Simple, User-friendly Irrigator Device for Cleaning the Upper Aerodigestive Tract and Neighboring Areas

Tech ID: 32502 / UC Case 2019-925-0

BRIEF DESCRIPTION

Researchers at UCI have developed a user-friendly consumer medical device capable of cleaning and removing food particles and bacteria that accumulate in and around the back of the throat. Without removal, this accumulation may lead development of halitosis (bad breath) or inflammation that may require more serious medical intervention.

SUGGESTED USES

·Removal of tonsil tones and associated inflammation

·Improve upper aerodigestive tract hygiene

FEATURES/BENEFITS

·Simple, hand-held, and user-friendly design for everyday consumer

·Multiple cleaning mechanisms combined in one device with detachable nozzles

·Capable of adjusting to user's preferences (i.e. trigger-controlled speed mechanisms)

·Fluid reservoir can be used multiple times with refillable ease

TECHNOLOGY DESCRIPTION

Halitosis or "bad" breath affects 15% of the U.S. population. Some common causes include poor oral hygiene, formation of tongue biofilm, and gingival and periodontal diseases. However, some under-recognized causes are accumulation of food particles and bacteria on tonsillar tissue in the throat. This leads to tonsilliths or the formation of tonsil stones. Although improving oral hygiene through better brushing, flossing, and mouthwash usage can help with halitosis, removing tonsil stones requires further attention. Current treatment options include manual removal through physical means by the patient (i.e. scraping or picking at the affected area), professional cleaning performed by dentists, or in more serious cases, a tonsillectomy may be required. Additionally, there are limited effective and simple consumer products aimed at tonsil stone removal.

Researchers at UCI have aimed to alleviate this problem by designing a multi-faceted device for the general public that is capable of removing and irrigating not only the tonsils but any trapped particles in the hard-to-reach areas of the mouth and throat. The compact, portable device includes a detachable nozzle, handheld compartment, and fluid reservoir. The detachable nozzle has unique features including a tip that vibrates to massage the tissue and dislodge particles, and sprays fluid to clean and rinse the affected areas. The handheld compartment has an ergonomic grip with an interface to power the device, monitor battery level, and control fluid flow rate and vibration frequency of the tip. Additionally, the fluid reservoir contains a safe electrolyte or vitamin solution with antibacterial properties used for irrigation and can last multiple sessions before refilling. Overall, the device provides a simple solution for consumers

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INVENTORS

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OTHER INFORMATION

CATEGORIZED AS

» **Medical**
» Devices
» Disease: Dental

RELATED CASES

2019-925-0

who want to improve their upper aerodigestive hygiene, treat and reduce inflammation due to tonsil stones, and prevent future conditions without the need for a medical or dental professional.

STATE OF DEVELOPMENT

Currently, a fully working prototype has been developed and awaiting IRB approval to run pilot studies. Future plans include further developing and commercializing the device for consumer markets.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,226,272	02/18/2025	2019-925

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Percutaneous Heart Valve Delivery System Enabling Implanted Prosthetic Valve Fracture
- A distensible wire mesh for a cardiac sleeve
- Method to Improve the Accuracy of an Independently Acquired Flow Velocity Field Within a Chamber, Such as a Heart Chamber
- Percutaneous Heart Valve Delivery System
- System for Transcatheter Grabbing and Securing the Native Mitral Valve's Leaflet to a Prosthesis
- Real-time 3D Image Processing Platform for Visualizing Blood Flow Dynamics
- Method for Synchronizing a Pulsatile Cardiac Assist Device with the Heart
- Fully Automated Multi-Organ Segmentation From Medical Imaging
- Automated 3D Reconstruction of the Cardiac Chambers From MRI of Ultrasound
- Minimally Invasive Percutaneous Delivery System for a Whole-Heart Assist Device

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