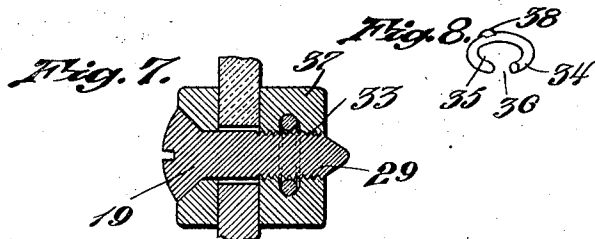
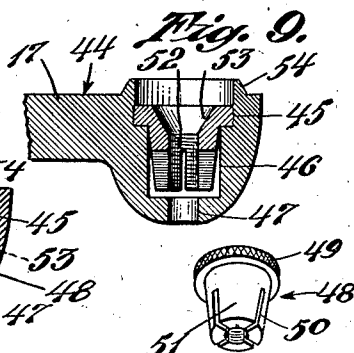
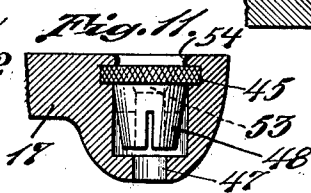
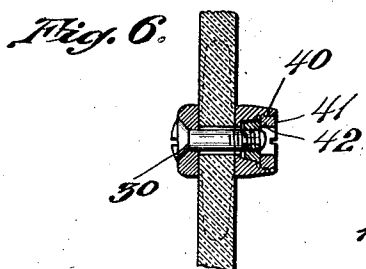
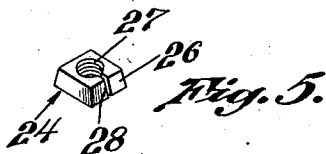
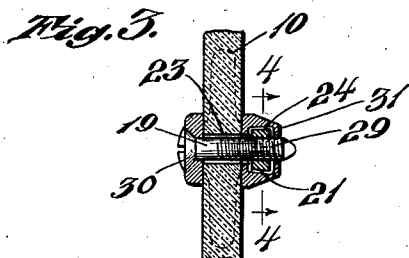
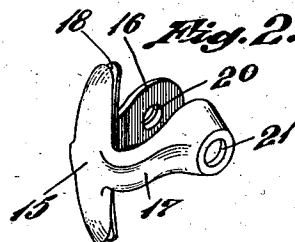
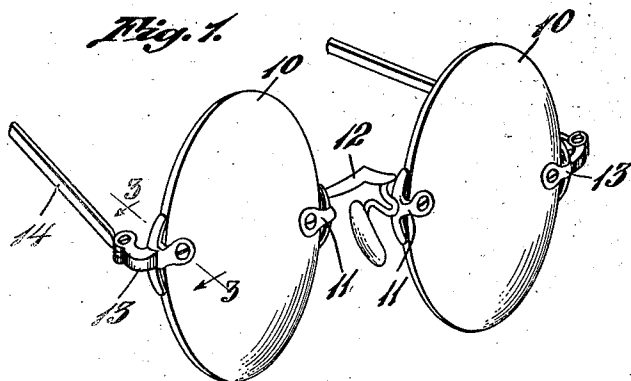


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OPHTHALMIC MOUNTING
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2,071,045



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UNITED STATES PATENT OFFICE

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OPHTHALMIC MOUNTING

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13 Claims. (Cl. 88—47)

This invention relates to an ophthalmic mounting and has for one of its objects the securing of a strap such as used on rimless lenses in such a manner that the fastening means will not come loose in use.

Another object of the invention is the provision of means for fastening the pin that extends through the lens so that it will not come loose in use and yet may be mechanically removed from its position without resorting to heat as when solder is used.

Another object of the invention is the provision of fastening means which may be tightened up in such a manner that a secure engagement of the parts may be had without danger of cracking the lens by too tight a drawing together of the arms extending along either surface thereof.

Another object of the invention is the provision of an accurate alignment of a prebored threaded opening for the pin extending through the strap arms without the necessity of tapping one of the openings after the arms have been bent to fit the lens.

Another object of the invention is the provision of tension on a threaded pin so that it will prevent the pin from backing out of the strap and loosening the secured parts.

Another object of the invention is the provision of a fastener which will accommodate pins of varying sizes.

Another object of the invention is the provision of a fastening which will tighten its grip on the pin the more the threaded pin is set up therein.

