

1,340,021.

A. J. CROSS.
OPHTHALMIC LENS BLANK.
APPLICATION FILED APR. 29, 1919.

Patented May 11, 1920.

Fig. 1.

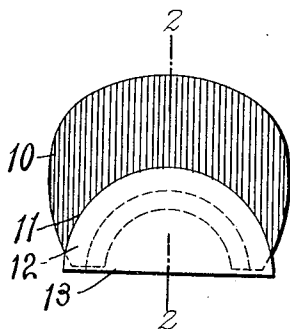


Fig. 2.

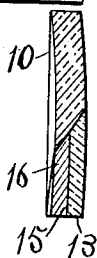


Fig. 3.

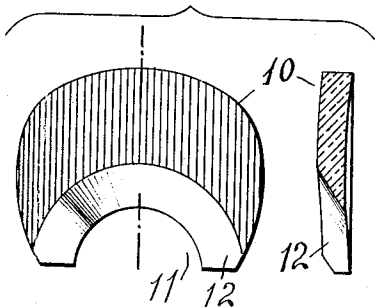
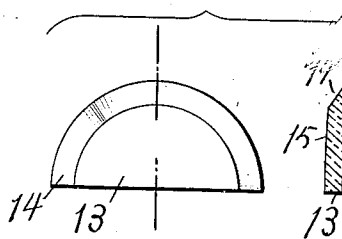


Fig. 4.



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OPHTHALMIC-LENS BLANK.

1,340,021.

Specification of Letters Patent.

Patented May 11, 1920.

Application filed April 29, 1919. Serial No. 293,430.

To all whom it may concern:

Be it known that I, ANDREW JAY CROSS, a citizen of the United States, and a resident of the city, county, and State of New York, have invented a new and useful Improvement in Ophthalmic-Lens Blanks, of which the following is a full, clear, and exact description.

My invention relates to improvements in lens blanks such as are delivered to lens grinders ready to be ground, polished, and finished into lenses of desired values or powers. More particularly my invention relates to combination ophthalmic lenses having areas of different powers, and the general object of my invention is to produce a blank which can be more readily and accurately finished by a local grinder than the ordinary blanks, and to provide a blank having one member entirely finished on one surface and of a certain definite value, which will serve as a base, and the rest of the lens can be ground as desired and so as to correspond in a desired way with this finished part of the blank. The demand for peculiar types of modern ophthalmic lenses covering spherical, cylindrical and prismatic values in multiple independent quantities, has led to the production of partially ground glass blanks which local lens grinders can finish in varying focal strengths. Heretofore, however, these focal powers have been somewhat limited, demanding many blanks in order to have a complete assortment of numbers. In my improved blank the manner of its construction covers a wide range of possible lens combinations as well as presenting possibilities for the control of independent optical centering of its various focal areas, as will be seen from the description which follows.

In the drawings I have shown a two member blank in which what is destined to be a close vision member has its inner surface ground, polished and finished, while the rest of the blank is comparatively in the rough. The two members are fused together edge to edge in a way to present a substantially perfect union, and as will appear the blank can be ground to the desired value, or so as to have areas of desired values with reference to the finished part of the blank.

Reference is to be had to the accompanying drawings forming a part of this speci-

cation, in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is an elevation of the combination blank embodying my invention.

Fig. 2 is a cross section of the same.

Fig. 3 is an elevation and cross section of the main part of the blank, and

Fig. 4 is an elevation and cross section of the member which has one surface finished.

The major member 10 of the blank is unground on both surfaces and has a segment cut away as shown at 11 and the edge 12 of this segment is accurately ground so as to give it a surface of revolution, that in arcs at right angles to each other, and has therefore a compound or toroidal curve. The member 13 has one edge 14 correspondingly ground so that it can be fused permanently and nicely to the edge 12 of the major member 10, and this is done so as to leave the outer surface flush with the outer surface of the major member 10, while the inner surface of the major member 10 substantially overhangs the member 13 as the drawing shows. The inner surface 15 of the minor member 13 is entirely finished ready for use and of a predetermined value. The blank is made up as described with the members 10 and 13 fused together as specified, and when shipped a dummy 16 of glass is slipped into the segment 11 so as to cover the finished surface 15 of the member 13, and it is temporarily cemented to the member 13 by balsam or the like. A local lens grinder can, therefore, grind both surfaces of the major member 10 to the desired extent and shape so as to produce one or more lenticular areas thereon, and the dummy 16 still remains in place until the lens is finished, when the dummy will be ground to the thinnest wafer, but will meanwhile have served its purpose of protecting the finished surface 15 of the member 13. When the lens is finished the dummy is removed in any convenient way, as for instance by warming the lens so as to soften the balsam.

It will be readily seen, therefore, that the blank can be shipped without danger of damage to the various lens grinders, and that it is not necessary to use the great number of blanks that would be required if the ordinary blank were used, because the surface 15 of one member is accurately ground

and finished, and the outer surfaces of the members 10 and 13 and the inner surface of the member 10 can be ground to the desired values with reference to the basic or finished surface 15.

I claim:—

1. As an improved article of manufacture, an ophthalmic lens blank comprising two members one thicker than the other, fused together edge to edge into an integral whole, the thicker member being unground on its two surfaces, the other or thinner member having one of its surfaces unground and the other surface finished and polished before fusing, the two members joining one another in such a manner that the thicker of the two members will overhang the edge of the thinner.

2. An ophthalmic lens blank comprising two members of different thicknesses fused together edge to edge, the thicker of said members having both major surfaces unground and the edge to which the thinner member is fused finished, and the thinner of

said members having one surface finished and one unground, also its edge finished.

3. An ophthalmic lens blank comprising an unground member having a segment removed and the edge from which said segment is removed finished, a second thinner member-fitting in said segment edge to edge with the first member and fused thereto, the second member having its outer surface unground and its inner surface finished, also its edge finished.

4. An ophthalmic lens blank comprising a major unground member having a segment removed and with the edge where said segment is removed finished, a minor member fitting in the aforesaid segment finished and fused edge to edge to the major member, and a dummy removably cemented to the blank and fitting against the finished surface of the minor member.

ANDREW JAY CROSS.

Witnesses:

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M. G. O'DONNELL.