

Nov. 4, 1941.

G. TRIPPE

2,261,508

HEADLIGHT

Filed Dec. 22, 1939

2 Sheets-Sheet 1

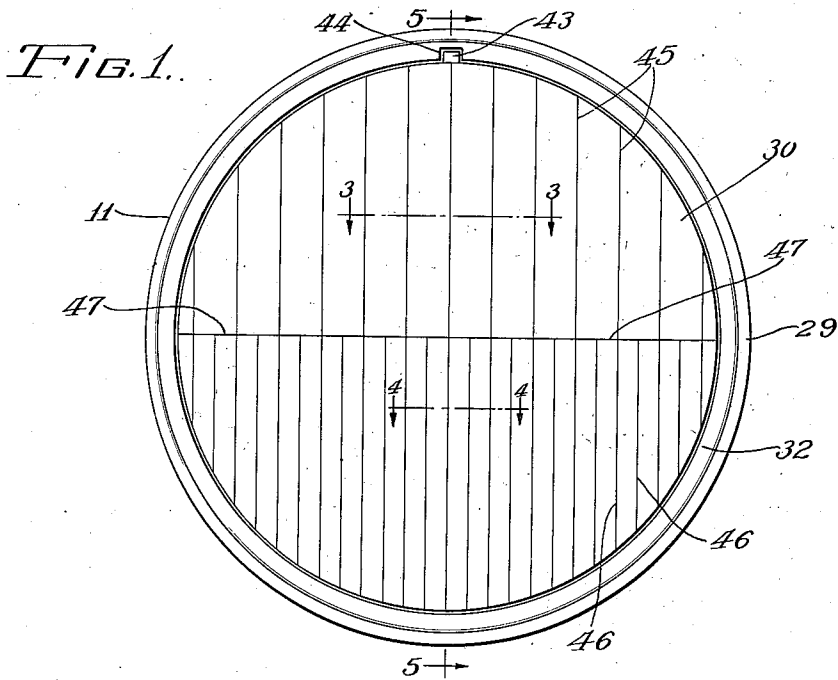


FIG. 2.

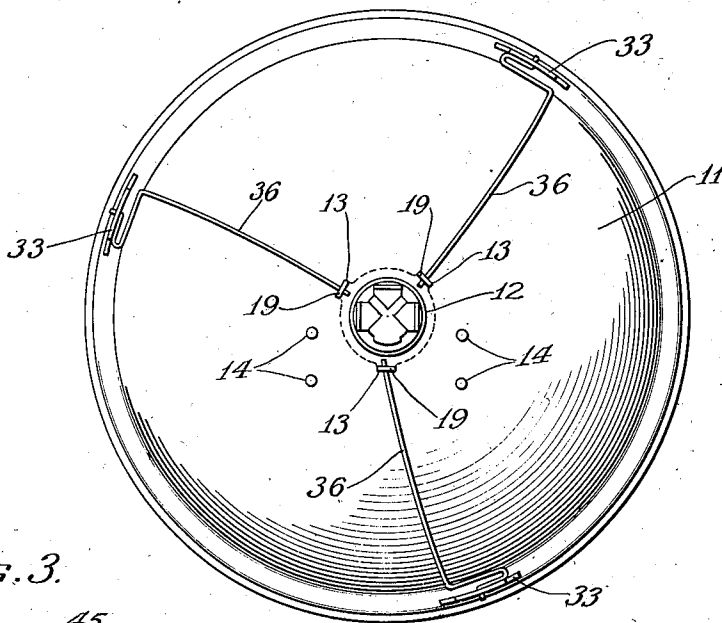


FIG. 3.

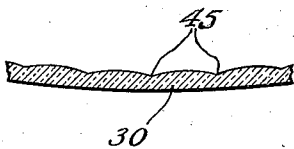
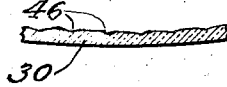


FIG. 4.



