

Pennsylvania Glass Co.

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The Pennsylvania Glass Co. began its history in 1887 at Meadville, Pennsylvania, formed as a cooperative corporation of glass blowers. In 1888, the firm opened a new plant at Anderson, Indiana, to take advantage of abundant natural gas there. It was a good decision. The Meadville factory burned in 1889 and was not rebuilt. When the gas wells at Anderson began drying up in 1915, the group looked to Dunbar, West Virginia, moving there in 1916. The following year, the Schies family, one of the originators, sold the firm to a group connected with the Eureka Glass Jar Co. Although the original firm made a variety of bottles and jars, the second group only seems to have produced the Eureka Jars. The company charter dissolved in 1924, and the Dunbar Flint Glass Corp. acquired the property, making glass until 1941.

Histories

None of these plants should be confused with the Pennsylvania Bottle Co., Sheffield, Pennsylvania, a subsidiary of the Knox conglomerate by 1930 (see section on Knox for more information), the Pennsylvania Glass Co. and Penn Glass Co. of Pittsburgh, or the Pennsylvania Glass Co. at Kane, Pennsylvania.

Pennsylvania Glass Co., Meadville, Pennsylvania (1887-1889)

A large group of men – John Schies, Henry Wagoner, Fleury Toms, John Wagoner, Herman Abel, Michael Kenny, Henry Schies, Andrew Schies, John L. Forkner, T. J. McMahan and J. W. Sansberry – established the Pennsylvania Glass Works at the south end of Main St., Meadville, Pennsylvania, in August of 1887. The group – all glass blowers from Rochester, Pennsylvania – formed the Pennsylvania Glass Co., apparently incorporating about the same year that the plant opened (von Mechow 2018). Although the firm began building a new factory at Anderson, Indiana, to make prescription bottles in 1888, a year later, on February 6, 1889, the Meadville plant was destroyed by fire, apparently ignited by “tramps who had been refused lodging there.” The company was operated by “Wagner & Schies Bros.” (*Indiana Progress* 1889; McCamant 1888:156; Roller 1994:5-6; n.d.). The plant was not rebuilt.

Pennsylvania Glass Co., Anderson, Indiana (1889-1916)

In 1888, before the Meadville fire that occurred the next year, the Pennsylvania Glass Co. began work on its Anderson, Indiana, factory to make prescription bottles – selecting Anderson because of an abundance of natural gas there. The firm incorporated in 1889 with a capital of \$115,000. At that time, John Schies was president with John L. Forkner as secretary and treasurer. By September, the new plant was completed at the intersection of Walnut street and the Belt Line Railway and was ready to begin making fruit jars, bottles, and prescription ware (*Crockery and Glass Journal* 1889:24; Roller n.d.; von Mechow 2018).

An interesting historical footnote concerned an ad posted in the *Indianapolis Journal* on November 20, 1889. The Pennsylvania Glass Co. sought “ten to fifteen men with families of four or five boys. Men and boys can secure steady work, at good wages. None but men with boys should apply.” This appears to have been a unique way to acquire “small help.”

The plant was listed in the 1893 Anderson city directory at the corner of 25th and Meridian. H. Wagner was the president, with Schies as secretary and treasurer. From 1894 to 1896, the Pennsylvania Glass Co. produced 100 boxcars full of half-pint and pint Jo-Jo flasks along with quart liquor bottles for the South Carolina Dispensary. None of the bottles were embossed with manufacturer’s marks (Teal 2005:97, 109, 149).

On September 20, 1896, the *Indianapolis Journal* reported a disastrous fire that began in the engine room and soon spread to the rest of the buildings, destroying virtually the entire ten-acre property earlier that day. The plant made bottles, jars, flasks, and novelties and was producing the latter when it caught fire. President John Schies estimated the damage at \$60,000 (although other newspapers claimed \$50,000) and planned to rebuild the factory (von Mechow 2018).

In 1897, the plant had two furnaces with 28 pots and four continuous tanks with 14 rings (*National Glass Budget* 1897:7). On April 20, sixty boys went on what the *Indianapolis Journal* (4/21/1897) called “a novel strike” because the glass firm refused to reduce their hours. The boys also wanted a raise from 50 to 75 cents per day. Citing a recent child labor law, the boys threatened to sue, although they apparently gave in and returned to work, prompting the state to threaten a suit in December of the following year (*Bridgeton Evening News* 12/13/1898).

