

Google patent filing proposes device in eye to address poor vision

May 2 2016, by Nancy Owano

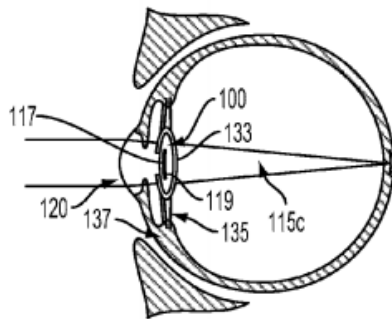


FIG. 1C

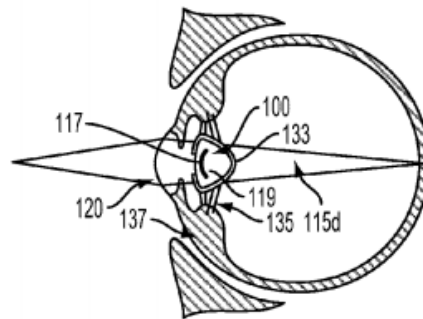


FIG. 1D

Credit: USPTO

(Tech Xplore)—What are Google's visionaries up to these days? You may be sorry you asked. Discovery reported that an electronic device injected into an eyeball is the focus of a patent filed by Google. The [application](#) titled "Intra-ocular device" was dated April 28.

The Google patent application was reported in *Forbes*. Aaron Tilley said "the [device](#) is injected in fluid that then solidifies to couple the device

with the eye's [lens](#) capsule, the transparent membrane surrounding the [lens](#)."

The device is injected into the eye and it has tiny components, said Lilley: storage, sensors, radio, battery and an electronic lens. The device gets power wirelessly from an "energy harvesting antenna."

"The whole endeavor appears to be a way of correcting poor vision," said *Discovery*. Tilley at *Forbes* said, "According to the patent, the electronic lens would assist in the process of focusing light onto the eye's [retina](#)." The inventor in the application is listed as Andrew Jason Conrad.

The patent application said, "Elements of the human eye (e.g., the cornea, lens, aqueous and vitreous humor) operate to image the environment of the eye by focusing light from the environment onto the retina of the eye, such that images of elements of the environment are presented in-focus on the retina. The [optical power](#) of the natural lens of the eye can be controlled (e.g., by ciliary muscles of the eye) to allow objects at different distances to be in focus at different points in time (a process known as accommodation)."

A variety of reasons, however, are behind decreased focus and degradation of images presented to the retina. "Issues with poor focus can be rectified by the use of eyeglasses and/or contact lenses or by the remodeling of the cornea. Further, artificial lenses can be implanted into the eye (e.g., into the space in front of the iris, into the lens capsule following partial or full removal of the natural lens, e.g., due to the development of cataracts) to improve [vision](#)."

The [patent application](#) discusses how the intra-ocular device that they are talking about would help:

"An intra-ocular device could be positioned within a lens capsule of an

eye (following the removal of the natural lens from the lens capsule) to provide a means for focusing light from outside the eye onto the retina of the eye. Such an intra-ocular device could include an electronic lens that can be controlled to provide an optical power (e.g., a degree of focusing of light, such as may be measured in diopters) within a range of optical powers. The optical power of the electronic lens could be controlled to focus images of near and far objects alternatively over time. That is, the electronic lens could be controlled to have a first optical power during a first period of time to provide images of far objects (e.g., objects more than approximately 20 centimeters away from the eye) in focus on the retina of the eye, and the electronic lens could be controlled to have a second optical power greater than the first optical power during a second period of time to provide images of near objects (e.g., objects approximately 9 centimeters away from the eye) in focus on the retina of the [eye](#)."

More information: [United States Patent Application 20160113760](#)

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