

NOMINATION OF HISTORIC BUILDING, STRUCTURE, SITE, OR OBJECT
PHILADELPHIA REGISTER OF HISTORIC PLACES
PHILADELPHIA HISTORICAL COMMISSION

SUBMIT ALL ATTACHED MATERIALS ON PAPER AND IN ELECTRONIC FORM (CD, EMAIL, FLASH DRIVE)
ELECTRONIC FILES MUST BE WORD OR WORD COMPATIBLE

1. ADDRESS OF HISTORIC RESOURCE (must comply with an Office of Property Assessment address)

Street address: **173 W. Berks Street**

Postal code: **19122**

Councilmanic District:

2. NAME OF HISTORIC RESOURCE

Historic Name: **Peter Woll & Sons, Curled Hair & Bristles**

Current/Common/Other Name: **Peter Woll & Sons Feather Company**

3. TYPE OF HISTORIC RESOURCE

☒ Building

☐ Structure

☐ Site

☐ Object

4. PROPERTY INFORMATION

Occupancy: ☒ occupied ☐ vacant ☐ under construction ☒ unknown

Current use: Industrial

5. BOUNDARY DESCRIPTION

Please attach

6. DESCRIPTION

Please attach

7. SIGNIFICANCE

Please attach the Statement of Significance.

Period of Significance (from year to year): **1887 to 1939**

Date(s) of construction and/or alteration: **1887**

Architect, engineer, and/or designer: **Unknown**

Builder, contractor, and/or artisan: **Unknown**

Original owner: **Peter Woll**

Other significant persons: **NA**

CRITERIA FOR DESIGNATION:

The historic resource satisfies the following criteria for designation (check all that apply):

- ☐ (a) Has significant character, interest or value as part of the development, heritage or cultural characteristics of the City, Commonwealth or Nation or is associated with the life of a person significant in the past; or,
- ☐ (b) Is associated with an event of importance to the history of the City, Commonwealth or Nation; or,
- ☐ (c) Reflects the environment in an era characterized by a distinctive architectural style; or,
- ☐ (d) Embodies distinguishing characteristics of an architectural style or engineering specimen; or,
- ☐ (e) Is the work of a designer, architect, landscape architect or designer, or engineer whose work has significantly influenced the historical, architectural, economic, social, or cultural development of the City, Commonwealth or Nation; or,
- ☐ (f) Contains elements of design, detail, materials or craftsmanship which represent a significant innovation; or,
- ☒ (g) Is part of or related to a square, park or other distinctive area which should be preserved according to an historic, cultural or architectural motif; or,
- ☒ (h) Owing to its unique location or singular physical characteristic, represents an established and familiar visual feature of the neighborhood, community or City; or,
- ☐ (i) Has yielded, or may be likely to yield, information important in pre-history or history; or
- ☒ (j) Exemplifies the cultural, political, economic, social or historical heritage of the community.

8. MAJOR BIBLIOGRAPHICAL REFERENCES

Please attach

9. NOMINATOR: KEEPING SOCIETY OF PHILADELPHIA

Authors: **Oscar Beisert, Architectural Historian**

Donna Rilling, Ph.D., Historian & Professor

Email: keeper@keepingphiladelphia.org

Date: **2 November 2018**

Street Address: **1315 Walnut Street, Suite 320**

Telephone: **717.602.5002**

City, State, and Postal Code: **Philadelphia, Pennsylvania 19107**

Nominator ☐ is ☒ is not the property owner.

PHC USE ONLY

Date of Receipt: 11/2/2018

☒ Correct-Complete ☐ Incorrect-Incomplete

Date: 8 February 2019

Date of Notice Issuance: 8 February 2019

Property Owner at Time of Notice

Name: Brett and Joanne Freedman

Address: 165 W Berks Street

City: Philadelphia

State: PA

Postal Code: 19122

Date(s) Reviewed by the Committee on Historic Designation: 3/12/2018, Criteria H and J

Date(s) Reviewed by the Historical Commission: 4/12/2019

Date of Final Action: 4/12/2019, Criteria H and J

☒ Designated ☐ Rejected

3/12/18

NOMINATION

FOR THE

PHILADELPHIA REGISTER OF HISTORIC PLACES



Looking south at the primary elevation of the subject property. Source: Oscar Beisert, 2018.

PETER WOLL & SONS

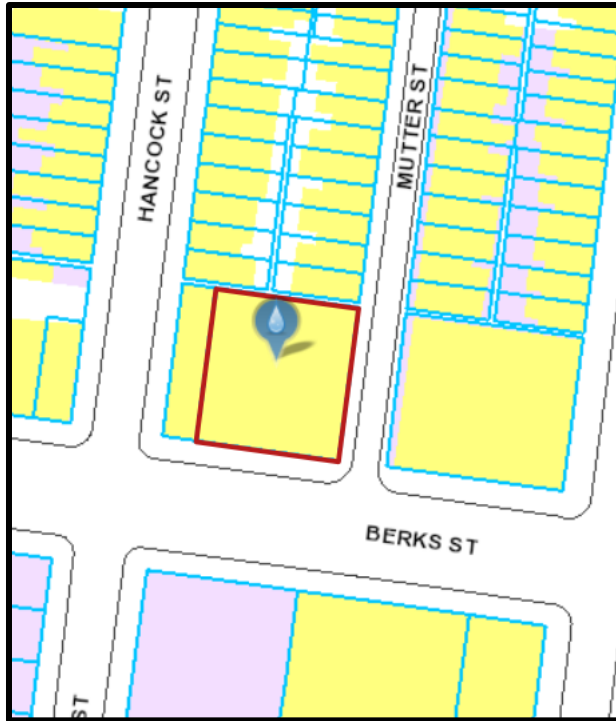
CURLED HAIR & BRISTLES

ERECTED 1886

173 W. BERKS STREET

PHILADELPHIA, PENNSYLVANIA

Nomination to the Philadelphia Register of Historic Places, Fall 2018 – Page 1
Peter Woll & Sons, Steamed Curled Hair & Bristles, 173 W. Berks Street, Philadelphia, Pennsylvania

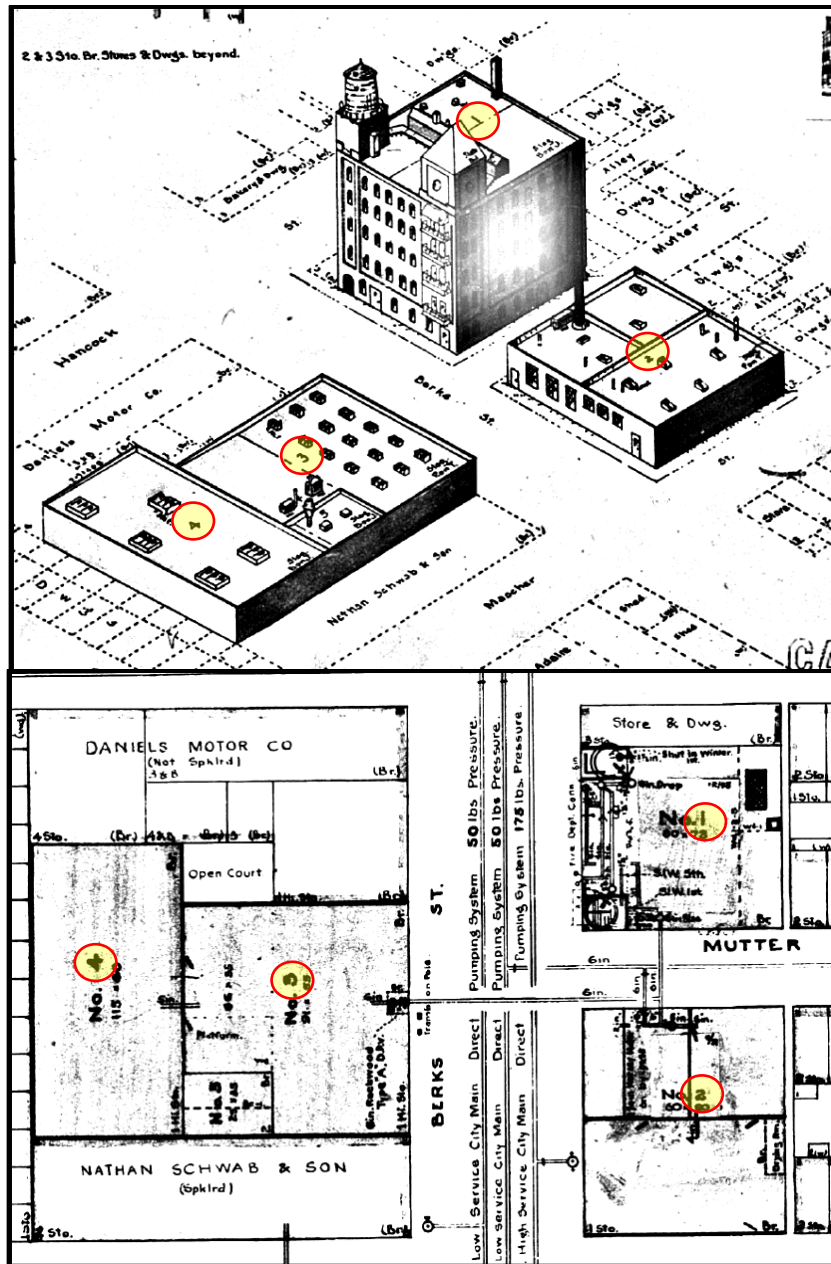


The boundary for the proposed designation is delineated in red.
Source: Philadelphia Water.

