Dec. 14, 1937. B. PUTTERMAN 2,102,029

LAMP

Filed Feb. 21, 1936

Fig. 1

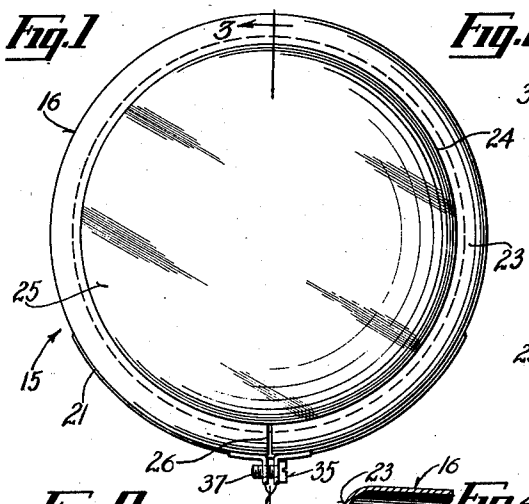


Fig. 2

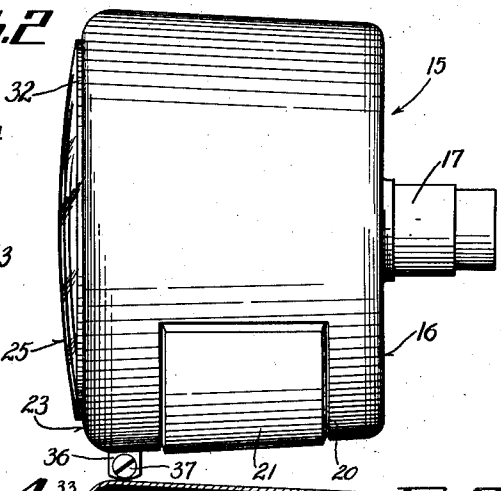


Fig. 9

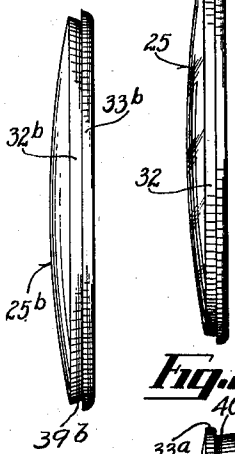


Fig. 4

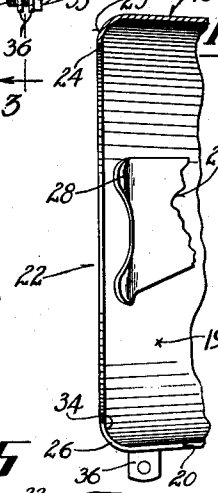


Fig. 3

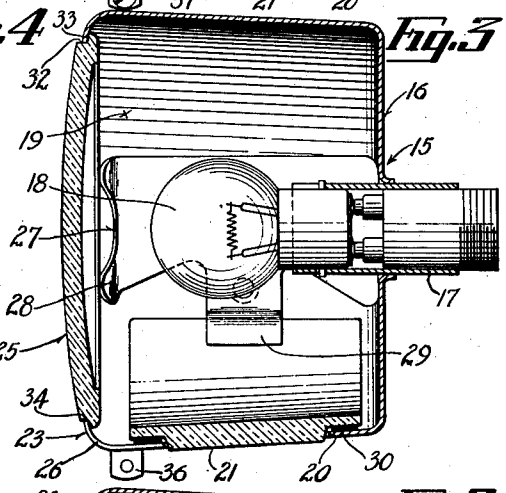


Fig. 5

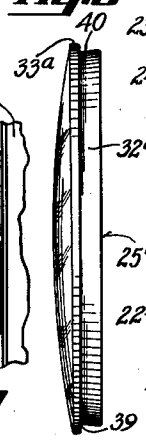


Fig. 7

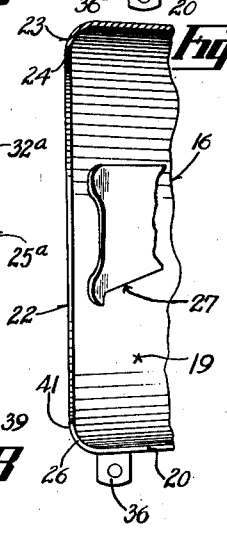


Fig. 6

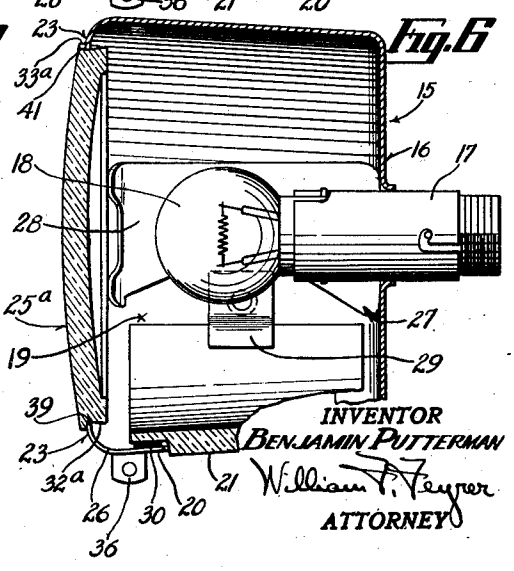


Fig. 10

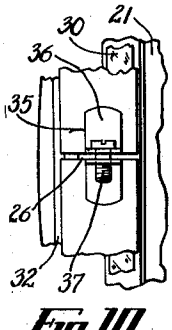


Fig. 8

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LAMP

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Application February 21, 1936, Serial No. 65,012

5 Claims. (Cl. 240—8.3)

My invention relates to new and useful improvements in lamps, and especially automobile lamps.

It has been a common practice in lamps of the type here involved to provide a removable rim for holding a lens and to pivotally connect the rim to the casing, thus necessitating the use of some special latching means for maintaining the rim and lens in position. Other forms of lamps have dispensed with the pivotal connection but have in the main depended on a removable rim for maintaining the lens in place. In some previously proposed lamps expensive large screw threaded bezel rings were required. In many forms of lamps heretofore proposed, the parts are likely to become bent or broken during the removal of the lens when the bulb is changed. Also, in many of the forms of lamps heretofore proposed, it was necessary to use many loose parts with the attendant possibility of adversely losing one or more of the parts whenever the lamp was taken apart for cleaning, replacement of a burnt out light bulb or the like.

It is an object of the present invention to provide a lamp in which the need for the usual removable rim or pivotal rim is obviated and in which the use of costly threaded bezel rings or the like may be dispensed with.

