INVENTIONS

COBOURG & AREA - THE INVENTIVE MIND

Necessity has always been the mother of invention as they say, and it was no different locally. With industrialization taking over, during the mid 1800s this part of Northumberland County was home to at least six inventors, their inventions and a dozen patents. E. C. Guillet, author of *Cobourg, 1798 - 1848*, wrote,

> *We are not well informed of how useful these mechanical inventions of Messrs Ruttan et al proved to be, but they showed that Cobourg's early citizens were not deficient in mechanical ability.*

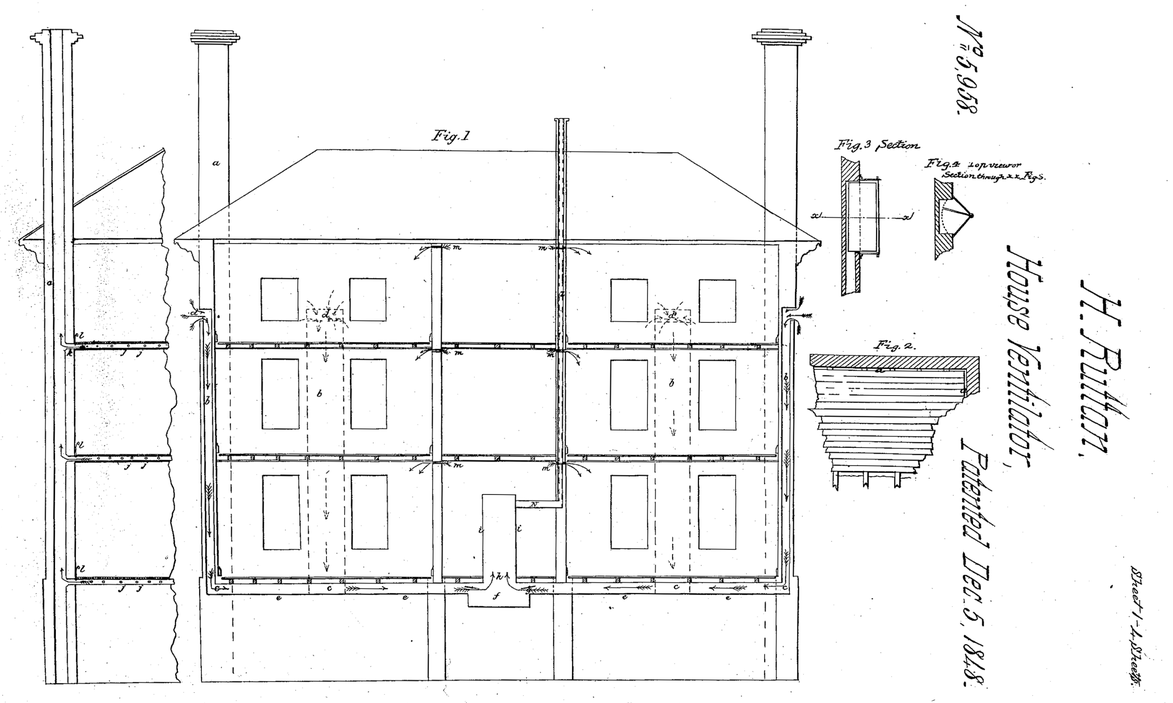
HENRY RUTTAN

HOT & COLD AIR GENERATOR
ADAPTATION FOR HEATING & COOLING OF RAILWAY CARS

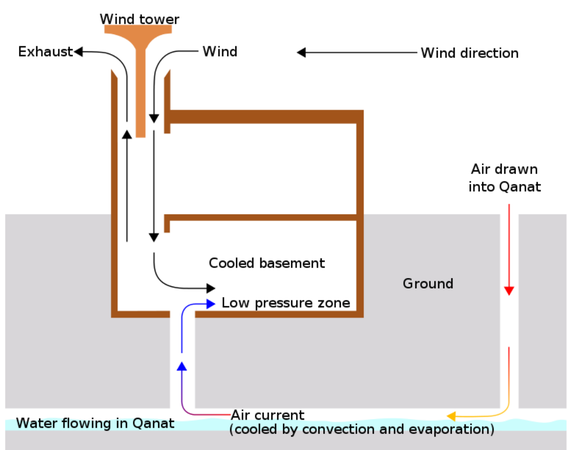
The best known of our inventors was Henry Ruttan who was born of United Empire Loyalist stock in Adolphustown, Ontario, now Greater Napanee. He left school at age 14 and worked in a store in nearby Kingston. Ruttan served in the militia during the War of 1812-14, and moved to Cobourg in 1815, setting up in business here. He was ambitious, as inventors often are, and was elected to the Legislative Assembly for Upper Canada as the representative for Northumberland County.

His first inventions and patents were for **more efficient heating and cooling systems for buildings**. *The Legislative Assembly of Ontario Volume for 1854*, records his inventions thus: "*Called a centre combustion and detached fire chamber for the admission of cold air*" (January 27, 1847), " and "*For admitting air under the floor*"(January 31, 1851).