Another object of the invention is to position the locking means in such a place that it will be entirely covered by the gold outer surface of the strap.

A still further object of the invention is the provision of a locking means which may be made sufficiently small so that it will not be bulky on the strap or interfere with its ornate appearance.

A still further object of the invention is the provision of locking means which will not interfere with the proper functioning of the strap with a leaf spring which engages the edge of the lens.

Another object of the invention is the provision of the locking device which will be relatively inexpensive to produce.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a perspective view of the rimless spectacles showing straps mounted thereon which are equipped with my invention.

Fig. 2 is a perspective view of the strap showing more particularly the rear arm of the same.

Fig. 3 is a sectional view of a fragmental portion of the lens and through the center of the arms on substantially line 3—3 of Fig. 1.

Fig. 4 is a section on line 4—4 of Fig. 3.

Fig. 5 is a perspective view of the locking bushing.

Fig. 6 is a view similar to Fig. 3 of a modified form of pin locking means.

Fig. 7 is a view similar to Fig. 3 of a different modified form of pin locking means.

Fig. 8 is a perspective view of the locking bushing illustrated in Fig. 7.

Fig. 9 is a sectional view of a fragmental portion of the arm with a different modified form of pin locking means.

Fig. 10 is a perspective view of the locking bushing of Fig. 9.

Fig. 11 is a view similar to Fig. 9 with the stock rolled over the bushing to lock it in place.

In the use of straps on rimless lenses difficulty is experienced by the threaded pin loosening in the arms of the strap on either side of the lens and coming out, and to overcome this there often occurs a breaking of the lenses by too tightly setting up the threaded pin. In some instances, this loosening has been endeavored to be overcome by cementing the pin extending through the arms of the strap of the lens in position, while in other cases it is endeavored to be overcome by soldering the pin in position, which pin may be in the form of a hollow rivet. This soldering requires heat both for placing the pin in position or for removing it with the attendant discoloration of the strap. Cementing also is more or less unmechanical and has certain disadvantages; and in order to avoid the difficulty attending this old type of securing a strap to the lenses, I have provided a lock bushing which may be split so that its center opening will be of a size smaller than the pin and thus spread by the pin so as to tightly grip the pin when in position; and the following is a more detailed description of the present embodiment of this invention illustrating the preferred means by which these advantageous results may be accomplished:

With reference to the drawing, 10 designates the lenses of a spectacle of the rimless type to which there are secured straps 11 at the inner edges for mounting the bridge 12, while at the outer edges there are provided straps 13 to which the temples 14 are secured. It is the mounting of these straps 11 and 13 upon the lenses 10 to which this invention more particularly relates.

Each of these straps consists of a body portion 15 with a front arm 16 and a rear arm 17. These arms extend along the opposite sides of the lenses and are adapted to receive between them a leaf spring 18 which will engage the edge of the lens preferably at or adjacent the ends of the leaf spring to apply a slight pressure upon the lens

allowing a limited rocking movement and also assist in tensioning the threaded pin 19 which extends through the openings in the strap arms and the opening 23 in the lens 10.

5 The rear arm 17 of this strap is drawn out to provide an extended wall 21 of substantial depth and in the opening 22 of this rear arm there is positioned a bushing 24 shown more fully in perspective in Fig. 5 and which is more or less loose
10 therein to adjust itself for proper alignment of its opening. The walls 21 of the opening 22 are tapered so as to be of smaller diameter adjacent the lens 10 and the side walls 25 of the bushing 24 are also similarly tapered to snugly fit there-
15 against.

The bore or opening through the bushing is provided with threads 27 and the side wall is split as at 28 so that it may expand or contract to some extent, and as this bushing will be of tem-
20 pered steel or of some such resilient material, it will have sufficient inherent resilience or spring so that when spread beyond its normal position, it will tend to contract towards its normal position, and I have so arranged the size of the
25 threaded opening 27 through this bushing that it will be smaller than the pin 19 threaded as at 29 which is to extend therethrough. Thus as the pin 19 is threaded into the bushing 24 it expands the bushing which tends to contract upon
30 the pin by reason of its inherent resilience and causes its threads to tightly engage the threads of the pin, and as there is a snug fit along substantially the full surface of the threads throughout the extent of the bushing, there will be suffi-
35 cient frictional engagement to prevent free rotation of the pin in either direction, the pressure required depending on the resiliency of the bushing.

