C. MORU.

PROCESS OF MAKING LAMP STRUCTURES.

APPLICATION FILED DEC. 9, 1914.

1,176,235. Patented Mar. 21, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

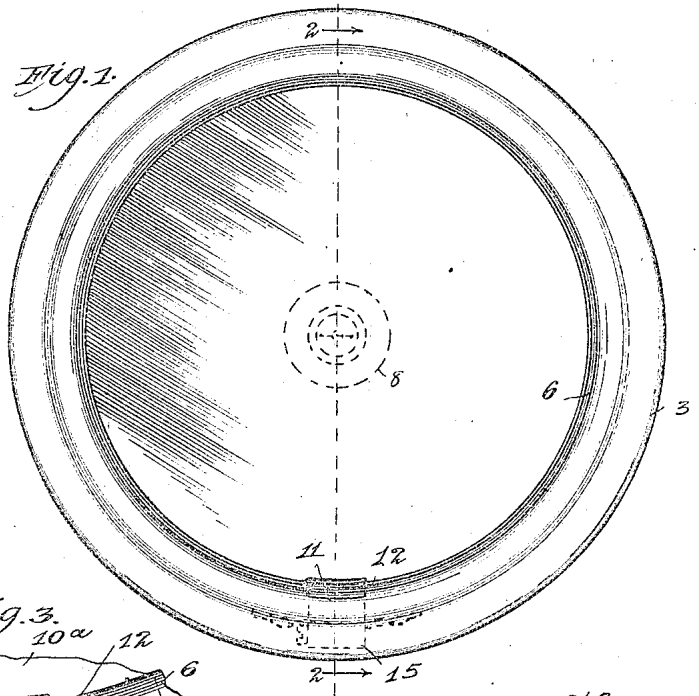


Fig. 3.

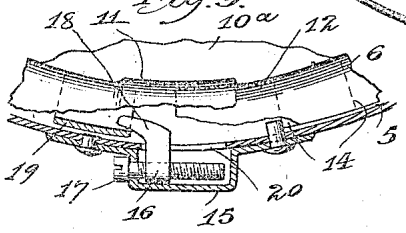


Fig. 2.

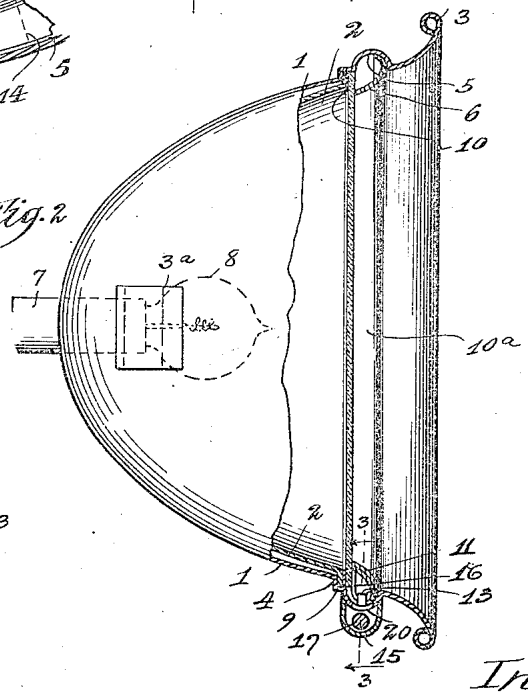
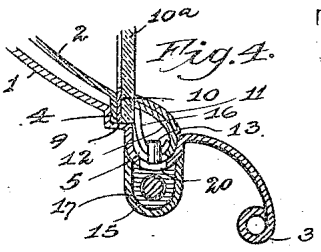


