

Hearing Aid Technology Benefits From Doctor's Expertise

by Josh Morgan
Herald Staff

Sit down and plug your ears with your pointer fingers while counting aloud to five.

Your voice sounds muffled and hollow. It is a challenge with which most people who wear traditional hearing aids struggle, but thanks to a Cheshire resident, new technology is changing the way people hear.

Dr. Natan Bauman, director and audiologist of The Hearing, Balance and Speech Center, developed a new microscopic hearing aid that leaves the ear canal open, offering a more "natural" way of hearing. Bauman's creation dates back to 2004 prototypes, but on Sept. 9, he was awarded patent number 7,421,086 for his design of the Vivatone.

Bauman explained that traditional hearing aids obstruct the ear canal, resulting in an occlusion effect that makes wearers feel like they are in an echo chamber. Other common complaints are that hearing aids are bulky, uncomfortable, and not aesthetically pleasing.

In 2004, a patient of Bauman's, now the chairman of Vivatone, asked him to create a new hearing device that would remove the echo chamber sensation. Bauman said he was "challenged" to create a device that was small, yet powerful, and he tried to

remove some of the common hearing aid problems.

"It was a breakthrough in technology," Bauman said. "It changed the course of the hearing aid. It changed the way the industry delivers sound."

Hearing aids contain a speaker, a microphone, and an amplifier, all of which are normally housed in a single case that is placed in the ear. Later, new hearing aids came on the market with the case sitting behind a person's ear, while a tube transmitted

sound into the ear. The problem with the design is that the hearing aid also plugged up the ear canal.

Bauman's design goes behind a person's ear, but instead of having the speaker transmit sounds through

a tube, Bauman put the tiny speaker at the end of a wire that goes into the ear. The result is a hearing aid that leaves the ear free to function as it was designed while providing enhanced sound. To make the product, Bauman tinkered with older devices, broke them open, and rearranged the pieces to form prototypes, which he dubbed "peanut" and "nova." Eventually, the design was perfected, and the Vivatone was born.

He explained that when a person suffers from natural hearing loss, high-pitched sounds are the first to go, while low- and mid-level pitches aren't as affected. The pitches help in understanding speech, but

when a traditional hearing aid is worn, it blocks out all of the pitches. When calibrating a hearing aid, Bauman said doctors often times have to overcorrect because of the inadequacies of standard hearing aids.

"In some cases, we were making hearing even worse," Bauman admitted. "There were no alternatives — people had to get used to it."

Social Worker Sara Manning, who works at the Cheshire Senior Center, said the main complaint she hears with regard to hearing aids is that Medicare does not cover the costs. Besides insurance woes, Manning said her clients often have problems with their hearing aids whistling or

getting feedback while they are talking on the phone.

"A lot of my clients cannot use the phone," Manning said. "They can't hear and have to take out the hearing aid, but then they talk really loudly and a lot of information gets misconstrued."

