Jan. 26, 1926. 1,571,067

E. L. SCHUMACHER

DEMI AMBER RIM AND PROCESS FOR PRODUCTION OF SAME

Filed Jan. 24, 1925

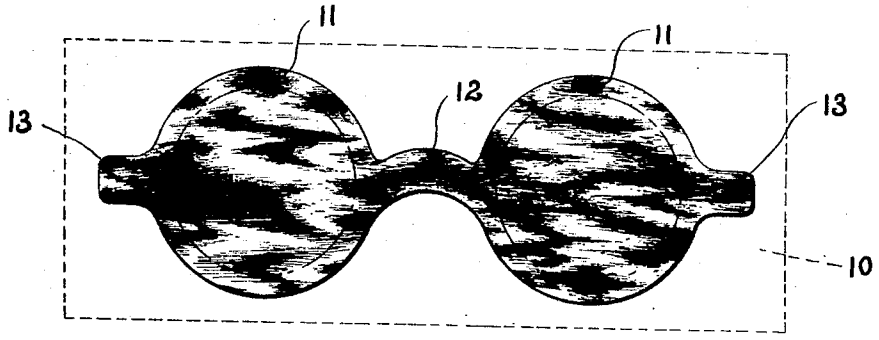


Fig. 1.

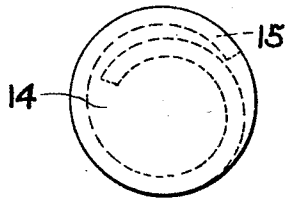


Fig. 2.

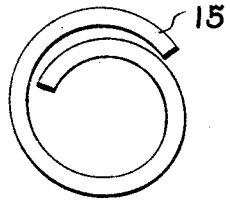


Fig. 3.

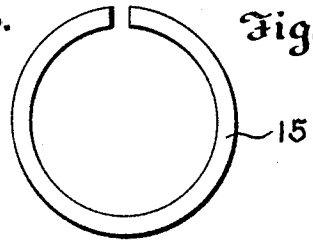


Fig. 4.

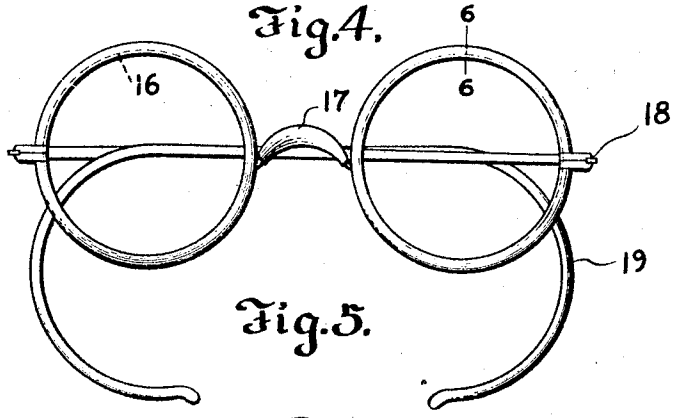


Fig. 5.

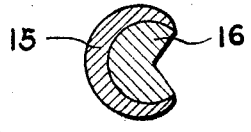


Fig. 6.

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UNITED STATES PATENT OFFICE.

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DEMIAMBER RIM AND PROCESS FOR PRODUCTION OF SAME.

Application filed January 24, 1925. Serial No. 4,526.

To all whom it may concern:

Be it known that I, ELMER L. SCHUMACHER, a citizen of the United States, residing at Southbridge, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements for Demiamber Rims and Processes for Production of Same, of which the following is a specification.

This invention relates to composition rims for ophthalmic lenses, and has as an object to improve generally and render more economical the process for the production of the same.

An important object of this invention is to utilize the material usually wasted in the stamping or cutting of composition ophthalmic frames from sheets of the composition material, by forming from this waste material rims for that type of ophthalmic frame constructed of part metal and part composition material.

Another important object of this invention is to produce a composition rim in such a manner that the inherent peculiarity of this composition material to return to its original shape under usual atmospheric conditions shall be an important factor in the clamping of the rim on the finished frame.

Still another important object of this invention is the provision of a process for the production of composition rims, which shall be comparatively simple, and which shall further require little change in the equipment of shops producing this type of rim, to operate under this process.

