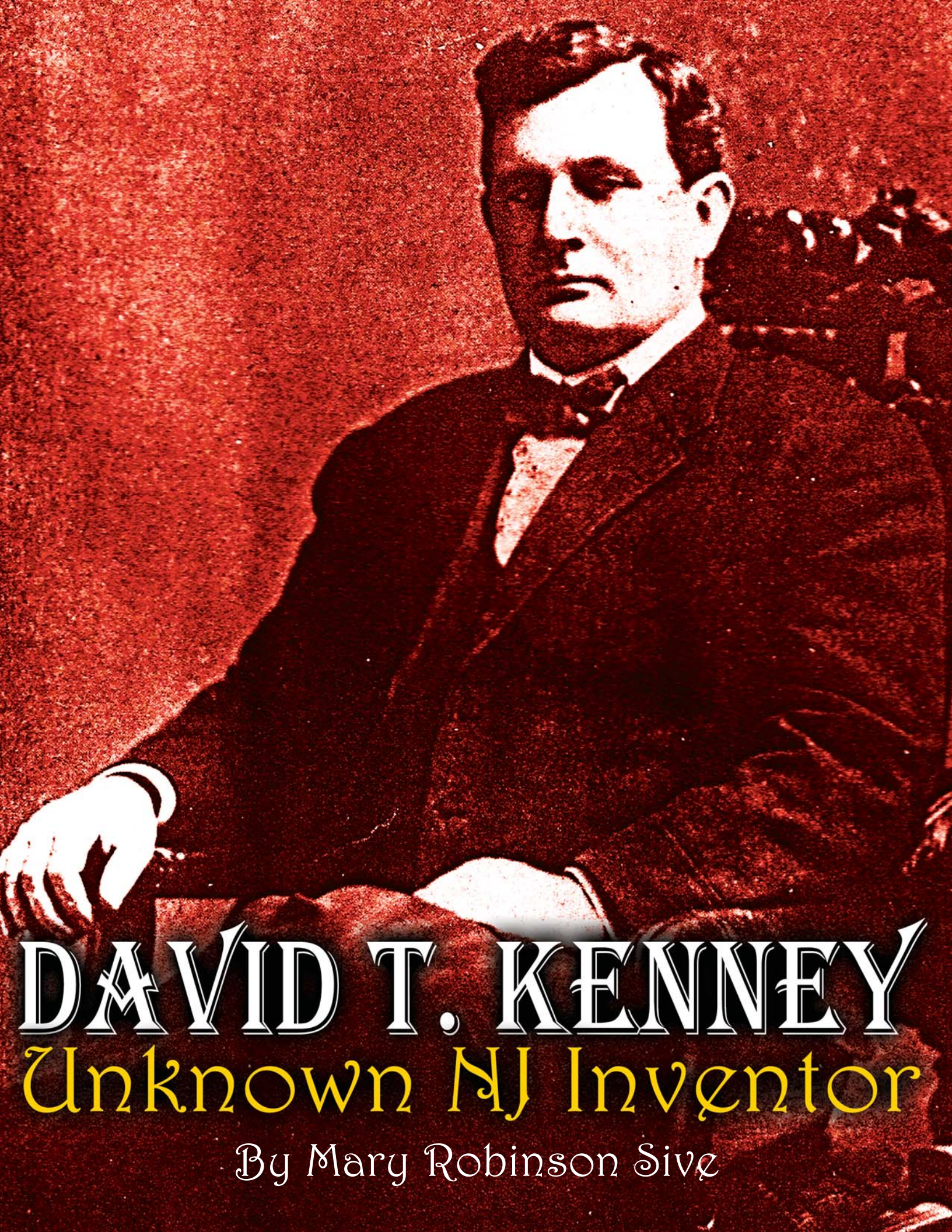


DAVID T. KENNEY

Unknown NJ Inventor

By Mary Robinson Sive

How could it be that a woman used a vacuum cleaner when her town didn't have electricity until 10 years later? Yet, this was what I read in a rural woman's diary from 1911. Not a carpet sweeper–that was mentioned earlier. Did she and her husband perhaps have a generator? Possibly–but wouldn't she have recorded such a significant step in her diary that seemed to omit no detail?

It was a puzzle, and I was determined to solve it. From reference books, the Internet, and fellow history buffs I learned about the existence of manual vacuum cleaners before electric ones. Women in their 70s and 80s who had grown up on farms remembered such appliances.

