

The History of the Vaneaxial Fan

In 1935 Mr. Lee Barrett, the chief electrical engineer of Pittsburgh Coal, heard that Dr. Theodore Troller of the Guggenheim Lighter-Than-Air Institute in Akron, Ohio had developed a fan for a wind tunnel that produced 200,000 CFM at 4" Tp. Mr. Barrett visited Dr. Troller and subsequently they came to an agreement whereby Dr. Troller would design a six foot diameter fan at 3" Tp and a Dr. Young of Pittsburgh Coal agreed to build this fan in the library at the Pennsylvania facility. The fan was built with wooden blades.

Bethlehem Steel learned about the high efficiency fan, now called the VANEAXIAL fan, and asked Dr. Troller to design an 11' diameter fan for them. Dr. Troller and Lee Barrett collaborated and Lee Barrett did the mechanical design and Dr. Troller did the aerodynamic design of the fan. This fan was installed at Ellsworth, Pennsylvania Mine and had an efficiency of 80% complete with hollow bronze blades.

In late 1936, Dr. Troller and Lee Barrett tried to sell their knowledge to Joy Manufacturing Company in Franklin, Pennsylvania. Joy did not want their designs at that particular time. They then went to Jeffrey Manufacturing Company, the chief supplier of fans to the mining industry, and could not come to an agreement. At that time, Jeffrey hired a man named "Curley" who, by the way, was the son-in-law of the founder of Jeffrey. At the same time --- July 1937--Dr. Troller and Lee Barrett signed an agreement with Ladel Conveyor and Manufacturing Company of New Philadelphia, Ohio to build vaneaxial fans in the five-foot diameter range, 40,000 CFM at 1.75" Pt. The first fan was delivered in December of 1937.

United States Steel came to Ladel and wanted an 8-foot diameter fan which they built and that was delivered in 1938. From that point until 1941, Ladel manufactured mine fans, i.e., surface fans, main ventilation fans, for the coal industry. At the breakout of hostility of World War II, Dr. Troller and Ladel worked with the Navy to design the standard family of Navy fans and in 1942 the Navy took over control and manufacturing of the Ladel works in New Philadelphia and built Navy fans for all Navy ships. During this period of time, Ladel built and designed special fans for the CB-1 and CB-2 heavy duty cruiser. They also worked with Goodyear Aircraft Company and furnished blowers for all of the blimps; the blowers were called "Ballonet Blowers". Ladel also worked with Stewart Warner and developed an aircraft fan that produced 400 CFM at 6" Pt which was utilized in all of the aircraft industry for heating.

In 1946, Joy Manufacturing Company purchased Ladel Conveyor and Manufacturing Company. From 1946 to 1950, they developed the series 1000 fan and completely tooled the New Philadelphia, Ohio facility to work toward and become the leader in the vaneaxial fan business. Joy Manufacturing named Dr. Troller to vice president of engineering also in 1946 Dr. Troller and C.L. Tinker designed and developed the model block construction one-piece fan casting fan that was used in most all commercial and military aircraft from 1946 until approximately 1960. At the time of the take over, Mr. Chester P. Jenkins was chief engineer of fans and over the next forty years Chet held positions that ranged from special fans, special engineering services to design of special products and senior management of engineering department of Joy Manufacturing Company. Mr. Charles Tinker worked hand-in-hand with Dr. Troller in the design and development of the original vaneaxial fans. He was product manager for all fans at the time that Joy purchased Ladel and he continued in this position which encompassed the development of the Series 2000 fan and all special fans that joy produced over the next thirty-some-odd years. He had complete and total responsibility for fans, from engineering to sales. Mr. C.L.Tinker then left Joy Manufacturing and went to Chicago Blower Company where he worked for seven years. For the next ten years, Mr. Tinker was vice president of engineering for Bonanza Fans, Inc. Irvine, CA.

Jack Barry owned and operated Bonanza Fans, Inc., until 1985. Jack availed himself of the talents of Dr. Troller who was an exclusive consultant to Bonanza Fans as well as Mr. Jenkins and Mr. Fouts. Mr. Fouts' experience in fan engineering has developed over a period of 36 years; the first three years in drafting and the remainder of his tenure with Joy as product engineer for fans.

Jack Barry profited from his association with the most knowledgeable minds in the vaneaxial fan business. These gentlemen trained him in the fine art of design and application of vaneaxial fans in particular for mines and tunnels.