COMMENT ON NATIONAL REGISTER NOMINATION

ADDRESS: 1906-12 N. 6th Street, Pringle Electrical Manufacturing Company Building

OVERVIEW: The Pennsylvania Historical & Museum Commission (PHMC) has requested comments from the Philadelphia Historical Commission on the National Register nomination of 1906-12 N. 6th Street located in North Philadelphia and historically known as the Pringle Electrical Manufacturing Company Building. PHMC is charged with implementing federal historic preservation regulations in the Commonwealth of Pennsylvania, including overseeing the National Register of Historic Places in the state. PHMC reviews all such nominations before forwarding them to the National Park Service for action. As part of the process, PHMC must solicit comments on every National Register nomination from the appropriate local government. The Philadelphia Historical Commission speaks on behalf of the City of Philadelphia in historic preservation matters including the review of National Register nominations. Under federal regulation, the local government not only must provide comments, but must also provide a forum for public comment on nominations. Such a forum is provided during the Philadelphia Historical Commission's meetings.

The nomination for 1906-12 N. 6th Street proposes significance under Criterion A in the Area of Industry as the longtime home of a pioneering manufacturer of electrical equipment during the early years of electricity in the United States. Founded in 1891 by William T. Pringle, in 1895 the company was the first to mass produce and sell a recessed electrical outlet and attachment plug, known as the "Chapman Plug." Designed especially for domestic use, the Chapman Plug became nationally known as electrical appliances, not just lighting, became more common in the American home. In 1903, the company relocated from its original headquarters in Center City Philadelphia to an existing three-story brick factory building at 1906-12 N. 6th Street, where Pringle began to develop and market a wide range of innovative electrical devices. During this period and well into the mid-twentieth century, the switches and switchboards that Pringle invented and patented, found widespread use in many of the country's largest building and transportation projects. In the early 1950s, while still in the building on N. 6th Street, the company introduced the first bolted pressure switch, now commonly known as the "Pringle Switch," which quickly became an industry standard in high current applications and remains so today. The period of significance for the Pringle Electrical Manufacturing Company Building begins in 1903, when Pringle first occupied the building, and extends to 1963, when the company relocated to suburban Fort Washington, Pennsylvania. The property is not listed on the Philadelphia Register of Historic Places.

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions.

1. Name of Property

Historic name: **Pringle Electrical Manufacturing Company Building**
Other names/site number:
Name of related multiple property listing**:**

(Enter "N/A" if property is not part of a multiple property listing

2. Location

Street & number: **1906-12 N. 6th Street**
City or town: **Philadelphia** State: **PA** County: **Philadelphia**
Not For Publication: ☐ Vicinity: ☐

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this ___ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property ___ meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

___national ___statewide _X__local
Applicable National Register Criteria:

_X__A ___B ___C ___D

Signature of certifying official/Title: **Date**
State or Federal agency/bureau or Tribal Government

In my opinion, the property ___ meets ___ does not meet the National Register criteria.

Signature of commenting official: **Date**

Title : **State or Federal agency/bureau or Tribal Government**

4. National Park Service Certification

I hereby certify that this property is:

___ entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

___ other (explain:) _____

Signature of the Keeper Date of Action

5. Classification

Ownership of Property

(Check as many boxes as apply.)

Private: [X]

Public – Local [ ]

Public – State [ ]

Public – Federal [ ]

Category of Property

(Check only **one** box.)

Building(s) [X]

District [ ]

[ ]

Site

Structure ☐

Object ☐

Number of Resources within Property
(Do not include previously listed resources in the count)

Contributing	Noncontributing	
1	0	buildings
0	0	sites
0	0	structures
0	0	objects
1	0	Total

Number of contributing resources previously listed in the National Register 0

6. Function or Use

Historic Functions
(Enter categories from instructions.)

INDUSTRY/PROCESSING/EXTRACTION - Factory

Current Functions
(Enter categories from instructions.)

Vacant/Not in Use

7. Description

Architectural Classification

(Enter categories from instructions.)

Other

Materials: (enter categories from instructions.)
Principal exterior materials of the property**:** Brick

Narrative Description

(Describe the historic and current physical appearance and condition of the property. Describe contributing and noncontributing resources if applicable. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, type, style, method of construction, setting, size, and significant features. Indicate whether the property has historic integrity.)

Summary Paragraph

The Pringle Electrical Manufacturing Company Building is a four-story factory on the west side of North 6th Street just north of Berks Street in North Philadelphia. Built around 1870 and expanded in 1916 and circa 1924, the building has a heavy timber structure and red brick walls. The building's dense urban setting largely consists of rows of two- and three-story brick rowhouses dating to the late-nineteenth century, as well as more recent rowhouses built within the last five to ten years. Scattered among the predominantly residential blocks are manufacturing complexes dating to the late-nineteenth and early-twentieth centuries, of which the Pringle Electrical Manufacturing Company Building is typical. Directly to the south of the building, on the north side of Berks Street between 6th Street and Marshall Street, is a four-story, circa 1920 brick factory, which was home to a separate company, the Thomas J. Hunter Company. Along the east elevation of the Pringle building are concrete sidewalks, which are not included in the proposed National Register boundary because they did not play a direct role in the operation of the building (**Figures 1 and 2**).

Figure 1: Aerial view, showing the outline of the building in red (Pictometry, 2020). The four-story brick building to the left was the factory of the Thomas J. Hunter Company and is unrelated to the Pringle Electrical Manufacturing Co.

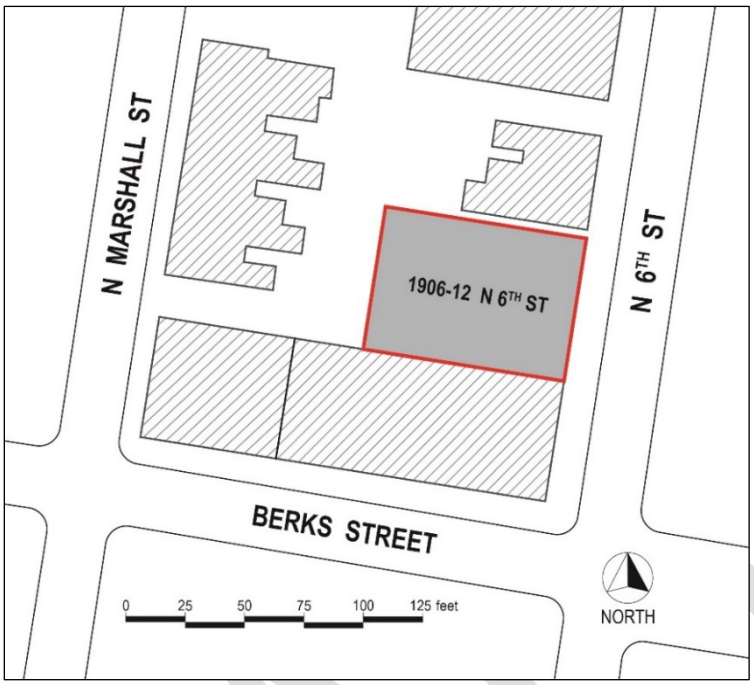


Figure 2: Site plan with the National Register boundary, which conforms to the historic and current parcel, in red.

On the east or primary elevation (facing 6th Street), the building is four bays wide (**Photo 1**). Currently, the first through third stories each have seven openings. The center opening on the first story contains the historic main entrance, which is square in shape and currently has plywood panels used as doors. To the right and left of the center opening, there are six window openings, all but one of which (at far right) are rectangular in shape and have marble sills and lintels. The opening at far right contains a roll-down metal door that opens into one of the building's stairways and has a segmental arched brick header with a marble keystone. The second and third stories are identical, with each containing six rectangular window openings with marble sills and lintels and, in the bay at far right, a recessed fire balcony of similar size to the window openings. Around 2020, the previous owner removed all of the windows that existed at that time. The first-story openings were infilled, the second- and third-story openings had a variety of metal and vinyl window types dating to the 1970s or 1980s with some windows missing, and the fourth story had historic (likely original) multi-light steel windows with operable awning sash typical of the 1920s, when the fourth-story was added (see **Figure 17**). The fourth story, which primarily consists of a mansard roof, has three large, rectangular dormer window openings. On the north side (at far right), the mansard roof is bookended by the brick walls around the fire balcony, which aligns with those below. The previous owner installed imitation slate shingles on the mansard roof shortly before selling the building to the current owner in 2022.

Photo 1: East elevation, looking west. The first four bays (from the left) on the first through third floors comprise the original circa 1870 building. The remaining three bays comprise the 1916 addition. The fourth-story mansard roof was added around 1924.

The north elevation faces a row of two-story rowhouses, which are seen at far right in **Photo 1**. The first bay in from 6th Street consists of a blank brick wall above the rowhouses and has no window openings. Beyond the first bay, each of the four stories contains seven rectangular window openings.

It has not yet been possible to obtain an exterior photograph of the north elevation.

The west elevation, which faces North Marshall Street, is four bays wide, matching the width of the east elevation (**Photo 2**). Each of the four stories contains six window openings with brick sills and segmental arched brick headers.

Photo 2: West elevation, looking east. This photo was taken from the vacant property at 1907 N. Marshall Street, which is not included within the proposed National Register Boundary.

The interior of the building is open in plan on each floor with grids of substantial, heavy timber square columns that support similarly sized floor joists and cross beams on the first through third floor, and roof beams on the fourth floor (**Photos 3-6**). On the fourth floor, however, the columns are slimmer than those below, and the ceiling pitches down from the center east-west beam to the north and south elevations (**Photo 6**). Throughout the interior, the original wood floors are largely intact, but are currently covered by plywood; the underside of the floorboards, which rest directly on the beams without a subfloor, is visible at the ceilings. The perimeter walls consist of exposed brick, portions of which have remnants of a painted finish.

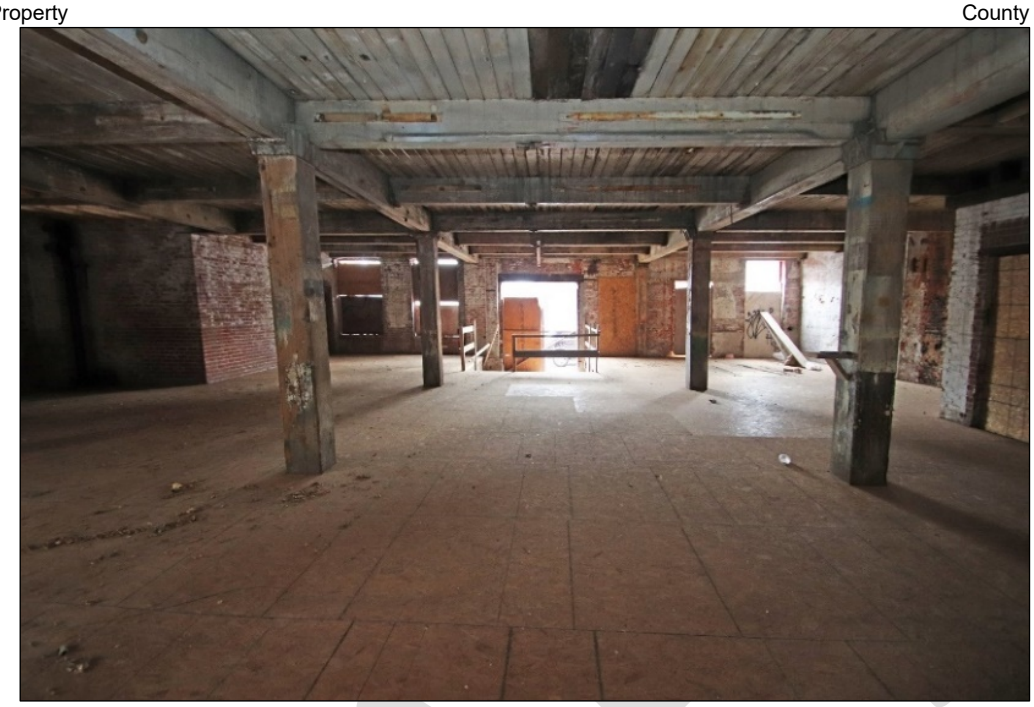


Photo 3: First floor, looking east toward the main entrance on 6th Street.

Photo 4: Second floor, looking northwest.

Photo 5: Third floor, looking east.

Photo 6: Fourth floor, looking northwest. The ceiling on this floor follows the slope of the roof.

The building has two stairs and one elevator. Near the west end of the south wall, there is a straight-run wood stair providing access between the first floor and roof (**Photo 7**). At the northeast corner of the building, there is a U-return wood stair providing access between the basement and fourth floor (**Photo 8**). On the second, third, and fourth floors, the stairway opens

to the fire balconies on the east elevation (**Photo 9**). The existing elevator is located on the south wall, east of the straight-run stair. Abutting the elevator shaft on each floor is a small rectangular storage room.

