

The Glass Firms at Greenfield, Indiana

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When Louis Hollweg – a jobber in crockery, tableware, lamps, and fruit jars – decided to branch out into the glass container manufacturing business in 1890, he built a glass factory that became the scene for five different operators over a 30-year period. Throughout most of its existence, the plant concentrated on fruit jar production, making a variety of jars that can be directly traced to the factory, especially to the Greenfield Fruit Jar & Bottle Co. Once the big-name firms (Ball Brothers and Owens) took over, the plant’s days were numbered.

Histories

Hollweg & Reese, Indianapolis, Indiana (1868-ca. 1914)

Louis Hollweg and Charles E. Reese formed the firm of Hollweg & Reese in 1868. Located at 130-136 South Meridian Street, Indianapolis, Indiana, the company was a direct importer and jobber in crockery, pressed and blown tableware, lamps, lamp paraphernalia, and other fancy goods (Figure 1). After the death of Reese in 1888, Hollweg continued to use the Hollweg & Reese name. The last entry we could find for the firm was in 1913, so Hollweg probably disbanded the firm (or sold out) ca. 1914 – a few years after he exited the glass business (Hyman 1902:354-355; Indiana State School for the Deaf 1914:90).



Figure 1 – Hollweg & Reese (Hyman 1902:354)

Containers and Marks

Although the firm’s main product list did not include containers, Hollweg & Reese apparently began carrying its own line of fruit jars by the 1870s, when William McCully & Co. made the Dictator, a jar similar to a grooved-ring, wax-sealer that was embossed with the

Hollweg & Reese name. Although McCully produced containers until 1896, Hollweg & Reese probably dropped the line in the early 1880s, although they may have continued to sell the jars – with or without their embossed name – until Hollweg opened the factory at Greenfield in 1891. See the section on Wm. McCully & Co. for more information on that firm.

In the early 1880s, Hollweg & Reese either replaced the Dictator with the Hoosier Jar or at least added the jar as a new item. The Ohio Valley Glass Co. at Bridgeport, Ohio, probably made the Hoosier Jars from ca. 1883 until the plant closed in 1886. Hollweg needed a new supplier, and he may have formed an alliance with John and Charles Lythgoe at that point. The Lythgoe brothers leased the Cadiz Glass Co. at Cadiz, Ohio, in March 1887 – changing the name to Lythgoe Brothers – possibly to make jars for Hollweg, although these jars may have been a generic brand. The Lythgoes closed the glass house again in July. When the Lythgoes joined Henry Clough and others to form the Lythgoe Glass Co. at Bowling Green, Ohio, later in 1887, production of jars for Hollweg very likely moved to that plant (Paquette 2002:134-136; 157-159; Roller 1997a). Hollweg probably had a final jar – the Daisy – made for the firm from 1888 to 1891 – possibly by the new Hollweg & Reese factory after 1891.

DICTATOR – HOLLWEG & REESE

Roller (1983:156) discussed a jar embossed “DICTATOR (arch) / FROM / HOLLWEG & REESE (both horizontal) / INDIANAPOLIS, IND. (inverted arch)” on one side and “PATENTED (arch) / D.I. HOLCOMB (horizontal) / DEC 14TH 1869 (inverted arch)” on the other (Figure 2). The base was embossed “W. McCULLY & Co / PITTS.” The Holcomb-patent jar superficially resembled a grooved-ring, wax-sealer, but it lacked the groove in the finish; instead, it had a flat ledge for a rubber gasket, covered by a metal or glass lid held in place by a wire clamp. Roller noted that the jars were made by William McCully & Co. ca. 1870s and illustrated an 1870 ad for the



Figure 2 – Dictator jar (North American Glass)



Figure 3 – Dictator jar (Creswick 1987a-44)

Dictator from McCully. He added that one variation had the entire Hollweg & Reese embossing ghosted.

Creswick (1987a-44) illustrated the embossed variation and discussed the ghosted one (Figure 3). The Roller update (2011:163) noted that McCully apparently

owned the rights to the Holcomb patent and sued Cunninghams & Ihmsen for making a similar jar. The update also illustrated the page from an 1875 McCully catalog that advertised the Dictator. For more information about McCully, the Dictator, and the Holcomb patent, see the section on the Wm. McCully Glass Factories.

At least one glass lid was embossed “PAT^D / DEC 4 – 69 / D.I. HOLCOMB / A” – all horizontal (Figure 4). Photos from North American Glass showed at least three finish variations (Figure 5):

1. Flat ledge – used on the Hollweg & Reese jar
2. Indented ledge – apparently to hold the gasket in place
3. Grooved ledge – for use as a wax sealer



Figure 4 – Holcomb lid (North American Glass)



Figure 5 – Dictator finishes (North American Glass)

HOOSIER JAR (ca. 1883-1891)

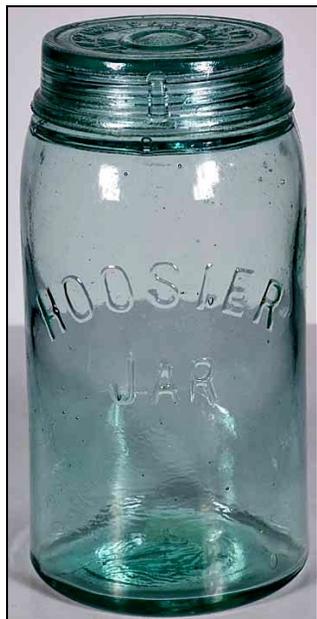


Figure 6 – Hoosier jar (North American Glass)

Toulouse (1969:154) briefly discussed the Hoosier Jar, noting that it had a Mason shoulder seal finish and was made ca. 1890-1910, although he did not know the maker (Figure 6). Roller (1983:158; 2011:224), however, added a variation with “HOLLWEG & REESE (arch)” / “INDLS. IND. (inverted arch)” embossed on the base. Roller described the finish as “shoulder seal; glass screw cap with three lugs on side.” The cap was embossed “PAT^D SEPT 12TH 1882 JAN 3^D 1883” in a circle on an outer ring and “HOOSIER (arch) / JAR (inverted arch)” in an inner circle. A center circle

consisted of an embossed ring around a slightly convex midpoint (Figure 7).

William M. Wallace applied for his first jar patent on March 18, 1882 and received Patent No. 264,379 on September 12 of the same year for a “Mode of Making Glass Screw-Caps” (Figure 8). He assigned one-half of the rights to Charles M. Rhodes of Bridgeport, Ohio. On October 10, 1882, he applied for another patent, this one for a “Mold for Forming Glass Screw Caps.” He received Patent No. 270,162 on January 2, 1883. This was an improvement on his 1882 patent. His final jar-related patent was for “Manufacturing Glass Articles.” He applied for the patent on April 28, 1883, and received Patent No. 278,472 on May 29, 1883.



Figure 7 – Hoosier jar lid (North American Glass)

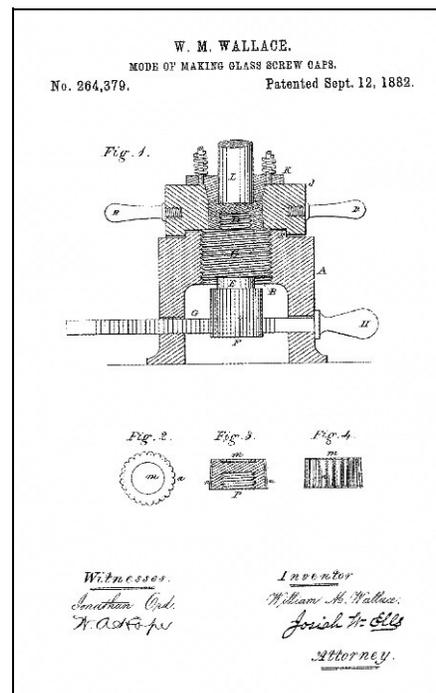


Figure 8 – Wallace 1882 patent

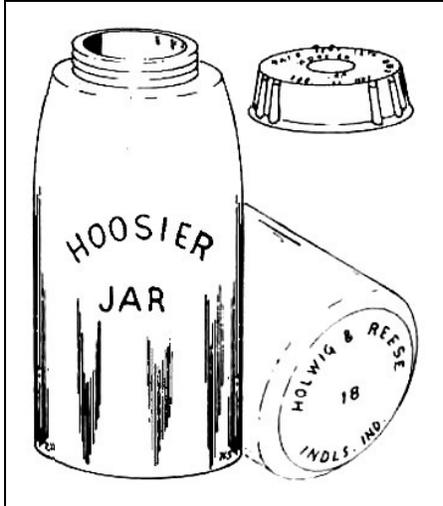


Figure 9 – Hoosier jar (Creswick 1987a:85)

Roller (1983:158) noted that Rhodes was the president of the Ohio Valley Glass Co., Bridgeport, Ohio, and suggested Ohio Valley as the probable manufacturer for Hollweg & Reese. He added that these jars were related to the Cadiz and Eclipse jars. See the Other C section for more information about these jars and Ohio Valley. Creswick (1987a:85) illustrated the jar with number

in the center of the base (Figure 9). She also reported an engraving error: “HOLWIG” and noted that the “N” in “JAN” on the lid was sometimes reversed. Finally, she added a jar embossed “MASON’S JAR” over a ghosted “HOOSIER.” The Roller update (2011:244) was similar to the 1983 version, but it noted the ghosted variation on page 340.