Ruttan was ahead of his time when he demonstrated that you could create superior air flow in homes while at the same time using fuels more efficiently. The premise was that you drew fresh air into the home or larger building through a duct. The air then passed through a convection-type heater into any number of rooms before it flowed back out through a foul air exit duct to the outside. **This process is not unlike popular air exchange systems today.**



Henry Ruttan's second invention was an adaptation of the first and was **successfully used in railway coaches throughout North America**. *The Dictionary Of Canadian Biographies* describes this patent as "*Outside air is forced through ducts into the cars by means of the train's motion, passed through a wash tank which cleaned, humidified and cooled it. In the winter the system was modified to heat the air entering the cars.*"



The air flow concept was not new, being used in early Egypt where reeds were hung in windows and moistened with trickling water. Evaporation of the water cooled the air blowing through the window. Ancient Rome utilized aqueducts to circulate air through homes, while the **Persians created cisterns and wind towers to cool buildings in the hot season**. Nevertheless, **Ruttan was a pioneer in this field** and would develop 7 patents on the subject between 1848 and 1858.

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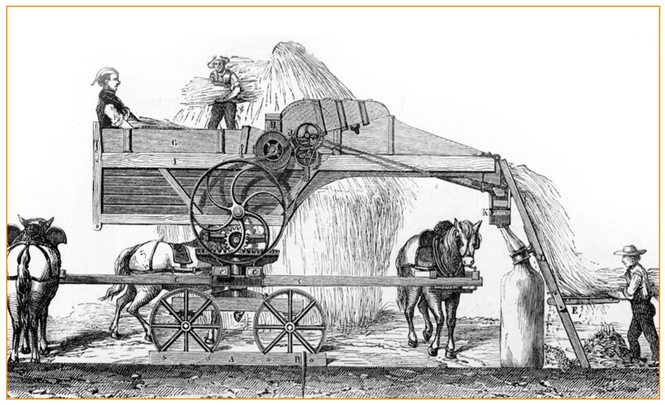
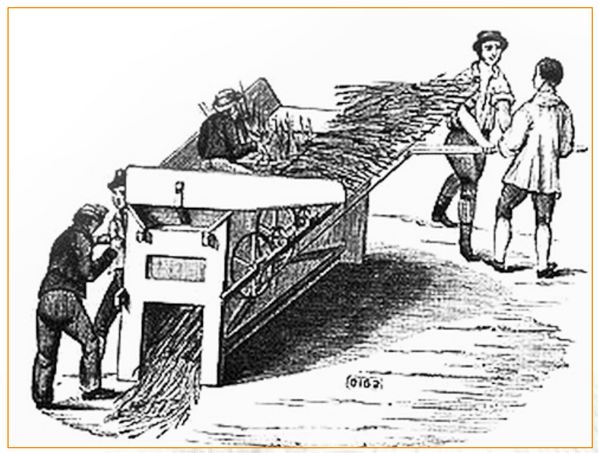
JOHN W. CLEGHORNE

THRESHING MACHINE



John W. Cleghorne, a Cobourg innkeeper, was granted a patent for a threshing machine in 1831. The invention was one of many attempts at about that time to **increase the capacity and speed of separating grain** from the plant.

