May 25, 1971 J. F. STEEL Re. 27,125

MEANS FOR REMOVING GLARE OF A LIGHT BEAM

Original Filed Dec. 14, 1964 4 Sheets-Sheet 1

Fig. 1

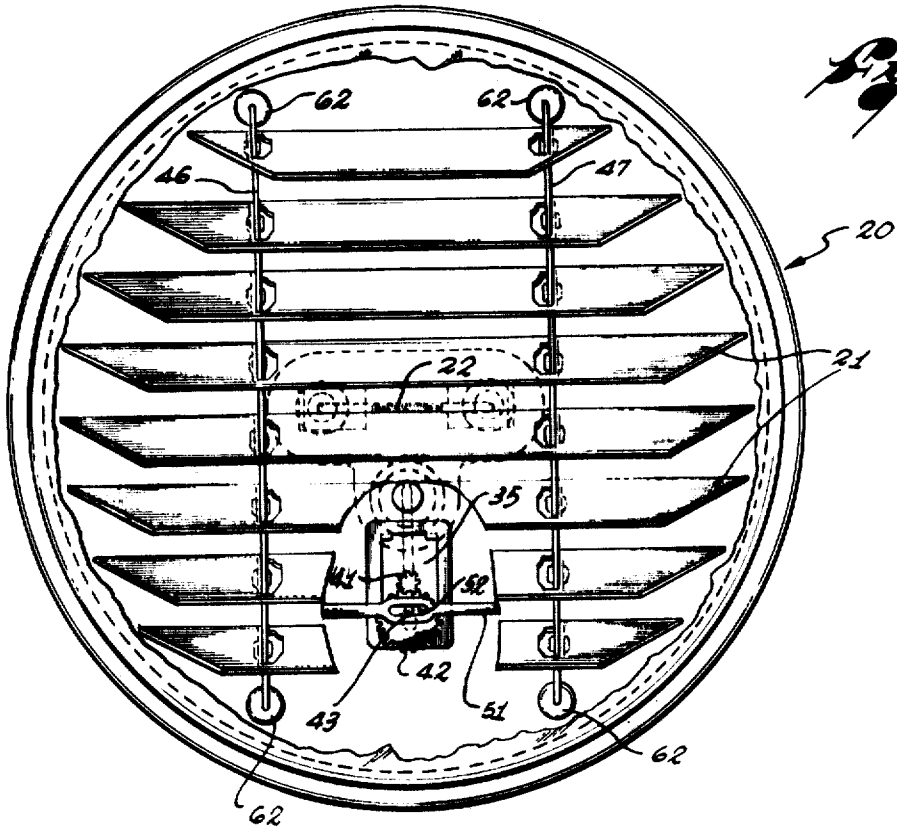
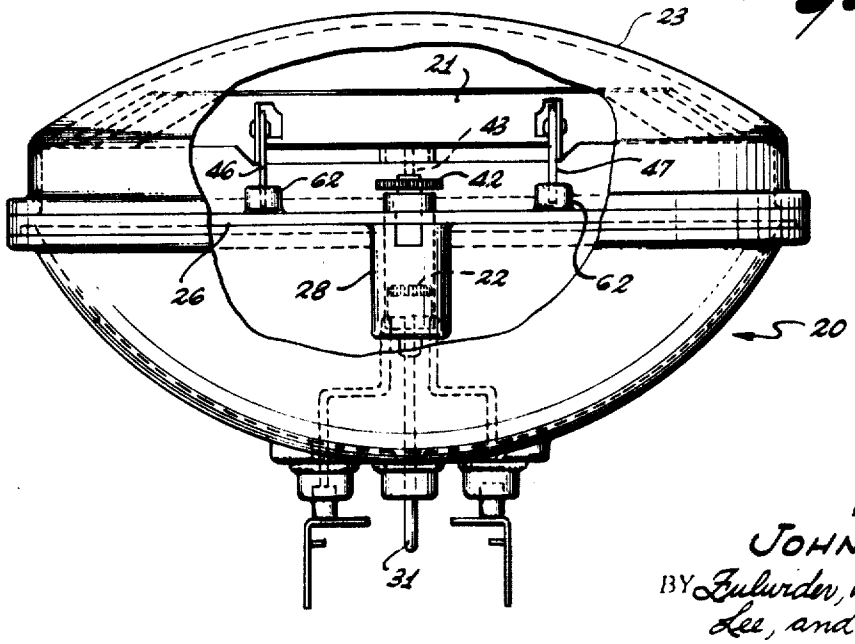


Fig. 2



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MEANS FOR REMOVING GLARE OF A LIGHT BEAM