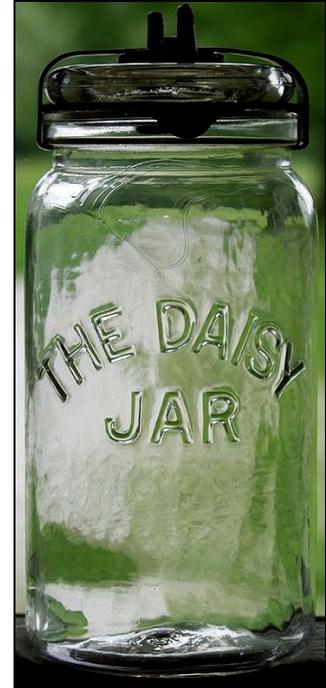


Figure 10 – Daisy jar (North American Glass)

THE DAISY (1888-1895)

Roller (1983:100) discussed a jar embossed “THE (horizontal) / DAISY (arch) / JAR (horizontal)” on one face (Figure 10). The lid was embossed “PAT. JANU 3^D 88 (arch)” (Figure 11). He noted that Julius Karrmann, a traveling salesman for Hollweg & Reese from 1883 to 1888, was the patent holder and that he assigned half of the patent to Louis Hollweg. Creswick (1987a:41) illustrated the jar and presented essentially the same information – although she dated the jar ca. 1888-1900 (Figure 12). The Roller update (2011:157) noted that the maker was uncertain but could have been Hollweg & Reese.



Figure 11 – Daisy lid (North American Glass)

Julius Karrmann applied for a patent for a “Cover Fastening for Vessels” on July 30, 1887, and received Patent No. 376,036 on January 3, 1888. As noted above, he assigned half of the rights to Louis Hollweg. The closure was very distinctive, consisting of a glass lid with a metal top in the center that was held in place by a metal band. The metal top had two “ears” that extended upward (Figure 13).

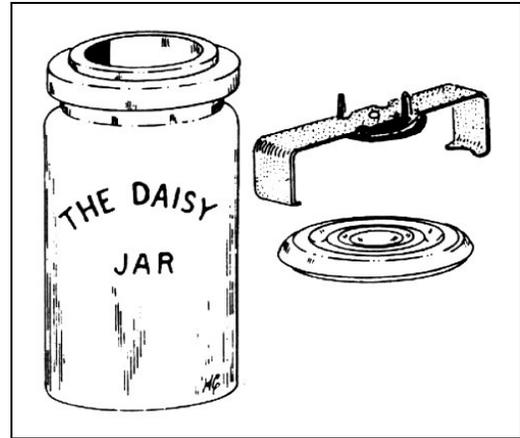


Figure 12 – Daisy jar (Creswick (1987a:41)

This was almost certainly the jar made for Hollweg by the Lythgoe Brothers & Co. at Bowling

Green, Indiana. After their falling out with other corporate officers at the Lythgoe Glass Co. at Bowling Green, they formed a new firm and built a small glass factory in the same city. Hollweg & Reese was their largest customer, and the firm bought the plant’s entire production line in 1890. The April 8, 1891, issue of *China, Glass & Lamps* noted that “the factory of Lythgoe Bros. at Bowling Green, OH, is being operated at present for Hollweg & Reese, jobbers of Indianapolis, on fruit jars” (quoted in Roller 1997b).

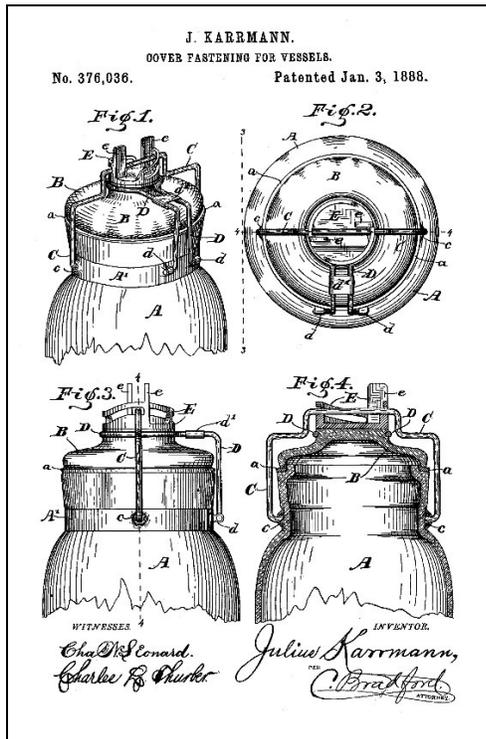


Figure 13 – Karrmann 1888 patent

When Hollweg opened his own glass house on January 1, 1890 (see below), he almost certainly continued to make the Daisy, probably until Streeter leased the factory in 1895 (see below). It is also likely that the Lythgoe Glass Co. made the original Daisy jars from early 1888 until the Lythgoe brothers opened their new plant in 1889.

Hollweg & Reese, Greenfield, Indiana (1891-1895)

Louis Hollweg visited Greenfield, Indiana, on July 16, 1890, to find a suitable location for his glass plant; at that time, the Lythgoe Brothers made jars for Hollweg at Bowling Green, Ohio (see Graham Glass section for more on Lythgoe brothers). The January 23, 1892, issue of *Commoner & Glassworker* noted that the Lythgoe Brothers had “gone to Greenfield, Ind.” (Roller 1997b). Given the history of the brothers with Hollweg (see above), this probably means that they involved in the management of the Greenfield factory, possibly replacing L.E. Tigner by 1892 (see below). The Lythgoes probably remained with Hollweg & Reese until they opened yet another glass house at Loogootee, Indiana, in 1901 (see the Graham Glass section).

The Greenfield location was obviously satisfactory, and Hollweg built the Greenfield Bottle Works, managed by William Cannon. Production of beer bottles and fruit jars commenced about January 1, 1891, with seven shops working at a single continuous tank. By June 1891, L.E. Tigner had replaced Cannon. The plant operated a nine-ring day tank by July 1892, employing 14 men but began using its new seven-ring continuous tank on March 13 of the following year (Roller 1994:37; 1997b; 1998).

It is unclear, however, just whether the factory actually made any glass in the new tank. A report filed in May 1895 stated that the plant had been closed for two years. Tigner intended to start the factory again, but “frost and a drunken mgr.” again delayed the opening. It is unlikely that Hollweg & Reese reopened the business that year (Roller 1998).

Containers and Marks

As noted above, Hollweg & Reese probably made the Daisy jar until the H.W. Streeter leased the plant in 1896. They also made at least one other jar.

H&R (1891-1895)

Various sources have reported an otherwise unmarked grooved-ring, wax-sealer fruit jar embossed “H&R” on the base (Figure 14). Toulouse (1969:196) was almost completely in error on this mark. Although he did not know the manufacturer, he dated the jars ca. 1860-1880 and

said that they were handmade with a pressed laid-on ring. In his later book, Toulouse (1971:253) suggested Hormann & Rohrbacher of Philadelphia as the maker. He stated that the two patented “an internally grooved fruit jar” in 1868 and had two furnaces in their plant.



Figure 14 – H&R jar (Antique Bottles.net)

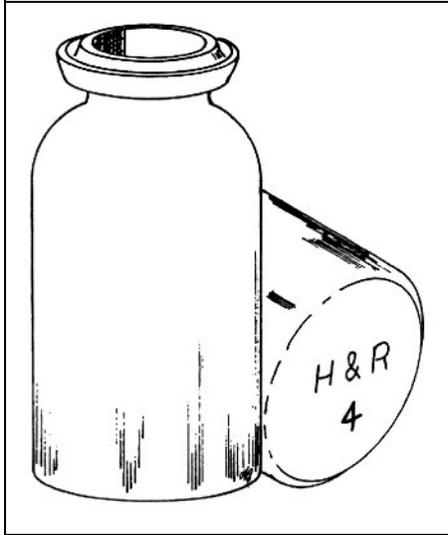


Figure 15 – H&R jar (Creswick 1987a:74)

Roller (1983:159) suggested Hollweg & Reese ca. 1890s and agreed that the jars were mouth blown.

Creswick (1987a:74) agreed with Hollweg & Reese (1890-1909) and illustrated the jar (Figure 15). She added that

“Jim Fiene of Liberty, Missouri, has reported a ½ gallon H&R jar, on which someone has acid etched a full calendar for the year 1890.” The Roller update (2011:245) called the business the Greenfield Bottle Works and dated the jars ca. 1890s. The editors also noted the calendar on the jar.

This logo fits into the first Hollweg & Reese period – 1891-1895 – when the firm made fruit jars by hand processes. From 1896 to 1900, Streeter & Co. leased the plant, and Hollweg & Reese used Pyle machines from 1900 to 1902, but these jars also may have been made during this period. It is possible that the firm made some mouth-blown jars during the 1900-1902 period.