Photo 7 (left): Straight-run wood stair along the south wall, looking west on the first floor.

3.5

Photo 8 (right): U-return wood stair at the northeast corner of the building, looking west on the second floor.

Photo 9: Typical fire balcony, located adjacent to the U-return stair at the northeast corner of the building, looking north on the second floor.

Integrity: The Pringle Electrical Manufacturing Company Building retains integrity. In particular, the design and materials remain largely intact, and the workmanship is of good quality, typifying Philadelphia industrial architecture of the late-nineteenth and early twentieth centuries. More specifically, both the overall form and the defining industrial characteristics of the mill remain, including the utilitarian brick façade with stone windowsills and lintels, as well as the exposed heavy timber structure on the interior. These features help to convey the building's historic function as a manufacturing facility. Despite the absence of the historic windows, the window openings remain fully intact, conveying the original fenestration pattern. Historically, the first through third-story openings likely contained double-hung wood windows, although the configuration is unknown. The fourth-story openings historically contained multi-light steel windows with operable awning sash typical of the 1920s, when the fourth-story was added (see Figure 17).

The aspects of location and setting are also retained. The building remains on its original site, and the surrounding area's late-nineteenth and early-twentieth century residential fabric,

interspersed with low-rise industrial sites from the same period, remains largely intact. The construction of new rowhouses farther north on 6th Street in recent years has not adversely impacted the historic character of the area.

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [X] A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B. Property is associated with the lives of persons significant in our past.
- [ ] C. Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D. Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark “x” in all the boxes that apply.)

- [ ] A. Owned by a religious institution or used for religious purposes
- [ ] B. Removed from its original location
- [ ] C. A birthplace or grave
- [ ] D. A cemetery
- [ ] E. A reconstructed building, object, or structure
- [ ] F. A commemorative property
- [ ] G. Less than 50 years old or achieving significance within the past 50 years

Areas of Significance
(Enter categories from instructions.)

INDUSTRY

Period of Significance

1903-1963

Significant Dates

1916, 1924

Significant Person
(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

N/A

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance, applicable criteria, justification for the period of significance, and any applicable criteria considerations.)

The Pringle Electrical Manufacturing Company Building is significant under Criterion A in the area of industry as the longtime home of a pioneering manufacturer of electrical equipment during the early years of electricity in the United States. Founded in 1891 by William T. Pringle, in 1895 the company was the first to mass produce and sell a recessed electrical outlet and attachment plug, known as the "Chapman Plug." Designed especially for domestic use, the Chapman Plug became nationally known as electrical appliances, not just lighting, became more common in the American home. By the turn of the century, the company had relocated from its original headquarters in Center City Philadelphia to the present site at 1906-1912 North 6th Street, where Pringle began to develop and market a wide range of innovative electrical devices, especially industrial electric switches and switchboards. During this period and well into the mid-twentieth century, the switches and switchboards that Pringle (and later his son and grandson) invented and patented, found widespread use in many of the country's largest building and transportation projects. Later, in the early 1950s, while still in the building on 6th Street, the company introduced the first bolted pressure switch, now commonly known as the "Pringle Switch," which quickly became an industry standard in high current applications and remains so today. The period of significance for the Pringle Electrical Manufacturing Company Building begins in 1903, when Pringle first occupied the building, and extends to 1963, when the company relocated to suburban Fort Washington, Pennsylvania.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

William T. Pringle and the Chapman Plug

William Thomas Pringle was born in Alnwick, Northumberland, England, in 1866. Little is known of his early years. In 1889 Pringle left England for the United States where he settled in Philadelphia. By 1890 Pringle was working as a bookkeeper for an unknown company, but soon went into business for himself, founding William T. Pringle & Company in 1891. Partnering with electrician and German immigrant George Breckelman (b. 1860), the company would specialize in the design and manufacture of electrical equipment, one of the first such businesses to be founded in Philadelphia. Initially, the company was located in a rented space at 1026-28 Filbert Street in the heart of Center City.

The earliest mentions of William T. Pringle & Company in trade journals in 1891 and 1892 indicate they were manufacturing a device called either the "New Era Burner" or "New Era Candle," as well as a line of "handsome fixtures," presumably of the lighting variety.[1] However, the New Era Burner, an electric lighter for gas fixtures, appears to have been invented, patented, and manufactured by a Boston company starting around 1890, and no other mentions of the New

[1] "Philadelphia Notes," *The Electrical World*, November 21, 1891, pp. 390; "Industrial and Trade Notes," *The Electrical World*, January 9, 1892, pp. 33.

Era Candle have yet been found in any period trade literature, newspapers, or other sources. A few years later, in 1895, *The Electrical Age* reported in a feature on the best-known Philadelphia electrical manufacturers that Pringle was doing "a very large business in switches and switchboards, and that there are many excellent examples of this class of work from their factory all over this section of the country."[2]

Although little is known of William T. Pringle & Company's first few years of existence, by 1895 the historical record shows the company had cemented its place in the history of electrical engineering and manufacturing. That year, the company partnered with Philadelphian Frederic A. Chapman to manufacture and sell his recent invention of the attachment plug, for which Chapman had recently submitted a patent application.[3] Marketed as the "Chapman Plug," the device was innovative because it was the first designed specifically for the American home. Until this point, domestic electrical devices – sewing machines, curling irons, toasters, etc. – used light sockets for power, plugging into an adaptor that screwed into the socket in the same way a lightbulb did. The screw plug, as it was known, was invented by Sigmund Bergman (1851-1927), a partner of Thomas Edison, in 1883. Unlike the screw plug, the Chapman Plug was designed to be installed flush within a baseboard or wall (Figures 3, 4). As historian Fred E.H. Schroeder writes, "Rather than having prongs or blades, it is rectangular, made of porcelain with broad copper contract strips on the sides. The receptacle is also made of porcelain. When the plug is inserted, brass doors are closed over the cord and the receptacle is concealed with only the cord to be seen coming out of the flush brass wall plate."[4] Under the agreement that he would receive royalties on the sale of his attachment plug, Chapman assigned the patent to Pringle, who immediately began manufacturing the device.

[2] "Philadelphia's Electrical Interests," *The Electrical Age* (July 27, 1895), 46-47.
[3] Frederic A. Chapman. 1895. Cut-Out Block. US Patent 539,725, filed February 5, 1895, and issued May 21, 1895.
[4] Fred E.H. Schroeder, "More 'Small Things Forgotten': Domestic Electrical Plugs and Receptacles, 1881-1931, in Technology and Culture 27, no. 3 (Jul. 1986), 534.

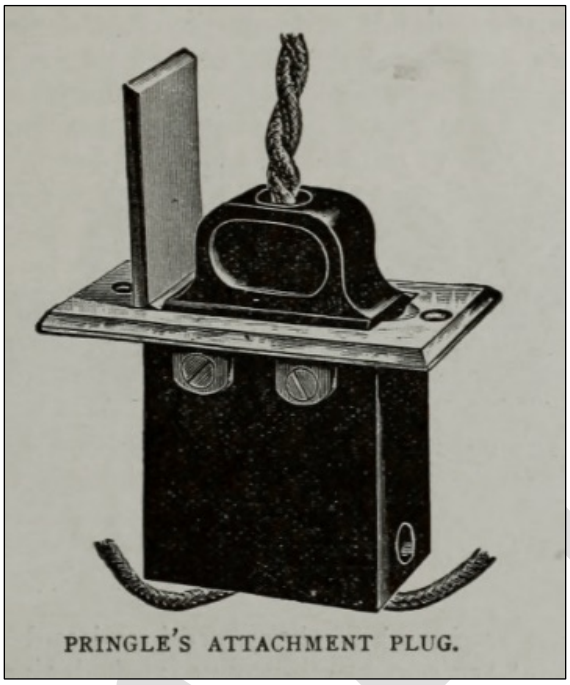


Figure 3 (left): The Chapman Plug, here called "Pringle's Attachment Plug," as illustrated in the July 27, 1895 edition of *The Electrical Age*, a national industry periodical.

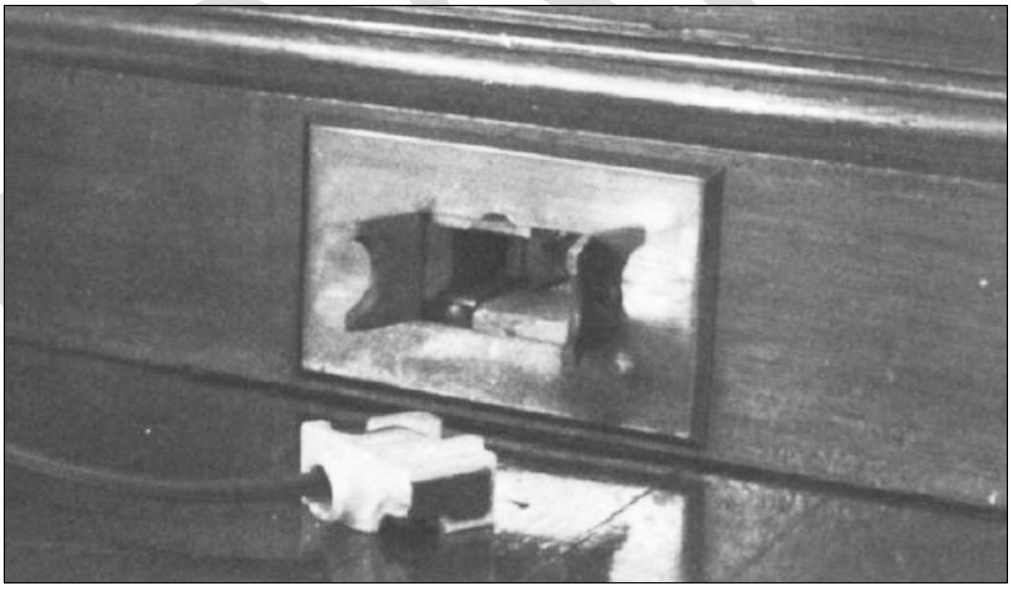


Figure 4 (right): A later version of the Chapman Plug in use at the Glensheen Mansion in Duluth, Minnesota. This image was provided by the Glensheen Mansion Museum for Schroeder's article, "Domestic Electrical Plugs and Receptacles, 1881-1931" in 1986 (see Footnote 4).

The screw plug remained popular for another ten years, and numerous inventors made significant improvements to the device during this period. In 1904, for example, Harvey Hubble patented the "separable plug," which was the first to have a two-prong design that closely resembles and

functions similarly to the standard electrical plug still in use in the United States today. Despite the continued use of the screw plug, however, the Chapman Plug quickly attracted attention as its advantages – primarily that it could be discreetly concealed in a baseboard or wall, "thus preventing an unsightly appearance," as Chapman wrote in his patent application – became known.[5] Soon, Pringle was flush with orders for the new device. As reported by *The Electrical World* in 1896, the Chapman Plug was already in use in several major Philadelphia buildings, such as the new Hotel Walton, the Pennsylvania Hospital, and the Fidelity Mutual Building, as well as other new buildings in that city and in New York.[6] Widely reported on by national periodicals like *Electricity*, *The Electrical Age*, *The Electrical World*, and *Western Electrician*, in which Pringle often advertised, the Chapman Plug became so popular that manufacturers of electrical devices and equipment began to introduce interchangeable parts for their products so that they could make use of the new invention (Figures 5, 6). By 1896, business had grown to a point where Pringle was forced to hire sales agencies in New York, Boston, Chicago, and San Francisco.

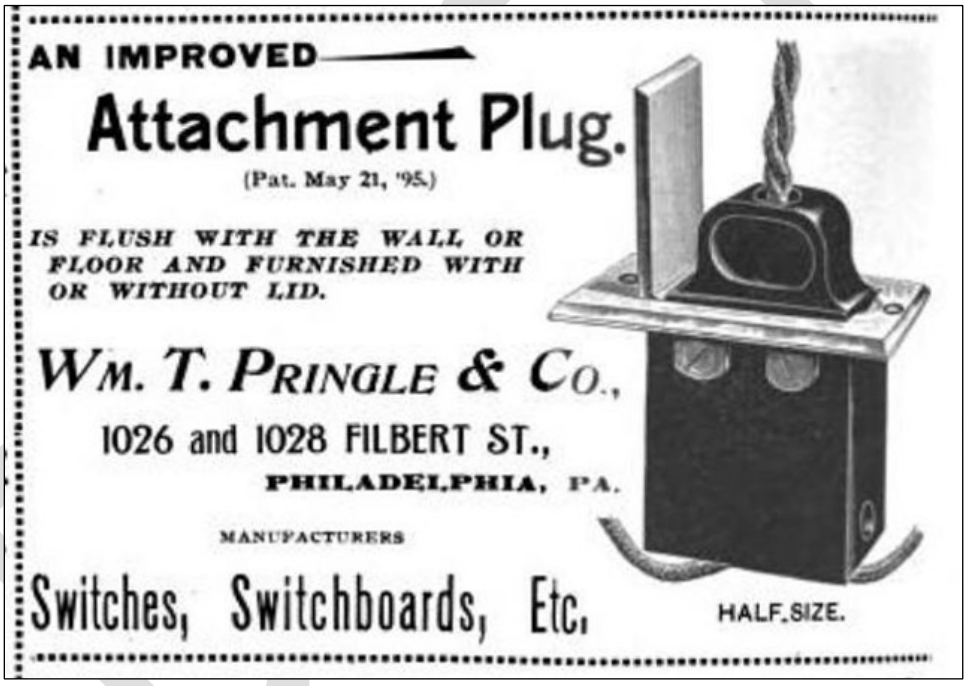


Figure 5 (left): Advertisement for the Chapman Plug in the June 29, 1895 edition of *The Electrical World*.

