TINKER

Inventors & Inventions from Dufferin County

Orange Jull's Rotary Snow Plough, MoD Collection, P-0259

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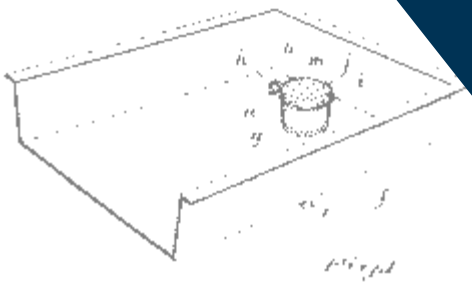
Who is an Inventor?

An inventor is the first person to create a new item or a different way of doing something.

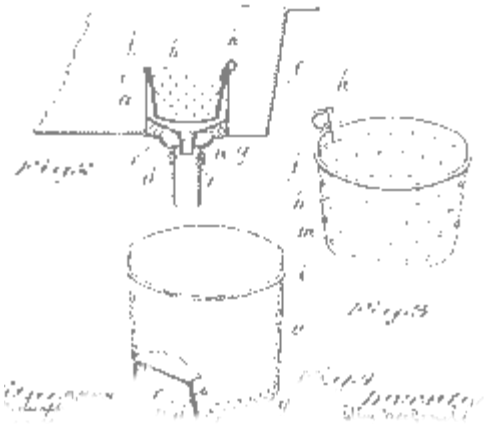
Inventors are highly creative thinkers who try to look for ways to solve problems and improve on other ideas to develop a useful item that fills a need.



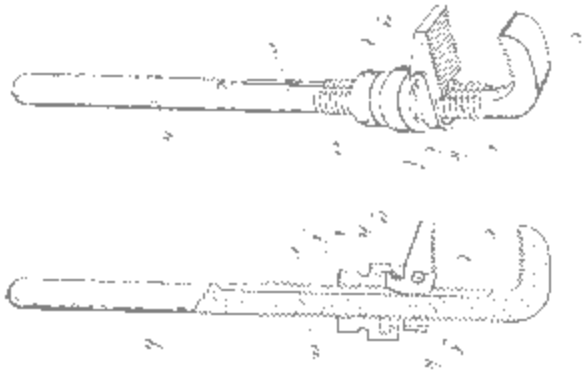
What is an Invention?

An invention is a new or improved device, method or process (way of doing something) that did not exist before.

Some inventions have changed the way entire nations of people live.



Sink Strainer, Ellen MacDonald, Orangeville, Patent # US862570, 1907



Pipe Wrench, George Nicholson, Orangeville, Patent # US857825, 1907

The future belongs
to the curious.
The ones who are not afraid
to try it, explore it,
poke at it, question it,
and turn it inside out.

What is a Patent?

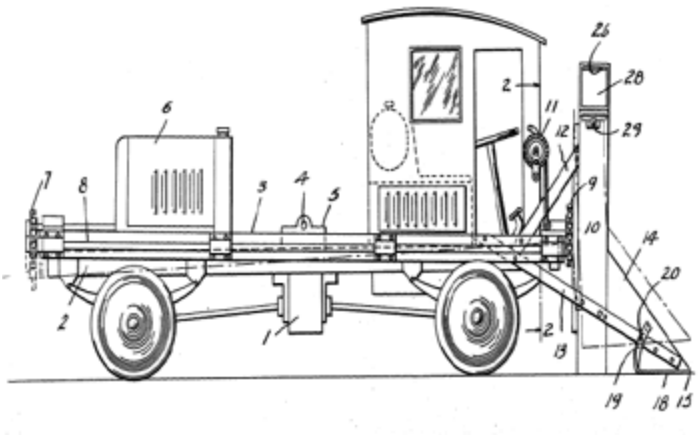
A patent officially registers an invention as the property of the inventor. A patent is granted by a federal office. In Canada, patents are reviewed and granted by the Canadian Intellectual Property Office. A patent application includes a description, claims and drawings (diagrams). The inventor's application must explain the purpose and usefulness of their invention. If it is not an original invention, it must demonstrate how it has improved upon an earlier invention.

A patent could be made useless if someone else comes up with a more advanced or superior invention.

Why is a Patent Important?

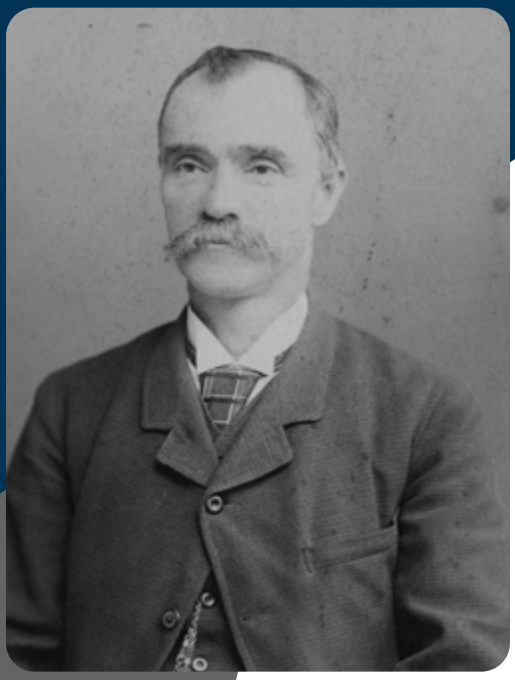
A patent gives an inventor exclusive rights to their invention and is intended to prevent others from making, using, and selling the invention for a period of time.

A patent is no guarantee of success. If you have ever watched television shows like *Dragon's Den* or *Shark Tank*, you know that not all ideas are successful at getting financial support, manufacturing contracts or sales.



From design, creation, and testing to use in the everyday world — Arthur Sicard's Snowblower (Snow Removing Apparatus), invented in 1925 in Montreal. Pictured right is the improved machine in use on the streets of Montreal in 1927. It is hailed as one of Canada's greatest inventions and made Arthur Sicard a household name because it significantly improved our ability to travel during the winter months.

Orange Jull - Inventor Extraordinare



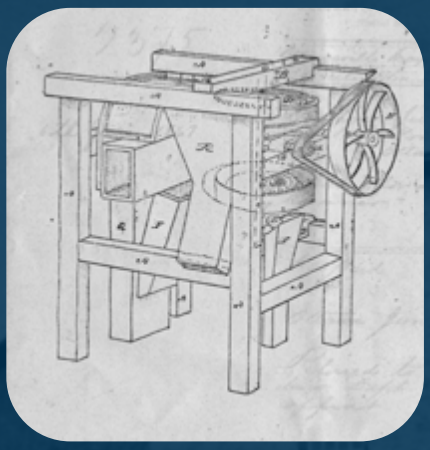
Orange Jull, ca. 1885
MoD Collection,
P-0008

Orange Jull (1845-1920) was the son of Thomas and Mary (Lawrence) Jull. He was born in Halton County and raised in Orangeville. As an entrepreneur, he was involved in many areas of community-life, and became a well-known citizen.

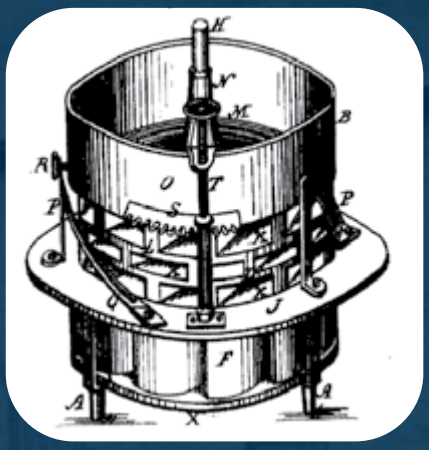
As a mill owner, Jull was interested in improvements to machines that would help make his mill more efficient. If he could improve his milling equipment, he could process wheat faster, produce a better product for his customers, cut costs and make more money. With these goals in mind, he invented and patented a grain cleaner, a paddle wheel and a turbine water wheel.

The remains of Jull's stone mill (shown below) are still visible on Mill Street in Orangeville.

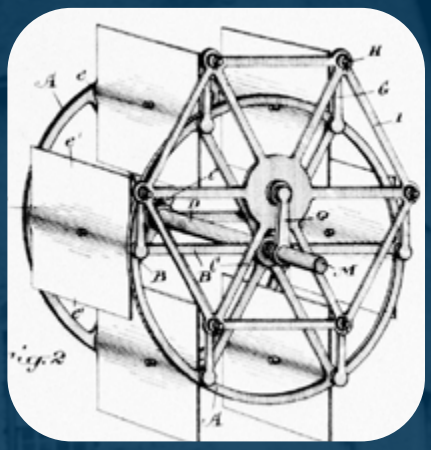
Jull's big claim to fame was his invention of the Rotary Snow Plough (see next page). It was physically the largest and most famous invention to ever come out of Dufferin County.