Streeter & Co., Greenfield, Indiana (1896-1900)

By January 23, 1896, Streeter & Co. (H.W. Streeter) rented the plant, making Mason and Standard fruit jars at one continuous tank with five rings by April. The following January, the factory was making 1,100 gross per week of Standard and Mason fruit jars. Hollweg & Reese advertised Mason jars, lids, rubber gaskets, jelly tumblers, and sealing wax on a postcard mailed

April 24, 1897, although it is unclear whether Hollweg & Reese made the jars concurrently with Streeter, whether the firm sold Streeter's jars, or whether these were jars they had made prior to the Streeter lease. The jars were to be shipped from Greenfield (Roller 1994:37; 1998).

Streeter operated a nonunion shop and experienced labor problems in late 1898. He reduced wages to his employees due to falling fruit jar prices, resulting in a strong protest by his workers. Negotiations deteriorated to the point where Streeter locked the workers out of the plant on December 19, 1898. The lockout continued until March 31, 1899, when the men returned to work (for details, see von Mechow 2015). Despite the lack of production, Hollweg & Reese continued to advertise Mason and Standard wax-sealer fruit jars for sale from Greenfield (Roller 1998).¹

On September 21, 1899, the plant installed a new machine and produced its first jars, still using nonunion labor. The company planned to add a second machine as soon as the inventor, Louis L. (or Lute or James) Hiatt, could make one. Unfortunately, we have been unable to find a patent for Hiatt; he may not have received one. By 1900, the factory had one continuous tank with seven rings. Streeter began building a new plant at Terre Haute, Indiana, in early 1900 and moved out of Greenfield in June – presumably taking his machine with him (Roller 1994:37-38).

Streeter and his associates incorporated the Terre Haute Glass Mfg. Co. on January 20, 1900, with Streeter as president, H.H. McLane as secretary, Frank McKeen as treasurer, and W.C. Doak, A. Herz, and R.J. Beatty as directors. The new plant began production of fruit jars and bottles on September 5 at one continuous tank with eight rings. Streeter died suddenly on May 19, 1904, and the Root Glass Co. acquired the factory in October of the following year (Roller 1994:106; Von Mechow 2015). See the section on the Root Glass Co. for more information about that firm.

Containers and Marks

We know that Streeter made standard (wax sealers) and Mason fruit jars, initially by hand, then by machine. It was never clear whether or not Streeter produced these jars for

¹ Virtually all glass houses stockpiled generic bottles and jars to remain solvent during the typical summer closing and to ride out strikes, fires, burst tanks, and other difficult times.

Hollweg & Reese. It seems likely that Hollweg & Reese continued to sell jars as a jobber, and it seems equally probable that these would have been the jars made by Streeter at the Greenfield plant. We have found no indication that Streeter used a mark, so these were probably generic jars, marked only with the Mason name.

Hollweg & Reese, Greenfield, Indiana (1900-ca. 1902)

When Streeter left Greenfield in June of 1900, the firm of Hollweg & Reese resumed production, again as a non-union operation. On June 20, 1900, the *Hancock Democrat* (Greenfield) announced that the machine invented by George C. Pyle had been assembled at the Hollweg & Reese factory. The plant ran tests for several months then began production. The machine requires a single gatherer to drop gobs of glass into the molds and a boy to remove the jars. As a result, the cost to the factory was only about two cents per dozen jars. Hollweg installed ten machines in mid-October and made all jars by machine (Roller 1998).

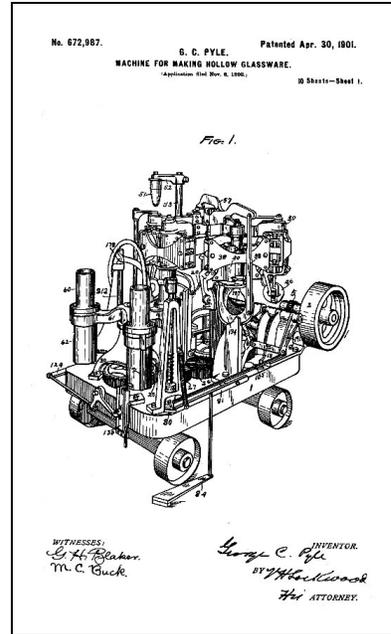


Figure 16 – Pyle 1901 patent

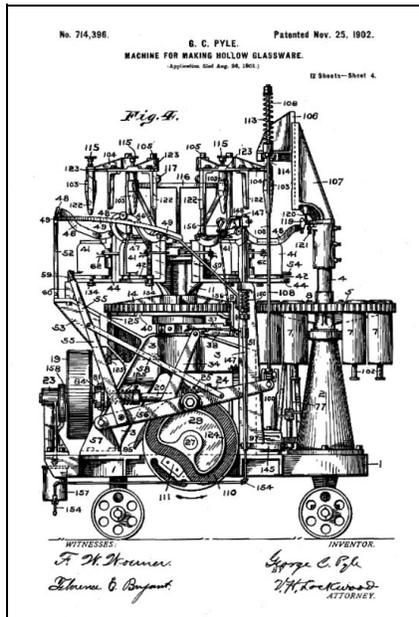


Figure 17 – Pyle 1902 patent

George C. Pyle of Indianapolis applied for a patent for a “Machine for Making Hollow Glassware” on February 29, 1899, and received Patent No. 647,276 on April 10, 1900. Using the same title (Machine for Making Hollow Glassware), Pyle applied again on April 19, 1899, and received Patent No. 650,655 on May 29, 1900. Pyle applied yet again in 1899 (November 6) and received Patent No. 672,987 on April 30, 1901, for another machine (Figure 16). He filed for his final machine patent on August 26, 1901, and received Patent No. 714,396 on November 25, 1902 (Figure 17).

Containers and Marks

Hollweg & Reese installed a George Pyle machine June 1900, so it is likely that all bottles made during this period were machine made. Unless the jars embossed “H&R” (discussed above) were made during this time, all known jars were machine made.

MASON or STANDARD sloping downward (1900-ca. 1902)

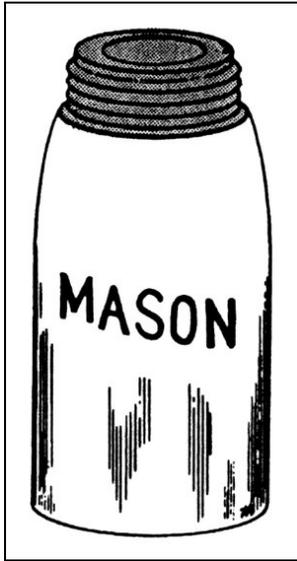


Figure 18 – Mason descending (Creswick 1987b:87)

Roller (1983:211; 2011:319) described a machine-made Mason shoulder-seal jar embossed “MASON” in a downward slant on the front. He ascribed the jar to the Greenfield Fruit Jar & Bottle Co. ca. 1900-1906. Creswick (1987a:114; 1987b:87) illustrated the jar but said that Greenfield was possibly the maker (Figure 18). She included a jar with a floral design below the “MA” in “MASON” (Figure 19).

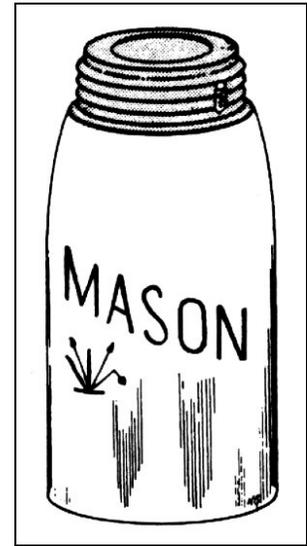


Figure 19 – Mason floral design (Creswick 1987a-114)

Roller (1983:286) listed a “PINT STANDARD” with both words extending downward but did not speculate on the maker except to note that the jars were machine made (Figures 20 & 21). Creswick (1987a:200) illustrated and discussed a grooved-ring, wax-sealer fruit jar with a similar front embossing – “STANDARD” in a descending slant as well as the pint standard (Figure 22). The quart jar, however, was not included in either Roller volume, although Leybourne (2014:429) continued to list the jar in both pressed-laid-on ring (i.e., mouth blown) and machine-made variations. The Roller update (2011:423) cryptically mentioned an article by Tom Sproat that “presents information which identifies a potential manufacturer of this jar.”

Sproat (2001:29-32) illustrated a March 12, 1912, letter from the Ball Brothers offering 150 gross (21,600) of “pint standard” fruit jars. Sproat noted that the letter was “a reasonable

amount of time after the acquisition of Greenfield that these jars may have come from that merger.” Since Ball generally announced new fruit jars in December or January, March was an unusual time for such an announcement. He further noted that “PINT STANDARD” was embossed at the same angle as “STANDARD” on the quart jars with the shepherd’s crooks underlines (see below) and that the type of shoulder on each of those two jars was similar – although very different from the Ball Standard, one of only two other machine-made wax sealers.



