2012: No shortage in toothbrush patents

Total toothbrush-related patents now exceed 4,600

By Robert Selleck, Managing Editor

Forget the mousetrap. If you want the world beating a path to your door these days you might be better off trying to build a better toothbrush.

If you built a better mousetrap in 2012 you were in small company, with just eight patents issued by the United States Patent and Trademark Office for devices or improvements containing those or similar words in the title (rat, rodent, trapping, etc.).

If you came up with an idea for a better toothbrush, though, you were part of an army of inventors. More than 150 patents issued in 2012 contained the word “toothbrush” or some similar variation in the title, bringing the grand total of toothbrush-related patents in the U.S. to more than 4,600 since the first toothbrush patent was sought by H. N. Wadsworth in 1857 (framed copies of the patent are for sale on www.amazon.com for $99).

A glance through 2012 toothbrush-related patent titles reveals a wide variety of efforts: “dehydrated dentifrice and toothbrush,” “combination toothbrush and peak flow meter system,” “processing method for taper of needle shaped bristle enhanced throughput,” “round toothbrush bristles and processing method thereof,” “motorized toothbrush tip having inner and other (sic) heads counter around different axes,” “siwak tooth cleaning instrument,” “oral hygiene case with dental floss lid compartment,” “tooth cleaning apparatus” and — along the same line of creative titling as that last item — many of the patents are simply titled, “Toothbrush.”

The toothbrush patents cover two general areas: utility or design. “Utility” patents involve a new or improved process, material or composition. “Design” patents have more to do with appearance alone, with no real advancement or change in purpose or use.

In a National Public Radio story Dec. 27, reporter Joe Palca interviewed several of the 2012 “toothbrush” patent holders, ranging from big-corporation product developers to independent dentists and hygienists working on their own time after hours, with minimal research-and-development funding backing them up.

All of the patent recipients interviewed by Palca referenced similar motivation behind their efforts: trying to get people to take better care of their
Teeth. But a number of the efforts go far beyond that, such as the dual-purposed toothbrush and peak flow meter patented by Dingane Baruti, MD, a physician in Columbus, Ga.

Toothbrush helps monitor asthma

Baruti’s abstract for the device describes it as a “system for increasing the compliance of peak flow measurements in children and adults with asthma.”

The patent application for the asthma monitoring toothbrush notes that peak-flow readings ideally should be recorded at the same time every day, but children frequently don’t comply because the meters are often misplaced or forgotten. Baruti posits that linking the flow-metering task to a daily tooth-brushing ritual — by attaching a toothbrush head to double the meter’s purpose — will help increase compliance.

The device also would be wireless, automatically relaying the readings to a hospital or doctor’s office. Baruti, a principal with Dingane Innovations, is actively marketing the licensing to insurance companies under the brand name “FlowBrush.”

Contacted via email, Baruti wrote, “The FlowBrush is the central feature of the FlowBrush Asthma Surveillance TeleMedicine (FAST) system. I am leading a team of MBA students from the University of California San Diego, Rady School of Management, to bring the asthma-monitoring device to market. At center is the dehydrated dentifrice and toothbrush, which has concave bristle patterns that receive pellets of toothpaste that are activated by water. At right are toothpaste droplets — premeasured capsules of toothpaste that hold shape until brushing starts. They can even feature a logo or other illustration on the dissolving film-strip-type material that envelopes the toothpaste.”

Bristles designed to hold toothpaste

Another invention, the dehydrated dentifrice and toothbrush, is described as having “one or two partspherical pockets formed in the brush surface. Balls or pellets of matching shape of dehydrated toothpaste are placed in the depressions, the brush is wetted and the pellets turn to a gel, ready for brushing. The pellets may be of various colors and flavors to entice children to brush their teeth and may be dispensed from a storage chamber carried in the tooth brush handle.” The inventor is Joshua D. Atkin, a general dentist in Dayton, Ohio.

The “siwak tooth cleaning instrument” is depicted in its patent application as a mechanical concept that “provides a carrying, protecting and application instrument for a siwak stick, to be applied to the user’s teeth for cleaning thereof.” The inventors are Faleh A. Al-Sulaiman and Muhammad A. Hawwa of King Fahd University of Petroleum & Minerals in Dhahran, Saudi Arabia.

The instrument dispenses circular toothbrush heads based on lipstick-tube-style mechanics from a container that can be incorporated into the handle of the siwak (a type of toothbrush used primarily by Muslims).
Asthma can affect dental development in children

By Dental Tribune International

Whether mouth-breathing is associated with dental misalignment has long been debated by experts and is not yet understood completely. Now, researchers from India have found new evidence that a compromised airway as found in asthmatic children has implications on their dental morphology, as malocclusion was found more frequently in these children.

In the study, researchers at the ISS Dental College and Hospital in Mysores took dental impressions of the upper and lower arches of 88 children, aged 6 to 12. Half had been diagnosed with asthma and half were controls. Among various findings in the study, it was found that the intermolar and the inter-ncisal widths in both arches were smaller in the asthmatic children. This was most significant for a 6-year-old to 12-year-old in particular, especially in the maxillary arch. The arch length in the asthmatic children showed consistently higher mean values in the maxillary and the mandibular arches. Moreover, a deeper palate was observed in this group.

In addition, malocclusion was frequent in the asthmatic children, the researchers said. More than 45 percent of those in the 6-to-8-year-old group had an open bite, 20 percent a crossbite, and another 20 percent were found to have an increased overjet. Among the 10-to-12-year-olds, 15 percent had an open bite, 30 percent a crossbite, and 10 percent had an increased overjet.

The findings indicate that increased airflow resistance in the respiratory system induced by allergic asthma may cause children to change from nasal to oral breathing, which can trigger modulations in cranio-facial growth patterns. Mouth-breathing may cause permanent changes in the musculoskeletal relationship, the researchers concluded.

Researchers in India find higher frequency of malocclusion

New research finds evidence that asthma is one of the factors that could affect cranio-facial development. Among the findings is that asthmatic children are more likely to have some form of malocclusion.

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