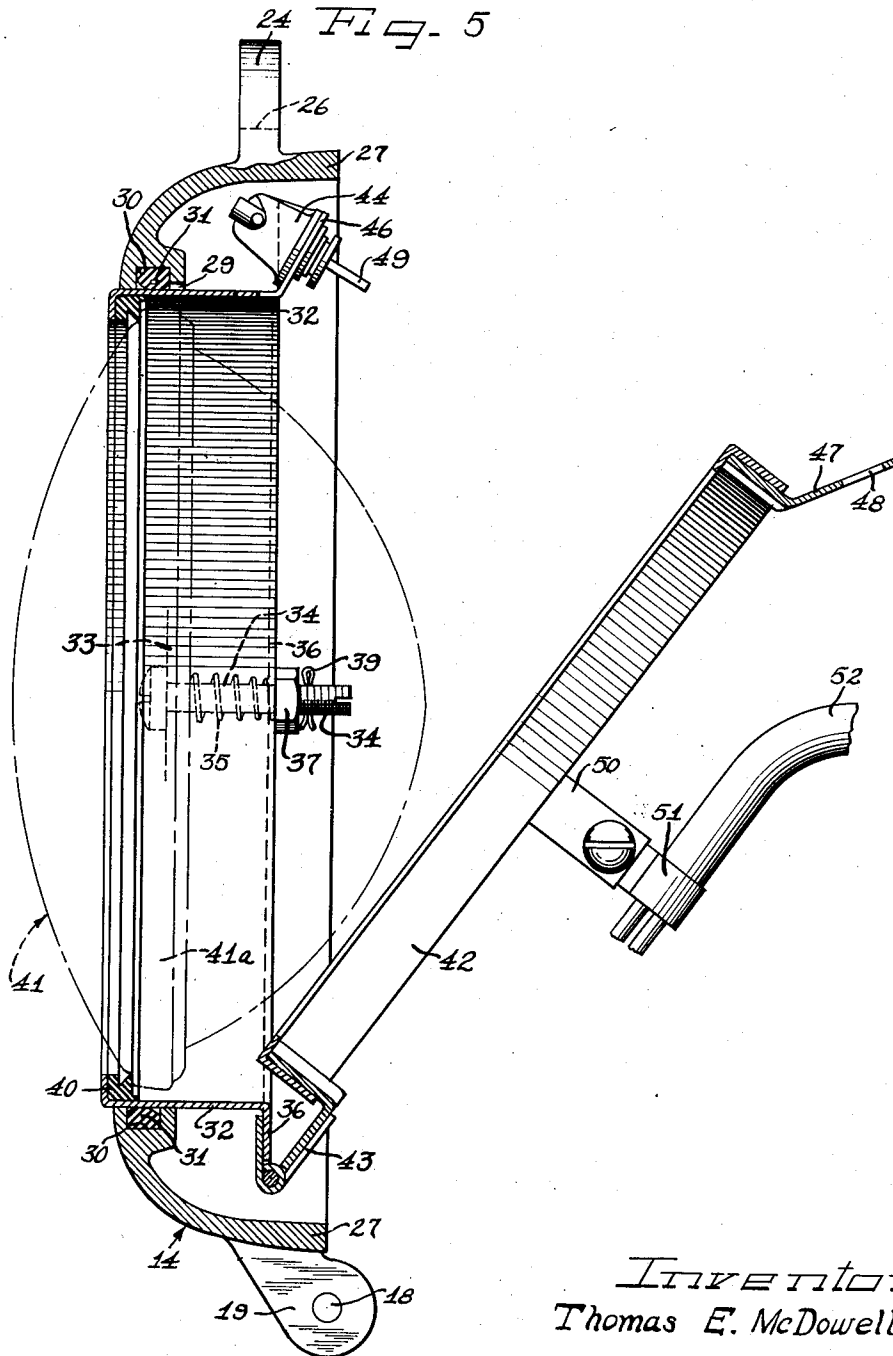
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UNITED STATES PATENT OFFICE

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TWIN SEALED-BEAM TYPE HEADLIGHT
WITH ALIGNABLE AND REMOVABLE
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This invention relates generally to headlight assemblies and more particularly to a twin sealed-beam type headlight assembly, which, although not limited thereto, finds a particularly useful application on a movable vehicle such as a railway locomotive, the assembly including a plurality of separately alignable and removable lamp units.

According to the general features of the present invention, a twin sealed-beam type headlight is provided for a locomotive and includes a casing attachable to the front end of a locomotive, the casing having a pair of coaxially disposed openings each closed by a specially constructed lamp door. Mating lug means are provided between the casing and each of the doors to pivotally mount the doors in removable relationship on the casing. Latching means are also provided between the casing and the doors to lock the doors in position across each of the openings.

The lamp doors are of a generally annular configuration with an opening therethrough and an adjustable lamp retainer mechanism constructed to position a sealed-beam type lamp is assembled in each of the doors. Thus, the beam characteristics of the headlight may be varied by separate adjustment of each of the lamp retainer mechanisms.