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Fig. 3

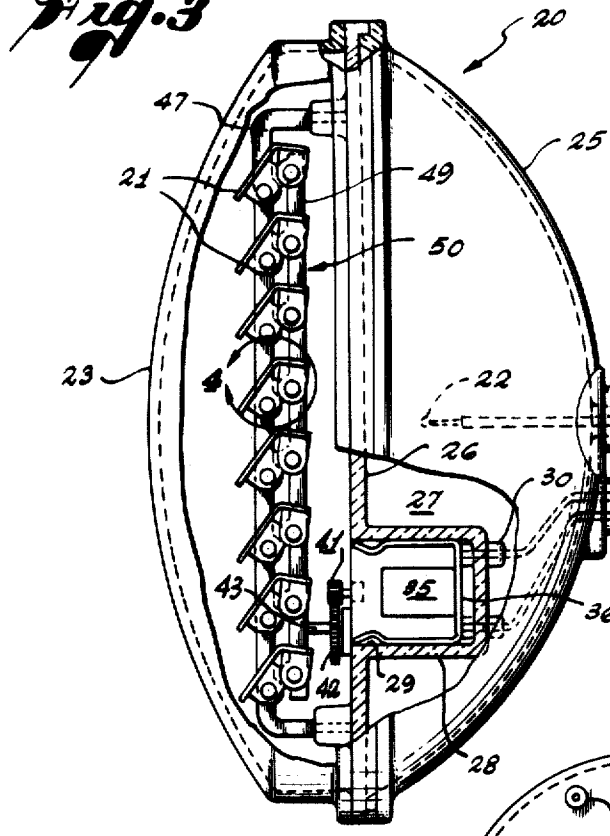


Fig. 4

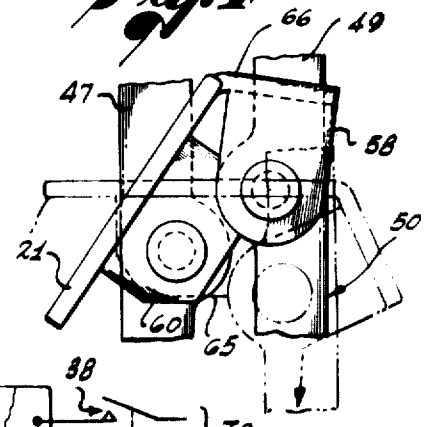


Fig. 5

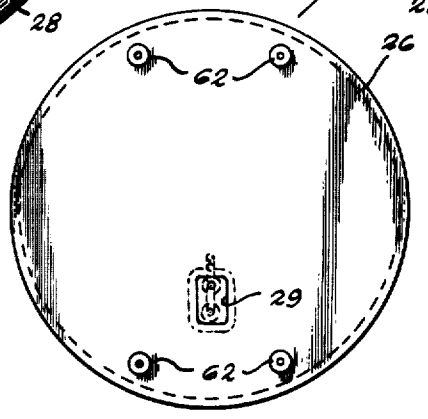


Fig. 6

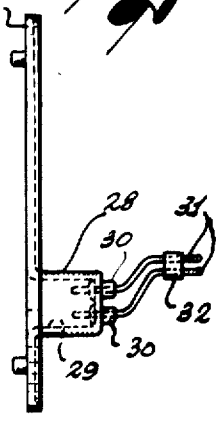
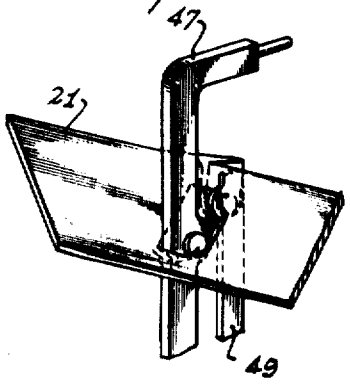


Fig. 7



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Fig. 8

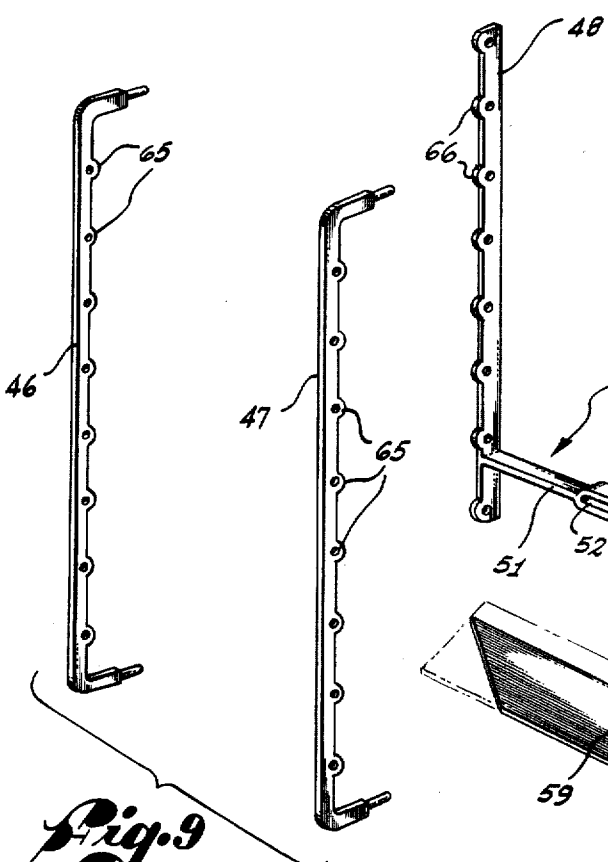


Fig. 9

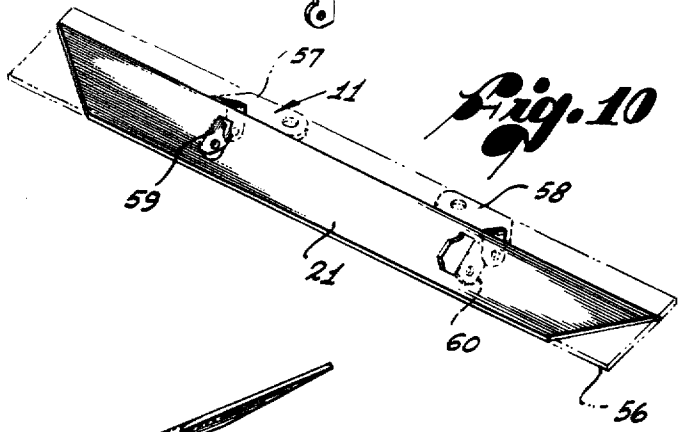


Fig. 10

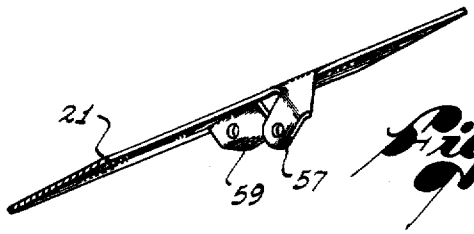


Fig. 11

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MEANS FOR REMOVING GLARE OF A LIGHT BEAM

