such temperature for an appreciable period of time, and finally gradually reducing the temperature of the batch to normal.

10. The method of producing an optical glass substantially free from strain and the refractive index of which varies continuously through at least a portion thereof, comprising producing a thoroughly mixed molten batch containing a substantial quantity of each of the oxides of boron, silicon, lanthanum, barium and cadmium and a minor quantity of each of the oxides of beryllium and zirconium and said oxides being capable of rearrangement from a thoroughly mixed condition to a second condition effecting said varied index of refraction while the batch is in a molten quiescent state, then maintaining the batch in a molten quiescent state for a period of time sufficient to effect said second condition and comprising maintaining the batch at a relatively high temperature in which it is in a free flowing state for an appreciable period of time and then gradually reducing the temperature of the batch until it is in a viscous state, then reducing the temperature of the batch while it is still in a quiescent state to a temperature below and in the region of the solidifying temperature thereof and maintaining it at such temperature for an appreciable period of time, and finally gradually reducing the temperature of the batch to normal.

11. The method of producing an optical glass substantially free from strain and the refractive index of which varies continuously through at least a portion thereof, comprising producing a thoroughly mixed molten batch containing approximately 13.5% of boron oxide, 15% silicon oxide, 17% of lanthanum oxide, 34.8% of barium oxide, 13.3% of cadmium oxide, 4% of beryllium oxide and 2% of zirconium oxide and said oxides being capable of rearrangement from a thoroughly mixed condition to a second condition effecting said varied index of refraction while the batch is in a molten quiescent state, then maintaining the batch in a molten quiescent state for a period of time sufficient to effect said second condition and comprising maintaining the batch at approximately 1300° C. for approximately one hour and then gradually reducing the temperature of the batch to approximately 1090° C. in approximately forty minutes, then reducing the temperature of the batch while it is still in a quiecent state to approximately 600° C. and maintaining it at this temperature for approximately two hours, and finally gradually reducing the temperature of the batch to normal.

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