A further object of the invention is to provide a lamp which can be easily and quickly taken apart when it is desired to clean the same, or more particularly, when it is desired to replace a lamp bulb within the casing.

Another object of the invention is the provision of a lamp in which, due to its simplicity and its minimum number of removable parts, there is small likelihood of damage or loss to any parts during the operation of changing the bulb.

It is a further and important object of the present invention to provide a lamp in which an effective seal is provided between the lens and the casing so that moisture, dirt and the like cannot adversely seep into the casing.

One feature of the invention consists in the provision of a lamp with a casing having a main opening with a split opening extending from it so that the main opening may be forced open to receive a lens, and in providing a means for drawing the casing together to securely grip and hold the lens in position.

Another feature of the invention consists in the provision of a lamp in which a casing has an inturned flange defining a main opening with a split opening extending from the main opening and in which a lens is provided with portions cooperable with the flange so that the lens may be held in position solely by the inturned flange.

Yet another feature of the invention consists in the provision in a lamp in which a casing has a main opening defined by an inturned flange, a secondary or license plate illuminating opening and a split opening extending from the main opening, and in which a pair of plates have integral means adapted to maintain a main lens and a secondary lens in the main and the secondary openings respectively.

A further feature is the provision of a lamp wherein the lens is provided with a flange adapted to overlie on main opening to form an effective seal, to improve the appearance of the lamp; and, also, to advantageously locate the lens relative to the casing and prevent the lens from entering the casing in any way where it might break the lamp bulb.