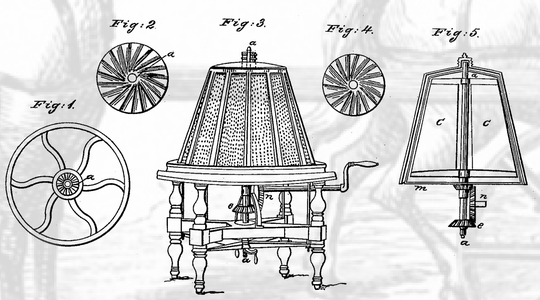
Change came slowly in the 1800s as shown in a case, also in 1831, where agricultural workers in the Elham Valley, east of Kent in the United Kingdom **destroyed early horse-powered threshing machines**. They feared the loss of income because tenant farmers progressively lowered wages as new cost-saving machinery was invented and introduced. The disquiet spread across all of England over time, but eventually progress could not be stopped.



Cleghorne's primitive model used a frame of any size in proportion to the task with cylinders placed on the surface and **beaters, spikes or teeth made of either iron or wood** laid down on these cylinders. The cylinder would revolve while the grain to be threshed was positioned on an incline plane or table and conducted to the cylinder by hand or between fluted, nicked or smooth rollers. In front of the cylinder was placed a revolving rake to carry off the straw as necessary. Below the cylinder was a shaking sieve with a screen. Under this was a box to receive the residue and a wind wheel to winnow the chaff.

WILLIAM WHITE

WHEAT SMUT MACHINE



Smut Machine invented in 1841 by W. B. Palmer

In 1837 the White family, who were Cobourg millers, received a patent for the invention of a ***"new and useful machine for removing smut from wheat"***. Also known as Common Bunt, this disease infected and stunted wheat plants.

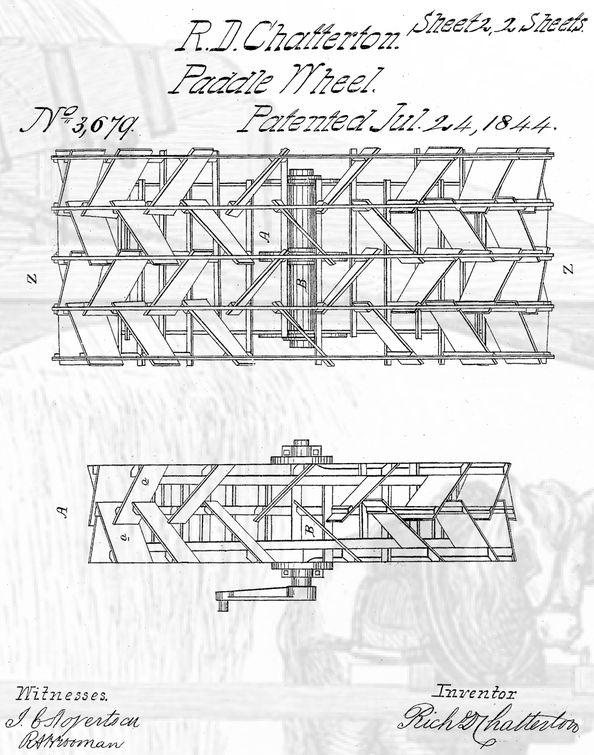
As recorded in Guillet's history of Cobourg, William White described the machine as

> *A wooden cylinder, the exterior of which is composed of a cast iron hoop, placed in the centre of the length of the cylinder, which hoop contains a groove on each edge to receive a certain number of wrought iron rods. The wheat by the rotation of the spiral cone, is projected against upright iron rods forming the exterior of the cylinder, leaving the clean wheat to pass off through an aperture at the bottom of the cylinder.*

Many other patents were issued to rid wheat of smut. Some forty years after the White invention, James S. Templeton of Chicago Illinois was granted a US patent for a quite different process. In his invention, **wheat was wet with a gasolene spray and then dried naturally**. The process did not damage the wheat, but the time needed to completely dry the wheat and remove the odour and stickiness lessened its effectiveness. The procedure did, however, leave the wheat brightened in colour.

