E. A. WILLEMIN.

OPTICAL APPLIANCE.

APPLICATION FILED JUNE 4, 1917.

1,289,028. Patented Dec. 24, 1918.

FIG. 1.

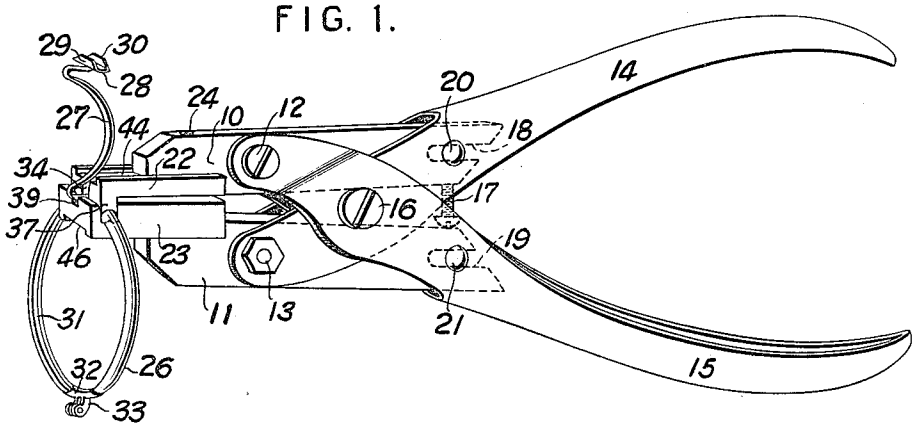


FIG. 2.

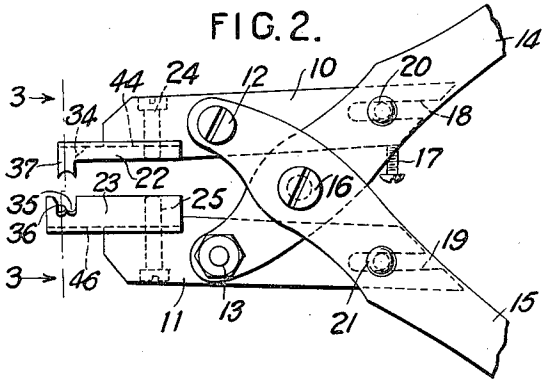


FIG. 3.

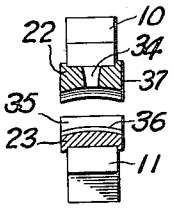


FIG. 4.

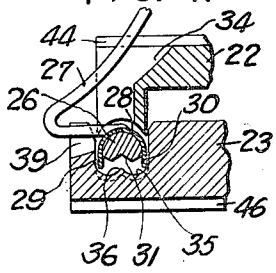


FIG. 5

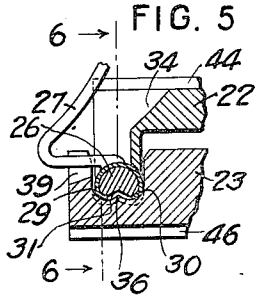
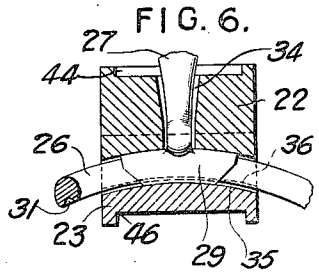


FIG. 6.



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OPTICAL APPLIANCE.

1,289,028. Specification of Letters Patent. Patented Dec. 24, 1918.

Application filed June 4, 1917. Serial No. 172,632.

To all whom it may concern:

Be it known that I, EDWARD A. WILLEMIN, a citizen of the United States, and a resident of Providence, in the county of Providence and State of Rhode Island, have invented an Improvement in Optical Appliances, of which the following is a specification.

This invention relates to hand tools and more particularly to hand tools to be used in constructing eye-glasses.

One of the objects thereof is to provide a practical and efficient tool, readily adaptable for use in the application of various attachments to eye-glass rims.