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

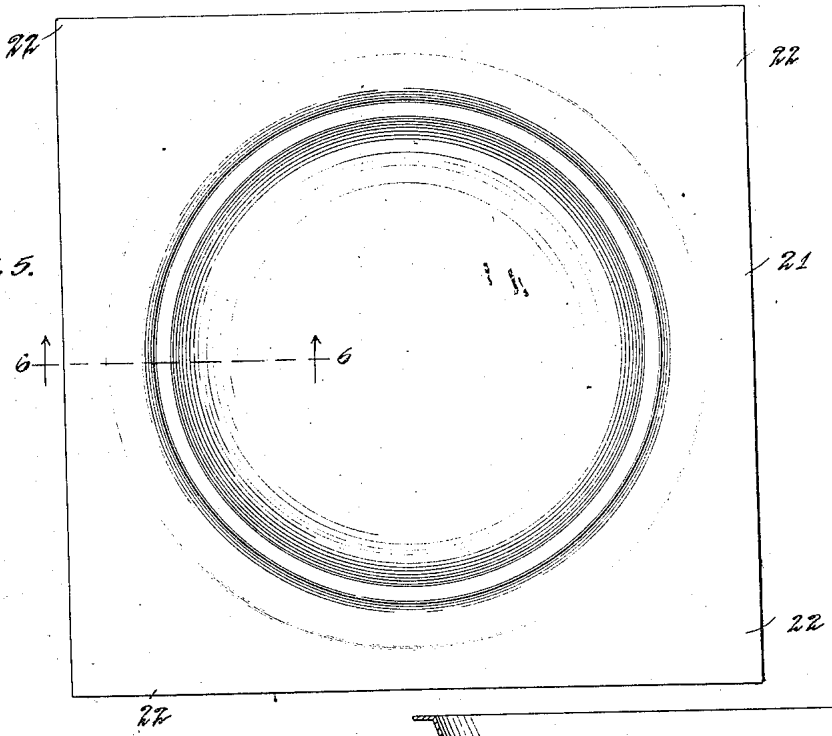

Fig. 8.

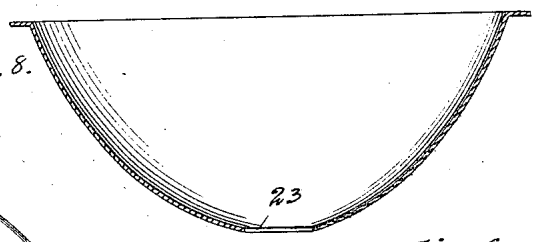

Fig. 9.

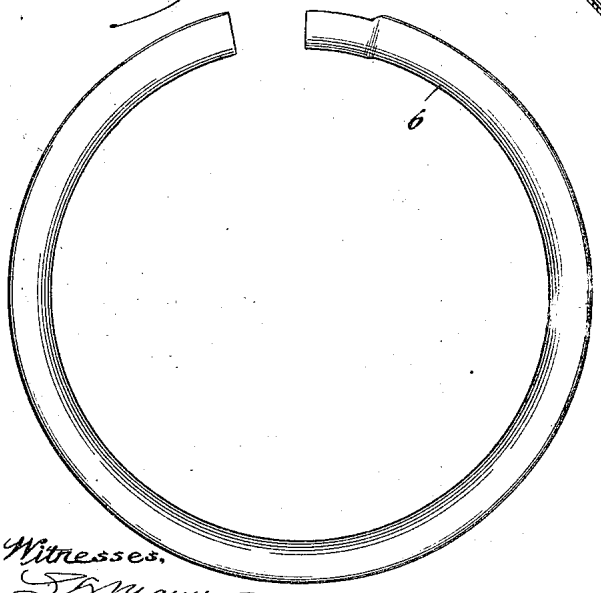

Fig. 6.

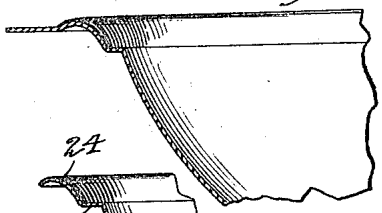

Fig. 7.

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PROCESS OF MAKING LAMP STRUCTURE.

1,176,235. Specification of Letters Patent. Patented Mar. 21, 1916.

Original application filed June 5, 1914, Serial No. 843,160. Divided and this application filed December 9, 1914. Serial No. 876,231.

To all whom it may concern:

Be it known that I, CARL MORU, a citizen of the United States, and a resident of Kenosha, in the county of Kenosha and State of Wisconsin, have invented certain new and useful Improvements in Processes of Making Lamp Structures, of which the following is a specification.

