

Trigger Happy Manufacturer!



How a Phoenix-based Trigger Manufacturer Took Aim at Automation and Hit the Profit Bulls-Eye!

Story and photos by C. H. Bush, editor

Usually being “trigger happy” refers to someone who shoots first and asks questions later. In the case of Phoenix, AZ’s 65-year-old Timney Manufacturing, Inc. (aka Timney Triggers), it just describes the state of mind of John Vehr, the company’s owner-president.

“We love our triggers as much as our gun-aficionado customers love their weapons,” Vehr says. “This company has been making triggers since 1946. Since I bought it from my parents in 2000, we have grown to be the largest and most successful trigger manufacturer in the world.”

The company was founded by Allen Timney, who decided to become a gunsmith on his return from WWII.

“Allen had one of those amazingly inventive minds,” Vehr says. “He started out sporterizing old military rifles. That was a long time ago, before TV came along. He would take a military rifle and make it svelte by cutting down the stock a little bit, contouring the barrel, turning it into a hunting rifle. The company was always highly regarded for its products and their quality. Allen was very highly respected because he not only invented the products, he used them, too. He was a shooter, which is not common in this industry. The bottom line is there were a lot of gun aficionados out there who loved what he did, so the company grew.”

Why are triggers important enough to rate a separate business, and especially a highly successful one?



Machine operator Karla Marin prepares to set up one of Timney's three Fanuc Robodrills. Two of the RoboDrills are 5-axis machines equipped with robot loaders. The third, shown in the background, is a 3-axis with a 4th-axis table. Parts are loaded on custom 6-sided tombstones.

Triggers: Key to Accuracy

"A key to a rifle's accuracy is its trigger," Vehr explains. When you pull a military trigger, a cam falls down, and the firing pin goes forward. And that's fine if you're just spraying bullets around, but if you want to be accurate, that's not a particularly good way to go about it. When you're lining up on a target, say 150 yards away, any sort of movement at your end can cause a huge movement at the target end. What you want is for the rifle to fire exactly when your eyeball tells it to, not a half second later.

"To solve the problem, Allen Timney developed a modular trigger unit that was more or less a trip lever," he adds. "Basically you've got one thing sitting on top of the other. You pull the bottom thing out and the top thing falls away. So he came up with this unit, and started selling it at rifle shooting competitions. The shooters saw what it could do for them, and the company took off."

Fire Sale

Timney Manufacturing grew for a while, but then, like most growing businesses, it had its downs, too. "The truth was, Allen had this inventive mind that was always going in a million different directions at once," Vehr explains, "and he wasn't disciplining himself to sit down and do the work that was needed. The result was that some time in the late 1970s, the company had a fire, and Allen sort of lost heart in the company after that."

The company languished for a couple of years, going nowhere and Timney was ready to get out.

"In 1981 my mother and father bought the company in a fire sale," Vehr says. "My dad had worked for Honeywell for twenty years, but when my mom took a look at their retirement financing, they decided they had better do something about it. They took a second mortgage on their house and bought Timney."

Calvin Motley, left, and John Vehr discuss developing a trigger for a consumer version of the Scar 17S, (shown) a weapon used by the special forces in the United States military.

Turnaround

Because the company had such a good reputation, rebuilding it wasn't a lost cause, but it wasn't instant either.

"Mom and dad lost money for a while," Vehr says, "but after a couple of years it started to slowly turn around, and it started making

money. Dad knew about Timney because he had always been a shooter. He was a technical writer, and he understood machining, so he thought Timney would be a good fit for them. As it turned out, it was."

Allen Timney worked with the Vehrs for a year, showing them how the business worked and all the steps needed to get a part from start to finish.

"My mother was also a writer," Vehr says, "so shifting gears into a manufacturing operation was a pretty big learning curve for them. But, little by little they rebuilt the company's product line and its reputation."

Vehr, like most sons whose parents own a business, worked for Timney over the years, learning the business.

"I started working here in 1994," he says. "In 1997, I was made general manager, and then, when my folks passed away, I bought the company from their estate in 2000."

