

Dec. 29, 1931.

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1,838,134

ALIGNING AND ASSEMBLING TOOL

Filed Sept. 4, 1930

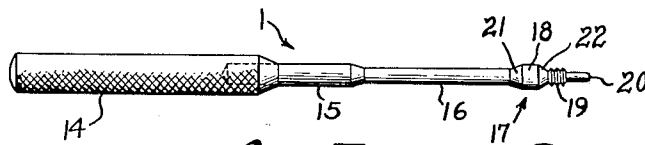


Fig. I.

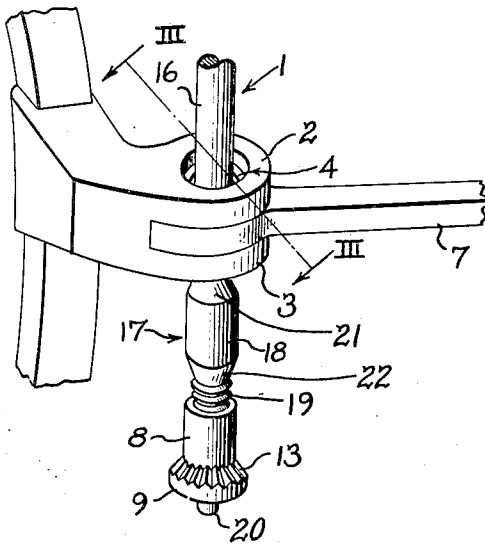


Fig. II.

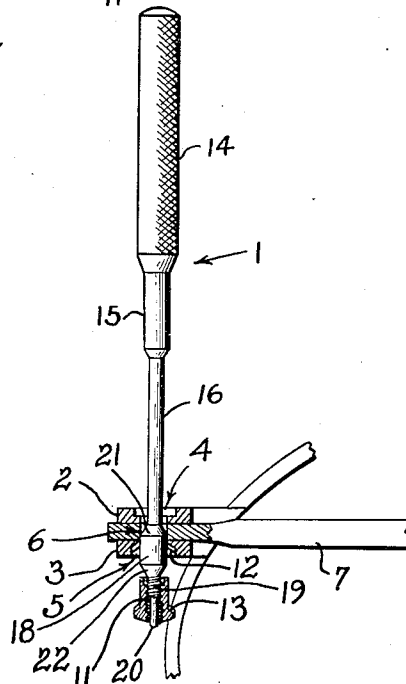


Fig. III.

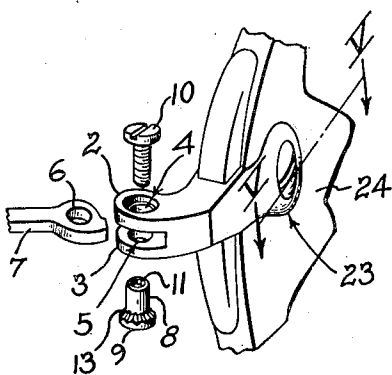


Fig. IV.

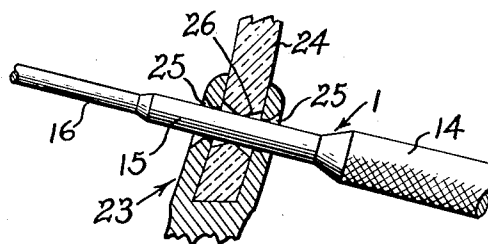


Fig. V.

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ALIGNING AND ASSEMBLING TOOL

Application filed September 4, 1930. Serial No. 479,703.

This invention relates to improvements in connecting or securing means and has particular reference to improved means and method of aligning and assembling the parts thereof.

The principal object of the invention is to provide improved means and method of quickly and easily aligning and assembling the parts of connecting or securing means and relates particularly to an aligning and assembling tool for use in assembling the parts of the connecting or securing means of an ophthalmic mounting such as are applied to the lens rims, lens straps, temples and end-pieces and parts embodying similar characteristics.

Another object of the invention is to provide improved means for testing the fit of the connecting means to the member being connected prior to the final assembling of the parts.

Another object of the invention is to provide an assembling tool having automatic means for quickly and easily aligning and assembling the parts of the connecting or securing means.

Another object of the invention is to provide simple, efficient and economical means for reducing the cost of manufacture, speeding up production and for obviating difficult and tedious assembling operations of devices of this character.

Other objects and advantages of the invention will become apparent from the following description taken in connection with the accompanying drawings and it will be apparent that many changes may be made in the details of construction, arrangements of parts and steps of the operation without departing from the spirit of the invention as expressed in the accompanying claims. I, therefore, do not wish to be limited to the exact details of construction, arrangement of parts and steps of the operation shown and described as the preferred form only has been shown by way of illustration. It will also be apparent that the improved means and method may have many uses and applications to other arts than the one specifically described herein and all of which are embodied in this invention.