RICHARD DOVER CHATTERTON

(1831- 1879)
ADAPTATION FOR PADDLE-WHEELERS



Paddle-wheelers plied the Great Lakes in the 1800s and a Cobourg inventor, R. D. Chatterton, attempted to **improve on the speed and smoothness of the wheel of these steam vessels**. Chatterton, who was the first editor of the *Cobourg Star*, was granted a patent in 1844. His paddle wheel improvement was described as having a superior positioning of the floats and buckets on the common paddle wheel's shaft and three rows of arms. These floats and buckets were divided into two longer halves and fastened obliquely to each alternate arm. In this manner, they covered each other and **produced a more continuous and even pressure,** which in turn **reduced the swell** caused by previous paddle wheels.

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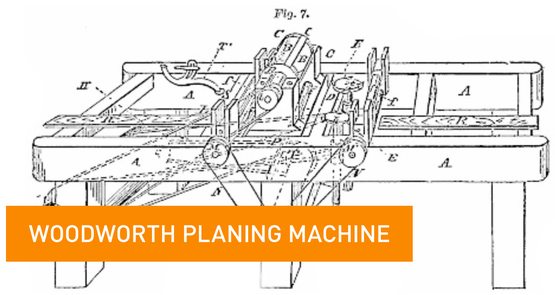
ZEBEDIAH SISSON

IMPROVED PLANING MACHINE



WOODWORTH PLANING MACHINE

Zebediah Sisson was a Cobourg carpenter who received a patent in 1832 for **a machine to plane and groove floors**. Early attempts had been made in Europe and the United States. The first planing machine for wood was invented in 1779 by Samuel Bentham, later Inspector General of the Naval Works of London. His invention was developed while on a research trip in Russia but was first patented in England in 1791.

In 1828 in the United States, a **William Woodworth** invented what was described then **as the most successful planing machine to date**. It consisted of a rotary cylinder on which were fastened cutter blades placed above or laterally to a rack and pinion platform or carriage on which the board to be planed was placed. The **cylinder revolved opposite to the movement of the board** with the cutter blades bearing down on the upper surface.

Over the years various adaptations, including Sissons', were introduced and patented. In 1835 in France, M. Roquin and M. Manneville sought a patent for a planing, grooving, tonguing and moulding machine.