5. BOUNDARY DESCRIPTION

The boundary for the designation of the subject property is as follows:

All That Certain Lot situated at the northwest corner of Berks and Mutter Streets, Containing in front or breadth on the said Berks Street 72 feet and extending in length or depth Northwardly of that width the Westerly line thereof parallel with, and the Easterly line thereof along the Westerly side of said Mutter Street, 80 feet to a 3 foot wide alley leading from the Maid Mutter Street to Hancock Street.



Peter Woll & Sons, later known as the Peter Woll & Sons Manufacturing Company, Curled Hair, and the Peter Woll & Sons Feather Company, occupied five buildings clustered in a three small city blocks by 1924, as shown above in the clips of the Manufacturers' Mutual Fire Insurance Co. survey. While this nomination is for Building No. 1: Peter Woll & Sons, Curled Hair & Bristles, it is important to note the firm's larger footprint and context. As of 1924, the complex included the following five buildings: Building No. 1: Peter Woll & Sons, Curled Hair & Bristles (1887); Building No. 2 (1902); Building No. 3 (1921); Building No. 4 (1904); and Building No. 5 (1904). In addition, the buildings occupied by the Daniels Motor Co., as well as Nathan Schwab & Son, as shown above, were part of the subject complex at an earlier period. Source: Survey: D.E. Bartlett. "Peter Woll & Sons Mfg. Co. (Curled Hair), Philadelphia, Pa.," Manufacturers' Mutual Fire Insurance Co. (11 February 1924).



Looking west on Berks Street with the 160 Berks Street on the left and 173 W. Berks Street on the right.
Source: Oscar Beisert, 2018.

7. Physical Description

The subject building, the former Peter Woll & Sons, Steamed Curled Hair & Bristles, (Peter Woll & Sons) is a large building of load-bearing, red brick masonry construction, standing five stories with two sixth story towers and a flat roof. Maintaining the aesthetic ideals that the prominent engineer Sir William Fairbairn espoused, Peter Woll & Sons is an industrial building that was advanced beyond the functional requirements of the standard brick box with the inclusion of brick pilasters at the corners, a corbeled cornice, and other brickwork and corbeling that established a functional aesthetic.

The primary, Berks Street elevation presents to the south a five-story façade of red brick with a symmetrical arrangement of apertures defined by segmental brick arches. The façade is divided into three distinct sections by brick pilasters that start at the corners and repeat after the first tier of apertures at the east and west, giving the corner sections of the building a tower-like appearance. The four pilasters extend to a corbeled brick cornice and frame the central section that is five bays wide. At the southwest corner of the building a functional brick water tower house rises as a small sixth story component, which appears to have been a later addition. At the southeast corner of the building an original, formal tower rises as a sixth story component. The tower is defined by two decorative panels created by recessions of brick corbeling—first forming a square and the second forming a circle.



Looking northwest at 173 W. Berks Street. Source: Oscar Beisert, 2018.

The side, Mutter Street elevation presents the second of two formal and stylized elevations, presenting to the east a five-story façade of red brick that with a somewhat symmetrical arrangement of apertures defined by segmental brick arches. The façade is divided into three distinct section by brick pilasters that start at the corners and repeat after the first tier of apertures at the east and west, giving the corner sections of the building a tower-like appearance. The four pilasters extend to a corbeled brick cornice and frame the central section that is five bays wide. The centermost tier of apertures is askew, clearly related to some industrial or loading mechanism. At the southeast corner of the building an original, more formal tower rises as a sixth story component. The tower is defined by two decorative panels created by recessions of brick corbeling—first forming a square and the second forming a circle.



Top: Looking northeast at 173 W. Berks Street. Bottom: Looking east at the side and rear elevations of 173 W. Berks Street. Source: Oscar Beisert, 2018.

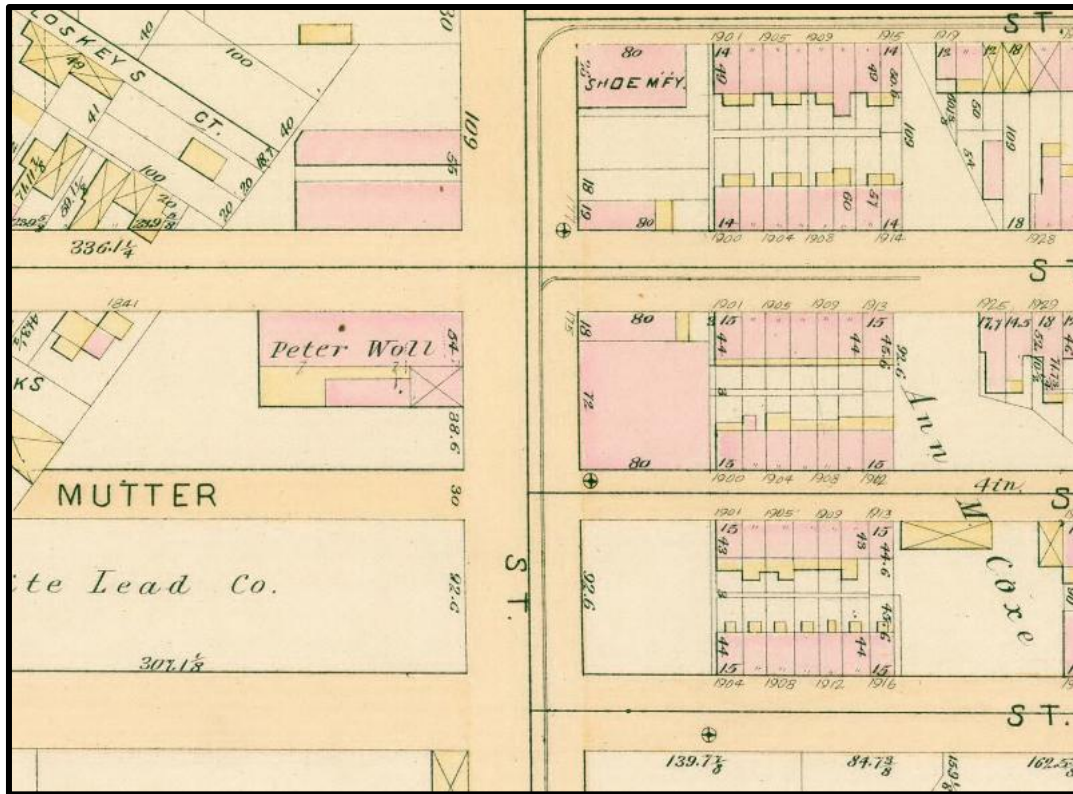


Left: Looking north from the south side of Berks Streets on Hancock Street towards the primary elevation of 165 Berks Street. Source: Oscar Beisert, 2018.

The rear elevation faces north onto a pedestrian alley and is also detached, featuring an informal, purely functional but symmetrical arrangement of seven apertures per floor. The side, Hancock Street elevation is the only attached wall of the building, but its unobscured façade features an informal, purely functional but symmetrical arrangement of six apertures on the fourth and fifth floors. At the southwest corner of the building a functional brick water tower house rises as a small sixth story component, which appears to have been a later addition. The west-facing elevation of the water tower house features ghost signage that reads as follows:

PETER WOLL
& SONS
FEATHER CO.

This ghost signage on the otherwise unadorned brick wall forms a distinctive visual feature that informs the neighborhood of the building's past life.



Atlas of the City of Philadelphia, 18th, 19th, and 31st Wards, 1887, Plate M. (Philadelphia: G.W. Bromley & Co.)
 Source: Greater Philadelphia GeoHistory Network.

7. STATEMENT OF SIGNIFICANCE

The former Peter Woll & Sons at 173 W. Berks Street is a significant historic resource that merits designation by the Philadelphia Historical Commission and inclusion on the Philadelphia Register of Historic Places. The subject building satisfies the following Criteria for Designation, as enumerated in Section 14-1004 of the Philadelphia Code:

- (g) Is part of or related to a square, park or other distinctive area which should be preserved according to an historic, cultural or architectural motif;
- (h) Owing to its unique location or singular physical characteristic, represents an established and familiar visual feature of the neighborhood, community or City; and
- (j) Exemplifies the cultural, political, economic, social or historical heritage of the community.

The period of significance dates to the time of design and construction: c. 1887-1939.



The photograph used by Lawrence O'Toole in the section on "Peter Woll & Sons Mfg. Co. Curled Hair, Feather" in *Fading Ads of Philadelphia*. Source: Lawrence O'Toole, *Fading Ads of Philadelphia* (Acadia Publishing, 2012).

CRITERIA G & H

Under Criterion G, the subject property is a significant factory building that was part of a larger complex of buildings and structures that served as the manufacturing complex of Peter Woll & Sons, Curled Hair & Bristles, and, later, after incorporation, both Peter Woll & Sons Manufacturing Company, Curled Hair, and the Peter Woll and Sons Feather Company. In addition, the subject property is a distinctive factory building that is part of a larger, discontinuous, but distinctive industrial area that should be preserved for its ties to the Workshop of the World and the industrial heritage of Kensington and Philadelphia at-large.

Under Criterion H, the subject property contains intact ghost signage that reads as follows:

PETER WOLL
& SONS
FEATHER CO.