The listing for 1898 only included pots, and the number was 14. That (*National Glass Budget* 1898:3). By 1899, the firm had “two large factories” (i.e., furnaces) at Anderson and was “rated as one of the largest non-union firms in the country.” John Schies was the general manager (*National Glass Budget* 1899a:3). At least for awhile in 1899, the Pennsylvania Glass Co. manufactured bottles for H.J. Heinz & Co., and the glass journals were opposed to Heinz using bottles made by non-union plants. The number of pots increased to 42 by 1900, and that number remained the same until at least 1902 (*National Glass Budget* 1899b:2; 1900:11; 1901:11; 1902a:11).

In May 1902, the company had installed and was making bottles with a machine designed by Peter Reimer, a machinist employed by the firm. This machine made wide-mouth bottles (or jars), and the *National Glass Budget* (1902b:8) noted that “three men operate it and it makes as perfect a bottle as could be made by hand.” The firm also ordered a small-neck machine from Akron, Ohio. This was almost certainly the machine patented by John Shies the following year (see Patent section below).

The factory operated one furnace with 12 pots, a single continuous tank, and two day tanks in 1904, making flint prescription, proprietary, and packers’ ware. T.J. McMahon was president of the corporation, with John Schies as the secretary and treasurer (*American Glass Review* 1934:153; Roller 1996). The company was listed in the 1905 edition of the Thomas Register as making “prescription & druggists” ware and fruit jars. The listing remained unchanged through 1917 (Thomas Publishing Co. 1905:103, 277; 1917:729).

On March 18, 1907, an 11-year old boy led another strike by the small help, again for an increase in wages. The boys were so boisterous that the firm called the police to protect the works (*Cincinnati Post* 3/19/1907). Although we have not found a citation, the strike was apparently resolved. The plant produced mouth-blown bottles at least as late as 1908 (*Commoner and Glassworker* 1908:12).

Although the *Journal of Industrial and Engineering Chemistry* (1913:952) reported that the plant used two continuous tanks with 13 rings to make a “general line” of bottles, all by semiautomatic machinery in 1913, the December 9 issue of the *Bridgeton Evening News* clarified that the factory was operating a single tank with “five hand machines . . . on fruit jars and two blow shops . . . making catsups and liquor ware.” Schies was president in 1914, when the firm increased its capital to \$200,000 (Roller 1996; von Mechow 2018).

However, business apparently took a downturn about August. The *Evening News* reported on December 7 that the plant had just resumed operations after being idle for the past five months. By the end of October 1915, the gas wells at Anderson were drying up, so the firm had purchased the Olney-Dunbar Glass Co. at Dunbar, West Virginia and was moving its equipment to the new location (Roller n.d.).

Pennsylvania Glass Co., Dunbar, West Virginia (1916-1925)

Although Six (1993:18) noted that the Pennsylvania Glass Co. was in Dunbar, West Virginia, in 1916, the plant may have begun production there as early as December 1915. Pennsylvania Glass had acquired the former Olney-Dunbar Glass Co. by at least the end of October 1915 and had begun moving its equipment. The Olney-Dunbar Glass Co. had been chartered in October 1913 and had begun building the plant, so the factory may have still been unused in 1915. The Pennsylvania Glass Co. was chartered as a “foreign corporation” on April 4, 1916. By that time, John Schies was president, Henry Schies was vice president, J.L. Forkner was secretary, and F.J. Saloman was treasurer and manager (Roller 1996).

The Schies family, some of the original owners of the plant in Meadville, Pennsylvania, continued to operate the factory until 1917, when a new group – Harold A. Lightner, R.L. Walker, and J.W. Sansbury, acquired the company. Lightner, who had also been an executive with the Eureka Glass Jar Co., died on February 15, 1918, at the age of 37 (Roller 1996). The 1918 Thomas Register noted the plant as making “prescription & druggists” bottles as well as fruit jars and packers and continued that listing until at least 1921 (Thomas Publishing Co. 1918:811, 4430; 1920:828, 4616; 1921:782, 4573).¹

By 1919, Sansbury was president, with Walker as treasurer and G.F. McDonald as secretary and general manager. By this time, the plant was probably only making the Eureka jars for the Eureka Glass Jar Co., and the manufacture of these jars is likely the reason why the group purchased the glass works (also see that section). On July 8, 1924, the firm’s charter dissolved for non-payment of corporate taxes (Roller 1996). The Dunbar Flint Glass Corp. acquired the Pennsylvania Glass Co. plant and equipment in April 1925. Dunbar Flint continue