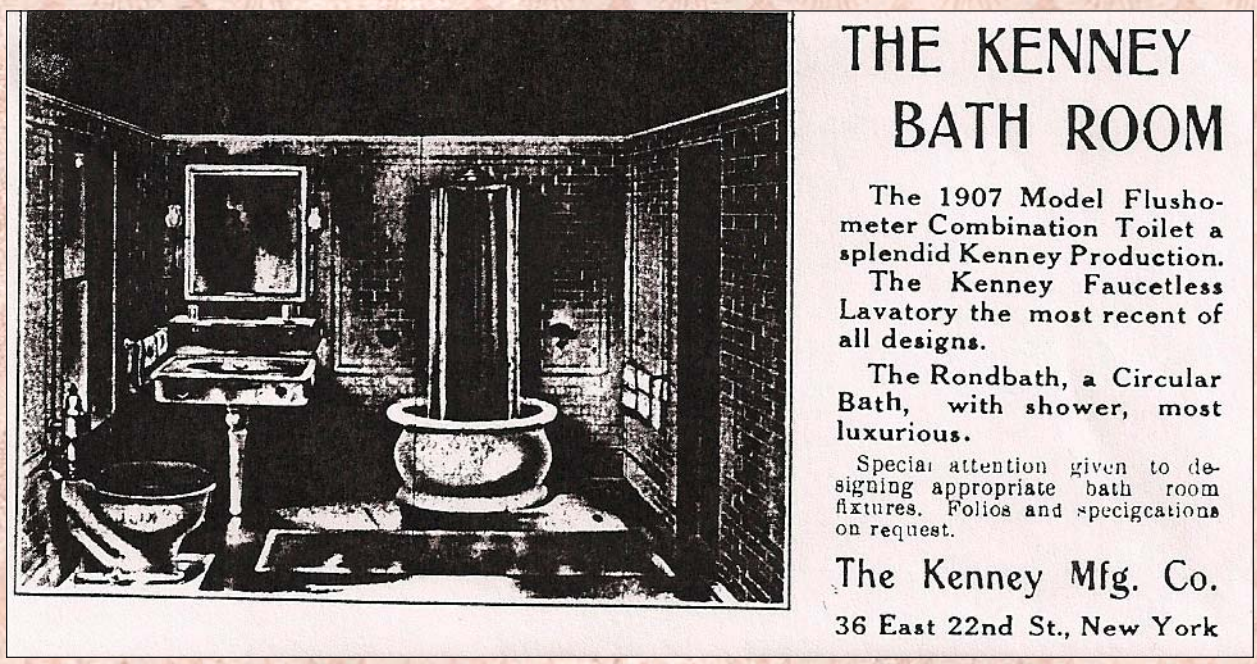
This should not have been surprising. After all, 90% of farms in the United States–5 million farms–were without electric service as late as the mid-1930s. It was only after World War II that a majority would enjoy such power. So there was a sizeable market for an appliance that promised country women that they could keep up with the kinds of modern conveniences enjoyed in cities.

Eventually, I got to examine two manual vacuum cleaners in the possession of a small historical museum and learned of others in other small local institutions. But why did important collections of American home life not own examples? Why was there only one such object at the Smithsonian? Why were there so many discrepancies in the few books on American social and cultural–and women's–history that even mentioned vacuum cleaners?

A twisting trail led to answers to these questions. And the trail kept turning up a name that was also new: David T. Kenney of Plainfield, New Jersey. In 1910 *The New York Times* had called him the "father of the vacuum-cleaner industry."

The New Jersey inventor is little remembered today. Some reference books dismiss him as a "New Jersey plumber" when they mention him at all. Yet both hand-operated machines and later electric ones were dependent on his patents. These expired in the early 1920s at approximately the same time as electric units substantially replaced the manual ones–and the same time as Kenney's death by suicide at age 56.

Kenney would be totally forgotten today had he not been a prominent Catholic layman. He donated land for the construction



of a girls' school. in Watchung by the Sisters of Mercy. Mt. St. Mary Academy continues today as a prep school, and its archives preserve papers pertaining to him.

