

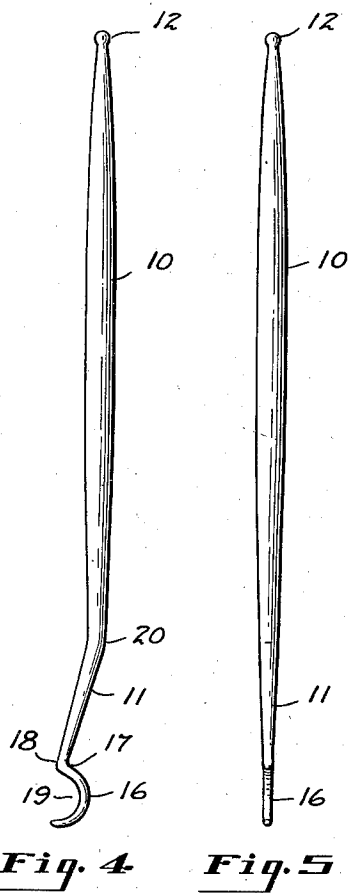
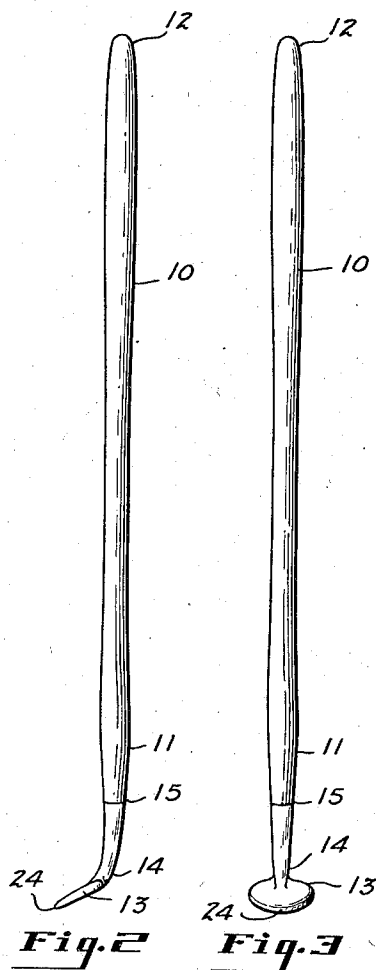
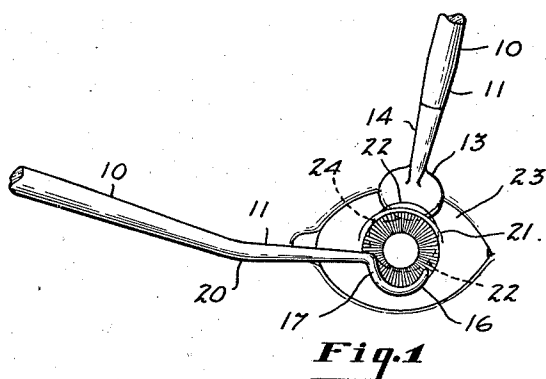
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SURGICAL INSTRUMENT

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SURGICAL INSTRUMENT

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2 Claims. (Cl. 128—303)

This invention relates to surgical instruments, and particularly to such instruments for use in operations on the eye.

An object of this invention is to provide a pair of cooperative instruments for use in cases of ailments such as cataracts of the eye where it is desirable to remove the lens.

Another object of this invention is to provide such instruments which will protect the opening in an eye and which will facilitate the removal of the lens with a minimum danger of the loss of vitreous humor.

Another object is to provide an instrument of this character which will enable a surgeon to obtain a leverage on the lens of an eye with a minimum pressure and a minimum incision in the eyeball.

A further object is to provide such instruments which are transparent, so that the surgeon performing the operation will have unobstructed visibility, and which will be efficient, easily manipulated, and simple in design and construction.

This invention embodies a pair of surgical instruments having operative or head portions made of some transparent material such as glass, so that in performing a surgical operation the vision of the surgeon is unobstructed. This feature is of particular advantage in performing operations on the eye, such as in the removal of the lens in cases of cataract of the eye. For operations of this character I have designed a pair of instruments which are particularly useful.

For clearness of description, I have chosen to call one a glider or delivery instrument, and the other a guard or receiving instrument, although it should be understood that both instruments have several uses and are not to be limited to the function suggested by these names.

In the drawing are illustrated preferred embodiments of these instruments in which

Figure 1 is a diagrammatic illustration showing the manner in which the instruments are used in removing a lens from an eye;

Fig. 2 is a side view of the guard;

Fig. 3 is a top view of the guard;

Fig. 4 is a side view of the glider; and

Fig. 5 is a top view of the glider.

Referring to the drawing by numerals of reference it will be seen that the guard or receiving instrument comprises an elongated handle portion 10. One end of this handle terminates in a tapering stem portion 11, and the other end 12 of the handle may be rounded for convenience in manipulating the instrument. The stem 11 of

the guard terminates in the operative portion or head 13, which is preferably in the form of a circular disk disposed at a suitable angle, such as 60°, from the handle and stem portion. The stem 11 is secured to a marginal portion 14 of the head 13.

As hereinabove stated, I prefer to make the head 13 of a transparent material, such as glass, and in the preferred embodiment shown in the drawing the whole instrument is made of glass, all of which may be transparent but which, for aesthetic reasons, is transparent only as far as the portion 15, the handle and a portion of the stem being of opaque glass.