Numerous other objects, details of the process, and obvious advantages of this invention will become apparent during the course of the following description, taken in connection with the accompanying drawing in which I have used like numerals to designate corresponding parts throughout all views of the same, and in which:

Figure 1 is a front elevation of a composition frame, shown in relation to the sheet stock from which it is cut, and clearly illustrating the material usually wasted in this process,

Figure 2 is a front elevation of a center cut from the front of a composition frame produced as shown in Figure 1,

Figure 3 is a similar view of a flat spiral strip of the composition material, the same being formed from the center illustrated in Figure 2,

Figure 4 is a front elevation of the strip shown in Figure 3 expanded into substantially the shape of a rim,

Figure 5 is a front elevation of an ophthalmic frame, equipped with a rim constructed in accordance with my invention, and

Figure 6 is a transverse sectional view taken on line 6—6 of Figure 5.

Although my improved process for the production of composition ophthalmic rims could be applied equally well to composition material of any kind, it is particularly applicable and includes many distinct advantages when used with that kind of composition material known to the trade as demi-amber or mottled stock. This demi-amber stock, to which I refer, is a mottled zyl which is in great demand for use in frames at the present time, due to its similarity to the much desired but expensive tortoise-shell.

The use of demi-amber, however, in ophthalmic frames has always presented numerous difficulties due to the fact that it cannot be molded because of its mottled structure. While practically all other composition material may be formed into a plastic mass and subsequently molded by any preferred means into the shape desired, demi-amber can only be obtained either in flat sheets or long relatively thin strips, in one of which forms it must be used.

Prior to my invention, therefore, it has been customary, in so far as I am aware, to form demi-amber rims by one of two general processes. The first of these processes employs the sheet stock, and comprises stamping or otherwise cutting therefrom rings of the desired diameter to form rims of the desired size. Though this process is comparatively simple, and is in use in a great many shops at the present time, it is extremely wasteful, in that the centers cut from these rings, together with a large part of the outer edge of the sheet of material has to be thrown away as scrap.

The other process, sometimes used, employs a long strip of demi-amber, and consisted in spirally winding this long strip upon a heated mandrel, and subsequently

cutting the coil thus formed to produce a plurality of rims. As before stated, however, zyl has the inherent peculiarity of returning to its original shape, when exposed to the ordinary atmospheric conditions, so that the rims thus formed are constantly under strain to straighten out and form straight flat sections or strips.

Considering then these disadvantages of the two most used processes for forming demi-amber rims, my invention becomes particularly advantageous in that it overcomes these difficulties and renders more efficient the process for the production of these rims. My invention not only contemplates the utilization of a large amount of the waste material obtained in the production of all zyl frames, but also contemplates the provision of a rim, which under the strain of its tendency to return to its original shape, will clamp more tightly the ophthalmic lens or rim which it encircles.

Referring now then particularly to the drawing, wherein I have illustrated the preferred embodiment of my process, the numeral 10 designates a sheet of demi-amber in the form in which it is customary for manufacturers to purchase the same. This sheet is substantially thin in cross section, being usually of a thickness approximately equal to that desired in the finished frame, such that it is possible for a manufacturer to lay out on this sheet, as clearly illustrated in Figure 1, the general outline of a frame and to stamp the frame therefrom.

As also illustrated in the drawing, the blank thus formed comprises the fronts 11, the bridge 12, and the temple mounts, 13. The next step in this process, which incidentally is the process most generally used by the manufacturer for the production of frames of this type, is to cut from the fronts of the blank thus formed, the centers 14, which, prior to my invention, have been thrown away as waste material. In accordance with my process, I proceed to utilize the centers 14 by laying out thereon, as clearly shown in Figure 2 of the drawing, by the dotted line, the outline of a spiral strip, which I have designated by the numeral 15. In Figure 3 of the drawing I have shown this strip 15 as cut from the center 14, and it is to be understood that although I find it preferable to accomplish this step by a stamping process, any form of cutting means may be used in so far as there is produced a flat spiral strip of the material, as shown in the figure.