Standing five stories, the subject property is, aside from a few of the churches, one of the tallest factory buildings in the neighbor of Kensington, and the ghost signage, located on the west-facing wall of the water tower wall that forms a sixth level, constitutes an established visual feature that directly conveys the historic use of the building. This visual feature has been recognized by several sources, including National Register of Historic Places Multiple Property Documentation Form: Buildings Related to the Textile Industry in the Kensington Neighborhood

of Philadelphia; and the *Workshop of the World*, both online and in print form.¹ In addition, this specific ghost signage was documented and illustrated in *Fading Ads of Philadelphia* by Lawrence O'Toole in 2012. These signs were also mapped on Foursquare.com O'Toole in 2013 and also on pinterest.com.² This book was reviewed and partly reprinted in a 2012 issue of the *Philadelphia Weekly*, which dedicates an entire page to “Peter Woll & Sons Mfg. Co. Curled Hair, Feather” and includes an illustration of this specific signage.³ In addition, the ghost signage is documented and illustrated on flickr.com as part of “Philadelphia: The Charm of the City” by Van Luvender.⁴ The Greater Philadelphia Film Office also cites this location on locationshub.com, which attests to its visual distinction as both a factory building and for its ghost signage.⁵ Several Instagram accounts have also featured various views of the signage.



Philadelphia Weekly. (Philadelphia: 12 December 2012), p. 20-21.

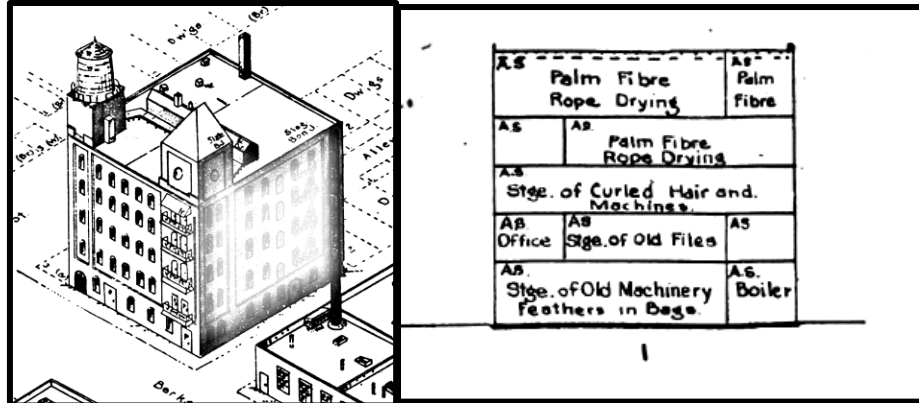
¹ National Register of Historic Places Multiple Property Documentation Form: Buildings Related to the Textile Industry in the Kensington Neighborhood of Philadelphia; Carmen A. Weber, Irving Kosmin, and Muriel Kirkpatrick, *Workshop of the World* (Oliver Evans Press, 1990); and within the “Kensington” section of the *Workshop of the World—Philadelphia* website. <http://www.workshopoftheworld.com/kensington/woll.html> Accessed 15 November 2018.

² “Ghost Signs, Collection by Lawrence O’Toole Design and Direction,” Pinterest.com. <<https://www.pinterest.com/lotoole3/ghost-signs/>> Accessed on 15 October 2018.

³ Lawrence O’Toole, *Fading Ads of Philadelphia* (Acadia Publishing, 2012), *Philadelphia Weekly*, 12 December 2012, p. 20-21.

⁴ “Phillycharm,” Flickr.com <https://www.flickr.com/groups/phillycharm/pool/tags/urban/page53/> Accessed 15 October 2018.

⁵ “Peter Woll & Sons,” Locationshub.com. <https://rs.locationshub.com/location_detail.aspx?id=035-10025783&page=124&user=35&search=&s.s.&parent=search_results> Accessed on 15 October 2018.

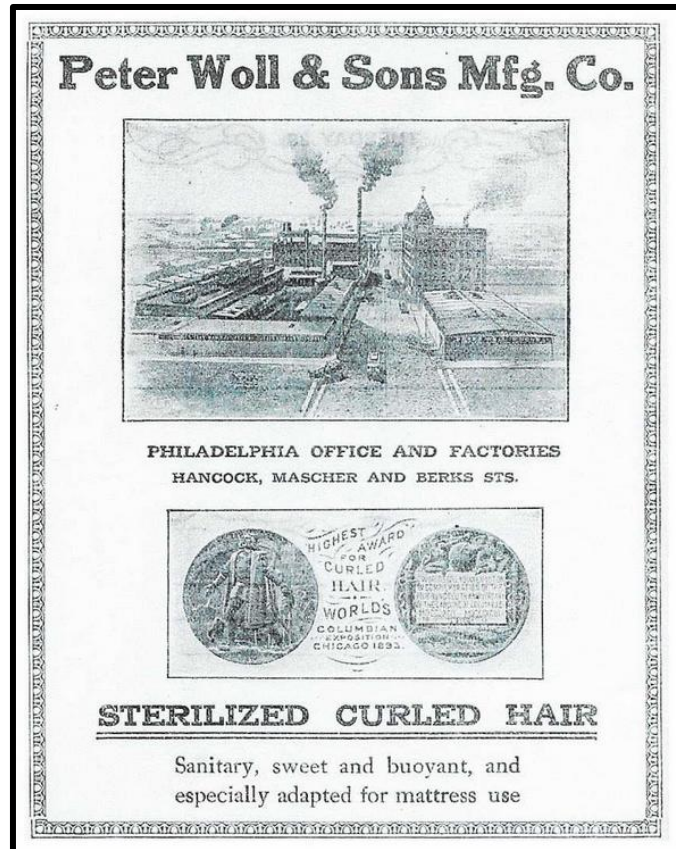


Left: a clipping of the illustration created by the Manufacturers' Mutual Fire Insurance Co. survey. Right: a clipping of the building plan and use created by the Manufacturers' Mutual Fire Insurance Co. survey. Source: Survey: D.E. Bartlett. "Peter Woll & Sons Mfg. Co. (Curled Hair), Philadelphia, Pa.," Manufacturers' Mutual Fire Insurance Co. (11 February 1924).

CRITERION J

The subject building, the former Peter Woll & Sons, exemplifies the cultural, economic, and historical heritage of the industrial age in Kensington, which was a significant aspect of the larger "Workshop of the World," a name often associated with Philadelphia in the nineteenth and early twentieth centuries. Peter Woll & Sons is a former factory building that was designed and constructed in 1886 for the manufacture of "Steamed Curled Hair and Bristles," which describes a production process that transformed industrial refuse into a viable product. In curled hair and bristle manufacturing in America, Peter Woll & Sons were said to be at the very top of the industry, represented as the largest and most successful of these establishments as early as 1886 and as late as 1914 in various industrial and trade journals. In another sign of the firm's eminence, Peter Woll & Sons won the Highest Award for Curled Hair at the Columbian Exhibition of 1893 in Chicago.

Industrial and agricultural processes created refuse generally considered useless and, more importantly, a menace to society. Morocco leather firms and tanneries, for example, created large amounts of undesirable animal waste. The manufacture of curled hair and bristles, however, was a critical component of the waste industry and transformed refuse into desirable products or raw materials for producers. The primary product of the curled hair industry was stuffing essential to the manufacture of chairs, mattresses, sofas, and other upholstered items that were becoming increasingly accessible to a wider range of society during the Victorian era.



An advertisement for Peter Woll & Sons Mfg. Co., showing the “Highest Award for Curled Hair” bestowed upon the firm at the Columbian Exposition Chicago 1893. This advertisement, published after Peter Woll’s death in 1902, uses the term “Sterilized Curled Hair,” describing the product as “sanitary, sweet and buoyant, and especially adapted for mattress use.” The advertisement shows the company’s extensive plant at the subject site. Source: Ancestry.com.

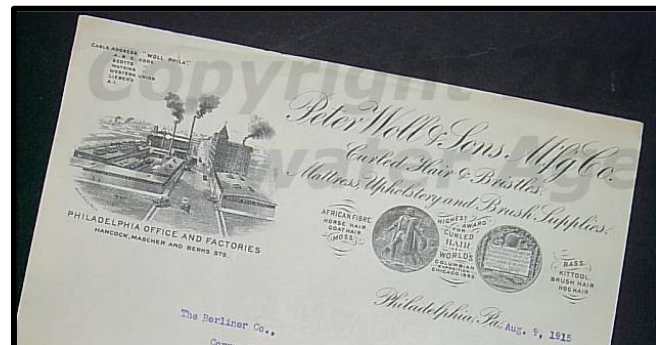
According to Horace Greeley, Philadelphia was always the center of the curled hair industry. Philadelphia imported the related industrial byproducts from various parts of the nation and the globe for reuse by these firms. After being “curled,” these hair-based products were sent into the marketplace throughout the United States, as well as to the West Indies, South America, and Canada.⁶ Not only did these products serve the mattress and furniture industry, but vehicles including carriages, omnibuses, railroad cars, and later the horseless carriage used curled hair in to cushion their passengers.

The manufacture of curled hair and bristles epitomizes Philadelphia’s industrial frugality, as well as the late nineteenth-century obsession with “closing the loop” by finding consumer or producer markets for the by-products of manufacturing.⁷ Historically, a number of these curled hair and bristle manufacturers were in Northern Liberties and Kensington. According to Blodget’s industrial survey of 1882, Peter Woll & Sons employed as many as 185 persons, competing with

⁶ Horace Greeley et al., *The Great Industries of the United States* (Hartford, Conn., 1871); Edwin T. Freedley, *Philadelphia and Its Manufactures ... in 1857* (Philadelphia: 1859), 218-19.