[5] Chapman (n. 3 above).
[6] "Trade and Industrial Notes," *The Electrical World* (March 14, 1896), 302.

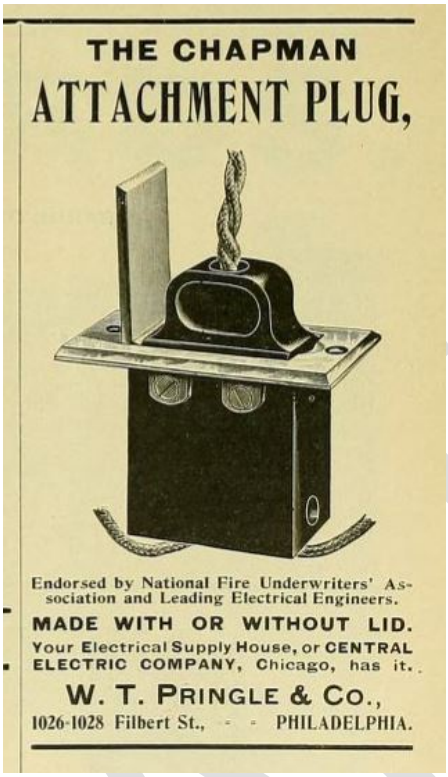


Figure 6 (right): Advertisement for the Chapman Plug in the January 25, 1896 edition of *Western Electrician.*

The electrical industry in the late-nineteenth century was dominated by Thomas Edison's various companies, which were consolidated into General Electric in 1889, as well as the Pittsburgh-based Westinghouse Electric & Manufacturing Company, founded in 1886. But neither company foresaw the development of flush wall receptacles. Schroeder writes that "Edison had not anticipated wall receptacles in his original system, and he seems not to have wavered from a predilection for fixed lighting outlets with the incidental use of Bergmann's attachment plug."[7] This oversight created a robust market for devices like the Chapman Plug, with numerous companies in addition to Pringle's inventing, patenting, and manufacturing flush wall receptacles of their own. In this way, despite the relatively small size of his company, which employed only twelve men in 1899, Pringle was able to achieve an outsize influence on the development of electrical industry in the United States around the turn of the twentieth century.[8]

The Chapman Plug remained one of Pringle's star products for years. In one of many high-profile applications, the plugs were installed throughout several buildings on Ellis Island when the immigration facility was first electrified in 1901.[9] Despite the popularity of this product, however, Pringle understood that the rapidly evolving electrical industry demanded constant innovation, leading him to develop, patent, manufacture, and bring to the market new products

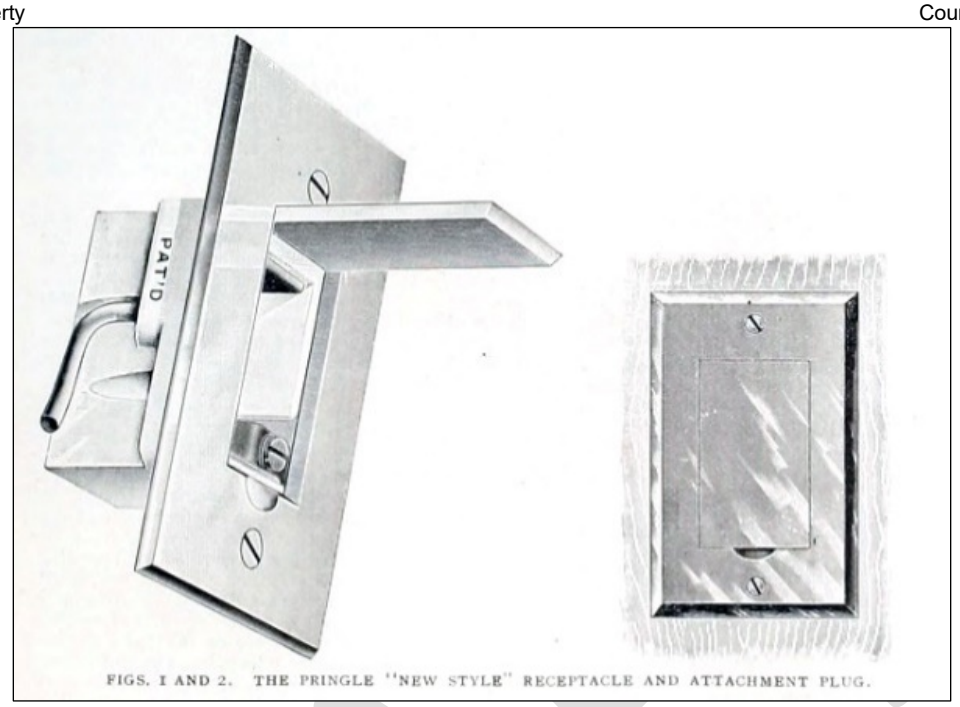
[7] Schroeder, 535.
[8] *Tenth Annual Report of the Factory Inspector of the Commonwealth of Pennsylvania* (Harrisburg, PA, 1900), 222-23.
[9] Harlan D. Unrau, "Historic Structure Report: Ellis Island," United States Department of the Interior, National Park Service, Denver Service Center, 1981.

on a regular basis. Pringle did not himself invent the Chapman Plug, but he soon proved his own abilities as a creative thinker and inventor of electrical devices. In 1897, Pringle introduced the "New Style" attachment plug, which was similar to the Chapman Plug but with a receptacle that was reduced in depth from 2 ¼ inches to less than 1 ½ inches, allowing it to fit into narrower partitions (Figure 7). Although Pringle sold both the Chapman and New Style plugs for a few years, the New Style eventually replaced the earlier model.

In 1899, Pringle expanded his product line with a new a new type of flush light switch with a toggle rather than push buttons, which he had recently invented (Figure 8). Pringle filed a patent application for the switch in 1899 and the patent was approved the following year.[10] In February 1900, the *Electrical World and Engineer* reported that "The unique feature of this switch is that it is operated by a lever instead of push buttons, it being a knife blade switch, pure and simple," continuing, "The mechanism is operated by raising or lower the lever, through a slot in the face plate. When the lever is up the switch is in the "off" position, and when it is down the current is on."[11] The toggle switch's chief advantages were that it was easier to operate, avoided certain mechanical difficulties common to the push-button switch, and clearly indicated without labels whether the power was on or off. Despite the innovative nature of the product, Pringle's toggle switch appears to have been a commercial failure as there are no mentions of the product after 1900 and it does not appear in the company's 1906 catalog. The invention of the toggle switch, which became the standard light switch in the United States for nearly a century, is today widely credited to William J. Newton and the Newton Manufacturing Company, based in Lynbrook, New York, who invented and manufactured the first commercially successful toggle switch in 1917.[12] However, the historical record shows that Pringle, in fact, was the first to patent the idea nearly two decades before Newton did.

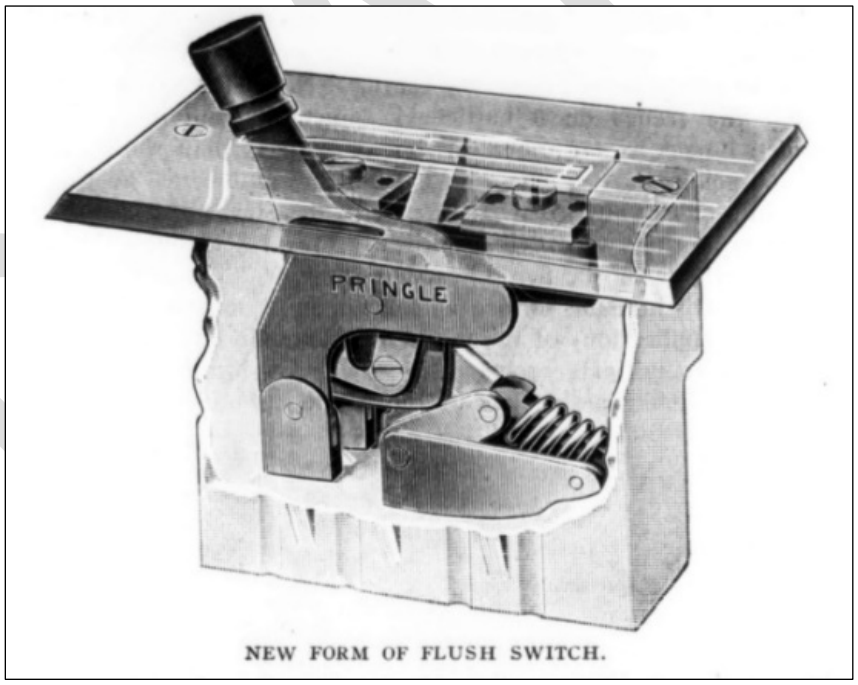
The reasons why Newton's toggle switch caught on and Pringle's did not are unclear, but it may have been a mechanical issue. Pringle's switch featured a contact blade controlled by a single-arm lever, relying heavily on a metal spring to keep the switch in the open or closed position. Newton's, however, had a contact blade controlled by a more elegant and much more compact pivoting mechanism that relied on a much smaller spring. Therefore, while Newton may not have invented the toggle switch, he made improvements to the design that likely made it easier to operate. Because the depth of Newton's switch was reduced, it also could fit into shallower wall cavities, which likely helped to broaden its appeal.

[10] William T. Pringle. 1900. Electric Switch. US Patent 643,730, filed July 19, 1899, and issued February 20, 1900.
[11] "A New Flush Switch," *Electrical World and Engineer* (February 24, 1900), 297.
[12] William J. Newton. 1917. Flush Switch. US Patent 1,233,597, filed May 6, 1915, and issued July 17, 1917.



FIGS. 1 AND 2. THE PRINGLE "NEW STYLE" RECEPTACLE AND ATTACHMENT PLUG.

Figure 7 (left): The "New Style" attachment plug as illustrated in the May 20, 1899 edition of *Western Electrician.*



NEW FORM OF FLUSH SWITCH.

Figure 8 (right): Pringle's flush toggle switch, the first of its kind, as illustrated in the February 24, 1900 edition of *Electrical World and Engineer*.

Pringle's work on the toggle switch reflected an effort to adapt for the American home the concept of the knife switch, primarily used in industrial and commercial applications, which Pringle had started designing and building by the mid-1890s. Industrial electric switches and

switchboards would, in fact, soon become the focus of Pringle's business, and the primary source of his growing national reputation. Pringle's focus on industrial applications may also explain his abandonment of the toggle switch; after the initial 1900 patent, Pringle did not attempt to patent any improvement to the toggle switch design, creating an opening for future inventors to exploit.

The industrial switches for which Pringle became well known functioned much like a light switch but controlled a large portion of a building's electricity supply rather than a single light fixture. By 1900, Pringle was manufacturing a wide range of switches meant for virtually any type of condition depending on amperage and voltage levels. One of Pringle's notable innovations, introduced in 1905, was the so-called "Underwriters' Switch," in which the metal components were protected with a porcelain cover, "avoiding all short-circuits due to accidental contact with live parts of the switch, and also preventing the operator from getting a shock in handling the switch," as reported in *Electrical World and Engineer* (Figure 9).[13] But Pringle also became well-known as a designer and builder of entire switchboards, the control centers of a building's electrical power system, in some of the largest new buildings in the northeastern United States during this period. Reflecting his expertise in this area, Pringle was hired to install the massive switchboard of the new Pennsylvania State Capitol Building in Harrisburg, constructed between 1902 and 1906 (Figure 10).

