The Introduction and Adoption of the First Evaporators

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For much of the modern history of the maple syrup industry evaporators have been the standard sap boiling apparatus. Prior to the introduction of the evaporator, sap boiling occurred in flat pans resting on brick and mortar or stone and earth arches. Flat pans and arches began to appear as early as the 1820s and as a more efficient boiling method, gradually replaced kettles suspended over open fires. By the 1850s flat pans were in widespread use and as reported in the Country Gentleman magazine by 1860, "the sheet iron pan is almost universally used." Beginning in the late 1850s and early 1860s significant improvements in sap boiling technology arrived with the introduction of the evaporator.

What was meant by the term evaporator at the time that this term was introduced? Flat pans were sometimes referred to as evaporators, since after all they did serve the purpose of evaporating water from maple sap. However, these new evaporators introduced a number of advancements on the simple flat pan. "Evaporators" in the more formal sense was and is a term used to refer to a more sophisticated kind of flat pan in which featured a series of baffles or partitions that facilitated the continuous flow of boiling maple sap slowly through a maze-like path of channels gradually condensing from raw sap to finished or nearly finished syrup.

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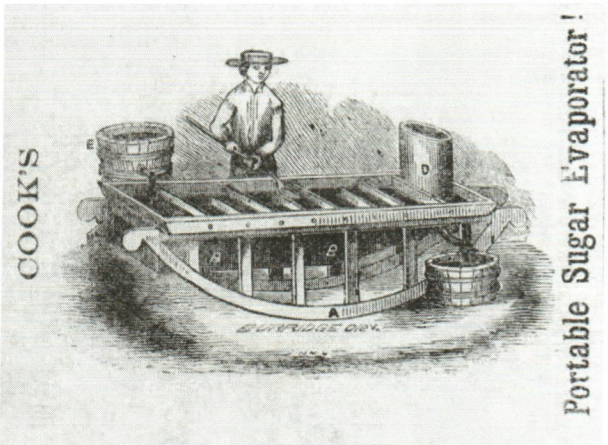
Other early features of evaporators that differed from flat pans were the introduction of flues or corrugations on the bottom of the pan to increase the surface area exposed to heat of the fire and gasses in the firebox underneath. Additional improvements unique to early evaporators were the division of the pans into multiple smaller independent pans linked by siphons and the introduction of sap level regulators or float valves. Like many of their predecessor flat pans, early evaporators were set upon on brick and mortar arches to support the weight, level the pans, and provide a tight firebox and smoke flue for a well-controlled fire underneath and behind the pans.

The earliest evaporators used by the maple industry were designed for making sugar from the sweet sap of sweet sorghum, also known as Chinese sugar cane. The first patented evaporator (US patent 20,631) came in 1858 from Daniel McFarlane Cook of Mansfield, Ohio and was essentially a flat pan with the addition of continuous flow baffles. Cook initially designed the evaporator for sorghum juice, but its utility and potential for making maple sugar was recognized and promoted from the very beginning of its commercial availability. Cook's earliest design sat on a portable arch that featured rockers on each side allowing a processor to adjust the height and make subtle shifts in the flow and level of sap and syrup in the pan. His later improved patented design (US patent 37,736) from 1863 saw the evaporator resting on a more permanent and stable brick arch.

As early as 1859, newspaper accounts began to spread the word of the improved speed and quality of maple sugar produced on Cook's evaporator. By 1860 manufacturers were advertising that they were ready to take orders. Cook was an engineer and inventor and personally never manufactured the Cook's Evaporator for sale himself, but rather sold the manufacturing and sales rights to a variety of individuals around the country. Cook's Sugar Evaporator was first available only through a number of Ohio firms like Hedges, Free & Co. of Cincinnati; Blymyers, Bates & Day Co. of Mansfield; and H.W. Wetmore from Akron, Ohio. Those outside of Ohio wishing to purchase a Cook's Evaporator had to arrange for it to be shipped to their state. C.C. Post of Hinesburg, Vermont, the inventor and seller of the Eureka sap spout, was the first Cook's Evaporator dealer in New England beginning in 1863. In one advertisement, C.C. Post boasted that there were already 6,000 of Cook's evaporators in use, and by 1868 over 20,000 sold. By about 1870 other improved evaporator designs had replaced the Cook's Evaporator and C.C. Post was no longer listing himself as sale agent.



Drawing of early rocker design of Cook's evaporator from October 1859 edition of Middlebury Register newspaper.