Figure 20 – Pint Standard (Creswick 1987a:175; North American Glass)

Although Sproat considered his evidence “far from conclusive,” it is stronger than many of the identifications that many archaeologists and collectors rely on regularly (e.g., many of the dates in Toulouse 1971). We suggest that this information, combined with the downwardly



Figure 21 – Pint Standard finish & shoulder (North American Glass)

slanted “MASON” jars discussed above, solidly identifies the Greenfield Fruit Jar and Bottle Co. as the manufacturer of the Mason and Standard jars with downwardly slanted embossing. The only question is the order of use of the logos. Were these jars made prior to the ones with the shepherd’s crooks or after? Or, were these just aberrations, where the mold engraver failed to add the crook? Current information fails

to answer these questions.

We offer a hypothesis that has the potential to explain the period of manufacture as well. We suggest that the Mason and Standard jars with descending letter and no crook were made by Hollweg & Reese prior to the ca. 1902 name change. If so, these would have been made on one of the early George C. Pyle machines. Because these were drop-down parison machines, they should have left no valve



Figure 22 – Standard descending (Creswick 1987a:200)

scars, and they should have had some kind of horizontal seam around the neck-shoulder area (see Lockhart & Bernas 2014 for a detailed explanation of these marks). However, the Pint Standard was offered for sale by the Ball Brothers in 1912. In order for our hypothesis to be correct, the jars would have been stored for several years and survived the 1906 fire. This is entirely possible. The plant was closed down for about a year during the 1904-1906 period but continued to sell jars from “the accumulation of jars which was on hand” (Roller 1998), so it is clear that Hollweg retained a large storage. During the 1906 fire, “firemen saved the warerooms on the east” – so older jars certainly *could* have been preserved until the sale to Ball. It is possible, however, that these jars could have been made during the 1908-1909 period, using older molds, or the firm may have just intuited a need for pint wax-sealer jars just before the sale to Ball.

Greenfield Fruit Jar & Bottle Co., Greenfield, Indiana (ca. 1902-1909)

At some point between June 1902 and March 1903, the company name became the Greenfield Fruit Jar & Bottle Co.² The plant operated seven machines by 1905. Even though Hollweg announced plans to expand the facility on July 1, 1905, he encountered problems and closed the plant by about August.³ On top of the other issues, fire destroyed the factory in late June 1906. Damage was reported at \$25,000. Hollweg announced on June 4, 1906, that he would rebuild the plant with twice the capacity of the old one – including an eight-ring continuous tank. A 1906 letterhead stated that the plant made “Mason, Electric, and Standard Fruit Jars, Packers and Preservers’ Ware, Oil Cans, Etc.” Although the record is unclear, the plant may have remained in production until 1909 (Roller 1994:38-39; 1996).

By 1907, the factory had two continuous tanks with 17 rings, although it only operated the smaller tank during 1907 and early 1908. By that time, it was incorporated with Hollweg as president, N. Chapman as vice president and treasurer and A. Lloyd as secretary and manager. The plant was now producing machine-made fruit jars, packers, preservers, and bottles – along

² As often happened, the primary sources – including letterheads – called this the Greenfield Fruit Jar & Bottle *Works*. As explained in earlier chapters, *Works* almost certainly indicated the factory, while *Co.* identified the operating firm.

³ A separate issue of the same newspaper claimed that the plant had been closed since the winter of 1904-1905 (Roller 1994:39).

with making porcelain (actually opal glass) inserts and operating its own mold shop. A ca. 1908 postcard from the firm as well as 1908 letterheads illustrated Genuine Boyd Mason jars (Roller 1998).

For \$50,000, Hollweg obtained the exclusive license to make fruit jars on the Owens Automatic Bottle Machine on January 2, 1909, and transferred the option to the Greenfield Fruit Jar & Bottle Co. in November (Roller 1996; Scoville 1948:105). Hollweg installed one new Pyle machine in March, along with three 6-arm Owens machines in July. The company reorganized as a new corporation in mid-November, with Louis Hollweg, Niles Chapman, George C. Haerle, and Ferd L. Hollweg as directors. Louis Hollweg was chairman, with Chapman as secretary. The reorganization was a step in the sale of the firm to the Ball Brothers (Roller 1998).

Containers and Marks

The name Greenfield Fruit Jar & Bottle Co. could only have been applied between ca. 1902 and 1909, and this was certainly the major period of production. These jars are very distinctive, and the entire sequence falls into a series of datable patterns.

Sloping MASON or STANDARD with Shepherd's Crook (ca. 1902-1906)

Toulouse (1969:196), Roller (1983:211; 2011:319), and Creswick (1987a-114-115; 1987b:87-88) all listed shoulder-seal jars embossed "MASON" in a descending line with a shepherd's crook underline (Figure 23). Variations also included: 1) "GREENFIELD (arch) / FRUIT JAR CO. (horizontal) / GREENFIELD IND. (inverted arch)" on the base (see below); 2) Mason underlined with shepherd's crook on both sides; 3) curlicues on end of shepherd's crook; 4) three-pronged design above N in MASON; 5) plant design below MASON. Creswick (1987a-115) illustrated the some of the jars (Figure 24).

Toulouse (1969:291) described and illustrated a wax-sealer embossed "STANDARD" in descending letters, underlined by a



Figure 23 – Mason crook (Antique Bottles.net)

squared shepherd's crook. He dated the jar ca. 1890-1910 and suggested that the Standard Cooperative Glass Co., Marion, Indiana, was the probable manufacturer. He stated that the jar was made by hand, with a pressed laid-on ring but noted that someone had reported a machine-made variation to him.



Figure 24 – Mason crook (Creswick 1987a-115)

Brantley (1975:26) noted that Greenfield underlined the word “STANDARD” with what he described as a “shepherd’s crook lying on its side with the hook on the left.” Roller (1983:337; 2011:487) and Creswick (1987a:200) discussed and illustrated the jar, identifying the Greenfield Fruit Jar & Bottle Co. as the manufacturer (Figure 25). Creswick dated the jars ca. 1890-1912, although Roller noted a ca. 1900s date. Interestingly, these only had the squared shepherd’s crook, unlike the curlicued variation of the similar Mason jars.

These jars were almost certainly made during the ca. 1902 to 1906 period, between the reorganization that created the Greenfield Fruit Jar & Bottle Co. and the fire that destroyed most of the plant. The jars were almost certainly made on Pyle machines, so they should have no valve marks on the bases, some kind of seam around the neck-shoulder area, and vertical seams that extend to the top of the finish. The only two photos we have of Mason jars with the shepherd’s crook underline show a rough-looking seam just below the squared shoulder. One includes a base photo includes a distinctly visible valve scar. Some of the actual machines may have incorporated valves on the parison mold base. It seems that the drop-down parison molds should have also had problems with suction-created vacuum sticking. It would be helpful to examine a large sample of the jars as well as an actual Pyle machine.

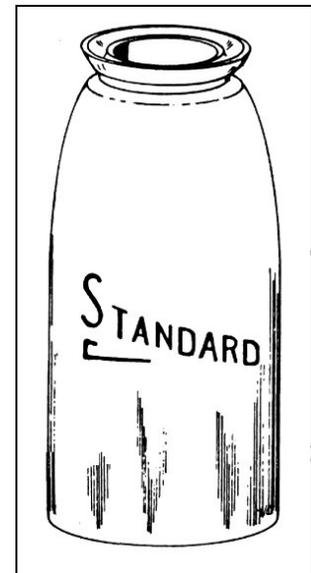


Figure 25 – Standard crook (Creswick 1987a:200)

GREENFIELD in an arch (ca. 1902)

Toulouse (1971:227) claimed that the Greenfield Fruit Jar & Bottle Co. used this arched logo from 1888 to 1906 and noted that the mark had been reported to him on a machine-made jar, that he dated 1906 to 1912. Roller (1983:211; 2011:319) and Creswick (1987a-114) both described and illustrated this basemark on one of the Standard jars (with shepherd's crook) described above (see Figure 24). This variation was probably the first one produced by the firm, probably ca. 1902.

Electric

A 1906 letterhead stated that the plant made “Mason, Electric, and Standard Fruit Jars, Packers and Preservers’ Ware, Oil Cans, Etc.” The source materials (Roller and Creswick) attribute the machine-made Electric jars to the Gayner Glass Works; however, it seems odd that Greenfield would emboss a name on Mason and Standard jars but not on Electric ones. Although characteristics on the Electric jars (upwardly slanted cursive “Electric” and “TRADE MARK”) fit Gayner jars, two of the Boyd series jars also had upwardly slanted cursive letters (see Gayner Glass Works section for information on Electric jars). Since this is our only reference to an Electric jar at Greenfield, the plant probably did not produce them for very long. Perhaps, future research will form a conclusion.

Boys or Boyd (ca. 1907)

The sources seem to be both confusing and confused about this container. These machine-made, shoulder-seal jars were embossed “Boys” (or “Boyd”) in upwardly slanted cursive on the front and “MASON” in descending letters above a shepherd's crook on the reverse. Toulouse (1969:51) may have received a garbled report of these jars. He listed a mouth-blown jar embossed “Boys (upwardly slanted cursive) / MASON (horizontal)” on the front. This embossing does not show up in any other source.