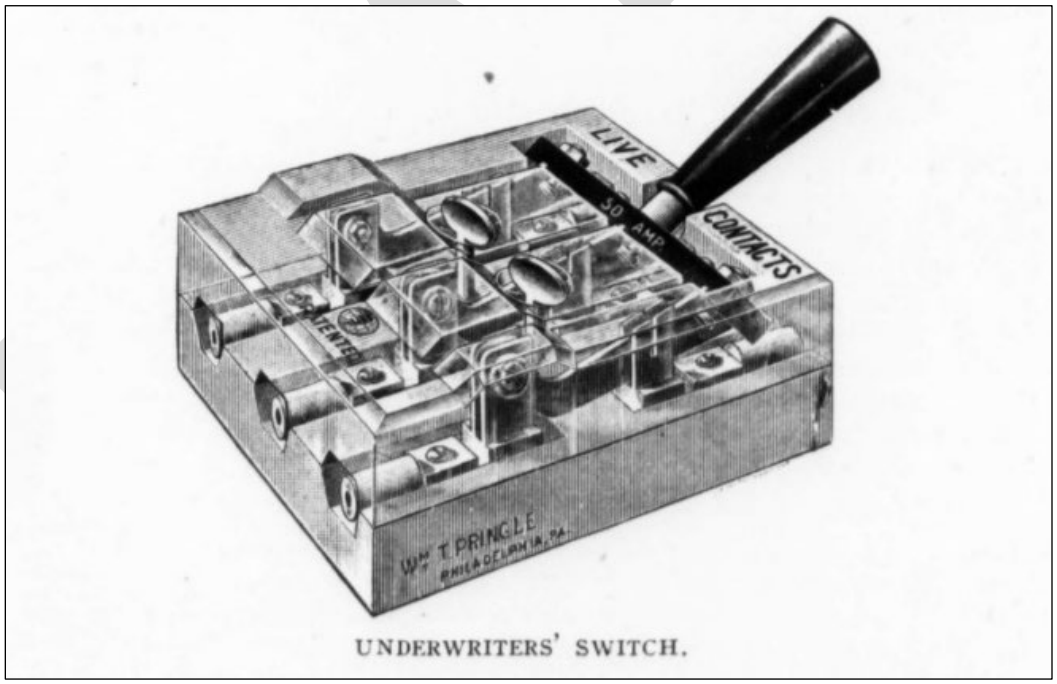


Figure 9: The "Underwriters' Switch" as featured in the March 4, 1905 edition of *Electrical World and Engineer*. The device was also reported on by *American Electrician*, another important industry periodical, in March 1905.

[13] "The Underwriters' Switch," *Electrical World and Engineer* (March 4, 1905), 449.

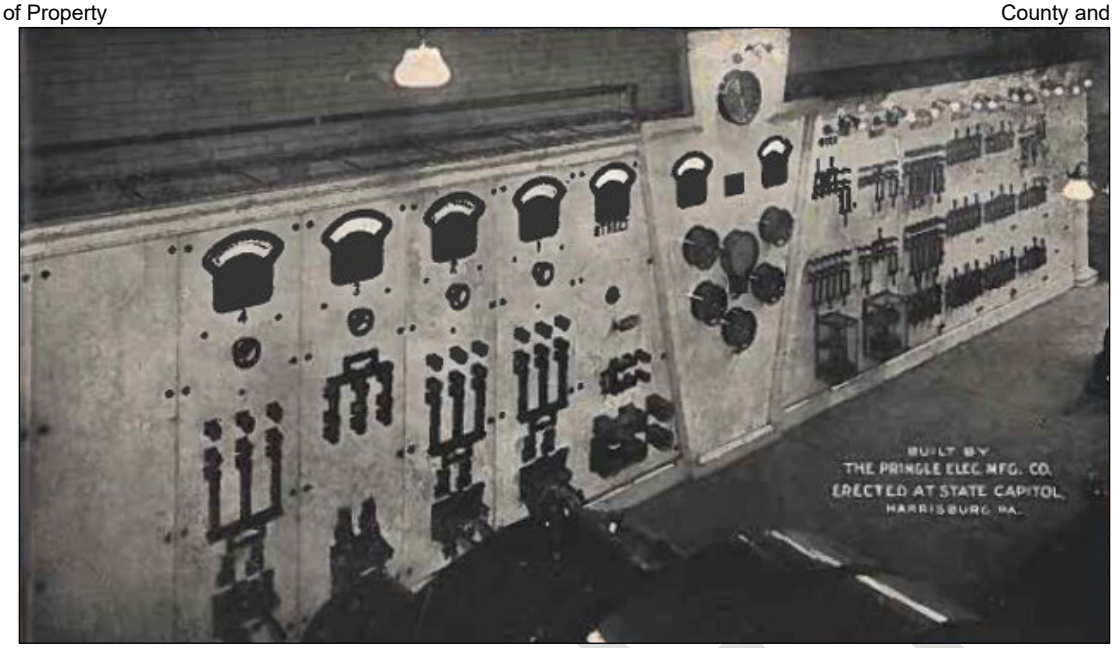


Figure 10: The main switchboard of the Pennsylvania State Capitol, designed and installed by Pringle before 1906, as illustrated in the 1906 catalog of the Pringle Electrical Manufacturing Company. Note the keystone-shaped panel in the center.

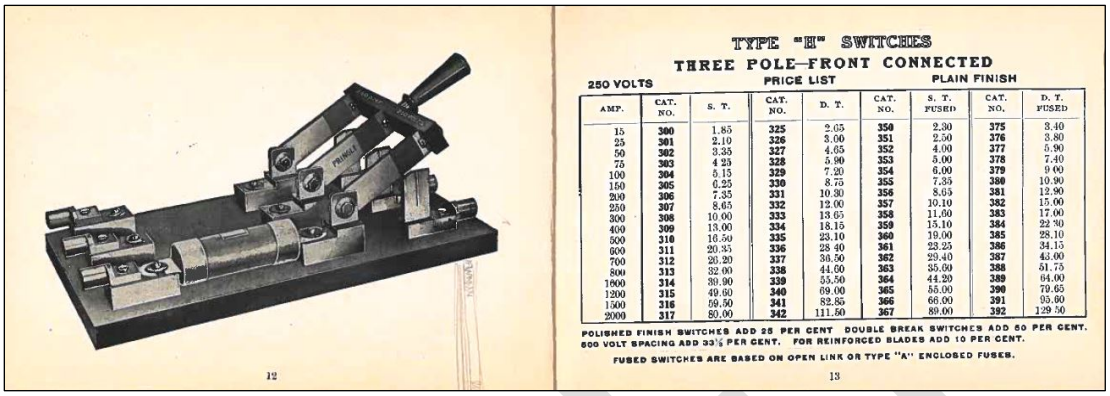
Growth of Pringle's Business after 1900

By 1900, the Filbert Street space in which Pringle started his company in 1891 was no longer adequate. That year, Pringle moved his office and manufacturing operation to a larger space in the Hering Building at 112 North 12th Street, just two blocks away, "where he will have better facilities for the handling of his increasing business," according to one source.[14] But this space, too, soon proved too small for the growing company, leading Pringle to search for yet a larger space just a few years later. In 1903, Pringle acquired the property at 1906-08 North Sixth Street, which contained a three-story brick factory, from the estate of Charles H. Volkmar.[15] The approximately 33'-wide factory – it was later enlarged to its current width of 58' – was built by Volkmar around 1870, housing his tin roofing company until he decided to lease the building to a line of cigar manufacturers beginning in the early 1880s. According to official Commonwealth of Pennsylvania industrial directories, the new space housed both the manufacturing and office components of the business, therefore William T. Pringle would have worked on his numerous inventions and patents in this building. It is not known where in the building the office was located, or even if it was a separate, distinct space from the workshop and production areas.

In the new space on 6th Street, Pringle was able to significantly expand his product line, which is illustrated in his first comprehensive catalog, published in 1906.[16] This 77-page booklet shows the wide range of switches manufactured by the company, as well as an array of panelboards, which were effectively smaller versions of switchboards that were designed for household use

[14] "Trade Notes," *Electrical World and Engineer* (February 17, 1900), 272.
[15] "Trade Notes," *Electrical World and Engineer* (October 24, 1903), 705.
[16] The Pringle Electrical Mfg. Co., Catalog, 1906 Edition, held in the Trade Literature Collection at the Smithsonian National Museum of American History Library.

and in other situations where electrical loads were lower (Figure 11). The catalog also shows that Pringle continued to manufacture his popular attachment plug and receptacle, even offering a new waterproof receptacle for outdoor use. The publication of the 1906 catalog coincided with the renaming of the company to the Pringle Electrical Manufacturing Company, which was incorporated the same year.



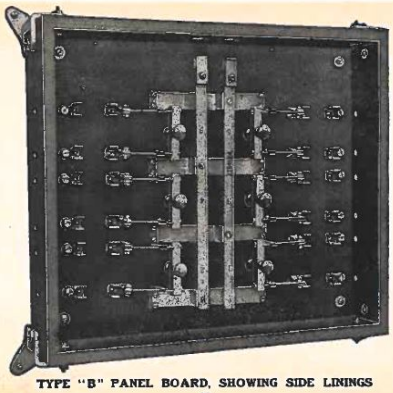
12

TYPE "E" SWITCHES
THREE POLE—FRONT CONNECTED
250 VOLTS PRICE LIST PLAIN FINISH

AMP.	CAT. NO.	S. T.	CAT. NO.	D. T.	CAT. NO.	S. T. FUSED	CAT. NO.	D. T. FUSED
15	300	1.85	325	2.05	350	2.30	375	3.40
25	301	2.10	326	3.00	351	2.50	376	3.80
50	302	3.35	327	4.65	352	4.00	377	5.90
75	303	4.25	328	5.90	353	5.00	378	7.40
100	304	5.15	329	7.20	354	6.00	379	9.00
150	305	6.25	330	8.75	355	7.35	380	10.90
200	306	7.35	331	10.30	356	8.65	381	12.90
250	307	8.65	332	12.00	357	10.10	382	15.00
300	308	10.00	333	13.65	358	11.60	383	17.00
400	309	13.00	334	18.15	359	15.10	384	22.80
500	310	16.50	335	23.10	360	19.00	385	28.10
600	311	20.35	336	28.40	361	23.25	386	34.15
700	312	26.20	337	36.50	362	29.40	387	43.00
800	313	32.00	338	44.60	363	35.90	388	51.75
1000	314	39.90	339	55.50	364	44.20	389	64.00
1200	315	49.60	340	69.00	365	55.00	390	79.65
1500	316	59.50	341	82.85	366	66.00	391	95.90
2000	317	80.00	342	111.50	367	89.00	392	129.50

POLISHED FINISH SWITCHES ADD 25 PER CENT. DOUBLE BREAK SWITCHES ADD 50 PER CENT.
600 VOLT SPACING ADD 33⅓ PER CENT. FOR REINFORCED BLADES ADD 10 PER CENT.
FUSED SWITCHES ARE BASED ON OPEN LINK OR TYPE "A" ENCLOSED FUSES.

13



TYPE "B" PANEL BOARD, SHOWING SIDE LININGS
32

BRANCH CIRCUITS 15 AMP. TYPE "B" PANEL BOARD SPACING FOR 220 VOLTS
PRICE LIST

NO. OF CIRCUITS	2 WIRE MAINS CAT. NO.	TYPE A FUSES	NEW CODE FUSES	PRICE	3 WIRE MAINS CAT. NO.	TYPE A FUSES	NEW CODE FUSES	PRICE	Linings and Corner Brackets
2	4202	6x18	6x16½	3.70	4302	6x19	6x18	3.90	2.10
4	4204	11x18	11x16½	6.50	4304	11x19	11x18	6.80	2.20
6	4206	14x18	14x16½	9.30	4306	14x19	14x18	9.70	2.30
8	4208	17x18	17x16½	12.10	4308	17x19	17x18	12.60	2.40
10	4210	20x18	20x16½	14.90	4310	20x19	20x18	15.50	2.50
12	4212	23x18	23x16½	17.70	4312	23x19	23x18	18.40	2.60
14	4214	26x18	26x16½	20.50	4314	26x19	26x18	21.30	2.70
16	4216	29x18	29x16½	23.30	4316	29x19	29x18	24.20	2.80
18	4218	32x18	32x16½	26.10	4318	32x19	32x18	27.10	2.90
20	4220	35x18	35x16½	28.90	4320	35x19	35x18	30.00	3.00
22	4222	38x18	38x16½	31.70	4322	38x19	38x18	32.90	3.10
24	4224	41x18	41x16½	34.50	4324	41x19	41x18	35.80	3.20
26	4226	44x18	44x16½	37.30	4326	44x19	44x18	38.70	3.30
28	4228	47x18	47x16½	40.10	4328	47x19	47x18	41.60	3.40
30	4230	50x18	50x16½	42.90	4330	50x19	50x18	44.50	3.50

ABOVE PRICES ARE FOR BOARDS OF STANDARD FORM AS SHOWN ON OPPOSITE PAGE
FOR ADDITIONAL COST WHERE MAIN SWITCHES ARE WANTED SEE PAGE NO. 43.
FOR ADDITIONAL COST WHERE FUSE CONN. IN MAINS ARE WANTED SEE PAGE NO. 42.
FOR ADDITIONAL COST WHERE LUGS AT BOTH ENDS OF MAINS ARE WANTED SEE PAGE NO. 42.

