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US consumer fireworks - Rise and Fall by Robert T. Kellner

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Fountains, helicopters, novelties, Roman candles, skyrockets, sparkler and tube aerial items were all made in the United States. The only imported items were small firecrackers imported from Portuguese Macau. Prior to what are known today as "cakes," the only repeating aerial consumer fireworks that were sold were Keystone's 3, 5 and 9 shot Comets and New Jersey's Aerial Battles, Battle in The Clouds and Devil Among the Tailors. While the Aerial Battles simply shot up a pack of firecrackers and the Keystone Comets were just a pressed pellet star, the Battle in The Clouds and Devil Among the Tailors

were ingeniously timed combination devices consisting of one or two Roman candles and a large color
star mine.

ABSTRACT

All great fireworks shows have three components. First, there is the *Opening Barrage.* The second component is the *Main Body* of the display and lastly the *Grand Finale.* While researching the history of the manufacturing of consumer fireworks in the United States, the whole arc of the story seemed to play out like a magnificent display.

First, we had the *Opening Barrage,* the new immigrants in a new nation designing new products to be used to celebrate a new holiday, The Fourth of July. These were the originators of the US fireworks industry. Then, following the American Civil War, as the *Main Body,* the innovative companies that were now expanding westward following the pioneers and introducing fireworks to the masses from the Atlantic to the Pacific. Then finally, there is the *Grand Finale,* the inevitable end of the spectacle. These would be the Post-World War II manufacturing companies that built on the innovations of their predecessors but ultimately saw the conclusion of their industry unfold.

Today, there are no consumer fireworks manufacturers in the United States.

For this paper, the author will focus on the *Opening Barrage* originators There are just too many great stories of the intrepid entrepreneurial men and women of fireworks to try to put all in one article.

Too little is known today about these people who created and grew this industry. The researching and writing of this paper, will serve to educate the reader a little about the lives of these inspiring individuals.



Fig. 2 - U.S. President Richard Nixon meets CCP Chairman Mao Zedong (1972)

However, as the Bible states: "In the beginning…"

THE OPENING BARRAGE

The pre-Civil War originators of the U.S. consumer fireworks manufacturing industry

French immigrant Eleuthère Irénée duPont began producing black powder on the banks of Delaware's Brandywine River in 1802. Making charcoal from local willow trees, Dupont's powder mill supplied the United States government with much-needed gunpowder during the War of 1812 with Great Britain.

At war's end, it did not take long for more enterprising immigrants to find other uses for Dupont's magic powder. Celebrating the birth of their new nation became the way for Englishmen Isaac Edge Jr. from Derbyshire, John W. Hadfield from Sheffield, Yorkshire, and Peter Palmer from Whittlesome. Suffolk to show their patriotism while making a living producing entertainment for the masses. Gustavus Adolphus Lilliendahl, born to German immigrant parents in New York City, soon joined them as the originators of the United States' consumer fireworks industry. (Table 1) Tables 2 and 3 list the post-Civil War innovators and the post-World War II zenith of the U.S. consumer fireworks

Manufacturing	(1891-1967)		
Longhorn Manufacturing	Larry Brown (Born 1940) Raymond Lee Gilder (1935-2022)	1967-2004	Roswell, New Mexico
LW Loyd Co/Atomic Distributors/Space Age Manufacturing	Lew W Loyd Sr (1912-2009)	1966-1992	South Pittsburg, Tennessee
New Jersey Fireworks	Anthony Fabrizi (1913-1991)	1948-1988	Elkton, Maryland
Pyrotechnics/Apollo Manufacturing	W Patrick Moriarty (Born 1931)	1968-1988	Rialto, California
Rozzi's Famous Fireworks/Tri State Mfg	Arthur Rozzi (1895-1980)	1930-2006	Loveland, Ohio
Starr Fireworks	Cameron Starr (1936-2014)	1983-2003	Fargo, North Dakota
United Fireworks Manufacturing Co	Walter Beachler (1898-1976)	1931-1998	Dayton, Ohio
Zenith Specialties	Lawrence Brown (1881-1960)	1923-2013	Clinton, Missouri

ISAAC EDGE JR., THE FATHER OF CONSUMER FIREWORKS

Isaac Edge Jr. was born in 1801 in Derbyshire, England and immigrated to the United States with his parents Isaac Edge and Francis Ogden Edge to Brooklyn, New York in the early 1800s. Isaac Edge Senior, a miller (a grinder of grains) moved his family to Jersey City, New Jersey in 1806 and erected a large windmill on the shore of the Hudson River that was a prominent city landmark for many years.

While barely a teenager, Isaac Edge Jr. enlisted in the War of 1812 (1812-1814), serving in the New Jersey Infantry as a drummer. While serving in the infantry, young Edge must have become quite familiar with the black powder that Mr. DuPont had just started milling and grinding for the U.S. government from his factory in Delaware.