A quick disconnect type plug and socket is also located between the casing and the sealed beam lamp carried in the lamp retainer mechanism. In servicing the headlight assembly, each of the lamp doors may be unlatched and pivoted to an open position whereupon the quick disconnect plug and socket may be separated and the entire lamp door together with the sealed-beam lamp and lamp retaining mechanism removed from the casing. Once removed, the assembly may be conveniently serviced, for example, in a bench servicing operation.

It is an object of the present invention, therefore, to provide a headlight assembly which includes more than one sealed-beam type lamp and in which each lamp may be separately adjusted to vary the beam characteristics of the headlight.

It is a further object of the present invention to provide a multiple sealed-beam type headlight assembly in which the separate lamps may not only be individually adjusted but completely removed with great facility for a servicing operation.

Another object of the present invention is to provide a novel and improved lamp door assembly for a sealed-beam type headlight assembly which includes removable hinging means and a

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spring suspension support whereby a sealed-beam type lamp may be supported and cushioned in the lamp door and aligned relative thereto.

Many other advantages, features and additional objects of the present invention will become manifest to those versed in the art upon making reference to the detailed description which follows and the accompanying sheets of drawings in which a preferred embodiment of a headlight assembly incorporating the principles of the present invention is shown.

On the drawings:

Figure 1 is a fragmentary side elevational view of a headlight assembly according to the present invention;

Figure 2 is a fragmentary front elevational view of a headlight assembly according to the present invention;

Figure 3 is an enlarged side view of the headlight assembly shown in Figure 1 with parts removed and with parts broken away and shown in cross-section to show details of construction of the headlight assembly;

Figure 4 is a fragmentary front elevational view of the headlight assembly shown in Figure 2 with parts removed for the sake of clarity and with the lamp door swung open and partially disassembled;

Figure 5 is a cross-sectional view of the lamp door with parts shown in elevation and with portions of the lamp retaining mechanism partially disassembled as in the course of a servicing operation.

As shown on the drawings:

On Figure 1 a headlight assembly according to the present invention is indicated generally by the reference numeral 10 and is fixed in firm assembly on the front end of a locomotive 11.

The headlight assembly 10 includes a casing 12 having a pair of coaxially disposed openings 13 each closed by a lamp door 14. The lamp doors 14 are of identical construction and like reference numerals will be employed to identify the components thereof.

Mating lug means are provided between the casing and each of the doors 14 to pivotally mount the doors in removable relationship on the casing 12. In the present embodiment, a lug 15 having a pin 17 (Figure 4) is provided on the casing 12 adjacent each of the openings 13, the pin 17 being received in a journalling recess 18 formed in a lug 19 carried on one side of the lamp door 14.

Latching means are also provided between the casing 12 and each of the lamp doors 14 to lock

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the doors in position across each of the openings 13. In the present embodiment, a bolt 20 carried by a bifurcated lug 21 situated adjacent each of the openings 13 on the casing 12 pivotally mounts a threaded latch stud 22 having a wing nut 23 turned thereon. A lug 24 is formed on each of the lamp doors 14 and is slotted as at 26 to receive one of the latch studs 22 whereupon the wing nuts 23 may be tightened to lock the lamp doors 14 in place.

Referring now to Figures 3, 4 and 5, the structural details of each of the lamp doors 14 will be described.

Each of the doors 14 comprises a generally annular cup-shaped member. The side walls of the cup-shaped member are indicated by the reference numeral 27 and engagingly abut a gasket 28 carried by the casing 12 to form a seal-tight relationship. The side walls 27 actually form a ring having a central opening 29 extending therethrough, there being an annular recess 30 at the opening 29 to receive a gasket 31 arranged to engagingly abut the flanged side walls of a lamp retainer ring 32.

The side walls 27 of the door 14 are provided with a plurality of radially spaced bosses 33 suitably apertured to pass a threaded bolt 34. The lamp retainer ring 32 has a flange 36 having a corresponding plurality of radially spaced apertures 36 to receive each of the bolts 34. A coil spring 35 is placed around each of the bolts 34 and engages the boss 33 of the door 14 and the flange 36 of the lamp retainer ring 32 so as to normally bias the lamp retainer ring 32 inwardly towards the casing 12. A nut 37 may be turned onto each of the bolts 34. A lock tab 38 may be struck out from the flange 36 to retain each of the nuts 37 against rotation. The bolts 34 are preferably of the type having a slotted head as well as a slotted end portion so that the bolts 34 may be turned with the aid of a screw driver from either side of the door 14. A cotter pin 39 is provided to retain the nut 37 against inadvertent disassembly.

By adjusting the bolts 34 against the bias of the spring 35, the lamp retaining ring 32 may be selectively positioned in the opening 29 to vary the relative alignment thereof with respect to the door 14.

The lamp retaining ring 32 carries a soft gasket 40 against which an annular flange 41a of a conventional sealed-beam lamp 41 is shouldered.

To retain the sealed beam lamp 41 in firm assembly with the lamp retaining ring 32, a latch ring 42 pivotally connected to the lamp retaining ring 32 by a hinge 43 may be swung over the rear of the lamp 41 into abutting engagement with the rear face of the annular flange 41a on the lamp 41 and latched by a key latch 44.

