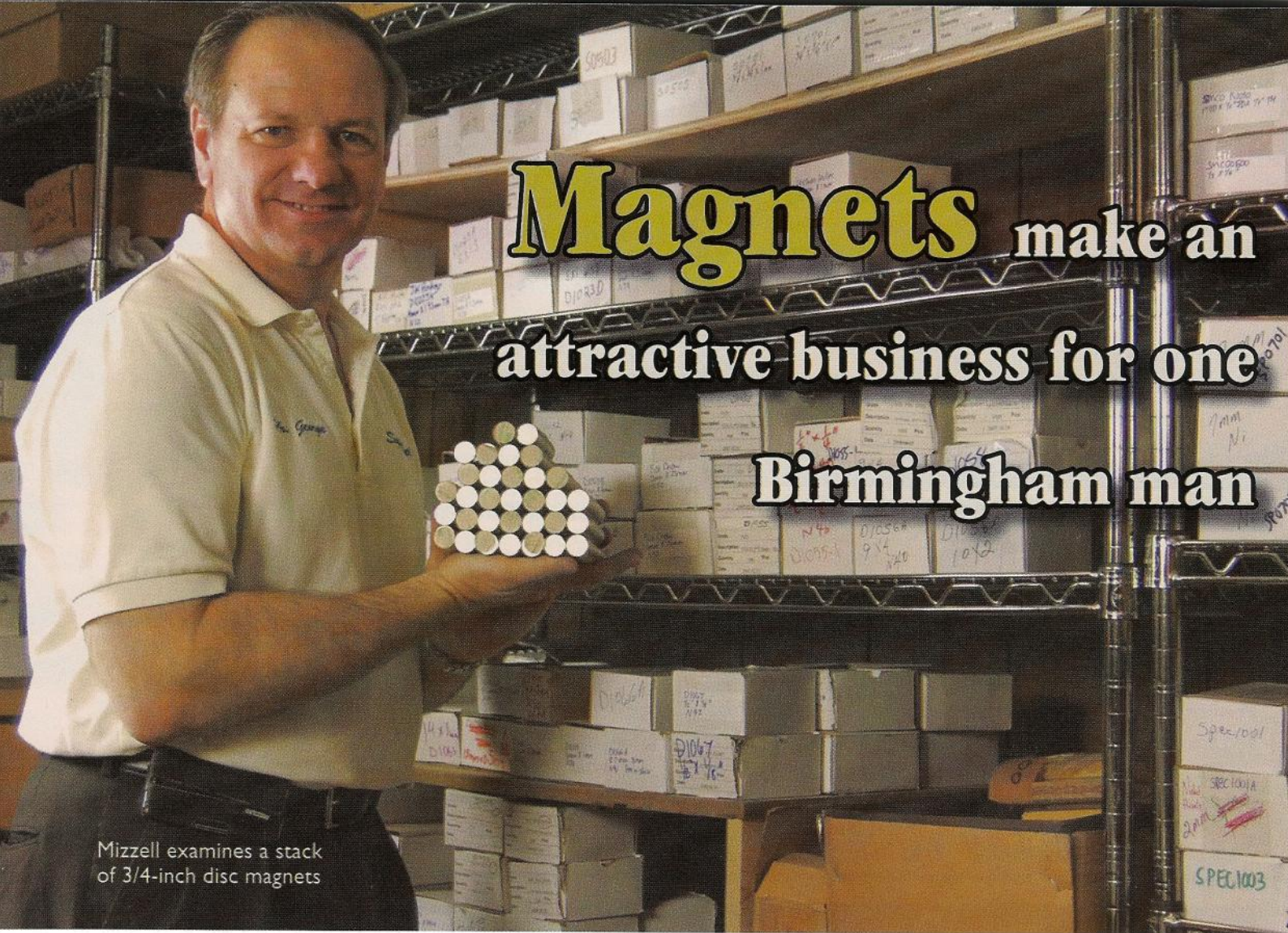


Magnets make an attractive business for one Birmingham man



Mizzell examines a stack of 3/4-inch disc magnets

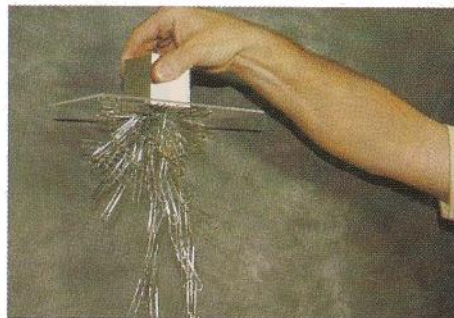
By Nick Thomas

Buried in the basement of his Birmingham home, George Mizzell's thriving home-based business is attracting customers from all over the world. Which seems appropriate, since Mizzell sells powerful rare earth magnets that are dozens of times stronger than conventional magnets.

