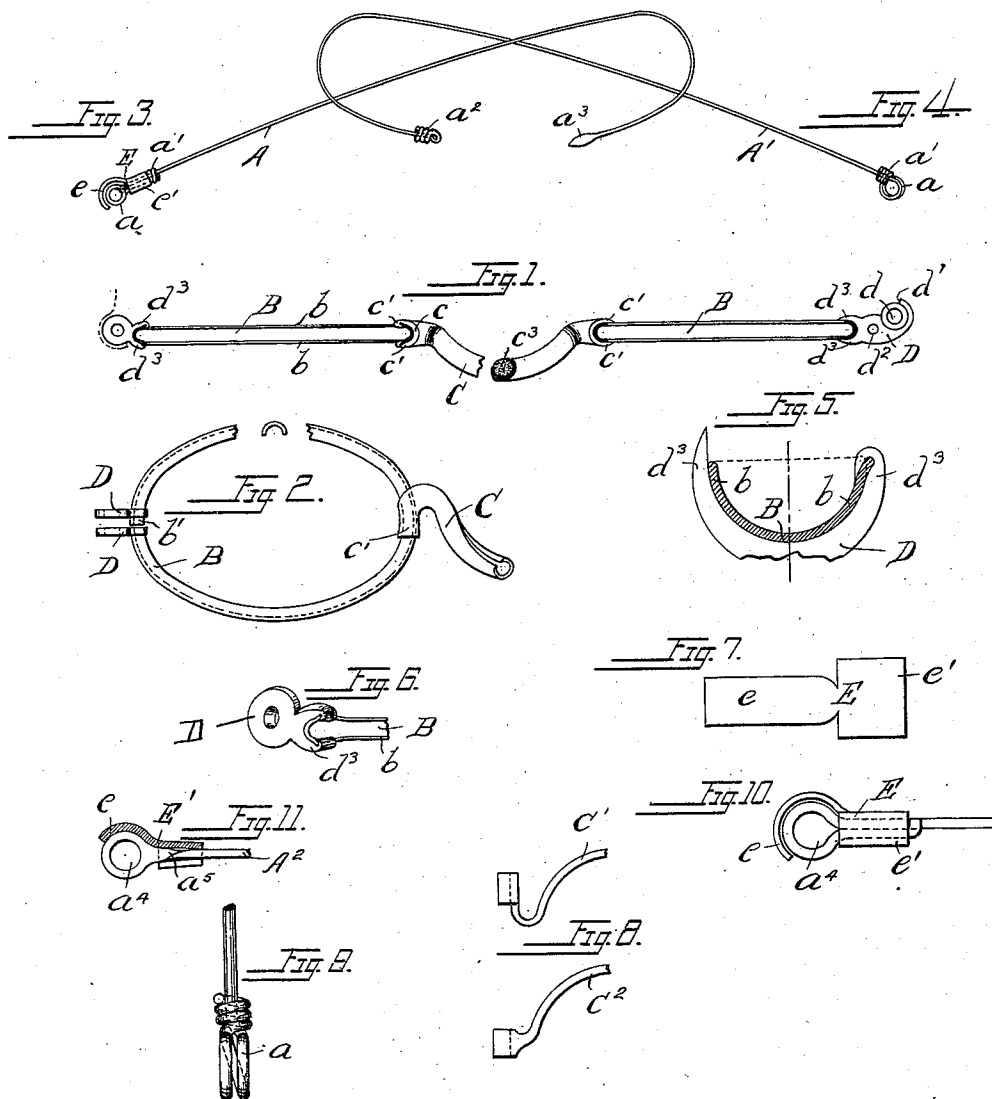


(No Model.)

G. W. MEIGS.
SPECTACLES.

No. 468,885.

Patented Feb. 16, 1892.



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Witnesses

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SPECTACLES.

SPECIFICATION forming part of Letters Patent No. 468,885, dated February 16, 1892.