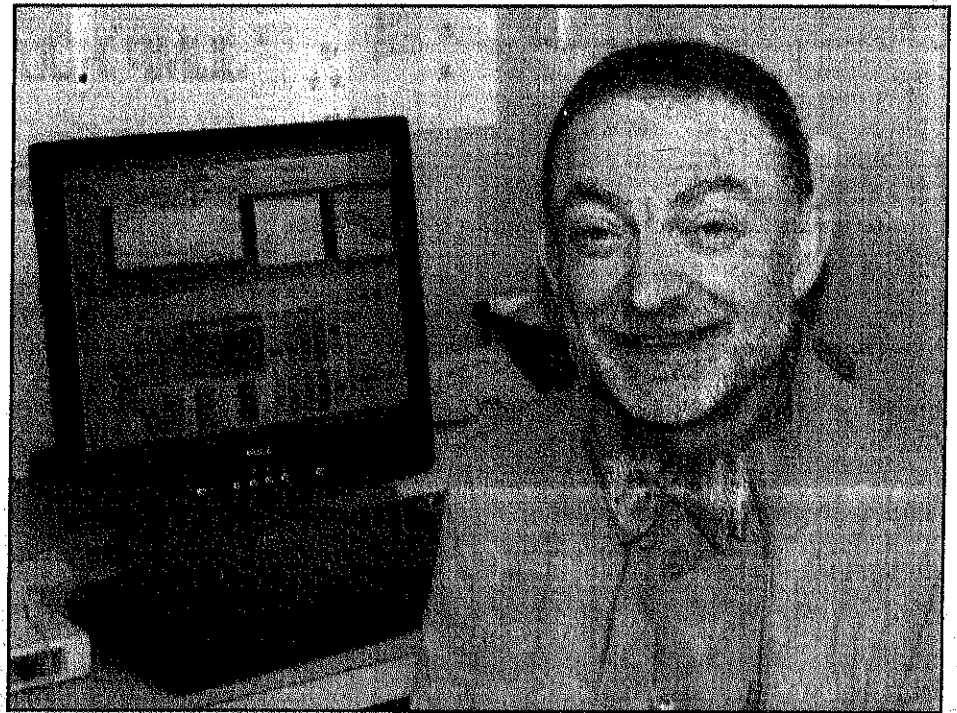
Manning said a lot of her clients use hearing aids and a majority of the time don't even know they are having a problem with them.

By leaving the ear canal open and using the natural design of the human ear, Bauman explained, the occlusion problems have been eliminated, and since the sound

See VIVATONE, page 2.

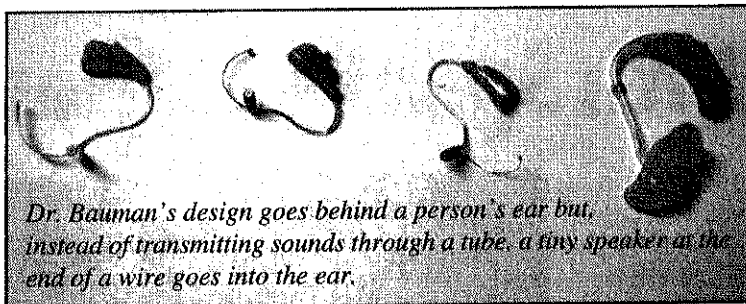
"It feels tremendous knowing I have made a big difference to so many people with hearing problems."

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Josh Morgan/Cheshire Herald
Cheshire resident Dr. Natan Bauman developed a new microscopic hearing aid that leaves the ear canal open, offering a more "natural" way of hearing.

Vivatone Offers Cutting-Edge Design



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isn't coming through a tube, voices sound more natural. Since the microphone and speaker are farther away, the acoustic feedback reported when using a telephone has been removed.

"Some say it's a godsend," Bauman said.

Bauman left Poland in 1969 for the endless opportunities the United States had to offer. With a master of science degree in electro-acoustics and a minor in elec-

tronics from Wroclaw Polytechnic Institute of Poland, Bauman enrolled at Columbia University in New York. With his background, he was offered a fellowship and free tuition to the school and graduated with a master's degree and a doctorate in audiology. Bauman was the director and audiologist for the Yale Hearing, Speech and Language Center for eight years before starting his private practice in 1988.

"My electronics background has been very helpful," Bauman

said. "I'm helping people manage their auditory disorders better."

Bauman estimates that 60 percent of hearing aids sold today are based on his design, and soon upwards of 80 percent could be using it. Since it took so long to get a patent, he has not received royalties from these other companies. Now, with the patent, companies selling his design need to cease manufacturing it or pay Vivatone royalty money.

Bauman has since taken his invention a step further. He offers custom designs with the help of an on-staff engineer who implements his cutting-edge designs. Bauman said it's been marvelous being able to help his patients.

"It feels tremendous knowing I have made a big difference to so many people with hearing problems," Bauman said. "It's just an enormous, huge feeling."