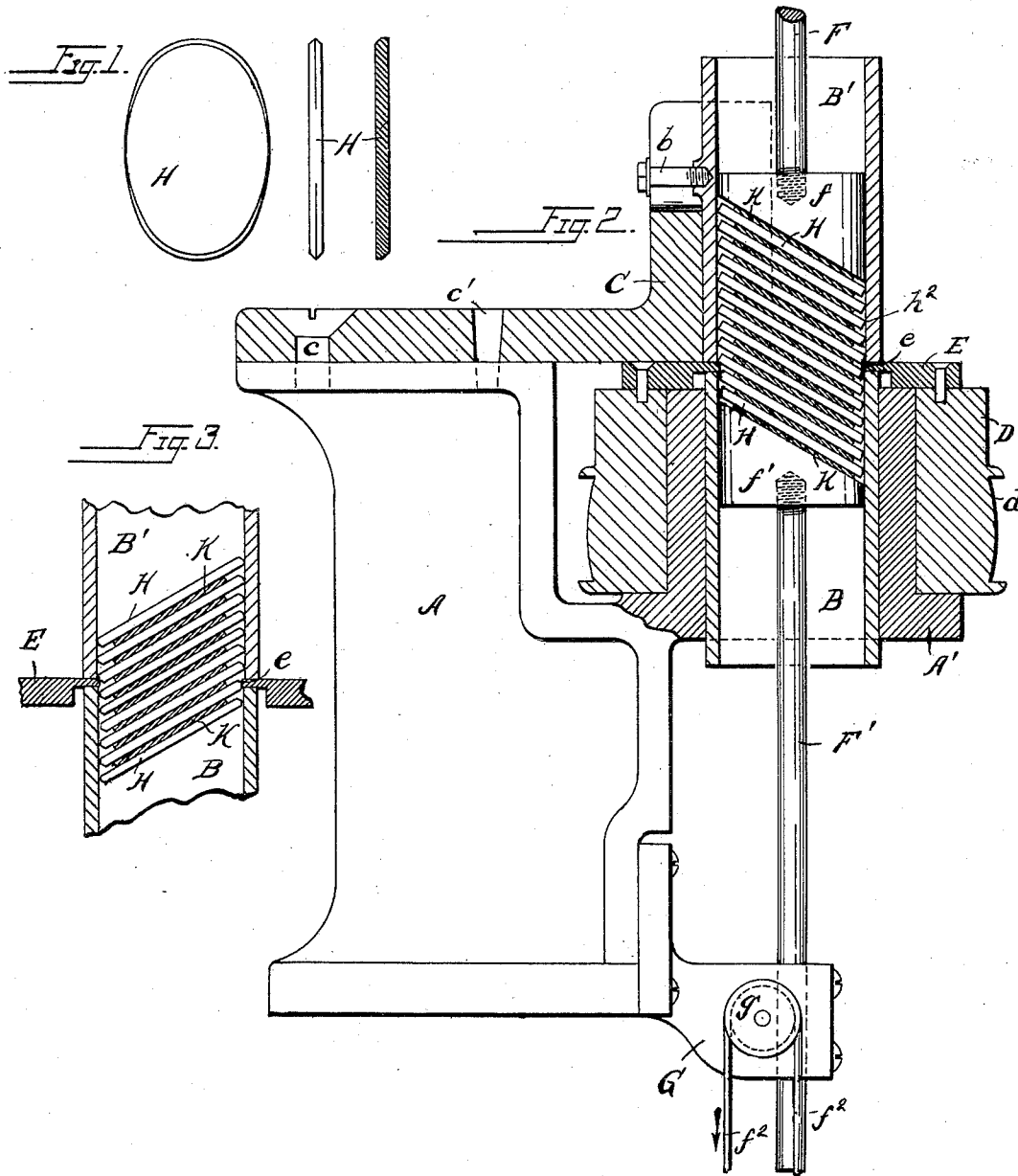


(No Model.)

G. W. & J. W. MEIGS.
SPECTACLE LENS.

No. 474,024.

Patented May 3, 1892.



Witnesses
Edw. Kelly
David Levan

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UNITED STATES PATENT OFFICE.

GEORGE W. MEIGS AND JOHN W. MEIGS, OF READING, PENNSYLVANIA.

SPECTACLE-LENSES.

SPECIFICATION forming part of Letters Patent No. 474,024, dated May 3, 1892.

Application filed October 20, 1891. Serial No. 409,246. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. MEIGS and JOHN W. MEIGS, citizens of the United States, residing at Reading, in the county of Berks, State of Pennsylvania, have invented certain Improvements in Spectacle-Lenses, of which the following is a specification.