Orange Jull's Grain Cleaner,
Patent #559 (Unregistered)
1867



Orange Jull's Turbine Water Wheel,
Patent #69920
1889



Orange Jull's Paddle Wheel,
Patent #69920
1899

Jull's Mill, Mill Street, Orangeville, ca. 1870, MoD collection, P-0268

Patent Drawing Sources: Museum of Dufferin Collection, AR-0657-992, and The Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

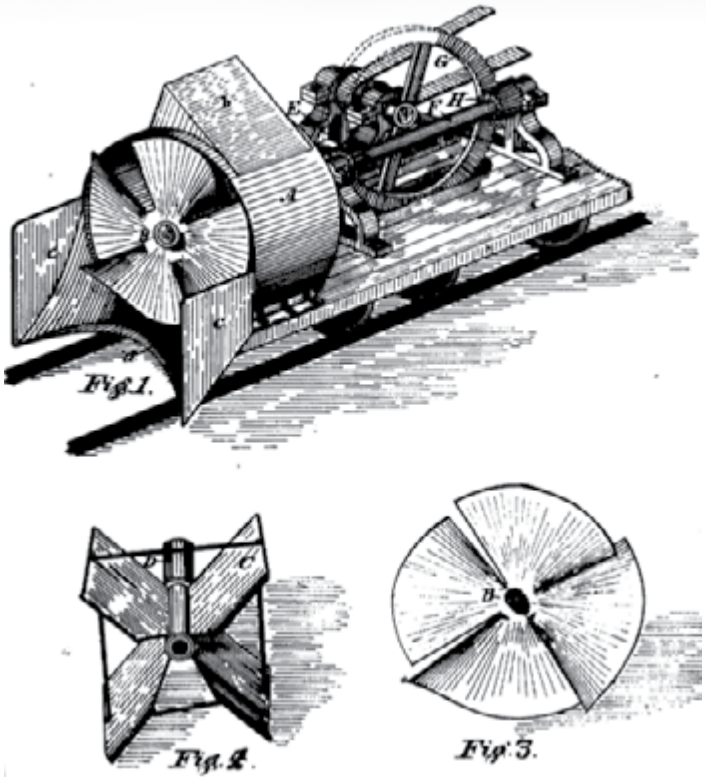
Orange Jull's Rotary Snow Plough

Patent #18506, 1884

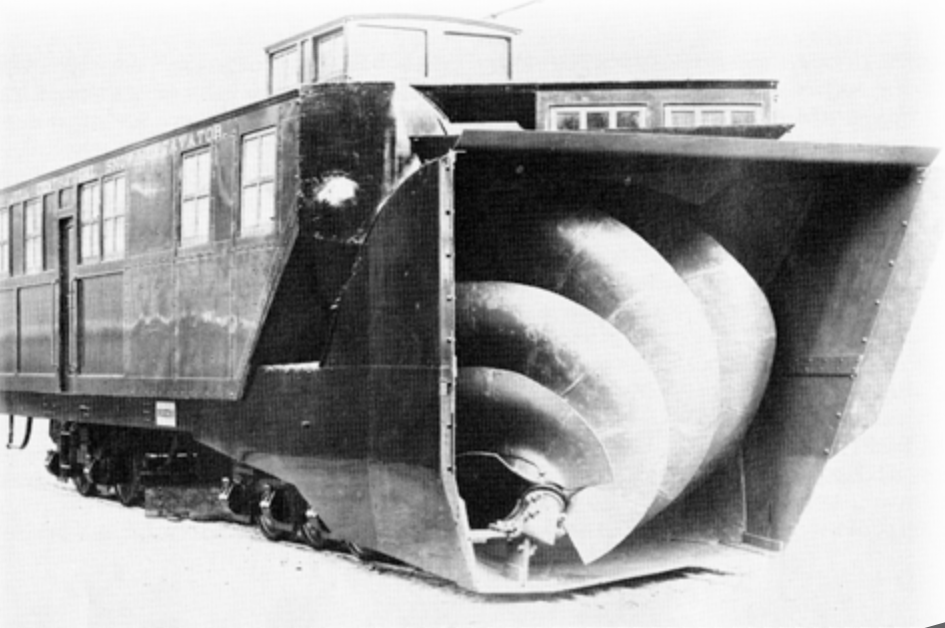
The rotary snow plough was designed to remove snow from railway tracks quickly and efficiently. Once built, the plough was tested and altered several times. Manufacturing rights were sold (about 1888) to brothers Edward and John Leslie, also of Orangeville, who continued to adapt the machine. By 1911, these ploughs were being used across Canada and the United States.

On March 11, 1889, the Jull Snow Excavator cleared 720 feet (220 metres) of track covered in 7 feet (2.1 metres) of snow in seven minutes. That's 7,200 cubic feet (204 cubic metres) per minute.

Jull attempted to make improvements to the plough by adding a spiral auger (shown below). It was built and tested, but was not as successful as the first version.



Patent Drawings: Orange Jull's Rotary Snow Plough, Patent #18506, 1884. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/



Left: The Jull Centrifugal Snow Excavator shown with spiral auger (cupola), patented in 1889, patent #31679.

Source: *Train Magazine* (Alco Historic Photos), MoD Collection, AR-0657-990.

Farm and Mill Inventions

Before the 1850s, nearly all farm machinery was manually operated by people or horse-power. As farming in Canada expanded, especially with settlement in the Western Provinces of Saskatchewan and Alberta, inventors sought to create the next best tool or machine to aid farmers with their work. Many of these inventors were farmers and millwrights whose ideas came from a desire to make their work faster and easier (less labour-intensive).

Many farmers came up with their own "homemade" inventions or improvements to their machinery that would help them with their work. Some creators, believing that they had the "latest and greatest thing", applied to patent their invention(s) and sought out manufacturers and dealers to make and sell their device(s).

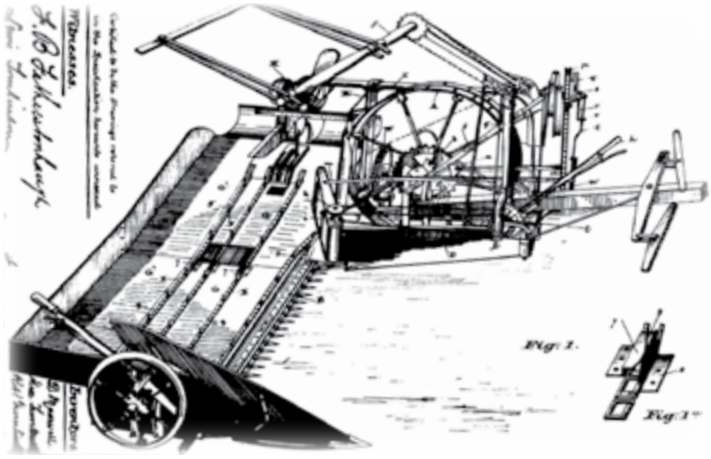
It was difficult to make a living off these inventions, mainly because farming technology was evolving so quickly. One invention was quite often made obsolete by another within a short period of time.

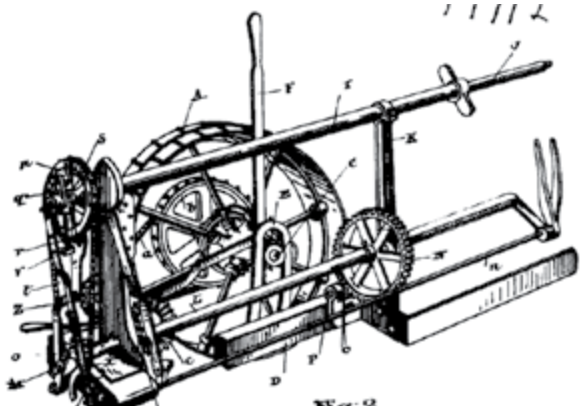
Farmers were sometimes slow to adopt mechanized farm equipment because initially it wasn't good enough or was too expensive to justify the switch from horse-powered tools. The invention of the traction engine used in tractors was being perfected in the 1860s. Inventors continued to experiment with tractors and other engine-driven equipment into the early 1900s. By the 1910s, farmers were able to buy reliable and affordable gas-powered equipment. This led to a new era in farm machinery inventions and a boom in patents for new agricultural tools.

