

# Patents; Ways to improve tooth care, with everything from toothpaste to an online dentistry network.

By Teresa Riordan

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DENTAL care in the United States -- a \$60 billion-a-year industry -- is considered the best in the world. Even so, there appears to be room for improvement. Last week alone, more than two dozen patents were issued for new ways to care for teeth.

Rolf Wilhelm Pfirrmann and Peter Geistlich, of the Swiss company Ed. Geistlich Söhne, received United States Patent 6,488,912 for a treatment to combat severe dental infections.

Bactericidal agents as well as antibiotics are currently used to treat such infections, they write in their patent, but these often do not kill all of the offending organisms. "An agent which is ineffective against some of the bacteria present will result in proliferation of the resistant bacterial species," they write. Moreover, these agents can cause unpleasant side effects, like allergic reactions, inflammation and tooth discoloration.

The active ingredients in their treatment are taurolidine and taurultam, both synthetic derivatives of the amino acid taurine. Although a patent covering the use of taurolidine and taurultam in toothpastes, tooth gels and mouthwashes has been issued in Britain, Mr. Pfirrmann and Mr. Geistlich say they are the first to use the ingredients to treat serious infections.

The patent says clinical trials at the Clinic for Maxillofacial Surgery of Munich University demonstrated that taurolidine and taurultam were useful in combatting dental infection but it does not say how big the trial was.

## Toothpaste From Tree Bark

Michael J. Olmstead, a dentist in Del Mar, Calif., recently received Patent 6,485,711 for a new type of organic toothpaste. Its key ingredient is saponin, which can be obtained from the bark of either the quillaia or the yucca tree.

Other organic toothpastes, Dr. Olmstead says in his patent, rely heavily on baking soda. But high concentrations of baking soda are "distasteful and overly abrasive," he writes. "The baking soda toothpastes on the market have insufficient quantities of cleaning agent and high concentrations of flavoring."

In addition to containing saponin, which acts as a soapy foaming agent, Dr. Olmstead's patented toothpaste recipe also includes silica and calcium carbonate (whiteners), aloe vera (for soothing irritated gums), Irish moss (a thickener), peppermint (for flavor and breath freshening), Manuka oil and grapefruit seed extract (antibacterial agents), as well as, yes, baking soda (an acid neutralizer, the patent explains).

#### A Finely Pleated Face Mask

Michael Wolfe, a product designer in Manhattan, has patented a new kind of face mask for use by dentists and others in the medical field to prevent the spread of airborne pathogens.

The main distinguishing feature of his mask is that it is finely pleated, in increments of one-eighth of an inch. The pleats can be sewn or pressed into a wide variety of materials, including polyester, nylon, cotton, silk or fiber (for disposable masks).

Some existing masks feature larger pleats, of about a half-inch, according to Mr. Wolfe, but they tend to collapse into the mouth when the wearer talks. The minipleat mask expands and contracts like an accordion with the wearer's facial movement, better than masks currently in use, he said.

"The minipleats form a juncture which creates a breathing chamber in front of the mouth, giving more breathing surface area and also keeping the mask away from the wearer's mouth so that they can talk with less interference," he said. Mr. Wolfe received Patent 6,474,336.

#### Dental Democracy

Last week David Mushabac, a dentist in Brooklyn, received his 14th patent, covering a virtual dental network that he says will not only provide better dental care to patients in developing nations but also build democracy through dentistry.

Dr. Mushabac has spent about \$100,000 of his own money developing a prototype of a digital wand that captures, with the aid of ordinary X-rays, a three-dimensional image of a tooth, above and below the gum.

The wand, covered by his most recent patent, 6,488,638, is only one component of a digital system that would allow images of a patient to be sent over the Internet in real time -- enabling well-trained dentists in the United States, for example, to guide inexperienced counterparts in other lands.

Dr. Mushabac envisions "an export product of dental intelligence courses" that could be transmitted to Africa, the Middle East, Afghanistan and other regions. "We would be exporting not only knowledge but also good will," Dr. Mushabac said.

Patents may be viewed on the Web at [www.uspto.gov](http://www.uspto.gov) or may be ordered through the mail, by patent number, for \$3 from the Patent and Trademark Office, Washington 20231.