This invention relates to an improvement in spectacle-lenses, the main object of which is to provide a lens that can be economically made to a correct elliptical form and with a perfectly symmetrical beveled edge adapted for securing the same in the grooved wire of the spectacle-frame in an advantageous manner. Heretofore these lenses have ordinarily been beveled on the edge, so as to form a central ridge extending all around the same and with an approximately uniform angle of incline from said central ridge at all points of the edge. To accomplish this as nearly as is practicable, the lenses have ordinarily been brought individually into contact with the grinding medium, a skilled operator being required to produce approximately correct and uniform work. Our improved form of lens may be manufactured far more rapidly and correctly without requiring the services of a skilled operator, and on account of the perfect symmetry of form readily attained presents a neater appearance when secured in the spectacle-frame. Moreover, an important advantage in our lens results from the fact that, there being no ridge at the minor axis of the lens to engage the grooved wire of the frame, the bending of the latter, as in spreading the temples, is less apt to break the lens.

The invention is fully described in connection with the accompanying drawings, which illustrate, also, a preferred mechanism for manufacturing the same. The latter, however, forms the subject-matter of another pending application, Serial No. 399,860, filed July 17, 1891, and therefore forms no part of the present invention.

Figure 1 represents our improved form of lens. Fig. 2 is an elevation, partly in section, of a machine adapted to produce in a satisfactory and economical manner our improved form of lens. Fig. 3 is a vertical elevation of a portion of the machine, illustrating, in connection with Fig. 1, our method of grinding the edges to a bevel.

The machine and method referred to, as already stated, form no part of the invention herein claimed; but a proper understanding of these is considered necessary to ascertain the practical advantages of the lens itself, and the same are therefore described sufficiently for this purpose.

Referring to Fig. 3, A represents a frame, which is formed with a hollow vertical bearing A', upon which a pulley D is rotated by means of a belt at d. To the upper surface of this pulley is secured a grinding-ring E, having a central opening and a circular grinding face or wall e. C is a swinging frame pivoted at c to the main frame and carrying a cylindrical magazine B' for receiving the lenses, which is represented as removably secured thereto by means of a screw-bolt b. When swung into working position and locked thereto by means of a pin c', this magazine B' is directly above the grinding-ring E, with the central opening in which the opening in the magazine corresponds, though the latter is slightly larger in diameter. The hollow bearing A' is represented as bushed with a tube B, which thus forms a continuation of the magazine B', though separated therefrom by the rotary grinding-ring E.

In Fig. 3 the spectacle-lenses H, which are for convenience represented as flat disks, are piled obliquely one upon another with intermediate layers of soft leather or other suitable material K within the cylindrical magazine B'. B, the major axis of each lens being inclined sufficiently to loosely fill the magazine, as shown. These lenses are first packed in the upper magazine B' and are pressed together by clamping-plates f and f', having their opposing faces inclined to correspond with the obliquity of the lenses, said plates being attached to rods F and F', respectively, through which the clamping pressure is conveyed. The lower rod F' passes through a bearing G, attached to the frame, and is pressed upward by means of weights attached to cords f², which pass over pulleys g and are attached to the lower end of the rod. The upper rod F is in a similar manner pressed downward by a weight somewhat in excess of the upwardly-pressing weights.

The upper magazine having been loaded, the operation is as follows: The excess of

pressure upon the upper clamping-plate f feeds the pile of lenses steadily downward as the rotating grinding-wheel, which may be charged with diamond-dust or fed with grinding-powder and water, as preferred, grinds away the corners h^2 of the lens edges until they are sufficiently reduced to pass the grinding-rim e into the lower magazine B. The effect of this first passage will evidently be to bevel the edge of each elliptical lens at opposite ends, respectively, upward and downward from the central plane of the lens, as indicated more clearly in the sectional view, Fig. 1, the bevel gradually running out to nothing at the minor axis, where the edge is ground at right angles to said plane, as indicated in Fig. 1. In order to complete this beveling process properly, the lenses are reversed and the operation repeated, as indicated in Fig. 3, thus producing the finished lens of the form shown in Fig. 1. In placing a lens of the form thus produced in a spectacle-frame it is evident that there will be at opposite points on the minor axis of each lens a small portion of unbeveled edge. This, however, is of no practical disadvantage, the lens being, in fact,

more perfectly secured to the ridge formed as described than with the regular ridge ordinarily produced, and, moreover, the regular form of our lens insures such perfect contact of the eye-wires at the minor axis of the lens, where it is unbeveled, as to make a close and satisfactory fit, while at the same time possessing the advantage heretofore referred to of being less liable to be broken by bending the eye-wires.

Having thus described our novel form of lens and the economy and perfection with which they may be produced, as well as their inherent advantages, what we claim is—

As a new article of manufacture, a spectacle-lens having its edges beveled in opposite directions with an angularity increasing from the minor axis to a maximum at the major axis, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE W. MEIGS.
JOHN W. MEIGS.

Witnesses:

JOSEPH A. ALLGATER,
HARRY A. NEMMERT.