As will be noted on Figures 4 and 5, the flange 36 of the lamp retaining ring 32 has an embossed recess portion 46 which carries the key latch 44 and the latch ring 42 is provided with a complementary tab 47 apertured as at 48 to receive the key 49 of the key latch 44.

A pair of ears 50 arranged in diametrically opposed relationship are carried in firm assembly with the latch ring 42. In this embodiment, one of the ears 50 is employed to carry a clip 51 which supports a conductor wire 52. The conductor wire 52 is preferably connected to suitable electrical conductor means positioned on the casing 12 by a quick disconnect type coupling or plug and socket. In the present embodiment, a socket is shown at 53 which may be quickly

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connected or disconnected with a mating plug 54.

The operation of the apparatus thus far described is particularly advantageous when the headlight assembly is employed as part of a railway locomotive. On many dieselized switch engines as well as on steam locomotives, it is impossible to service a headlight assembly from the inside of the locomotive cab, hence, if a servicing operation is necessary, a workman must mount the narrow ladders and catwalks which are usually provided on a locomotive in order to gain access to the headlight assembly. Once such access is gained, the operator is frequently obliged to retain a firm grip on the hand rails or ladders of the locomotive with one hand while an attempt is made to service the headlight assembly with the other hand. Needless to say, such an operation can frequently lead to injury of personnel as well as damage to equipment if the headlight assembly is only of ordinary construction.

The structure of the headlight assembly 10 according to the present invention can be easily disassembled with only one hand despite the fact that the servicing operator is retaining a grip on the locomotive 11 with his other hand.

The wing nut 23 may be loosened on the latch stud 22 and the door 14 pivoted open around the axis of the pin 17. The operator can then reach within the casing 12 and quickly disconnect the socket 53 and the plug 54. An upward displacement of the lamp door 14 will then disengage the mating lug means including the lug 16 on the casing 12 and the lug 19 on the door 14 whereupon the entire lamp unit including the door 14 together with the sealed beam lamp 41 and the lamp retaining mechanism including the lamp retaining ring 32 and the latch ring 42 may be removed from the casing 12 and carried to a bench or other suitable location for subsequent servicing.

To remove the sealed-beam lamp 41 from the retaining mechanism, the latch ring 42 may be disconnected from the lamp retaining ring 32 by disengaging the key latch 44 whereupon the latch ring 42 will be pivoted on the hinge 43 out of registry with the sealed-beam lamp 41.

The use of two sealed-beam lamps 41 in a single headlight assembly is, of course, a provision made for safety purposes primarily, however, it will be appreciated that the use of a multiple lamp unit also permits the merging of the individual beams of light produced by the sealed-beam lamps 41. In this connection, it is important to note that the apparatus of the present invention permits each individual lamp unit to be separately adjusted, the three-point suspension afforded by the bolts 34 between the lamp door 14 and the lamp retaining ring 32 affording a convenient means for varying the alignment of the sealed-beam lamps 41 and hence the beam characteristics of the headlight assembly 10. The bolts 34 can, of course, be turned from either side of the door 14 and the various adjusted positions of the bolts 34 will be readily retained by the lock tab 38.

Although I have resorted to detail in the description of the preferred structural embodiments provided according to the principles of the present invention, it should be understood that I wish to embrace within the scope of this patent all such modifications as reasonably and properly come within the scope of my contribution to the art.

I claim as my invention:

1. In a headlight assembly, a casing means providing an opening, a lamp door for closing said opening and comprising a generally annular ring-like member hinged at one side and latched at the other side to said casing means, a sealed beam lamp retainer ring carried by said door to receive a sealed-beam type lamp, means to lock the lamp in the retainer ring in firm assembly with the door, and a plurality of circumferentially spaced axially adjustable connections between said door and said ring, the beam projected by the sealed beam type lamp being adjustably aligned relative to said door upon adjusting said connections, said connections comprising a plurality of bolts, a resilient member around each of said bolts and fasteners on said bolts positioning said retainer ring on said bolts against said resilient members to vary the alignment of the sealed-beam type lamp and the beam characteristics of the headlight assembly.

2. In a headlight assembly, a casing providing an opening, a hinged lamp door closing said opening and having an opening therethrough, a retainer ring in said opening, a sealed-beam lamp in said opening of said lamp door and carried by said retainer ring, a latch ring hinged to said retainer ring on the inside of said door and pivotable from an inactive position to a locking position, locking means between said retainer ring and said latch ring to lock said lamp in firm assembly with said door, a plurality of circumferentially spaced bolts between said retainer ring

and said door, a coil spring around each bolt and operative to bias said door and said retainer ring apart from one another, and a corresponding plurality of fasteners to position said retainer ring on said bolts against the bias of said springs to adjustably vary the beam alignment of the sealed-beam lamp relative to said door, and hinge and latch means hingedly connecting said door to said casing, whereby said door may be swung open for service without disturbing beam alignment position of said ring relative to said door.

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