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Fig. 12

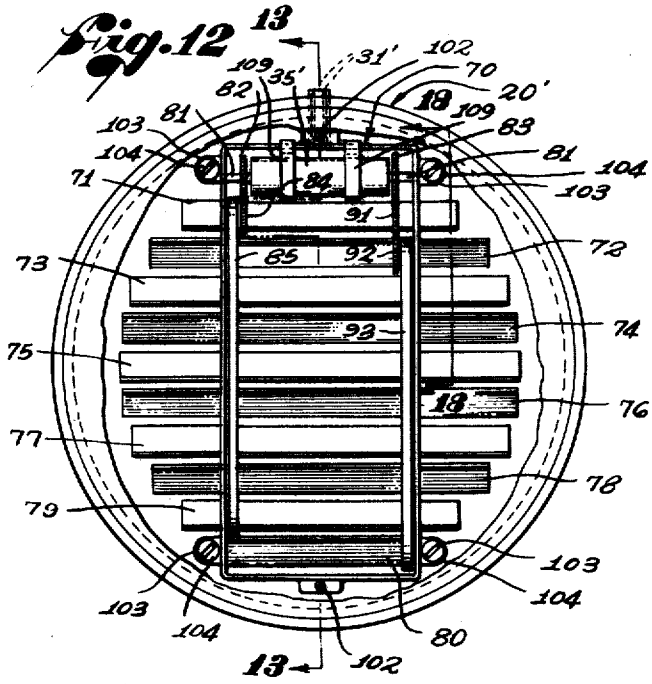


Fig. 13

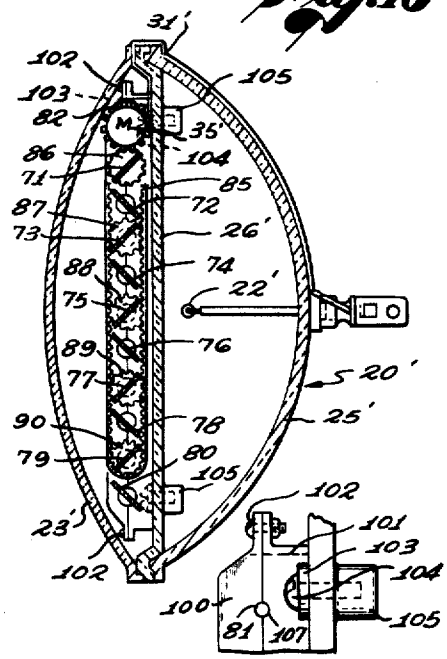


Fig. 14

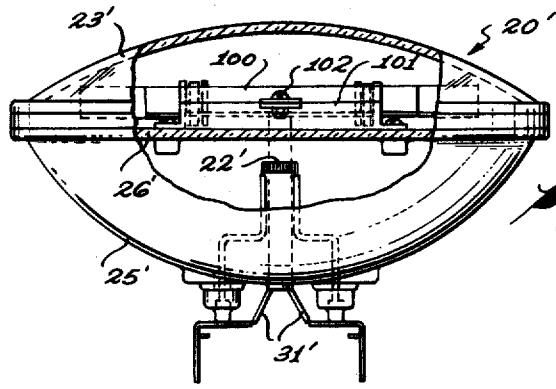


Fig. 18

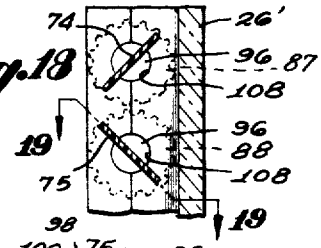


Fig. 19

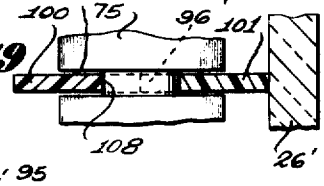


Fig. 15

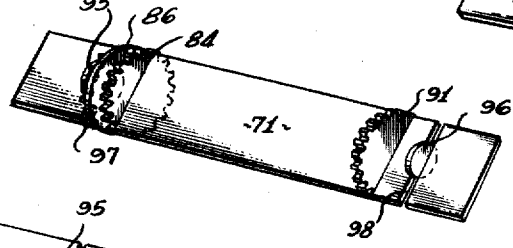


Fig. 16

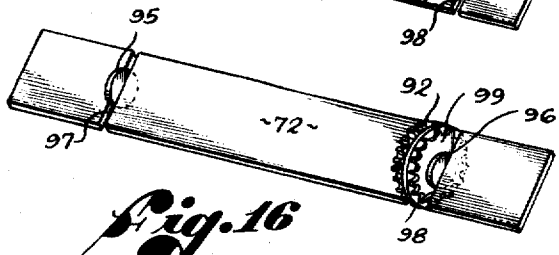
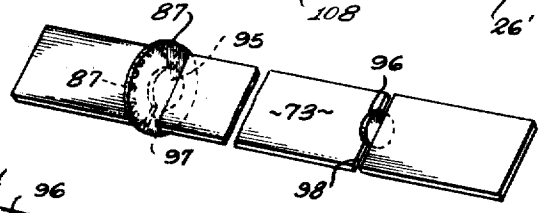


Fig. 17



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United States Patent Office

Re. 27,125
Reissued May 25, 1971

27,125

MEANS FOR REMOVING GLARE OF A LIGHT BEAM

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Original No. 3,333,094, dated July 25, 1967, Ser. No. 421,742, Dec. 14, 1964, which is a continuation-in-part of Ser. No. 406,973, Oct. 26, 1964. Application for reissue Jan. 21, 1969, Ser. No. 802,277

Int. Cl. F21v *11/04*

U.S. Cl. 240—46.11 9 Claims

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

ABSTRACT OF THE DISCLOSURE

A sealed-beam headlamp includes a coaxial lens and reflector, and an incandescent filament which generates a light source. A transparent plate is interposed between the filament and the lens to divide the headlamp into a hermetically sealed, evacuated filament compartment and a non-evacuated louver compartment. A frame which is fixedly mounted in the louver compartment is maintained stationary with respect to the lens and the plate. A plurality of louvers are rotatably mounted in the frame, the louvers being spaced-apart and mechanically coupled for simultaneous rotation sequentially through a fully closed position and a fully open position. A drive mechanism cooperates with the louver coupling to rotate the louvers in unison at such rate that a beam of light passing through the headlamp lens appears uninterrupted.