Referring to the drawings—

Fig. I is an enlarged side elevation of the tool embodying the invention.

Fig. II is an enlarged fragmentary perspective view illustrating the use of the tool at the temple connection of an ophthalmic mounting.

Fig. III is a reduced sectional view taken on line III—III of Fig. II, looking in the direction indicated by the arrows.

Fig. IV is a perspective view showing the parts of the temple connection disunited and showing the connection applied to a rimless lens attachment.

Fig. V is a sectional view taken on line V—V of Fig. IV illustrating the use of the tool in testing the alignment of the parts of a rimless lens connection.

Modern improvements in ophthalmic mountings have brought about several changes in the construction of the connecting and securing means employed in uniting of the various parts of the mounting such as the lens rims, lens straps, temples and end-pieces, etc. One of the most mechanically practical of these connections employs the use of an internally threaded tubular member which is secured in position by a connecting screw. This tubular member, although very efficient in its purpose of providing a long and durable thread bearing, has, in the past, proven very impractical and unsatisfactory as it requires an excessive amount of time, labor, and patience in the aligning and assembling of its parts and has for this reason been undesirable for use.

One of the purposes, therefore, of this invention, is to provide an improved tool and method for quickly aligning and assembling the parts of such connections.

Another feature of the invention is the provision of means for use in testing the fit and alignment of the parts of a rimless lens connection prior to the final assembling and tightening of the connecting screw. This obviates the chipping and breaking of lenses at this connection as has been usual in the past when the parts were not properly fitted and aligned.

Referring more particularly to the draw-

ings wherein like characters of reference designate like parts throughout the several views, the invention lies in an improved tool 1 and method of aligning and assembling the connecting or securing means of an ophthalmic mounting such as is employed in uniting the lens rims, lens straps, temples and endpieces, etc. The connecting means, which in this instance is employed in uniting the temples and endpieces of an ophthalmic mounting, comprises, as shown in Figures II, III, and IV, an endpiece formed with a pair of spaced members 2 and 3 having aligned openings 4 and 5 therein adapted to embrace and be aligned with the opening 6 formed in the end of the temple member 7. A tubular member 8 having the enlarged head portion 9 is adapted to be inserted in the aligned openings 4, 5, and 6, and is held in place therein by means of the screw member 10 which is threaded within the threaded bore 11 of the tube. The opening 5 and the head 9 of the tube are provided with interengaging interrupted faces 12 and 13 for locking the tube against rotation during its use.

An important part of the invention lies in the provision of an aligning and assembling tool 1 which in this instance comprises a handle member 14 formed with a projecting test portion 15, a reduced extension 16 and a head portion 17. The head portion is formed with an enlarged aligning member 18 of substantially the same diameter as the tubular connecting member 8 and is provided with a reduced threaded extension 19 which as shown in Figures II and III is adapted to be threadly interlocked with the tubular member 8. The threaded extension 19 is formed with an unthreaded portion 20 for use in guiding the tube onto the threaded portion. The reduced extension 16, enlarged aligning member 18 and threaded extension 19 are blended one into the other by means of tapered faces 21 and 22 which as shown in Fig. III guide the parts of the connecting means into alignment. The gauge portion 15 as shown in Fig. V is adapted for use in fitting the lens strap 23 of a rimless mounting to the lens 24.

It is adapted to be inserted in the openings 25 and 26 of the lens and straps to test them for alignment. If the parts are not properly aligned the test portion 15 cannot be inserted.

The method of aligning and assembling the temple connecting means described above is as follows; the perforated end of the temple 7 is placed between the perforated spaced members 2 and 3 and the tool member 1 is inserted through the openings 4, 5, and 6. The tubular member 8 is then threaded onto the threaded portion 19 of the assembling tool and is drawn in position within the openings by withdrawing the tool. The tubular member 8 is then held in place by the thumb while the assembling tool 1 is removed. The screw

member 10 is then inserted in the threaded bore 11 of the tubular member 8 and tightened to secure the parts together and hold the temple in place. Attention is called to the fact that when the assembling tool 1 is being withdrawn through the openings 4, 5, and 6 to position the tubular member 8 in place therein, the tapered portion 21 and member 18 automatically move the parts into alignment and permit the tube 8 to be quickly and easily inserted. When the tubular member 8 is in position in the openings 4, 5, and 6, the interrupted faces 12 and 13 interlock to prevent the tube from turning during its use. This obviates the tendency of the temple to impart a ratchet action on the securing screw to cause it to back out and loosen.

Although I have described the connecting means and method of aligning and assembling as being applied to a temple and endpiece connection, it is apparent that it may also be employed in connection with the connecting or securing means of a rimless mounting or with the securing means of split lens rims or other devices having similar characteristics.

