

\$20.00 Per Year

June-July 2009

Engineers & Engines

Volume 55 • Number 1



THE BI-MONTHLY MAGAZINE FOR ALL STEAM, GAS, TRACTOR, RAILROAD, LOCOMOTIVE AND FARM MACHINERY ENTHUSIASTS

THE BUFFALO PITTS DYNASTY: A MAJESTIC HISTORY FROM THRESHERS THROUGH TRACTION ENGINES TO STEAMROLLERS

If longevity in the thresher manufacturing business is a mark of a company's distinction, Buffalo Pitts is one of the most illustrious firms in farm traction and road compaction history. The story of Buffalo Pitts begins with the birth of twins John Avery and Hiram Abial Pitts in Winthrop,

On the Cover

Taken in 1906 at Cape May, New Jersey, this photo shows an early Buffalo Pitts ten-ton roller. Several features clearly show that this is probably an 1892 or earlier machine. First, there are the scrapers that sit in a horizontal position; second, there is no protective cover over the steering worm gear assembly; and, third, there is no clevis on the end of the rocker joint pin. The biggest item that distinguishes these machines is the kingpin housing; to begin, the hole behind the kingpin area is much larger (4 in.) than that of rollers built after 1892. Next, the smokestack base is smaller and sits higher than those found on later production machines. Lastly, the smokestack is smaller at its base and, thus, has more of a V shape as it nears the top. Photo courtesy of Raymond L. Drake and Robert T. Rhode.

Inside this Issue

The Buffalo Pitts Dynasty 3 Midwest Central Railroad Restoration 10 EDGETA News 11
Columbus, OH Power Show11
Pioneer Engineer's Club of Indiana12
Marcie's Musings14
The Buckley Lantern15
Steam Engines Drove Settlement20
Life of Denis Papin
Scenes from the Photo Album
Pioneer Farmers Show
Book Review
In Memory
Scenes from the Showgrounds
Port Huron Threshing
Spalding's Corner
Two Very Different Worlds

By: Raymond L. Drake and Robert T. Rhode

Maine, on June 2nd, 1799. The Pitts brothers are as renowned in the chronicles of agricultural history as Wilbur and Orville Wright in the annals of flight. John and Hiram Pitts set out to manufacture tread powers to run groundhog threshers. The brothers soon recognized that knocking the grain loose from the stalks was insufficient; a threshing machine should *clean* the grain, as well. It was in the years 1830 and 1831 that J. A. and H. A. Pitts began to experiment with mechanisms for separating grain from chaff. Hiram ultimately invented the thresher that changed American farming forever. To exaggerate the magnitude of Hiram's achievement is impossible. The

brothers patented Hiram's threshing machine and were selling it by 1834, but it was really the Pitts brothers' *improved* thresher of 1837 that brought American agriculture into the industrial age. The 1837 machine introduced the apron conveyor that virtually all early thresher manufacturers adopted.

A decade later, the Pitts brothers decided to take their machines to the farmers who were carving large acreages from the Illinois prairies. In 1851, Hiram was selling apron threshers from his headquarters in Chicago; these machines were known as Chicago Pitts threshers. John had left Illinois to cover sales in Ohio. From there, John had relocated in Buffalo, New



Buffalo Pitts built a wide variety of farm traction engines, and we suspect that not all of the firm's designs were original to the company. Other researchers have long thought that Buffalo Pitts copied designs pioneered by competitors. In this rare image, we see a Buffalo Pitts three-wheeled straw-burning traction engine from 1891, which the company marketed in California in an obvious attempt to compete with three-wheeled traction engines manufactured by the Daniel Best Agricultural Works of San Leandro. Additionally, to capture sales in the western markets, Buffalo Pitts produced specially designed threshing machines called the California model.

York. In the same years that Hiram was selling Chicago Pitts threshers, John was marketing Buffalo Pitts threshers. For a time, the Buffalo thresher company was named Pitts & Brayley. John died in 1859; Hiram, in 1860.