According to "The Glorious Fourth" published by the *New York Daily Tribune* on June 25, 1868: *Thomas Patrick (1789-1830), a native of England, established the first laboratory for the manufacture of fireworks in the United States in 1827, in Castle Garden, and it was from this man that Mr. Isaac*

made in the United States. The only imported items were small firecrackers imported from Portuguese Macau. Prior to what are known today as "cakes," the only repeating aerial consumer fireworks that were sold were Keystone's *3, 5 and 9 shot Comets* and New Jersey's *Aerial Battles, Battle in The Clouds* and *Devil Among the Tailors.* While the *Aerial Battles* simply shot up a pack of firecrackers and the *Keystone Comets* were just a pressed pellet star, the *Battle in The Clouds* and *Devil Among the Tailors* were ingeniously timed combination devices consisting of one or two Roman candles and a large color star mine.

Thousands of people were employed making these mass-produced forms of entertainment and celebration. (Figure 1)



Fig. 1 - Photograph from Kellner's Fireworks Inc. catalog (1980s)

That all changed with the opening of trade between the United States and the People's Republic of

Rochester Fireworks Co.	Peter Palmer (1799-1895)	1836-1939	Rochester, New York
G.A. Lilliendahl & Co.	Gustavas A Lilliendahl (1829-1907)	1853-1887	Greenville, New Jersey

Table 2 - The Main Body

The post-Civil War innovators of the U.S. consumer fireworks manufacturing industry

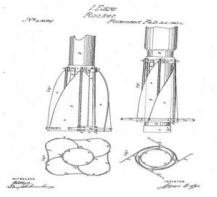
Company	Founder	Years Manufacturing	Location
A Jedel Sparkler/ International Pyrotoy	Aaron Jedel (1872-1937)	1910-1922	Newark, Delaware
A.L. Due Fireworks	Adolph Due (1850-1912)	1880-1896	Reading, Ohio
Commercial Novelty Fireworks/Havre de Grace Fireworks	Archillo Fabrizio (1889-1957)	1920s-1960	Willow Street, Pennsylvania
E.S. Hunt & Sons	Edmund S Hunt (1827-1909)	1889-1916	Weymouth, Massachusetts
Essex Specialty	Benedict Wolf (1866-1932) Milton Adler (1887-1975)	1901-1942	Berkeley Heights, New Jersey
Hitt Fireworks Co.	Thomas G Hitt (1874-1958)	1905-1977	Seattle, Washington
Masten & Wells	Cornelius Masten (1824-1901) and Benjamin Wells (1831-1899)	1859-1941	Boston, Massachusetts
M. Backes' Sons Inc	Michael Backes (1829-1889)	1876-1962	Wallingford, Connecticut
National Fireworks	George JJ Clark (1866-1965)	1900-1942	West Hanover, Massachusetts
Rutter & Lechler	Mont Rutter (1879-1963) Emil Lechler (1880-1970)	1923-1946	Lenover, Pennsylvania
Tipp Fireworks	James A Scheip (1869-1958)	1921-1933	Tipp City, Ohio
Victory Fireworks/Triumph Fusee & Fireworks	Josef Benjamin Decker (1888-1944), Alberto Cimorosi (1878-1942)	1919-1942	Elkton, Maryland

(the 4th of July 1837) to communicate by telegraph a distance of more than twice around the globe."

Castle Garden (now known as Castle Clinton National Monument) was originally a military fort off the southernmost point of Manhattan Island in New York City. From 1824 to 1849, Castle Garden was one of New York City's most popular entertainment centers where people could eat at a restaurant, listen to concerts, enjoy the theatre, attend the opera, witness scientific wonders like Samuel Morse's demonstration of the telegraph in 1842 and watch Isaac Edge's Fireworks programs that featured (as described in an 1847 flyer)

- *Signal Rockets with splendid Greek Bengola Lights illuminating the entire area. (Figure 3)*
- *Mexican Sun tableau commencing with Vertical, Hexagon Wheels with Crimson and Green Centers mutating to splendid sun of brilliant Chinese fires.*
- *Indian Palmetto tableau with Sextagon, Vertical Wheels of Chinese and Radiant fires opening with splendid green centers and crimson centerpieces mutating to the Indian Palmetto of dazzling brilliancy, composed to Chinese gerbs interspersed with Saxons richly colored.*
- *The Persian Rose, a beautiful and much-admired piece commencing with variegated and richly colored Sexagon Vertical Shells changing to the Persian Rose of all colors known to Pyrotechny.*
- *Ending with a grand "Fue de Joie" with rockets with brilliant stars.*

The 1836 advertisement (Figure 4) from the Boston (Mass) Traveler offering Mr. Edge's wares for sale to the general public is the oldest ad that the author has found for this. Thus, Mr. Isaac Edge Jr. is referred to as the "Father of Consumer Fireworks."



sortment of WHEELS, from three to twelve cased, heavy calibre, of different Fires, with plain and illuminated centres.
Mutation Pieces, of every description that fancy might suggest.
ERUPTION OF MOUNT VESUVIUS.
ILLUMINATED TEMPLES, fitted up in the Corinthian, Gothic, and other orders.
ROSES AND DIAMONDS, Fountains.
Cascades. Bombs, Kaleidoscopes, Magic Circles.
Bengola Lights, Tourbillons, Maroons.
SIGNAL LIGHTS, for shipping.
And a variety of other articles in the Pyroteehnie Line.

