Inventor of the artificial hip

John Gilbert Collison Sr. gave relief to those suffering from fractures, arthritis

BACK STORY

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While the name John Gilbert Collison Sr. has been largely forgotten today, his invention of the artificial steel hip ball more than 60 years ago has given him orthopedic immortality.

His invention, manufactured in Baltimore in his Falls Road facility, has saved lives and given relief and hope to patients worldwide who suffered from fractured hips or severe arthritis.

At a time when a fractured hip was almost a certain death sentence, his revolutionary invention gave people hope and the ability that they would regain and live normal, pain-free lives.

Collison, who had rather humble beginnings, was born in 1892 in Erin, Tenn., the son of Edward Elliott Collison Jr., the inventor of the instantaneous shutter for cameras, and a homemaker.

His mother died in 1901, and after the death of his father in 1907, Collison and his two brothers and a sister moved in with an aunt and uncle.

Because there was a lack of money, Collison's formal education ended after he completed the second grade.

As a youngster, Collison demonstrated a remarkable ability and interest in things mechanical.

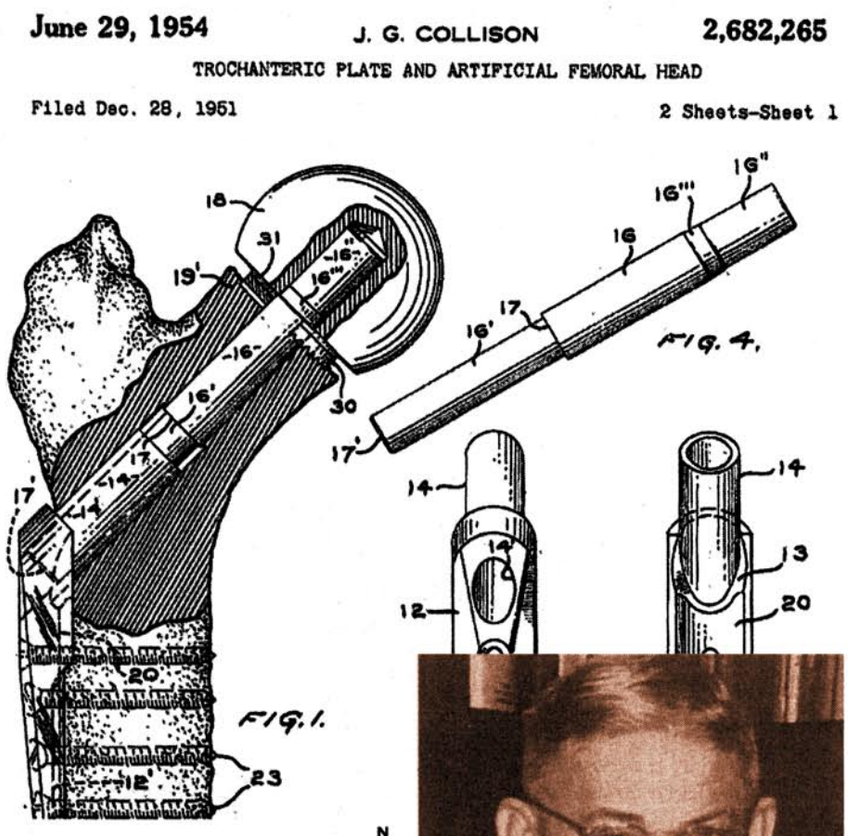
When his best friend's father, Albert J. Mitchum, who owned Mitchum's Drugstore, had trouble with his 100-pound brass National Cash Register, it was young Collison who fixed it.

He was 9 years old.

Collison later worked for NCR and several manufacturing companies before he began designing and building his own automotive inventions.

"From 1917 to 1922, John was exhibiting his own engineering brilliance. He invented the Fluid Gasoline Gauge, Instrument Board (dashboard) Printing Machine for the Gasoline Dial," wrote a daughter, Helen Collison-London, in her 2008 book, "John Gilbert Collison, Sr.: American Pioneer of Surgical Engineering."