Roller (1983) did not report the container, but Creswick (1987b:31) listed a jar with “BOYD” on the front and no other embossing. She also discussed and illustrated an example with the upwardly slanted, cursive “Boys” on the front and “MASON” with squared crook

underline on the reverse and attributed the jars to Greenfield (Figure 26). The Roller update (2011:109) only listed “Boyd” on the front with “MASON” and the crook on the reverse. Leybourne (2014:89) provided three variations (Boyd, Boyds, and Boyds with a period after MASON on the reverse), all machine made and all with MASON and the crook on the reverse.

Regardless of which variation is correct (or if they all exist), this was probably the first of the Boyd series made by Greenfield. These were probably the first Mason jars produced after the 1906 fire. This was the period when the plant only used the small furnace, and the Boyds jars may have been the only product during that first post-fire year.

GENUINE Boyds MASON (ca. 1908-1910)

Toulouse (1969:51) discussed four variations of jars embossed “GENUINE (horizontal) / Boyds (upwardly slanted cursive) / MASON (horizontal)” on the front. He noted that one of these was mouth blown, while the others were machine made. He attributed two variations to the Illinois Glass Co. (IGCO basemark) and the

Illinois-Pacific Glass Co. (IPGCO basemark). He dated the jars ca. 1900-1910 and did not attempt to address the maker of the other two variations.

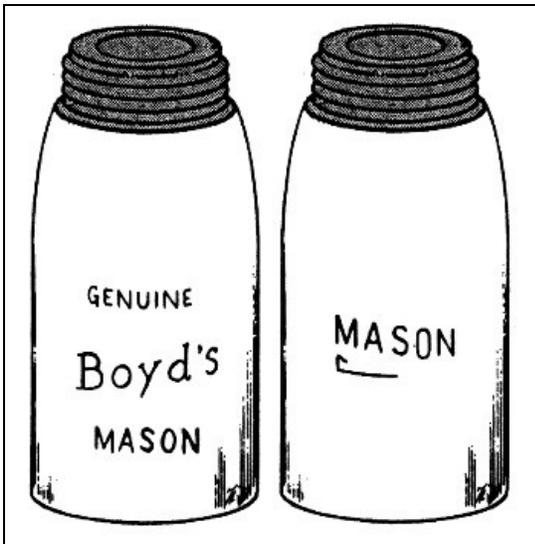


Figure 27 – Genuine Boyds with crook (Creswick 1987b:31)

Roller (1983:137) described a jar embossed “GENUINE (horizontal) Boyds (upwardly slanted serif font) / MASON (horizontal)” on the front. He dated the jars ca. 1906 and suggested Greenfield as the producer. Roller noted that “these crudely lettered jars were probably the first of the Genuine Boyds Mason jars made by Greenfield.” He further stated that they were “quite a bit scarcer” than the cursive variations. Creswick (1987b:31) illustrated

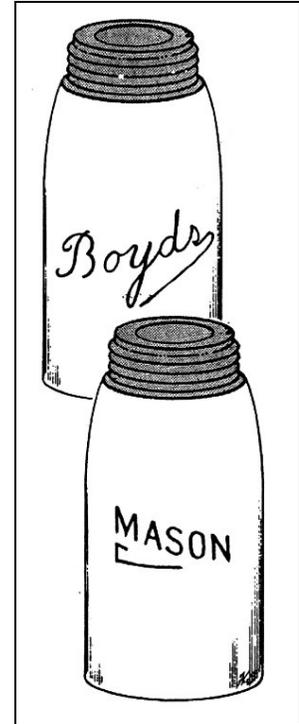


Figure 26 – Boyds with crook (Creswick 1987b:31)

this variation but added the “MASON” and shepherd’s crook reverse embossing (Figure 27). The Roller update (2011:211) followed the earlier identification but added the “MASON” and shepherd’s crook reverse version and another variation with “Boyd’s” ghosted. Leybourne (2014:90) reported the jar with and without the reverse embossing.



Figure 29 – Genuine Boyds with crook (eBay)

Roller (1983:136) also discussed the more common variation with “Boyd’s” in upwardly slanted cursive (Figure 28). He again ascribed the jars to Greenfield –

noting that they were made on the Pyle machine – dating them ca.

1906-1909 and illustrating a 1908 Greenfield trade card that showed the jar. He noted four variations of the jar: 1) GENUINE Boyds MASON on front; 2) the same front embossing on both sides; 3) MASON in descending letters on reverse; and 4) MASON and shepherd’s crook on reverse (Figures 29 & 30). Creswick (1983b:31-32) discussed and illustrated both shepherd’s crook and unembossed back variations, agreeing with the Greenfield identification (Figure 31).

The Roller update (2011:211) added a variation with no reverse embossing but with “GREENFIELD FRUIT JAR CO. GREENFIELD, IND. on the base.



Figure 28 – Genuine Boyds (North American Glass)

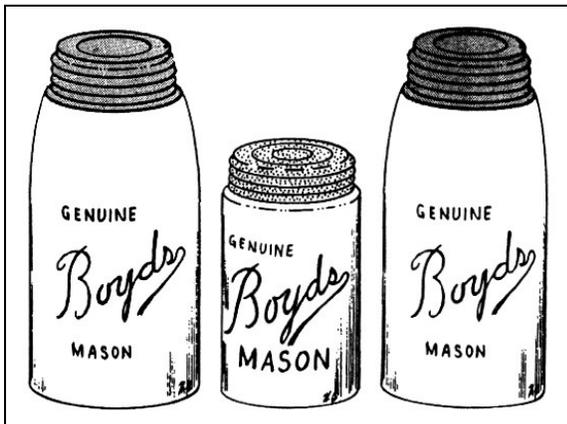


Figure 31 – Genuine Boyds (Creswick 1983b:31-32)



Figure 30 – Genuine Boyds base (eBay)

Prior to this publication, the Greenfield basemark has only been reported on a Standard jar. Leybourne (2014:89-90) included the Greenfield basemark on a jar *with* the “MASON” and shepherd’s crook reverse and on with the “B” in “Boyd’s” in “Ball” cursive.

The trade card likely represents the early manufacture of the Genuine Boyd Mason jars at Greenfield. These were probably first made in 1908 (possibly late 1907), with production continuing until the Ball takeover in late 1909. The “Ball” cursive “B” reported by Laybourne suggests that the Ball Brothers continued to make these jars after they bought Greenfield.

BOYD PERFECT MASON (1909-1910)



Figure 32 – BOYD PERFECT MASON (Ball Jars CCC)



Figure 33 – *BOYD* PERFECT MASON (Ball Jars CCC)

Toulouse

(1969:51-52) had little to say about these jars. He noted that they used a shoulder seals and were machine made ca. 1910. Roller (1983:71; 2011:110) listed four separate variations, all dated ca. 1909 (by Greenfield), all with bead seals, all machine made; and all with the three words on separate lines:

1. **BOYD / PERFECT / MASON** – converted to make Ball Perfect Mason jars (see below); sub-variation embossed in three indented lines (Figure 32)

2. **BOYD / PERFECT / MASON** – also altered to make Ball Perfect Mason jars (see below); Roller illustrated a trade card showing this variation (Figure 33 & 34)

3. **BOYD / PERFECT / MASON** – also altered to make Ball Perfect Mason jars (see below) (Figure 35)

4. **BOYDS (arch) / PERFECT / MASON** – converted to make “long-L” Ball Perfect Mason jars (see below) (Figure 36)

Creswick (1987b:32) also listed four variations and illustrated them (Figure 37). All of these jars in our sample displayed the distinctive Owens scar, so each was made on an Owens machine (Figure 38). Since Hollweg did not install an Owens machine until



Figure 34 – Greenfield Boyd ad (Roller 1983:72)

July 1909, these jars could not have been made prior to that time. Although the Ball Brothers took control of the company in November, they may have continued to produce these jars into 1910. See Table 1 for a probable chronology of these jars.