33

Figure 11: Sample pages from Pringle's 1906 catalog.

The Pringle Electrical Manufacturing Company continued to win major contracts for switchboards across the northeastern United States during the late 1900s and 1910s. Some of the company's largest known installations were in the Girard Trust Bank (1907-08) and Widener Building (1913-14), both in Philadelphia, the Boston Opera House (1909), and the Hippodrome Theatre in Buffalo, New York (1914), among others (Figures 12, 13). In the Cohan Theatre in Manhattan, built in 1911, Pringle installed the first dead front switchboard, in which there were no exposed live parts, in New York City.[17] Building on his work with the Underwriters' Switch, discussed above, the dead front switchboard is representative of Pringle's efforts to improve the operational safety of electrical equipment during the early twentieth century.

[17] "Edison and the Drama," *Edison Monthly* (August 1911), 84.

Figure 12 (left): The switchboard built by Pringle Electrical in the Widener Building in Philadelphia, completed in 1914 (from *Typical I-T-E Circuit Breaker Installations*, Cutter Electrical Company, 1916).

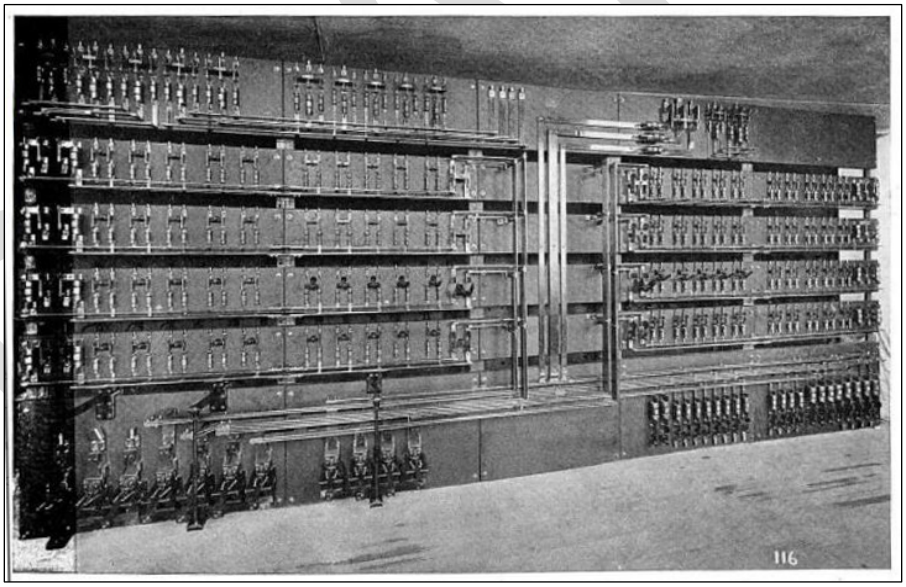


Figure 13 (right): The switchboard built by Pringle Electrical in the Boston Opera House, completed in 1909 (from *Typical I-T-E Circuit Breaker Installations*, Cutter Electrical Company, 1916).

Pringle and Electrical Safety

Pringle's Underwriters' Switch and his work on the dead front switchboard were not simply iterative improvements to existing technology. Increasing the operational safety of power distribution systems was a major goal of electrical engineers and manufacturers during the earliest years of the twentieth century, especially as higher voltage alternating current systems

became standard. The Safety First Movement, a nationwide campaign to reduce workplace hazards across all industries during this period, was a key driver of this effort.[18]

During the late nineteenth and early twentieth centuries, American newspapers regularly reported on the deaths of switchboard operators and other electrical workers who accidentally made contact with live components, particularly as switchboards became larger and handled much higher voltage alternating current. In the late 1880s, electrical engineers like Nikola Tesla started to realize that alternating current had a greater transmission range, resulted in fewer losses of power, and was more efficient and cheaper to generate than direct current, which had been the standard for years. As its advantages became more widely understood, alternating current was gradually implemented by virtually all major electrical utilities. But alternating current made electrical work far more dangerous.

Electrical accidents were especially common among those employed in theaters and factories, which were among the first large buildings where complex electrical power systems were installed. Because those operating theater switchboards were often not very experienced in electrical systems, fatal accidents were common. Similarly, in large industrial plants where unskilled workers might regularly pass in close proximity to a switchboard, it was easy to be injured or killed. These were but two of the many workplace hazards that the Safety First Movement eventually forced electrical engineers and manufacturers like Pringle to address.[19]

Pringle's work in the development of the porcelain-enclosed Underwriters' Switch - so named because it was approved by insurers and supposedly resulted in lower insurance premiums due to its safety - came years before organizations like the American Institute of Electrical Engineers began holding conferences devoted to safety in the early 1910s, making the company a pioneer in this area (the Underwriters Switch came in 1905, after Pringle had moved to 6th Street). Because the Philadelphia Electric Company, the city's sole electrical utility after 1902, was among the first to implement alternating current uniformly across a large American city, Pringle may have been encouraged to consider safety earlier than electrical manufacturers in other parts of the country. While the Underwriters' Switch was an important early development toward this end, it was the complete dead front switchboard, which enclosed all live components behind a protective steel cover, that truly made an impact in the area of safety. According to the historian of electrical engineering Percy Dunsheath, the dead front switchboard was a "major modification" which "became essential to the adoption of alternating current and higher voltages."[20]

As previously explained, the Pringle Manufacturing Company manufactured and installed the first dead front switchboard in New York City, in the Cohan Theater in Manhattan in 1911. This reinforced Pringle's leadership in the advancement of electrical safety years before much larger companies like General Electric, Westinghouse and others began to manufacture their own dead front switchboards. Although G.E. and Westinghouse soon caught on - G.E. developed a line of

[18] Mark Aldrich, *Safety First: Technology, Labor and Business in the Building of American Work Safety, 1870-1939* (Baltimore: Johns Hopkins University Press, 1997), 84, 108.
[19] *Special Devices for Electrical Uses* (New York: Electrical Record, 1917), 60.
[20] Percy Dunsheath, *A History of Electrical Power Engineering* (Cambridge, MA: MIT Press, 1962), 205.

"Safety First Switchboards" and Westinghouse even marketed boards specially designed for use in theaters - their literature does not mention dead front switchboards until 1915 or later. In one of the first major reports on the development of dead front switchboards in the United States, in *Electrical Record* in December 1919, numerous Pringle switchboards were featured alongside those by G.E., Westinghouse, and a small number of other, significantly smaller companies (though comparable in size to Pringle) from Detroit and Seattle. It may not be possible to determine which company developed the first dead front switchboard, but *Edison Monthly's* 1911 report on Pringle's board at the Cohan Theatre in New York City currently is the earliest known mention of a dead front switchboard in a major electrical trade journal, a significant number of which are fully digitized and full-text searchable.[21]

William T. Pringle: A National Authority in Electrical Manufacturing

In addition to winning major contracts, during the 1910s Pringle saw his own position as a national authority on electrical manufacturing grow. In March 1915, Pringle chaired the committee that founded the Associated Manufacturers of Electrical Supplies, which included representatives from the most prominent electrical companies in the country, such as General Electric, Westinghouse, and Crouse-Hinds.[22] In 1916, Pringle became treasurer of the organization's Panelboard and Switchboard Section, a position which he held for several years.[23] And in 1917, Pringle was elected president of the National Electric Credit Association, which was founded in 1898 "to furnish…valuable information that will be of interest and value" to electrical manufacturers and trade societies all across the country, and to "establish a credit bureau, whereby it can keep all members accurately and thoroughly posted as to all buyers of electrical goods."[24] Pringle held this position until 1919.

The Growth of Pringle Electrical After 1910

Widely respected as a designer and builder of custom switchboards, Pringle Electrical continued to win major contracts during the 1910s, leading once again to the need for more manufacturing space. Instead of moving, in 1916 Pringle decided to expand the company's existing factory, building a three-story, 25'-wide addition on the two properties to the north, at 1910 and 1912 North 6th Street, which Pringle had acquired in 1910 and 1913, respectively (Figure 14). These adjacent properties had been occupied by a pair of two-story, circa 1880 brick rowhouses, which were demolished for the addition. Around 1924, the building was expanded yet again with a new fourth story, resulting in the building that exists today.

[21] "Dead Front Switchboards - Details Regarding Construction and Field of Application," *Electrical Record* (December 1919), 357-353.
[22] "Organization of Associated Manufacturers of Electrical Supplies," *Electrical Review and Western Electrician* (March 13, 1915), 480.
[23] "Sections of Associated Manufacturers of Electrical Supplies Elect Officers and Appoint Committees," *Electrical Review and Western Electrician* (July 1, 1916), 7.
[24] "Great Interest in the Boston Credit Meeting," *Electrical World* (July 7, 1917), 27; "National Electrical Credit Association," *The Electrical Engineer* (October 20, 1898), 395.

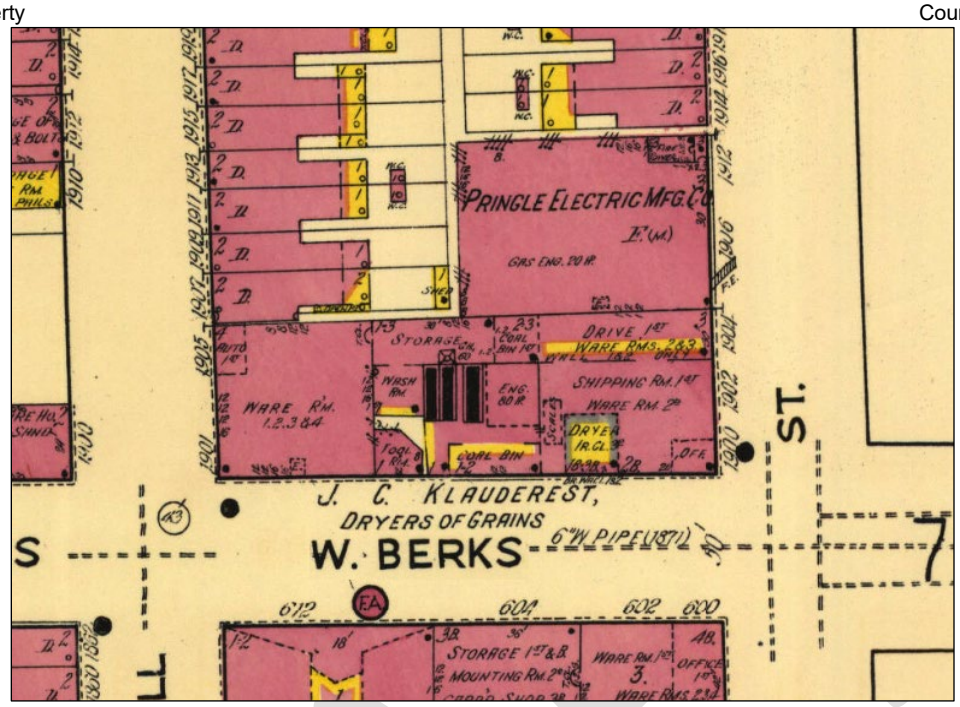


Figure 14: Sanborn Map, 1917 (Vol. 8, pl. 749), showing the building as it appeared just after the 1916 addition.

Pringle Electrical's enlarged factory made it possible for the company to pursue ever larger contracts for the building and installation of switchboards. During the early 1920s, one of the company's biggest jobs was the massive switchboard in the printing plant of the *Philadelphia Inquirer*, one of the city's largest daily newspapers and the largest today, which was located in the 18-story Elverson Building at North Broad Street (Figure 15). Completed in 1924, the Elverson Building was individually listed in the National Register of Historic Places in 1996 (NRHP Reference No. 96000716). As explained above, Pringle Electrical had wide experience in the building of switchboards for large, modern buildings. Up to this point, however, most of those switchboards were primarily used to control electrical lighting systems, as well as, in some cases, elevators and the incidental use of electrical appliances. Pringle's work in the Elverson Building clearly demonstrates that the company also had the expertise to handle electrical supply to much more complex mechanical systems, such as the vast printing machinery of a major daily newspaper in one of the country's largest cities.