This invention relates to improvements in processes of making lamp structures, and, although it may be applied to various uses, is particularly well fitted for use in connection with the manufacture of automobile head lights employing a parabolic reflector and a stamped locking ring for holding the glazing in position in front of the reflector.

This application is a divisional application from my original application filed June 5, 1914, Serial No. 843,160.

Among the salient objects of the invention are to provide in a structure of the type referred to an improved process of manufacturing the bowl member and the ring member from a single blank by means of a succession of suitable stamping or other manufacturing operations; to provide a manufacturing process which, when utilized in the construction of a structure of the type referred to, shall result in a substantial saving in material and in labor, and which enables the resulting product to be completed with a high degree of accuracy in fit and finish with a comparatively small number of operations, and, in general, to provide an improved process of the type referred to.

In the drawings,—Figure 1 shows in elevation a small automobile head-light embodying my construction; Fig. 2 is a section along the line 2—2 of Fig. 1; Fig. 3 is a fragmentary section of the ends of the locking ring and associated locking means; and Fig. 4 is a fragmentary enlarged view of the lower portion of Fig. 2; Fig. 5 is a plan view showing the reflector and the locking ring during one of the initial stages of manufacture; Fig. 6 is a fragmentary section along the line 6—6 of Fig. 5; Fig. 7 is a fragmentary section of the reflector and locking ring at a later point in the manufacturing process; Fig. 8 is an axial section of the finished reflector bowl; and Fig. 9 is a plan view of the locking ring after the last forming operation.

Referring to the drawings, 1 represents the outer shell of the lamp, which, as shown, is stamped or spun from a single piece of metal, and is so shaped as to completely inclose the reflector 2. To each side of the lamp is riveted a boss 3^a, which is provided with a vertical hole to fit one of the lamp forks. The outer edge of the shell 1 is rolled over to form a finishing bead 3 at the edge of the flaring portion of the lamp, and within the latter are formed the circumferential seat 4 for the reflector and the circumferential groove 5, within which is seated the ential groove 5, within which is seated the locking ring 6. The parabolic reflector 3 is suitably orificed at the rear to admit the lamp-socket 7, the lamp proper being indicated in dotted lines at 8, and the front edge of the reflector is pressed out to form a flanged portion 9 for the proper diameter to seat in the circumferential recess 4 of the outer shell. Shellacked or otherwise suitably cemented to the outer edge of the flange 9 of the reflector is an annular dust-gasket 10, against which the glazing 10^a is forced by the action of the locking ring 6, and which seals the interior of the lamp against the ingress of dust particles.

Referring now to the specific construction of the locking means, it will be seen from an inspection of Fig. 3 that one end of the locking ring 6 is expanded for a short distance from its end to provide a telescopic sheath portion 11, which laps over the other end 12 of the locking ring and is adapted to slide thereon when the two ends of the locking ring are forced apart. Circumferential movement of the fixed end 12 of the locking ring is prevented by a pin 13 which is engaged by the end of a block 14 which is soldered to the under side of the end 12 of the locking ring. To the outer shell of the lamp is riveted a hollow box-like stamping 15, which forms a slide for the outer end of a wedging dog 16. The outer end of the latter is tapped to receive a locking screw 17, which passes through a small hole in the end of the slide-box 15 and engages the outer end of the latter when the wedging

dog 16 is pulled circumferentially by the screw. The inner end of the wedging dog 16 is formed with an inwardly-extending cam-hook 18 which engages the end of a small punching 19 soldered to the movable end of the locking ring. The hook end 18 passes through and slides in a circumferentially extending slot 20 in the outer shell.

In assembling the various parts of the lamp, the reflector 2 is first placed in its seat in the outer shell 1 and the glazing applied to the end of the reflector. The locking ring is then inserted by first placing the end 12 in the circumferential groove 5 of the outer shell in such a position that the block 14 engages the pin 13. The remaining portion of the circumference of the locking ring is then worked into the slot, pressure being at the same time maintained in a direction to hold the block 14 against the pin 13, and finally the free end of the locking ring drops into the groove. It should be noted that, before the locking ring can be assembled, it is necessary to unscrew the catch member 18 to its fullest extent, so that it will not interfere with the member 19 to prevent the free end of the locking ring from entering the groove. When the locking ring is in place, it is then positively locked in position by screwing up the member 18 into the position shown in Fig. 3. To remove the ring, after loosening the screw 17 and forcing back the wedging dog 18, it is necessary to insert the point of a knife or other instrument between the overlapping portion 11 of the locking ring and the outer shell.