⁷ Pierre Desrochers, “How Did the Invisible Hand Handle Industrial Waste? By-product Development before the Modern Environmental Era,” *Enterprise and Society* 8 (June 2007), 348-74.

several other local companies such as Baeder & Adamson, A.C. Miller, and Kessler & Delaney.⁸ Woll's success no doubt led the firm to construct the large and impressive factory building that is the subject of this nomination, which the company later expanded to occupy four city blocks. Baeder & Adamson (initially soap manufacturers) once operated in Northern Liberties at 1006 North 6th Street, a complex long since demolished. Delaney & Co.'s Curled Hair and Glue Works once occupied the site at the northeast corner of Jefferson and Mascher Streets, but its plant was destroyed many years ago.⁹ Peter Woll & Sons produced curled hair and bristles in the subject building from the time of its construction in 1886 until it was sold in 1939, rendering the firm one of the largest and most important of these enterprises in Kensington and Philadelphia at-large.

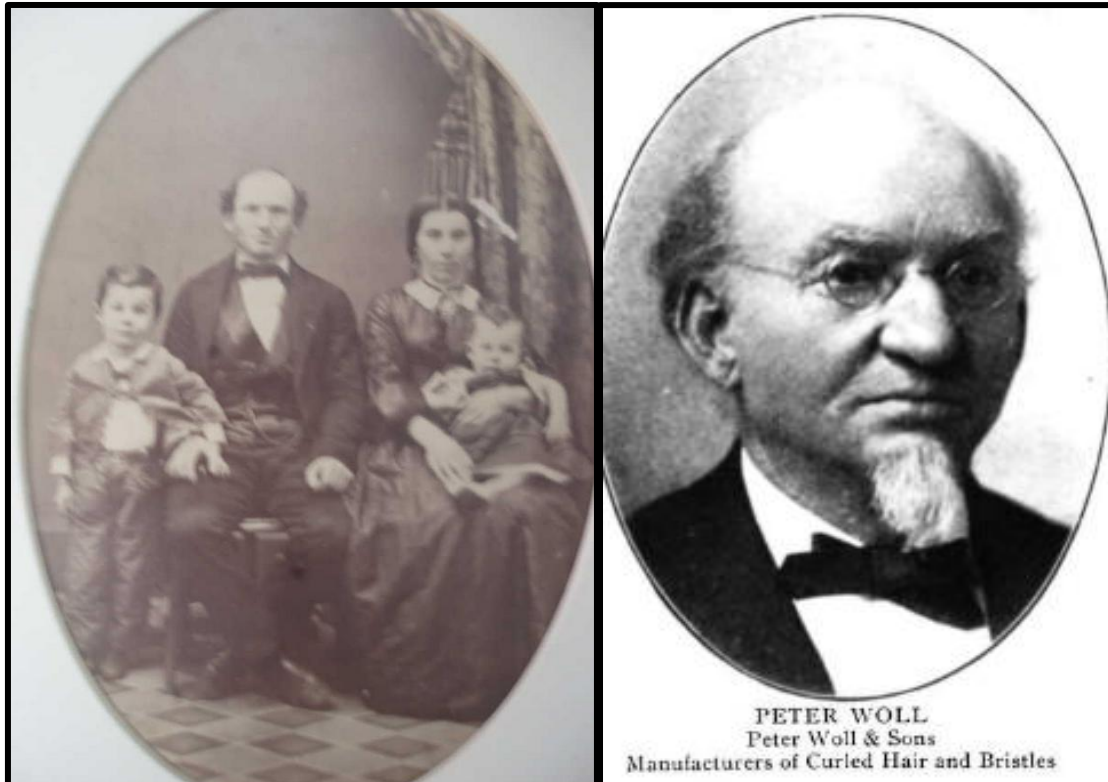


The letterhead of Peter Woll & Sons Manufacturing Company, Curled Hair & Bristles, Mattress, Upholstery, & Brush Supplies, prominently displaying their Highest Award for Curled Hair from the Columbian Exhibition of 1893 in Chicago, also displaying an illustration of the factory complex. Source: Ebay.

For the reasons shown above, the subject building is illustrated and referenced in the National Register of Historic Places Multiple Property Documentation Form: Buildings Related to the Textile Industry in the Kensington Neighborhood of Philadelphia; Philip Scranton's *Proprietary Capitalism*; and the *Workshop of the World*. Peter Woll's success was such that he qualified for entry into King's *Philadelphia and Notable Philadelphians*, and his sons were listed in the *Directory of the Directors of Philadelphia* and *The Philadelphian and His City, Who's Who in Philadelphia In Wartime*.

⁸ Lorin Blodget, comp., *Census of Manufactures of Philadelphia. A Census of Industrial Establishments, and of Persons of Each Class Employed therein, in the City of Philadelphia, for the year 1882. Compiled from Returns collected by Officers of the Police Department.* (Philadelphia, 1883), 78.

⁹ [Hexamer General Survey #1088 \(1877\) "Delaney & Co's Curled Hair & Glue Works."](#)



Left: A photograph of the Woll family, taken c. 1861, in Philadelphia. Source: Patricia Woll, descendant. Right: A photograph of Peter Woll, founder of “Peter Woll & Sons, Manufacturers of Curled Hair and Bristles,” taken from Moses King, *Philadelphia and Notable Philadelphians* (New York: M. King, 1902).

Historic Context: Peter Woll & Sons

In 1858, Peter Woll (1832-1902) “first engaged in the business of preparing bristles for brush-makers in Philadelphia,” an enterprise that was invariably linked to the manufacture of curled hair, a sector of the waste industry.¹⁰ Born to “an agricultural family” in the village of Wiesbach in the Kingdom of Bavaria, Germany, Peter Woll “bade adieu to home and friends in the fatherland and sailed from Havre, landing in New York City in 1853.”¹¹ He married Anna Elizabeth Schmidt (1832-1899), a native of Bavaria who came from a prominent family.¹² The Wolls had four children: Adolph, Peter, Elizabeth, and Frederick.¹³ Naturalization came less than a decade after Woll’s arrival with an Oath of Allegiance that took place on October 22, 1860.¹⁴

In 1861, a listing for Peter Woll appeared in the Philadelphia City Directory, at which time he was located on Columbia Avenue, east of Perry Street. In 1863 he was listed in the directory on Howard Street above York with a reference to “brushes”. The 1867 and 1868 directories confirm

¹⁰ “The Death of Peter Woll,” *American Carpet and Upholstery Journal*, vol. 21. (1902).

¹¹ Peter Ross, *A History of Long Island: From Its Earliest Settlement to the Present Time*, v. 2 (Long Island, New York: Lewis Publishing Company, 1902), 137.

¹² Filby, P. William, ed. *Passenger and Immigration Lists Index, 1500s-1900s*. Farmington Hills, MI, USA: Gale Research, 2012; and 1860 U.S. census, population schedule. NARA microfilm publication M653, 1,438 rolls. Washington, D.C.: National Archives and Records Administration, n.d.

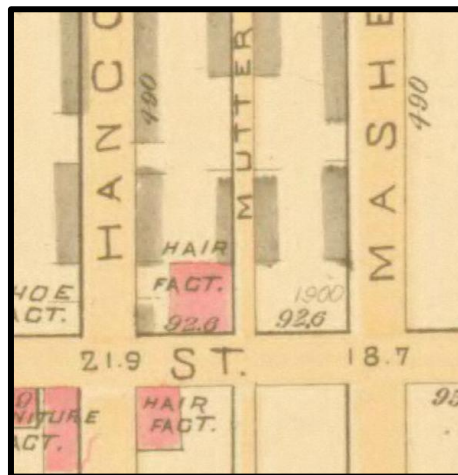
¹³ Ross, *A History of Long Island*, 2: 137.

¹⁴ Filby, P. William, ed. *Philadelphia Naturalization Records*. Detroit, MI, USA: Gale Research Co., 1982.

that this location was likely 2414 Howard Street. By 1870, Peter Woll was in partnership with his brother Christian Woll. The Woll Brothers maintained two facilities, Peter at the Howard Street address and Christian at 2432 Waterloo. At that time, Woll was estimated to be worth \$17,000 in real estate and 1,000 in personal estate.¹⁵ In 1873, one directory listed the firm as Peter Woll & Brothers, the business then being located at 146 Canal Street. Throughout the 1870s, the directories illuminate that with or without a partnership, Peter Woll, Christian Woll, and Frederick Woll were in the bristle and brush business. By 1877, Frederick and Christian Woll had gone into partnership to produce and sell “brush mfgr’s materials” at 1313 Germantown Avenue. The style known as Peter Woll & Sons originated in 1879, when Adolph Woll was “admitted to a partnership.”¹⁶ In 1881, the firm Peter Woll & Son was listed in the directory under Peter Woll, still living at the Howard Street address, and as manufacturers of curled hair on Berks Street at the corner of Hancock. This is the same year that Peter and Adolph Woll purchased the subject property at the corner of Berks and Mutter Streets.¹⁷ Shortly afterwards, the firm constructed a new manufactory to accommodate its growing business:

The business was greatly extended by the addition of curled hair, bed feathers and other kindred lines.¹⁸

According to the 1885, 1886, and 1887 directories, Peter Woll & Sons continued business on Berks Street at the corner of Hancock. The firm was then made up of Peter Woll and his sons Adolph Woll and Peter Woll, Jr. Frederick Woll would eventually join the firm, but the precise date of that partnership is unknown.



