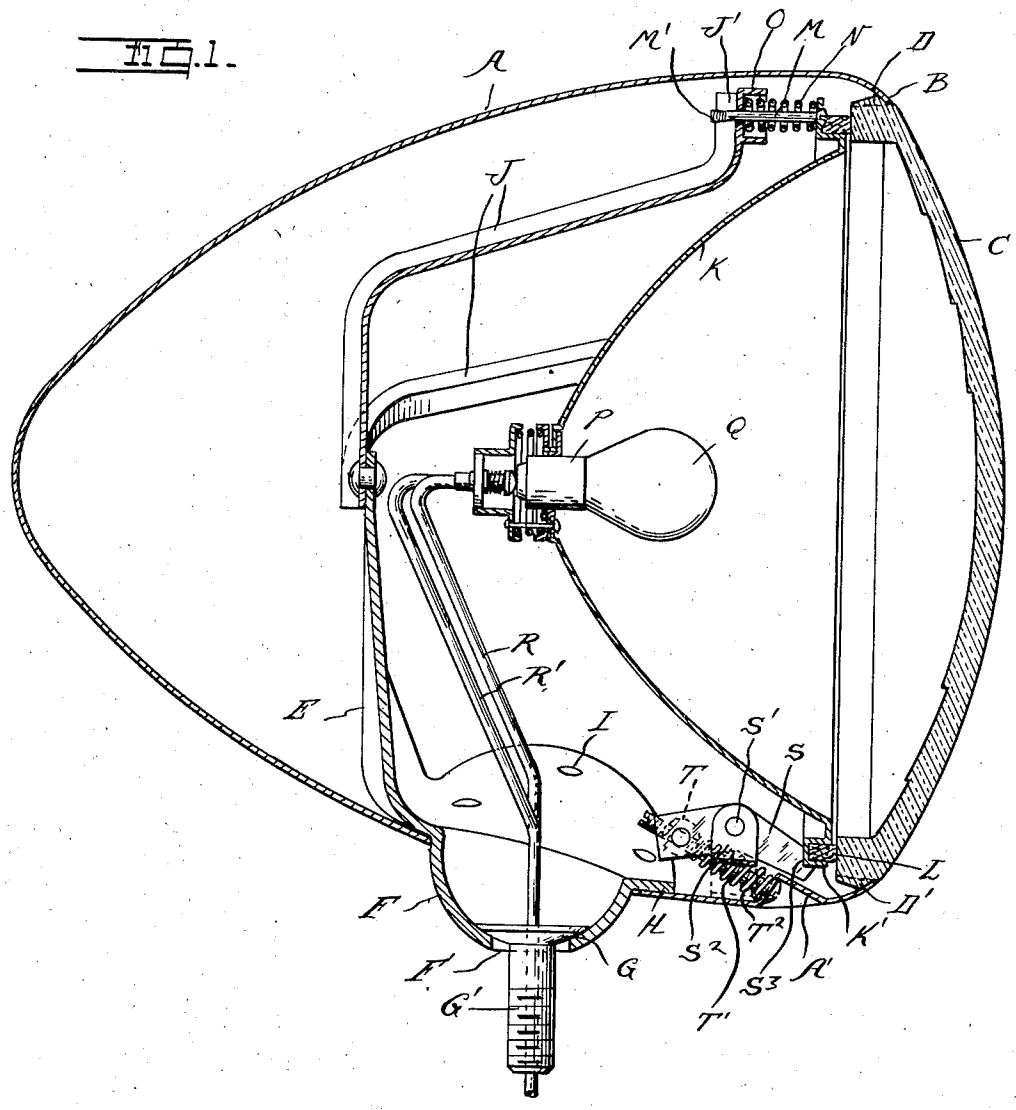
June 9, 1936. N. P. WORDEN 2,043,567

HEAD LAMP

Original Filed Oct. 16, 1933 2 Sheets-Sheet 1

FIG. 1.



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FIG. 2.