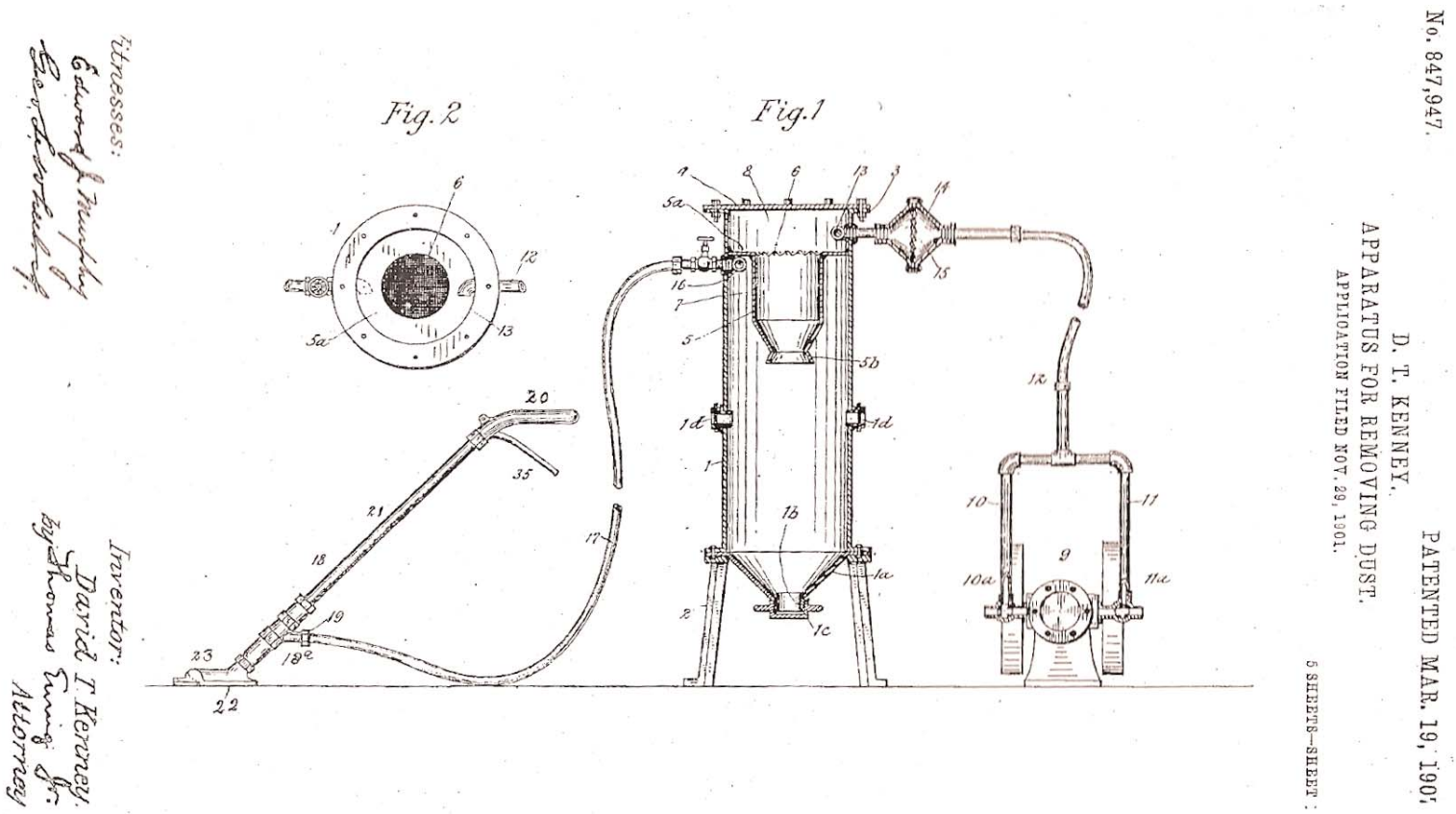
Here is the story of this forgotten New Jersey native.

Keney's Early Career

Born to Irish immigrants on a Whitehouse, NJ, farm in 1866, David Kenney at age 15 was apprenticed to a plumber, and ten years later began his own plumbing business in Plainfield. His first inventions, in the 1890s, were for water-closets (tanks for flush toilets) that he sold as a "flushometer." Enjoying an income from their manufacture and sale, he soon joined the many inventors seeking to mechanize housecleaning.

Mechanical Cleaning

Mechanical cleaning devices had begun to engage the attention of inventors in the latter portion of the 19th century, a period when carpets and upholstered furniture came into more common use at the same time as hygiene was an increasing concern. Suctioning dust out of a carpet into a closed



container would obviously be more sanitary than beating the carpet, as was customary but only spread the dust around. At least two dozen British and American patents from the 1850s on, as well as French and German ones, arose out of such concerns, some of them suggesting the use of hand-operated bellows or pulleys, others employing steam power or gasoline, and even electricity.

