Phacoemulsification device

Fortnight alert

01 February – 15 February, 2019
Benefits of the report

- The report is prepared by experts at DexPatent to give a summary on the developments in the given technology area. From this report you can:
  - Get a brief information about patent applications filed or patent granted in a particular technology for the given duration
  - Identify opportunities of patent/business acquisition
  - Keep track on R&D and Patenting activities of competitors
  - Align yourselves into technology and business areas based on real time information
  - Save considerable amount of time & cost of in-house IP and R&D team
  - Keep an update of technology or area of enforceability of your idea
“Johnson & Johnson Surgical Vision Inc” was granted 3 patents in this fortnight. The applications were originally filed by Abbott Medical Optics (AMO) (AMO was acquired by Johnson & Johnson in 2017).

Asan Medical center (AMC), Seoul, South Korea was granted 1 patent in this fortnight.
AMC provides integrated courses & internship programs for few Universities, Medical school, Institutes and Health Network in South Korea.
More than 75% of patent applications are from California State (USA). In this fortnight US, Europe, China and Korea saw active filing of applications.

Few interesting players of this fortnight:

- **Hospitals** - Fuzhou Southeast Eye Hospital (Jinshan New Hospital), China; Asan Medical center, South Korea
- **Laboratories** - Medical Instrument Development labs, CA, USA
- **Individuals** - Balachandran; Chandrashekar, CA, USA
DexPatent Abstract

Controlling the pressure of phacoemulsification via placing another fluidic channel with pump at the site of cataract surgery.

Problem

Pressure maintenance difficult during irrigation, aspiration and emulsification of phacoemulsification.

Solution

Introducing secondary fluidic channel with pump and reservoir to maintain selected pressure.

Assignee

Johnson & Johnson Surgical Vision

Citation References Assignee

- Bausch & Lomb
- Alcon
- Carl Zeiss
An ultrasonic emulsification machine includes a negative pressure flow control system. The intraocular pressure and relief valve pressure is monitored to close and open the suction pump. The phacoemulsification host and handle are in electrical connection according to negative pressure signal for controlling transducer.

Manually controlled energy release switch to release ultrasonic energy

Control system to control pressure
A phacoemulsification system comprising an ultrasonic vibration generator cooperatively coupled to a phacoemulsification needle to vibrate; an impeller pump comprising an aspiration motor and a flexible impeller rotatably coupled to the motor configured to convey an aspiration fluid from a surgical site.

Post-occlusion surge cause fluid and tissue aspirated out of eye causing eye to collapse and/or lens capsule to torn.

Pumping aspiration fluid from surgical site using flexible impeller pump.

Assignee: Novartis
Providing the Forced Feedback / Vibration at foot pedal console of the Phacoemulsification device when an occlusion or blockage is detected in lumen

Audible / visual indication about occlusion or blockage distract surgeon during surgery

Occlusion / blockage notification of fluid flow in lumen via vibration / forced feedback mechanism

Assignee

Johnson & Johnson Surgical Vision

Citation References Assignee

- Coopervision
- Nidek
- Carl Zeiss
Handpiece needle of phacoemulsification having an ultrasonically vibrate-able horn which vibrates simultaneously in transverse and longitudinal direction and applying power with single operating frequency.

Eye tissue burns by applying maximum power and emulsification of material due to longitudinal motion.

Distal end in both transverse & longitudinal direction is vibrated by single operating frequency power.

Assignee
Johnson & Johnson Surgical Vision

Citation References Assignee
- Bausch & Lomb
- Alcon
- Advanced Medical Optics
Aspirating cutter of lens is formed by means of cusp with two intersecting arc at port of outer tube of the device.

Deforming of lens and aspiration of deformed lens is done with different devices or requires sterilization.

Forming the cusp at port of outer tube of the phacoemulsification device.

Assignee
Medical Instrument Development Laboratories

Citation References Assignee
None
Discrete slit of various shapes is formed at either center or at suitable distance of the eye and allows the phacoemulsification device to be placed inside the eye for extracting the lens from eye.

**Problem**

Damage of corneal endothelium due to the usage of ultrasound handpiece during phacoemulsification.

**Solution**

Creating discrete slit at lens to decrease size of capsulotomy of phacoemulsification.

**Assignee**

Balachandran; Chandrashekar
DexPatent Abstract

Perfusion sleeve of handpiece for ultrasonic emulsification and aspiration to reduce the flow direction and vorticity of flow of perfusion liquid.

Problem

Large amount of perfusion passed through port causes high flow rate and forms vortex inside eye

Solution

Discharge portion configured to discharge perfusion liquid in all 360 degrees

Assignee

University of Ulsan Foundation for Industry Cooperation
The Asan Foundation

Citation References Assignee

• Takayuki Akahoshi
• Nidec Corporation
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- We have an expert team of patent professionals in life sciences & medical devices. We have handled nearly 750 projects relating to biotechnology and medical devices so far, for clients in 12 countries. “DexPatent has one of the best medical devices team and they are known for their service excellence” commented head of IP of a medical devices company head quartered in Europe.
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