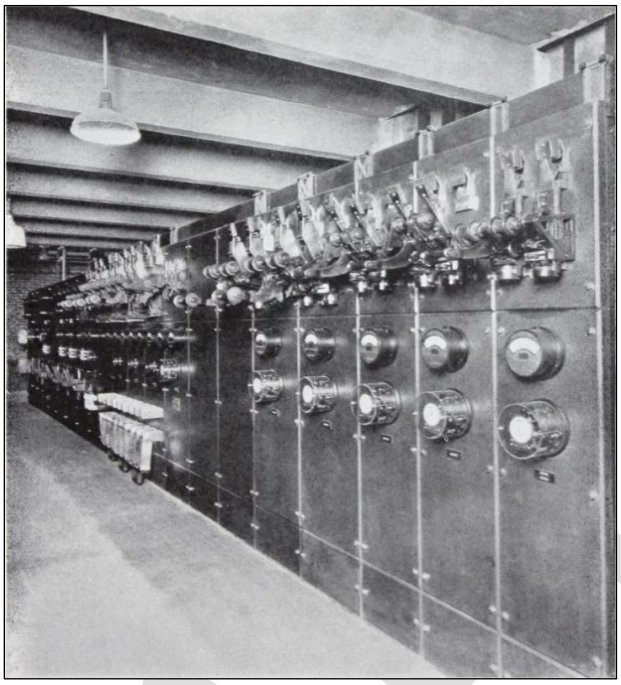


Figure 15: The switchboard built by Pringle Electrical in the printing plant of the Elverson Building in Philadelphia, completed in 1924 (from *Electrical Equipment of the Elverson Building*, Keller-Pike Company, 1924).

Other Major Switchboard Installations by Pringle Electrical Manufacturing, 1910s and 20s

- 1918 – Henry Miller's Theatre, New York, NY – A major Broadway theater that remains in operation today as the Stephen Sondheim Theatre.
- 1920 – Maryland Casualty Company Building, Baltimore, NJ – New headquarters of one of the largest insurance companies in the northeastern U.S.
- 1926 – Kearny Station, Kearny, NJ – For years the largest power station in New Jersey. Inaugurated by Thomas Edison in 1926. Multiple switchboards with a total of 138 Pringle switches were installed.

Competitors: Local and National

Philadelphia was a major center of electrical manufacturing in the United States during the early twentieth century. Dozens of companies producing all manner of electrical supplies and equipment, from the everyday domestic attachment plug to the largest steam turbines proliferated in the city during this period. Like the Pringle Electrical Manufacturing Company, many specialized in one or a few forms of electrical equipment, such as wiring, lightbulbs, outlets, lighting fixtures, switches, circuit breakers, or generators, among others. A smaller number of companies produced much wider ranges of electrical supplies and equipment. In 1917, the *McGraw Electrical Trade Directory*, an industry standard, listed seven switchboard manufacturers in Philadelphia apart from Pringle, almost all of which are also found in the 1921 and 1923 editions of the *EMF Electrical Year Book*, an even more exhaustive survey of

companies and their products.[25] Of these seven companies, only one, the Walker Electric Company, can be directly compared to Pringle.

Founded by Henry H. Walker in 1897, the Walker Electric Company became a well-known builder of specialty switchboards locally and regionally within only a few years. Initially located at 18th and Hamilton Streets, the company later relocated to 24th and Noble Streets in Center City Philadelphia. Like Pringle, Walker won numerous contracts to install switchboards in some of the most prominent buildings of the day, which in Philadelphia included the massive 9-story headquarters of the Curtis Publishing Company, on 6th Street across from Independence Hall, in 1907; the vast Wanamaker Department Store at 13th and Market Streets in 1910; and the West Philadelphia High School, the largest in the City's public education system in West Philadelphia, in 1912.[26] In terms of the size and high profile nature of these projects, Walker was easily Pringle's strongest local competitor prior to 1920. In one advertisement, Walker claimed to be "the largest independent switchboard builders in the country." It is not possible to verify this claim without sales figures or employment statistics, which are not available, but the size of the company's plant, around 29,000 square feet, suggests that Walker could not have been significantly larger a company than Pringle, whose plant on 6th Street had about 23,000 square feet and operated in much the same way. The relatively small size of the companies' respective buildings is typical of independent switchboard manufacturers at the time. The Walker and Pringle plants were not assembly line operations; rather, they essentially functioned as specialty workshops where both switches and switchboards were made to order, meaning they did not require a large number of factory workers. Instead, they employed a smaller number of workers with a higher level of technical skill, including professional electrical engineers. An official Pennsylvania industrial directory in 1922 indicated that Pringle had 25 employees, a figure that gradually increased to 57 by the end of the decade.[27] Walker does not appear in the same directories. Despite being a formidable competitor to Pringle throughout the 1900s and 1910s, the Walker Electric Company virtually disappeared by 1920. That year, the City of Philadelphia took Walker's property at 24th and Noble Streets by eminent domain, subsequently demolishing the company's plant to build the Fairmount Parkway, which is known today as the Benjamin Franklin Parkway.[28] It does not appear the company rebuilt their plant elsewhere; Walker is not found in the 1922 edition or any later edition (published every few years) of the Commonwealth of Pennsylvania's official industrial directories, and no advertisements or mentions of new switchboard installations by the company can be found after 1920.

Although the directories listed two switchboard manufacturers that were much larger in size than Pringle – the H.T. Paiste Company and the Lewis & Roth Corp. – switchboards were just one small component of these companies' businesses and, in the case of Paiste, only for a relatively brief period of time. Period trade journals rarely (if ever) reported on switchboards installed by

[25] *McGraw Electrical Trade Directory, Dealers and Contractors Edition* (New York: McGraw Publishing Co., 1916); *EMF Electrical Year Book: A Combined Dictionary, Encyclopedia and Trade Directory of the Electrical Industry* (New York: Electrical Trade Publishing Company, 1921 and 1923).
[26] "Typical I-T-E Circuit Breaker Installations" (Philadelphia: Cutter Electrical & Mfg. Co., 1916).
[27] Pennsylvania Industrial Directories, 1922, 1925, and 1928.
[28] "City Awards $914,646 for Parkway Properties," *Philadelphia Inquirer*, October 19, 1921.

Paiste and Lewis & Roth, at least in the types of large and prominent building projects that Pringle and Walker specialized in and frequently received national recognition for.

The H.T. Paiste Company was founded by Henry T. Paiste around 1890. For most of its history, the Paiste Company was located at 32nd and Arch Streets in West Philadelphia. Like Pringle, Henry Paiste tried his hand at selling, manufacturing, and then eventually inventing himself various forms of electrical supplies and equipment, but especially switches and sockets. Although Paiste is listed as a manufacturer of switchboards in the 1917 directory, no later directory includes the company in this category, therefore switchboards appear to have been more of a brief foray into this subsector of the industry. Additionally, no record of any major building-wide switchboard installations by Paiste can be found in the relevant trade journals, although the company's smaller panelboards did find wide use (the 1917 directory may have included Paiste as a switchboard manufacturer because panelboards were often used in conjunction with switchboards in large buildings). In 1916, the Paiste plant at 32nd and Arch Streets was, at about 26,000 square feet in floor area, roughly the same size as the Pringle and Walker shops. By the late 1920s, Paiste had significantly enlarged the building, employing over 200 people in the manufacture of a diverse range of electrical supplies, which still included switches and sockets but increasingly focused on wiring and conduit fittings.

The Lewis & Roth Corporation was founded by L. Robert Lewis and R.T. Roth in 1910. Lewis & Roth quickly built up a large business specializing in switchgear and high-tension equipment for outdoor substations, focusing on the long-distance transmission of electrical power and the supply of power to isolated industrial plants. Often, the design and manufacture of switchboards was incidental to their substation work, but Lewis & Roth does not appear to have built few (if any) switchboards in the same type of building projects that Pringle did. After Roth left the company in 1920, it was renamed the Electrical Power Equipment Corporation. Although advertisements from the early 1920s still list switchboards as one of their product lines, by the 1930s Electric Power's ads exclusively focused on outdoor substation equipment. The company went bankrupt in 1949, closing down that year.

Although Pringle after 1920 does not appear to have faced stiff competition from any Philadelphia-based, independent switchboard manufacturers, the company did increasingly compete with large conglomerates like General Electric. In 1916, General Electric built its first shop in Philadelphia. Located at 7th and Willow Streets, this large, seven-story building, which remains standing, was individually listed in the National Register of Historic Places for its significance in the areas of industry and architecture in 1985 (NRHP #85003470). In the National Register Nomination, architectural historian George Thomas writes that during this period, General Electric, despite the diversity of its product line, "was concentrating on the transmission of electric power from generators, produced by the company, through transmission lines." The switchgear equipment produced by G.E. at this plant, which employed nearly 700 workers by the early 1920s, "controlled power transmission, interrupted power to prevent power surges from damaging transformers and principally regulated the flow of current in such a way as to make it a reliable, economic power source."

Beginning in 1924, G.E. expanded its Philadelphia presence, building a much larger plant at 69th Street and Elmwood Avenue in West Philadelphia. Employing upwards of 3000 people over the next few decades, the Philadelphia Works, as it was known within the company, became G.E.'s "headquarters for the development and manufacture of switchboards and accessories; air circuit breakers; oil circuit breakers; relays; indoor lever and disconnecting switches; automatic substation equipment; and outdoor station equipment."[29] G.E.'s switchboard operation made the company a formidable competitor to Pringle, and the company benefitted from many repeat orders from two of the largest customers in the city, installing switchboards in numerous substations of the Pennsylvania Railroad and the Philadelphia Electric Company. But Pringle continued to punch above their weight, especially in the Philadelphia and Northeastern U.S. markets. For one, much of the switchboard production that occurred at G.E.'s new West Philadelphia plant was related to standardized panels, meaning switchboard panels that were pre-assembled for typical applications and available in a catalog.[30] Although, like Pringle, G.E. maintained a staff of professional engineers who could assist buyers in the design of special switchboards for unusual conditions, Pringle had already been building custom, highly specialized switchboards for over two decades. G.E.'s Philadelphia switchboard division was but one component of the company's massive and diversified operation. While G.E. probably built many more switchboards than Pringle (statistics are not currently available), the company's market was national and international in scope, and G.E. does not appear to have significantly affected Pringle's ability to pursue and win major switchboard contracts in the local and regional markets into the 1930s and beyond. As explained below, Pringle continued to build and install switchboards in major projects well into the 1950s.

In addition to G.E., other large electrical companies with switchboard divisions, including Allis-Chalmers, based in Milwaukee, and Westinghouse, headquartered in Pittsburgh, opened branch offices and/or manufacturing facilities in Philadelphia during the early twentieth century. But in the case of these two companies, they do not appear to have provided significant competition in the switchboard business, at least in Philadelphia. Although Allis-Chalmers maintained a Philadelphia sales office during the 1910s and 20s, no record of a major Allis-Chalmers switchboard installation in the city has yet been found. And while Westinghouse built two large facilities in the city, one in South Philadelphia in 1917-19 and another at 30th and Walnut Streets in West Philadelphia in 1922, neither produced switchboards. Production at the South Philadelphia Plant was limited to large steam turbines, and the West Philadelphia building was devoted to local sales, service, and warehouse departments, not manufacturing.[31] Westinghouse's switchboard divisions, which, like G.E., focused on standardized rather than custom or specialty equipment, remained in Pittsburgh and Atlanta.

Despite Pringle having such large competitors – G.E. in particular – these companies did not dominate the market for the type of specialty switchboards that Pringle had earned a reputation for. In an exhaustive 1928 report on the country's electrical power industry, the United States Federal Trade Commission (FTC) stated that "The most important companies in standardized

[29] General Electric Company, "General Electric Factories" (1927).
[30] *Sweet's Catalogue of Building Construction for 1914* (New York: F.W. Dodge Co., 1914).
[31] "Electric Co. Moves into New Building," *Philadelphia Inquirer*, February 17, 1924.

switchboards are the General Electric Co. and the Westinghouse Co." At both companies, "the manufacture of power switchboards is largely an assembling process" and that "certain types of switchboard construction are standardized to such an extent that their production for stock is possible." But standardized switchboards, the report continues, "are not always adaptable to the needs of particular installations. This leaves a broad field of special-order switchboard manufacture. Here again the large companies are large producers, but they share the field with numerous independent companies." Elaborating on competition between companies like G.E. and Pringle, the report also stated, "Any advantage possessed by the large electrical companies would seem to be due to the sale of boards for use with other apparatus of their own construction" and that "Smaller manufacturers [like Pringle] claim that in the construction of boards for particular purposes not fully covered by standardized construction they are best able to meet the competition of the big companies by being able to give more prompt attention both in designing and in expediting construction on special orders. In other words, the field in which the big companies are most effective is that in which a high degree of standardization and large demand make possible uninterrupted volume production." Therefore, despite being far smaller an organization than corporate behemoths like G.E. and Westinghouse, Pringle flourished in the switchboard manufacturing field because of the highly specialized nature of their switchboard practice.[32]

The Pringle Electrical Manufacturing Company after William T. Pringle

William T. Pringle died in 1927 and was succeeded as president of Pringle Electrical by his son, Arthur E. Pringle, II.[33] Named after his uncle, Arthur E. Pringle, who had been the company's vice-president for many years but retired soon after his brother's death, the younger Arthur was born in 1899 in Lansdowne, Pennsylvania, a near western suburb of Philadelphia where his parents were then living (the elder Arthur died in 1945).[34] Arthur studied electrical engineering at Pennsylvania State University, graduating with a bachelor's degree in 1922. After working as an engineer for the Bell Telephone Company in Philadelphia for several years, Arthur joined the family business around 1925, serving as secretary of the company until his father's death.[35]

As president of Pringle Electrical, Arthur E. Pringle, II, maintained the company's reputation for quality work and its position as one of the top builders of specialty electrical switches and switchboards. The company took on increasingly complex and specialized projects, such as a contract with the New York Rapid Transit Corporation to build and install control panels for the new tunnel and station lighting systems in several New York City subway lines in 1930.[36] The same year, Pringle Electrical supplied switches for the main switchboard of the SS Manhattan, a 1200-passenger ocean liner of the United States Lines, which, on its launch at the end of 1931, was the largest ocean liner ever built in the United States.[37]

[32] Federal Trade Commission, "Supply of Electrical Equipment and Competitive Conditions" (Washington, DC, 1928), 32, 123.
[33] Obituary of William T. Pringle, *Philadelphia Inquirer*, March 11, 1927.
[34] Obituary of Arthur E. Pringle, *Philadelphia Inquirer*, February 8, 1945.
[35] Obituary of Arthur E. Pringle, II, *The Star-Democrat* (Easton, MD), March 24, 1986.
[36] *Proceedings of the Department of Public Service-Metropolitan Division, Transit Commission, State of New York, Vol. XI, From January 1 to December 31, 1930* (New York, 1931), 962.
[37] "The Largest American-Built Liner," *Pacific Marine Review* (September 1932), 332.

