

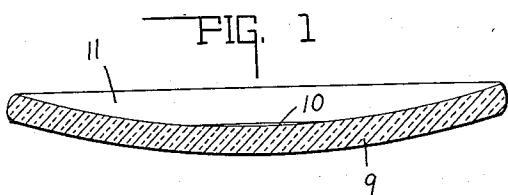
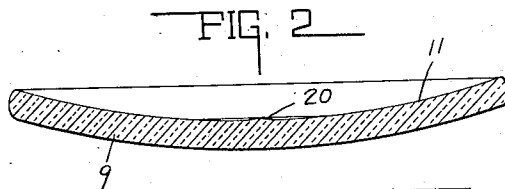
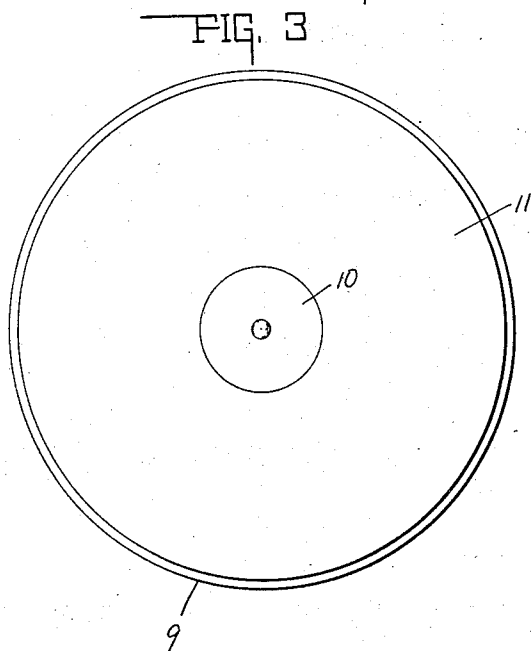
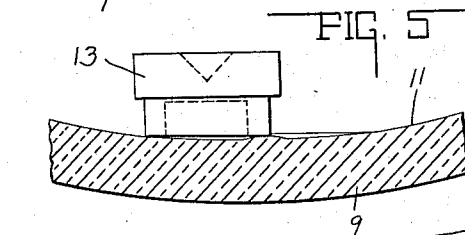
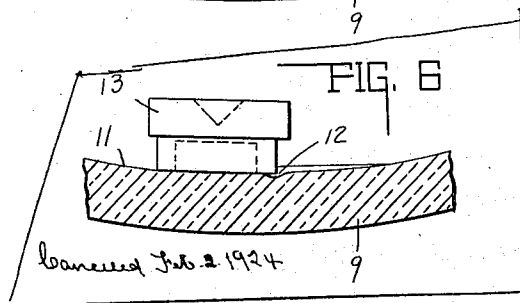
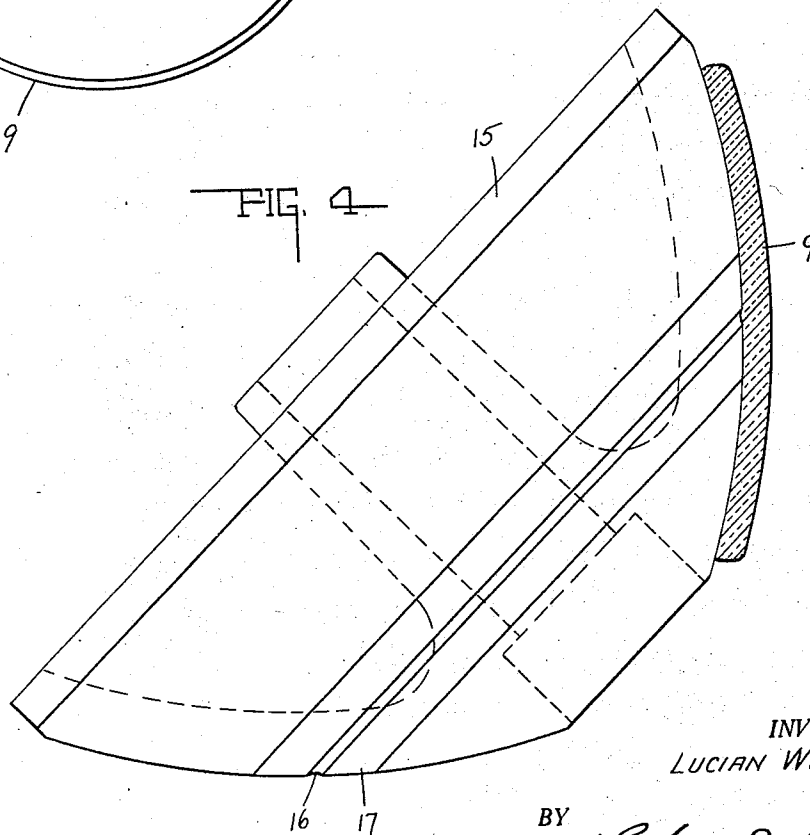
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L. W. BUGBEE

PROCESS OF MAKING A BIFOCAL LENS WITH MERGED SURFACES

Filed July 5, 1923



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PROCESS OF MAKING A BIFOCAL LENS WITH MERGED SURFACES.

