



Middletown Springs Historical Society NEWSLETTER

Vol. 34, No. 1

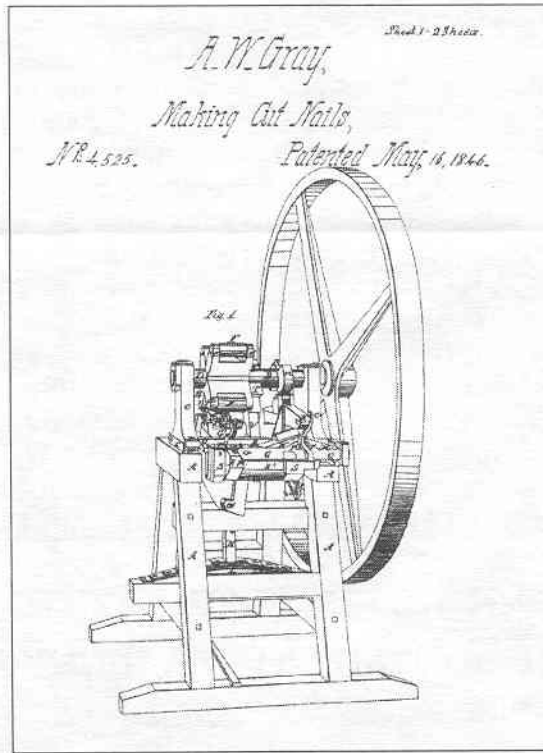
April 2003

A.W. Gray Patents Show Inventive Genius

A series of patent records highlights the rise and fall of an important Middletown family enterprise. Through the assistance of historian Paul Wood of Hardwick, the Society now has copies of original patent documents for four of A. W. Gray's inventions, as well as patent records of two inventions credited to his sons, Leonidas and Albert Y. Gray.

Albert W. Gray came to Middletown in 1825 at age fifteen, apprenticed to his relative Henry Gray for five years to learn the wheelwright's trade. He went into business for himself at age twenty and soon became known as a "careful and excellent workman" with "a genius and inclination for inventing," according to his obituary in the October 27, 1885 edition of the *Rutland Daily Herald*. He obtained his first patent for an improved corn sheller in 1836 "ranked as one of the best of its kind in its day".

A.W. Gray obtained his second patent in 1842 for improvements to the design of an inclined horse powered treadmill and began building them with a few workmen in a small shop behind his home on South St. We do not know who designed the treadmill that he was improving upon, but horse powers of many designs were conceived in Vermont in this period including other inclined treadmills (made in St. Albans, Vt. and E. Berkshire, Vt.); horizontal sweep horse powers (patented by L. S. Rand, Townsend, Vt., 1843 and Daniel Woodbury, Weathersfield, Vt., 1846) and even a horizontal revolving platform for two horses (patented by Levi Rice and Daniel Cogdon in 1837 and improved upon by Salmon Richards of Poultney, Vt. in 1843). Horizontal horsepowers were used to power ferries crossing bodies of water such as Lake Champlain. Various horse power inventions, primarily developed to run grain-threshing machines, were manufactured in Maine (Hiram Pitt patent, 1830),



A.W. Gray's nail making machine as illustrated in the 1846 patent record.

New York, Pennsylvania, Wisconsin (J.I. Case, 1870) and many other places. Gray's patented improvements concerned the manner of construction of the hinges that connected the treads of the moving floor of the treadmill, and in the manner of regulating the incline and support of the treadmill.

According to A. W. Gray's obituary, a machine for making wrought iron nails that he invented in 1846 was "said to be the first of its kind in the world." The actual patent document, unearthed recently by Paul Wood, shows that assertion to be a bit of an exaggeration. The patent is actually for *improvements* to a machine for manufacturing wrought iron nails. As in the case of the corn sheller and the horse power, we do not know who developed the nail mak-

ing machine Gray was improving upon. His important changes, however, involved the manner in which the hot iron rods from which the nails were cut, were drawn and shaped by steel rollers, and the mechanisms by which the nails were moved rapidly through the machine, increasing the speed and efficiency of the process. A company was organized and nails were made. But, due to a tariff reduction, the price of Gray's nails was higher than that of hand-made nails imported from Europe, and the business was abandoned.