Application filed May 22, 1891. Serial No. 393,720. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. MEIGS, a citizen of the United States, residing at Reading, in the county of Berks, State of Pennsylvania, have invented certain Improvements in Spectacles, of which the following is a specification.

This invention relates to the construction of spectacles and eyeglasses and to methods of manufacturing the same, whereby the cost of production will be decreased and the quality of the product improved.

Heretofore it has been customary in the manufacture to wrap the channeled wire from which the eyes are formed on a mandrel of the desired shape and to anneal the wire, so that the separate coils may not change their shape materially after cutting. The separately-formed parts—such as bridge-piece and end pieces—are then united by soldering to the eye-wire from which the scale formed in the annealing process must previously be removed at the points of attachment. The product is then treated to restore the polish to the surface for the reception of a proper finish.

One object of my invention is to avoid during the process of manufacture all heating of the spectacle parts and the subsequent finishing operations necessitated thereby; and my invention further consists in certain improvements in details and in their construction and combination, which are fully described hereinafter in connection with the accompanying drawings, and are specifically pointed out in the claims.

Figure 1 is a sectional edge view of a spectacle-frame, to one eye of which the end piece and nose-piece are permanently secured, while on the other they are merely represented as in position, but not clinched. Two different forms of end pieces are shown. Fig. 2 is a plan view of one of the eyes and attached parts. Fig. 3 shows one of the temple-bars in the preferred form, and Fig. 4 shows a temple with a modified pivot-eye. Fig. 5 shows an enlarged section of the eye-wire inclosed by the forked end of a separately-formed part of the spectacle. Fig. 6 is a perspective view showing the preferred manner of attaching an end piece to the extreme end of the eye-wire. Fig. 7 is an enlarged view of the separate joint-cap blank. Fig. 8 shows two dif-

ferent forms of nose or bridge pieces, and Fig. 9 shows another view of the spiral temple-pivot. Figs. 10 and 11 show modified temple-pivots.

The eye-wires B are formed of wire grooved or channeled, substantially as shown, to securely engage the beveled edge of the lens. The wire is naturally polished and elastic, due to the process of rolling, and in converting it into eyes I employ a novel process and apparatus for wrapping it upon a forming-mandrel and fixing the shape without damaging this polish or elasticity, which process and apparatus form the subject-matter of another application, Serial No. 402,082, filed August 8, 1891.

In order to secure the separately-formed parts—such as the end and bridge pieces—to the eye-wires, I form them with forked attaching ends similar to those heretofore used, where the parts are attached by soldering, but with extended prongs to engage the flanges *b* of the eye-wires, which I will now describe.

Referring to Fig. 5, *d*³ represents the prongs of the end piece D. The prong to the left of the figure is in the position indicated to the right of Fig. 1, being unsecured to the flange *b* of the eye-wire, while the prong to the right is shown bent over and clinched to its adjoining wire flange, as in the finished spectacles. The edge of this flange is bent outward at the point of junction and the clinched end of the fork-prong fills out the channel to its normal size. The intermediate steps in the process of clinching involve the bending inward of the projecting portion of the fork-prongs and their subsequent bending downward to inclose the edges of the flange, the spreading to restore the normal width of the channel being preferably the final operation. The arrangement of movable and fixed dies, by means of which the successive steps of the process may be effected, need not be here specified.

