Engineering at the Marion Shovel Company in Ohio. In 1930, Joy founded and was president of the Joy Brothers Company where he developed a system of coal saws that could produce “block coal”. Coal saw users at this time had an advantage in the domestic market until President Roosevelt set a floor price on slack coal of 75 cents a ton. This prompted Joy to sell the company to Sullivan Machinery Company, who asked him to remain as General Manager of the Mining Machinery Division in Claremont, New Hampshire. In a four-year period, he helped to create nine new cutting machines along with the development of a “saw loader”, which was basically a primitive continuous miner.

Joy returned to Joy Manufacturing Company to assist them in another patent litigation against Jeffery Manufacturing (E. C. Morgan). As an engineering consultant in Franklin, Joe created the Joy Safety Coal Drill. Had today's mine safety regulations been in effect, the machine would have been an instant success.

Later, Joy was called to service with the Army as a senior ordinance engineer in charge of development for the Chief of Army Ordinance. Among other accomplishments, he developed a seal of rubber and bronze cuttings which greatly improved the recoiling mechanism of large guns. In 1944, Joy left the Army and returned to Pittsburgh.

For two years he worked as Vice President and General Manager of Warren Welding and Engineering Company of Ohio. There was never a shortage of work or opportunity for Joe Joy. Numerous mining machinery companies were trying to hire him as a consultant. But it was A. S. Knozen, Executive Vice President of Joy Manufacturing, who played the key role in bringing Joy back to the company that kept his name after reorganization in 1928.


Joseph F. Joy died in February of 1957. He accumulated an impressive 190 patents during his career. His major inventions were recognized as milestones in the history of underground mining mechanization. He had pioneered new concepts in hydraulics, modern control and power circuits, trackless mining equipment, efficient gearing and seal designs as well as dozens of other “firsts” in the industry. His contributions changed forever the way minerals are mined.

CHARACTER • INVENTOR • REFORMER
Joseph Francis Joy was born September 13, 1883, in the small mining town of Cumberland, Maryland. This was a time when hard work, practical intelligence and thrift were needed to exist. At the early age of 12, as his father and brother before him, Joe Joy went to work at the nearby coal mine. He started as a slate picker, and by age 15 he was working underground as a face-miner using a pick and shovel. He would dust off the face with a hand-held auger, charge the holes with dynamite to 'shoot down' the coal and then hand-load it into small rail-mounted cars pulled by mules or ponies.

This was hard, dangerous work for a strong man, let alone a young boy. While lying on his side soaked in mine water, for long hours as he labored, this bright young man visualized a 'better way' to do the work. Determined to learn and blessed with a precocious ability to persuade others, Joy won the favor of his sisters. They gathered the sold chestnuts to assist his struggling family in their efforts to finance a correspondence course for him in mechanical engineering. On his 20th birthday, in 1903, the culmination of his working knowledge, fortitude and specialized education, Joy produced his first sketch of a unique digging and loading device. He proudly shared his invention with his friend, the brother who later provided convincing evidence of Joy's invention of a mechanical loader.

His work in the mines continued where he held every job from pumper to general superintendent. All during this time, Joe Joy attempted to convince others of his mechanical loading device invention. He circulated his drawing trying to persuade various mining companies to help him build his gathering arm loading machine. This marked the beginning of an uphill struggle to win his first of a total of 190 patents in his name.

Joseph F. Joy's accomplishments are as remarkable as his tenacious nature and aspiring ambition. In 1913, at age 30, Joe took a lower paying job in exchange for the opportunity to work on the development of his machine. He was hired as an engineer for Jeffery Manufacturing Company where he spent his days in Pocatelas, Virginia, as a team member developing cutting and loading equipment which included the model 34A, 37A and 38A machines. At night, he continued to develop his gathering arm loader which he eventually presented to Jeffery management. He tried to sell Jeffery the rights to his machine, but his offer was declined because his employer believed that Joy's invention was not his own. They believed the machine already had been invented by a man named E.C. Morgan in 1910.