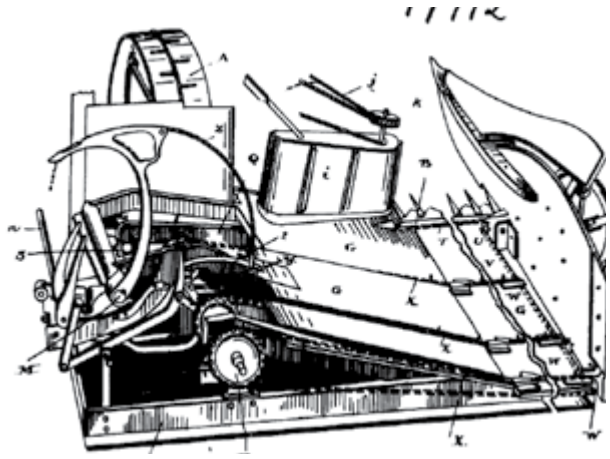
Harvey Ostrander riding on a self-binding reaper, ca. 1890. MoD Collection, P-3789-006

Canadian Harvester-Binder, Alexander and Robert Turnbull, Mono Township

Patent #17112, 1883.



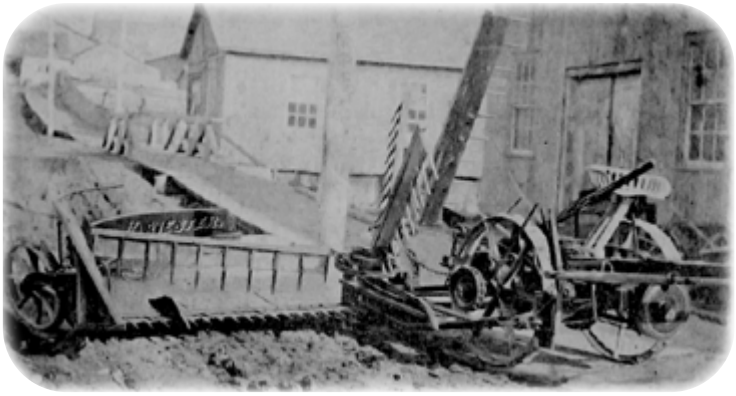




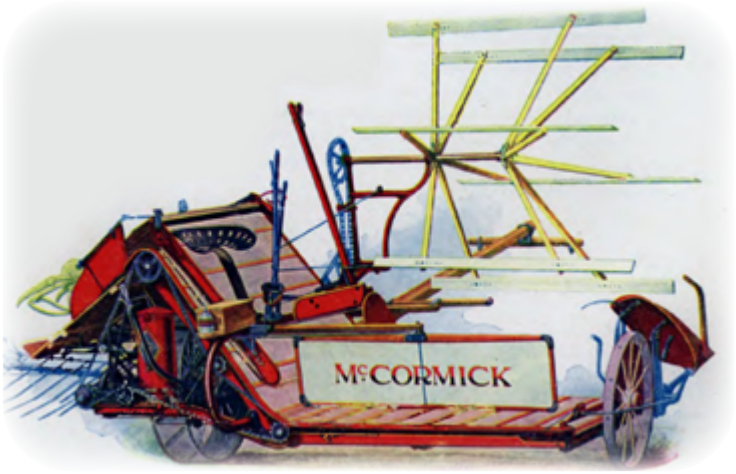
Patent Drawing: Alex and Robert Turnbull's Canadian Harvester-Binder, Patent #17112, 1883. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

A harvester-binder or reaper-binder was used to cut down grain and tie it into bundles called sheaves. This work was previously done by hand-held scythes. Alex and Robert Turnbull wanted to produce a machine that was lighter than previous models, making it easier to pull by horse or tractor. The machine was also extendable to allow for more grain to be collected in a single pass.

The Turnbull brothers were from Mono Township (now Town of Mono), Dufferin County. Their binder invention faced heavy competition, including locally from the McMaster Binder Company (McMaster Binder and Reaper Works) who produced their own version. Due to failing health, Alex decided to sell the rights to manufacture the machine to the McCormick Harvesting Machine Company (International Harvester Company) in Chicago, USA.



McMaster Reaper Machine, Orangeville, 1874.



McCormick's Harvester from their 1903 Catalogue.

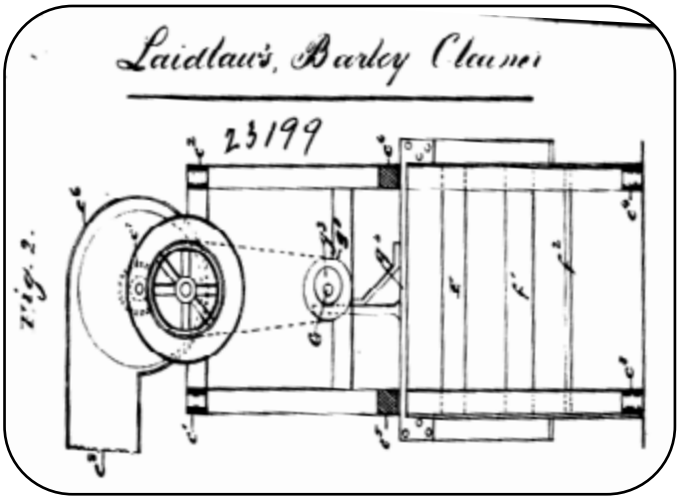
Alexander Laidlaw, Millwright, Mono Township

Alexander Laidlaw (1834-1917) was born and raised in Mono Centre. He was the son of Alexander and Margaret (Frame) Laidlaw, who were early settlers, arriving in Mono Centre in 1833 to establish a 200 acre homestead.

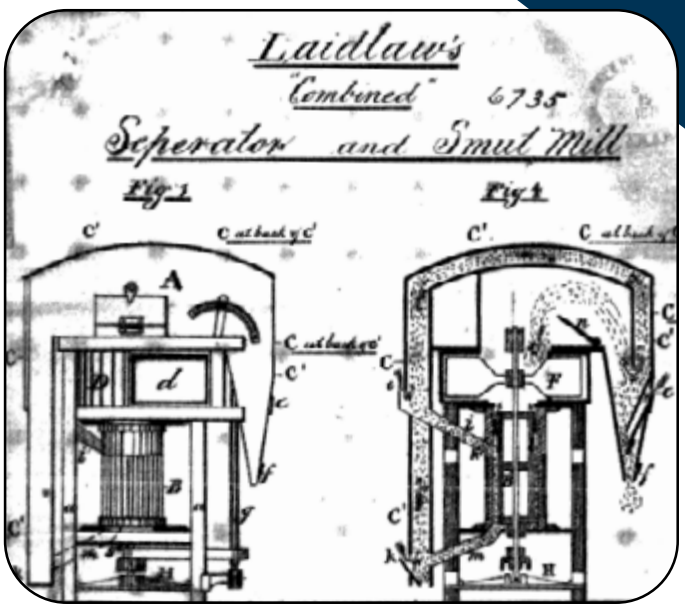
In 1860, Alex married Catherine McPherson. They lived in Mono Centre until around 1877, when they moved to Orillia, Simcoe County and then on to Toronto (West York).

Alex was a millwright, so his inventions were related to increasing mill efficiency and product quality. He acquired at least three patents for two machines – the first being his Combined Grain Separator and Smut Mill (pictured right), which was invented in Dufferin County.

Smut comes from the Germanic word for dirt. Smuts are a pathogen that attach to grains and form dark blemishes on grain seeds. If severe enough, they can destroy the crop.



Patent Drawing: Alex Laidlaw's Barley (Grain) Cleaner, Patent #23199, 1886. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/



Patent Drawing: Alex Laidlaw's Combined Separator & Smut Mill, Patent #6735, 1876. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

The purpose of this invention was to remove any debris from grain so that it is fit for grinding or milling. It would prevent crops from going to waste and improve the quality of the milled flour. It was designed so that only good grain would reach the end of the machine and empty into bags.

Machines like this already existed, but Alex believed he made significant improvements to make it more effective, especially by adding in mechanics to clean the wheat at the end.

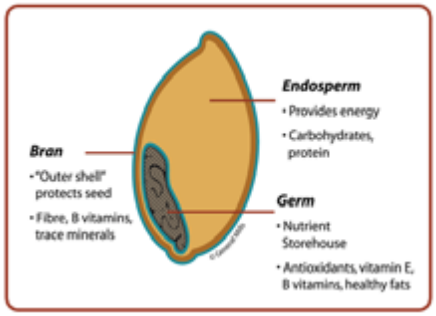
His next patent, issued in 1886, was for a Barley Cleaner (patent #23199), created in Toronto. He also patented this device in the United States in 1887 (US365,080) stating he was from Orillia.