The description above given of the manner of securing the end pieces applies equally well to other parts, the bridge-piece C being formed with channeled ends *c*, the flanges *c'* of which correspond with the prongs *d*³ of the end pieces and are clinched in a similar manner to the eye-wires. The preferred form of nose or bridge piece shown in Figs. 1 and

2 consists merely of channeled wire somewhat similar to that used for the eye-wire, but of slightly-larger section. The clinching ends are spread, so as to inclose and be secured to the eye-wire in the manner indicated in Fig. 4, and the portion of the channel between the eye-wires is preferably closed together, as indicated in Fig. 1, and filled with any suitable material, as indicated at c^3 , to complete the finish and provide a comfortable bearing on the nose. This filling is preferably an elastic material, such as cork, which is already largely used for eyeglass nose-pieces; but it may be of any material which will prevent direct contact with the metal, or the filling may be dispensed with entirely and the flanges closed sufficiently to provide a comfortable bearing, as indicated by the section shown in Fig. 2, the thickness and prominence of the bridge being thus greatly reduced. The weight in any case is much less than if of solid metal and the cost of manufacture is less. Any other form of bridge-piece having a forked end may, however, be used, if desired, and in Fig. 8 I have shown two modified constructions, C^1 being formed of sheet metal and C^2 having an upset end for connection to the eye.

In Fig. 6 I have shown a perfectly secure means of fastening the end piece to the extreme end of the eye-wire. In this case the flanges of the wire are spread a little more at the extreme end of the wire, where it is flush with the meeting face of the end piece, than it is near the outer face, thus making it impossible for the end piece to slip in either direction. In the preferred construction shown in Figs. 1 and 2, however, one of the end pieces D is not fastened to the extreme end of the eye-wire; but a portion b' of the latter extends beyond it sufficiently to touch or nearly touch the other end piece. As represented in Fig. 2, the space between the two end pieces D is sufficient to receive the pivot-eye a , and the pin which passes through the end pieces serves both as a pivot and as a means of connecting the end pieces and clamping the lens, this construction being common in cheap grades of spectacles. The object of extending the eye-wire beyond the end piece, as shown, will be hereinafter explained.

Referring now to the temples, A in Fig. 3 represents a finished temple constructed, mainly, of round wire, which is bent to form a pivot-eye a . The doubled wire above the eye is solidly clamped by a sheet-metal piece E , the clamping-ears e' of which encircle the wires, while its projecting strip e overhangs the pivot-eye. The end of the doubled wire may be bent around the main wire beyond the clamped piece E , as shown at a' . This temple is fitted between the end pieces D , as usual, and its overhanging strip e serves as a joint-cap and as a stop to limit the movement in the same manner as does the ordinarily-formed joint-cap temple, in which the cap is formed integral with the temple-bar.

Instead of having the joint-cap attached to the pivot-eye, however, I prefer to have it loosely overhang, as is shown, and to have the cap bear upon the end pieces with a proper amount of spring to assist in maintaining a snug joint. Where the end piece is of the form indicated to the left of Fig. 1, in which a single pin serves both as a pivot and as a means of fastening, I extend this cap so as to make it cover the whole joint when the temples are spread, thus providing a neat finish and at the same time forming a superior joint which will wear an indefinite time without getting loose. The space which is ordinarily seen in this class of spectacles between the end pieces inside the temple pivot-eye is closed by the extended eye-wire b' , and the extended cap-piece e and the appearance of the complete spectacle thus greatly improved.

In Fig. 4 I have shown a pivot-eye formed on the temple A' by merely bending the wire into a spiral coil of two turns and then wrapping the end around the main wire, as at a' . The spiral coil acts as a spring when placed between the end pieces D , and thus makes a snug joint, while the twisted portion a' is stopped against the shoulder d' on the end pieces, and thus limits the movement. Fig. 9 shows an enlarged view of this spiral eye, which I also prefer to use in the construction shown in Fig. 1, though the latter may be modified, as indicated in Fig. 10.

In Fig. 11 I have shown another modification in which the separately-formed cap-piece E' is clamped to a temple A^2 , which is stamped out of sheet metal, the clamping-ears in this case serving also to hide the twist a^5 in the temple-blank, which twist is necessary in this form of temple in order to get its flat face at right angles to the pivot-eye, as required. The cap e is in this case represented as attached to the pivot-eye a^4 , instead of overhanging it loosely, as before described.