¹ Six (1993:18) listed the plant as making milk jars during the Dunbar years. Neither the Anderson nor the Dunbar location was listed under either the milk bottle or milk jar heading in any of the Thomas Registers. Aside from Six, we have found no other reference to milk bottle production.

to operate the plant until 1941 (*Glass Worker* 1925:12; Roller 1996). Schies died on September 26, 1924, at the age of 69 (von Mechow 2018).

Patents

John Schies, president of the Pennsylvania Glass Co., was an incredibly prolific inventor. Between 1897 and 1919, he patented at least 24 inventions, all glass related, except for an automobile wheel. These included a furnace, six machines, two glass feeding devices, four bottle or jar designs (one with a specific closure), and eight closures for bottles or jars.

Machines

The machine installed in 1902 (noted above) may have been the initial “Glass Blowing Machine” devised by Schies or Schies may have patented the machine developed by Peter Reimer. Schies filed for the patent on June 9, 1902, and received Patent No. 722,634 on March 10, 1903. The machine was semiautomatic and used the press & blow technique. Schies applied for a patent for a second machine on October 3, 1902, and received Patent No. 752,597 on February 19, 1904. This machine was also semiautomatic and press & blow. It

differed from the first in that it took “the bottle as it is delivered from the press molds of an ordinary glass-machine to finish the mouth thereof and to produce an internal groove within the neck of the bottle at one operation.” The illustration showed a wide-mouth bottle or jar (Figure 1).

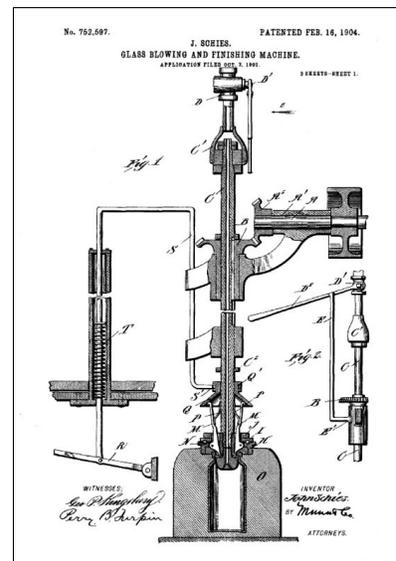


Figure 1 – Schies 1904 patent

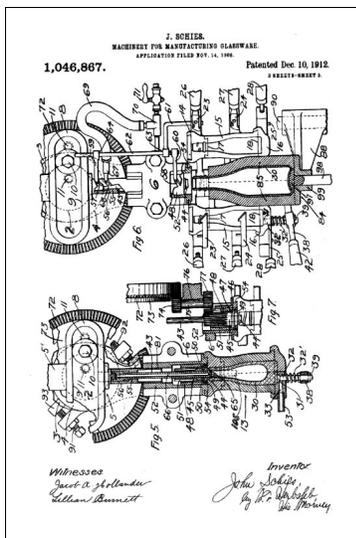


Figure 2 – Schies 1912 patent

Schies filed for his last glass machine patent on November 14, 1908, and received Patent No. 1,046,867 on December 10, 1912 (Figure 2). This machine was somewhat unique in that it used a plunger to press the finish into shape, but used compressed air to blow the parison or blank. The parison, held in place by the finish molds, was then transferred to the final blow molds.

Feeders

Schies also designed a feeder system in 1906 and received Patent No. 846,057 on March 5, 1907. This design almost certainly was unsuccessful. It was not until 1914 that fully operational feeders reached the glass market. Schies filed again on August 28, 1914, and received Patent No. 1,312,876 for an “Apparatus for Feeding and Delivering Glass” on August 12, 1919. All of these devices were probably used at the Pennsylvania Glass Co. plant.