Alex lived in Toronto until he passed away in 1917. He rests in Prospect Cemetery.

James Huxtable, Miller, Horning's Mills, Melancthon Township

James Huxtable (about 1845-1904) moved to Horning's Mills, Melancthon Township in 1877 when he purchased an old mill. The mill required significant repairs and upgrades. Huxtable invented improvements to at least three (two patented) machines to improve the quality of the flour produced in his mill – a middlings purifier, bolting machine, and rotary reckoner.

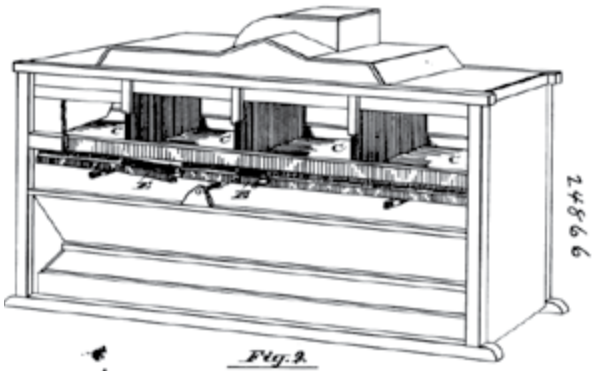
The middling purifier was first invented in France around 1860 and was widely adopted by millers. "Middlings" are a term used for roughly ground wheat that contains pieces to be removed, such as the wheat husks called "bran". After passing through the millstones the "meal" was fed into the middlings purifier which used sieves, air blasts and suction to remove the bran. Larger pieces would be left for further processing, often by a separate set of stones called "middling stones".



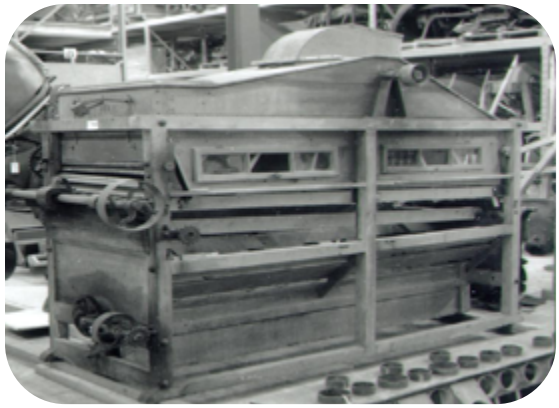
A bolting machine was used in the next stage of the milling process. The millstones could not grind all grains to the same size and texture, so a bolting machine was used to sift the flour through a series of screens. This would separate out large pieces, freshen and lighten up the flour and improve its baking qualities.

The Huxtable Rotary Ready Reckoner was invented around 1900, but does not seem to have been patented. It was a device used to calculate the amount of flour to be given in exchange for the wheat brought to the mill by the farmer.

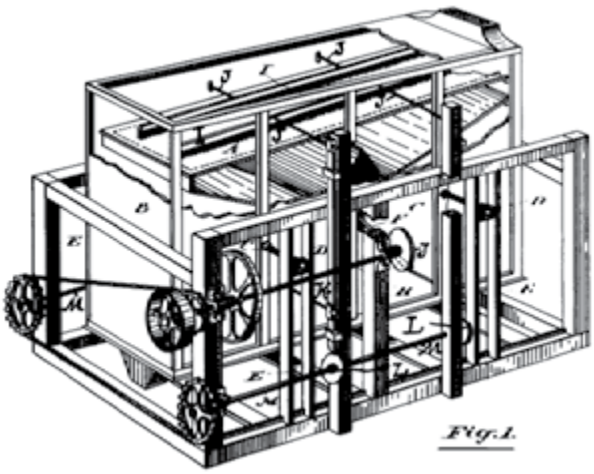
James Huxtable's mill was water powered by the Pine River. He envisioned the use of hydroelectric power to provide electricity to rural communities and farms in the late 1880s – an idea well ahead of its time. In 1908, four years after his passing, the Dufferin Light & Power Company became a reality thanks to his son Tom Russell Huxtable (1876-1959).



Patent Drawing: James Huxtable's Middlings Purifier, Patent #24866, 1886. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/



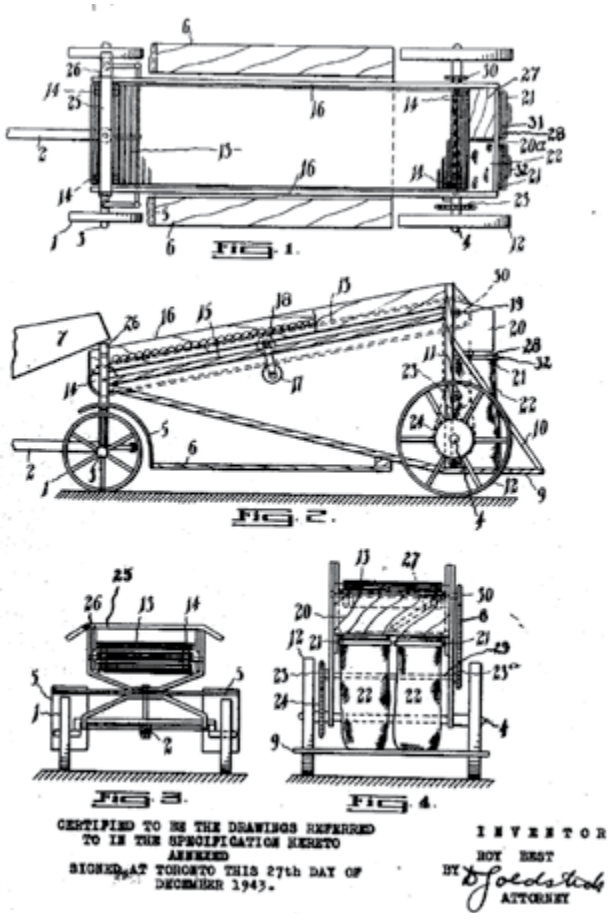
A middlings purifier bearing great resemblance to the patent drawing above. Manufactured in Toronto by W.M. & J.G. Greeny, ca. 1900. Ingenium: Canada's Museum of Science and Innovation, Artifact #1990.0010.001



Patent Drawing: James Huxtable's Bolting Machine, Patent #24866, 1886. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

Potato Harvester, Roy Best, Mulmur Township

Patent #421601, 1944



Patent Drawing: Potato Harvester, Patent #421601, 1944. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

Several versions of potato harvesters existed by the 1940s, but Roy Best had invented and tested an improved machine, for which he received a patent in 1944. He added an improved conveyor system to better remove dirt and debris, and a system for attaching bags to catch the potatoes.

The Best Potato Harvester in action. It is being pulled by a team of four heavy work horses. Roy believed his improved harvester could collect 50-100 bags more per day compared to other models.

Source: MoD Collection, P-2389J

Roy Best (1894-1969)

Ernest “Roy” Best was the only son of George and Mary J. Best (née Henderson) of Whitfield, Mulmur Township. He lived and farmed for most of his life in Whitfield until he retired in 1947. Upon his death in 1969, he was interred at Shelburne Cemetery.

Did you know?

Dufferin County grows more potatoes than any other vegetable, and approximately 17% of Ontario’s potatoes each year.

Safety Binder, Andrew Hughson, East Garafraxa Township

Patent #28374, 1888

Hughson's safety binder was created to save time and labour when securing a load of hay or straw on a wagon. Manufactured in Orangeville and sold through local implement dealers, the binder was designed as a unit to fit on top of a farmer's existing wagon. In days before baled hay and straw, binders prevented loads from falling off, especially when traveling along bumpy roads. According to ads placed in the Orangeville papers, the Hughson binders "have no rival" and "can always be relied on".

FARMERS, ATTENTION!

HUGHSON'S SAFETY BINDER

FOR BINDING LOADS ON A WAGON OR SLEIGH RACK

IN COMINATION WITH A STOCK RACK.