Alternatively, the louvers may be mounted for oscillation rather than rotation or a suitable louver coupling device may be provided to rotate adjacent louvers in opposite directions.

Cross-Reference to related application

[This application is a continuation-in-part of my application Ser. No. 406,973, filed Oct. 26, 1964, and now abandoned, for Automobile Headlamp.]

The original of this application is a continuation-in-part of my application Ser. No. 406,973, filed Oct. 26, 1964, and now abandoned, for Automobile Headlamp.

Background of the invention

(1) Field of the invention

This invention relates to beam-type lighting devices, and more particularly to a unique apparatus and method for reducing glare of a light beam, as in automobile headlamps and the like.

(2) Description of the prior art

As is well known, a person facing a strong light beam often is momentarily blinded by its glare. In the case of automobile headlamps, for example, one of the most dangerous obstacles to night driving is the glare of the headlamps of oncoming cars. All too often, a driver proceeds with his headlamps on "high beam" along unlighted stretches of roadways, and fails to dim his lights when he approaches cars coming in the opposite direction. All too often, too, the driver of the car coming from the opposite direction is blinded by the glare from the "high beam" lights, and is caused to lose control of his car and have an accident.

Also, while driving on highways at night where there is a considerable flow of traffic, the driver is often compelled to drive continuously on "low beam" with consequent poor lighting and little or no warning of poor or unlighted objects which he is approaching. Many accidents occur because such a driver travels at too high a speed while on "low beam" to permit him to avoid collision with an object after it is within the range of the beam and he is aware of it.

Another common problem with nighttime driving is that conditions are often such that a driver must frequently manipulate the foot switch for the headlamps and switch them back and forth between "high" and "low" beam operation. It is well known that frequent surges of current through a filament both in turning a light on and in turning it off, constitute a major factor in reducing the life of the filament, and its lamp. Accordingly, it often happens that a filament, such as the "high" beam filament, burns out while driving, under circumstances in which the driver is forced to travel a considerable distance without the benefit of "high" beam operation where it is dangerous to be without the benefit of that light source.

It is also known that persons working under strong light beams, e.g., as in movie studios, or on outside construction jobs at night, are often temporarily blinded by the lights and unable to carry on their work.

In the past, it has been proposed to reduce such glare by rotating louvers outside a lamp to interrupt the beam at a frequency such that the light appears uninterrupted. While this reduces glare, it has the disadvantages that the louvers are exposed to dirt and moisture, are easily damaged, and require undue time, effort and expense to maintain in proper working order.

The mounting of a motor and louvers inside such a lamp has not hitherto been possible without damage to moving parts and a serious shortening of filament life. In this connection, it should be noted that a motor and louvers positioned inside such a lamp would be subjected to considerable heat damage at the high temperatures required to fuse the lens to the reflector. Further, the moving parts would be incapable of desired operation in the high vacuum required for the filament. Reducing the vacuum would inherently shorten filament life, as would direct exposure of the filament to contaminants from the motor and louvers.

Summary of the invention

My invention embraces a lamp having a lens and reflector wherein its interior is divided into an evacuated filament compartment and a non-evacuated louver compartment, and includes a transparent plate sealed to a reflector to define the evacuated filament compartment; the lens being secured to the transparent plate to provide the louver compartment; and an assembly of louvers carried by a stationary frame in said second compartment and adapted to be operated to so interrupt the beam that light passing through the lens appears uninterrupted. The invention eliminates the aforementioned disadvantages of the prior art, and has as its objects the following:

It is an object of my invention to provide a unique apparatus and method eliminating objectionable glare of a light beam.

It is another object of my invention to effect operation of an automobile headlamp on "high beam" only without objectionable glare, and to permit elimination of "low beam" lights and switching circuits heretofore used.

It is another object of my invention to provide a unique lamp construction with built-in means for rhythmically interrupting the beam and thereby reducing the total emitted light power to a level such that objectionable glare from the lamp is avoided without altering the light pattern or distance of the beam.

A further object of my invention is to provide a unique lamp construction having a built-in light interrupting mechanism which is composed of a minimum number of

component parts of a simple design and rugged construction, capable of reliable operation over a long operating life.

Brief description of the drawings

The above and other objects of my invention will become apparent from the following description taken in conjunction with the accompanying drawings of an illustrative embodiment thereof, in which:

FIG. 1 is a front elevation view of a lamp construction in accordance with my invention, showing the arrangement of a plurality of louvers adapted for movement between a partially closed position and a fully open position, partly broken away to show the arrangement by which the output shaft of a motor effects vertical movement of a pulsating frame for operating the louvers;

FIG. 2 is a bottom plan view of the lamp of FIG. 1, partly broken away to show the front and rear compartments of the lamp, with the rear compartment being hermetically sealed, and with all of the movable parts being located in the front compartment and supported on a transparent mounting plate;

FIG. 3 is a side elevation view of the lamp of my invention, partly broken away to show more clearly the relative positions of the support bars and the pulsating frame, and showing the manner in which the electric motor is supported in the mounting plate that separates the two compartments;

FIG. 4 is an enlarged side elevation view taken of the are designated at 4 of FIG. 3;

FIG. 5 is a front elevation view of the mounting plate;

FIG. 6 is a side elevation view of the mounting plate, showing more clearly the electrical connections of the motor well;

FIG. 7 is an enlarged perspective view of a portion of one end of a louver, showing the tabs on the louver riveted to the support bar and pulsating frame;

FIG. 8 is a perspective view of the pulsating frame;

FIG. 9 is a perspective view of the two louver support bars;

FIGS. 10 and 11 are enlarged perspective views of a louver showing the tabs struck therefrom;

FIG. 12 is a front elevation view of a lamp of my invention in which the louvers are rotatable;

FIG. 13 is a sectional view taken along the line **13—13** of FIG. 12;

FIG. 14 is a bottom plan view of the lamp of FIG. 12, partially broken away to show the interior thereof;

FIGS. 15–17 are perspective views of exemplary louvers employed in the lamp of FIG. 12;

FIG. 18 is a fragmentary sectional view taken along the line **18—18** of FIG. 12; and

FIG. 19 is a sectional view taken along the line **19—19** of FIG. 18.