Inventor:
Graham Trippe
By *Benton Baker*
Attorney

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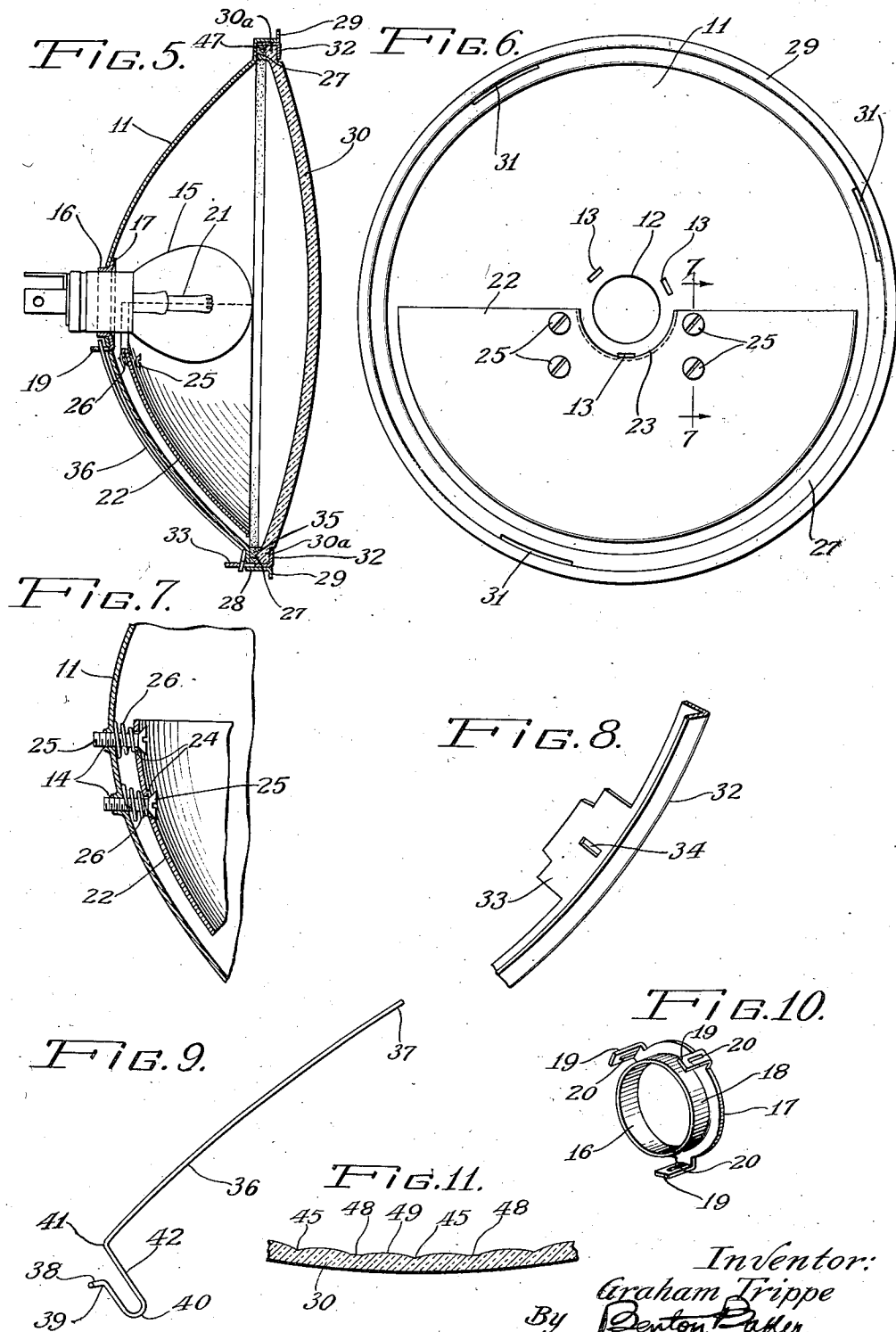
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HEADLIGHT

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2 Sheets-Sheet 2



Inventor:
Graham Trippe
By Benton Parker
Attorney

UNITED STATES PATENT OFFICE

2,261,508

HEADLIGHT

Graham Trippe, Evanston, Ill.

Application December 22, 1939, Serial No. 310,481

1 Claim. (Cl. 240—41)

My invention relates to a new and improved electric headlight, which may be mounted as a unit but may be readily demounted, disassembled for adjustment or replacements, and quickly re-assembled and remounted as a unit, and to various novel component parts thereof, including a new and improved type of fluted lens, an adjustable, auxiliary, flexible reflector and method of adjusting the same, and new and improved means for positioning and securing an electric lamp in said headlight, for securing and sealing the lens, and for locking the several parts of the headlight as a unit. In addition to the advantages thus indicated, a headlight constructed in the manner described has the important advantage of making possible the production of a composite light beam of such distributed intensity and proportions as to illuminate a highway more efficiently for travel than has heretofore been done.