Another object is to provide a device of the above nature, adapted for convenient and effective manipulation in applying attachments of various types and shapes to eye-glass rims.

Another object of this invention is to provide a simple and practical tool of the above type, adapted to be used in connection with eye-glass rims of fragile material, and to provide therein suitable protection for such fragile rims when rim attachments are applied thereto.

Other objects will be in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts, as is exemplified in the construction hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the acompanying drawings, in which is shown one of several various embodiments of this invention,

Figure 1 is a perspective view showing a tool under conditions of use.

Fig. 2 is a side elevation of the same showing the tool ready for use.

Fig. 3 is a cross section along the line 3—3 of Fig. 2 to show the construction more clearly.

Fig. 4 is an enlarged longitudinal cross section through certain parts of the hand tool, showing such parts in operative relation to a rim and rim attachment.

Fig. 5 is a similar cross section showing the rim and the rim attachment after operation thereon by parts of the tool, and

Fig. 6 is a cross section along the line 6—6 of Fig. 5.

Referring now in detail to the drawings, there is shown in Fig. 1 a hand tool comprising the bars 10—11 pivotally connected by bolts 12—13 respectively to the extremities of the handles 14—15 formed of sheet metal and shaped to be conveniently grasped by the hand. The handles 14—15 are interconnected pivotally at an intermediate point by the bolt 16, such that relative motion thereof produces relative motion of the bars 10—11. Bars 10—11 are provided with slots 18—19 extending longitudinally to permit of the slidable engagement thereof with the studs 20—21, respectively, mounted in the handles 14—15, whereby the bars 10—11 and associated parts are maintained in proper alinement throughout the operation of the dies. Mounted upon the recessed ends of the bars 10—11 opposite the slotted extremities thereof, are the dies 22—23 in such manner that the bars 10—11 register in the slots 44—46 respectively in the latter, and secured thereto preferably by the screws 24—25 as shown more clearly in Fig. 2. The dies 22—23 are shaped in a manner and for purposes to be hereinafter described.

Considering now the construction of the eye-glass parts, in Fig. 1 is shown an eye-glass rim 26, which may be of a fragile material such as, for example, tortoise-shell and the like, and a rim attachment comprising a nose bridge 27 and a rim or lens clamp on each end thereof, the clamp comprising a sheet metal member 28 so shaped as to conform to the back of the curved rim 26 and to leave two freely extending ends 29—30. The rim 26 is substantially of circular cross section, but is provided at its inner surface with an annular groove 31, as is clearly illustrated in cross section in Fig. 4, for receiving a lens, the sides forming this groove being inclined at such angles as to correspond to the beveled edges of the lens itself. The rim attachment may also be any one of the many types of rim or lens clamps used in eye-glass construction.

Returning now to the construction of the tool, the die 22 is shaped at its projecting extremity 37 to conform in contour to the outside surface or back of the rim attachment 28 and is provided with a recess 34 extending substantially at right angles to the projecting extremity thereof, as is illustrated in cross section in Figs. 3 and 5. The

recess 34 is made of sufficient width to receive therein the extension of the rim adjustment, such as, for example, the nose bridge 27 when placed in operative relation to the tool. The die 23, coacting with the die 22, is provided with a slot 35 positioned so as to receive therein the projecting portion 37 of the die 22. The slot 35 is shaped at its bottom to correspond substantially to the annularly grooved inside surface of the rim 26, as is shown in cross section in Figs. 3 and 4, and has accordingly a ridge 36 therein, whose angularities coincide with those of the grooved rim and whose curvature corresponds to that of the rim 26 itself. The sides of the bottom of the slot 35 are curved furthermore, so as to receive the free ends 29—30 of the rim attachment and to guide them properly when operated upon by the dies. The die 23 is provided with a recess 39 which registers with the recess 34 in the coöperating die member 22.