Figure 35 – *BOYD PERFECT MASON* (Ball Jars CCC)



Figure 36 – *BOYD* (arch) *PERFECT MASON* (eBay)



Figure 38 – Boyd Owens base (eBay)

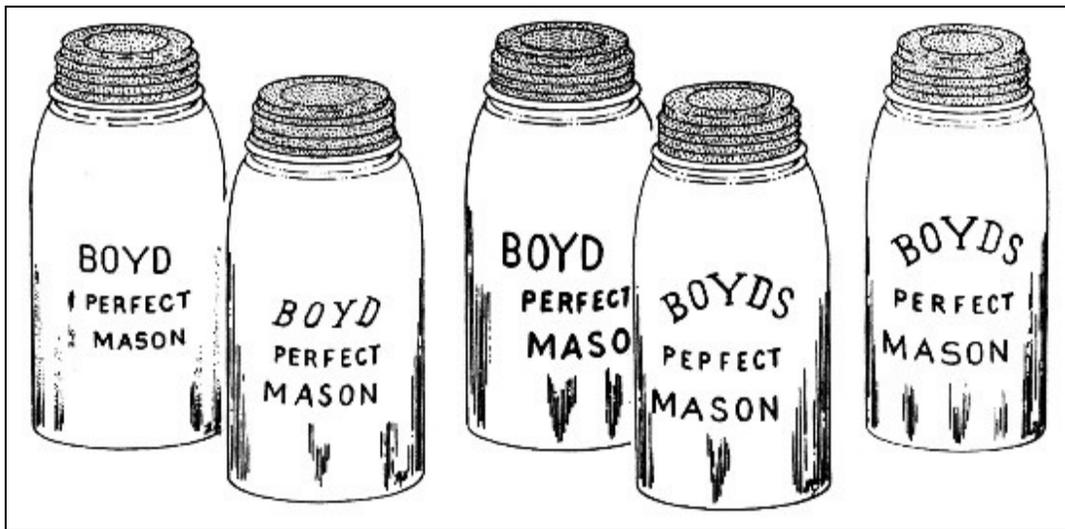


Figure 37 – *Boyd Perfect Masons* (Creswick 1987b:32)

Table 1 – Jar Variation and Companies

Dates	Firm	Jars	Production
1891-1895	Hollweg & Reese	H&R (wax sealers)	Hand
1896-1900	Streeter & Co.	Standard Mason	Hand & Machine
1900-1902	Hollweg & Reese	MASON or STANDARD descending	Pyle Machine
1902-1906	Greenfield Fruit Jar & Bottle Co.	STANDARD (square crook) MASON (squared crook) MASON (curled crook) MASON curled crook and designs	Pyle Machine
1907	Greenfield Fruit Jar & Bottle Co.	Boyd (or Boyds); MASON & crook on reverse	Pyle Machine
1908-1909	Greenfield Fruit Jar & Bottle Co.	GENUINE Boyds MASON; Greenfield on base GENUINE Boyds MASON; MASON & crook on reverse GENUINE Boyds MASON; no crook	Pyle Machine
1909-1910	Greenfield Fruit Jar & Bottle Co.	Boyd PERFECT MASON (shoulder seal) Boyd (or Boyds) PERFECT MASON (bead seal)	Owens Machine
1910-1914	Greenfield Fruit Jar & Bottle Co. (Ball)	Standard Ball Perfect Mason	Ball-Bingham and Owens machines

Ball Brothers Glass Mfg. Co., Greenfield, Indiana (1909-1916)

On November 20, 1909, a week after Hollweg transferred the license to Greenfield, the Ball Brothers Glass Mfg. Co. purchased the Greenfield plant for \$750,000.⁴ In acquiring the

⁴ Roller (1994:39-41) listed three separate purchase dates: November 15, 1909, “purchased the shares of the Greenfield Fruit Jar & Bottle Co.”; November 20, 1909, ; “purchased Greenfield Fruit Jar & Bottle Co.”; and April 17, 1915, “Greenfield plant sold to Ball

Greenfield firm, the Balls also captured the Owens license, giving them exclusive rights to use the Owens machine to make fruit jars until November 2, 1924 (Roller 1994:39-40; 1996). The purchase was couched as a reorganization, with Frank C. Ball as president, W.C. Ball as secretary, G.A. Ball as treasurer. The Ball Brothers continued to operate the plant under the Greenfield Fruit Jar & Bottle Co. name, with F.C. Ball as president of the reorganized corporation (Roller 1983:47; 1998; 2011:78).

Roller (1983:47; 2011:78) stated that “very soon [i.e., soon after the purchase of Greenfield), the Greenfield Owens AD machines were moved to Muncie, and installed in Factory #2, which Ball leased to Greenfield.” However, this may be a misreading of the historical data. Greenfield certainly moved to Muncie, but the move was more complex than previously reported. On March 10, 1910, the Ball Bros. wrote to a customer that some Boyd jars “were made on the Owens machine in the Greenfield plant where all the Owens machine Made Jars have been made.” *Commoner & Glassworker* reported on October 29, 1910, that

the fruit jar factory at Greenfield, Ind., which is owned by Ball Bros., of Muncie, will not be operated this winter, according to Muncie Press, which says some of the workmen who were employed there are being taken on in the local plants owned by the company.

This suggests that the Greenfield plant remained in operation until late fall or even winter of 1910 – although the factory was almost certainly closed before January 1911 (Roller 1996).

Other timing is also interesting. On September 12, 1910, the Greenfield Fruit Jar & Bottle Co. (Ball) purchased nine Owens AD (9-arm) machines for \$10,500 each, along with nine Owens Revolving Pots at \$850 each for the No. 2 factory at Muncie. These were *not* the machines from Greenfield. Those were apparently still at the old plant. Back in Greenfield, the Balls had changed all the names on boxes and jar molds to the Ball moniker by at least February 26, 1910. Ball announced that all jars made by the Owens machines (at that time) were produced at the Greenfield plant (Roller 1996).

Brothers Glass Mfg. Co.” Other entries make it clear that Ball controlled both the company and the license beginning in November 1909.

Commoner & Glassworker reported on December 9, 1911, that the No. 2 factory at Muncie used “nine Owens automatics, eight of which are at present in operation.” These had to have been the new machines, purchased the year before. The article further noted that “the other tank is undergoing repairs and soon as completed will be placed in operation.” This *may* be the tank that would use the machines moved from Greenfield. The Greenfield operation lost its individual identity when the Balls absorbed the firm in 1915 (Roller 1996; 1998).⁵ See the discussion under the Ball Standard heading below for more information on the transfer of the machines from Greenfield to Muncie.

Containers and Marks

Although some earlier researchers have assumed that Ball made grooved-ring, wax-sealer jars by machine at some earlier point, the evidence outlined below seems to suggest that Ball adopted both the Standard jar and the Perfect Mason from the Greenfield Fruit Jar & Bottle Co. Since Greenfield appears to have created a large market for both jars, Ball likely took advantage of those sales to boost its own already large standing.

Ball STANDARD (1909-1912)

Toulouse (1969:40-41) reported wax-sealer fruit jars embossed “STANDARD” below the “Triple-L” Ball logo – a cursive “Ball” with a looped curl at the end, becoming an underline (Figure 39). Toulouse claimed that the jars were mouth-blown with pressed laid-on rings between 1888 and 1912 – although he also noted that some were machine made. He did not make a connection to the Greenfield plant.

Brantley (1975:26) noted that the Ball Brothers continued the Standard line when they bought the Greenfield Jar & Bottle Co. in

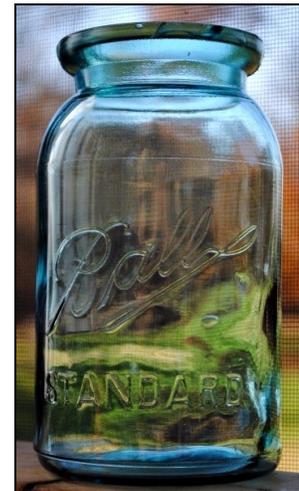


Figure 39 – Ball Standard (eBay)

⁵ Under a date heading of 1910, Roller (1996) reported that “handwritten notes by F.C. Ball listed 3 Owens AD 6-arm machines and 6 Owens AD 9-arm machines.” In a December 27, 1920, letter to Arthur W. Brady, Anderson (an Indiana attorney), Ball stated that the firm had originally received nine AD machines that were replaced on March 31, 1914, with AR 10-arm machines (certainly at the Muncie No. 2 plant).



Figure 40 – Swirled base (North American Glass)

1909. The Balls dropped the “crook” but marketed that line as “Ball (script) / STANDARD” using the “Triple-L” Ball logo variation. Roller (1983:56) noted that the Triple-L Standard jars were made on Ball-Bingham machines in the early 1900s and that “often aqua jars will have varying amounts of olive green or amber color swirled in with the aqua color, denoting insufficiently mixed batch

materials” (Figure 40). Roller (1983:56) also discussed a variation with the “dropped-A” Ball logo (Figure 41). The jars were made on both



Figure 41 – Ball Standard

Ball-Bingham

and Owens machines from 1910 to 1912 (Figure 42). Bases of Ball-Bingham machines had valve scars in the center of each base and usually included large letters or numbers in association (Figure 43). He cited Ball records that the jars were discontinued in 1912.



Figure 42 – Owens characteristics

Creswick (1987a:X, 13) suggested that the Ball Brothers made wax sealers by machine from ca. 1896 to ca. 1912. She included illustrations of five variations of the jar, including two errors (one embossed “STANDAPD”; the other with an incomplete “a” in “Ball”). Four used the Triple-L Ball logo, the other an underlined “Ball” with no curl at the end (Figure 44). The Roller update (2011:59-90) had essentially the same information as the earlier book but added that jars with each of the Ball logos were made with both rounded and squared shoulders. Recall from above that at least some of the Standard jars made by Greenfield had squared shoulders. It would be interesting to know if the squared-shoulder jars could be traced to Greenfield molds.