Baist's *Property Atlas of the City of Philadelphia, Penna*, completed in one volume, 1888, Plate 21. Source: Greater Philadelphia GeoHistory Network.

¹⁵ 1870 U.S. census, population schedules. NARA microfilm publication M593, 1,761 rolls. Washington, D.C.: National Archives and Records Administration, n.d.

¹⁶ “The Death of Peter Woll,” *American Carpet and Upholstery Journal*, v. 21 (1902).

¹⁷ Deed Tripartite: Sarah Harrison, Theodore L. Harrison and James L. Claghorn, of the city of Philadelphia, surviving executors of the will of Joseph Harrison, Jr., of the first part, Sarah Harrison, widow of Joseph Harrison, Jr., of the second part, to Peter Woll and Adolph Woll, of the city, curled hair and bristle manufacturers, for \$6,000, 19 October 1881, Philadelphia Deed Book L.W., No. 172, p. 576.

¹⁸ “The Death of Peter Woll,” *American Carpet and Upholstery Journal*, v. 21 (1902).

Peter Woll & Sons built the large factory building at 173 W. Berks Street in 1886 for the manufacture of bristles and curled hair. Little is known about the precise details of the design and construction process. However, newspaper announcements and publications shed some light on the history. In April of that year it was announced that Peter Woll & Son's brush factory, which had been established earlier in Lansdale, Pennsylvania, would be removed to Philadelphia. The announcement alleged that the firm was unable to find sufficient workforce in Lansdale. Relocation to Philadelphia allowed Woll to employ 150 boys from the House of Refuge.¹⁹ In July 1886, "An Ordinance To Authorize Peter Woll & Son To Lay Pipe Under and Across Berks Street, East of Hancock Street," was approved on July 1, 1886, and signed by William B. Smith, then Mayor of Philadelphia.²⁰



An advertisement from a trade journal circa 1895, showing the large factory building of Peter Woll & Sons at 173 W. Berks Street. Source: Philip Scranton, *Proprietary Capitalism: the Textile Manufacture At Philadelphia, 1800-1885* (Cambridge: Cambridge University Press, 1983), 400.

Around the time that the large factory at 173 W. Berks Street was completed in 1886, the *Pennsylvania Historical Review: Gazetteer, Post-office, Express and Telegraph Guide* described the firm in detail:

Peter Woll & Sons, Manufacturers of Steam Curled Hair & Bristles; Offices and Store, Hancock and Berks Streets; Branch Store, 335 Pearl Street, New York.—In compiling an account of the manufacturing establishments of Philadelphia, we desire particularly to mention those classes of houses which are best representatives of each special line of trade, and which contribute most to the city's reputation as a source of supply. In this connection, special attention is directed to the old established and widely known house of Messrs. Peter Wolf & Sons, who office and store are located at Hancock and Berks streets. They are the principal manufacturers of steam curled hair and bristles in this country, and have gained an enviable reputation with the trade for the unrivalled superiority and quality of their various productions. This house was founded in 1858 by Mr. Peter Woll, the senior partner, who in 1877 admitted his son, Mr. Adolph Woll, into partnership. Eventually his other son, Mr. Peter Woll, Jr., was taken into the firm,

¹⁹ *The Central News* (Perkasie, Pennsylvania), 29 April 1886, 3.

²⁰ "City Ordinances," *The Philadelphia Inquirer*, 3 July 1886, 7.

which is now carrying on business under the style and title of Peter Woll & Sons. The premises occupied are very extensive, and comprise two commodious factories, which are admirably equipped with all the latest improved machinery and appliances necessary for the systematic conduct of business. About three hundred skilled operatives are employed in the various departments. Much of the machinery which has gained a high reputation for this establishment was designed by Mr. Peter Woll, and is especially adapted for the purpose for which it is employed. The various uses to which curled hair and bristles are now put, and the rapidly increasing demand for these specialties for upholstering and brush making, have caused the firm latterly to make extensive additions to their factories, which are the most complete in the country. Messrs. Woll & Sons import their foreign bristles from Russia, and possess every facility and resource for conducting all operations under the most favorable auspices, and are always prepared to render their customers every possible advantage in goods and prices. The firm has likewise a store at No. 306 Pearl Street, New York. In addition to being extensive manufacturers of curled hair and bristles, they likewise keep constantly on hand a superior stock of moss, excelsior tow, goat-hair, husk, hair-cloth, etc.²¹

In January 1887, Peter Woll & Sons celebrated the completion of their “new and extensive factory” with a banquet with about 200 guests.²² Later that year, the company continued expanding and later that year purchased a small factory building at the southeast corner of W. Berks and Hancock Streets from the Western White Lead Company. At the time of purchase, two buildings occupied the irregularly shaped lot.²³

In several editions, including the 1890 volume, Seeger and Guernsey’s *Cyclopedia of the Manufacturers and Products of the United States* categorized Curled Hair under Upholstery and Bedding Supplies. Under that heading, Peter Woll & Sons appeared at 169 Berks Street with ten other firms, three of which were in Philadelphia.²⁴ On November 2, 1892, Peter Woll filed U.S. Patent Application No. 40,822 for a “Method of Making Curled Hair.” The process appears to have advanced the firm in the manufacturing industry.²⁵ In 1893, Peter Woll & Sons exhibited at the Columbian Exposition in Chicago, winning the “Highest Award for Curled Hair.”

²¹ *Pennsylvania Historical Review: Gazetteer, Post-office, Express and Telegraph Guide; City of Philadelphia; Leading Merchants and Manufacturers.* (Pittsburgh: Historical Publishing Company, 1886), 190.

²² *The Philadelphia Inquirer*, 17 January 1887, 3.

²³ “Real Estate Transfers, May 13, 1887,” *The Philadelphia Inquirer*, 14 May 1887, 7.

²⁴ *Seeger and Guernsey’s Cyclopedia of the Manufacturers and Products of the United States.* (1890), 775.

²⁵ “No. 40,822. Method of Making Curled Hair,” *The Canadian Patent Office Registry* (Canada: Patent Office, 1893), 619.



A photograph of an advertisement showing Peter Woll & Sons' "Highest Award for Curled Hair" from the Columbian Exhibition in Chicago, 1893. Source: Ancestry.com.

Woll purchased the lot at the southwest corner of W. Berks and Mascher Streets from the Western White Lead Company for \$10,800.²⁶ In 1899, plans for a two-story "brick and iron storage and factory building" to be constructed by contractors William Steele & Sons at the southwest corner of Master and Berks Streets were announced.²⁷ In 1902 at the price of \$15,000, Steele undertook for the firm a two-story brick addition to the building at the southwest corner of Mascher and Berks Streets.²⁸ It appears that this two-story building was in use by Nathan Schwab & Son by the time of the 1924 Manufacturers' Mutual Fire Insurance Company survey. In 1902 Peter Woll & Sons also bought the lot at the northwest corner of W. Berks and Mutter Streets.²⁹ *The Philadelphia Inquirer* announced that the company would build on the lot "a one-story brick warehouse, 92x80 feet, with a fire wall division."³⁰ Encompassing the entire lot, Building No. 2 (as the 1924 Manufacturers' Mutual Fire Insurance Company survey labeled it) was completed in 1902.³¹

In 1902, at the time of Peter Woll's death, the trade journal *Fibre and Fabric* referred to Peter Woll & Sons as one of the "the largest curled hair manufacturers" and lamented the loss of the founder.³² Woll, however, "left a large estate of unascertained amount to his children and grandchildren."³³ Prior to his death, Peter Woll had worked with his sons to reorganize the company, and, after his death it was announced that two companies had been formed:

Peter Woll and Sons Manufacturing Company—Philadelphia [organized on] March 3, 1902. Capital, \$700,000. For the purpose of the manufacture of upholsterers' mattress and brush supplies.

²⁶ "Midsummer Purchases," *The Philadelphia Inquirer*, 23 July 1890, 7.

²⁷ *The Times* (Philadelphia), 8 October 1899, 14.

²⁸ *The Philadelphia Inquirer*, 24 May 1902, 28.

²⁹ "Real Estate Transfers," *The Times* (Philadelphia), 26 March 1902, 10.

³⁰ *The Philadelphia Inquirer*, 29 March 1902, 7.

³¹ "Peter Woll & Sons Mfg. Co. (Curled Hair), Philadelphia, Pa.," Manufacturers' Mutual Fire Insurance Co. (11 February 1924).

³² "Miscellaneous Notes," *Fibre and Fabric* (13 December 1902), 209.

³³ *The Philadelphia Inquirer*, 2 December 1902, 4.