Like his father, Arthur E. Pringle, II, became a national figure in the electrical industry. As reported in a 1986 obituary:

> Interested in the work of standardization of the electrical industry, he served for many years as a member of the American Standards Board and of the U.S. National Committee of the International Electrotechnical Commission. As a member of the Standards Council, on which he represented the National Electrical Manufacturers Association, an organization for which he served for numerous terms as a member of the Board of Governors and for two terms as treasurer, he was chairman of the ASA's Committee of Procedure from 1952 to 1954 and chairman of the ASA's Materials and Standards Testing Board from 1954 to 1960. He also served on the ASA's Board of Directors. He was a fellow of the American Institute of Electrical Engineers and served as chairman of the Philadelphia section of the group from 1954 to 1955. He also served as chairman of the Codes and Standards Subcommittee of the A.I.E.E. from 1959 to 1961.
>
> Mr. Pringle was a fellow in the Standards Engineers Society and an associated member of the National Fire Protection Association from which he received a technical committee service award for his work in electrical safety. He also received the James H. McGraw Award Manufacturers Medal in 1962 for his leadership and influence in the area of electrical industry standards.[38]

Pringle Electrical remained a major player in the production of specialty switchboards for several more decades, continuing to manufacture and install switches and switchboards in major projects, including ever more complex facilities like large power plants. Some of the company's other major installations under Arthur Pringle's leadership include:

- 1928 – Binghamton Station, Binghamton, NY – Major power plant in upstate New York.
- 1932 – Safe Harbor Hydroelectric Plant, York County, PA – Major hydroelectric plant supplying power to Baltimore, MD, and Lancaster and York, PA.
- 1939 – Aberfoyle, Inc., Norfolf, VA – One of the largest rayon factories in the country.
- 1941 – United States Government – Numerous war-era contracts for switchboard installations.
- 1953 – Alcoa Building, Pittsburgh, PA – This 31-story high-rise was the corporate headquarters of ALCOA, one of the largest producers of aluminum in the world.

Under the leadership of Arthur Pringle, II, and during the company's time in the 6th Street factory, one of Pringle Electrical's most significant achievements was their introduction of the first bolted pressure switch in the early 1950s. Based on the knife- and blade-type switches that Pringle Electrical had been building for over 50 years, the company designed the bolted pressure switch to handle especially large current loads (Figure 16). Like a typical Pringle switch, the bolted pressure switch had stationary contacts and moveable contacts, the latter controlled by a

[38] Obituary of Arthur E. Pringle, II, 1986 (see above).

long arm or lever. But Pringle's innovation vastly improved high-capacity switches because it was faster to open and close and had contacts that did not rely solely on spring pressure, as was standard, to maintain contact and allow current to flow. Rather, the bolted pressure switch used bolts to hold the contacts together under higher pressure, resulting in less resistance to the current and reduced operating temperatures. Due to its ability to reliably handle large current loads, the bolted pressure switch became the industry standard in medium and large facilities where it functioned as the main on/off point for electrical power for an entire building.[39] The bolted pressure switch built on research that Pringle Electrical had been conducting since the late 1920s, when one of the company's engineers patented an early type of switch lock, a "novel and inexpensive means for adapting a closed switch blade to stay closed if subjected to the heavy opening stresses incident to any abnormally high current."[40]

With the bolted pressure switch, which soon became commonly known simply as the "Pringle Switch," Pringle Electrical secured their continued position as one of the country's top manufacturers of high-capacity switches for the rest of the twentieth century. Although a number of manufacturers eventually began to produce their own bolted pressure switches, Pringle remained an industry standard and continued to innovate, introducing improved versions of the switch through the 1960s and beyond. In 1971, for example, Pringle Electrical introduced automatic tripping and ground fault protection features, allowing safer operation by decreasing the risk of shock to the operator, features which remain standard in the Pringle Switch today.[41]

In 1963, sixty years after William T. Pringle first moved his business to the 6th Street factory, Pringle Electrical departed Philadelphia for a new, 24,000 square-foot facility in suburban Fort Washington, Pennsylvania.[42] And in 1965, Arthur Pringle, II, retired as president and was succeeded by his son, Arthur Pringle, III. The business remained in operation, and under the control of the Pringle family, until 2005 when it was bought out by the Eaton Corporation, a multinational power management company that was founded in 1911 in New Jersey but is now headquartered in Dublin, Ireland. As a testament to the wide recognition for quality that they enjoy in the industry, Eaton still sells Pringle Switches by their original name.[43]

[39] "Pressure-type Switch," *Electrical South* (August 1952), 67; "Large Service Switches," *Electrical Construction and Maintenance* (April 1953), 235-237; "Important Features of a Bolted Pressure Switch," East Coast Power Systems, accessed March 1, 2023, https://www.ecpowersystems.com/resources/pressure-switch/important-features-of-a-bolted-pressure-switch/

[40] Harvey B. Austin, assignor to the Pringle Electrical Copmany. 1931. Switch Lock . US Patent 1,829,329, filed October 26, 1928, and issued October 27, 1931.

[41] "New Product Report," *Professional Engineer* (June 1971), 50.

[42] "Electrical Firm to Relocate at Ft. Washington," *Philadelphia Inquirer*, April 2, 1963.

[43] "Eaton Acquires Assets of Pringle Electrical," *Electrical Marketing* (October 27, 2005).

Figure 16: A Pringle Electrical advertisement for the bolted pressure switch in the August 1952 edition of *Electrical South*.

Following the departure of the Pringle Electrical Manufacturing Company in 1963, the building at 1906-12 North Sixth Street was used primarily for storage by Pacon, Inc., a manufacturer of specialty packaging, until the 1990s. During Pacon's ownership, nearly all of the building's original windows were replaced either with historically inappropriate replacement windows, or the window openings were infilled with concrete block. These later windows and the concrete block infill were recently removed from all openings (Figure 17). It appears that the building has been largely vacant for the last twenty or more years.

Figure 17: View of the building around 2020, prior to the removal of the windows

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form.)

Aldrich, Mark. *Safety First: Technology, Labor and Business in the Building of American Work Safety, 1870-1939.* Baltimore: Johns Hopkins University Press, 1997.

Commonwealth of Pennsylvania Industrial Directories, 1922, 1925, and 1928.

Cutter Electrical & Manufacturing Company. "Typical I-T-E Circuit Breaker Installations." Philadelphia: Cutter Electrical & Mfg. Co., 1916.

"Dead Front Switchboards - Details Regarding Construction and Field of Application." *Electrical Record* (December 1919): 357-353.

Dunsheath, Percy. *A History of Electrical Power Engineering*. Cambridge, MA: MIT Press, 1962.

"Eaton Acquires Assets of Pringle Electrical." *Electrical Marketing* (October 27, 2005).

"Edison and the Drama." *Edison Monthly* (August 1911): 84.

"Electrical Firm to Relocate at Ft. Washington." *Philadelphia Inquirer*. April 2, 1963.

EMF Electrical Year Book: A Combined Dictionary, Encyclopedia and Trade Directory of the Electrical Industry. New York: Electrical Trade Publishing Company, 1921 and 1923 editions.

Federal Trade Commission. "Supply of Electrical Equipment and Competitive Conditions." Washington, DC, 1928.

"Large Service Switches." *Electrical Construction and Maintenance* (April 1953): 235-237.

McGraw Electrical Trade Directory, Dealers and Contractors Edition. New York: McGraw Publishing Co., 1916.

"A New Flush Switch." *Electrical World and Engineer* (February 24, 1900): 297.

Obituary of William T. Pringle. *Philadelphia Inquirer*. March 11, 1927.

Obituary of Arthur E. Pringle, II. *The Star-Democrat* (Easton, MD). March 24, 1986.

"Pressure-type Switch." *Electrical South* (August 1952): 67

Pringle Electrical Mfg. Co.. Catalog (1906 Edition). Held in the Trade Literature Collection at the Smithsonian National Museum of American History Library.

Schroeder, Fred E.H. "More 'Small Things Forgotten': Domestic Electrical Plugs and Receptacles, 1881-1931." *Technology and Culture* 27, no. 3 (Jul. 1986): 534.

Tenth Annual Report of the Factory Inspector of the Commonwealth of Pennsylvania. Harrisburg, PA, 1900): 222-23.

"The Underwriters' Switch." *Electrical World and Engineer* (March 4, 1905): 449.

Previous documentation on file (NPS):

__X_ preliminary determination of individual listing (36 CFR 67) has been requested
____ previously listed in the National Register
_____previously determined eligible by the National Register
_____designated a National Historic Landmark
____ recorded by Historic American Buildings Survey #_____
_____recorded by Historic American Engineering Record # _____
____ recorded by Historic American Landscape Survey # _____

Primary location of additional data:

____ State Historic Preservation Office
____ Other State agency
____ Federal agency
____ Local government
____ University
____ Other
Name of repository: _____

Historic Resources Survey Number (if assigned): _____

10. Geographical Data

Acreage of Property __~0.1 acres___

Use either the UTM system or latitude/longitude coordinates

Latitude/Longitude Coordinates
Datum if other than WGS84:_____
(enter coordinates to 6 decimal places)
1. Latitude: ___39.980398___ Longitude: ___-75.144931___

2. Latitude: _____ Longitude: _____

3. Latitude: _____ Longitude: _____

4. Latitude: _____ Longitude: _____

Verbal Boundary Description (Describe the boundaries of the property.)
The boundary of the property is shown as a red line on the accompanying map entitled "**Figure 2:** Site Plan with the National Register Boundary." The sidewalks along 6th Street are not included in the boundary because they did not play a direct role in the operation of the building.

Boundary Justification (Explain why the boundaries were selected.)
The proposed National Register Boundary corresponds to the historic and current parcel, which are the same.

Form Prepared By

name/title: Kevin McMahon, Senior Associate
organization: Powers & Company, Inc.
street & number: 1315 Walnut Street, Suite 1717
city or town: Philadelphia state: PA zip code: 19107
e-mail: kevin@powersco.net
telephone: (215) 636-0192
date: May 4, 2023

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** or equivalent (7.5 or 15 minute series) indicating the property's location.
- **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.
- **Additional items:** (Check with the SHPO, TPO, or FPO for any additional items.)

Photographs

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels (minimum), 3000x2000 preferred, at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map. Each photograph must be numbered and that number must correspond to the photograph number on the photo log. For simplicity, the name of the photographer, photo date, etc. may be listed once on the photograph log and doesn't need to be labeled on every photograph.