Further objects are to provide a construction of maximum simplicity, efficiency, economy and ease of assembly and operation, and such further objects, advantages and capabilities as will later more fully appear and are inherently possessed thereby.

The invention further resides in the combination, construction and arrangements of parts illustrated in the accompanying drawings, and while I have shown therein a preferred embodiment, it is to be understood that the same is susceptible of modification and change and comprehends other details, arrangements of parts, features and constructions without departing from the spirit of the invention.

Referring to the drawings:

Fig. 1 is a front view of the headlight.

Fig. 2 is a rear view thereof.

Fig. 3 and Fig. 4 are partial horizontal sections of the lens at 3—3 and 4—4, respectively, of Fig. 1.

Fig. 5 is a vertical section taken at 5—5 of Fig. 1.

Fig. 6 is a front view of the reflector 11 with auxiliary reflector 22 in position.

Fig. 7 is a partial vertical section taken at 7—7 of Fig. 6.

Fig. 8 is a perspective view of a portion of flanged ring 32, showing one of the lugs 33.

Fig. 9 is a perspective view of spring member 36.

Fig. 10 is a perspective view of flanged collar 16.

Fig. 11 is a horizontal section of another lens.

Referring to the drawings, my invention may

be described as follows: I provide a suitable, preferably parabolic, reflector 11 having a central opening 12 adapted to receive the base or shank of an electric lamp, a plurality of asymmetrically spaced oblique openings 13, preferably angular, and a plurality of spaced oblique openings 14, preferably circular, and suitably disposed about the central portion but below the horizontal midsection of said reflector.

Seated in the opening 12 of reflector 11, co-axially therewith, is a suitable electric lamp 15, having a filament 21, and fitted with an annular collar 16 which may be soldered or otherwise suitably secured to its shank or base. The collar 16 has a crowned or shaped peripheral portion 18, adapted to seat in opening 12 of reflector 11, and an annular angular flange 17 with rearwardly extending angular lugs 19 adapted to engage and extend through openings 13 in reflector 11, and is of such conformation and so positioned with respect to the filament 21 as to fix the position of said filament substantially in advance of the focal point of said reflector.

A suitable auxiliary, preferably flexible and half-parabolic, reflector 22, having an arcuate indented portion 23 at the central portion of its upper edge, and a plurality of openings 24 suitably spaced therefrom, is adjustably secured to the reflector 11, co-axially therewith, by means of screws 25 fitted with helical springs 26 and adapted to engage the openings 24 of the auxiliary reflector 22 and the openings 14 of the reflector 11. The openings 14 and 24 are so positioned and spaced with respect to the axis of the reflectors 11 and 22 as to permit adjustment of the reflector 22 by vertical tilt, by horizontal tilt, by distortion or by movement along its axis toward or away from reflector 11. This is accomplished by adjusting one or more of the screws 25. By such adjustment of the auxiliary reflector 22, it is possible to obtain a better correlation of the components of the composite beam projected by the headlight.

The reflector 22 is of such size and shape and is so positioned with respect to reflector 11 and the filament 21 of the lamp 15 that the top of the light beam reflected will be substantially sheer and flat. To accomplish this the upper edge of the reflector 22, except the indentation 23 which is designed to accommodate the lamp 15, should be approximately in the horizontal plane of the common axis of the two reflectors, the focal point of the reflector 22 should be approximately coincidental with the filament 21,

and the reflector 22 should substantially obstruct or black out the entire lower half of reflector 11.

Reflector 11, as shown in Fig. 5, is shaped near its periphery so as to provide a seat 27 for an annular gasket 35, and a peripheral rim or guard portion 28 with angular flange 29, adapted to receive the peripheral flanged portion 30a of lens 30. As shown in Figs. 5, 6 and 2, a plurality of asymmetrically spaced, circumferentially extending, slots 31 are provided in seat 27 near its outer edge, adapted to receive lugs 33 of flanged annular ring 32, which is designed to fit over the peripheral flange 30a of lens 30 and, when secured as hereinafter stated, to seal the same.

