United States Patent Office.

THOMAS ATWOOD WILLSON, OF READING, PENNSYLVANIA.

Letters Patent No. 112,877, dated March 21, 1871.

IMPROVEMENT IN GLASS FOR THE MANUFACTURE OF SPECTACLES.

The Schedule referred to in these Letters Patent and making part of the same.

To whom it may concern:

Be it known that I, THOMAS ATWOOD WILLSON, of the city of Reading, county of Berks, and State of Pennsylvania, have discovered and invented an Alloy and Process for Improved Colored Lens for Spectacle-Glasses; and I do hereby declare the following to be an exact description thereof.

The nature of my invention consists in the alloy and process of mixing the within-described ingredients so as to produce colored lenses in the following manner, to wit:

In the first place I use red lead, eighty-nine parts; niter, fifty parts; white chalk, one part; and white optical sand, sixty parts.

I first calcine and wash the white sand with muriatic acid, and then put the above-named ingredients with it into a crucible holding double its capacity, by weight. After about thirty-six hours it will be fused. It is then taken out and poured into fresh cool water, which granulates it, afterward dried and reduced to a fine powder, then washed again with acid, (should there be any appearance of iron, which is known by the discoloration it produces in the glass,) and the mass is again fused.

The coloring ingredients are then mixed with the glass when in the state of fusion, because, if the coloring matter had been added before, the glass would have been too deeply and irregularly colored; but it is most essential to first get the sand or above-specified mass of the finest and clearest character possible, as a superior colored glass cannot be produced unless this part of the process is perfect.

At this stage of the process, which is the third melting, I introduce the ingredients for producing the proper shade of pink or amethyst colors.

These ingredients are mixed as follows: oxide of manganese, nine parts; oxide of chromium, three parts. To these I add eighty-eight parts of the above mass of optical glass.

The use of the oxide of chromium in combination with the manganese at this stage of the process is important for the purpose of forming a perfect flux to unite the glass and manganese, which, without the chromium, (in the process of putting the mixture in the mold,) the heavier of the two would sink to the bottom in cooling and leave the mass streaked or with an irregular color.

I now cast the whole composition into a mold about two and a half inches square by four inches long, instead of as usually done by blowing it into sheets.

After the annealing of the mass it is ready to be cut into spectacle-lenses; and it is cut crosswise, at right angles with the grain, and afterward polished in the usual manner employed in polishing spectacle-lenses. This cutting process across the grain renders the colored glass apparently white to the eye of the wearer when set in a spectacle-frame, thus producing ease and comfort to the eye, and relieving the eye from the effect of the bright penetrating rays of light.

What I claim as my invention, and desire to secure by Letters Patent, is—

The alloy and process of making pink or colored glasses which will render the colored glasses apparently white to the eye of the wearer and relieve the eye from the effect of the bright penetrating rays of light, as herein described and set forth.

THOMAS ATWOOD WILLSON.

Witnesses:

EDM. F. BROWN,

J. FRANKLIN REIGART