In 1860, the Buffalo firm sold steam engines on boilers that could be fitted with wheels and pulled by horses to wherever power was needed. From 1863 until 1866, John B. Pitts, the elder John's son, presided

ENGINEERS & ENGINES

over J. B. Pitts & Company, manufacturers of the Dayton Pitts Thresher, in Dayton, Ohio. In 1866, John B. Pitts became a partner in the Buffalo firm, which became known as the Brayley and Pitts Works and was named for John B. Pitts and James Brayley, the elder John's son-in-law. In that same year, Woodsum and Tenney purchased the Dayton firm. In 1877, the Pitts Agricultural Works was incorporated in New York.



Like many other manufacturers that entered into the compaction industry, the Buffalo Pitts Company initially converted one of the firm's traction engine designs into a road roller. Depicted in this cut is one of these early rollers, which were called Niagara models. It is worth noting that the firm's vibrating threshing machines of the same era also went by the Niagara moniker. One of these Niagara steamrollers has survived into the preservation era and is undergoing restoration in California.



Here we see a circa 1891 Niagara model roller. While the gearing appears identical to that used on the farm traction engine of the same era, note that the belting wheel has been replaced by a flywheel.



Here is the Buffalo Pitts 35 HP traction engine, and, while it is considerably larger than the Niagara steamroller, the line of development leading from the firm's farm engines to the first Buffalo Pitts road rollers is obvious. We believe that it was the 16 HP model of agricultural engine that was modified into the Niagara roller; unfortunately, we do not have a suitable image of a 16 HP engine to present. We have resorted to this picture that dramatically illustrates the gargantuan dimensions of the 35 HP model.



This catalog cut depicts a mid-1890s design Buffalo Pitts twelve-ton roller. Notice how the smokestack has air vent holes near the base and also that there is no protective cover over the steering gear. Additionally, note the initials PAW on the rear bunker signifying the Pitts Agricultural Works. This machine is fitted with a cast belting wheel. While belting wheels were available for an additional cost, they normally were made from pressed steel, and this is one of only a few rollers that we have seen using a cast wheel.

Page 5

John B. Pitts became associated with Oliver S. Kelly through Rinehart, Ballard & Company Threshing Machine Works in Springfield, Ohio, which sold threshing machines under license to Pitts and which Kelly served as president beginning in 1882. One day, Pitts' city of Buffalo and Kelly's city of Springfield would become forever linked in a name that would dominate the steamroller industry. Meanwhile, after 1897, the rapidly

expanding business in New York was called the Buffalo Pitts Company.

To say that Buffalo Pitts built a dizzying array of steam engines is no distortion; over the years, Buffalo Pitts steamers took a wide variety of forms. If readers of *Engineers and Engines Magazine* enjoy identifying engines in historical photographs (and the success of "Spalding's Corner" suggests that they do), they would do well to accept this advice: when in doubt as to the builder of a steam engine, turn to Buffalo Pitts. For whatever reasons, photographers often made exposures of Buffalo Pitts steamers in the field.

While various statements in the surviving documents of the Buffalo firm are vague, it appears that Buffalo began producing its first steamrollers, which were built on the double-cylinder pattern, circa 1890.

In response to the geometrically expanding demand for steam-powered threshers that occurred once the Panic of 1893 had begun to subside, Buffalo Pitts began a rapid expansion of its manufacturing capacity and added several product lines in 1895. At the same time, the Waterous Company in Canada began building traction engines that incorporated the gearing and controls of Buffalo Pitts engines. Waterous also introduced a line of steamrollers that employed Buffalo Steam Roller Company gearing. To meet demand, Waterous was selling Buffalo steamrollers alongside Waterous steamrollers by 1910.

In 1902—the same year that its competitor in Springfield, Ohio, spun off its roller division as an entity separate from its agricultural works—the Buffalo firm split off its steamroller manufacturing arm as a separate corporation. In 1910, Marquis J. Todd assigned to the Buffalo Steam Roller Company his patent for a front roll with a separate center section. By removing the center, the three-wheel roller was transformed into a four-wheel road locomotive. The plant also manufactured highway freight cars to be pulled by road locomotives.