The other notable early sap evaporator was invented by Christopher Cory, a retired Presbyterian minister from Lima, Indiana who began his involvement with evaporators when he purchased a Cook's evaporator for making sugar from sorghum. He found the Cook's evaporator to serve its purpose well but felt he could improve upon its design, arriving at what he called Cory's Improved Evaporator. Cory patented (US patent 33,328) his two-pan design in 1861 and C. Cory & Sons began manufacturing and sale to sorghum processors in 1862. Sizes offered were 45 to 48 inches wide by 6 to 15 feet in length, made in iron or copper sheeting. The top tier model in copper at 48 inches wide and 15 feet long cost $130. It is interesting that the image of an evaporator in advertisements for Cook's Evaporator from 1863 and after used the image of a Cory's Evaporator which first appeared in Cory's advertisements in 1862.

Cory's Improved Evaporator began to be promoted for maple sugaring making in 1866 when the Hartford Sorghum Machine Company formed in Hartford, Connecticut, providing an exclusive manufacturer and distributor to sugar makers in New England. In 1868 Jas. B. Williams, President and F.G. But-

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ler, Secretary of the Hartford Sorghum Machine Company expanded to open a branch in Bellows Falls, Vermont for the manufacture of the Cory's Patent Evaporator and the Guild Sap Regulator for maple sugar makers. In 1870 the same founders of the Hartford Company formed the Vermont Farm Machine Company, a new larger concern to manufacture a wider range of farm equipment and implements, absorbing the production of the Cory's Evaporator. Through the 1870s Williams and Butler would develop their own improved evaporator designs, moving beyond the Cook and Cory's patent designs. The Vermont Farm Machine Company would go on to introduce the Williams Improved Evaporator and other maple supplies, becoming one of the largest and most important maple equipment dealers of the late 1800s and early 1900s.

Evaporator design improved rapidly in the 1870s and early 1880s with both well-known and lesser known inventors making their designs available for maple producers. By 1890 with the introduction of raised and drop flues, float boxes, metal full length brick arches, and even early steam hoods, producers were able to choose between a range of new and efficient evaporators with familiar names of the Champion, Williams, Eureka, Granite State, I.X.L., Lightning, Wheeler's, and Leader.

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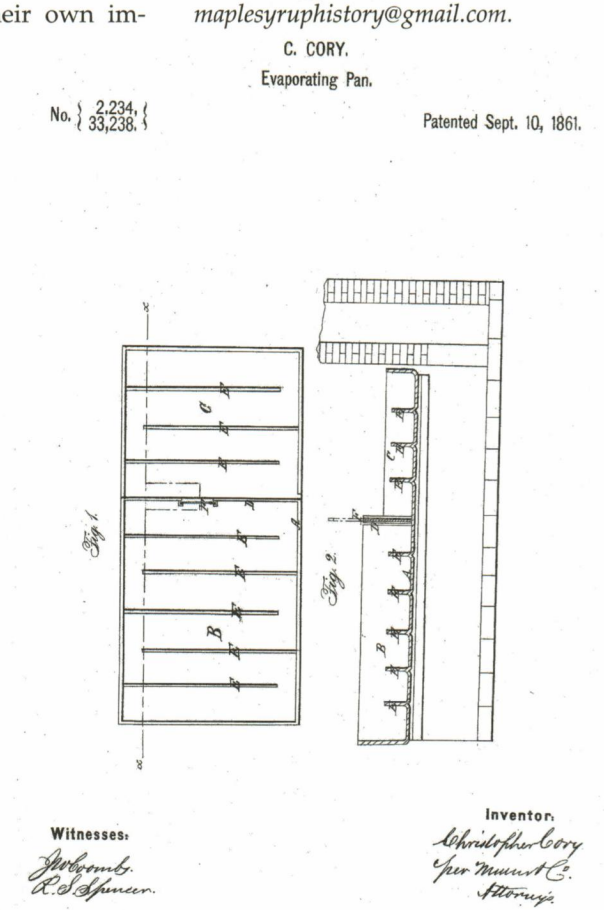
C. CORY.
Evaporating Pan.
No. { 2,234, / 33,238. }
Patented Sept. 10, 1861.
Witnesses:
Inventor:
Christopher Cory
per Munn & Co.
Attorneys.

Design drawing for Cory's 1861 evaporating pan patent (US patent 33,238).