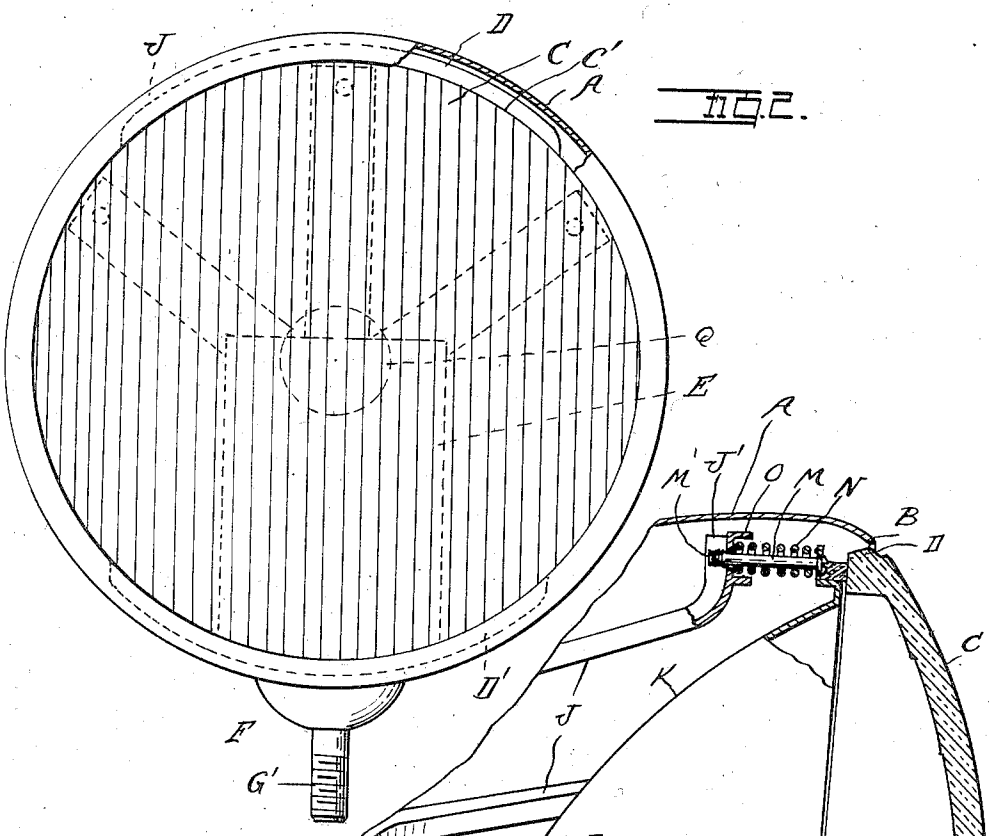
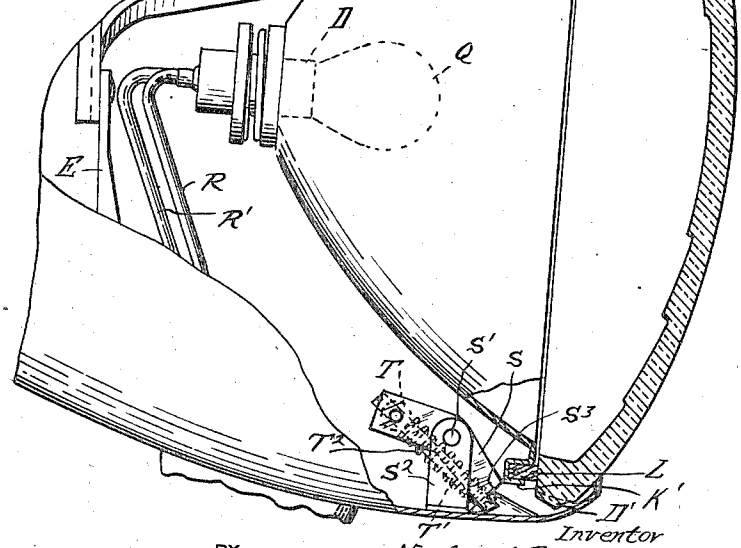


FIG. 3.



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HEAD LAMP

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Application October 16, 1933, Serial No. 693,863
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7 Claims. (Cl. 240—41.5)

The invention relates to lamps for motor vehicles and more particularly that type designed for use as head lamps. In the present state of the art it is usual to form such lamps with an outer casing of the desired configuration and ornamental appearance and to mount within this casing the essential elements of the lamp such as the reflector, lamp socket and the electrical connections. The front of the lamp is either a plain glass panel or a lens which is usually secured to the lamp casing by a separate ring.

In designing lamps the form of the outer casing is varied according to the ornamental effect desired and is frequently changed with changes in style of motor vehicle design. On the other hand, the working elements of the lamp may remain essentially the same, but as these are mounted within the lamp casing they must be changed to correspond with changes in the latter. Also it is essential that these working parts should be held in a predetermined position so as to properly focus and direct the projected beam of light. Thus each change in ornamental design necessitates a redesigning of the whole structure.

It is the primary object of the present invention to obtain a construction in which the working structure of the lamp is independent of the ornamental casing in which it is enclosed. It is a further object to obtain a construction in which the exterior of the lamp is formed of but two elements, viz: a single piece metallic shell or casing and a lens having a seating engagement with said casing with which seat it may be readily engaged or disengaged without distortion of the casing. With these objects in view the invention consists in the construction as hereinafter set forth.