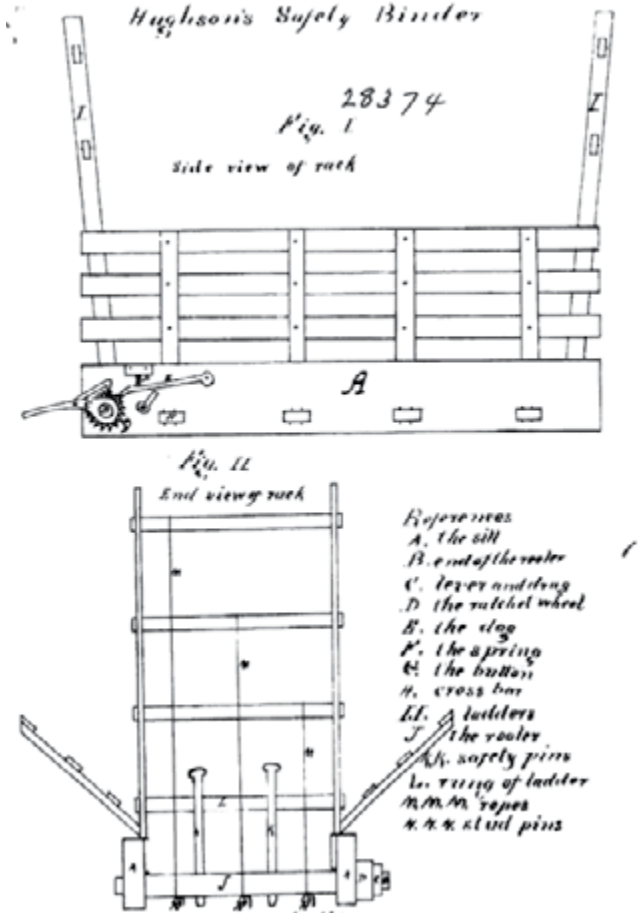
Hughson's Safety Binder Still to the Front!

Doing its work with unequalled ease and power. Hughson's Safety Binder, Canadian Patent No. 28374, is enormously powerful, has perfectly acting arrangements, will last a lifetime, can always be relied on, presure can be put on the load by the driver without help at any minute on the road or in the arvest field. Having sold the Township right for Caledon and Mono to James Bower, manufacturer, Orangeville, and made arrangements with him to manufacture my Improved Wagon or Sleigh Rack with the above Binder attachments. Farmers can depend on getting supplied at all times and at reasonable rates by applying to myself or at the factory of Mr. Bower Mill, Street, Orangeville. Township and County Rights for Sale on easy terms. For further particulars apply to

ANDREW HUGHSON.
(Farmer) sole Inventor and Patentee,
Orangeville P.O., On

Advertisement for the Hughson Safety Binder,

Source: Orangeville Sun Newspaper, January 2, 1896. MoD Archives.



Patent Drawing: Hughson's Safety Binder, Patent #28374, 1888. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

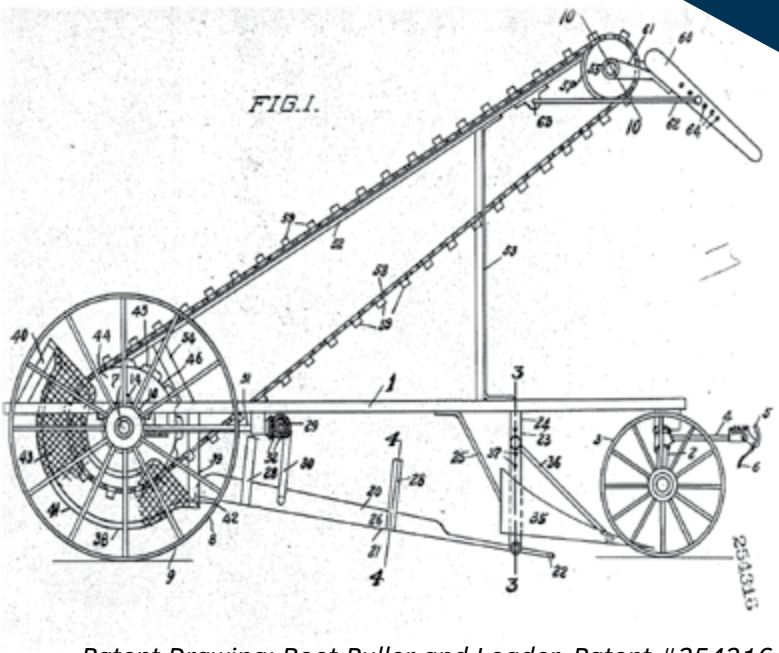
Andrew Hughson (1837 - 1910)

Andrew Hughson was born and lived his entire life in East Garafraxa Township, Dufferin County. His parents, Nelson and Susan (Frank) Hughson, were amongst the first settlers in the township. Andrew took up farming and had one of the finest farms in the township referred to by locals as "the model farm".

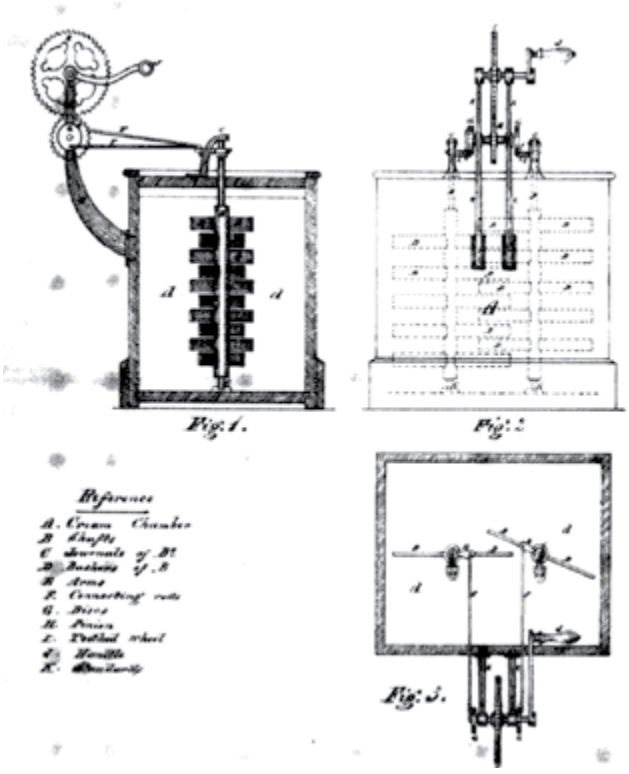
Combined Root Puller and Loader, Harold Leitch, Mulmur Township
Patent #254316, 1925

Harold “Harry” Leitch (1888-1973) was born and raised on a farm in Honeywood, Mulmur Township.

He successfully patented a root puller and loader machine for harvesting root crops such as turnips and beets. It added an improved belt and conveyor system to harvest crops with greater ease. Unfortunately, Leitch had great difficulty finding a manufacturer willing to produce his device. New technology quickly made his invention obsolete.



Patent Drawing: Root Puller and Loader, Patent #254316, 1925. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/



Patent Drawing: Double Dash Butter Churn, Patent # 268, 1870. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

The Double Dash Butter Churn, William Pearson, Mulmur Township
Patent #268, 1870

The double dash butter churn is one of the earliest patents awarded in Canada. Pearson's butter churn featured improvements designed to agitate and whisk cream more efficiently through the use of "dashers" or paddles operated by a crank handle. It was also designed to be easier to clean than previous models.

At the time of this invention, there were several people by the name of William Pearson living in Mulmur Township. The most likely to have been the inventor was William Pearson (1841-1908), a farmer, carpenter, and builder by trade.

Transportation

It is easy to take for granted the comfort, safety and speed of travel that vehicles of today offer. Whether it is travel by land, sea or sky, innovation in transportation has come a very long way since the invention of the wheel got things rolling – pun intended. What could possibly come next?

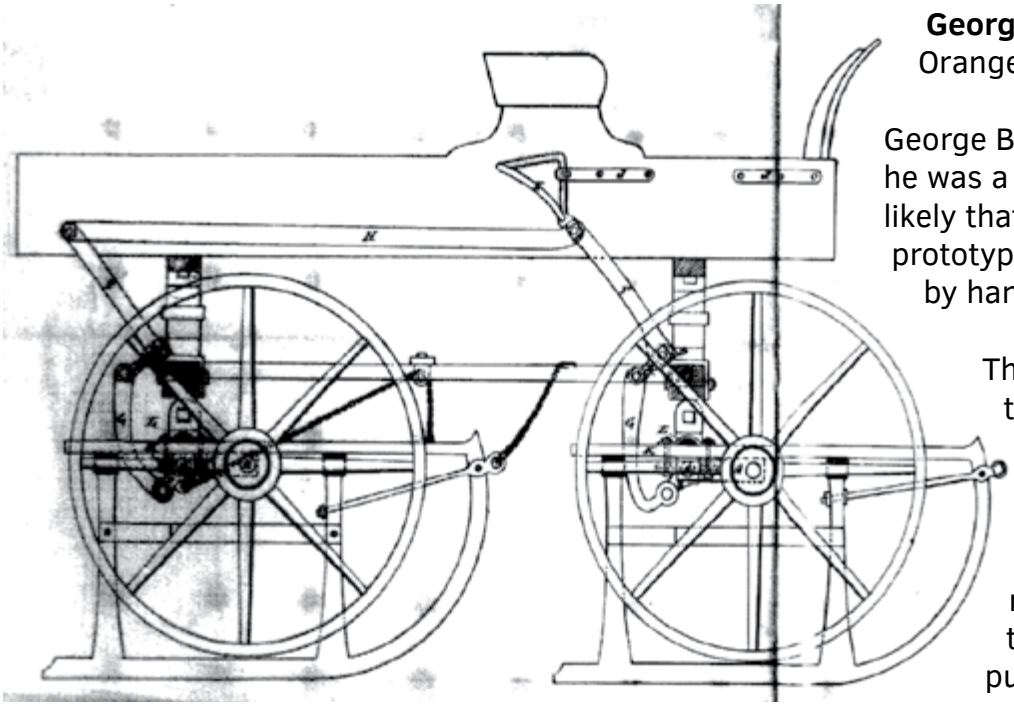
Canadians have always been particularly innovative when it comes to getting around in the winter and over difficult terrain. Inventions like Joseph Bombardier's snowmobile, Arthur Sicard's snow blower or the Jull-Leslie Rotary Snow Plough helped to keep people, goods, services, and communications moving year-round.