Vacuum Cleaner Patents

Kenney filed his first application for a cleaning device, mounted on wheels, in 1901, calling it an "Apparatus for Removing Dust." This patent was not granted until 1907 though he obtained another one, applied for later, for a "Separator for Apparatus for Removing Dust" in 1903. While pursuing these patents, he installed a 4,000-lb. steam engine in the basement of the Frick Building in Pittsburgh. It had attached to it pipes and hoses that reached into each part of the building to suck out dust.

About the same time the English engineer, H. Cecil Booth, demonstrated that suction could remove dust embedded in upholstered furniture and probably in carpets as well. The frequently told account of his experiment has him placing a freshly laundered handkerchief on a plush chair and placing his mouth on it. "I was almost choked," he later wrote, when he sucked in air and a large amount of dust settled on the back of the handkerchief. Booth built and marketed a power-driven machine, coining the term "vacuum cleaner." He applied for a United States patent in 1902, two months after Kenney's first filing for a cleaning patent.

The New Jersey man attended a demonstrationof the English cleaner and after purchasing a unit bought out Booth's U.S. patent application. Once Kenney had the 1907 patent in hand, the Booth application lapsed. Finding himself bested by a self-educated man did not sit well with that gentleman, as revealed in a protest published in a trade journal by Booth's British Vacuum

DAVID T. KENNEY, President

Telephone Connection

Jersey Vacuum Cleaner Company

Kenney Sweeping System

Buildings, Railroads, Steamships and Residences

Portable Service Day and Night

equipped with permanent plants

Do not allow the use of the dangerous broom!
Protect the health of your family.
Have your house cleaned by the "Kenney Vacuum System."
We clean carpets, tapestries, rugs, upholstered furniture, and general interiors.

JERSEY VACUUM CLEANER COMPANY
129 Brunswick St., Newark, N. J.

For Plainfield and vicinity orders are taden by

BENJAMIN A. MUMFORD & SON

1061 Rose Street, Plainfield, N. J.

PORTABLE DEPARTMENT, 129 Brunswick St., Newark, N. J.

Cleaner Company many years later.

The U.S. Patent Office was quite swamped with inventions employing vacuum technology during those early years of the 20th century. Vacuum apparatus, vacuum cleaner for carpets, vacuum cleaning apparatus, vacuum cleaning device, vacuum cleaning implement, vacuum cleaning machine, vacuum cleaning systems, vacuum cleaning tool, vacuum dust-remover, vacuum pan, vacuum producing apparatus, vacuum-producing device, vacuum-sweeper, and similar terms fill many columns in annual indexes to patents granted during these years. Portable units, stationary ones, and some that were motor-driven were envisaged. (Only stationary installation for an entire building was practical for motor-driven units until electric motors small enough for portable machines were available).

That it took over five years for Kenney's 1901 application to be granted was due to its having at first been rejected by the patent examiner and only being approved on appeal. His five patent applications filed from 1904 to 1906 provided for refinements such as improved nozzles, and implements suitable for uneven surfaces, an improved dry separator, and a transparent chamber allowing for the observation of dust deposited in water, all of them referring to operating equipment attached to a central system. When portable vacuum cleaners began to dominate the market, he succeeded in having his patents deemed applicable to their manufacture as well, as we shall see.

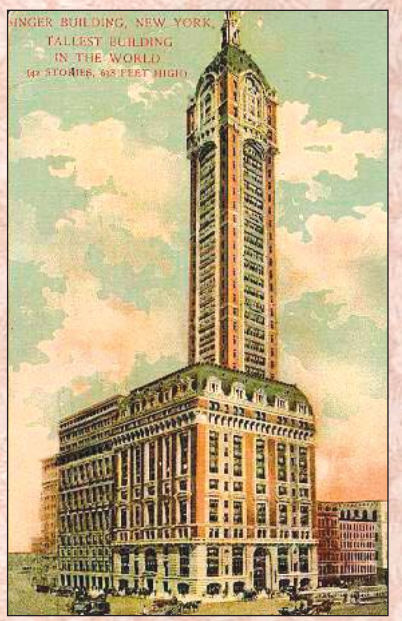
The Vacuum Cleaner Company

Kenney acquired important customers for his central vacuuming systems. By 1906 display ads in popular magazines by the Vacuum Cleaner Company, 427 Fifth Avenue, New York ("David T. Kenney, Pres't") showed an electric central vacuum cleaning system located in a basement with hoses reaching into various rooms, said to be in use in the White House, the New York Times Building, and elsewhere. He had incorporated this company in 1903 and assigned his subsequent patents to it. A building constructed in 1906 on North Avenue near

Johnston Avenue in North Plainfield's Netherwood section as well as other locations housed its manufacturing operations.