Description of illustrative embodiments

Referring to FIGS. 1–3, there is shown an automobile headlamp **20** in accordance with my invention which contains a plurality of horizontal louvers **21** which are located between the filament **22** and the front lens **23**. In accordance with my invention, the louvers **21** are adapted to be moved to and from a fully open position, i.e., horizontal, at such a frequency or rate that the beam of light emitted appears to be uninterrupted. The lamp is adapted to emit only the so-called "high beam," but due to the periodic diminishing of the emitted light, the total light power emitted is considerably less than that of an uninterrupted beam, and is at such a level that the objectionable glare presented by an uninterrupted beam is removed.

I have discovered that by rhythmically interrupting the light with such louvers, at a rate such that the light appears uninterrupted, the emitted beam is made to appear as a soft or buffered light, which is devoid of the glare of high illumination, but which allows the benefit of high illumination.

With reference to FIGS. 2 and 3, the lens **23** is separated from the reflector **25** of the lamp housing by a transparent glass plate **26**. As best seen with reference to FIG. 3, the transparent plate **26** and the reflector **25** are shaped adjacent their peripheries for interlocking engagement, and are *sealed* [bonded] together by conventional glass bonding techniques. In addition to *sealing* [bonding] the transparent plate **26** to the reflector **25**, the chamber or compartment **27** defined by these elements is evacuated and filled with gas as desired.

Again referring to FIG. 3, and also to FIGS. 5 and 6, the transparent plate **26** is formed with a small, hollow protuberance **28** which extends into the compartment **27**. Extending through the back wall of the protuberance **28**, and bonded thereto, are a pair of ceramic supports **30** through which wire leads **31** extend into the well **29** in the protuberance. At their opposite ends, the short leads **31** extend through another ceramic support **32**.

In assembly the transparent plate **26** and the reflector **25**, the ceramic support **32** is located in an opening in and bonded to the back wall of the reflector **25**, in the same manner as the conventional ceramic supports for the leads of the filament **22**.

Again refereing to FIG. 3, the well **29** is shaped to receive a motor **35**, which is held in place by means of a spring clip **36**. When the motor **35** with the spring clip **36** around it is inserted into the well **29**, electrical terminal receptacles (not shown) in the motor housing are forced over the springs or inner ends of the wire elements **31**. When the reflector **25** is positioned in place on the automobile so as to cause the filament **22** to be heated when the lighting switch is turned on, the external or plug ends of the wire connections **31** are simultaneously connected to a power source for setting the motor **35** into operation. Schematically, electrical connections for the filament **22** and the motor **35** to a power source are illustrated in FIG. 3 as being connected through respective switches **38, 39** in which the movable contacts are mechanically connected to a dashboard control knob **40** for opening and closing the switches simultaneously.

The shaft of the motor **35** carries a pinion **41** on the outer end thereof. The pinion **41** is in meshing engagement with a large gear **42** which is supported for rotation on a bracket secured to the motor housing. As best seen in FIGS. 1 and 3, the gear **42** carries an off-center pin **43** on its outer face. Thus, when the motor **35** is in operation, the pin **43** rotates in a circle.

The transparent plate **26** is a mounting plate for the louver construction as well as the motor **35**. The louvers **21** are secured to parallel vertical bars **46, 47** (see FIGS. 8 and 9 along with FIGS. 1–4 and 7) which have horizontal end portions terminating in the transparent plate **26**, and the vertical rails **48, 49** of a pulsating frame **50**. The end portions of both support bars **46, 47** are horizonal and terminate in the transparent plate **26**, and the frame **50** has a horizontal bar **51** adjacent its lower end which has an opening **52** in an enlarged center portion **53** thereof into which the pin **43** of the gear **42** extends.

With this arrangement, as the gear **42** and pin **43** rotate, the frame **50** moves up and down and the louvers **21** are made to pivot on the support bars **46, 47**.

As is apparent, any suitable means may be employed for attaching the louvers **21** to the support bars **46, 47** and the rails **48, 49** to permit the desired movement of the frame **50** and pivotal movement of the louvers. Preferably, the number, construction and arrangement of parts are such as to permit their formation and assembly at little cost in time, materials and labor. In the form of the invention illustrated, the louvers are designed to be formed and provided with integral tabs to be riveted to the support bars and the rails in a single stamping and forming procedure.

Referring to FIG. 10, each louver **21** is formed from a rigid, rectangular sheet element, e.g., stainless steel, indicated in phantom at **56**, which is somewhat wider than

the louver to be made. The sheet **56** is stamped to form an element in the shape of a trapizoid, with small integral tabs **57, 58** extending from the longer of the parallel sides. Additionally, tabs **59, 60** are struck from the sheet **56** to extend at right angle to the face of the sheet, whereby spaced openings **59'** and **60'** are formed in the face of the sheet. Also, the tabs **57, 58** are bent toward the side of the sheet from which the struck tabs **59, 60** extend, and the ends of the tabs **57, 58** are bent at right angles so as to lie in the planes of the struck tabs **59, 60**. Still further, all of the tabs **57–60** when formed are punched to provide holes for receiving connecting pins or rivets. As best seen in FIG. 11, the confronting edge portions of the coplanar portions of the tabs **57, 59** are so formed that the upper tab **57** is rounded and nests in a fillet in the lower tab **59**.