Application filed July 5, 1923. Serial No. 649,649.

To all whom it may concern:

Be it known that I, LUCIAN W. BUGBEE, a citizen of the United States, and a resident of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Process of Making a Bifocal Lens with Merged Surfaces; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

The object of this invention is to facilitate and cheapen the operation of the polishing or reading field of a bifocal lens of what is known as the Ultex type, wherein the bifocal surfaces merge into each other smoothly, and at the same time lessen the danger of changing the curvature of the reading field during the polishing operation.

The chief feature of the invention consists in originally grinding or forming a slight elevation at the center of the reading segment so that one edge of the polishing button, which is substantially one-half the diameter of the reading segment will, in the beginning of the polishing operation, rest with one edge on said elevation and with the other edge at the line of division between the two bifocal surfaces and the intermediate portion of the button will not touch the glass.

Heretofore in making such lenses in the grinding operation, the abrasive material collects in the center of rotation of the glass blank and undercuts it somewhat, forming a slight hole or depression. In the polishing operation in order to polish out this depression, it is necessary to bring the whole surface of the reading segment down to the bottom of the hole or depression, which results in a great waste of time and tends to form a shoulder at the line of division between the bifocal surfaces, which latter feature is objectionable if it can be avoided. This latter makes it necessary to subsequently polish the outer or distance field sufficiently to remove the shoulder. Furthermore there is a tendency when polishing the reading field to shorten the radius of curvature, because the polishing button polishes faster at the center of the reading portion than at its outer edge. The object of this invention is to overcome the foregoing difficulty.

The full nature of the invention will be understood from the accompanying draw-

ings and the following description and claims:

In the drawings, Figure 1 is a central transverse section of a onepiece bifocal lens blank finished on the bifocal side. Fig. 2 is a central transverse section of the blank at the end of the grinding operation, leaving a slight elevation in the center. Fig. 3 is a plan view of Fig. 2. Fig. 4 is a side elevation of the cathead or tool for grinding what is shown in Figs. 2 and 3. Fig. 5 shows the central part of Fig. 2 on an enlarged scale with a polishing button in position to polish the reading segment and make the blank like that shown in Fig. 1.

The lens blank sought to be made is illustrated in Fig. 1 and is a target blank having a central reading field 10 and a surrounding distance field 11. These two fields have different curvatures and, therefore, different focal powers. After the blank has been manufactured and has reached the retainer, the bottom side is finished according to the particular prescription and the target centrally split and a pair of finished bifocal lenses cut therefrom.

In the art employed heretofore in making these lenses, the two bifocal surfaces 10 and 11 have been as a general rule simultaneously ground or generated. In that operation the lens blank, turns centrally on the grinding tool, and the abrasive material tends to collect at the center of the blank and grind a recess or hole 12 therein. The reading field 10 of such blank has been polished by the small polishing button 13 that reaches from the center of the reading segment to the margin thereof or the line of division between the two fields. As stated above, when the emery has made a recess or hole, the reading field must be polished away by the polisher 13 until that line has been removed. That requires a long polishing operation and sometimes it produces a shoulder at the line of division which requires a subsequent grinding of the surrounding reading field 10 in order to remove the shoulder. This has contributed to the expensiveness of the manufacture of said lenses.

The above difficulty is overcome in the present invention by providing the grinder or cathead 15 with a slight annular groove 16 at the middle of the zone 17 which generates the reading field so that the grinder

or cathead will positively form a slight elevation 20 in the middle of the reading field, as seen in Figs. 2, 3 and 5. Then when the polishing button 13 is applied, it will soon
5 polish away that small elevation as the intermediate portion of the button does not touch the glass. This raised portion 20 is relatively small and quickly disappears during the polishing operation and acts mean-
10 while to compensate for the tendency of the polisher to shorten the radius of curvature of the reading portion. Likewise it obviates the necessity of laboriously polishing the main portion of the reading field in which
15 the bottom of the depression is removed, thus saving great time and greatly reducing expenses and producing a more accurate lens. In fact, this improvement enables one to
20 polish the reading segment in one-half of the time heretofore employed.

The invention claimed is:

1. In the process of surfacing one-piece bifocal lenses, generating the reading field with a slightly raised surface central thereof, and thereafter polishing said reading field
25 with a polishing button, having substantially one-half the diameter of the reading field.

2. In the process of surfacing one-piece bifocal lenses, grinding the reading field so
30 as to leave a raised surface centrally thereof, and thereafter polishing said reading field with a polishing button which extends from said raised surface to the division line between the reading field and the distance
35 field.

In witness whereof, I have hereunto affixed my signature.

LUCIAN W. BUGBEE.