

Claims

1. A device for delivering intraocular lens through an incision on an eye of a patient comprising:

5 a tubular member defining a hollow elongate passageway accessible by a front and a back through opening;

a nozzle having an expanded base, which is mounted to the front through opening of the tubular member, tapering towards a pointed end, the nozzle enclosing a lumen substantially tapered from the base to the pointed end and the lumen being aligned
10 with the passageway that the lens is disposed within the lumen to be readily delivered;

an elongate probe, at least partially housed within the passageway, having a bifurcated tip which is configured to telescopically slide out from the pointed end of the nozzle to push the disposed lens into the eye; and

15 a plunger assembly having a shaft inserted into and moveable within the passageway to anteriorly engage with the probe to move the probe in relative to the tubular member, the plunger assembly has a posterior end connected substantially median of a prolonged piece, located outside of the passageway adjacent to the back through opening, expanding in perpendicular to the plunger assembly and
20 fashioned to be pushed forth or back to control movement of the plunger assembly in relative to the tubular member that the plunger assembly and the prolonged piece collectively form a T-shaped structure.

wherein the bifurcated tip forks into a first and second prongs, which are ~~irregular~~ different in size, forming a substantially U-shaped or V-shaped construct thereof
25 for manipulating a configuration and/or an orientation of the delivered lens in the eye;

wherein the prolonged piece has both ends fabricated with increased surface area to anchor and contact onto the face of the patient.

2. The device of claim 1, wherein the first and second prongs are sized in a volume ratio of 18-15: 12-6.

3. The device of claim 1, wherein the plunger assembly has an enlarged end disposed around the back through opening to control movement of the plunger assembly in relative to the tubular member.

~~4. The device of claim 1, wherein the plunger assembly has a posterior end connected substantially median of a prolonged piece, located outside of the passageway adjacent to the back through opening, expanding in perpendicular to the plunger assembly and fashioned to be pushed forth or back to control movement of the plunger assembly in relative to the tubular member that the plunger assembly and the prolonged piece collectively form a T shaped structure.~~

~~5.4.~~ The device of claim 4~~1~~, wherein the prolonged piece has the back surface of one extreme fabricated with a depression to receive pushing force of the thumb of a user.

~~6.5.~~ The device of claim 1, wherein the shaft is fitted into the passageway in a single orientation by having corresponding geometrical profiles fabricated lengthwise on the inner surface of the tubular member defining the passageway and the shaft.

~~7. The device of claim 4, wherein the prolonged piece has both ends fabricated with increased surface area to anchor and contact onto the face of the patient.~~

~~8.6.~~ The device of claim 1 further comprising a handgrip extending from the external surface of the tubular member with an angle of 60 to 80 degree formed in relative to the portion of the tubular member directing towards the front through opening.

9.7._____The device of claim 86, wherein the handgrip carries an ergonomic profile at its end, which is away from the tubular member, to anchor onto and substantially conform contour of the face of the patient.

~~10.8.~~_____The device of claim ~~8-6~~ further comprising a ring handle formed on the external surface of the tubular member in a direction opposing to the handgrip that the ring handle encloses a through hole to receive index finger of a user.

~~11.9.~~_____The device of claim 1 further comprising a handgrip extending from the external surface of the tubular member with an angle of 60 to 80 degree formed in relative to the portion of the tubular member directing towards the front through opening that the handgrip is configured to receive middle and ring fingers of the user to space the received fingers from the pointed end of the nozzle at a distance of 4.5 to 8cm.

~~12.10.~~_____The device of claim 1 or 2, wherein the first and second prongs collectively define an angle of between 60 to 100 degrees.

~~13. A device for delivering intraocular lens to an operation site of a patient comprising:~~
~~a tubular member defining a hollow elongate passageway accessible by a front and a back through opening;~~
~~a nozzle having an expanded base, which is mounted to the front through opening of the tubular member, tapering towards a pointed end, the nozzle enclosing a lumen substantially tapered from the base to the pointed end and the lumen being aligned with the passageway that the lens is disposed within the lumen to be readily delivered;~~

~~an elongate probe, at least partially housed within the passageway, having a bifurcated tip which is configured to telescopically slide out from the pointed end of the nozzle pushing the disposed lens into the eye; and~~

~~a driving mechanism, equipped with an actuator, mechanically engaged to the probe to move the bifurcated tip into the incision of the eye to concurrently deliver the disposed lens;~~

~~wherein the bifurcated tip forks into a first and second prongs, which are irregular in size, forming a substantially U-shaped or V-shaped construct thereof for manipulating a configuration and/or an orientation of the delivered lens in the eye.~~

~~14. The device of claim 13, wherein the first and second prongs are sized in a ratio of 4:5:2:3.~~

~~15. The device of claim 13 or 14, wherein the driving mechanism comprises a rack slider stored within the passageway to anteriorly engage with the probe, and a pinion having one part functionally coupled to the rack and the other part connected to the actuator that the pinion translates motion of the actuator to move the rack forth and back in the passageway to respectively forward and retract the probe in relative to the tubular member.~~

~~16. The device of claim 13 or 14, wherein the driving mechanism pivotally fixes the actuator onto the device to have one end of the actuator secured with the posterior end of the probe and another end of the actuator readily subjected to an external force to lever the forth and back movement of the probe in relative to the tubular member.~~

~~17. The device of claim 13 or 14 further comprising a handgrip extending from the external surface of the tubular member with an angle of 60 to 80 degree formed in~~

~~relative to the portion of the tubular member directing towards the front through opening.~~

5 ~~18. The device of claim 17, wherein the handgrip carries an ergonomic profile at its end, which is away from the tubular member, to anchor onto and substantially conform contour of the face of the patient.~~

10 ~~19. The device of claim 18 further comprising a ring handle formed on the external surface of the tubular member in a direction opposing to the handgrip that the ring handle encloses a through hole to receive index finger of a user.~~

15 ~~20. The device of claim 13, wherein the driving mechanism has a plunger carrying an elongate pole slidably inserted into the passageway via the back through opening to anteriorly engage with the probe and a thumb press fabricated at the posterior end of the plunger that a resilient member housed inside the tubular member is fashioned to be deformably pressed into a contracted state succeeding a forward movement of the plunger in the presence of a pushing force at the thumb press and resume its original state to retract the plunger upon removal of the pushing force.~~