A.W. Gray's most successful invention was his 1856 patented improvement to his 1842 horse power. He substituted corrugated sheet iron for cast iron in the moving floor of the treadmill to reduce weight and friction. He also improved the rollers that support the treadmill floor to reduce friction. The treadmill was lighter and more efficient, and was cheaper to build, yet was strong and durable. In 1856 Leonidas Gray joined his father as a partner in A.W. Gray and Son. Within a year the business had outgrown the original 16-by-36-foot shop and was

While visiting a restaurant in Killington the other day I spotted a brass plaque on the wall which read "In 1857, on this site, nothing happened." In the past few months that does not describe what has taken place at the Middletown Springs Historical Society.

We once again enjoyed a successful Antiques Discovery Day with Jim Marquis in January and our popular Maple Festival in March. Through the participation of town residents and visitors, both events were a great success.

But the biggest thing happening is the change to our Museum Storage Room where we store and preserve the Society's collection. In November, under the expert guidance of our curator, Jon Matthewson, and with the assistance of a large number of volunteers, the collection was moved out of the storage area and into the Auditorium. The bare room revealed a host of necessary repairs including to repairs to the plaster ceilings and walls. In some places early wallpaper was still visible and is probably from the mid-19th Century. A portion of a wall showing various examples of wallpaper is now behind a large section of plexiglass so it can remain visible. The ceiling still shows the

location of original partitions that once divided individual rooms for boarders who resided there when the building was the Adams House hotel.

Painting of the repaired plaster and trim was completed during the last week of March. An electrical contractor will be hired to upgrade and install new electrical outlets and new lighting fixtures scavenged from the UVM surplus property sale. After painted plywood flooring is installed, custom storage furniture—shelving, racks and cabinets—will be built to house and preserve the collection. Some useful steel book shelving has been donated by the Rutland Free Library as part of its current renovation. All this progress was made possible through grants, donations and volunteer assistance.

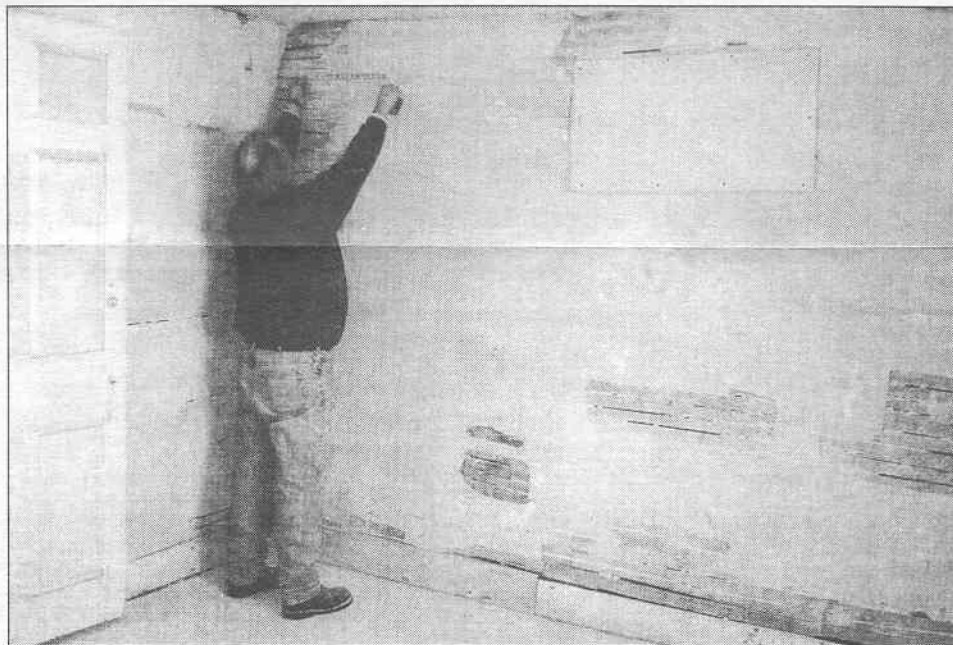
In warmer weather ahead Trustees and other volunteers will install new roofing on the portecochere entry at the front of the building. Replacing one of our old heating furnaces with a more efficient system in 2001 saved a great deal of fuel oil during the past unusually severe winter, in the face of skyrocketing oil prices. Others who use the Historical Society building have commented how well the building looks. We don't need a brass plaque to state the obvious: "In 2002 and 2003, a lot has happened here."