Kenney's company was chosen to install the central vacuum operation in the celebrated Singer building at Broadway and Liberty Streets in New York, at the time of its 1908 completion the world's tallest office structure. The building actually contained two vacuum systems, one for general cleaning, the other for use by tenants during office hours, a unique rental feature according to the chief engineer. "Hat and coat renovators" were included.

The Vacuum Cleaner Company was reported to have "portable cleaning apparatus in Boston, Philadelphia, Pittsburgh, Chicago, and St. Louis" but to be in receivership just two weeks after completion of the Singer building. The "portable cleaning apparatus" presumably was similar to that pictured in the company's 1906 patent application, i.e. operators and equipment sent out to a customer's location. His Jersey Vacuum Cleaner Company, located at 129 Brunswick Street, Newark, offered central installations and "portable service," warning, "Do not allow the use of the dangerous broom!"



The U.S. Treasury Department was among the institutions that chose Kenney products for installation in a new building in 1913.

Between 1905 and 1907 the company grossed over $800,000 according to a 1915 case, leading the judge to call Kenney "almost the story book inventor," having allegedly begun with $500 in 1901. The following year, in another case, the same judge reiterated "that Kenney founded the modern art of vacuum cleaning."

Litigation

Kenney would not have enjoyed such success had he not been a shrewd business man in a highly competitive environment as well as a skillful inventor. He understood that the future of his inventions lay in the legal system as much as at the workbench and early on chose noted patent attorney Thomas Ewing, who later served as U.S. Commissioner of Patents under President Wilson, to represent him.

No newcomer to the courts, Kenney had won an 1899 action and a 1905 infringement suit over one of his water-closet patents. Many years of contention over patent rights followed Kenney's receiving his "fundamental" vacuum cleaner patent in 1907, with him prevailing in almost all of them. The suits revolved around the exact dimensions of nozzles ("renovators") used by his competitors, and in each case upheld "the value of a narrow slot which could be readily moved without sticking to the carpet, or causing abrasions of the carpet, and of a sealing contact." Defendants relied on various earlier patents, but judges, often impressed by the plaintiff's self-made status and success, found those claims of no relevance. Nearly every case resulted in the defendant paying license fees to the Vacuum Cleaner Company, which took in over a quarter million dollars in such fees between 1909 and 1915, according to testimony in a 1915 case. The company morphed from manufacturing to patent-holding.

Industry Control

By 1909 the public could choose from over a dozen stationary vacuuming systems and over one hundred portable cleaners.

Consolidation and attempts to achieve control through trust agreements were the order of the day in many industries, and an effort was made (by someone else) to consolidate the vacuum-cleaning industry. This failed in 1912, but Kenney before long managed to achieve a commanding position in the industry.

In 1911 seven companies attempted to fight Kenney's patents but the next year agreed to accept licenses at 2—1/2%. Two years later eleven firms formed a Vacuum Cleaner Manufacturers Association. It and a similar attempt in 1916 failed to survive because not all Kenney licensees were members. Finally, in 1919 some 20 companies, representing manufacturers of both portable and stationary equipment, formed a trade association, in effect limited to holders of Kenney patents since they "are the basic vacuum-cleaner patents that have been litigated and upheld by the courts." The patents expired in the 1920s, and by then sales of vacuum cleaners reached over a million units, most undoubtedly electric.

James Murray Spangler's 1908 patent for combining a small electric motor with a cloth bag to contain the suctioned dust was the first step in the emergence of the portable vacuum cleaner. William Henry Hoover purchased the patent, and his promotion succeeded so wildly that in the British Isles the household chore is known as "hoovering." That Kenney's patent was as applicable to hand-held cleaners as to central systems was the finding of a 1916 appeals court ruling. The growth of "the commercial vacuum cleaner art" and "that Kenney . . . was the founder of the present vacuum cleaner commercial art" was remarked on in 1915 by the judge in one of Kenney's lawsuits.