At the slotted end of the bar 10 and in the face thereof adjacent to the bar 11 is mounted a stop comprising a screw 17, threaded into the bar 10 and extending toward the bar 11. The length of the stop 17 is adjustable by the threaded portion thereof and may be so varied that the stop comes in contact with the opposite bar 11 after any desired relative travel of the one bar toward the other, hence arresting the movement of the bars 10—11 and associated dies 22—23 at any desired point.

The operation of the device is substantially as follows:—

An eye-glass rim 26 and a rim attachment comprising, for example, the rim clamp 28 and the nose bridge 27 in proper relation to one another, are placed in the slot 35 of the die 23, as shown in cross section in Fig. 4, the rim 26 fitting into the rim clamp 28 and the extension or bridge 27 resting in the registering recesses 34—39 of the coacting dies 22—23. The free ends 29—30 of the rim clamp rest in contact with the curved lower sides of the die 23.

The rim 26 and the rim attachment or clamp 28 having been properly placed in operative relation to the coacting dies 22—23 of the device, relative motion toward one another of the handles 14—15 produces corresponding movement of the dies 22—23, the dies being kept in proper operative relation to one another and in proper alinement throughout their entire travel by means of the construction heretofore described. The die 22 is thereby brought down upon the back of the rim clamp 28, to the curvature of which the die conforms. Continued relative motion of the dies 22—23 causes the free ends 29—30 of the rim clamp 28 to be turned or rolled inwardly about the rim 26, as shown in Figs. 5—6, being guided by the curvature of the lower sides of the die 23. The free ends 29—30 are thus securely clamped about the rim 26 and are made to conform to the die 23, resulting in the secure fastening of the rim attachment to the rim itself.

In order not to expose the rim 26 to such a destructive crushing effect as would result from further movement of the dies 22—23 toward one another, the stop 17 is so adjusted that only sufficient relative movement of the dies 22—23 is allowed to take place to securely clamp the attachment to the rim, the stop 17 coming in contact with the bar 11 before an excessive pressure is exerted upon the rim 26.

The application to a rim of any of the various rim attachments or lens clamps associated with eye-glasses, takes place in substantially the same manner. The registering recesses 34—39 allow the irregularly shaped parts or extensions of the lens clamps to rest therein to permit of the free operation of the tool upon the various parts. It will be seen that there is provided a simple and practical hand tool for readily attaching various rim attachments to eye-glass rims and wherein the objects of this invention are achieved.

As various possible embodiments might be made of the above invention and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

I claim as my invention:

1. In a hand tool, in combination, a member adapted to receive a rim and a lens clamp with an extension thereon in an assembled relation, said member being provided with a recess extending perpendicularly to the face of said member, a second member adapted to coact with the first member to force said clamp about said rim, said second member being provided with a recess registering with said first recess to receive said extension and a curved recess at right angles thereto to receive the rim, and means adapted to force said members toward one another.

2. In a hand tool, in combination, a member adapted to receive a rim and a lens clamp with an extension thereon in an assembled relation, said member being provided with a recess extending perpendicularly to the face of said member, a second member adapted to coact with the first member to force said clamp about said rim, said second member being provided with a recess registering with said first recess to receive said extension and a curved recess at right angles thereto to receive the rim, means adapted to force said members toward one another, and an adjustable stop adapted to limit the ac-

tion of said means and thereby to protect said rim.

3. In a hand-tool, in combination, a member adapted to receive a rim and a rim attachment with an extension thereon in assembled relation, said member being shaped to conform to the back of said rim attachment and provided with a recess, a second member adapted to coöperate therewith, being shaped to conform to the inside of said rim and to receive the free ends of said attachment and to force said free ends about said rim as said members are forced together, and provided with a recess registering with said first recess to receive said extension, manually actuated means adapted to force said members together, and an adjustable stop adapted to limit the action of said means and thereby to protect said rim as said free ends are forced about said rim.

In testimony whereof I have signed my name to this specification this 21st day of May, A. D. 1917.

EDWARD A. WILLEMIN.