Windham Foundation Grant Will Help Finance Museum Storage Room Improvements

The Windham Foundation of Grafton, Vermont has awarded the Society a \$2500 grant for its Museum Storage Project. The grant will be used for repair of plaster walls and ceilings, new wiring, painting and repair of windows in the second floor Storage Rooms of the historic Adams house.

A grant \$4,870 from the National Endowment for the Humanities (NEH), announced in August, will be combined with a \$1000 grant from the Vermont Museum and Galley Alliance (VMGA) to build storage shelving, racks and bins for housing the Society's extensive collection of clothing, textiles, paintings, furniture, photographs, and decorative objects related to Middletown Springs history. Work on the project began in January and will be completed by early Summer.

Other funding for the \$15,000 project will come



Emmett Francois

from the Museum Fund, which includes a 1996 donation from Hazel Grover, and from the Annual Campaign announced in December 2002. Donations to the Annual Fund have totaled nearly \$2000 as of the first of April.

moved to a brick woolen mill building on the north side of the Poultney River at the South St. bridge, where it continued to expand until the early 20th Century. In 1866 A.Y. joined the firm, now known as A.W. Gray and Sons. A.W. Gray retired from the company in 1875, after he and his sons developed the mineral spring—which he had rediscovered on his land in 1868—and established another company to bottle the spring water and to build and operate the Montvert Hotel for the next ten years.

Leonidas and A.Y. continued the family tradition of inventiveness. They expanded the factory with the construction of twelve additions and ten storage sheds over the next four decades and gradually increased the work force to as many as 100 men. They expanded the line of products to include machines for sawing wood, chopping fodder, and filling silos, all powered by the horse power treadmill or by the gasoline “one lung” engine, made in the Gray Foundry in Poultney, which they began selling around 1905. They purchased steam engines to run the factory machinery, which now included circular saws, planers and other “automatic machines.”

In 1881 they also patented improvements to the threshing machine which had been the second product developed by their father, after the treadmill. Once again, we do not know where the original design for their thresher came from, but mechanical devices for separating the grain from the straw had been developing for more than a century, beginning with hand cranked machines made in Europe, improving over the ancient threshing method of flailing the harvested plant to remove the grain and throwing the grain into the air to winnow out the chaff and dust.

The Gray's thresher was of the “peg drum and concave” type, first patented in 1822 in the U.S. by A. Savage, which had proved easier to use and cheaper to build than the English style machines that rubbed the grain off the straw, or Scottish style mechanisms which “scratched” or beat the grain off the ears. A revolving wooden drum or cylinder covered with steel pegs meshed with comb-like concave stationary

parts to efficiently remove the grain and send the straw through the mechanism without destroying the straw, a useful byproduct used for bedding animals and mulching crops.

Leonidas and A.Y. received their 1881 patent for a threshing machine cylinder made from steel plate surrounding an inner wooden cylinder. Dozens of steel pegs were mounted on the outside of the steel cylinder extending through the inner wooden cylinder where they were held in place by threaded nuts. These pegs were easily replaced if damaged, using the Gray's patented ratchet wrench which came with the thresher.

The Grays' inventive and business genius propelled their enterprises to extraordinary heights for an out of the way Vermont farming town and put Middletown Springs on the map for better than fifty years. The decline was inevitable, however. The Montvert resort, which the Grays' hotel company had sold in 1880 to a New York City hotelier, could not compete with resorts with many more amenities in more favorable locations and closed in 1905. The horse treadmill gave way to the steam and gasoline engines, manufactured by the emerging giants of the agricultural machinery world, such as John Deere, J.I. Case, and McCormick-Deering and many more. Small manufacturers like the Grays could not compete, even with gas engines of their own. In 1917 the Gray Sons company was dissolved. It was the end of the manufacturing era in Middletown Springs.