Other and more specific features of the invention, residing in advantageous forms, combinations, and relations of parts, will hereinafter appear.

In the drawing:—

Figure 1 is a plan view of a lamp embodying the invention.

Figure 2 is a side view of the lamp shown in Figure 1.

Figure 3 is a sectional view on the line 3—3 of Figure 1, showing one form of the invention.

Figure 4 is a fragmentary view of the form of the invention shown in Figure 3 with the lens removed.

Figure 5 is a detail view of the lens shown in Figure 3.

Figure 6 is a view similar to Figure 3 showing another form of the invention.

Figure 7 is a fragmentary view of the form of the invention shown in Figure 6 with the lens omitted.

Figure 8 is a detail view of the lens shown in Figure 6.

Figure 9 is a detail view of a modified form of lens.

Figure 10 is a detail view showing the preferred means by which the split opening in the casing is drawn together.

Referring now in detail to the drawing which shows the present preferred embodiments of the invention, and to Figures 1 through 5 first, there is shown a lamp 15, having a casing 16, which may be conveniently of cup shape as shown, or of any other desired shape. The casing may be secured to a support by any one of the now well known and conventional securing means. Also, in the usual manner the casing supports a socket 17 for a lamp bulb 18 within a light chamber 19.

If it is desired to use the lamp as the tail light of a vehicle, such as an automobile, the casing may be, and as shown, is provided with a secondary or license plate illuminating opening 20 formed in the side of the casing and enclosed by a secondary lens 21 held in place in a manner hereinafter to be described in detail.

According to the present invention the casing

16 is provided at its forward open end 22 with an inturned flange 23 defining a main opening 24 which is closed by a main lens 25. The flange may be advantageously formed integral with the casing as shown, but it is appreciated that it may be formed in any other suitable manner.

Extending from the main opening 24 in the casing 16 defined by the inturned flange 23 is a split opening 26 whereby the forward open end 22 of the casing may be opened beyond its normal opening to enable the insertion therein of main lens 25. Preferably as shown in the drawing, this split opening extends between the main opening 24 in the casing and the secondary or license plate illuminating opening 20. By this expedient the casing is split to a considerable extent, permitting it to be more readily sprung open to receive the main lens 25, and due to the sealing action of the lens 21 in the secondary opening 20, the casing is still maintained substantially water and dust tight.

Secured to the casing in the light chamber 19 are a pair of plates 27 one of the plates only being shown. These plates are spaced on either side of the secondary opening 20. Each is integrally provided with a lens supporting flange or shoulder 28 spaced from the inturned flange 23 and cooperable therewith to maintain the main lens in position in the casing. Each is also integrally provided with an offset portion or flange 29 adapted to lap the secondary lens 21 to maintain the latter in position in the casing. To effect a better seal, a gasket 30 may advantageously be inserted between the secondary lens and the casing.

This provision of integral means 28 and 29 on each of a pair of plates 27 for maintaining the main lens 25 and the secondary lens 21 respectively in a predetermined position in the casing 16 is of considerable importance in that it makes possible the use of a single plate for cooperation with both the main lens and the secondary lens instead of requiring different plates to perform each separate function. Furthermore, a plate constructed in this manner may be easily formed by merely stamping out a section of sheet metal, bending a portion to form the lens supporting shoulder or flange 28 and bending another portion to form the secondary lens retaining offset portion 29, thus effecting a considerable saving in manufacturing costs.

Preferably, in order that the main lens 25 may be held more securely in position, it is provided with a peripheral portion 32 insertable in the main opening 24 defined by the inturned flange 23 and with a laterally extending offset portion 33 lapping the inner face 34 of the inturned flange 23. The offset portion cooperates with the inner face 34 of the inturned flange to limit movement of the lens out of the casing and with the shoulder or flange 28, formed on each of the pair of plates 27 to limit movement of the lens into the casing, while the peripheral portion 32 cooperates with the inturned flange 23 to center the lens in the casing.