Closures

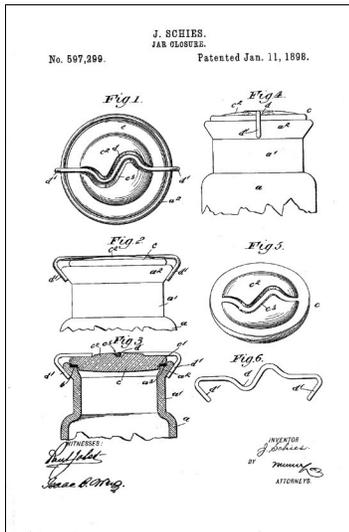


Figure 4 – Schies 1898 patent

Schies applied for another “Jar-Closure” patent on August 23, 1909, and received Patent No. 941,538 on November 30 of the same year (Figure 5). This one was for “a new and improved jar-closure having interior and exterior closing means arranged to co-act and so arranged that secure closing means for the jar may be obtained without danger of seepage of air therethrough.” The inner seal was accomplished by the forming of an “inner annular groove” having “a lower annular ledge”

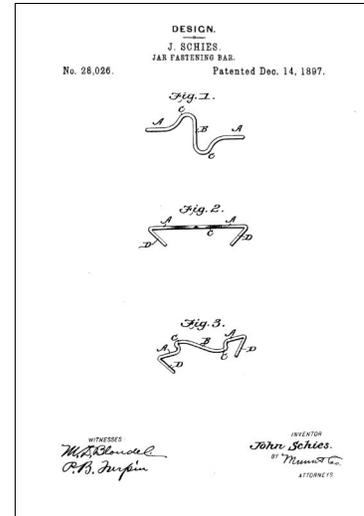


Figure 3 – Schies 1897 patent

On October 25, 1897, Schies applied for a design patent for a “Jar-Fastening Bar” (Figure 3). He received Design Patent No. 28,026 on December 14, 1897, for the device consisting of a single wire in serpentine shape that Schies described as “simulating the appearance of the line of beauty.” The timing of the next patent is interesting. On February 12, 1897, Schies applied for a patent for a “Jar-Closure” that used the serpentine clamp. However, the patent was delayed (for currently unknown reasons) and was finally awarded on January 11, 1898 (No. 597,299). Schies apparently took out the design patent for the wire clamp while awaiting the final verdict on the full closure (Figure 4).

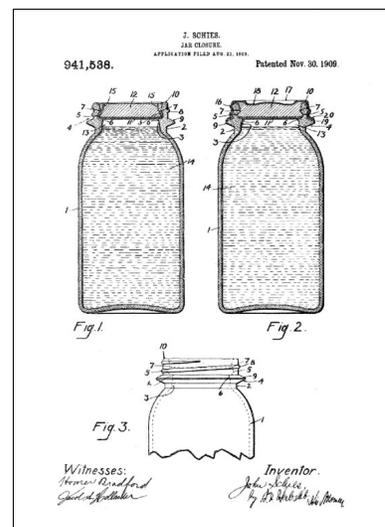


Figure 5 – Schies 1909 patent

somewhat similar to the capseat arrangement found in milk bottles. The inner seal was affected by “a flexible disk . . . of cardboard or other preferably porous substance.” Sealing material was then poured atop the disk, and the inner seal was affected. The outer sealing device was then “screwed down” to press against the now-cooled sealing material. The drawing shows what has come to be known as the Mason bead seal, a bead of glass molded into the jar, upon which the base of the screw cap sits, creating the seal.

Frank A. Brown patented two designs for jars, both of which had octagonal necks. He applied for the first one on March 27, 1911, and received Design Patent No. 41,635 on August 1 of that year. He applied for the second patent on April 22, 1912, and received Design Patent No. 42,990 on September 10 (Figure 6). The latter patent was for a Mason-style jar. Although the jar bodies were different, both necks were octagonal, and both finishes had continuous threads with bead seals. These were almost certainly related to the octagonal necks used on Pennsylvania Glass Co. jars (see below). Brown was living in Wilmette, Illinois, at the time he patented the two designs. He may have been connected with Pennsylvania Glass, or he may have been an independent inventor. Neither patent, however, was assigned to the company.