Peter Woll and Sons Feather Company—Philadelphia, [organized on] March 3, 1902. Capital, \$300,000. For the purpose of the manufacture of bedding supplies.³⁴

Peter Woll, Jr. was eventually President, Treasurer, and Director of both the Peter Woll and Sons Feather Company and Peter Woll and Sons Manufacturing Company, Curled Hair. Frederick Woll, listed at 169 Berks Street, was eventually Vice President and Director of both the Peter Woll and Sons Feather Company and Peter Woll and Sons Manufacturing Company, Curled Hair. Frederick P. Woll was eventually Secretary and Director of both the Peter Woll and Sons Feather Company and Peter Woll and Sons Manufacturing Company, Curled Hair. All three men were Directors of the Ninth National Bank and Peter was a director of the Industrial Trust, Title & Savings Co. of Philadelphia.³⁵ Further enlargement of the complex occurred in 1904 when Building Nos. 4 and 5 were constructed at what is now the rear of Building No. 3. Both of these buildings appear to have been used for the curing and storage of curled hair.³⁶



1910 Philadelphia Atlas, G.W. Bromley. Source: Greater Philadelphia GeoHistory Network.

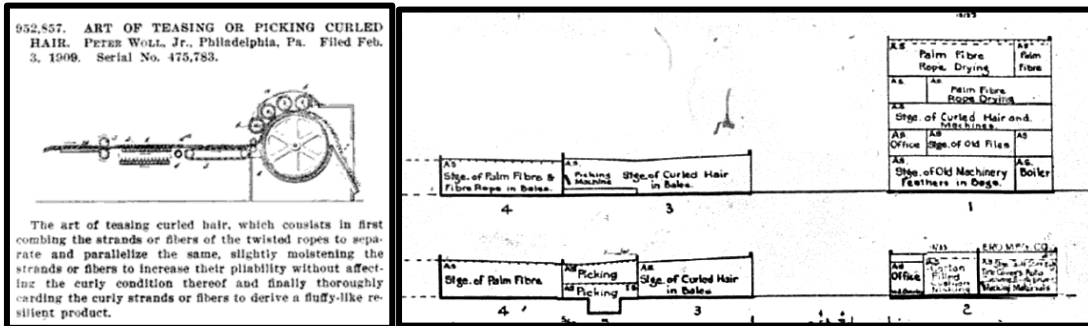
³⁴ *List of Charters of Corporations Enrolled in the Office of the Secretary of the Commonwealth of Pennsylvania.* (1903), 65.

³⁵ *The Directory of the Directors in the City of Philadelphia.*

³⁶ "Peter Woll & Sons Mfg. Co. (Curled Hair), Philadelphia, Pa.," *Manufacturers' Mutual Fire Insurance Co.* (11 February 1924).

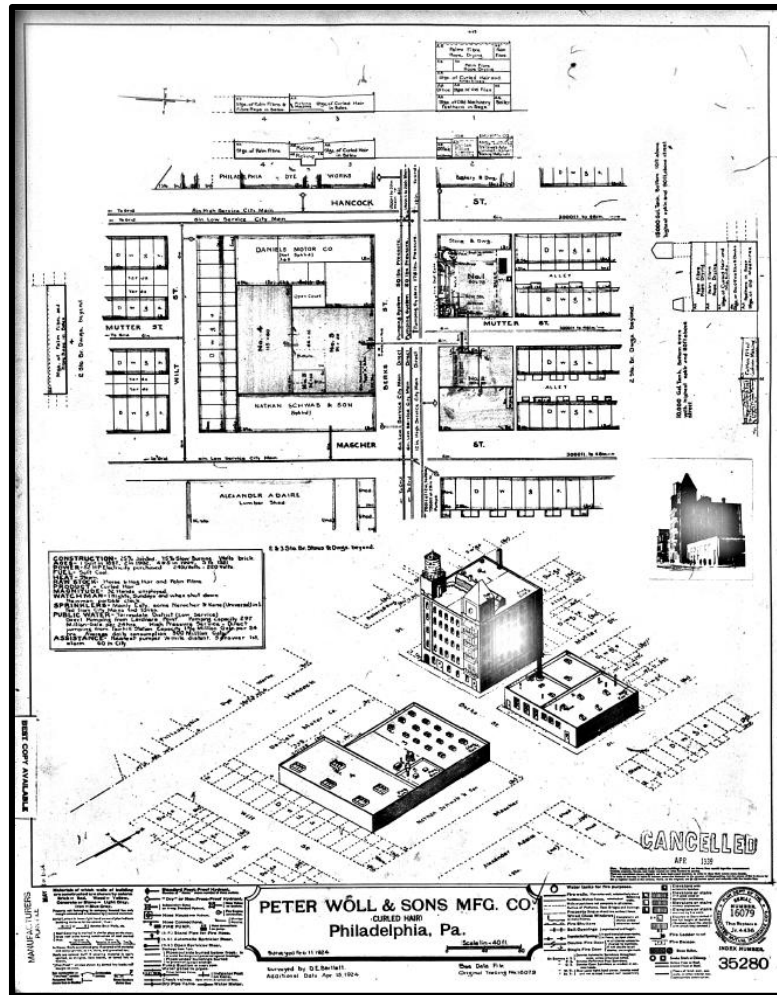
mattress goods they supply African fibre, horse hair, goat hair and moss. The Philadelphia factories and office are located at Hancock and Berks Sts. and are among the largest of their kind in the country.

Note their advertisement in another column, and don't fail to inspect their exhibit on Young's Pier, Atlantic City, during Convention week.³⁹



Left: Patent Application No. 952, 857. Art of Teasing or Picking Curled Hair. (Filed 3 February 1909). Source: Google Books. Right: A clipping of the illustration created by the Manufacturers' Mutual Fire Insurance Co. survey. Source: Survey: D.E. Bartlett. "Peter Woll & Sons Mfg. Co. (Curled Hair), Philadelphia, Pa.," Manufacturers' Mutual Fire Insurance Co. (11 February 1924).

³⁹ "Peter Woll & Sons Manufacturing Co.," *Carriage and Wagon Builder*, v. 28 (1914).



Survey: D.E. Bartlett. "Peter Woll & Sons Mfg. Co. (Curled Hair), Philadelphia, Pa.," Manufacturers' Mutual Fire Insurance Co. (11 February 1924).

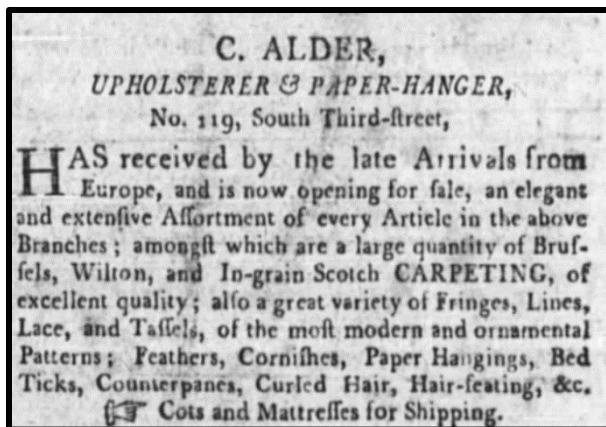
In 1921, Building No. 3 was completed on the south side of W. Berks Street, creating a court between it and Building Nos. 4 and 5 at the rear of the lot. These buildings were used for the storage and curing of curled hair. In 1922, Peter Woll & Sons Manufacturing Company filed a Patent for "Class 1. Raw or Partly-prepared Materials—the improved curled hair product was called "Sleepsound."⁴⁰

In 1932, it appears that the fifth floor of the subject building at 173 W. Berks Street was leased by Peter Woll & Sons to the Ero Manufacturing Company, Chicago, Illinois.⁴¹ The subject building remained under the ownership and use of Peter Woll & Sons until 1939, when on March 8 it was conveyed to the Matthias Paper Corp. for \$13,000.⁴²

⁴⁰ *Official Gazette of the United States Patent Office*, 31 January 1922, 954.

⁴¹ "Activities of the Day in Real Estate," *The Philadelphia Inquirer*, February 1932, 11.

⁴² "Activities of the Day in Real Estate," *The Philadelphia Inquirer*, 11 March 1939, 24; and Deed: Peter Woll and Sons Feather Company to the Matthias Paper Corporation, 8 March 1939, Philadelphia Deed Book D.W.H., No. 674, p. 111.



250 Philadelphia Wholesale Business Directory.

CHARLES CUMMING,

MANUFACTURER OF
STEAM GLUE, CURLED HAIR,
COWHIDE WHIPS AND WAGON WHIPS,
 Stores, No. 1 South Third Street, Philadelphia, and
 No. 2 Platt Street, New York.
MANUFACTORY,
 North Sixth street, above Poplar,
 PHILADELPHIA,
HAS CONSTANTLY ON HAND

Buffalo Glue for Piano Forte manufacturers. A large assort- ment for Cabinet Makers' use. Printer's Glue. White " Size " Cowhide Whips. Bone Fat. Neat's Foot Oil. Curled Hair, picked and in rope.	Moss. Brush Makers' Hair. Plasterers' Hair. Picker Pieces. Size Pieces. Bones of all descriptions. Ground Bones. Cattle Hoofs. Alumed Horse Hides. Jerked Beef.
--	--

Sutton's, Isham's and Gage's
Sand Papers,
Constantly on hand for sale.
 N. B.—The highest market price paid for Glue Scraps, Cattle
 Hair and Beeves' Feet.

Left: An advertisement published in the *Independent Gazetteer* in 1796 for C. Alder, “Upholsterer & Paper-Hanger,” at what was then 119 S. Third Street, in which he mentions “Curled Hair” and “Hair-seating” among the products on hand.⁴³ Right: An advertisement from the *Philadelphia Wholesale Business Directory* for Charles Cumming, “Manufacturer of Steam Glue, Curled Hair, Cowhide Whips and Wagon Whips,” which was published in 1851. Source: the Free Library of Philadelphia.

