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PATENTS: HELP FOR TENNIS ELBOW; TOOTHBRUSH FOR DENTURES; KEYBOARDS FOR KIDS

By TERESA RIORDAN c.1995 N.Y. Times News Service

WASHINGTON - Because they are both lightweight and strong, graphite tennis racquets have, in the last decade, eclipsed those made of wood or aluminum. But the graphite frames tend to vibrate more than those of other materials and therefore, some think, aggravate such afflictions as tennis elbow.

Brett P. Bothwell, an architectural designer in New York City who sometimes creates graphite furniture and also works as a tennis pro, said he had invented a way to reduce a racquet's vibration by using air pressure to tighten its strings.

The hoop, or head, of Bothwell's racquet has an outside frame and an inside frame between which he has fitted two air bladders resembling bicycle tire tubes.

"As the bladders fill with air, the outer frame is pushed away from the inner frame, thereby stretching the strings," Bothwell said. "This air system gives the racquet an enlarged sweet spot - that place where you feel no vibration, just a clean, strong hit."

A hand-held carbon dioxide cartridge inserted into the racquet handle inflates the bladders. The string tension can be adjusted by adding or releasing some carbon dioxide. "I've designed the racquet so that you can use the same cartridges used to inflate Reebok's Instapump athletic sneakers," Bothwell said.

Bothwell received patent 5,458,331.