In the drawings:

Fig. 1 is a central longitudinal section through a head lamp of my improved construction;

Fig. 2 is a front elevation thereof;

Fig. 3 is a view similar to a portion of Fig. 1 illustrating the manner of engaging the lens.

A is the shell or casing which may be of any desired contour or design, being, however, provided at its front end with an inturned flange B forming a seat for a lens C. Inasmuch as the portion of the lens seated on the flange B must be greater in diameter than the opening in the casing, it is obvious that some means must be provided for introducing the lens into said casing. This might be accomplished by distortion of the casing to form an elliptical opening, the major axis of which would be slightly greater than the diameter of the lens. I have, however, designed a construction which avoids the necessity of such distortion and permits of easily inserting the lens. This as shown in Fig. 2 consists in forming the lens C with its periphery C' circular and of a diameter that just fits within the inner edge of the flange B and further providing segmental flanges D and D' at the top and bottom of the lens projecting radially outward and fashioned to seat upon the inner face of the flange B. This permits of inserting the lens within the casing by arranging the same in an oblique position and as the horizontal diameter is no greater than the diameter between the flanges B on opposite sides, the lens may be moved inward and downward so that the upper flange D will clear the flange B. The lens is then turned into a plane parallel with the front of the casing, which brings both of the flanges D and D' in engagement with the flange B.

As has been previously stated, it is usual in lamp construction to mount the working parts upon the outer casing. With my improved construction all of these parts are supported directly from the prop or standard on which the casing is mounted, but without direct connection with said casing. Thus as shown, E is a bracket arranged within the casing A and provided at its lower end with a segmental spherical portion F projecting downward through an aperture in said casing and engaging a spherical head G of the prop or standard G' which latter passes through a slot F' in said spherical portion. Adjacent to this spherical portion F the bracket E has a flange H conforming to the inner surface of the casing or shell and secured to the latter by bolts or rivets I. Within the casing A the bracket E extends upward to the center of said casing and then branches to form a plurality of arms J extending radially outward and forward at different angles and terminating in outwardly extending portions J', all in a plane parallel to the flange B. K is the concave reflector of parabolic or other suitable curvature and provided at its periphery with a groove flange K' for receiving a gasket or packing L adapted to bear against the rear face of the lens C near the periphery thereof. The reflector K is yieldably mounted on the arms J' of the bracket E by means of headed pins M, the outer heads of which are seated in the flange K' and the ends M' in the portions J'. To permit of readily engaging these pins with the reflector and the portions J', the inner ends M' are threaded and the apertures in the members J' are correspondingly threaded. Thus by screwing the threaded portions of the pins through the threaded aperture they will be retained from disengage-

ment from the member J' but will be free for a limited universal movement. The springs N are sleeved upon these bolts, their inner ends engaging sockets O secured to the portions J' while the outer ends bear against the flange K'. Thus when the bolts M are secured in position the reflector K will be yieldably pressed against the lens C by the springs N. The reflector K is centrally provided with a lamp socket P for a lamp bulb Q and electrical conductors R, R' extend from this socket through the hollow prop G' to a suitable external electrical connection. However, as the construction of the lamp socket and associated parts forms no part of the present invention, these will not be described more in detail.

With the construction as described, it is obvious that the only part of the casing A which has any direct relation to the operating parts of the lamp is the flange B on which the flanges D and D' of the lens are seated and which therefore locates the position of the reflector K. If the design of the outer casing is changed, this requires no change in construction of other parts, it being only necessary that the flange B of the altered casing should be located as desired. This flange will then determine the position of the lens which in turn will determine the position of the reflector K and lamp bulb Q. In assembling the parts, the bracket E and its projecting arms J may be easily inserted through the opening in the casing A and the latter secured to the flange H by the bolts or rivets I. The reflector K together with its grooved flange K' is of a diameter no greater than the opening within the flange B so as to permit of insertion through said opening and of being secured by the pins M with the springs N sleeved on said pins engaging the sockets O at their inner ends and bearing against the flange K' at their outer ends. The gasket L is then placed in the grooved flange K', after which the lens C is inserted as before described to engage the flanges D and D' with the flange B. In thus inserting the lens it is necessary to first insert the lower end having the flange D', to then move it downward sufficiently eccentric to the casing so as to give clearance for the passage of the flange D beneath the flange B, and then to adjust the lens into concentric relation. In performing this operation the reflector K must be slightly displaced, which is permitted by the yielding of the springs N and the universal movement of the pins M. After the lens is in position, it is desirable to positively lock it to the casing so as to avoid danger of displacement through shocks or vibrations in the running of the car. For this purpose I provide a catch or locking dog S which as shown is in the form of a bell crank lever pivotally mounted at S' on a bracket S^2 secured to the casing A. One arm of this bell crank lever has a notch S^3 for engaging the flange K' while the other arm of the bell crank has secured thereto a pivotal post T having a threaded aperture for engaging an adjusting screw T''. This adjusting screw extends obliquely inward through the casing A, which latter has a depressed socket A' for receiving the head of the screw. A spring T^2 is sleeved on the screw T''. The construction is such that by turning the screw T'', the lever S may be rocked from a position where it will clear the flange K' to permit insertion of the lens C to a position where the notch S^3 engages said flange and locks the lens against displacement. When the screw is turned in the opposite direction the spring T^2 will move the lever S to a position for clearing the lens.