The louvers **21** are assembled on the support rods **46, 47** by locating the openings **59', 60'** over the support bars **46, 47** and passing the louvers along these bars to the positions in which they are to be connected to the bars **46, 47** and rails **48, 49**. For each louver, its lower tabs **59, 60** are pivotally connected by rivets to the support bars **46, 47**, and the upper tabs **557, 58** are pivotally connected by rivets to the rails **48, 49** of the frame **50**.

After the louvers **21**, the support bars **46, 47**, and the frame **50** are assembled as above described, they are mounted in place simply by inserting the ends of the support bars **46, 47** into snug fitting sockets provided in integral projections **62** formed in the front surface of the transparent plate **26**. When the support bars **46, 47** are thus being positioned, the opening **52** in the bar **51** of the frame **50** slips over the pin **43** of the gear **42**.

After the louver assembly is in place, the system can be tested for operation before securing the lens **23** to the transparent plate **26**. In the lowermost position of the pin **43**, and hence the frame **50**, the louvers **21** are in a horizontal position, as indicated in dotted lines in FIG. 4. In the uppermost position of the pin **43**, the louvers **21** are depressed at an angle below the horizontal, e.g., 45 degrees, such that there is still sufficient light passing through the transparent plate **26** from the reflector **25** to permit the driver of the automobile to see a short distance in front of him. Thus, if for some reason the motor **35** ceases to operate when the frame **50** is in the uppermost position, the driver will not be without sufficient light for driving purposes.

Preferably, the parts are so shaped that the frame **50** needs to undergo only a very short stroke in moving the louvers from their semi-closed position to the fully open position. To aid in this respect, I have formed the support bars **46, 47** with rounded projections **65** on their rear edges, and formed the rails **48, 49** of the frame **50** with rounded projections **66** on their forward edges (see FIGS. 4, 8 and 9). At the time the support bars and the frame are formed, rivet holes are punched in the rounded projections **65, 66**. As will be apparent, the formation of the support bars and frame can be accomplished with a quick stamping and punching operation.

As best seen in FIG. 4, the projections **66** in the uppermost position of the frame **50** are disposed slightly above and in near touching relation with the projections **65**. Still further, there is a slightly overlapping relation between the projections, so that the distance between horizontal projections of their axes is less than the actual distance between their axes. With this arrangement, the frame **50** cannot move directly downward in causing the louver to move to a horizontal position, but must move slightly rearwardly during its downward movement. Such movement causes the louvers **21** to pivot on their support bars **46, 47**, with a minimum total stroke for the frame **50**. For example, in one construction I obtain full open position for the louvers with a total stroke of only three-eighths of an inch for the frame **50**.

In securing the lens **23** in place, it is not necessary to employ the high heat required for bonding the transparent plate **26** to the reflector **25**. In fact, it is preferable that such heat not be employed as it might tend to damage the motor **35** *and louvers*. Still further, it is preferable to secure the lens in place so that whenever it is necessary or desired, it can be removed to permit the motor **35** and/or the louver assembly to be repaired and/or replaced. Thus, the lens **23** may be secured to the transparent plate **26** by any suitable mechanical ring clip, or the like, which permits such removal.

As previously indicated, the form of lamp construction of my invention, as illustrated in FIGS. 12–19, is one in which the louvers are rotatable. In this embodiment, the lamp **20'** does not employ any movable frame, but rather is provided only with a single fixed frame **70** which supports the motor and all of the louvers. Through suitable drive connections, the louvers are caused to rotate in synchronism with the output shaft of the motor, and at a speed such as to cause the desired rhythmical interruption of the beam for removing objectionable glare.

In the embodiment of FIGS. 12–19, I show an arrangement of ten louvers **71–80**, wherein five of the louvers, shown as alternate louvers **71, 73, 75, 77, 79** are adapted to be driven from one end of the motor output shaft **81**, and wherein the remaining louvers **72, 74, 76, 78, 80** are adapted to be driven from the other end of the motor shaft **81**.

To this end, the motor shaft **81** is supported at its ends for rotation in the frame **70**, and respective gears **82, 83** are secured to the ends of the motor shaft. Looking at the left end of the motor shaft **81**, the gear **82** meshes with a gear **84** on the louver **71**, whereby to effect rotation of the louver **71** with the motor shaft **81**. Rotation of the louver **71** imparts rotation to the louvers **73, 75, 77, 79** therewith by means of a toothed belt **85** (see FIG. 13 along with FIG. 12) which meshes with respective pulley wheels **86–90** on the louvers **71, 73, 75, 77, 79**.

Looking at the right end of the motor shaft **81** in FIG. 12, the gear **83** is in meshing engagement with a gear **91** on the louver **71**, and this in turn meshes with a gear **92** on the louver **72**. Thus, the louver **72** is caused to rotate in a direction opposite to that of the louver **71**. Louvers **72, 74, 76, 78, 80** are arranged for rotation in the same direction by means of a belt **93** which is like the belt **85** and which engages respective pulley wheels on those louvers.

Although alternate louvers are made to rotate in opposite directions, nevertheless they are arranged so that they simultaneously reach the horizontal positions in which they are fully open, i.e., present minimum interference to light passing from the reflector **25'** through the transparent plate **26'** and the lens **23'**.

FIGS. 15–19 show best how I form the louvers and the frame, and how the louvers are formed so that they can be rotatably mounted in the frame. In essence, the louvers are formed with integral gears, pulley teeth and bearing elements as needed. Preferably, this is done by plastic molding techniques, wherein each louver is molded as a plastic element having integral bearing elements and the requisite gears and pulley wheels.