Photo Log

Name of Property: Pringle Electrical Manufacturing Company Building

City or Vicinity: Philadelphia

County: Philadelphia State: PA

Photographer: Kevin McMahon

Date Photographed: February 21, 2023

Description of Photograph(s) and number, include description of view indicating direction of camera:

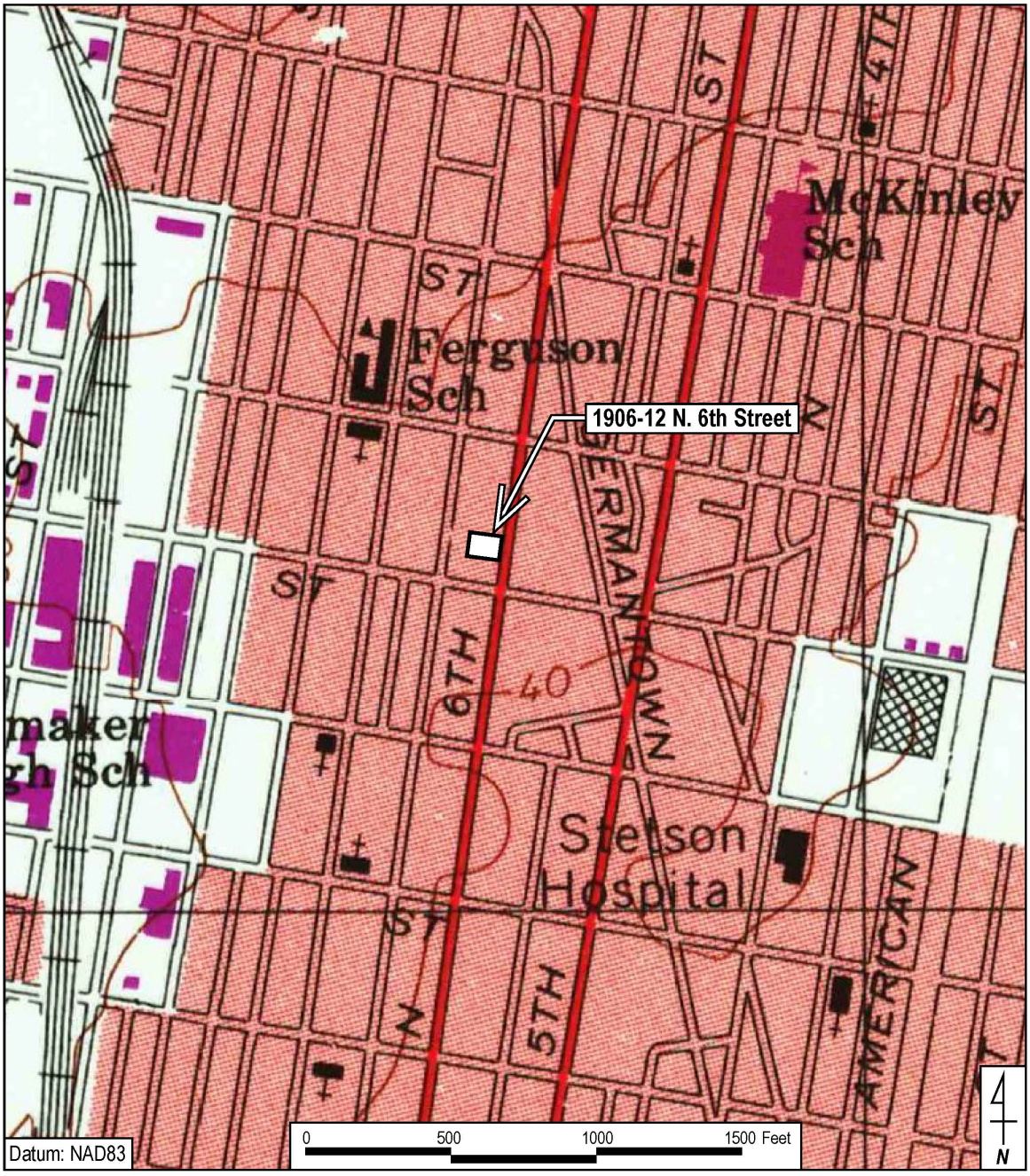
Photograph #	*Description of Photograph*
1.	East elevation, looking west.
2.	West elevation, looking east.
3.	First floor, looking east toward the main entrance on 6th Street.
4.	Second floor, looking northwest.
5.	Third floor, looking east.
6.	Fourth floor, looking northwest.
7.	Straight-run wood stair along the south wall, looking west on the first floor.
8.	U-return wood stair at the northeast corner of the building, looking west on the second floor.
9.	Typical fire balcony, looking north on the second floor.

Index of Figures – Section 7

Figure #	*Description of Figure*
1.	Aerial view, showing the outline of the building in red.
2.	Site plan with the National Register Boundary.

Index of Figures – Section 8

Figure #	*Description of Figure*
3.	The Chapman Plug as illustrated in the July 27, 1895 edition of *The Electrical Age*.
4.	A later version of the Chapman Plug in use at the Glensheen Mansion in Duluth, Minnesota
5.	A Pringle advertisement for the Chapman Plug in the June 29, 1895 edition of *The Electrical World*.
6.	A Pringle advertisement for the Chapman Plug in the January 25, 1896 edition of *Western Electrician.*
7.	The "New Style" attachment plug as illustrated in the May 20, 1899 edition of *Western Electrician.*
8.	Pringle's flush toggle switch, the first of its kind, as illustrated in the February 24, 1900 edition of *Electrical World and Engineer*.
9.	The "Underwriters' Switch" as featured in the March 4, 1905 edition of *Electrical World and Engineer*.
10.	The main switchboard of the Pennsylvania State Capitol, designed and installed by Pringle before 1906.
11.	Sample pages from Pringle's 1906 catalog.
12.	The switchboard built by Pringle Electrical in the Widener Building in Philadelphia, completed in 1914.
13.	The switchboard built by Pringle Electrical in the Boston Opera House, completed in 1909.
14.	Sanborn Map, 1917 (Vol. 8, pl. 749).
15.	The switchboard built by Pringle Electrical in the printing plant of the Elverson Building in Philadelphia, completed in 1924.
16.	A Pringle Electrical advertisement for the bolted pressure switch in the August 1952 edition of *Electrical South*.
17	Photo of the east elevation around 2020, prior to removal of the most recent windows.
18.	USGS Map.
19.	First Floor Plan with Photo Key.
20.	Second Floor Plan with Photo Key.
21.	Third Floor Plan with Photo Key.
22.	Fourth Floor Plan with Photo Key.



USGS Map - Philadelphia Quadrangle - New Jersey-Pennsylvania (1995)

Pringle Electrical Manufacturing Company Building
1906-12 N. 6th Street
Philadelphia, Philadelphia County, PA

Latitude, Longitude
39.980398, -75.144931

Figure 18: USGS Map.

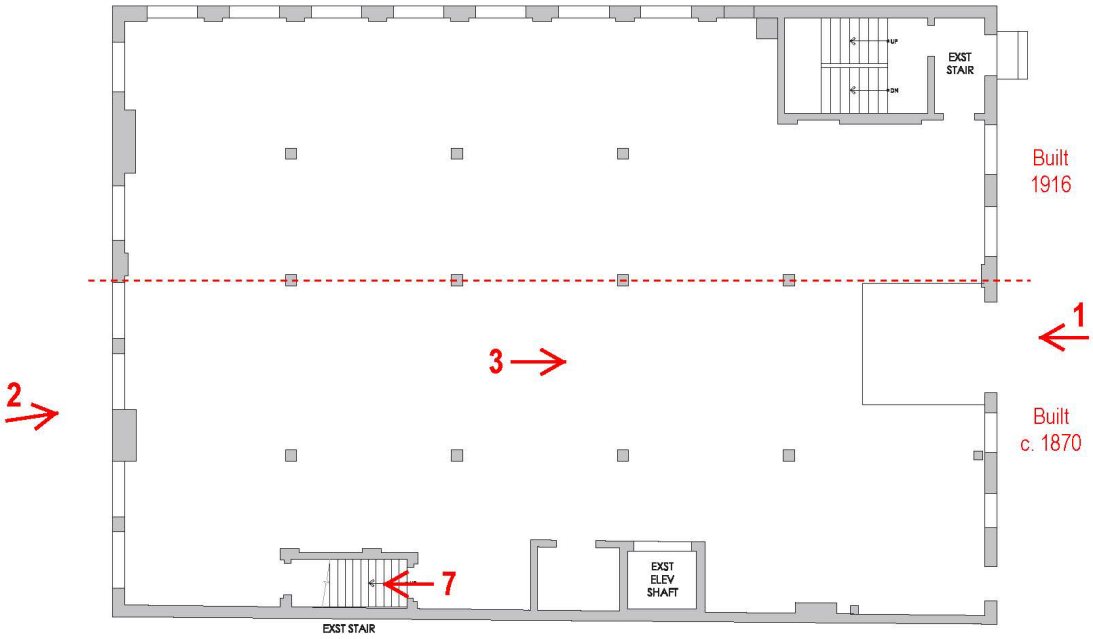


Figure 19: First Floor Plan with Photo Key.

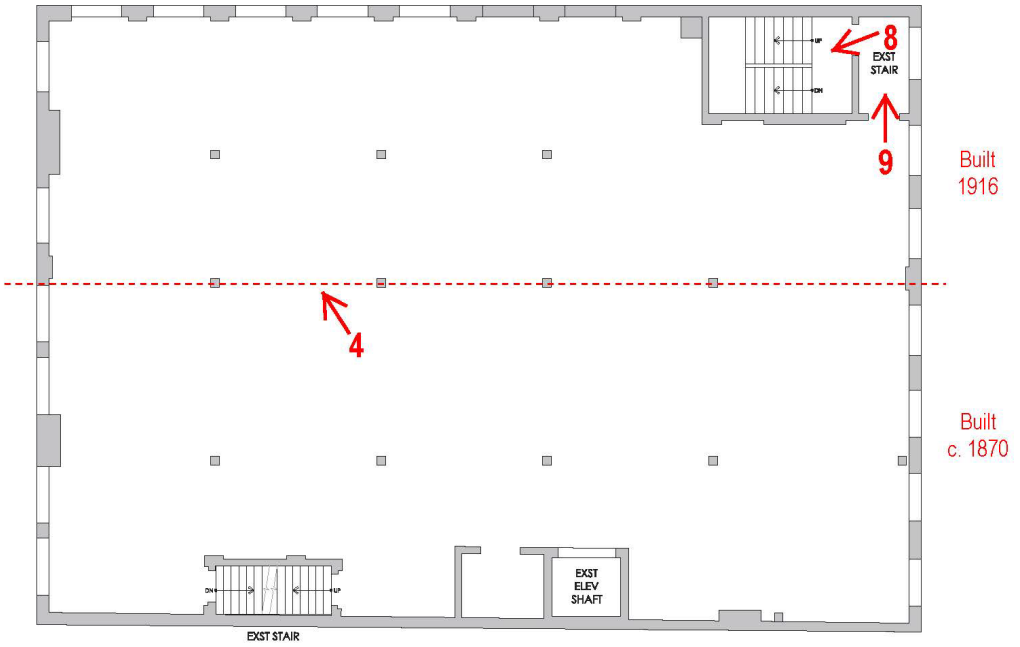


Figure 20: Second Floor Plan with Photo Key.

Figure 21: Third Floor Plan with Photo Key.

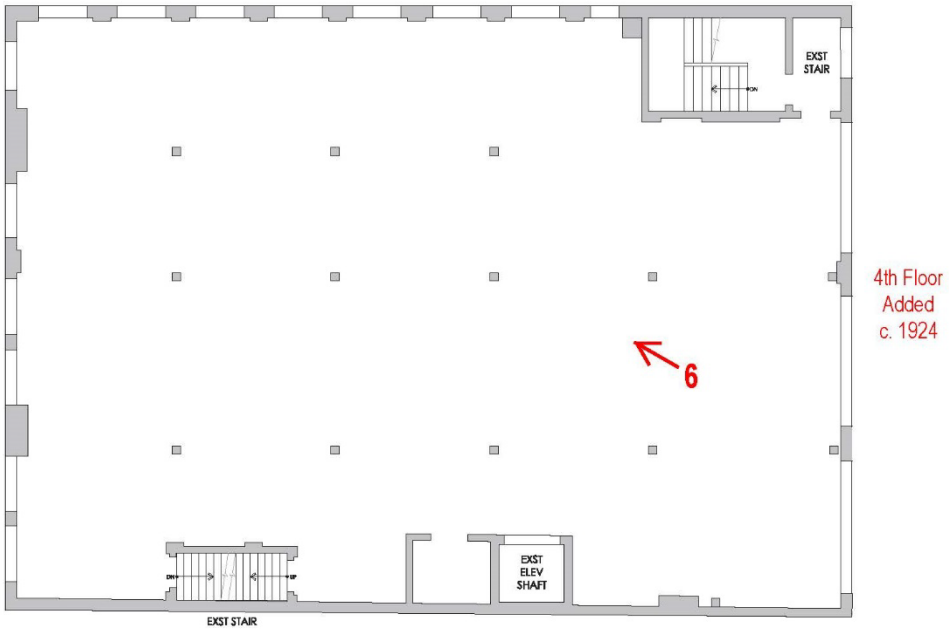


Figure 22: Fourth Floor Plan with Photo Key.