"These 'conveniences' catapulted him into a new world. On one occasion, he met with Buick Motor Company representatives in New York City at the palatial Waldorf Astoria ... where the parties discussed the future installation of the Fluid Gasoline Gauge and Dial in all General Motors Buicks."



The Trochanteric Plate and Artificial Femoral Head, the invention of John Gilbert Collison Sr.

As president of the Dayton Irrigation Co. during the 1920s, which later became the Dayton Lawn Sprinkler Co., Collision designed and patented an underground irrigation system that by the 1930s earned him the sobriquet of the "Doctor of Lawns."

During a 1939 visit to the Clarksburg, W.Va., home of Dr. Herbert W. Haynes, the surgeon explained to the inventor that orthopedic surgeons needed better prosthetic tools.

Even though surgeons had been using wires, screws and finally plates from the late 18th century and well into the 19th to repair fractured bones, there was still "a consistent weakness of the surgical steel pins that were available," his daughter wrote.

The challenge laid before Collison was to design "pins that would be strong enough to hold an external fixation device and at the same time prevent the development of pressure necrosis and electrolysis," his daughter wrote.

"Dr. Hayes was asking him — a mere machinist who had taught himself to read — to design a complicated mechanical element that would occupy space in the human body."

What he came up with were stainless steel pins that held solidly, and the Haynes-Collison External Fixation Device was a vast improvement on the older pins it replaced.

Even though he was not a medical doctor or a surgeon, Collision got so adept at inserting the pins, he often took over for orthopedic surgeons during operations.

Collison came to Baltimore in 1943 at the invitation of Dr. Milton J. Wilder, a noted orthopedic surgeon whose practice was centered at Kernan Hospital and who embraced the use of the Haynes-Collison External Fixation Device.

Collison designed the Collison Surgical Bone Screw, which had a razor-cutting edge that could be inserted "fast and clean," using a non-electrical screw driver, wrote Collison-London.

The screw was first tested and its use adopted at what was then the U.S. Marine Hospital in Wyman Park. It was used on wounded servicemen.

When the new bone screw was inserted into a completely round hole, "the screw threads would be equally embedded into the bone. The result was rigidity, the great gift he gave to orthopedic surgery," his daughter wrote.

Collison's screws, with a distinctive double "C" trademark on the screw top, were produced at his Acme Engineering Co. Inc. plant in Greensboro, N.C.

By the mid-1940s, Collison had switched his attention to his Trochanteric Plate and Artificial Femoral Head — the classic shaft with a steel ball — used in hip replacement operations.

"The Jaenichen-Collison metal femoral head, a three-part appliance, was designed about two years ago by Dr. Robert Jaenichen, a Saginaw, Mich., orthopedist and engineered by J.G. Collison of Greensboro, N.C.," reported The Washington Post in a 1948 article.

"The metal is molybdenum steel, highly resistant to body chemistry. ... The replacement is made to restore ambulation to the aged bedridden laid up by old hip fractures and joints frozen solid by arthritis of the hips. It could also be used in surgery for hip cancer," reported the newspaper.

While attending a football game at Emory University in Atlanta in 1946, he was walking with his friend, Dr. Lovejoy, when suddenly a woman came up, called the doctor's name, and threw her arms around him.

"You saved my life!" she said.

Lovejoy pointed to Collison and said, "No, ma'am, I didn't, this man did."

The woman had undergone successful bilateral hip replacements employing Collison's invention.

Collison established the Surgical Engineering Co. Inc. at Falls Road and 36th Street for the manufacture of the Collison Prosthesis and tools used by orthopedic surgeons.

A week after he had been honored for his contributions to orthopedic surgery by the American Academy of Orthopedic Surgeons in Chicago, Collision suffered a stroke at his office and died on Feb. 8, 1951.

In 1960, Joseph W. Tracey, a master machinist and chief engineer who had been with the company since 1953, designed the Collison Titanium Femoral Hip Prosthesis, which was patterned on Collison's original prosthesis.