Joy built five similar machines while working for the Pittsburgh Coal Company, all of which were track mounted. Donaldson, while pleased with the progress of the machine, suggested placing it on crawlers to increase its flexibility. However, initial trials seemed unsuccessful and the crawler machine was cut down. Joe Joy viewed this project termination as a major blow to Joe Joy. A photo from his private family album reflects his sentiments. The caption reads, "Life's labor - take up and try again. Joe Joy dressed warmly for his new and dramatic project halfway around the world. Joseph F. Joy had become the Director of Mine Mechanization in the Donetz Basin in Russia (where it is interesting to note that a young miner who was named Nikita Khruschev claimed that he ran a Joy loader at about this time). For two years Joy, along with his American engineering associates and support personnel, courageously dedicated themselves to the mechanization of Russian coal mines. However, Russia was now under Stalin's rule and the area was turning into a political hotbed. In 1927, fearing for the lives of his staff and himself, Joe commandedeer a railroad locomotive and escaped into Poland.

When Joy returned to the United States, he pursued his life as an inventor, including working at the Bethlehem Steel Company in Pittsburgh, Pennsylvania on the design of conveyor systems. Subsequently, he was hired as Assistant Vice President of Joy machinery established. On June 4, 1920, the first crawler-mounted JOY loader was manufactured at Traylor Engineering in Allentown, Pennsylvania. Greater mobility proved itself, delighted Joy and promoted more interest in his machine. A major machine order was subcontracted by Joy to Charleroi Iron Works in Charleroi, Pennsylvania. The first model JOY 4B sold for $2,800 in September, 1922, to the D. J. Kennedy Company which sold coal, bricks and building supplies. Soon the loaders were successfully operating in West Virginia, Illinois and Saskatchewan, Canada.

By 1923, Joy was looking for a place to call his own, close to a progressive and productive mining area. The site he chose was located in Evansville, Indiana. The model 4A, 4BU and 5BU ("U" referring to its underground application) were developed and manufactured at Joy's first continuous mining operation in the Evansville area. One hundred eighty-four 4BU's were sold as the first commercial loading machines of their kind. The 5BU, however, was truly the forerunner of the modern loader, and this became even more apparent in 1925. The first 5BU was manufactured in February, 1923 and installed in what is known today as Freeman Coal's Orient Number 1 Mine in West Frankfurt, Illinois.

Joy moves to Franklin, Pennsylvania

Financial difficulties related to rapid growth overwhelmed Joy. He continued to subcontract machines to the Charleroi Iron Works since the Evansville plant was simply too small for continued development of the 4BU and 5BU machines. Joy was unable to obtain a lease on a larger Evansville area plant. Joe Joy approached the Cobern Machine Tool Company of Cleveland, Ohio for help and they responded with an agreement to refinance Joy for $106,000 in stock and $19,000 in cash. The transaction included turning over the Cobern plant in Franklin, Pennsylvania to Joy Machine Company with 'full ownership of building and lands'. In early 1924, the Indiana operation moved to Franklin. At that time, West Virginia and Pennsylvania coal fields were in rapid development and there appeared to be excellent potential for loaders. The Franklin location was also near other desirable raw materials and steel foundries.

Operations began on March 1, 1924, and the Franklin plant became the first to bear Joy's name. One subcontracted employee said, "We came here by car in April of that year and we could not get a hotel room. Our mother took one at the hills and said that she was taking the next train home!" For approximately 50 Hoosiers from Indiana, the steep hills of Pennsylvania had become a new home.

One hundred eighty-six loading machines were produced from the end of March until December 1, 1924 - all successfully incorporating ‘field proven’ Joy developments. However, financial difficulties plagued the operation and payroll was progressively difficult to meet. During that time, Joe Joy, at the suggestion of his young assistant, John L. Lewis, caught in the Betty Nunn’s Centennial of Coal Mining in the Donetz Basin in Russia (where it is interesting to note that a young miner who was named Nikita Khruschev claimed that he ran a Joy loader at about this time). For two