To lock the several parts of the headlight as a unit I have provided, as shown in Figs. 2, 5 and 9, a plurality of spring members 36. These spring members 36 may be of any suitable shape or material. As shown, said spring members 36 are of round wire, one end 37 thereof being adapted to engage the opening 20 in lugs 19 of collar 13, the other end 38 being adapted to engage the opening 34 provided in the lugs 33 of ring 32, and so bent or shaped near the end 38, at 39, 40 and 41 that when applied with the ends respectively engaged as stated, the portion 42 will bear against the outer surface of the reflector 11 adjacent to the corresponding slot 31, as a fulcrum; said spring members 36 exerting a rearward pressure of the order of 50 lbs. each on the lugs 33, and when three such spring members are applied exerting a total pressure of approximately 150 lbs. against the bearing surface of the lens 30 and effectively sealing the lens against the gasket 35 and locking the parts of the headlight in place; simultaneously the spring members 36 exert a rearward pressure of the order of 5 lbs. each against the lugs 19.

As shown in Fig. 5, the lens 30 may be provided on its reverse peripheral portion with an annular bead or V-ring 47 adapted to engage the gasket 35 for added sealing effect.

As shown in Fig. 1, lens 30 may be provided with a centering lug 43 adapted to engage notch 44 of ring 32 to facilitate assembling the parts of the headlight.

The obverse of lens 30 is preferably convex, with vertical fluting on one side (as shown, the inner side), the fluting 45, 45 of its upper half being of such conformation in relation to that (46, 46) of the lower half of the lens that the horizontal spread of beam of the upper half of the lens will be substantially wider than that of the lower half thereof. As shown in Fig. 3 and Fig. 4, for example, this result can be obtained by using arcuate flutes of the same radius for both halves of the lens, the upper flutes being of substantially greater width than the lower flutes; or the upper and lower flutes may be of the same width but the upper ones having a substantially smaller radius. It may also be done in other ways which will readily occur to those skilled in the art.

In a headlight of the type described, by selecting a suitable combination of reflectors and a suitable lens, it is possible to cast a light beam having a substantially sheer flat top with much better distribution of intensity of light throughout its length and spread than has heretofore

been obtainable. If, for example, in a headlight for a motor vehicle, suitable reflectors being properly positioned and adjusted, the radius of the upper fluting be approximately one-third that of the lower fluting, while the horizontal spread of beam of the upper half of the lens will be relatively wide, extending in a substantially flat band or ribbon from one side of the highway to the other providing visibility for a comparatively short distance ahead, the horizontal spread of beam of the lower half of the lens will be relatively narrow, and largely restricted to the upper middle third of the horizontal spread of the composite beam projected by the headlight, with the result that the intensity of the beam is greatly increased directly ahead to provide distant visibility where most needed for safe travel.

Fig. 11 of the drawings shows a horizontal section of a modified form of lens in which flats 48 are provided between flutes 45, 45 and 46, 46. These flats preferably are of a uniform width, not to exceed one-half the width of the adjacent flutes, and extend from the horizontal midsection of the lens 30 to its top or bottom as the case may be, and preferably are located between alternate flutes but they may be disposed in other suitable order. Provision of the flats 48 in the manner indicated makes it possible to produce a beam with the highest intensity in the center of the horizontal spread of the composite beam with the desired gradation toward either side.

Having now described my invention,

I claim:

In a headlight, a reflector having a peripheral flanged portion, an annular gasket in said portion, said flanged portion having a plurality of circumferentially extending, asymmetrically spaced slots therein, a central opening adapted to receive the base or shank of an electric lamp and a plurality of asymmetrically spaced openings slightly removed and approximately equidistant from said central opening, an electric lamp adapted to be seated in said first opening co-axially with said reflector and having an annular flanged portion with a plurality of rearwardly extending, suitably spaced lugs, respectively adapted to engage said asymmetrically spaced openings in said reflector, and to project therethrough, each of said lugs having an opening in its outer portion adapted to receive means for locking said lamp in position, a lens having a peripheral flanged portion and adapted to be seated against said gasket in the flanged portion of said reflector, a ring adapted to engage the peripheral portion of said lens and hold it in position against said gasket, said ring having an angular flange with a plurality of asymmetrically spaced lugs laterally projecting from said flange, said lugs being respectively adapted to engage the slots in said reflector and to extend therethrough and having an opening in their protruding portion adapted to receive means for locking said ring in position, and locking means adapted to engage the openings in both said first mentioned and said second mentioned lugs for securing said parts in position and sealing the face of said headlight against ambient atmosphere.

GRAHAM TRIPPE.