Figure 43 – Ball-Bingham base (eBay)

Leybourne (2014:63) suggested that the jars were made between 1900 and 1912 and even divided the dating period into jars with the Triple-L Ball logo (1900-1910) and those with the underline but no loop (1910-1912). There is actually virtually no question that the first of these were made in 1909, when the Balls took control of Greenfield. There is no question that the initial run of these jars occurred at the Greenfield factory. Roller (1996) quoted a letter that the Ball Brothers Glass Mfg. Co. wrote on March 10, 1910, to a customer stating that the jars Ball had shipped them

were made on the Owens machine in the Greenfield plant where all the Owens machine Made Jars have been made. There may be a little difference in the color of the Glass owing to the difference in the color of the Sand or Batch. When we purchased the out-put of the Factory and assumed the contracts we changed the lettering on the Jars and on the boxes from 'Boyd' to 'Ball' because the name 'Ball' is better known and generally preferred. The jars are all made on the same machines in the same Factory and if there is any difference, those that have been made last and bear the 'Ball' name are the better, for the workmen have learned something by experience.

As noted above, however, Ball had ceased production at Greenfield by December of 1910. The jars made after that point were made at other locations. We have not found any evidence that the succeeding jars were made at the Muncie No. 2 factory. In fact, a December 9, 1911, report (cited in the history section) stated that the plant was "making what is called the 'Sure Seal Jar' and [was] meeting with great success" at that time (Roller 1998). We have dated the jars 1909-1912.

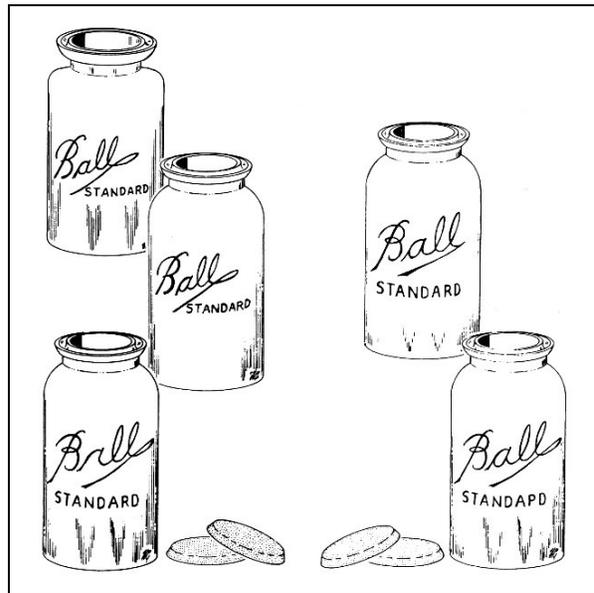


Figure 44 – Ball Standards (Creswick (1987a:13))

The R.G. Simpson Jars (1982)

Roller (1983:56) and Creswick (1987b:19) both described and illustrated a commemorative Ball Standard jar that was made in 1982 (Figure 45). The Roller update (2011:90) told the story:

These jars were made to honor the retirement of Russell G. Simpson, who stepped down from his position of Manager of Technical Services and Quality Control for the Glass Container Group of the Ball Corporation on September 30, 1982. He is credited with the 1956 idea of adding cup & ounce graduations to the side of Ball jars. Besides being a model railroad hobbyist, Russ was also a fruit jar collector. It was decided that a very special fruit jar would be designed for his retirement gift. New molds were cut at the Washington mold shop. At the end of this run (wax seal finish), the neck ring molds were changed and a very special run of sixty-five (65) of these jars were made with a Mason screw thread.



Figure 45 – R.G. Simpson jar (Creswick 1987b:19)

Ball PERFECT MASON (1909-1914)

Toulouse (1969:37-38) discussed several variations of jars embossed “Ball / PERFECT / MASON” on the front, but he did not connect any of these with earlier jars from the Greenfield Fruit Jar & Bottle Co. Roller (1983:47-50; 2011:78-84) also discussed several variations,

although he only included the same four discussed above as being made from former Greenfield Fruit Jar & Bottle Co. molds (see Figures 30-33). Roller (1983:47; 2011:78) further noted that Greenfield continued to exist after the Ball acquisition of November 1909 with F.C. Ball as the president. The firm finally merged with the Ball Bros. in 1914. He continued that “some Ball jars were probably made at the old Greenfield plant. But very soon, the Greenfield Owens AD machines were moved to Muncie, and installed in Factory #2, which Ball leased to Greenfield.” Creswick (1983b:82-83) illustrated the altered jars and also attributed them to the former Greenfield molds (Figure 46).



Figure 46 – Ball Perfect Masons (Creswick 1983b:82-83)

Plant No. 5, Owens Bottle-Machine Co. (1916-1919)

Plant No. 5 – Owens Bottle Co. (1919-1921)

The Owens Bottle Co. acquired the company in 1916 and used the plant to make catsup and other food containers. Owens closed the factory in 1921 but did not sell the property until 1936 (Roller 1994:40-41; Toulouse 1971:227-228). See the Owens Bottle Co. section or Lockhart et al. (2010) for more information on the plant after the Owens acquisition.

Machine Manufacture of Wax-Sealer Fruit Jars

Initially, home canners relied on tin cans as their containers. Roller (2011:7) discussed the patent issued to Robert Arthur on January 2, 1855 – the one that opened the way for home canners to safely seal their cans – along with glass and ceramic jars (see the section on Arthur,

Burnham & Gilroy for a detailed discussion about these early containers). The basic idea was a container with a groove that encircled the top of the finish (Figure 47). The essential process was simple. The canner filled the container and cooked the fruit or vegetables, then applied a tin lid that fit into the groove. She then poured “cement” (wax) into the groove to seal the jar (Figure 48).



Figure 47 – Applied wax-seal finish (Lindsey 2015)



Figure 48 – Lid and seal (Lindsey 2015 & eBay)

Creswick (1987a:VIII) claimed that “the wax groove on early wax sealers was formed by pressing down the wide shoulder, while still on the blowpipe to form the circular depression.” This

somewhat cryptic description was not supported by Toulouse (1969) or either Roller volume (1983; 2011), both of which only discussed patents. Unless this was intended as an oversimplified explanation of Borden’s patent (see below), it seems that this method would create a very arbitrary finish that would not fit any standard sized lids.

Glass makers used several processes to form the grooved-ring, wax-seal finishes. The earliest method used a gob of glass that was applied to end of the jar after it was broken off of the blowpipe (called applied finishes by glass makers). The end was then worked into the desired shape with the same type of finishing tool that was used to form the tops of other glass containers (see Figure 47). Collectors call this a pressed laid-on ring.

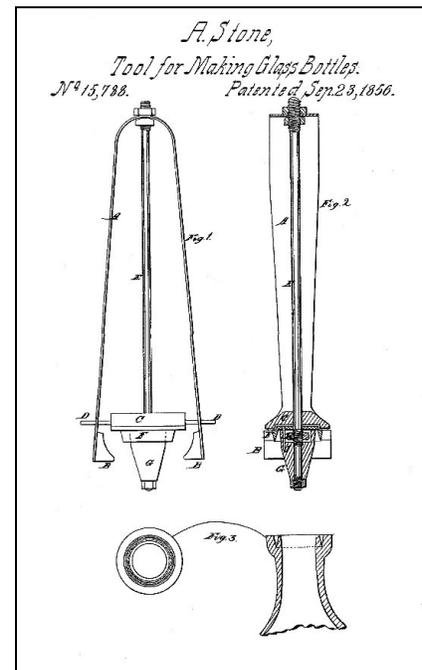


Figure 49 – Stone 1856 patent

The final technological stage for wax sealers was machine manufacture, and we have only discovered three types of these bottles. The stage was likely set by the Greenfield Fruit Jar & Bottle Co. All the Standard jars (wax sealers) and Mason jars that are solidly attributable to Greenfield were machine made (e.g., see Figure 20). These were typically marked with a shepherd's crook below the jar name, although the crooks were lacking on the Boyd Mason lines and a few of the other Mason and Standard wax sealers. Since Greenfield used machines by at least as early as 1900, the company probably began making wax sealers using the new technology about that time.

As noted above, the Ball Brothers continued to manufacture wax-sealer jars by machine when they bought the Greenfield plant in 1909. This was the Ball Standard line, and the firm made the jars until 1912. Similarly, the company began making the Ball Perfect Mason jars using the Greenfield molds after it purchased the firm in 1909 and almost certainly used the molds until they wore out. Although the bases of some of the machine-made jars differed, the finishes all had vertical seams that extended through the finish and at least one horizontal seam at the base of the finish (see Figure 42).

The final type of jar was embossed with either "STANDARD" or "MASON" with an underlining loop tail (Figure 53). We have not yet fully researched these jars (as of this writing in November 2015), but they will appear in the Pennsylvania Glass Co. section, since that firm was the likely maker. At least two variations of the jars had strong ties to Pennsylvania Glass, and all of this type of jar were likely made there.



Figure 53 –Looped underline

Machines Used to Make Standard Jars

The glass houses used at least three types of machines (and possibly a fourth) to make these wax-sealer fruit jars, and these produced slightly different characteristics.

Greenfield Fruit Jar & Bottle Co. – Pyle machines

As discussed above, the only example of a Greenfield base we have found had an almost centered circular valve or ejection scar. Since the Mason jars had a continuous-thread finish, there was no need for an ejection rod, so the basal scar was probably made by a valve. The Pyle machines used a drop-down parison mold. On Blue machines with similar technology, there was no valve, and the patent documents for the Pyle machines did not discuss or illustrate a valve in the parison base. However, it is possible that such an attachment existed on the actual machines.

