Patented Mar. 20, 1923. 1,449,343

UNITED STATES PATENT OFFICE.

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PROCESS FOR MAKING TWO-PART LENSES.

No Drawing. Application filed April 14, 1922. Serial No. 552,591.

To all whom it may concern:

Be it known that we, HAROLD R. MOULTON and EDGAR D. TILLYER, citizens of the United States, residing at Southbridge, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Processes for Making Two-Part Lenses, of which the following is a specification.

This invention relates to a new and useful process in the forming of a lens and especially used in the construction of a two part lens.

It is a well known fact in the art of lens manufacture, especially in the process of making a two part lens, that when the two parts of the lens are heated for adhering them together, a certain amount of the sodium which is contained within the glass vaporizes during the heating process so that when the two parts of the lens have been adhered together and ground down to the proper prescription a bluish effect is produced in the lens. This is caused by the vaporization of the sodium from the polished surfaces which are adhered together.

One of the main objects of our invention is the provision of a process whereby to produce the proper amount of vaporized sodium to either counteract the vaporization of the sodium from the polish glass or to have enough vaporized sodium in the heating tank which will adhere to the glass surface and prevent the polished surfaces which are to be united from becoming viscous so as to retain the smooth polish surface during the heating process prior to the adhering of the two parts of the lens.

A further object of the invention is the provision of a process forming two piece lenses by heating the two parts in a furnace charged with sodium vapor whereby to counteract if possible the vaporization of the sodium from the polished surfaces of the two parts which are to be brought in contact when adhering the two parts together so as to eliminate the bluish effect which is produced in a finished lens during the process in use at the present time.

With the above and other objects in view the invention consists in the novel features of construction, the combination and arrangement of parts hereinafter more fully set forth and pointed out in the claims.

In the forming of two part lenses at the present time the two parts of the lens which are to be adhered together are ground or polished to a smooth surface, the two parts of the lens then heated to a melting point and adhered together. In this process the heating of the glass to a melting point causes the sodium in the glass to vaporize and pass out from the glass and generally produces a very minute roughened surface to the adhered parts leaving them in a grayish condition. When these lenses are ground down to a prescription the adhered parts will produce a certain bluish effect to the eye and it is one of the objects of our invention to provide a process for forming two part lenses whereby to prevent this defect.

In our improved process it is preferred to heat the two parts of the lens to a melting point in a furnace charged with sodium vapor whereby the vapor created in the furnace will readily condense on the glass surfaces of the two parts of the lens due to the fact that the glass is considerably cooler than the sodium vapor, this will also cause a counteraction between the vaporization of the sodium from the glass and retain the proper amount of sodium in the polished surfaces of the glass to prevent the same from producing a minute mottled grayish effect prior to the adhering of the two parts, the sodium vapor retaining the polished surfaces in their respective states during the melting of the glass prior to adhering the parts which will eliminate the bluish effect produced in the finished lens.

If found desirable an excess of sodium vapor can be used to produce greater fluidity of the glass surface. We also call attention to the fact that an addition of boric acid in certain cases will increase fluidity of the glass.

From the above description it will be readily apparent that by the use of our improved process two part lens can be formed to a completed state and eliminate therein the bluish effect which is usually produced in the forming of two part lens at the present time. It will also be apparent that while we have illustrated the use of sodium vapor for counteracting the vaporization of the sodium from the heated surface of the parts of the lens, other similar materials

can be used for this purpose, the main purpose of our process being to prevent the decrease in the supply of sodium on the surface of the glass during the heating process of the two parts of the lens prior to adhering them. As set forth heretofore, the sodium vapor within a furnace will readily condense upon the two parts of the lens due to the cooled state of the lens so that when the lens is heated to a melting point the vaporization of the sodium within the glass will be counteracted and the proper amount of sodium retained within the glass to prevent the polished surface from becoming viscous, so that the two polished surfaces of the two parts of the lens may be readily adhered together without disturbing the polished surfaces whatever.

It is to be understood that the term sodium is employed in the specification and claims generically for the various similar alkalies used in the manufacture of glass. Among specific substances deemed included by the above term are potassium lithium, and the like, which may be substituted in the present process.

What we claim is

1. The process of forming two part lenses consisting of heating the two parts in a furnace charged with sodium vapor.

2. The process of forming two part lenses consisting of charging a furnace with sodium vapor and heating the two parts of the lens to a melting point within the furnace.

3. The process of forming two part lenses having comating polished surfaces, consisting of heating the two parts in a furnace charged with sodium vapor to prevent the polished surfaces from becoming viscous.

4. The process of forming two part lenses, the two parts having comating polished surfaces, consisting of charging a furnace with sodium vapor, heating the two parts of the lens in the furnace to a limiting point and then adhering the two comating polished surfaces of the two parts.

5. The process of forming two part lenses having comating polished surfaces consisting of heating two parts in a furnace charged with sodium vapor, the vapor condensing on the two part surfaces to counteract the discharge of sodium vapor from the two part surfaces, heating the two parts to a melting point and adhering the comating polished surfaces.

6. The process of forming fused lenses consisting in heating the parts to be united in a furnace charged with one of the elements composing the parts to be united in a vaporized form.

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