The bushing 24 is, of course, of a size a little
40 smaller than the opening 21 which receives it so as to permit this slight expansion, and also a rocking of the bushing for the alignment of the bushing opening with the opening in the other arm, and further, as the pin 19 is set up in the
45 bushing it will cause the bushing to be drawn towards the head 30 of the pin and by reason of the taper on the surfaces of the bushing and its socket 25 will further tend to contract this bushing into even tighter engagement with the pin
50 and thus a very firm lock is provided from which the pin cannot become loosened by the jars which ordinarily occur in the use of an ophthalmic mounting. This bushing is held in position by
55 rolling the edge 31 of the bore in the arm 17 over the edge thereof so as to house it loosely in position and cover the same entirely with gold, presenting an ornate appearance. It is frequent that an oculist, after bending the arms of a strap
60 to fit the lens as is often necessary, then run a tap through the threaded opening in one of the arms so as to properly align the threads for reception of the threaded pin. This is no longer necessary, as the rocking of the bushing will align
65 itself to the opening and pin passing there-through.

In Fig. 7, I have illustrated a different modification in which the bore of the arm 17 is threaded as at 33 which the threads 29 of the
70 pin 19 engage. However, instead of providing a threaded bushing such as 24, I have provided a bushing 34 having an opening 35 with no threads along its surface which is split as at 36 and which is retained in a recess 37 in the
75 bore 33 of the arm 17. The opening 35 in this

bushing is of a size such that the bushing will be spread by the passage of the pin 19 through it and will tightly engage the pin and require considerable force to prevent a retractal move-
5 ment of the pin 19. This bushing 34 is of such shape that it will not rotate as the pin is passed through it by reason of a bump or the like 38 positioned thereon.

In Fig. 6 I have shown a little differently modified form which is similar in many respects to the showing in Fig. 3, except that the bore 21 is enlarged as at 40 and threaded and a plug 41
10 extends into this bore to abut the end 42 of the bushing and may serve to force the bushing along its tapered surface to contract it in place of the
15 drawing effect of the bolt, and which has the advantage of avoiding the application of clamping pressure on the lens for contracting the size of the bushing and thus provides a means by which the size of the bushing may be contracted
20 by the taper irrespective of any pull upon the head 30 of the pin. Thus this contraction may take place without any binding effect upon the lens which in some cases is detrimental and will cause splintering of the lenses.
25

In Fig. 9 I have illustrated the arm 17 as bored in such a manner that the bushing may be placed into this bore from the inner surface 44 of the arm, and by limiting the depth of the bore which
30 receives the bushing a covering of gold may extend across the outer surface to hide the bushing from view. In this showing, the bore consists of a size 45, a smaller size 46 and a still
35 smaller size 47 and receives the bushing 48, which has a flange 49 with an outer knurled surface to engage the portion 45 of the bore, while from the flange it tapers and is split as at 50 to provide a series of resilient fingers 51.

The bore of this bushing is threaded through its center as at 52 and provided with a counter-sunk center opening 53 for the reception of
40 the head of the screw. The stock on either side of the bore 45 is left raised as at 54 so that after the bushing is in place, such as shown in Fig. 9, these portions 54 may be turned inwardly as
45 shown in Fig. 11, to hold the bushing in this position. There is sufficient amount of stock 54 present to extend over the bushing to hold it securely in place while the knurling of flange 49
50 will prevent the bushing from rotating. The taper of the bushing allows the finger portions 51 to be more resilient while at the same time decreasing the size of the bushing so that it may have space to expand in the bore 46.

The bore 47 is for the purpose of receiving the end of the threaded pin 19, which extends
55 through the lens and arms. If, however, the pin is short, the bore 47 need not be present and a closed end may be had.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the
65 appended claims.

I claim:

1. In an ophthalmic mounting, a lens strap having a pair of arms extending along opposite
70 sides of the lens and provided with openings registering with each other and with the opening in the lens, a threaded pin extending through said openings, one of said openings being provided with threads, and resilient means housed
75 within one of said arms for exerting a circum-

ferential tension directly on the threads of said pin.

2. In an ophthalmic mounting, a lens strap having a pair of arms extending along opposite sides of the lens and provided with openings registering with each other and with the opening in the lens, a threaded pin extending through said openings, one of said openings being provided with a threaded member, and means housed within one of said arms for exerting a tension on the threads of said pin, said threaded member being split to permit expansion and binding on the pin.