In Figs. 3 and 4 the knob ends of the temples are shown in finished form at a^3 , while at a^2 the end of the wire is merely bent and twisted to form a mass, which is not sufficiently neat to be considered a satisfactory end finish. In my method of construction, however, this is merely a preliminary step to securing a proper finish without attaching a separately-formed end, as has heretofore been done, the mass a^2 being brought into any desired shape, as a^3 , either by swaging in proper dies or by rolling between grooved rolls or plates, the finish finally secured being more satisfactory, as well as cheaper, than that heretofore attained.

The advantages secured by the several features of my invention have already been clearly indicated. The frame of the spectacles is constructed and the parts attached without destroying the finish or elasticity of the rolled metal, thus securing a better article, and at the same time dispensing with a considerable amount of finishing work heretofore required. Moreover, the parts are far more satisfactory.

rily secured than can be done by soldering, in which operation, despite the greatest care and skill, there is a large proportion of failures. The same economical advantages result from forming the joint-caps of the temple-pivot ends separately and attaching them as described. The utility of a spring-joint cap will be readily appreciated, and the extension of the cap, so as to cover practically the whole joint, gives a neat finish at small expense. The bridge-piece is neat, light, and cheaply made.

I am aware that it is not new to form a temple with an elastic eye adapted to produce side friction upon the spectacle end piece, to which it is pivoted, and do not, therefore, broadly claim such a construction.

Having thus fully described the features of my invention, I do not limit myself to the particular construction shown; but

What I claim is—

1. The improved method of attaching parts to spectacle channel-wires, which consists, first, in forming a forked end on said part of greater depth than the channel-wire; second, in bending the projecting prongs of said forked end over the flanges of the wire into the channel or groove between them, and, third, in clinching the bent ends of the flanges and spreading the joint to the normal channel, substantially as set forth.

2. The improved method of making a pivot end on a wire temple, which consists, first, in bending the wire to form an eye, and, second, in clamping a separately-formed cap-piece thereto, substantially as set forth.

3. The improved method of forming a knob end on a wire temple, which consists, first, in bending and wrapping the end of the temple-wire into a mass, and, second, in swaging or rolling said mass into the desired shape, substantially as set forth.

4. The combination, with the eye formed of channel-wire, of a separately-formed part having its forked end engaging the eye-wire and clinched to the flanges of the same, substantially as set forth.

5. The combination, with the eye formed of channel-wire, of a separately-formed end piece

having a forked attaching edge engaging the eye-wire and clinched to the flanges of the same, the tapering space between the prongs of the forked edge being greatest at the meeting face of the end piece, substantially as and for the purpose set forth.

6. As a new article of manufacture, a spectacle-frame having eyes formed of channel-wire and separately-formed parts secured thereto, the forked ends of said parts being bent over and clinched to the flanges of the wire within the channel, substantially as set forth.

7. A wire temple having the end thereof bent into two or more coils to form a spiral-spring pivot-eye and fastened to the main portion of the wire beyond said eye, substantially as set forth.

8. A wire temple having a pivot-eye formed by one or more coils of the wire and having the doubled wire clamped together by a separately-formed cap-piece, substantially as set forth.

9. In a spectacle, the combination, with the eyes, of a nose formed of a piece of channel or grooved wire, said nose being formed with the groove of the wire on the inside of the nose curve and on the outside of the reversely-bent ends, and the grooved ends inclosing the eye-wires and being secured thereto, substantially as set forth.

10. A temple having a separately-formed joint-cap secured thereto by means of clamping-ears forming part of said cap and adapted to inclose the temple above the pivot-eye, substantially as set forth.

11. The combination, with a spectacle, of a wire temple having the end thereof bent into two or more coils to form a spiral-spring pivot-eye, said eye being pivoted to the spectacle end piece, substantially as described, whereby the resilience of the spring produces a side friction therein.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. MEIGS.

Witnesses:

H. P. KEISER,

J. FRED. HARTGEN.