As previously explored, inventor Orange Jull patented and developed the Rotary Snow Plough (Excavator). Brothers Edward and John Leslie, also of Orangeville, purchased the rights to the machine and made several modifications that resulted in the machine being used on rail lines across Canada and the United States to clear snow drifts and avalanches.

Several other local inventors also had ease of transportation on their minds. They hoped to make it easier and more comfortable for people to get from point A to point B. Some local inventors even had solutions to help with vehicle servicing.

"Necessity is the mother of all invention."

Greek Philosopher Plato



George Bell's Combined Wagon-Sleigh, Orangeville, Patent #512, 1870

George Bell's patent application states that he was a blacksmith from Orangeville. It's likely that certain components for the first prototypes of his wagon-sleigh were made by hand at his forge.

This invention was meant to help travelers when road conditions were uncertain, especially in the Spring and Fall. A lever could be used to raise or lower the wheels or sleigh runners according to the road conditions. It was intended to save people the expense of purchasing multiple vehicles.

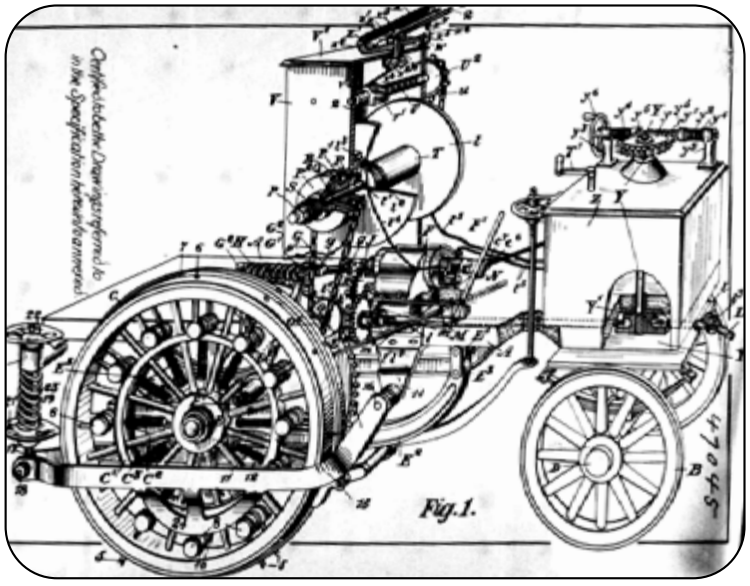
Patent Drawing: George Bell's Combined Wagon-Sleigh, Patent #512, 1870.
Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

Oliver William Ketchum (1849-1898), Orangeville

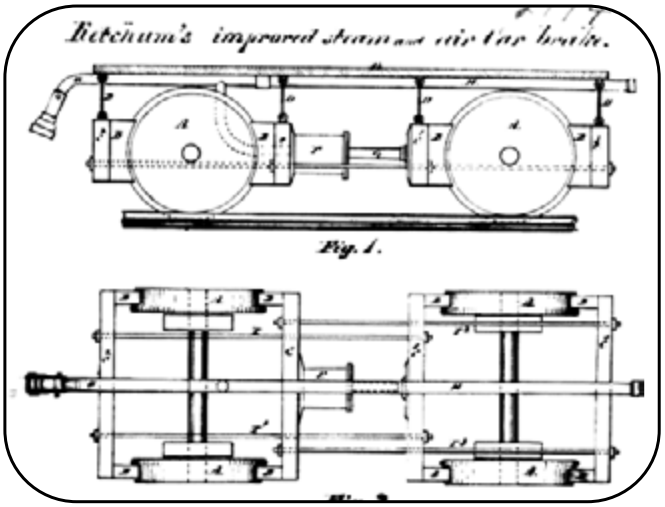
Oliver was the son of Jesse and Elizabeth (Wilson) Ketchum. Oliver became a carpenter and cabinetmaker, but had a lot of ideas and other aspirations. Between 1871 and 1873, he moved to Toronto, likely to pursue inventing. While living on King Street in Toronto, he successfully applied for many patents for a wide range of inventions.

In 1896, following his patent for a metallic button, he was hired by the Raymond Button Company of Baltimore, Maryland. He relocated to Baltimore where he worked as an inventor. At the time of his death in 1898 (age 49) he had amassed a large estate and had two patents pending. During his lifetime, he received a total of 16 patents in Canada, the United States and Great Britain (United Kingdom).

Below is the patent drawing for Ketchum's Electric Wagon. It was intended to replace horses in the field to draw or drive binders, reapers, mowers and other agricultural equipment.



Patent Drawing: Electric Wagon, Patent #47045, 1894. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

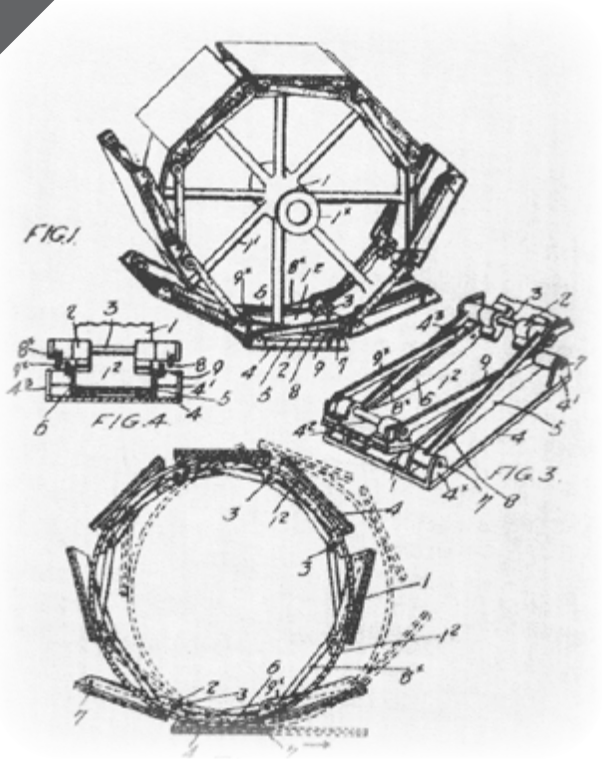


Patent Drawing: Steam and Air Car Brake, Patent #2174, 1873. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

Oliver Ketchum's Other Inventions:

- Smoke and Gas Consuming Furnace and Steam Generator, Patent #1982, 1873
- Liquid Fuel Furnace and Steam Generator, Patent #1983, 1873
- Heating Furnace, Patent #1984, 1873
- Improvements on Boots and Shoes, Patent #14020, 1882
- Improvements in Button Fasteners, Patent #18219, 1883
- Generator for Gas, Patent #45918, 1894
- Improvements to Worm Gears, Patent #51911, 1896
- Improvements to Buttons, Patent #59645, 1898
- Improvements in Sheet Metal Pulleys, Patent #GB189400663, #GB189415563, 1894 & #GB189600362, 1896
- Improvements in Presses, Patent #GB189413783, 1895
- Metallic Button, Patent #US634173, 1899
- Button and Button Fastener, Patent #US641778, 1900

Traction Wheel, David Brown, Orangeville and George Reid, Mono Township
Patent #187676 , 1918



Patent Drawing: Traction Wheel, Patent #187676, 1918. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

The old saying "don't reinvent the wheel" didn't mean anything to David Bent Brown (1855-1940) and George Reid (1858-1927). This re-invention of the wheel was designed to prevent tractors from sinking in marshy land. The large flat panels would act like snowshoes, providing a larger surface area to make contact with the ground and distributing weight more evenly.