It is of advantage that the whole instrument be made of glass so that the several parts may be integrally formed, thus leaving the instrument free from mechanical joints. Furthermore, fabricating the instrument of a single piece of glass facilitates maintaining the instrument in a sterile condition, since it will be free from cracks and crevices and all edges may be smooth and rounded.

The handle 10 and stem portion 11 of the glider or delivery instrument are essentially similar to those just described for the guard instrument. The stem portion 11 terminates in the head 16, in the form of a U-shaped crook or bight. The leg 17, of the head 16, and the stem 11 form substantially a right angle at the point 18, where the head is joined to the stem, so that the opening 19 in the crook of the head portion 16 lies substantially parallel to the axis of the stem 11. As shown in Fig. 4, the stem 11 is disposed at a convenient angle, such as 16° to the handle portion 10, so that there is a bend in the instrument at the portion 20. The glider instrument is also preferably made integrally of a single piece of transparent material, such as glass.

In a surgical operation for the removal of the lens of an eye the above described instruments embodying my invention may be employed as follows:

After the preliminary steps of the operation and the incision 21 made in the eyeball 23 in the usual manner, slightly above the pupillary margin, the lens 22 is made ready for delivery. The crook of the delivery instrument or glider is applied to the lower limbus of the eye as shown in Fig. 1. The head 13 of the receiving instrument or guard is placed above the incision 21 flatly against the eyeball 23 with a portion 24 of the disc 13 within the incision. Pressure is applied to the lower part of the eyeball by the glider. It will be seen that, because of the bend

of the glider instrument at the portion 20 an arcuate or sweeping movement can be given to the head 16 by a simple rotation of the handle portion 10.

5 A slight pressure is maintained on the upper portion of the eyeball at the posterior lip of the wound by the head 13 of the guard. As the lens is forced upward by pressure it is engaged by the guard and continued pressure will force the lens
10 up through the incision to be received by the guard. By maintaining the guard in the proper position with a slight pressure on the upper part of the eyeball, the lens will not slip past the incision 21 and into the interior of the eyeball 23.
15 As the lens appears in the incision the glider follows it along the front of the eyeball and the pressure is maintained, but its direction changed to upward and backward, and finally to a gentle following movement as the delivery of the lens
20 is completed and it is received by the head 13 of the guard. After delivery of the lens the final steps in the operation and the dressing of the eye are performed in the usual manner.

In such operations as this it is desirable that
25 the surgeon's vision be unobstructed, so that he may closely watch what is happening, such as the progress of the lens during delivery. Because the instruments embodying my invention have the operating portion made of transparent glass
30 it will be seen that they offer an unobstructed view of the entire operation and promote an efficient technique.

In operating on the eye it is important that there be no loss of the vitreous humor. In this
35 respect the above described instruments are of particular value especially in cases of severe myopia in which the vitreous humor is more fluid than normally. The broad flat surface of the head of the glass guard holds back the contents
40 of the eyeball without obstructing the operating field. Because of the construction of the guard, enabling it to be inserted partially within the incision and in engagement with the lens, a smaller incision may be used and consequently there will
45 be less wound astigmatism.

It will thus be seen that I have provided a pair of surgical instruments which are particularly useful in operations on an eye. Because of the leverage obtainable with these instruments less
50 pressure is required to deliver the lens, and the possibility of any vitreous humor escaping is minimized. The transparency of the instruments allows the surgeon a full and unobstructed view of

what he is doing and greatly facilitates the carrying out of the operation in a quick, certain and efficient manner.

Although a single embodiment of the invention has been herein shown and described, it will be understood that numerous modifications of the construction shown may be resorted to without departing from the spirit of this invention as defined in the appended claims.

What I claim is:

1. A surgical instrument for operating on the eye, comprising an elongated handle portion, a stem portion secured to one end of the handle and having a longitudinal axis disposed at an angle to the longitudinal axis of the handle, and a head at the end of the stem, said head being transparent and in the form of a substantially U-shaped crook with the crook opening substantially parallel to the stem axis and legs of the crook substantially in the plane of the handle and stem axes, said legs positioned between the axes with the portion of the crook opposite the opening adjacent the handle axis whereby rotation of the instrument about the handle axis causes the crook opening to describe an arc about
15 said axis and the portion of the crook opposite the opening to describe a shorter arc about the handle axis than said crook opening arc, whereby the instrument may be manipulated in a lens delivery movement by rotation about the handle
20 axis.

2. A surgical instrument for operating on the eye, comprising an elongated glass handle having a glass stem portion secured at one end thereof, said stem having its longitudinal axis disposed at an angle to the longitudinal axis of the handle and terminating in a transparent glass head portion formed integrally therewith, said head portion having the form of a substantially U-shaped crook with the crook opening substantially parallel to the stem axis and the legs of the crook substantially in the plane of the handle and stem axes, said legs positioned between the axes with the portion of the crook opposite the opening adjacent the handle axis whereby rotation of the instrument about the handle axis causes the crook opening to describe an arc about the handle axis and the portion of the crook opposite the opening to describe a shorter arc about the handle axis than said crook opening arc and whereby the instrument may be manipulated in a lens delivery movement by rotation about the handle axis.

EDWARD GAULY.