*Thanks for his patent research to Paul Wood, who will display and interpret a Gray's Sons ratchet wrench as part of his exhibit on Vermont inventors at Vermont History Expo 2003 in June. Other sources for this article include the **Book of Biographies for Rutland County, 1899**; the article “Green Mountain Horsepower” by Frank Rogers, *Vermont Life Magazine*, Winter 1953-54; A. W. Gray's Sons catalogues for 1883 and 1905-06; and **The Grain Harvesters** by Graeme Quick and Wesley Buchele, *The American Society of Agricultural Engineers*, 1978.*

New Board Members

At the Annual Meeting of the Middletown Springs Historical Society on September 22, 2002, the following members of the Board of Trustees were elected:

Stuart Edge-Gerrol
Kathy Feeley
Dick Hanson
Julie Scott
Sharen Underwood

They join Emmett Francois, Bud Krouse, Joel Pliner, Nora Rubinstein, Marilyn Trapeni and David Wright. At their October meeting Trustees voted to appoint Tony Torcasio to the Board.

After a delicious pot luck supper and brief business meeting, David Wright presented a slide lecture on Vermont Mineral Spring Resorts with particular emphasis on the Montvert in Middletown Springs.

Welcome! New Members

ANNUAL MEMBERS

Antonio & Laura Torcasio
Stuart & Lisa Edge-Gerrol, *Poultney*
Kathy & Pat Feeley
Karen Gutmann
Julie & Don Scott

Membership Information

Membership dues for 2003 were due in January.
Check your mailing label for current status.

Dues (Check one):

Individual	\$8.00	Contributing	\$25.00
Family	\$12.00	Individual Life	\$125.00
Business	\$50.00	Family Life	\$150.00

Send to: Joel Pliner, *Treasurer*
Middletown Springs Historical Society
P.O. Box 1126
Middletown Springs, VT 05757

- Frisbie's *History of Middletown* CD-ROM \$20, post paid.
- Lampshades featuring 12 historic postcard views of Middletown Springs, \$48, plus shipping.
- *Historic Architecture of Middletown Springs* pamphlet, \$3, post paid.
- *Views Through Time: Driving through the Rutland Region* brochure, \$2.50, post paid.
- *A Gem in the Hills*, by Frances Krouse, \$25.00, post paid.

Donations to MSHS, a 501 (c) (3) non-profit organization, are tax deductible.

www.members.tripod.com/MiddletownSpringsHS

Business Members

Thanks to local businesses that have joined MSHS under our "Business" membership category:

Archideck—Sarah Grimm
Estelle Ellis—Business Image, Inc.
William Emberley—Antique Bottles & Collectibles
Green Mountain Timber Frames — Dan McKeen
LaValley Building Supply
Jim Marquis—Antiques Appraiser
Southview Arts—Digital Recording Studio
Stewarts Dairy
Williams Hardware, Poultney—Bob Williams

The MSHS Newsletter is published as many as four times a year for members and friends of the Society. Comments and manuscripts on subjects of interest are encouraged and should be sent c/o David Wright, editor.

Middletown Springs Historical Society
P.O. Box 1126
Middletown Springs, VT 05757

Return Service Requested

In Memoriam

RONALD BROWN, 78, died January 3 in Boston, Mass. He was born in Rochester, Vt. and educated in local schools. He was married in 1951 to Shirley McLaughlin of Middletown Springs. They resided in Melrose, Mass. for many years.

Mr. Brown retired from a position as production supervisor with the Barry Wright Corporation in Watertown Mass., an aerospace data recording division of Applied Power, Inc. of Wisconsin. He is credited with several inventions for his employers. He had worked previously for an engineering company and as the supervisor of a machine shop.

Survivors include his wife of Rutland; and three brothers: Gerald of Ridgefield, Conn., Dennis of Poultney, and Andrew of Fair Haven. His brother, Leonard and sisters Florence Colvin and Juanita Mullins died previously.

Mr. and Mrs. Brown have been members of the Historical Society for many years.

2003 EVENTS

Sunday, May 25	3 p.m.	Memorial Day Parade
June 21-22		Vermont History Expo 2003 Tunbridge, Vt., Fairgrounds
Sunday, June 29	2 p.m.	Strawberry Festival
Sunday, Sept. 21	6 p.m.	Annual Meeting
Sunday, Oct. 5	1 - 4 p.m.	Apple Festival

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Middletown Springs, VT