Manual Vacuum Cleaners

Hoover's vacuum cleaners were no help outside large cities since few communities were served by electric power. Anyone living on a farm or in a small town who hoped to clean in a modern manner had to use a vacuum cleaner operated by hand. And that vacuum had to use the nozzle and other devices patented by Kenney.

Sears Roebuck offered manually operated manual vacuum cleaners beginning with the Fall 1909 catalog. They were of three types and weighed as much as 50 lbs., one of them requiring two people to operate it. The smallest model functioned somewhat like a bicycle pump in reverse. The single operator pushed the handle down a tube. When it was pulled back, dust came up with it and into a "receptacle" that could be emptied as needed. As a consequence it was operational only half the time, but its weight of only 5 lbs. made this plunger-type the most popular. The majority of surviving manual vacuums are of this type. The Spring 1910 Sears catalog had reminded readers that "You need a vacuum" to save time and labor and to promote health. "Protect the health of your family" had also

been an admonition of Kenney's Jersey Vacuum Cleaner Company.

We may well wonder how many manual vacuums saw actual use. My informants who grew up in farm homes in the 1920s and 1930s remembered seeing them but didn't actually remember their mothers ever using them much. Word may have got around that they weren't really "labor-saving devices" since few companies still offered them after 1916, Sears discontinuing them by 1920.

Electric Household Vacuum Cleaners

Once portable electrical vacuum cleaners for use in private homes were practical–thanks to Hoover–they became"ordinary household implements," as the 1911 *Encyclopedia Britannica* noted. Vacuum cleaner sales in the United States more than doubled between 1916 and 1918, going from 11,756 to 24,451. In 1920 1,024,167 units were sold for a total of $35 million, most undoubtedly electric. The industry for whose growth Kenney was given so much credit by his contemporaries was well-established.

In 1910 *Good Housekeeping* magazine had wondered "Do vacuum cleaners clean?" The magazine was not quite sure, and when its staff tested a unit a few years later, it found that it was "not for a delicate woman"–not surprising for those 50-lb. manually operated machines. By 1921 all that had changed. Many electric models were on the market, including imported ones, and when the magazine ran a questionnaire its readers unanimously endorsed vacuum cleaners.

Kenney's Civic Involvement

During the long wait for the 1907 patent Kenney asked the Sisters of Mercy, an order of Catholic nuns who were his daughter's teachers, to pray for him. His gift of land enabled Mt. St. Mary's College, founded by the order in 1873, to move from Bordentown to a Watchung mountain site near his manufacturing operations. His donations beginning in 1905 and continuing to the end of his life totaled over 70 acres. He took an active part in the planning of the buildings for the school, which opened in 1908 with elementary and secondary classes and included seven girls in a college department. Kenney's generosity resulted in his being made a Papal Chamberlain by Pope Pius X in 1906.

The income from his various patents enabled Kenney to pursue other business interests, including real estate. The Kenney home was located in an upscale section though he later moved to a hotel. He served on the boards of a hospital and of the Rahway Reformatory in New Jersey. In 1915 he with his wife and daughter gave a dance for a debutante, a possible clue to social ambitions in New York City.

Kenney's Death

The industry with which he had been identified for so long being well-established,

Kenney turned his inventive skills to yet another field, receiving his last patent, for a heating system designed to improve the distribution of heat from a wood-burning fire place, in 1920. In May 1922 his body was found near Beacon, NY, after he had been missing about ten days. He had been in ill health for some years and had recently lost his wife and a sister.

History's Neglect

Manual vacuum cleaners are described in few books dealing with home life or homemaking during the pre-World War I period. Women's history institutions have no photographs. As noted above, more examples are found in small local history museums than in major ones. The Hoover Company's Historical Center in Canton, Ohio has a small number; and a private collector owns many more and shows a selection on his website http://vachunter.com.

Booth's name appears in the British *Dictionary of National Biography* and in biographical reference works dealing with technology. The vacuum cleaners he invented and manufactured are held in London's Science Museum. Kenney's name cannot be found in corresponding American reference books, the Library of Congress' "American Memory" or its Prints and Photographs Collection, nor in the Smithsonian Institution. He was long forgotten by the 1980s, when the New Jersey Inventors Hall of Fame was inaugurated with names like Edison and Einstein.

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Assistance by the following institutions is gratefully acknowledged:

Hoover Historical Center, 1875 East Maple Street, North Canton, OH 44720—3331

Mt. St. Mary Academy, 1645 Route 22 West, Watchung, NJ 07069

Plainfield Public Library, Plainfield, NJ 07060—2517