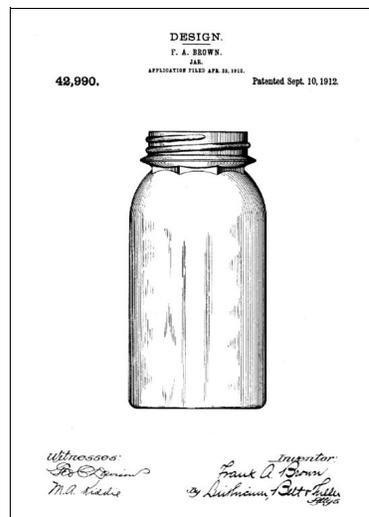


Figure 6 – Brown 1912 patent

Containers and Marks

PAGCo & Sealtite (ca. 1900-1920s)

Toulouse (1969:281) listed the Sealtite jar and trademark but did not include the PAGCo logo in his discussion. He dated the jars ca. 1920-1930, almost certainly by manufacturing technique. He did not know the maker. Toulouse (1971) did not mention the jar in his later book.

Roller (1983:325) featured four jars marked SEALTITE. One of them contained no manufacturer’s mark, but two others were embossed PAGCo on the base (Figure 7). These were made by the Pennsylvania Glass Co. of Anderson, Indiana (ca. 1900-1915), or Dunbar, West Virginia (ca. 1915-1920s). One variation had the “TITE” in “SEALTITE” ghosted over

“FAST,” a trademark used by A.M. Foster & Co. This may establish some connection between Pennsylvania Glass and Foster. It is possible that Pennsylvania Glass was one of the suppliers for the Foster companies and actually made at least some of the SEALFAST jars. A.M. Foster & Co. was a jobber not a manufacturer (see section on A.M. Foster & Co.).

Creswick (1987b:121) illustrated three of the SEALTITE jars, including the ghosted variation (Figure 8). She agreed with the

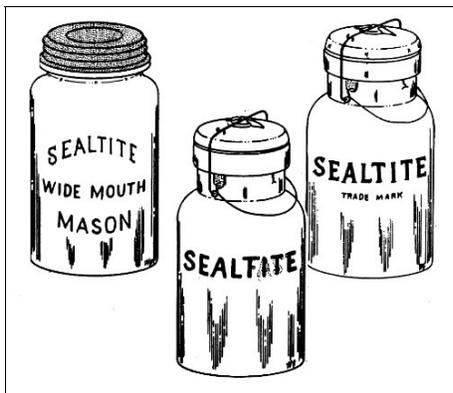


Figure 8 – SealTite (Creswick 1987b:121)

Pennsylvania Glass Co. attribution but dated the jars ca. 1906-1912, based on her understanding of the dates the company was in business. She also illustrated a very similar jar, embossed “Seal Tite” in upwardly arched cursive. She ascribed that jar also to the Pennsylvania Glass Co. ca. 1906 and later (Figure 9).

Creswick (1987b:212) also illustrated a jar embossed “SEALTITE (slight arch) / WIDE MOUTH / MASON (all horizontal)” on the front body (see Figure 8). The base was marked with the IPGCO-in-diamond logo of the Illinois-Pacific Glass Co. Although Creswick dated the jar ca. 1925 to 1930, the diamond logo was used by Illinois-Pacific at least as early as the teens and probably up to the re-incorporation in 1926. Illinois-Pacific may have purchased rights to the jars when Pennsylvania Glass ceased operations.



Figure 7 – PaGCo (North American Glass; eBay)

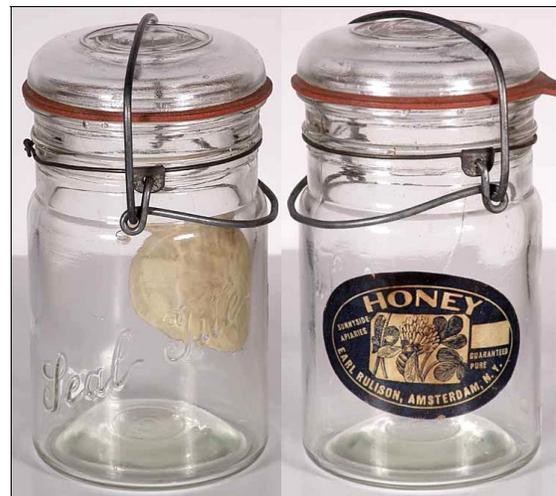


Figure 9 – Seal Tite (North American Glass)

PGC8

Schadlich (ca. 1990) noted that the Pennsylvania Glass Co. used a “P.G.C.8” mark on milk bottles. We consider this identification unlikely. See the PGCo section (and the Discussion and Conclusion section below) for more discourse.