Where the lens is formed with prism portions for producing a particular pattern of light, it is necessary to hold the lens from rotary displacement. This may be accomplished by forming a projecting lug at one point, preferably at the bottom of the lens, which is adapted to engage a corresponding notch in the flange B.

The lamp formed as above described may be mounted on the vehicle frame by any suitable means (not shown).

What I claim as my invention is:

1. In a vehicle lamp, the combination with a prop or standard, of a lamp casing mounted thereon, a bracket extending upward from said standard within said casing and independent thereof, a lamp assembly positioned forward of said bracket including a reflector mounted on said bracket, a lens insertable within and seated upon said casing, and means abutting said bracket for resiliently pressing said reflector against said lens.

2. In a vehicle lamp, the combination with a prop or standard, of a casing mounted on said standard, a bracket within said casing and independent thereof mounted on said standard, said bracket having a plurality of radially extending prongs, a lamp assembly including a reflector insertable within said casing and movably mounted upon said prongs, resilient means for yieldably pressing said reflector outward on its mounting, and a lens seated in said casing and upon said reflector, said lens being insertable within the casing into engagement with its seat by the displacement of said reflector against the tension of said resilient means.

3. In a vehicle lamp, the combination of a casing having an inturned circular flange at its front, a reflector insertable within said casing, a resilient yieldable mounting for said reflector within said casing, a lens having diametrically opposite segments of a diameter corresponding to the diameter of the inner edge of said circular flange, and transversely arranged segments of greater diameter for seating on the inner face of said flange whereby said lens may be obliquely inserted within said casing without distortion thereof and by the displacement of said reflector, and whereby the resilient pressure of the mounting of said reflector will press the same against said lens and the latter in contact with its seat.

4. In a vehicle lamp, the combination of a casing having an inturned circular flange at its front, a reflector insertable within said casing, a resilient yieldable mounting for said reflector within said casing, a lens having diametrically opposite segments of a diameter corresponding to the diameter of the inner edge of said circular flange, transversely arranged segments of greater diameter for seating on the inner face of said flange whereby said lens may be obliquely inserted within said casing without distortion thereof and by the displacement of said reflector and whereby the resilient pressure of the mounting of said reflector will press the same against said lens and the latter in contact with its seat, and means operable from without said casing for locking said reflector and lens in position.

5. In a vehicle lamp, the combination with a casing, an inturned circular flange at its front, a reflector insertable within said casing, a resilient yieldable mounting for said reflector within said casing, a lens having diametrically opposite segments of a diameter corresponding to the diameter of the inner edge of said circular flange, transversely arranged segments of greater di-

ameter for seating on the inner face of said flange whereby said lens may be obliquely inserted within said casing without distortion thereof and by displacement of said reflector, and whereby the resilient pressure of the mounting of said reflector will press the same against said lens and the latter in contact with its seat, and means operable from without the casing for locking said reflector and lens in position, said means comprising a rockable lever pivoted within the casing and having one arm for engaging said flange, a pivoted post on the other arm of said lever, a screw engaging a threaded aperture in said pivoted post and having a head engaging a recess in the outer wall of the casing and a spring sleeved upon said screw.

6. In a vehicle lamp, the combination of a standard, a lamp casing mounted on said standard, a bracket extending upward from said standard within said casing and independent thereof, a lamp assembly including a reflector mounted on said bracket, a lens insertable within and seated upon said casing and means abutting said bracket for resiliently pressing said reflector against said lens.

7. A lamp comprising a shell having a rim, a circular lens closely fitting the edge of said rim and having a pair of flanges underlying diametrically opposed segments of said rim but clearing the inner edge of transverse segments thereof whereby said lens may be inserted in the casing without flexing the rim, light projecting means within said shell, sealing means between said light projecting means and said lens, and spring means within the shell urging said lens outwardly through said rim and also urging said flanges against said rim.

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