The aligning and assembling tool greatly simplifies the aligning and assembling operation, increases production, reduces cost of manufacture and obviates a very tiresome and nerve straining operation from the process of manufacture. It also provides means whereby the parts may be quickly and easily interchanged or replaced.

From the foregoing description it will be seen that I have provided simple, economical and efficacious means of carrying out all of the objects of the invention, particularly that of quickly and easily aligning and assembling the parts of connecting or securing means.

Having described my invention I claim:

1. An assembling tool for assembling the parts of connecting or securing means comprising a member having a relatively long slender portion flaring outwardly adjacent one end to an enlarged portion having substantially straight side walls and a reduced threaded extension on the end of said enlarged portion.

2. An assembling tool for assembling the parts of connecting or securing means comprising a member having a relatively long slender portion flaring outwardly adjacent one end to an enlarged portion having substantially straight side walls, thence tapering to a reduced threaded portion and an unthreaded extension on the end of said reduced threaded portion.

3. An assembling tool for assembling a connecting means, which connecting means consists of a pair of spaced members formed with aligned openings therein, a member having a recessed end positioned between the aligned openings and an internally

threaded tubular member for securing the member having a recessed end to said spaced members, said assembling tool comprising a member having a slender extension adapted to be placed through the openings in said spaced members and member having the recessed end and having an outwardly flaring portion blending into an enlarged portion of substantially the same outside diameter as the tubular member and a tapering portion on the opposite end of the enlarged portion terminating in a reduced threaded portion, said threaded portion being adapted to receive the internally threaded tubular member to hold and draw it in position within the recessed members, said outwardly flaring portion and enlarged portion of the tool being adapted to automatically move the recessed members into alignment when the tubular member is being drawn into position so that the parts may be quickly and easily assembled.

4. An assembling tool for assembling a pair of spaced perforated members, a recessed member and an internally threaded tubular member, said tool comprising a bar member having a threaded end adapted to be placed through the perforated members and be threadedly connected to the tubular member to draw it in position within said recessed members.

5. An assembling tool for assembling a pair of spaced perforated members, a recessed member and an internally threaded tube, said tool comprising a bar member having an enlarged end of substantially the same outside diameter as the tube and having a reduced threaded portion adapted to be inserted through the perforated members and recessed member and be threadedly connected to the tube to draw it in position in said recessed members, said enlarged portion being adapted to automatically move the perforated members into alignment to permit the tube to be quickly and easily inserted in position.

6. An assembling tool for assembling the parts of the connecting or securing means of an ophthalmic mounting comprising a member having a relatively long slender portion, an enlarged portion having substantially straight side walls and a threaded extension on the end of said enlarged portion.

7. The method of assembling a connection composed of perforated members and a bearing member adapted to extend through said perforations, comprising bringing said perforated members together so that their respective perforations at least partially register with each other, reaching through said perforations and grasping the bearing member and simultaneously bringing said perforation into substantially perfect align-

ment and pulling said bearing member into the same.

8. The method of assembling a connection composed of perforated members and a bearing member adapted to extend through said perforations, comprising bringing said perforated members together so that their respective perforations at least partially register with each other, reaching through said perforations and grasping the bearing member, pulling said bearing member toward said perforations, aligning said perforations substantially perfectly and maintaining said alignment until the bearing member enters the perforations and pulling the bearing member to its assembled position within the perforations.

9. The method of assembling a connection composed of perforated members and a bearing member adapted to extend through said perforations, comprising bringing said perforated members together so that their respective perforations at least partially register with each other, reaching through said perforations and grasping the bearing member, aligning said perforations from the inside thereof to bring them into substantially perfect register with each other and maintaining said alignment until said bearing member enters the perforations, and pulling the bearing member into assembled position within the perforations.

10. The method of assembling a connection composed of perforated members and a bearing member adapted to extend through said perforations, comprising bringing said perforated members together so that their respective perforations at least partially register with each other, reaching through said perforations and aligning said perforations from the inside thereof to bring them into substantially perfect register with each other and grasping the bearing member, and pulling the bearing member into assembled position within the perforations.

11. The method of assembling a connection composed of perforated members and a bearing member adapted to extend through said perforations, comprising bringing said perforated members together so that their respective perforations at least partially register with each other, reaching a member through said perforations to bring the perforations into substantially perfect alignment, attaching the bearing member to one end of said aligning member, and pulling the bearing member into place by means of the aligning member.

12. The method of assembling a connection composed of perforated members and a bearing member adapted to extend through said perforations, comprising bringing said perforated members together so that their respective perforations at least partially register with each other, reaching a member

through said perforations to bring the perforations into substantially perfect alignment, securing the bearing member to one end of the aligning member by a screwing motion, and pulling the bearing member into place by means of the aligning member.

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