Standard (cursive) with looped underline

Both Toulouse (1969) and Roller (1983) were unusually silent about these jars. Creswick (1987a:200), however, illustrated a wax-sealer fruit jar embossed on the front with a cursive “Standard” with a looped underline (Figure 10). She noted that the jar had a “pressed laid-on ring” finish (i.e., hand made). She attributed the jar to the Greenfield Fruit Jar & Bottle Co. and dated it ca. 1890-1900 (see that file for history and the use of other Standard wax-sealer fruit jars). Leybourne (2001:354) also used the same illustration but did not attribute the jar to any factory. He stated that the jar was machine made.

Kath (1990:72) noted the connection between the Standard and Mason with looped underlines and added, “Although I have absolutely no proof that I’m right, I just can’t compare the embossing on that bead seal MASON, this shoulder seal MASON and the wax seal STANDARD and *not* believe they were all made by Pennsylvania Glass Company of Indiana.” To the existing evidence, Caniff (2004) added the discovery of two of the looped-underline Standard jars with glass lids held in place by serpentine wire clamps. John Schies received Design Patent No. 28,026 for the serpentine wire clamp on December 14, 1897, and Patent No. 597,299 on January 11, 1898, for the combination of the serpentine clamp and glass lid (see the patent discussion above). Along with the similarity of markings, this further ties the Standard jar with the Pennsylvania Glass Co.

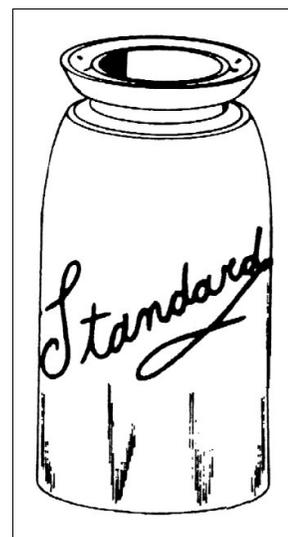


Figure 10 – Standard
(Creswick 1987a:200)

MASON (cursive) with looped underline

Toulouse (1969:197) discussed a jar embossed “‘Mason’ in cursive, with double-looped finial” (i.e., looped underline). The jar had a shoulder seal and was machine made. Although he

did not know the maker, he dated the jar ca. 1900-1915. The date reflects his understanding that ca. 1915 was the date of change from the Mason shoulder seal to the bead seal.² Roller (1983:209) illustrated a pint-size version of the jar with the shoulder seal and stated that the maker was uncertain. He surmised, however, that it was “possibly made c. 1900s by Indiana glasshouse.” Roller also listed and illustrated a variation with an “octagon-shaped neck” and identified the Pennsylvania Glass Co. as the maker, ca. 1910s. Importantly, he noted the similarity between the markings on these jars and on the Standard jars described above.

Creswick (1987a:114) illustrated and discussed two Mason jars with underlined loops (Figure 11). The first one (#1635 in her numbering system) had “Mason” in upwardly slanted cursive, underlined by a loop extending from a curl at the end of the “n” in “Mason.” She described that jar as having a “smooth lip” (i.e., machine made) and a bead seal. The jar had an octagonal neck. The most unusual feature was a “ledge inside of mouth for use of a cardboard disc and sealing wax.”³ She noted the Schies patent (No. 941,538) and Brown’s two design patents (No. 41,635 and No. 42,990) for the octagonal neck design. Creswick ascribed the jar to the Pennsylvania Glass Co., Anderson, Indiana (1888-ca. 1915) based on an advertising card that illustrated the cap-seat inner seal. She dated the jar ca. 1909-1915. This evidence solidly tied the looped-seal Mason jar with the cap seat to the Pennsylvania Glass Co.



Figure 11 – Mason (Creswick 1987a:114)

Creswick (1987a:115) illustrated a similar jar (#1636) with “Mason” at a greater slant and a less even underline. This, too, was machine made with a shoulder seal lid. This was the earlier jar, despite her placement, and she dated it ca. 1900-1915. Kath (1988:60-61) credited

² This was obviously the second jar described by Creswick. In her numbering scheme, this was #1636.

³ This is virtually identical to the cap-seat seal used on the “common-sense” milk bottle developed by Thatcher and his associates. Although the cap seat became the standard for milk bottles, its use on fruit jars is unusual. A variation of the jar (#1635-1 in the Creswick system) had the octagonal neck and cap seat but had no embossing.