Even though U.S. thresher and engine manufacturers could not keep up with domestic demand for their products from the late 1800s through the first dozen or so years of the new century, evidence indicates that Buffalo Pitts developed a lively Australian trade. In the first decade of the 1900s, the International Harvester Company supplied Buffalo Pitts steam tractors and other machines to Australia. Buffalo Pitts also sold beyond America's



This photo shows a ten-ton Buffalo Pitts roller employed as a hauling engine. The wagons contain over 80,000 lbs. of paving bricks, which were used in building an early New York state highway. For such work, a "convertible" type roller—with the center of the front roll removed—would be expected.



Buffalo Pitts rollers were powerful machines. Starting in 1910, they could be specialordered with a three-piece front roll. By removing the center section, the crew could turn the road roller into a hauling engine. These machines were generally referred to as convertible rollers.



In this old catalog cut can be seen the side view of a typical Buffalo Pitts tandem road roller. This image from a 1910 catalog clearly shows the details of these machines. Note that this roller has the upright engine.

shores a number of kerosene and gasoline tractors that included a three-cylinder model that was introduced in 1910. Not to be outdone during this same period, Buffalo Pitts road rollers were sold to foreign markets, including large sales to Cuba and the Philippines. Buffalo Pitts steamrollers were among the numerous steam-powered machines that helped build the Panama Canal.

In April 1906, *The American Thresherman* announced Northwest's cross-compound special plowing engine. Northwest's interest in such a massive engine coincided with that of Buffalo Pitts, which had been marketing cross-compound traction engines since 1901. In that same year of 1906, Buffalo Pitts introduced its own cross-compound special plowing engine. Northwest and Buffalo Pitts used different valve gears, but the engines resembled each other; in fact, the similarity might lead to the suspicion that one firm had spied on the other during the planning stages.

Buffalo Pitts continued to advertise such steamers as its special plowing engine in the 1912 *Threshermen's Review*, but bankruptcy was already looming on the horizon. The Panic of 1907 continued into 1908, and, from 1908 through 1912, business in the

This photo was taken near Almena, Kansas, in 1912. and the roller was used by the crew of Raymond Reser, grandfather of Raymond Drake. It is thought to be an 1893-4 production machine. What distinguishes this roller is the sharply V'd smokestack tvpically used on **Buffalo** Pitts rollers until 1895.







Buffalo Pitts did not limit its manufacturing to agricultural and road-building products alone, as evidenced by this airplane, the design of which the Pitts firm was underwriting. Unfortunately, this was during the period between 1910 and 1912, when Buffalo Pitts was experiencing severe financial difficulties. As a result, funding of the airplane project was cut off by the receiver appointed to oversee the bankrupt company. The creator of this airplane was Charles Morgan Olmsted, who was well known for designing a propeller that Glenn Curtis highly praised and that Donald Douglas used on an experimental racing plane. Olmsted propellers were installed on flying boats that were sold to the British, and a MacDonnell hydroplane set a Navy record using an Olmsted propeller. From seeing this model, viewers can discern that Olmsted's airplane was an advanced concept for such an early period in the development of lighterthan-air flight.

Here is a photo taken in 1916 at South Portland, Maine, showing a Buffalo Pitts ten-ton roller. This machine is being used as the power source for an oil sprayer. Notice the sign located on the side of the oil tank advertising Tarvia, a magazine that was the bible for early road builders.



This 1917 photo, taken in New York State, shows a twelve-ton Buffalo Pitts steamroller equipped with a side-mounted scarifier.

Page 7



Here is a right-hand view of the extremely rare Buffalo steam wagon. Little is known about these trucks. It is thought that they were built around 1918 to be used in the war effort. Many automobile manufacturers including Packard, Pierce-Arrow, and Cadillac built trucks which saw service during the first world war, and it is said that the Buffalo Pitts Company manufactured these trucks to be used in that conflict. What is known is that some of these trucks were put to work immediately after the war hauling beer in the east end of London. An Englishman who worked as a mechanic on these trucks claimed that much of the running gear was made by the White Motor Company of Cleveland, Ohio. None of our research has been able to document this assertion.

United States was sluggish. A receiver was named to divest the Buffalo firm of collateral lines. Period literature suggests that, by 1914, the Buffalo Pitts farm engine division was in trouble, but the roller division, separate as it was, continued to succeed. The steamroller business readily identified new markets as highway projects were poised to flourish in response to the dramatic increase in automobile use.