It is understood, however, that while it is preferable to provide a lens 25 with an offset portion 33, it is also practicable to provide a lens without an offset portion, but with a diameter greater than that of the normal opening 24 defined by the inturned flange 23. Such a lens would be held from movement into and out of the casing by cooperation with the plate flange 28 and the inturned flange 23 in much the same manner as in the case of the lens already described. It would not, however, be as advantageously centered in the casing.

In order that the main lens may be even more firmly gripped and held in position, there are provided suitable means 35 for altering, preferably by drawing the split opening together, to conveniently cause the inturned flange 23 to grip the peripheral portion 32 of the lens 25. This means is shown in Figure 10 as comprising a pair of brackets 36 secured to the outer face of the casing in any suitable manner on opposite sides of the split opening 26 and having a connecting screw 37 for drawing the split opening 26 together. Any other suitable means may be used for this purpose and it is within the purview of the invention to provide a means which although it will not mechanically draw the opposites of the sides together will, nevertheless, retain them in the normal position after the lens has been inserted in the casing.

It is seen, therefore, that the provision of the lens 25 with a peripheral portion 32 adapted to be gripped by the inturned flange 23 is particularly advantageous in that it serves to make possible a firmer and more secure centering of the lens in the main opening 24 and in that together with the offset portion, it cooperates in enabling a more rigid connection between the lens and the casing. The latter tends to provide a substantially water and dust proof casing.

When it is required to remove the main lens 25 from the casing 16, for the purpose of changing the light bulb 18 or for any other purpose, it is necessary, because of the provision of the split opening 26, merely to turn the connecting screw 37 in a direction which forces or allows the opening defined by the inturned flange to open beyond its normal opening. The main lens 25 may then be easily removed. After the light bulb has been changed, the lens may be easily replaced by merely inserting the lens so that the offset portion 23 engages the shoulders 28 on the plates 27 and then turning the connecting screw 37 to draw the split opening 26 together, thereby concurrently causing the inturned flange 23 to firmly grip and hold the main lens.

In connection with the operation of replacing the main lens 25 in position after it has been removed, it should also be noted that, due to the provision of the bracket 36 and screw connection 37 between opposite sides of the split opening, it was not necessary to again force open the main opening 24 as it had been maintained with a greater than normal opening continuously since the removal of the lens.

Figure 6 shows a modified form of the invention, differing from the form just described principally in the provision of a modified lens 25a having a notched or concave edge 39. The casing may be, and as shown, is of precisely the same construction as the casing 16 shown in Figure 3, provided with the pair of plates 27 having portions 28 and 29 for holding the main and secondary lens in position. Due to the particular construction of the lens, however, it is not essential that there be provided any means apart from the inturned flange 23 for securing the main lens in position in the casing. Hence, if desired, the plates 27 may be formed without the portions 28 that constitute shoulders for aiding in holding the main lens in position.

This somewhat simplified structure is made possible by providing a lens 25a having, in addition to a laterally extending offset portion 33a forming a main or stop flange, a peripheral por-

tion 32a which is beveled to form a secondary flange 40. The lens is inserted in the casing, as in the case of the lens first described, by forcing the opening defined by the inturned flange to open beyond its normal opening. When inserted, the offset portion is adapted to overlap the outer face 41 of the inturned flange 23 and the beveled peripheral portion 32a extends into the casing. Upon the drawing of the opening together in the same manner as already described, the inturned flange 23 is caused to concurrently grip the beveled peripheral portion 32a of the lens 25a and thereby draw the offset portion 33a firmly against the outer face 40 of the inturned flange.

With this construction the lens is held solely by the inturned flange 23, gripping the notched edge 39 of the lens 25a, and as pointed out, the necessity of providing any additional means for holding the lens in its predetermined position in the casing is eliminated. Thus, there is made possible a lamp having the main lens held securely in place and which, due to its minimum number of parts, may be more cheaply manufactured. Furthermore, because of the peculiar cooperation of the lens and the casing, there is provided a lamp in which the lens may be easily and quickly removed and replaced.