Arleta Rodrigues with discovering the “flat ledge” inside the neck of the bead-seal jar and discussed the evidence noted above from Creswick. As reported in the section on the Standard jar (above), Kath (1990:72) illustrated the Standard and shoulder-seal Mason jars, both with the looped underlines, and stated that their similarities attached them to the same manufacturer.

Leybourne (2001:211) illustrated and described the same jars listed by Creswick. Price ranges given by Leybourne may be instructive. The shoulder-seal Mason variation was within a price range indicating that the jars were quite common. The embossed, bead-seal jars, however, were worth about three times the price, possibly indicating that fewer were made. This logic must be taken with a bit of caution, however. The price may be higher based on the oddity of the jar rather than scarcity. Oddly, the unembossed variation of the bead-seal jar was worth twice as much as the shoulder-seal variation. Since unembossed jars are usually worth *less*, this supports the idea that the shoulder-seal jars are worth more for the oddity than the scarcity. As noted above, Caniff (2004) further tied the looped-underlined Standard and Mason jars to John Schies and the Pennsylvania Glass Co.

Discussion and Conclusions

PAGCo (1902-1916)

The obvious abbreviation for Pennsylvania (Pa) makes it difficult to ascribe this mark to any other company. Dating the jars, however, is more difficult. Small ejection (valve) marks on the bases of all Sealtite/PAGCo jar photos we have captured from eBay indicate that the jars were machine made. Pennsylvania Glass began using the Schies/Reimer machines in 1902, and the plant moved to Dunbar in 1916. Evidence for the Eureka jars (see Eureka Jar Co. section) suggests that only Eureka products were made at the Dunbar factory after the change of ownership in 1916. However, this is not absolute, and some of the Sealtite jars may have been made after the move.

PGC8

The only evidence for the manufacture of milk jars by the Pennsylvania Glass Co. comes from Six. We cannot find any other source that confirms milk bottles from the factory. We conclude that Six was in error, and the milk bottles with the PGC8 mark were manufactured by

another glass house, although we have been unable to determine which one (see the section on PGCo). Future research should attempt to find examples and see where the dairies were located.

Mason and Standard jars with looped underlines (1902-1916)

Since both of these jars were machine made, their beginning date is predicated on the year that Pennsylvania Glass installed machines. Our best evidence indicates that the plant adopted the new Schies/Reimer machines in 1902, prior to the assignation of the patents. Thus, the Standard jars were probably made between 1902 and 1916. As noted above, it is possible that some Standard jars were made after the move to Dunbar.

There are two nice date breaks for the Mason jars. First, the transition from the Mason shoulder seal to the bead seal took place during the ca. 1910-1915 period. Second, the initial brown patent was granted in 1911, but the octagonal-necked Mason jar design was not applied for or received until the following year. Thus, the shoulder-seal Mason jars were likely made between 1902 and ca. 1912, and the bead-seal jars were produced between 1912 and 1916.

According to Tom Caniff (personal communication 2/2/2009), the Schies 1909 patent was the earliest introduction of a bead seal combined with a continuous-thread finish. Thus, the seal change could have been as early as 1909, but that would not explain the octagonal neck. While the earlier period of 1909-1912 cannot be entirely ruled out, the 1912-1916 period remains more likely for the manufacture of the jars with the octagonal necks.

Brown may have created his second design specifically for use on the bead-sealed, looped-underlined Mason jars. Brown's initial design with the octagonal neck was for a tapered jar. The only difference in the second design patent was that the octagonal neck was on a Mason jar. This creates a final chronology of:

Standard	1902-1916
Mason (shoulder seal)	1902-ca. 1912
Mason (bead seal)	1912-1916

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Sources

American Glass Review

1934 "Glass Factory Yearbook and Directory." *American Glass Review*, Pittsburgh, Pennsylvania. Includes reprint of the *Glass Trade Directory for 1904*. Commoner Publishing Co., Pittsburgh, Pennsylvania.

Caniff, Tom

2004 "New Standard Closure." *Fruit Jar News* October.

Commoner and Glassworker

1908 "In the Indiana District." *Commoner and Glassworker* 26(16):1, 12).

Creswick, Alice

1987a *The Fruit Jar Works, Vol. I, Listing Jars Made Circa 1820 to 1920's*. Privately printed, Grand Rapids, Michigan.

1987b *The Fruit Jar Works, Volume II, Listing Jars Made Circa 1900 to Modern*. Privately printed, Grand Rapids, Michigan.