The locking ring 6 is formed of nickeled brass or other metal capable of taking a good finish, and is of such width and shape as to form an ornamental trim around the glazing opening, harmonizing with the general shape of the lamp. The depth of the section is also such that when the locking ring is forced tightly outward, due to the action of the wedging dog 16, the glazing and reflector are wedged tightly in position, and the construction is thereby rendered very secure and free from rattle or the possibility of vibration loosening up any of the parts.

The process of making the locking ring and reflector, which comprises the subject matter of this application and of the invention claimed herein, will now be described.

Briefly, the process consists in manufacturing the parabolic reflector and the locking ring from a single blank, the parabolic reflector being formed concentric with and within the locking ring, which is afterward severed from the reflector and then divided radially and formed as to its two ends so as to provide an overlapping ring of the proper diameter.

Referring to Fig. 5, 21 represents a blank of brass or other suitable material after the combined reflector and locking ring have been formed to the proper shape, before the trimming operation. This initial forming ordinarily consists of two or three punch-press operations with dies which are suitably graduated in shape, in order to prevent tearing of the metal. During these preliminary forming operations, the metal around the exterior of the circular formed portion of the blank must be held very securely against inward radial creeping movement due to the action of the dies, and in order to do this, it is necessary to provide around the edges of the circular portion enough width of metal so that pressure may be applied to the exterior of the blank by means of suitable spring pads to prevent this creeping action. This always results in a great loss of material when making a reflector or similarly formed part. The making of the locking ring as a single part would result naturally in a similar waste of material. It will thus be self-evident that by forming the reflector and the locking ring in a single piece, I effect a saving in material equal to the size of a blank large enough to make the reflector alone, besides effecting a considerable reduction in the number of forming operations. After the blank attains the shape shown in Figs. 5 and 6, it is then subjected to a trimming operation, which removes the corners 22 and also punches the hole 23 in the bottom of the reflector bowl. After the combined ring and bowl have thus been trimmed, it is sometimes necessary to perform an additional beading operation, which gives the required shape to the outer edge of the locking ring, as shown at 24 in Fig. 7. After the blank has reached the shape shown in Fig. 7, the locking ring is severed from the bowl by cutting the blank at 25, this operation usually being performed in a lathe by means of a narrow parting tool. This leaves the reflector-blank in its finished condition, as seen in Fig. 8. In order to enable the locking ring to occupy the position which it does occupy in the finished lamp structure, as shown in Figs. 2 and 4, it is necessary to effect a considerable reduction in its diameter, which is accomplished by cutting the ring radially and removing a portion of its circumference, the ends being overlapped, as shown in Fig. 9, so that the locking mechanism for the ends of the ring may be applied. Owing to this reduction in the diameter of the ring when it occupies its position in the lamp, the ring itself has a very strong tendency to spring outwardly and resume its original diameter. This results in a very secure and substantial construction, which is rendered doubly effective by the locking means previously described.

Although I have illustrated my invention as being employed in the manufacture of an automobile headlight, it is manifest that the

invention can be used in the construction of other analogous structures, and therefore I do not wish to be limited to the details of the process described, except as specified in the appended claim.

I claim—

In lamp manufacture, the process of manufacturing a coöperating glazing-locking ring and parabolic reflector from a single blank, which consists in taking a flat blank, shaping the reflector and the locking ring concentrically and integrally together in said blank, trimming the exterior of the formed blank to form the finished outer circumference of the locking ring, severing the ring portion from the reflector portion forming the bearing flange, and then cutting the ring radially to form a resilient non-continuous annular locking member adapted to be sprung within the lamp frame to clamp the reflector and coöperating parts in fixed relation.

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