JOHN HELM

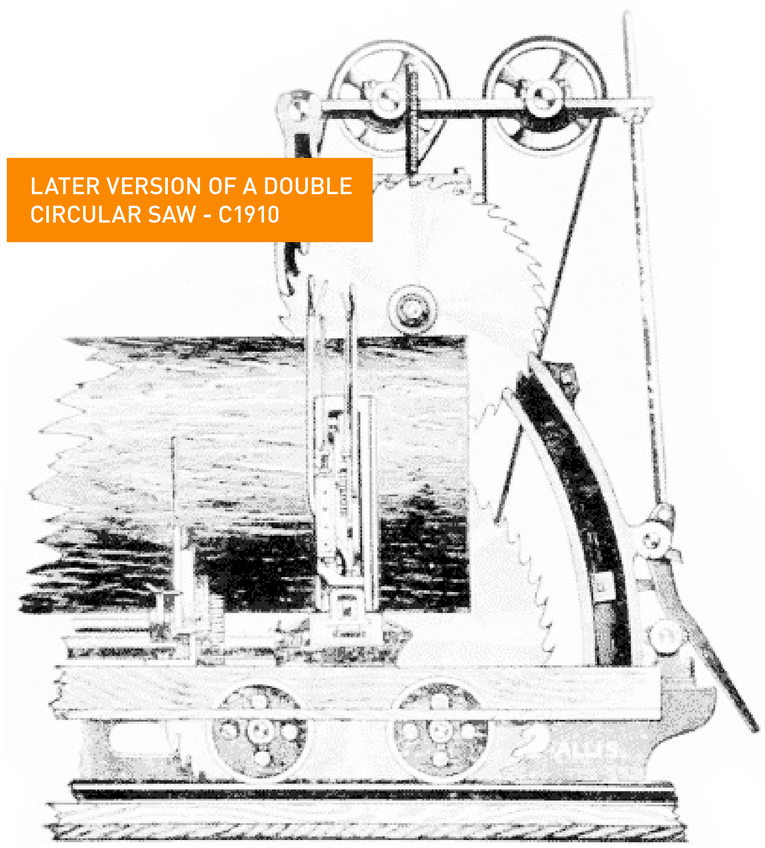
IMPROVEMENTS IN THE USE OF CIRCULAR SAWS

John Helm was **owner of the foundry where James Crossen began his training** as a teenager. Helm invented **improvements in circular saw bases** for the manufacture of lumber in mills. The circular saw was a recent invention, probably from the late eighteenth century.

In 1848 Helm described three improvements, **firstly** in altering and regulating the feed of lumber by the use of a winch, pinion and rake, **secondly** by dogging the log or fastening it upon the blocks of the carriage and **thirdly**, in setting logs so that they could be gauged for width or thickness of the manufactured board.

Patents of Canada records Helm's improvements as,

> *Each level end had a mitred wheel corresponding and working into one another on the screw that moves the upright standard, which rod runs lengthwise of the carriage and is worked by means of a crank or hand wheel. One of the mitred wheels is loose from the rod when the pinching screws are detached, and moveable at pleasure enabling the block to be moved to answer for various lengths of logs.*



LATER VERSION OF A DOUBLE CIRCULAR SAW - C1910

The following listing is found in the *1851 Canadian Directory for Professional & Business Men:*

- *Yerington, Albert, Victoria foundry, College St. - manufactures, steam engines, grist and saw mill irons, Helm's patent circular saw mills, and Ruttan's patent Canadian ventilator.*

Edwin Guillet was unsure regarding the ultimate usefulness of these inventions However, another author looked beyond their immediate and practical uses and wondered whether **they showed an attitude which encouraged others to come to our town**. In *Canada's First Bank*, Merrill Denison writes:

> *The Bank of Montreal came to Cobourg in 1840, attracted possibly by the resourcefulness of its inhabitants who had received several patents during the 1830s for inventions in the fields of transportation, carpentry and agriculture.*

It takes us all to make a town great.

References:

Dictionary of Canadian Biographies, Volume X, 1871 - 1880, University of Toronto, University Laval, 1972-2015; Guillet, E.C., Cobourg, 1798 - 1948, Goodfellow Publishing Company Limited, Oshawa, 1948; Napanee Beaver Files, June 28, 1901; Wikipedia 2015, "Air Conditioning" and "Swing Riots of 1831"; Legislative Assembly of Upper Canada, Vol. 13, Issue 10, Appendix 1.1, 1854; Patents of Canada from 1824 to 1849, page 309, No. 130 and page 522, No. 242, London, Forgotten Books, printed 1860 and reprinted in 2013; Shanks, G. L., Archives & Special Collections, University of Manitoba, 1922; E.N. Bates, 1879, "Attempts to remove smut by washing grain", Oregon, USA, 1929; Massachusetts Agricultural Repository & Journal, Vol. 5-6, 1819; Appleton, D., Appleton's Dictionary of Machines, Mechanics, Engine Works, Vol. 2, New York, 1866; Early History of Wood-Working Machines, (author unknown),

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