The Bicycle for Biceps

In every industry, considerable amounts of research and development go into the hunt for new products. That includes the fitness industry. Each week the Patent and Trademark Office issues a dozen or more patents for exercise machines and methods of physical workouts or playing sports.

Recent patents include those for weighted exercise gloves; lightweight and folding exercise machines for travel; and every manner of weight and resistance training equipment that purports to isolate muscle groups more effectively.

There have also been patents for a pogo stick with a jump counter, a rotating brace for exercising the feet, and an exercise machine with a fan that creates wind resistance to increase the difficulty of a workout.

And John Caldwell, an inventor from Plano, Texas, has received two patents for a three-wheeled cycle, pedaled with the arms, that he calls the Bicep Bike.

Mr. Caldwell is an accountant at J. C. Penney who also builds robots and is a bicycling enthusiast. He got the idea for his cycle after watching his 5-year-old son ride a toy vehicle with hand pedals.

"It's genetic," Mr. Caldwell said of his inventiveness. "My father has over 200 patents and an uncle on my mother's side has about 10."

He turned his idea into a prototype, working in his garage and using off-the-shelf materials like PVC pipe, wheelchair wheels and bicycle chains. The final product looked similar to a recumbent, leg-powered bicycle.

It also looked pretty crude, Mr. Caldwell said, and it had no speed settings or brakes, and could not coast. But he nevertheless rode it frequently around his neighborhood. He came up with the name for the contraption after trying to explain it to curious bystanders.
"I used to say it's an arm-powered recumbent bicycle," Mr. Caldwell said. "I'd get two reactions. Some people don't know what it is, and get confused. A lot ask how it works. That's why I changed the name to Bicep Bike."

He refined his prototype, building a second one out of slightly thinner PVC pipe and angled aluminum rods. He added brakes, variable speed settings and a coasting capability.

To achieve the speed settings, Mr. Caldwell designed a lever with a line of small holes. A rider pops a pin from one hole to another to shorten the distance the lever will move. "Bicycles have speeds by mechanically moving the chain from one gear to another," Mr. Caldwell explained. "Mine works in five different positions on a crank arm."

He has ridden his cycle hundreds of miles and says it provides a low-impact upper body workout without strain to the hips, knees or ankles. While acknowledging that his bike is similar to cycles made for riders who cannot use their legs, he insists that there are differences.

"Mine can be mass-produced for about $110," he said, compared with around $2,000 for the two most popular cycles on the market for disabled riders. "Also, those bikes have a huge turning radius.

"On mine, you can pivot," he said. "You lock one wheel with the right or left brake, crank on the other arm and spin in place. My bike is for able-bodied folks. It would be hard for anyone else to get in and out of. Also, it has a foot-activated brake. It's directed to people who are outdoor exercisers."

His cycle comes in three adjustable sizes, to accommodate anyone from 4 feet 6 inches to 6 feet 4 inches tall, he said. Mr. Caldwell said he hoped to persuade one of the major bicycle manufacturer to bring his invention to the public.

"With those folks, you get one shot," he said of the bike makers. "Right now, my model doesn't look very sexy. I went to the metal store and got some aluminum tubing for a fourth model. I want to have a really classy one before I go to them."

Mr. Caldwell received patents 6,557,879 and 6,276,703.

*Patents may be viewed on the Web at www.uspto.gov or ordered by mail, by patent number, for $3 from the Patent and Trademark Office, Washington, D.C. 20231.*