Historic Context: Curled Hair and Closing the Loop in Industrial Philadelphia

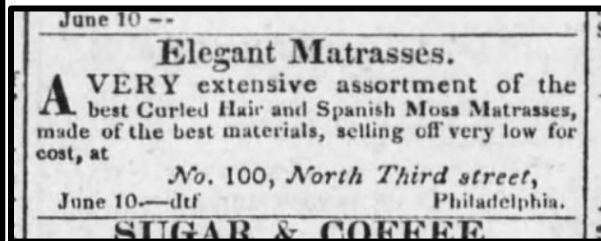
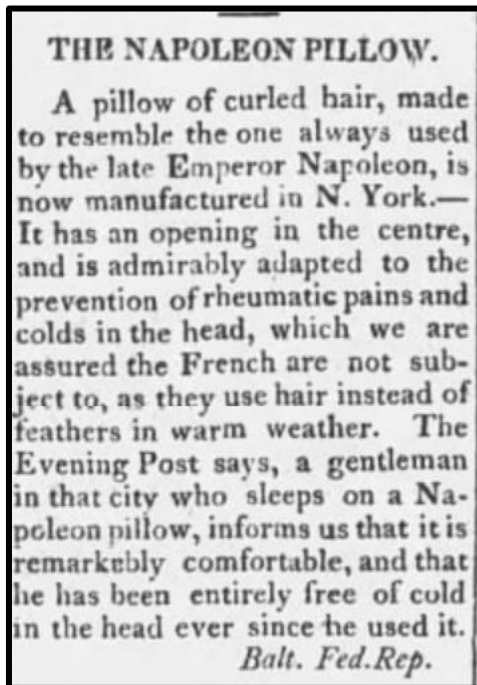
Animal hair curled in nineteenth-century Philadelphia was a refuse product that stuffed upholstered furnishings in the homes and vehicles of the nation’s growing middle class. Curled hair mattresses, chairs and sofas were desirable consumer commodities for affluent households. Carriages, omnibuses, and railroad cars used curled hair in seat cushions. Horace Greeley deemed the curled hair industry a “comparatively modern” one in 1872, “created by the demand originating in the increased appliances for comfort in the furnishing of our houses, railroad cars, and other places.”⁴⁴ Comparatively modern pointed to the lack of a vibrant industry of curled hair production prior to the second and third quarters of the nineteenth century.

In Philadelphia, a handful of early advertisements advertised “Curled Hair” and “Hair-seating” as products on hand. In 1796, “Upholsterer & Paper-Hanger” for C. Alder, for example, carried

⁴³ *The Independent Gazetteer* (Philadelphia), 4 November 1796, 2.

⁴⁴ Horace Greeley et al., *The Great Industries of the United States* (Hartford, Conn., 1871), 211-12.

both products.⁴⁵ Even in the early nineteenth century, curled hair was an industry associated with “the best feathers and ticking” and “superior mattresses.”⁴⁶ While Philadelphia would become the primary manufacturing site of curled hair, in 1823 a New York firm popularized the material with its “The Napoleon Pillow”—“a pillow of curled hair, made to resemble the one always used by the late Emperor.”⁴⁷ By the 1820s, curled hair’s popularity soared, and both manufacturers and retailers alike began advertising the “best Curled Hair” and similar products.



Left: an advertisement for “The Napoleon Pillow.” *Montrose Gazette, and Susquehanna County Herald*. (22 August 1823), 3. Right: a common advertisement for curled hair and related products, specifically, for the sale of “Elegant Matresses” with the “best Curled Hair and Spanish Moss,” published in *The National Gazette* on June 10, 1824.

Philadelphia, Horace Greeley declared, “has always been the centre of this business.” Edwin Freedley, who had previously surveyed Philadelphia’s manufactures, explained why the city enjoyed “peculiar advantages” for curled hair manufacture. Most of the raw material was horsehair imported from South America, and Philadelphia’s ships had direct trade with Buenos Aires and other ports from which it was shipped. Greeley assured readers that manes and tails were “cut from the animals while alive,” and the horses were “then let run” until they grew “another crop.” Domestic sources of hair included cattle-tails and hog hair from slaughtered animals. Tanneries, which Pennsylvania had in abundance, furnished large quantities of the raw material, and in the nineteenth century the Quaker City ranked leather among its foremost industries. After curling, hair was sent out of Philadelphia to markets throughout the United States, as well as the West Indies, South America, and Canada.⁴⁸

⁴⁵ *The Independent Gazetteer* (Philadelphia), 4 November 1796, 2.

⁴⁶ “Brandywine and New London Turnpike Stock,” *The National Gazette* (Philadelphia), 2 December 1822, 3.

⁴⁷ “The Napoleon Pillow,” *Montrose Gazette, and Susquehanna County Herald*, 22 August 1823, 3.

⁴⁸ Greeley et al., *The Great Industries*; Edwin T. Freedley, *Philadelphia and Its Manufactures ... in 1857* (Philadelphia: 1859), 218-19.

The nineteenth-century curled hair industry was a waste industry. Curled hair and its ancillary industry glue, Freedley argued,

...subserve a peculiarly useful purpose, by converting substances that would otherwise be almost worthless, into products of commercial value. The refuse and offal from tanneries, morocco factories, and slaughter-houses, used by Glue and Curled-hair manufacturers, are not generally available for other purposes; and without consumption in this way, would be troublesome to remove or prove nuisances to the community.⁴⁹

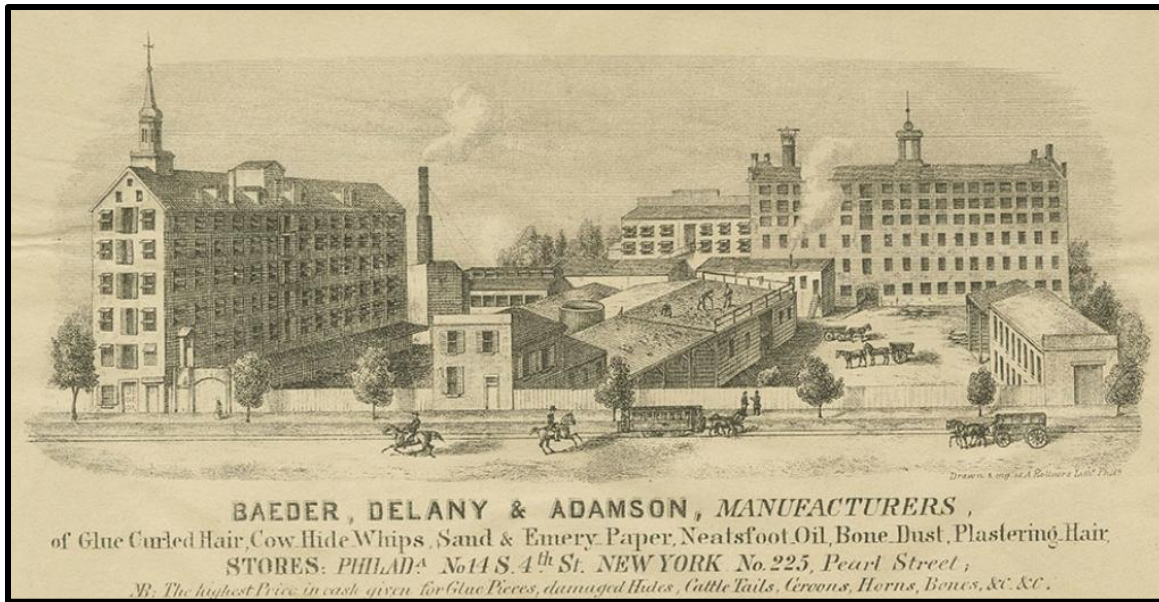
Curled hair epitomized American industry's frugality as well as its late nineteenth-century obsession with "closing the loop" by finding consumer or producer markets for the by-products of manufacturing.⁵⁰

Firms that made curled hair, as Freedley suggested, also often produced feathers, glue, soap, or fertilizer, since these too were waste products of slaughtering, meatpacking, and tanning. Charles Cumming, for example, was a Philadelphia animal renderer with a business deconstructing and boiling dead horses he removed from the streets. Starting in the 1830s (when omnibus proliferation dramatically increased the number of urban horse corpses) and continuing for several decades, Cumming produced glue, curled hair, and bone fertilizer. Like Freedley, Cumming argued that he was taking materials that otherwise would be considered waste and making useful items essential to manufacturers in other trades.⁵¹

⁴⁹ Freedley, *Philadelphia and Its Manufactures*, 218.

⁵⁰ Pierre Desrochers, "How Did the Invisible Hand Handle Industrial Waste? By-product Development before the Modern Environmental Era," *Enterprise and Society* 8 (June 2007), 348-74.

⁵¹ Donna J. Rilling, "Bone Boilers: Nineteenth-Century Green Businessmen?," in *Nature's Entrepôt: Philadelphia's Urban Sphere and its Environmental Thresholds*, ed. Brian C. Black and Michael J. Chiarappa (Pittsburgh, Penna., 2012), 75-90; Cumming v. Griffith, Narratives, June Term 1837, no. 1509, District Court of the City and County of Philadelphia, RG22.12, Philadelphia City Archives.



An advertisement for Baeder, Delany & Adamson, “Manufacturers of Glue, Curled Hair, Cow Hide Whips, Sand & Emery Paper, Neatsfoot Oil, Bone Dust, Plastering Hair...” Source: the Free Library of Philadelphia.