Between 1910 and 1912, the company had been financing Charles Morgan Olmsted, who had designed an airplane that Buffalo Pitts intended to produce. Charles was the son of John B. Olmsted, attorney for the Buffalo Pitts Company. Charles' airplane was well conceived; tests at Purdue University from 1979-1980 proved that the plane would have been safe and stable. Of a meticulously scientific mind, Charles worked carefully and constructed only one full-sized airplane, although he did not finish building

tail. At the its moment when the success of the airseemed plane assured, the receiver cut off funding. Having had longstanding sales territory agreements with O. S. Kelly in Springfield, Ohio, Buffalo Pitts began selling steamroller components to Kelly. In early 1913, the first roller that was built with Buffalo Pitts components came from the Springfield factory.



When people think of road rollers, they often think that they were used only in road construction. As can be seen in this picture, there were several other areas where they were employed. Here is what appears to be a seven-ton Buffalo Pitts tandem roller that is compacting the bed of a railroad track.



This image shows another way in which steamrollers were used. These Buffalo Pitts machines are fitted with special traction lugs and front roll rings for use as "puddling" rollers to compact the floor of water reservoirs.

In 1916, the Buffalo Steam Roller Company merged with the Kelly-Springfield Road Roller Company. A frequently quoted historical detail that has the hallmarks of authenticity asserts that a Buffalo stockholder refused to endorse the merger. Unable to budge the refractory stockholder, Kelly-Springfield and Buffalo Pitts resorted to the strategy of building their separate lines of steamrollers under the same roof in Springfield. Finally, in 1921, the stockholder relinquished his stock. Only then did the production of separately designed Buffalo-Springfield steamrollers begin in earnest. Indeed, batches of steamrollers that were assembled in Springfield in 1921 bore the name Buffalo Pitts on rollers that were the first to be built and the name Buffalo-Springfield on rollers that were completed later in the year.

After the 1916 merger that eventually led to the Buffalo-Springfield firm, steamroller production in Buffalo dwindled. Simultaneously, no new farm engines were built in Buffalo after 1916 because, in 1915, Buffalo Pitts had sold its steam tractor business to Toledo, Ohio's Banting Manufacturing Company, a firm that resulted from a reorganization of the Banting Machine and Supply Company. The earlier firm had been a distributor of Buffalo Pitts equipment. Banting coined the name Greyhound for the Buffalo steam tractors, which Banting assembled on Ohio-built boilers.

The once-great Buffalo Pitts firm slowly vanished. Only Greyhound engines and Buffalo-Springfield steamrollers enshrined the memory of Buffalo Pitts, the heir to the illustrious legacy of Hiram and John Pitts.



Many people erroneously think that tandem road rollers are smaller machines. While it is true that some were built that were rated as small as 2 ¹/₂ tons, most tandem machines weighed as much as their three-wheeled sister rollers. Here we see a ten-ton Buffalo Pitts tandem roller that is fitted with the early upright motor. A happy couple poses for the photographer. Having these people in the picture helps viewers to gauge the size of this machine.

Acknowledgment

The authors wish to acknowledge Dr. Garrett Olmsted for introducing them to the 1912 Olmsted airplane; Dr. Olmsted wrote a book-length history of his illustrious ancestor's contributions to aircraft design and published an excerpt in the twentieth anniversary issue of *World War 1 Aeroplanes*. The authors also wish to thank Curt Dalton of Dayton, Ohio, for researching John B. Pitts' connections to Dayton.

Raymond L. Drake and Robert T. Rhode are the authors of the book *Classic American Steamrollers 1871-1935 Photo Archive.*

Contact steamroller authority Raymond L. Drake at (719) 689-3000; e-mail: raymond88@earthlink.net

Contact steam historian Robert T. Rhode at 990 W. Lower Springboro Rd., Springboro, OH 45066; e-mail: case65@earthlink.net

> All photos are courtesy of Raymond L. Drake and Robert T. Rhode.



This picture from Massachusetts shows a ten-ton Buffalo Pitts steamroller pulling a large rock.

ATTEND A NEW SHOW THIS YEAR!

Page 9