Referring to FIG. 15, the louver **71** is shown as a flat rectangular element with spaced gears **84, 91**, a pulley wheel **86** immediately adjacent the gear **84**, a cylindrical bearing element **95** adjacent the pulley wheel **86** at one end, and a cylindrical bearing element **96** adjacent the gear **91** at the other end of the louver. The bearing elements **95, 96** effectively constitute spacers between the main body of the louver and the end portions thereof, and the slots **97, 98** formed thereby are utilized to permit the louver to be rotatably supported in the frame, as will be more fully explained below.

Referring to FIGS. 16 and 17, the louvers **72, 73** are also formed with integral bearing elements **95, 96** in slots **97, 98**, precisely as in the manner of the louver **71** of FIG. 15. However, the louver **72** includes only the one gear **92**, and a pulley wheel **99** is located between the

gear **92** and the bearing element **96**, and the louver **73** is formed with only the one pulley wheel **87** thereon located adjacent one bearing element **95**.

It will be recognized that the remaining louvers **74–80** are formed precisely in the manner of the louver **73** of FIG. 17, i.e., with only one pulley wheel and the bearing elements.

To provide a better understanding of how the motor shaft **81** and the louvers are supported for rotation by the frame **70**, reference will be made to FIG. 18, along with FIGS. 12 and 13. The frame **70** is formed as a split frame comprising two portions **100, 101** which, following assembly of the motor and louvers, are secured together at their upper and lower ends, as indicated at **102**.

The innermost frame portion **101**, i.e., the portion adjacent the transparent plate **26'** is provided with integral tabs **103** adjacent its upper and lower ends, which are adapted to be secured, as at **104**, to the transparent plate **26'**. To this end, the transparent plate **26'** is formed with integral projections **105** into which the fastening elements **104** extend for securing the frame to the transparent plate.

The frame portions **100, 101** are formed with semi-circular grooves along their lengths so that when they are assembled together, they form openings **107** for the ends of the motor shaft **81** and openings **108** for the bearing elements **95, 96** of the louvers. Before the outer frame portion **100** is secured in place, the ends of the shaft **81** and the bearing elements of the louvers **71–80** are located in the corresponding semi-circular grooves in the inner frame portion **101**. With the outer frame portion **100** secured in place, the frame provides circular bearing surfaces for the motor shaft **81** and the bearing elements **95, 96** of the louvers. In this connection, it will be apparent that irrespective of how the frame is formed, or of what material, the walls of the openings **107, 108** are made to form smooth bearing surfaces for the motor shaft and the bearing elements of the louvers.

It will be appreciated that before securing the frame portions **100, 101** together, the louvers **71–80** and the motor **35'** are arranged with the various gears in meshing engagement and with the belts **85, 93** encircling the pulley wheels which they are to turn. After the frame portions are locked together, the motor housing is secured to the frame, as indicated at **109**, so as to hold it stationary while the shaft is rotating.

In this latter connection, it should be noted in both embodiments that while the compartment defined by the transparent plate and reflector is evacuated, the compartment defined by the lens and transparent plate is not. Thus, I insure long filament life as in conventional lamps, while operating the motor and louvers in a compatible environment separated from the vacuum and intense heat in which the filament operates.

In the embodiment of FIGS. 12–19, the arrangement for making external connections to the motor is different from that shown in FIGS. 1–11 [. In this connection, and referring to FIGS. 12–14, the motor], *and has* leads **31'** *extending* [extend] out of the upper portion of the lens **23'**, and along the back of the reflector **25'**, and they are connected at their ends (see FIG. 14) to the electrical terminals for the filament **22'**. Thus, the motor and filament circuits are connected in parallel to the same source of power. When the dashboard control knob is operated to turn the headlamps on, power for operating the motor **35'** is supplied from the same source which heats the filament **22'**.

In order to provide a space in the upper part of the lens **23'** for the motor leads **31'** to extend to the exterior of the headlamp, the lens **23'** preferably is formed with a pair of parallel grooves for this purpose. Thus, when the lens **23'** is located in position to be secured to the transparent plate **25'**, the motor leads **31'** are positioned to insure that they are captured within the grooves of the lens **23'**. Preferably, of course, the motor leads are insulated along their lengths, and the grooves in the lens **23'** are dimensioned to engage the insulation with sufficient firmness to establish an effective seal against entry of moisture through the grooves to the interior of the compartment defined by the lens **23'** and the transparent plate **26'**. Also, the insulation provides a protective barrier against heat between the wires and the real wall of the reflector **25'**.

To further illustrate the results obtained with my invention, one arrangement which has been built and tested utilizes a set of ten louvers adapted for rotation across the beam of a 5¾ inch sealed beam headlamp. The louvers were rotated at speeds ranging up to 3400 r.p.m.

It was found that so long as the speed is sufficiently high that the eye could not perceive any flutter, the particular speed of rotation does not appreciably affect candlepower measurements made while the louvers were spinning. It was also found that the beam, as viewed through the spinning loubers, was soft or buffered but still allowed the benefit of high beam illumination.

From the foregoing, it will be apparent that the various structures shown and described herein are illustrative and that various modifications can be made without departing from the spirit and scope of my invention. Accordingly, I do not intend that my invention be limited, except as by appended claims.

I claim:

1. A lamp structure comprising:
a reflector;
a transparent plate sealed to said reflector and defining therewith a second compartment; [, said transparent plate having a motor well opening into said second compartment;]
a lens bonded to said transparent plate and defining therewith a first compartment [;], *said transparent plate having a motor well opening into said second compartment;*
a filament between said reflector and transparent plate;
a motor mounted in said motor well;
a first pair of parallel *bars* [rods] in fixed spaced relation to said transparent plate in said second compartment;
a second pair of parallel *bars* [rods] between said first pair of rods and said transparent plate;
a plurality of louvers;
means connecting each louver to both pairs of *bars;* [rods]
means releasably holding said motor in said well;
leads for said motor extending to the exterior of said housing;
a bar connecting the *bars* [rods] of said second pair and having an opening therein;
a rotary element having an integral offset pin extending into said opening; and
means for effecting rotation of said rotary element from said motor, whereby said pin subjects said bar and second pair of *bars* [rods] to reciprocal movement.