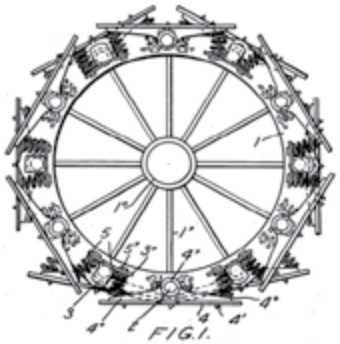
George Reid loved inventing and adventures. In the early 1890s, he sought to create a flying machine (airplane). In 1891, he constructed a model on a scaffold inside an old barn. In the face of heavy ridicule, he continued to build his flying machine. Unfortunately, upon testing, it crashed and he decided not to continue. Instead he turned his attention to improving his sawmill. He invented a saw that would reduce waste when cutting logs into lumber.

In the late 1890s, he traveled to the Klondike, hoping to strike it rich during the gold rush. He came home with not much more than gold dust.

George's next patented invention was the traction wheel – a joint venture with David Brown. David sold the pattern to the Grillis Tractor Corporation for $40,000 in 1921. There is no mention of George in this transaction. David Brown also became a director of the Company.

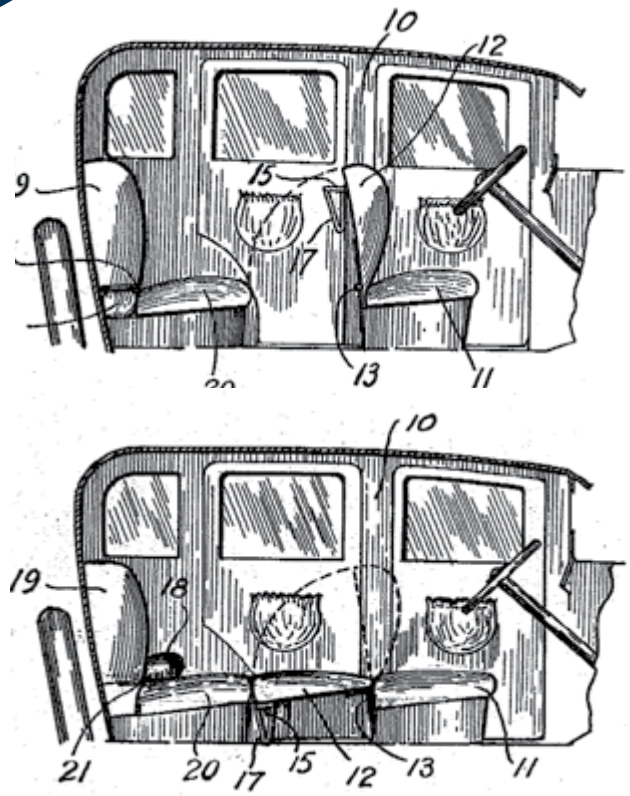
David Bent Brown (date unknown), Source: Dufferin Genealogy Online.

George obtained a new patent for a traction wheel in 1926. In 1927, he attended the Richmond Hill Fall Fair. Wanting to protect his invention, he slept outside with his tractor in the cold and rain. He contracted pneumonia and passed away.



Patent Drawing: George Reid's Traction Wheel, Patent #267265, 1926. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

George's sisters were Hannah and Minerva Reid - pioneering female doctors and women's rights activists.



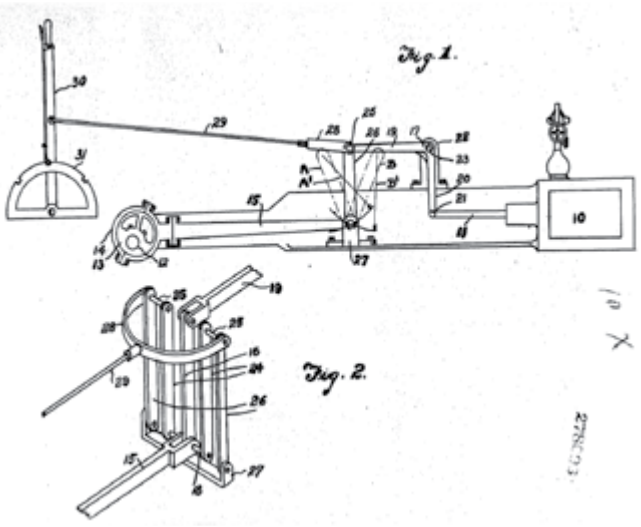
Patent Drawing: Reclining Car Seat, Patent #294644, 1929. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

Reclining Car Seat, Joseph M.H. Gallaugher, Melancthon Township

Patent #294644 , 1929

Joseph Marvin Harold Gallaugher (1898-1965) successfully patented a car seat featuring a hinged back rest that would fold down backwards. It was even outfitted with a pillow. He believed the reclining seats should use simple materials so they would be inexpensive to construct and simple to use.

Marvin (as he was known) was the son of farmers Joseph and Lilias (Lloyd) Gallaugher of Horning's Mills. Upon finishing his schooling, he bought a farm and made it his life's work. He was always willing to help others in need, including traveling in comfort.



Patent Drawing: Reverse Engine Gear, Patent #278096, 1929. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

Reverse Engine Gear, Harvey Joseph McConachie, Amaranth Township

Patent #278096, 1928

This invention was to be an improvement on existing reversing gears used on steam engines (usually train engines). McConachie claimed that his invention would prevent jarring and result in smoother operation, causing less wear and tear on an engine as it changed from forward motion to reversing motion.

H.J. McConachie (1896-1977) was born and raised on his parent's farm in Waldemar, Amaranth Township. During WWI, he was drafted under the Military Service Act as a sapper for the Canadian Engineers Corps. Sappers performed a variety of functions such as preparing defense structures, building bridges or demolitions. Perhaps this role helped inspire his invention.

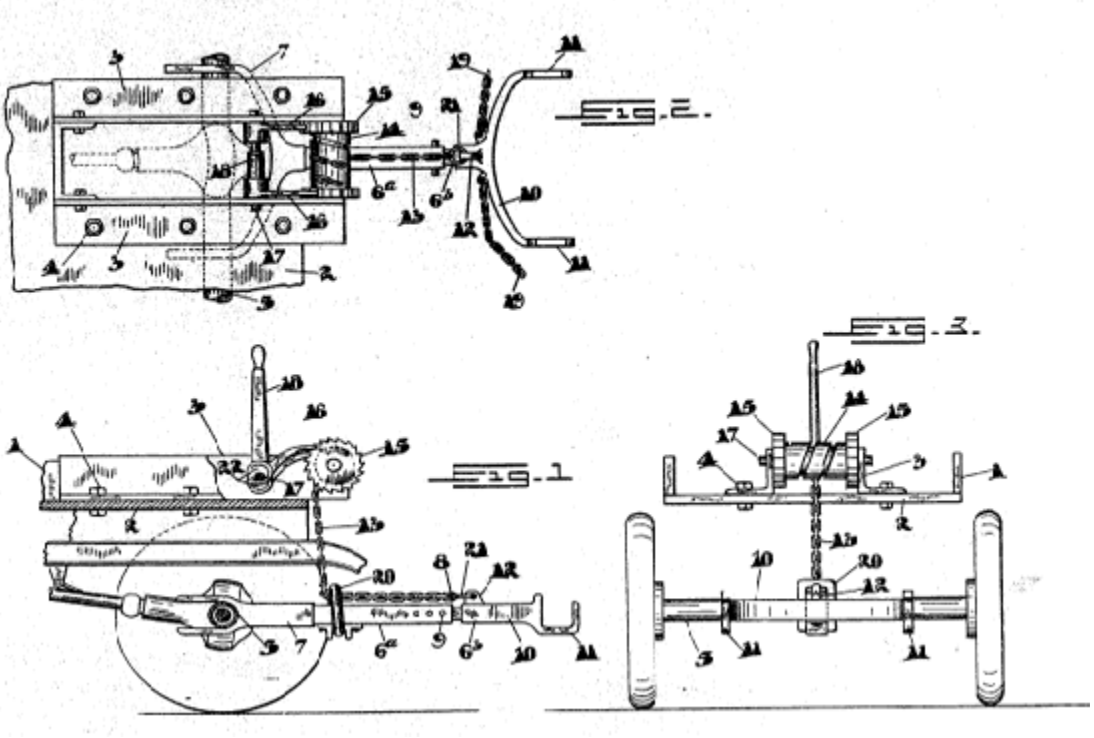
Service Hoist, Jonathan "John" David Loudon, Shelburne
Patent #240841, 1924

John Loudon (about 1880-1962) designed a service hoist to be mounted on a tow truck. It was intended to make vehicle recovery smoother and faster. The hoist would raise and hold a vehicle in place while being towed.