Crockery and Glass Journal

1889 "The Glass Factories: Anderson, Ind." *Crockery and Glass Journal* 30(10):23-25.

Glass Worker

1925 "Among the Factories." *Glass Worker* 44(29):11-12.

Indiana Progress

1889 "State News." *Indiana Progress* (Indiana, Pennsylvania), March 20:6.

Journal of Industrial and Engineering Chemistry

1913 “The Present Status of the Glass Bottle and Hollow Ware Industries in the United States.” *Journal of Industrial and Engineering Chemistry* 5(11):951-954.

Kath, Vivian

1988 “Granny Kath’s Kitchen.” *Antique Glass & Bottle Collector* 5(7):70-75.

1990 “Granny Kath’s Kitchen.” *Antique Glass & Bottle Collector* 7(7):59-65.

Leybourne, Douglas M.

2014 *The Collector’s Guide to Old Fruit Jars: Red Book 11*. Privately published, North Muskegon, Michigan.

McCamant, Thomas

1888 *Report of the Auditor General of the Commonwealth of Pennsylvania for the Year Ending November 30, 1888*. Edwin K. Meyers, State Printer, Harrisburg.

National Glass Budget

1897 “Glass Directory.” *National Glass Budget* 12(42):7.

1898 “Flint Bottle Factories.” *National Glass Budget* 14(18):3.

1899a “General Glass Notes.” *National Glass Budget* 15(6):3.

1899b “Another Heinz Pickle Boycott.” *National Glass Budget* 15(15):2.

1900 “Complete List of Glass Factories in the United States and Canada.” *National Glass Budget* 15(48):11.

1901 “Complete List of Glass Factories in the United States and Canada.” *National Glass Budget* 17(1):11.

1902a “Complete List of Glass Factories in the United States and Canada.” *National Glass Budget* 17(52):11.

1902b "Bottle Machines at Anderson." *National Glass Budget* 18(2):8.

Orange County Times-Press

1910 "Honest Bottles After January 1: New State Law Which Prescribes Sundry Necessary Fulfillments." *Orange County Times-Press* (Middletown, NY), September 6:2.

Roller, Dick

1983 *Standard Fruit Jar Reference*. Privately published.

1994 *Indiana Glass Factories Notes*. Acorn Press, Paris, Illinois.

1996 "Dunbar, WV Glass Factories." Unpublished manuscript.

n.d. "Meadville, PA Historical Note." Unpublished manuscript.

Schadlich, Louis

ca. 1990 "Milk Bottles Marked by Manufacturers and Jobbers." Unpublished manuscript.

Six, Dean

1993 *The Index to Dean Six's Encyclopedia of West Virginia Glass*. West Virginia Museum of American Glass, Ltd., Weston, West Virginia.

Stevens Point Journal

1916 "Milk and Cream Bottles." *Stevens Point Journal* [Stevens Point, WI] August 18, 1916:2.

Teal, Harvey S.

2005 "Embossed S.C. Whiskey Bottles & Dispensary Jugs, 1865-1815." In *The South Carolina Dispensary & Embossed S.C. Whiskey Bottles & Jugs, 1865-1915* by Harvey S. Teal & Rita Foster Wallace, pp. 67-176. Privately Published, Columbia, South Carolina.

Thomas Publishing Co.

1905-1906 *The Buyers' Guide: Thomas Register of American Manufacturers and First Hands in all Lines*. Thomas Publishing Co., New York.

1917 *Thomas Register of American Manufacturers and First Hands in All Lines*. 9th ed. Thomas Publishing Co., New York.

1918 *Thomas Register of American Manufacturers and First Hands in All Lines*. Thomas Publishing Co., New York.

1920 *Thomas Register of American Manufacturers and First Hands in All Lines*. Thomas Publishing Co., New York.

1921 *Thomas Register of American Manufacturers and First Hands in All Lines*. Thomas Publishing Co., New York.

Toulouse, Julian Harrison

1969 *Fruit Jars*. Thomas Nelson & Sons, Camden, New Jersey.

1971 *Bottle Makers and Their Marks*. Thomas Nelson, New York.

Von Mechow, Tod

2018 "Soda & Beer Bottles of North America: Bottle Attributes - Beer & Soda Bottle Manufacturers." <http://www.sodasandbeers.com/SABBottleClosures.htm>

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