Figure 4 of the drawing clearly illustrates the next step of my process in which I straighten out the spiral strip 15 to form a substantially circular split ring, capable of encircling a lens. This ring now follows the general process for producing rims of this type, by being finished on its outer periphery to present a pleasing appearance to the eye, and being internally grooved in order that it might be clamped about either a lens or a metal rim.

In Figure 5 of the drawing, I have shown the preferred type of frame on which I use the rims constructed in accordance with my invention. This frame comprises the metallic eyewires 16, joined by means of a metallic bridge 17, and being further provided with laterally projecting clamping ears 18, to which are mounted the metallic temples 19.

Composition rims when used in conjunction with metallic frames of this character, form a casing or covering for the eyewires 16 and may be most efficiently clamped thereon by subjecting the eyewires when surrounded by the demi-amber rims, to a moderate degree of heat. The heat tends to return the demi-amber rims, more rapidly to its original shape, thus quickly and firmly clamping the same on the metallic eyewires, due to the well known property of zylonite to return to its original shape, as for instance if a straight rod of zylonite be bent at an angle, it will stay bent if kept cool, but if it were heated it would straighten out on cooling and become a straight rod again; if bent into a ring, the ring would also straighten out and become a straight rod if subjected to heat, as before, this property being entirely different and apart from the natural springiness or resiliency of the material tending to spring it back if deflected. Although I have shown the rim produced in accordance with my invention as applied to this type of ophthalmic frame, wherein its main purpose is to form a covering for the metallic eyewires, it is to be understood that the rims may be used equally well without the metallic eyewires. When used without the eyewires, the rims form a part of the well known frames constructed with composition rims, a metallic bridge, and metallic temples.

It is clearly apparent that regardless of how I use my rims, whether it be to encircle a metallic eyewire, or a lens proper, it will always tightly clamp the same due to its inherent tendency to return to its original, and in this case, flat spiral, shape.

From the foregoing description therefore it will be seen that I have produced a demi-amber or composition rim which may be formed from the material usually wasted in the manufacture of composition frames. It will further be seen that I have produced a process which is not only exceedingly economical, but also of such simplicity and of such similarity to the processes in use today that it may easily be installed in the average manufacturing plant without the building or purchasing of expensive extra equipment. Despite the simplicity and economy of my

process, it is obvious that the same overcomes two of the main difficulties present in the processes generally in use today, and accomplishes a result long desired.

It is to be expected that in the practical application of my process in industrial plants many changes from the specific details disclosed herein will readily suggest themselves, so that I reserve the right to make certain minor departures and variations from the details of this specification and drawing, in so far as I remain within the spirit of my invention, and the scope of the appended claims.

Having thus described my invention, what I claim is—

1. The process of producing a composition rim for ophthalmic lenses, which consists in forming a flat spiral strip from a disk of the composition material, expanding the same to encircle a lens, and subsequently bevelling and grooving the rim thus formed.

2. The process of producing a composition rim for ophthalmic lenses, which consists in forming a flat spiral strip from the center cut from the front of a composition frame, expanding this strip to encircle a lens, and subsequently bevelling and grooving the same.

3. The process of utilizing the centers cut from the front of a composition frame, which consists in forming therefrom rims for ophthalmic lenses, by cutting out a flat spiral from the center, straightening the same, and grooving it.

4. The process of utilizing the centers cut from the fronts of composition frames, which consists in forming therefrom flat spiral strips, adapted to be expanded and clamped about ophthalmic lenses to form rims therefor.

5. The process of producing a demi-amber rim for a metallic eyewire, which consists in forming a flat spiral strip of the demi-amber, bevelling and grooving the same, placing the strip about the eyewire, and subsequently heating the same to cause it to contract on cooling to grip the eyewire between the forms of the groove.

6. The process for producing a composition rim for ophthalmic lenses comprising making a disc of composition material, cutting out the central portions thereof to form a spiral, having one end lying within the other and in the same plane, and expanding the spiral to a continuous lens rim.

7. The process for producing a composition rim for ophthalmic lenses comprising making a disc of composition material, cutting out the central portions thereof to form a spiral, having one end lying within the other end in the same plane, expanding the spiral to a continuous lens rim, and grooving the rim to receive a lens.

ELMER L. SCHUMACHER.