Proprietors of Gardens, and Committees of Arrangement for the approaching *Celebration of the Fourth of July*, would find it to their interest to call and examine the above articles.

For further particulars, apply to the following Agents:—H. Yvelin, 231 Fulton, near Greenwich street; and Lewis Page & Son, 40 Chatham street, New York—or to

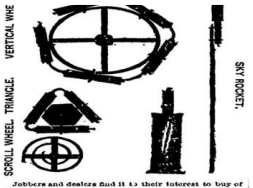
ISAAC EDGE, Jun., at the Laboratory, may 24 Jersey City, opposite New York.

Fig. 4 - May 24, 1836, *Boston Traveler* newspaper advertisement for Isaac Edge's fireworks

JOHN W. HADFIELD

John W. Hadfield was born in Sheffield (Yorkshire) England in 1808. In 1845, he immigrated with his wife and sons to New York City. It is unknown if he was a pyrotechnician in England. His immigration passenger manifest listed his occupation as "Mechanic." However, by 1847, the *New York Evening Post* declared that he created the "Greatest of Fireworks Displays" ever seen in Washington Square. Hadfield's shows consisted of fountain bouquets, rockets, parachutes, bombshell batteries, blue, green and red colored bengal fires, salutes, wheels, and elaborate set pieces.

Throughout the late 1840s and early 1850s, Hadfield continually won the Best Exhibition of Fireworks trophy at the Annual Fair of The American Institute of the City of New York at The Castle Garden Entertainment Center in Manhattan. The American Institute of the City of New York for the Encouragement of Science and Invention was an association of inventors. It organized exhibitions and lectures to inform the public about new technologies and its fairs attracted wide attention from investors and capitalists. Among the inventions that received early recognition from the Institute were the sewing machine, Colt's firearms, the Morse telegraph, and the telephone.



Jobbers and dealers find it to their interest to buy of the subscriber, the

Oldest, Most Reliable and Extensive Laboratory in the Country.

The public fireworks display of New York and other cities being awarded to us is an indication that our works are satisfactory.

Cities & Private Parties Supplied with Displays.

Flags, Lanterns, Candles, and Illuminating Fires

ALWAYS ON HAND.

GEORGE PARSONS & CO.
No. 11 Dey street.

Fig. 6 - Newspaper advertisement for Hadfield's Fireworks

PETER PALMER

Born in Whittlesome (Suffolk) England in 1799, Peter Palmer came to the United States in 1830. By 1836, he had become the proprietor of the Utica (New York) city fireworks gardens. Fireworks gardens were open areas where the public could have an evening out with concerts, refreshments and, of course, a magnificent fireworks display to end the evening.

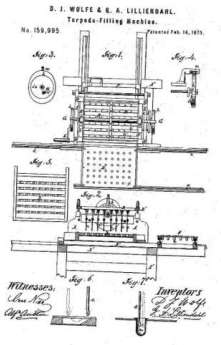


Fig. 9 - Lilliendahl patent application

Always the innovator, Lilliendahl even patented a "Fire Balloon," a precursor to today's sky lanterns. (Figure 10.)

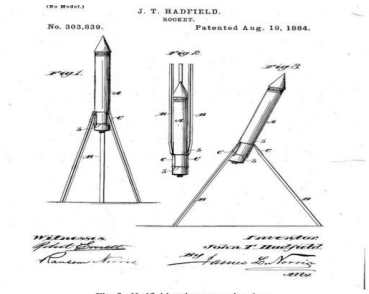


Fig. 5 - Hadfield rocket patent drawing

According to *Scientific American* from July 1867, Hadfield's exhibitions were ingeniously lighted by quickmatch strings connected by conduit to electricity whereby many items would fire simultaneously. Could this have been the invention of the electrically fired shows that would not become commonplace until well over a hundred years later?

In 1885, J.W. Hadfield & Son merged with Charles B. Bidwell (1848-1912), a fireworks maker from Middletown, Connecticut to form Standard Fireworks. By 1899, Standard Fireworks had become part of Nordlinger-Charlton Fireworks and, eventually, Unexcelled Manufacturing Company. John W. Hadfield died August 21, 1888 in Brooklyn, New York.