3. In an ophthalmic mounting, a lens strap having a pair of arms extending along opposite sides of the lens and provided with openings, a pin extending through said openings and a separate resilient member housed within one of said arms and embracing the pin for exerting pressure in opposite directions on said pin when inserted to grip and retain it in position, at least one of the surfaces of said pin or opening being tapered.

4. In an ophthalmic mounting, a lens strap having a pair of arms extending along opposite sides of the lens and provided with openings registering with each other and with the opening in the lens, a pin extending through said openings, and a split resilient member housed within and surrounded by one of said arms, said member having an opening therethrough receiving said pin and contractible and expandible towards and from the axis of said opening, the relative size of said pin and opening being such that the size of the opening in said member is enlarged by the insertion of the pin therein to cause said member to bind on said pin to retain it in position, at least one of the surfaces of said pin or opening being tapered.

5. In an ophthalmic mounting, a lens strap having a pair of arms extending along opposite sides of the lens and provided with openings registering with each other and with the opening in the lens, a pin extending through said openings, and a split resilient member completely housed in one of said arms, said member having a threaded opening therethrough and said pin having threads entering said opening, the size of the opening being smaller than said pin and whereby said pin expands said member upon extending into said opening.

6. In an ophthalmic mounting, a lens strap having a pair of arms extending along opposite sides of the lens and provided with openings registering with each other and with the opening in the lens, a pin extending through said openings, and a resilient member completely housed within one of said arms, said member having a threaded opening therethrough and said pin having threads engaging said opening, said member engaging the surrounding walls and there being a tapered surface along said engagement whereby movement axially of said opening will draw said member along said taper and circumferentially contract it.

7. In an ophthalmic mounting, a lens strap having arms extending along opposite sides of the lens and provided with openings, an expandible bushing having internal threads completely housed in one arm in one of said openings, said opening being of a size to permit expansion of said bushing, and a pin extending through said openings and bushing of a size to expand the bushing and cause it to tightly grip said pin.

8. In an ophthalmic mounting, a lens strap having arms extending along opposite sides of the lens and provided with openings, a pin having a tapered end extending through said openings, and a member loosely housed in one of said arms and through which the pin extends, said member being resilient and having an opening therein smaller than said pin and aligning itself by reason of its loose mounting and adapted to grip the body of the pin.

9. In an ophthalmic mounting, a lens strap having arms extending along opposite sides of the lens and provided with openings, a threaded pin extending through said openings, and a member loosely housed in one of said arms with portions of the arm extending over its outer surface and having a threaded opening through which the pin extends, said member aligning itself by reason of its loose mounting to accommodate the pin at slightly varying angles.

10. In an ophthalmic mounting, a lens strap having arms extending along opposite sides of the lens and provided with openings, the opening in one of said arms consisting of a plurality of differently sized bores, a split bushing in the bore of one size having an opening therethrough of a size smaller than the bore through said opposite arm, and a pin extending through said arms and tightly gripped by said bushing.

11. In an ophthalmic mounting, a lens strap having a pair of arms extending along opposite sides of the lens and provided with openings registering with each other and with the opening in the lens, a pin extending through said openings and a resilient member housed within and surrounded by one of said arms, said member having a threaded opening therethrough and said pin having threads engaging said opening, said member engaging the surrounding walls, and there being a tapered surface along said engagement whereby movement axially of said opening will draw said member along said taper and contract it, and means for axially moving said member.

12. In an ophthalmic mounting, a lens strap having a pair of arms extending along opposite sides of the lens and provided with openings registering with each other and with the opening in the lens, a pin extending through said openings and a split resilient member provided in the opening in one of said arms, said member having a threaded opening therethrough and said pin having threads engaging said opening, said member engaging the surrounding walls and there being a tapered surface along said engagement whereby movement axially in said opening will cause said member to contract, and a separate threaded plug contacting said resilient member and threadingly engaging the arm in which said resilient member is contained for axially moving said resilient member.

13. In an ophthalmic mounting, a lens strap having arms extending along opposite sides of the lens and provided with openings, the opening in one of said arms consisting of a plurality of differently sized bores, a split bushing in the bore of one size having an opening therethrough of a size smaller than the bore through said opposite arm, a pin adapted to extend through said arms and be tightly gripped by said bushing, and means for retaining said bushing in the bore in which it is seated.

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