Wrong Equipment, Wrong People

When Vehr took the reins, the company was still all manual manufacturing equipment.

"Way back when, before I ever came to work here, I had in my mind how this company worked and how the products were made," he recalls, "but when I got here, I was shocked. I mean, frankly, it was kind of a sweat shop. There were chips all over the floor. I inherited thirteen low-paid employees, and, though we were making money, I knew we weren't producing anywhere close to what we should be doing."

Vehr sat down one night and thought hard about how to transform the company to meet his vision.

"What I realized was that we had the wrong equipment and the wrong people," he recalls. "My answer was to eliminate error and increase production by taking the human element out of the equation."





Close up of the robot in a Fanuc RoboDrill getting ready to drop a completed part into the unload chute.

Target Automation

Vehr turned to Calvin Motley, current director of product development, who joined the company in 2002.

“Calvin was ready to do some serious upgrading around here,” he says, “So, we bought an AgieCharmilles Wire EDM to test automated production.”

“We sent one of our guys to Chicago for a week’s training,” says Motley, “When he got back he didn’t know any more than when he left.”

“And, that was the clincher for me,” adds Vehr. “It was a tough decision, because I had worked with a lot of our people for years and liked them, but just because I liked them didn’t mean they were good for the company. We had to have better equipment and better people.”

“We put our simplest, high-volume parts on the Agie for the test, and it worked great,” Motley says. “We were getting a lot of parts, all good, basically with one setup.”

“Our next try at automation was a bust,” Vehr says. “We had tried to cobble together our own version of a Mazak Integrex, and it never worked right, so we broke down and bought the real thing, slightly modified. We used the Integrex with a SpaceSaver bar feeder to make the housings for our drop-in triggers. We were so amazed at the quality and production we were getting, that we were immediately hungry for more.”

Fanuc RoboDrills

Vehr’s next step was to buy a small Okuma turning center, and once again the automation effort was successful.

“We were on a roll by then,” Vehr says, “and I was hungry for still more automation. So, we turned to Bob Nakash at Methods Machine to help us out. We wanted to produce parts with one setup, machine all sides of a part without pulling them off and starting over. Bob recommended a Fanuc RoboDrill with a fourth axis table, and one with a robot loader/unloader. He also recommended we use a six-sided tombstone with the fourth axis, so we could mount a lot of parts and get finished parts off. We went down the street to a company called Stevens Engineering to have the tombstones made.”

“We were getting four parts at a time with second operations on our regular mills,” says Motley. “Now, on the Fanucs, we’re doing 84 parts at a time complete with one setup. The Methods people have been very helpful down the line. Their people in Boston programmed the first part for us, and then their applications guy worked with us for a while, too. After that, they sent another fellow in here to train me for

a week just on the robot side of it, which takes a bit of learning, if you've never worked with robots before.

"But the robots are worth every penny we spent on them," Vehr adds. "They're making four of our highest volume parts, and they're cutting 40% off even our previous fastest time. They just keep working away, loading and unloading parts, and they never complain. Plus, the quality of our parts has been consistently very high. The Fanucs have been so reliable, so successful that we have another one with a robot loader slated for delivery the end of December. I just love to watch those little guys go."

Today, Timney operates 4 AgieCharmilles EDMs, the Mazak Integrex, the one Okuma turning center, and soon-to-be 3 Fanuc RoboDrills.

"It's an automation dream come true," Vehr says. "When I bought the company, we had thirteen employees, producing low volumes, with lot of scrap. Today our payroll is actually larger than back then, but only we have 4 employees producing ten times as many parts as we did back then with virtually no scrap. All our machines run lights out when needed, and they consistently produce high-quality parts. I love it."



Machinist Larry Kaiser working at Timney's Mazak Integrex.

Targeting the Future

The future looks good to Vehr, too, he says.

"Calvin is a genius right up there with Allen Timney," he says. "He's created a good third to half of the products we sell now, inventing new products like our shotgun trigger. So, my goal is to get him working full time at product design so we can expand our line. We have the creativity, the production capability, the people, and the will to hit a bulls-eye in the future the way we have in the past."