In Figure 9 there is shown a main lens 25b similar in construction to the one shown in Figure 6 in that it is provided with a laterally extending offset portion 33b and a beveled peripheral portion 32b forming a notched or concave edge 39b which cooperates with the inturned flange 23 to maintain the lens in position in the casing 16. It differs from that lens in that the offset portion 33b is adapted to lap the inner instead of the outer face of the inturned flange 23 and in that the beveled peripheral portion is adapted to extend out of rather than into the casing. The gripping and holding of the lens in the casing, however, is founded on the same principle that causes the modification shown in Figure 6 to act so effectively. When the split opening is drawn together by means of the brackets 36 and the screw 37, the inturned flange grips the peripheral portion of the lens, and due to the wedging action of the beveled peripheral portion constituting a secondary flange, the offset portion constituting a main flange is drawn and held against the inner face of the inturned flange.

Other variations and modifications may be made within the scope of the present invention and portions of the improvements may be used without others.

Having thus described the invention what is claimed as new is:

1. In a lamp, the combination of a casing having a main and secondary opening, with a split opening therebetween; an inturned flange defining said main opening; a lens adapted to enter said main opening; integral means on said lens adapted to limit the extent to which said lens enters said main opening; means on said casing adapted to draw said split opening together and concurrently draw said inturned flange into firm gripping engagement on the lens; a lens for said secondary opening; a pair of plates; and integral means on said pair of plates adapted to maintain said main lens and secondary lens in a predetermined position in said casing.

2. In a lamp, the combination of a casing having a main opening and a secondary opening with a split opening extending from said main opening to enable an expanding of the latter beyond its normal condition; an inturned flange defining said main opening; a main lens for said main opening; a portion on said lens having a diameter greater than said main opening and insertable in said main opening when the latter is expanded beyond its normal condition; means on said casing adapted to draw said split opening together and concurrently draw said inturned flange into firm gripping engagement with said main lens; a secondary lens for said secondary opening having a portion adapted to lap said casing adjacent said secondary opening; and a pair of spaced plates, each of said plates being integrally provided with a shoulder spaced from said inturned flange and cooperable therewith to maintain said main lens in a predetermined position in said casing and provided with an offset portion adapted to lap said secondary lens to maintain the latter in a predetermined position in said casing.

3. In a lamp the combination of a casing having a main light opening and a split opening extending therefrom to enable expanding said main opening beyond its normal condition; an inturned flange on said casing defining said main opening; a lens having a pair of peripheral flanges of greater diameter than said main opening in its normal condition, providing a concave edge on said lens insertable in said main opening when expanded beyond its normal condition; and means on said casing for positively drawing said casing flange to grip said concave edge and thereby lock the casing flange between said pair of lens flanges.

4. In a lamp the combination of a casing having a main light opening and a split opening extending therefrom to enable expanding said main opening beyond its normal condition; an inturned flange on said casing defining said main opening; a lens having a rearwardly facing stop flange of greater diameter than said main opening, adapted to limit movement thereof into the casing by engagement with said casing flange, and having a rearwardly extending and forwardly facing beveled peripheral portion insertable in said light opening when the latter is expanded beyond its normal condition; and means for normally maintaining said casing flange in gripping relation with the beveled peripheral portion to draw the rearwardly facing flange firmly against said casing flange and thereby lock the casing flange between the rearwardly facing flange and the beveled peripheral portion.

5. In a lamp the combination of a casing having a main light opening and a split opening extending therefrom to enable expanding said main opening beyond its normal condition; an inturned flange on said casing defining said main opening; a lens having a forwardly facing main flange of greater diameter than said main opening, insertable in said main opening when the latter is expanded beyond said normal condition, and having a forwardly extending and rearwardly facing beveled peripheral portion; and means for normally maintaining said casing flange in gripping relation with the beveled peripheral portion to draw the forwardly facing flange firmly against the casing flange and thereby lock the casing flange between the forwardly facing flange and the beveled peripheral portion.

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