More than just kids' toys, these super strong permanent magnets are important components in today's electronics – from cell phones and computers, to hybrid cars and medical devices. They derive their incredible strength from the metal neodymium, which is combined with iron and boron during the manufacturing stage to form the “neo” magnets.

Mizzell became fascinated with simple magnets as a child growing up in Sycamore in the 1960s. “I always had one in my pocket,”

recalls Mizzell from his home in Vestavia Hills, a southern suburb of Birmingham. “When a radio died, I would extract the magnets; everything else was just waste to me!”



A 2-inch cube-shaped neo magnet costs \$90, and falls in the “body part crushing” category

And young George would have given an “arm and a leg” to own a modern neo magnet, but they were not commercially available until the mid-1990s. “The only way to get these super magnets in the

early 90s was to extract them from the hard-drives of old computers,” says Mizzell. Hard drives use two magnets about the size of a nickel to achieve the high spin rates of around 5,000-10,000 rpm and are shielded from the hard drive to prevent erasure of data.

An electrical engineer by training, Mizzell worked for many companies throughout the 80s where he specialized in boiler performance. After being “liberated during a downsizing” from one company in 1991, a teacher invited him to present science demonstrations at his daughter's school. “Around 1992, I started developing hands-on science classes and have been teaching for about 15 years in Vestavia Hills Elementary schools as a volunteer.”

Naturally, magnets featured prominently in his classroom activities. At first, he used

conventional magnets; but when the new neo magnets became available, student interest intensified. Aware of the class's fascination, the teacher asked if Mizzell would sell some to the students. "I didn't want to get a reputation for using kids' lunch money to buy magnets!" said Mizzell with a smile. But he relented and agreed to meet students after school. "I expected three or four to show up, but was stormed by a mass of 50 or 60 kids! That's when the light came on and I realized there could be a

'garage inventors' to help them understand super magnets and magnetic fields in general."

The range of projects Mizzell has been involved in is astonishing: designing magnetic clasps for jewelry; developing tricks for magicians; designing quick-erase magnets for police surveillance video tapes; researching snap-on magnetic gear for firefighters; crack detection in oil pipelines; creating emergency cut-off switches for heart pacemakers; and developing a magnetic projectile containing a GPS tracker which police can

his own applications. "I invented magnetic ceiling hooks with an extendable installer rod and sell a lot (about 10 percent of sales) to teachers, businesses and churches."

Whoever uses his magnets, Mizzell also warns of the dangers. "These are very powerful magnets, and even two small ones can fly together quickly and easily pinch a finger," he says. "The largest ones I call 'body part crushing magnets' because with 200-250 lbs of pressure, that's exactly what will happen if your hand gets caught between them."



Left, George Mizzell demonstrates a magnetic ceiling hook and the installer rod. With extensions, items can be attached to ceilings up to 20 feet high. Next, Mizzell's 3-inch neo magnet holds 50 pounds of tools, and a 5-inch disc neo magnet, said to keep its magnetism for 500 years. Right, Mizzell, who weighs 190 pounds, tests the strength of a 3-inch disc magnet.

market out there."

Today, neo magnets as toys make up only about 1 percent of Mizzell's business, and he now stocks thousands of magnets anywhere from the size of a pinhead to massive 5-inch wide discs capable of lifting hundreds of pounds. All are manufactured in China, which has most of the world's resources of rare earth minerals.

More than just a distributor, Mizzell also consults with individuals, academics, businesses, and industry from over 70 countries who turn to him for problem solving. "I have developed into somewhat of an expert in solving engineering problems using magnets in literally hundreds of applications, and worked with product developers as well as

fire onto cars during high speed chases.

He even worked with a group studying the effectiveness of magnets as a shark repellent. "Sharks do a back flip within 2-3 feet of a strong neo magnet," says Mizzell. "As long as they do that before they get to you, that's all that matters!"

Of course, his magnets also have more conventional applications in magnetic lifting devices, magnetic stirrers, and for the extraction of contaminating ferrous materials from products. "One company in Switzerland bought 200,000 of my magnetic pins," he says. "And a Romanian farmer purchased magnets for tractor tires to pick up metal in the fields to prevent punctures."

Mizzell has even developed

His web site contains popular videos illustrating the fun, science and dangers of magnets, which are used by many companies for safety training.

Although Mizzell has converted a hobby into a successful home business, it's clear he has never lost his childhood fascination for science and magnets. "I have enjoyed meeting people all over the world through the business, and having the chance to share my love for magnets and the cool things they can do."

For more information about George Mizzell, call him at 205-978-2885 or check www.supermagnetman.net.

Nick Thomas is a freelance writer and teacher at Auburn Montgomery.