

**FRANK J. ZAMBONI, JR. (1901-1988)**  
**THE MAN BEHIND THE MACHINE**

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The Chicago Blackhawks have not given their local fans too much to cheer about this season because of their lackluster play in the Western Conference of the National Hockey League. Nevertheless, the fans always cheer when the Zamboni® Machine makes its appearance ten minutes before the start of each of the three periods in every game. While the organ music plays, the big machine effortlessly sweeps back and forth across the scratched and gouged ice rink, leaving a surface as smooth as glass in its wake. The ice rink resurfacing contraption is a marvelous sight to behold with its bright paint and flashing lights, even when it is standing still and not traveling at its top speed of nine miles per hour.

Most hockey fans recognize Zamboni as an Italian name but many of them draw a blank when asked: "Who is the man behind the machine?" This is the amazingly inspirational story of an Italian immigrant's son who became wealthy beyond his wildest dreams.

January 16, 2001 marked the 100th anniversary of the birth of Frank Joseph Zamboni, Jr. Although his parents named him Junior, he never used the suffix throughout his life.

He was born as the third of four children in Eureka, Utah, a small town south of Salt Lake City. His father, Francesco Giuseppe, had immigrated as a 22-year old in 1885 to the United States from Arsio in the snow-capped region of Tyrol which at that time was a part of the Austro-Hungarian Empire. His mother, Carmelina Masoero, hailed from Avigliana in the Piedmont region of northern Italy. She came to the United States when she was 17 in 1887 and married Francesco shortly after her arrival.

When Frank was a year old, his parents bought a farm in Lava Hot Springs, near Pocatello, Idaho, directly north of Salt Lake City. It was there in the high mountain country that he developed a lifelong knack for working with mechanical equipment.

When he reached the age of 15, he was pulled out of the ninth grade to help his father on the family farm while he also worked as a mechanic in a local garage.

In 1920 his parents sold the farm and moved with Frank and his siblings to Clearwater in the harbor district of Los Angeles, California. Frank's older brother, George Angelo, had an automobile garage there. Upon their arrival, Frank and his younger brother, Lawrence Eugene, started working in George's garage and then in a blacksmith shop. After a year, they saved enough money to send Frank to the Coyne Trade School in Chicago to learn the electric business. When he returned in 1922, Frank and Lawrence went into business together as the Service Electric Co., later known as the Zamboni Bros. Co., in the

neighboring town of Hynes. In addition to electrical work, they also specialized in drilling water wells and installing water pumping equipment for many dairies in the area.

On February 21, 1923, Frank married Norda Ileta Chamberlain, shortly before her 20th birthday, in Downey, California. They would have three children: Arlene Loa, Jean Esther and Richard Frank.

Frank was soon approached by the New Way Electric Co. of Los Angeles to solve a problem for the firm. In 1924 Frank invented an adjustable electrical resister and obtained U.S. Patent No. 1,655,034 on January 3, 1928. During the next three years he obtained two more U.S. patents on electrical coils for the New Way Electric Co. while his brother Lawrence obtained two U.S. patents on braking devices for the Universal Brake Co. of nearby Pasadena.

In 1927 the two brothers had built an ice making plant from where they sold block ice wholesale to local fruit and vegetable packing plants that were shipping their produce out of the area in rail cars.

When Willis Carrier obtained a U.S. patent and started marketing his air conditioning and refrigeration units in 1935, the Zamboni brothers saw the end in sight for the ice manufacturing part of their company. So, in 1939, they sold the block ice business but kept their refrigeration equipment which they used in the building of an ice rink across the street.

In January 1940, with their cousin Peter Zamboni, the brothers opened Iceland as one of the largest ice rinks in the country with 20,000 square feet of skating surface. The 100 by 200-foot open-air arena could accommodate 800 skaters. In May 1940, a dome was added to protect the floor from the warm southern California sun. Approximately 150,000 skaters used the rink yearly.

The level surface at Iceland was popular because Frank had succeeded in eliminating the rippled effect often caused by pipe floors. For his efforts, Frank obtained U.S. Patent No. 2,411,919 on December 3, 1946.

While serving as a member of the local Chamber of Commerce, Frank was elected president of the Kiwanis Club in 1946. In that capacity, he set up a project to unify the town of Hynes where his business was located with the neighboring town of Clearwater where he lived. On January 1, 1948, his project came to fruition when the new combined city of Paramount was officially established.

After that success, Frank returned his attention to a technical problem which had perplexed him since the ice rink was opened. Usually, it took three experienced men 1 1/2 hours to resurface manually the rink after the skaters had chipped, scraped and cut the ice floor. Frank thought that too much skating time was being lost each day. He believed that there must be a better, quicker and more efficient way to resurface the entire rink.

Initially, he had purchased a Ford-Ferguson tractor in March, 1942 and started to experiment. When his first machine did not work well, he put his designs aside for five years until late July, 1947. After several more unsuccessful models, he finally developed

one that worked during the late summer of 1948. Within a year, his Model A was perfected so that one man could do the entire operation in only ten minutes!