The parison mold also created a rough horizontal seam just below the shoulder on Mason jars with the shepherd's crook. It is likely that the squared shoulder of the Standard jars was created to work in the drop-down parison (something noted on the Blue machines – see Lockhart & Bernas 2014). Although we have not yet seen an example of a photo of a Standard jar, it is likely that there is a horizontal seam just below the squared shoulder.

Owens Automatic Bottle Machines

The Owens machine characteristics have been discussed in many venues, but the defining feature is the Owens scar on the base. The Owens was a blow-and-blow machine, where the glass was drawn into the parison (first stage) mold and cut off with a “knife” (actually, more the shape of a chisel blade). The parison was then blown into shape and transferred to the blow mold (second stage), where the bottle or jar was blown into its final shape. The “knife” left an off-center, mostly circular, “feathered” scar that sometimes extended onto the heel of the container. The size of the scar could vary from a fairly small circle (as on the Boyd Perfect Mason jars) to a circle that slopped over two or more sides.

In addition, there were sometimes “ghost seams” that were created by the parison mold. In later machines, these exactly matched side seams created by the blow mold, but they could be separate in the early machines. In radical cases, these seams could be offset by as much as half an inch, with the bottom seams ending to about the shoulder, and the top seams terminating above the heel. There was also a horizontal seam just below the finish and two side seams extending up the finish to the rim or lip (see Figure 52). In the early machines, these side seams could also be offset from the side seams on the body of the jar.

Ball-Bingham Machines

On August 26, 1897, Alvah L. Bingham applied for a patent for a “Glass Blowing Machine.” He received Patent No. 608,022 on July 26, 1898. This machine clearly shows a parison mold with no valve in the base. Edmund B. Ball received two patents for improvements on the machine, one on February 27, 1901 (Patent No. 644,395), the other on February 11, 1902 (Patent No. 692,813). It is unclear whether either of these had a valve on the parison mold.

Bingham applied for another patent on December 12, 1904, and received Patent No. 817,745 on April 17,



Figure 55 – Offset finish seam (North American Glass)

This is important because the valve left a circular scar on the base of the jar. The few photos we have seen illustrated the scar at or close to the center of the jar. Often, these were accompanied by large numbers or letters (see Figure 43). At least one example also had the horizontal seam at the finish slightly offset from the horizontal seam at the body, and these sometimes had ghost seams on the sides (Figures 55 & 56).

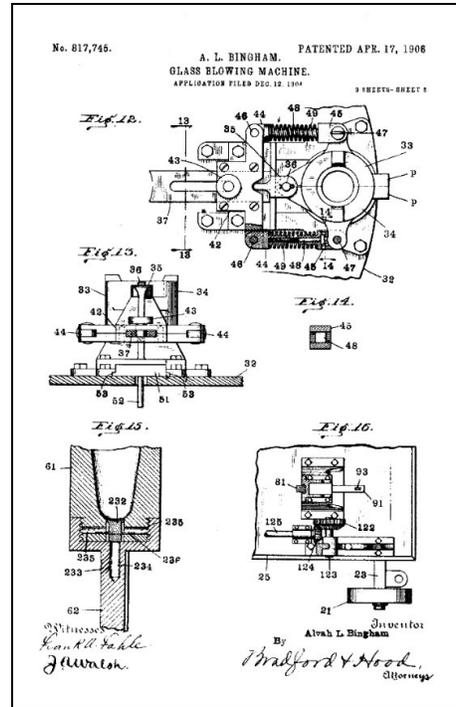


Figure 54 – Bingham 1896 patent

1906. In this patent, he carefully described the

valve in the base of the parison mold and its function.

Because of suction when the parison (first stage of production) was removed from the parison mold, it tended to stick. The valve at the base of the parison mold opened when the parison was removed, allowing air in to facilitate easy removal (Figure 54). Since this was the first patent to fully discuss the process, it was likely the initial use of the valve.



Figure 56 – Ghost seams (eBay)

Pennsylvania Glass Co. – Unknown Machines

At this point, we do not know the type of machines used by the Pennsylvania Glass Co. – the purported makers of the Mason and Standard jars with looped underlines. However, the only base we have seen had a typical valve scar, although it was faint. John Schies, president of the firm, patented several machine improvements between 1903 and 1912, but none of these described or illustrated a mechanism that would create a specific type of basal scar.

Discussion and Conclusions

Most of the research described above is solidly based, although some of the dating remains speculative. However, a few issues, however, deserve further discussion.

The Shepherd's Crook and Greenfield

The presence of the term “GREENFIELD FRUIT JAR CO.” on the base of a Mason jar that was embossed “MASON” with the letters in a downward slant and the shepherd's crook underline clearly ties the shepherd's crook and downward sloping letters to the Greenfield Fruit Jar & Bottle Co. The company may have abbreviated the name (dropping “& Bottle”) for space considerations, although it is possible that the firm may have actually used the shorter name for a time. Our information about the company at the time of the name change is spotty.

The virtually identical jars (both wax sealers and Mason jars) without the “crook” were probably also made by the Hollweg & Reese plants, and these may have been manufactured prior to the ones with the shepherd's crook, although the difference may only reflect molds made by a single engraver. The difference between the squared and curlicue crooks was also probably a reflection of engraver choices. The presence of the crook on Genuine Boyds Mason jars also ties those to Greenfield.

The evidence for Greenfield manufacture of the Boyd Perfect Mason jars, however, comes from the opposite temporal end. The molds for these jars were reused by the Ball Brothers. Since the Balls purchased the Greenfield plant, the molds must have come from that source. In addition, these jars exhibited Owens scars – and Greenfield had the Owens license.

The Pyle Machine and Valve Scars

As noted above, Roller stated that the Greenfield jars were made on machines patented by George C. Pyle. Indeed, Pyle was associated with Hollweg in another company, so there was a definite connection. However, the only baseplates we have seen – from jars that were almost certainly made by Greenfield – had a distinct valve scar, so the machine that made it must have used a technique to produce such a mark. The Pyle machines, however, used drop-down parison molds – that typically did *not* produce such a scar. However, the jars we have seen *do* show a rough seam just below the shoulder that we would expect from a drop-down parison mold (see Lockhart & Bernas 2014 for a detailed discussion of the technique).

Alvah Bingham carefully described the use of the valve in the base of the parison mold in his 1906 patent (No. 817,745 – applied for in December 1904), but it is unlikely that Ball would have allowed a rival to use its machine. The presence of valve scars on Greenfield jars, however, makes it virtually certain that the Pyle machines used a valve or some other process to make the mark.

Boyd Mason Jars

The sequence of the Boyd Mason jars is worth exploring. The Greenfield Fruit Jar & Bottle Co. began the series ca. 1907 with the jar simply embossed “Boyd” or “Boyd’s” in cursive. The following year, Greenfield introduced the GENUINE Boyd MASON, followed by the *BOYD* PERFECT MASON in 1909. Although some of these jars may have been produced by Ball in late 1909 or early 1910, the line ceased soon after Ball purchased Greenfield. Ball continued its own version of the *BOYD* PERFECT MASON with “*BALL*” replacing “*BOYD*” in 1909 or 1910 and made the jars until 1914.

Around 1915, the Illinois-Pacific Glass Co. introduced a jar embossed “Boyd (cursive)” underlined by “MASON” in a pennant that extended from the “d” and continued to produce the jar until ca. 1925. This was part of a series of underlining-pennant jars that began with the Standard MASON (in a pennant) ca. 1902-ca to 1910, followed by the Genuine MASON from ca. 1910 to 1915 or later, and finally the Boyd MASON ca. 1915. Although it may be coincidental, it is interesting that the introduction of the word “Boyd” seems to have occurred

just after Ball discontinued the jar it had inherited from the Greenfield Boyd line. See the section on Illinois-Pacific for more on that firm.

Future Research

Future research will be useful in at least two areas. First, we know little about the Pyle machine. Unfortunately, several of the early machines used the drop-down parison mold, and all of them should exhibit some form of scar at the shoulder area. Although it was not mentioned in any of the Pyle patent documents, Pyle's machines apparently used some form of a valve to relieve the suction caused when the parison mold dropped down. The early Blue machines lacked the valve and created two distinctive marks because of it. On the base, there was no circular valve scar. Of more importance, the Blue machines left a V-shaped scar just above the shoulder – almost certainly a result of the suction created when the parison mold dropped down and pulled the glass downward, rupturing the surface to create the scar all the way around the shoulder. On the few photos we have observed, the Pyle machine seems to have left a much less distinct seam. A related question revolves around the users of the Pyle machine. We currently have no knowledge of Pyle machine use at any other glass house.

Second, future researchers need a larger sample of shepherd's crook jars and Boyd jars that were made on Pyle machines. We need a closer look at the bases and shoulders of these jars to determine whether the apparent marks shown in the few photos we possess are actually what they appear. It is also possible that the valve was not present on Pyle's initial machine but was added later. A larger sample could address that issue.

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