Owing to such industry integration, gathering information about the size of the curled hair trade, the value of products made, and the number of people employed frustrated many contemporary investigations of American manufacturing. An official survey of Kensington for 1847 grouped “Glue and Curled Hair Factories,” noting the district’s three firms together employed 100 men and had \$160,000 capital invested.⁵² The federal Census of Manufactures for 1850 similarly shows the close integration of trades and the difficulty of disaggregating the data.⁵³ Freedley, too, grouped producers of “Glue, Curled Hair, Etc.”—“Etc.” included rawhide whips, gelatin, sand paper, isinglass, plastering hair, and bristles. He was, nevertheless, able to estimate that curled hair accounted for about forty percent of the value of the products these enterprises turned out. In Philadelphia in the late 1850s, some 400 persons worked in the trade, and overall \$600,000 was invested in “extensive buildings and expensive fixtures.”⁵⁴ Acknowledged in 1872 to be the city’s largest producer of curled hair, Baeder, Adamson & Co. also manufactured glue, cowhide whips, flint and sand paper and emery cloth at its plant in the Twenty-fifth ward. The firm, moreover, kept cattle pens, a slaughterhouse, and lime pits (for tanning hide).⁵⁵ Peter Woll & Son and Evans & Grover, two operations in the Nineteenth and Thirty-first wards, were unusual, investigator Lorin Blodget asserted in 1883, as “neither [was] connected with glue manufacture.”⁵⁶ An 1914 industrial directory published by the Commonwealth of Pennsylvania,

⁵² Elihu D. Tarr, comp., *Digest of Acts of Assembly relating to the Kensington District of the Northern Liberties, and of the Ordinances of the Corporation* (Philadelphia, 1847).

⁵³ Charles Cumming, for example, combined glue, whip, and curled hair production and assessed the total value of products at \$75,000. Return of Charles Cumming, District of Penn, Philadelphia County, Pennsylvania, Manuscript Schedules, U.S. Census of Manufactures, 1850.

⁵⁴ Freedley, *Philadelphia and Its Manufactures*, 218-19.

⁵⁵ Greeley et al., *Great Industries*, 212; *Delaney & Co’s Curled Hair and Glue Works, 17th ward, Phila.*, in *Hexamer General Surveys*, vol 12 (Philadelphia, 1877), plate 1088, Map Collection, Free Library of Philadelphia.

⁵⁶ Lorin Blodget, comp., *Census of Manufactures of Philadelphia. A Census of Industrial Establishments, and of Persons of Each Class Employed therein, in the City of Philadelphia, for the year 1882 Compiled from Returns collected by Officers of the Police Department*. (Philadelphia, 1883), 78.

nonetheless, listed Peter Woll & Sons under “Curled Hair and Glue,” along with Baeder, Adamson & Co., Delany & Co., Robert H. Foerderer, Inc. (the latter principally producing goatskin leather), and several other Philadelphia firms.⁵⁷ As late as the early twentieth century, the U.S. Census Bureau still seemed uncertain about where to place curled hair, ultimately folding it into “Upholstering Materials” with artificial leather, drapery burlaps, and “similar articles.” Different classifications made it impossible to make meaningful comparisons among the 1909, 1849, and 1859 statistics; analysts resorted to looking only at earlier firms included under “curled hair.”⁵⁸

Greeley, however, had not been deterred from estimating the value of the trade. Likely using the data from the 1870 Census of Manufactures, he concluded that thirteen million pounds of curled hair was produced annually, with capital of two and a half million dollars invested in the business. Greeley was also quick to underscore the importance of curled hair to other trades. “When in addition to this [sum] we estimate the various uses to which curled hair is put, the capital invested in the various trades which necessarily employ it becomes enormous.”⁵⁹ An 1888 tradesman, arguing in favor of maintaining the protective tariff on curled hair (and also one on glue), reasoned similarly. If American manufacturers were unable to compete with Europeans and thereby failed in business, meatpackers would suffer from not being able to sell their by-products. Consequently, the “farmer would [also] get a little less for his cattle.” “You are touching a great many industries,” he informed Congressmen, “more than you think for when you interfere with curled hair.” In the U.S., he continued, twenty-two firms ranging from small (forty employees) to large (600 employees) manufactured curled hair.⁶⁰ Aware that the curled hair industry might escape the notice of investigators and politicians, both men insisted that whatever affected its trade rippled throughout the economy.

Although some steps were mechanized over time, the process of making curled hair by the end of the nineteenth century would have been easily recognizable to early entrants to the trade. Manufacturers sought to mechanize early on.⁶¹ But much of the sorting and picking defied mechanization and continued to rely on the low-waged labor of women and children. Even spinning remained unmechanized in some works as late as 1894.⁶² A contemporary description

⁵⁷ Bureau of Statistics and Information, Pennsylvania Department of Labor and Industry, *First Industrial Directory of Pennsylvania* (Harrisburg, 1914), 311-12; Baeder, Adamson & Co’s *Riverside Glue Works*, 25th Ward, Phila., vol. 15 (1879), plates 1429-30 and Robert H. Foerderer’s *Glazed Kid Works*, 25th Ward, Phila., vol. 30 (1895), plates 2858-59 in *Hexamer General Surveys*.

⁵⁸ *Manufactures 1909: General Report and Analysis, Vol. VIII, Thirteenth Census of the United States*, Bureau of the Census, Department of Commerce (Washington, D.C. 1913), 403.

⁵⁹ Greeley et al., *Great Industries*, 212.

⁶⁰ Rufus Powell (Delaney & Co.), *Testimony Taken by the Subcommittee on the Tariff. Part 2*. Senate Committee on Finance, Fiftieth Congress of the United States (Washington, D.C., 1888), 1143-1162, quotations at 1156 and 1151.

⁶¹ In 1836, Cumming commissioned a machinist to make “drums for driving curled hair machinery.” He claimed the equipment repeatedly failed. *Cumming v. Garside*, Dec. Term 1840, in Thomas I. Wharton, *Reports of Cases Adjudged by the Supreme Court of Pennsylvania, in the Eastern District, Volume 6* (Philadelphia, 1885), 299-302; In 1835, another innovator patented a “Machine for picking Curled Hair,” to be bested, perhaps, by yet another patentee in 1840. “Specifications of American Patents,” *Journal of the Franklin Institute*, vol. 15(2), (Feb. 1, 1835), 110; “Description of American Patents: Granted from August 12th to Sept. 10th, 1840,” *The American Repertory of Arts, Sciences, and Manufacturers* [New York], vol. 2, no. 3 (October 1840): 223.

⁶² New York City consumer industries were particularly slow to mechanize, as manufacturers had an abundant and

Nomination to the Philadelphia Register of Historic Places, Fall 2018 – Page 27
Peter Woll & Sons, Steamed Curled Hair & Bristles, 173 W. Berks Street, Philadelphia, Pennsylvania

obscures such labor, but nonetheless offers a succinct statement of the manufacturing process. The horse manes arrived at the factory, “gray, white, and black hairs” baled together. They were then sorted,

...as are the hard and soft, and put into different qualities of hair. [The horse hair] is then cleaned and put through machinery. It is put into a rope the same as a sash-cord. It is crimped by a twisting-machine. It passes through the spinner’s hands ... and it is curled. Then it is boiled and dried and opened again, and it is in a curled state. Hog hair is the same.⁶³

Hog bristles were made into brushes, or mixed with horse and cattle-tail hair and graded for sale at different prices. The highest grade contained no hog hair.

Production of curled hair required a lot of space. Freedley remarked on the “extensive buildings” of the firms, many of which were devoted to the drying stage. When firms combined curled hair and glue production, factories spread over an entire Philadelphia block, and structures devoted to drying comprised half of the footage.⁶⁴ Thus, although the footprint of curled hair production was light in statistical surveys, it loomed large on the Philadelphia industrial landscape.

concentrated population of women and men, native-born and immigrant, who could be readily employed at low rates; Sean Wilentz, *Chants Democratic: New York City and the Rise of the American Working Class, 1788-1850* (New York: Oxford University Press, 1984); “Labor in New York: Its Circumstances, Conditions and Rewards. No. VI. Hair Seating and Curled Hair Manufacture,” *New York Tribune*, (September 27, 1845). In 1850, Philadelphia curled hair and glue manufacturers Bodine, Baeder & Co. employed 85 men and 10 women; women’s average wage was one-third that of the men. Twenty percent of Henry Gerker’s workforce was composed of women, who likewise earned wages far below men; Returns of Bodine, Baeder & Co and Henry Gerker, Seventh Ward, Kensington, Philadelphia County, Pennsylvania, Manuscript Schedules, U.S. Census of Manufactures, 1850. Gordon Bros., Curled Hair Factory, 23rd Ward, Phila., in *Hexamer General Surveys*, vol 29 (1894), plate 2789.

⁶³ A.F. Brunier, *Testimony Taken by the Subcommittee on the Tariff. Part 2*, 1144.

⁶⁴ Delaney and Co’s Curled Hair and Glue Works, *Hexamer General Surveys*, plate 1088, exemplifies the physical sprawl of these operations.

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This nomination was prepared by the volunteers of the Keeping Society of Philadelphia, including Oscar Beisert, Architectural Historian and Historic Preservationist; J.M. Duffin, Archivist and Historian; Ken Milano, Historian; and Donna Rilling, Ph.D., Historian and Professor.