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2,865,725

POLISHING ARTICLE

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3 Claims. (Cl. 51—303)

This invention relates to an improved glass polishing article, and more particularly to an improved lens polishing flexible sheet material.

It is one feature of this invention to provide an improved lens polishing flexible sheet which comprises a sheet coated with a mildly abrasive substance including cerium oxide.

A specific feature of this invention is to provide an improved lens polishing article which comprises a cotton fabric coated on at least one side with an abrasive substance comprising cellulose nitrate, a solvent and cerium oxide.

It is well known in the manufacture of optics for telescopes, microscopes, eye glasses and the like that the rough cut lens must be polished to a high luster to produce regular transparent surfaces. This polishing operation has formerly been done by substances that were time consuming and wasteful. However, by using the polishing article of this invention the polishing time has been noticeably decreased while there is at most only a minor loss of ingredients. Further, because the polishing article is a single unit, it may be easily inserted in any of the conventional polishing machines.

The polishing article of this invention consists of a flexible sheet which has been coated with a mildly abrasive substance. The flexible sheet may be any relatively thin material preferably a fabric material and more preferably a cotton fabric having a thickness of, for example, 0.2 millimeter.

The abrasive substance is applied to the flexible sheet in any conventional manner which allows a smooth continuous layer of the substance to be deposited on at least one side of the sheet.

The preferred abrasive substance comprises cellulose nitrate, cerium oxide and a solvent. The cellulose nitrate which is preferably used has a nitrogen content of from about 11.5–12.6%. However, it is preferred that a cellulose nitrate having a nitrogen content of from about 11.8–12.2% be used.

The cerium oxide is used in a finely ground powder form. Such a grade of cerium oxide is sold under the trade name Cerox by Lindsay Chemical Corporation of West Chicago, Illinois. The cerium oxide will be present in the abrasive substance in from about 10 to 30 parts by weight for each 20 parts by weight of cellulose nitrate. The preferred cerium oxide is ceric oxide (CeO_2).

The solvent used in the abrasive substance may be any

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of the conventional organic solvents which will dissolve the cellulose nitrate and not have an adverse effect on the flexible sheet. Among those solvents which are suitable for this purpose are acetone, benzene, benzyl alcohol, n-butyl acetate, n-butyl alcohol, cyclohexanone, diacetone alcohol, ethyl acetate, ethyl ether, methyl acetate, methyl alcohol, methyl cyclohexanone, methyl ethyl ketone, n-propyl acetate, toluene and xylene. However, the preferred solvent is methyl ethyl ketone. Enough solvent is used to provide a consistency which is suitable for application to the flexible sheet.

In one example of making the polishing material of this invention about 20 parts by weight of cellulose nitrate having a nitrogen content of about 11.8–12.2% and about 10 parts by weight of ceric oxide are added to about 80 parts by weight of methyl ethyl ketone. The mixture is thoroughly stirred to provide for complete solution of the cellulose nitrate and then is applied to the top surface of a layer of cotton cloth having a thickness of about 0.2 millimeter. The coating is smoothed down by a doctor blade to a uniform but thin coating. The cloth is then allowed to dry thoroughly at which time it is ready to be used.

Having described my invention as related to the embodiments set out herein, it is my intention that the invention be not limited by any of the details of description, unless otherwise specified, but rather be construed broadly within its spirit and scope as set out in the accompanying claims.

I claim:

1. A lens polishing article consisting essentially of a cotton fabric of about 0.2 millimeter thickness coated with an abrasive substance consisting essentially of a ratio of about 20 parts by weight of cellulose nitrate having a nitrogen content of from about 11.8–12.2% per about 10 parts of cerium oxide.

2. The lens polishing article of claim 1 wherein said cerium oxide is ceric oxide.

3. A lens polishing article having a thickness of a fraction of a millimeter consisting essentially of a textile fabric coated with an abrasive substance consisting essentially of a ratio of about 20 parts by weight of cellulose nitrate per from about 10–30 parts by weight of cerium oxide, the cellulose nitrate having a nitrogen content of from about 11.5–12.6%.

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