2. A lamp structure comprising:
a reflector;
a transparent plate sealed to said reflector;
a lens bonded to said transparent plate;
a filament between said reflector and transparent plate;
a plurality of parallel horizontal louvers between said lens and transparent plate;
a rectangular frame, said louvers having spaced bearing elements disposed in the rotatable in the sides of said frame;
a motor having a motor housing and a shaft extending out of the ends *of the housing* [thereof], the ends of said shaft being rotatably supported in the sides of said frame, said motor being located above the uppermost louver;
gears on said shaft adjacent the ends thereof;

a pair of gears on the uppermost louver in mesh with corresponding gears on the shaft;

a gear on the louver adjacent the uppermost louver in mesh with ont of the gears on the uppermost louver;

a single pulley wheel near one end of each louver adjacent the frame, the pulley wheels on adjacent louvers being on opposite sides of the frame;

a belt encircling and drivingly engaging the pulley wheels on one side; and

a second belt encircling and drivingly engaging the pulley wheels on the other side, said belts and pulley wheels having meshing teeth.

3. A lamp structure as defined in claim 2, wherein the ends of said filament are connected through said reflector to electric terminals; and means connecting electric leads between said terminals and said motor.

4. A lamp structure as defined in claim 2, wherein said frame is formed of two rectangular elements, each having spaced semi-circular grooves in both sides thereof, said rectangular elements being secured together to that the grovoes therein are aligned and form cylindrical openings in the sides of the frame, the ends of the motor shaft being disposed for rotation in one pair of said cylindrical openings, and each louver having its bearing elements disposed for rotation in respective pairs of said cylindrical openings.

5. A lamp structure as defined in claim 4, wherein one rectangular element of the frame is secured to the transparent plate.

6. A lamp structure as defined ni claim 2, wherein the upper most louver and the bearing elements, gears and pulley wheel thereon are plastic and molded together, the second uppermost louver and the bearing elements, gear and pulley wheel thereon are plastic and molded together, and each remaining louver and the bearing elements and pulley wheel thereon are plastic and molded together.

7. A lamp structure comprising:

a reflector and a transparent glass plate heat-sealed at their peripheries and defining a first compartment;

a lens engaging said transparent plate and defining therewith a second compartment;

a filament in said first compartment adapted to be heated to cause said reflector to form a beam of light to pass through said transparent plate and said lens;

a row of parallel louvers in said second compartment;

means in said second compartment supporting said louvers for rotational movement in unison, said supporting means including parallel *bars* [rods] supported at their ends by said transparent plate, said louvers extending between and being rotationally supported at their ends by said *bars* [rods];

means in said second compartment for rotationally moving said louvers through positions parallel to the axis of the beam of light at a rate such that the beam of light passing through the lens appears uninterrupted;

and securing means for holding said lens in engagement with said transparent plate, said securing means being characterized in that it is applied to the lens and the plate without heat.

8. A lamp structure comprising:

a reflector and a transparent glass plate heat-sealed at their peripheries and defining a first compartment;

a lens engaging said transparent plate and defining therewith a second compartment;

a filament in said first compartment adapted to be heated to cause said reflector to form a beam of light

to pass through said transparent plate and said lens;

a row of parallel louvers in said second compartment;

means in said second compartment supporting said louvers for rotational movement in unison, said supporting means including parallel *bars* [rods] supported at their ends by said transparent plate, said louvers extending between and being rotationally supported at their ends by said *bars* [rods];

means for rotationally moving said louvers through positions parallel to the axis of the beam of light at a rate such that the beam of light passing through the lens appears uninterrupted, said moving means including a motor in said second compartment;

means operable by said motor to rotate the louvers so that adjacent louvers rotate in opposite directions;

and securing means for holding said lens in engagement with said transparent plate, said securing means being characterized in that it is applied to the lens and the plate without heat.

9. In a sealed-beam headlamp of the type including a coaxial lens and reflector, and a filament adapted to be heated to generate a light source, the reflector forming a beam of light which passes through the lens, the improvement in combination therewith comprising:

a transparent plate interposed between the filament and the lens and secured at its periphery to the lens and the reflector, the plate dividing the headlamp into a hermetically sealed, evacuated filament compartment and a non-evacuated louver compartment;

a frame fixedly mounted in the louver compartment and being maintained stationary with respect to the lens and the plate;

a plurality of louvers each having bearing portions at either end, the louvers being rotatably mounted in the frame in spaced-apart relationship;

means for mechanically coupling the louvers for simultaneous rotation sequentially through a fully closed position in which the louver surfaces are perpendicular to the axis of the lens and the reflector and through a fully open position in which the louver surfaces are parallel to the axis of the lens and the reflector; and

means for operating the mechanical coupling means to rotate the louvers in unison at such rate that the beam of light passing through the lens appears uninterrupted.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. RE 27,125 Dated June 14, 1971

Inventor(s) John F. Steel

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Col. 3, line 29, "are" should read --area--;

Col. 3, line 32, "of" should read --to--;

Col. 4, line 24, "refereing" should read --referring--;

Col. 5, line 23, "557" should read --57--;

Col. 7, line 54, "*separted*" should read --*separated*--;

Col. 8, line 21, "loubers" should read --louvers--;

Col. 8, line 28, --the-- should be inserted after "by";

Col. 8, line 33, "second" should read --first--;

Col. 8, line 37, "first" should read --second--;

Col. 8, line 68, "the" should read --and--;

Col. 9, line 4, "ont" should read --one--;

Col. 9, line 20, "to" should read --so--;

Col. 9, line 21, "grovoes" should read --grooves--; and

Col. 9, line 30, "ni" should read --in--.

Signed and sealed this 21st day of September 1971.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Acting Commissioner of Patents