Fig. 7 - Rochester Fireworks Company Salesman Sample Box

A May 1900 article in the *Rochester Democrat and Chronicle* (Figure 8) describes the fireworks that Palmer's Rochester Fireworks Company were making for the birthday celebration of Queen Wilhelmina of Holland, specifically set pieces that "enclosed a charming portrait of the Queen… as well as the facsimile in colors of the Dutch flag and of the shield of Holland." The article goes on to say that the Palmers had sent orders that year to London, to Paris, to the East Indies, to Manila, to Japan, to South Africa, and every South American country except Patagonia.

In 1927, the Palmer family sold their manufacturing plant, and by 1939 the factory had been converted to making ammunition for the U.S. Army and Navy.



Fig. 8 - *Rochester Democrat and Chronicle* advertisement for Rochester Fireworks Co.

GUSTAVUS A. LILLIENDAHL

Gustavus Adolphus Lilliendahl was born to German immigrant parents in 1829 in New York City. His father, Christian Lilliendahl, had a store on William Street in lower Manhattan and was an importer of toys, a dealer in fireworks, and a manufacturer of items made from whale bones. Evidently, at his

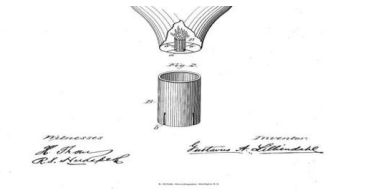


Fig. 10 - Lilliendahl patent application – Fire Balloon

On September 1, 1858, Mrs. Martha Coston, the widow of the former head of the United States Navy Pyrotechnics Laboratory, was intently watching a fireworks display. She was not alone. She was with thousands of other spectators watching the Fireworks Grand Finale of New York City's "Great International Cable Jubilee" celebrating the completion of the laying of the first telegraph cable between the United States and Europe. While there were several magnificent displays throughout the Jubilee, the display performed by the Lilliendahl Company piqued her interest with their fireworks rockets featuring headings of a color that she had never seen before in fireworks: blue. Shortly after the Jubilee, Mrs. Coston wrote to Gustavus, asking if he could create a blue flare for her. According to "A Woman with Flare" by C. Kay Larson, a little over a week later, Mrs. Coston received a sample, compliments of Mr. Lilliendahl, thus starting a very successful pyrotechnic partnership.

It seems that at the time of his death, Mrs. Coston's husband had been starting to develop a nighttime signaling device for communicating codes between ships, denoting letters and numbers. Upon his sudden death, Mrs. Coston had continued her husband's work and refined bright powerful red and white pyrotechnic flares. However, the Coston signaling device required a third color, and now she had it. In 1859, Martha Coston patented "Pyrotechnic Night Signals." According to "Let Her Have Brains Too," Mrs. Coston quickly got the Lilliendahl Company to mass-produce the signals and together they sold over one million to the U.S. Navy during the Civil War. (Figure 11.) Coston's Telegraphic Night Signals continued to be an important requirement on ships until the advent of marine radios in the 1930s.

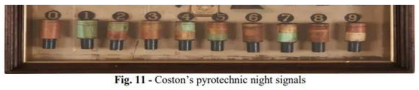


Fig. 11 - Coston's pyrotechnic night signals

According to the *Whale Hunters of Pultneyville* by Lillian Roemer, in 1862 Gustavus had formed a partnership with Thomas Welcome Roys, a whaleboat captain. Their plan was to hunt whales in the North Atlantic and process the oil and bone at a plant that they established on the east coast of Iceland. The pyrotechnician and the whaler soon patented "Improvements in Rocket Harpoons." These whaling rockets could launch a 7-foot long, 30-pound harpoon, with a 10-pound salute, over 100 feet from a ship. The rocket harpoon was advertised to "Fasten to and kill instantly whales of every species." However, keeping powder dry in the North Atlantic seemed to be a problem and, by 1868, the partnership had dissolved.

In 1887, Jacob Detwiller and Charles Street (a salesman at Lilliendahl) incorporated Detwiller Street & Co., the predecessor to the Lilliendahl Company. Detwiller & Street continued to exhibit and sell the popular Excelsior brand fireworks until they became part of Unexcelled Manufacturing Company in 1914. Gustavas A. Lilliendahl died December 4, 1907 in Saltillo (Coahuila) Mexico, where his sons had formed the Mazapil Copper Company and the Coahuila & Pacific Railroad.

CONCLUSION

The purpose of writing this paper is not to lament the passing on an industry. The purpose is to share some stories of the inspiring people who invented and innovated an industry.

UNCATEGORIZED

Read it online

With the videos and comments: https://www.westernpyro.org/blog/us-consumer-fireworks-rise-and-fall-by-robert-t-kellner