Essentially a sharp-edged blade shaves the surface of the ice. After a horizontal screw gathers the shavings, a conveyor (now a vertical screw) propels the shavings into a snow tank. Water is then fed onto the ice from a second tank and a squeegee-like conditioner flushes dirt and debris out of any remaining grooves and indentations in the ice. Next, the dirty water is vacuumed up, filtered and returned to the second tank. Finally, the rink floor is renewed when clean hot water is spread on the ice by a towel behind the conditioner and then is frozen.

On May 16, 1949, he applied for a U.S. patent. Later in the year, he established Frank J. Zamboni & Co. as a family partnership to manufacture his machine starting with an improved Model B. The first sale was made for about \$5,000 to the Pasadena Winter Garden in 1950. The second sale was made to the Norwegian Olympic figure skater and film actress, Sonia Henie (1912-1969), for her "Hollywood on Ice Review" tour. Frank worked almost around the clock to finish the second machine and personally drove the parts to Chicago where it was assembled. She liked it so much that she soon bought the third machine.

The fourth machine was sold to the Ice Capades in 1952. It now resides in the U.S. Hockey Hall of Fame in Eveleth, Minnesota. After more than four years of pendency, U.S. Patent No. 2,642,679 finally issued to him on June 23, 1953. In 1954, ten units were built and sold. His 24-year old son, Richard Frank, joined him in the family business in 1956. Over the next 15 years, Zamboni obtained four more U.S. patents which he assigned to his company.

There was so much demand for the new fangled machine that he opened a second manufacturing plant in Brantford, Ontario, Canada, and a branch sales office in Zurich, Switzerland. Each of the two plants still employ from 50 to 60 people who assemble by hand about 200 machines a year.

The Zamboni® Machine was soon widely introduced throughout the United States, Canada and Europe. Also, the machines came to play a prominent role at world and Olympic ice competitions. Each machine usually lasts for about ten to 20 years but some are still operational after almost 50 years!

During this period of growth, Frank became a charter member of the Ice Skating Institute of America and was inducted into its Hall of Fame in 1965. He then served as its president from 1965 to 1967.

After he finished his term at the age of 66, a new challenge came to him when he was approached by the Monsanto Chemical Co. As the manufacturer of AstroTurf®, the company had a problem with their product: rain tended to stay on top of the artificial grass and would not soak through into the ground underneath.

Frank tackled the problem and invented the Astro Zamboni® Machine which sucked up and pumped water off the turf at the incredible rate of about 400 gallons per minute! For

this invention, he obtained two U.S. patents in 1973 and 1974. This machine has been credited with saving several World Series baseball games from being rained out.

Although Frank did not see the need for titles in the family partnership, he decided to incorporate the company on January 2, 1976. He became the chairman of the board of directors while his son became the president. His daughter Arlene became the treasurer and his middle child Jean became the secretary.

Meanwhile, Monsanto was so impressed with the Astro Zamboni® Machine that the company came back to him to solve another problem: it was hard to remove paint from the AstroTurf® after it had been applied to mark stripes for different sports. Once again, Frank came up with an ingenious machine which used rotary brushes to scrub the turf and then blasted a high pressure spray of water to wash away the loosened paint. For this invention, he obtained U.S. Patent No. 4,069,540 on January 24, 1978.

On April 18, 1978, he was granted U.S. Patent No. 4,084,763 on his "Grasshopper" which rolled up and laid down the artificial turf on sports playing fields in domed stadiums.

Not done yet, the 82-year old genius obtained his 15th and last U.S. Patent No. 4,372,617 on February 8, 1983, for an edger which trimmed ice that built up at the base of dasher boards in rinks. The edger is mounted on the conditioner of the ice resurfacing machine.

Five years later, Zamboni was invited to receive an Honorary Doctorate of Engineering from Clarkson University in Potsdam, New York. Too ill to travel, he dispatched his son Richard to accept the degree on his behalf on May 15, 1988. The next day, his beloved wife of 65 years died, ten days before her 85th birthday. Having lost his will to live and suffering the ravages of lung cancer, Zamboni died two months later at the age of 87, on July 27, 1988, in Long Beach, California. Two years later his brother, George Angelo, died at the age of 100.

Although Zamboni is gone, the honors continue. A year ago in February, 2000, he was inducted into the U.S. Figure Skating Hall of Fame. Also, the city of Paramount has built a one-half acre ice skating sculpture garden downtown, just 300 feet west of Iceland which is still operated today by the Zamboni family.

Also in the year 2000, the company produced its 7,000th ice resurfacing machine. The firm continues in family hands under the able guidance of its current president and chairman, Richard Frank Zamboni. At the age of 68, he has designated as his successor his 44-year old son, Francis Joseph, who is currently running the daily operations of the corporation. Thus, at the inception of the 21st century, the baton is being passed to the third generation of Zambonis. Since young Frank has two sons, it may well be that the federally registered trademark of the Italian Zamboni® family name will be at the forefront of the ice skating world for at least a fourth generation.

## **BIBLIOGRAPHY**

1. American National Biography Series, Vol. 10 at pgs. 590 & 591 (1999).
2. Clarkson University, 95th Commencement Program (May 15, 1988).
3. Series of telephone interviews by the author with Richard Frank Zamboni during November and December, 2000.
4. The Edge Magazine at pgs. 20-22 (July/August 2000).
5. Webster's New Geographical Dictionary at pg. 962 (1988).