John was born in Huron County. His family relocated to the Shelburne area when he was a child. As a young adult, John was a commercial traveler and steamfitter residing primarily in Toronto. In 1909, he married Edyth Violet Henselwood of Corbetton. The couple resided in Mount Forest, Shelburne, Orangeville and Toronto.

In 1915, John enlisted for military service in Guelph and was sent overseas with the 2nd Canadian Pioneer Battalion to aid in mechanical transport. Due to health issues, John was deemed medically unfit for service and discharged back to Canada.

John's brother William worked at a Ford service garage in Shelburne for a period of time. This combined with his mechanical training and experience in the military may have inspired his invention of a service hoist.

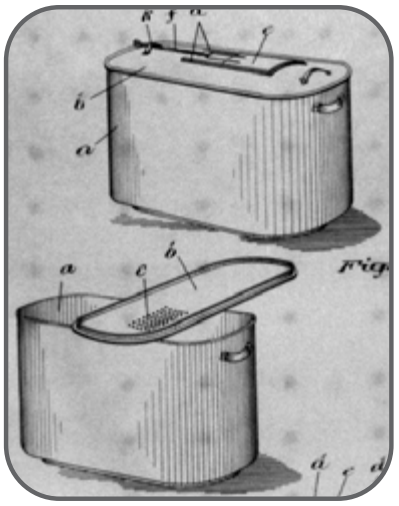


Patent Drawing: Service Hoist, patent #240841, 1924.
Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

Honourable Mentions

- By 1941, **Samuel Herbert "Herb" Rutledge**, owner of the Orangeville Monument Works and his head stone cutter, **Edward "Ed" Lucas** had invented and implemented a ventilation system to remove dust particles that are dangerous to the health of stone cutters. Their invention was the first of its kind and set an example for the industry.

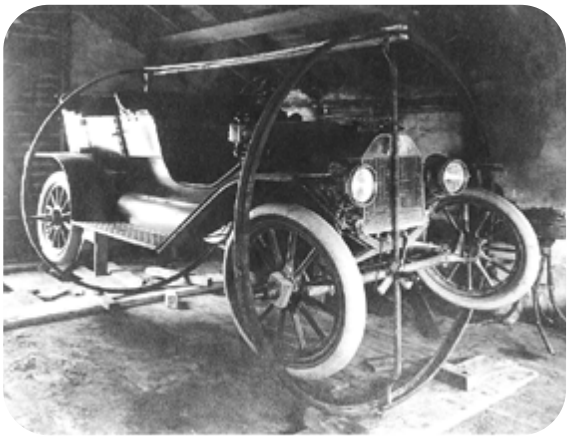
- Women are also inventive and innovative! The fire escape, windshield wipers, Kevlar and even the technology that Wi-Fi, Bluetooth and GPS are based on were all invented by women. Yet very few women of the past and present have patents attributed to their name. A study by the Canadian Intellectual Property Office in 2015-2016 found that only 12% of patents were filed by women. At least two women who resided in Orangeville for a period of time defied the status quo with their patented inventions. **Mary Jane Wylie** (1858-1912), a short-term resident of Orangeville invented improvements to the clothes boiler lid she called the "Pastugeta Lid" (Patent #97581). Her invention received a bronze medal at the Toronto Exhibition in 1907. **Ellen MacDonald** of Orangeville successfully patented a Sink Strainer (US Patent #862,570) in 1907.



Patent Drawing: Clothes Boiler, patent #97581, 1906. Source: Canadian Intellectual Property Office (CIPO) - https://www.ic.gc.ca/

- **R. Elwood Duffy**, born in East Luther invented an "Egg Master", ca. 1945. He was living in Buffalo, N.Y. at the time. It was designed to remove an egg from boiling water, pour an egg into a fry pan, de-cap a soft-boiled egg and more. He applied for patents in the U.S. and 10 foreign countries. No such patent has been found. He may have sold the rights to it before patenting it in his name. Did you know that the egg carton is also a Canadian invention? It was invented in British Columbia by farmer Joseph Coyle in 1911.

- **Tom R. Huxtable**, the son of inventor James Huxtable, was an inventor in his own right. One of his homemade inventions was a car clamp (pictured right) designed to hold and rotate a car for ease of servicing. The picture on the right, among others, was discovered in a chicken coop and donated to the Museum of Dufferin Archives.



T.R. Huxtable's Car Clamp, Melancthon, pre-1916. MoD Collection, P-0963D

- **George Gillespie** lived in Shelburne for a period of time. He was a photographer. He spent over 42 years behind the camera and invented new photographic equipment and techniques.

Name: _____

Dufferin County
Inventor / Invention Match-up

Alexander and Robert Turnbull	**Service Hoist**
Andrew Hughson	**Clothes Boiler**
Alexander Laidlaw	**Electric Wagon**
Roy Best	**Butter Churn**
Harvey McConachie	**Root Puller and Loader**
David Loudon	**Reverse Engine Gear**
David Brown and George Reid	**Barley Cleaner**
George Bell	**Potato Harvester**
Oliver Ketchum	**Traction Wheel**
William Pearson	**Canadian Harvester Binder**
Harold Leitch	**Combined Wagon-Sleigh**
James Huxtable	**Safety Binder**
Mary Jane Wylie	**Middlings Purifier**

Dufferin County Inventor Word Search

D	B	U	T	T	E	R	C	H	U	R	N	A	F	S	B	G	E	T	R	M	L
C	E	K	P	O	Y	K	W	B	N	A	Q	E	U	V	M	O	P	F	W	I	A
P	B	H	F	S	N	E	H	X	C	L	P	L	H	S	I	A	F	D	B	L	L
K	P	O	T	A	T	O	E	S	R	J	D	L	C	G	U	P	I	M	C	L	F
H	L	X	E	V	S	B	E	R	W	F	H	I	L	O	E	K	M	R	U	N	D
J	O	K	R	A	I	G	L	E	B	D	M	V	Z	D	K	F	E	B	P	L	B
F	U	R	T	R	H	F	M	U	B	S	L	E	O	C	I	W	N	K	Y	I	H
H	G	E	N	V	B	F	G	D	R	B	K	G	Q	P	O	R	N	D	A	B	O
T	H	T	E	R	G	N	C	M	H	K	E	N	S	T	U	S	T	I	P	D	N
Y	F	S	H	E	C	A	R	B	T	Z	M	A	L	T	D	P	L	C	K	C	E
N	D	A	Q	W	O	S	W	L	I	F	D	R	A	P	U	F	S	T	E	P	Y
B	O	M	S	O	F	B	N	O	M	C	C	O	N	A	C	H	I	E	O	K	W
U	E	G	O	P	G	U	K	A	S	R	L	B	V	P	Q	G	D	F	K	H	O
O	U	G	U	E	K	D	O	M	K	E	T	C	H	U	M	E	E	L	D	F	O
D	D	E	N	S	L	E	E	D	C	B	F	R	J	F	O	F	L	U	X	I	D
E	S	R	J	R	B	P	L	S	A	M	H	T	A	N	L	D	P	O	F	M	L
R	A	T	F	O	P	A	D	K	L	C	G	R	F	T	J	B	R	A	N	K	G
G	O	N	C	H	U	X	T	A	B	L	E	A	F	D	B	H	I	E	O	E	T

Name: _____

All the answers can be found in *Tinker: Inventors & Inventions from Dufferin County.* Answers go in all directions, including backwards and diagonally. Two word answers are joined together (no spaces).

Orange Jull owned and operated a _____.

Orange Jull is best known for inventing the Rotary Snow ____.

In the late 1880s, farms began to switch away from _____-_____ machinery.

The Canadian Harvester-Binder was invented by Alexander and Robert _____.

Alexander Laidlaw invented a smut machine. Smut is a German word that means "_____".

A middlings purifier helps remove the part of the wheat husk called "_____".

James _____ dreamed of bringing hydroelectric power to Dufferin County.

Roy Best was the inventor of improvements to a harvester for _____.

Inventor Andrew Hughson was from this township in Dufferin County.

Harold Leitch was born and raised on a farm in this community.

William Pearson invented a _____

George Bell used experience and skill in this occupation to create his combined wagon-sleigh.

This inventor had at least 16 patents to his name. What was his last name?

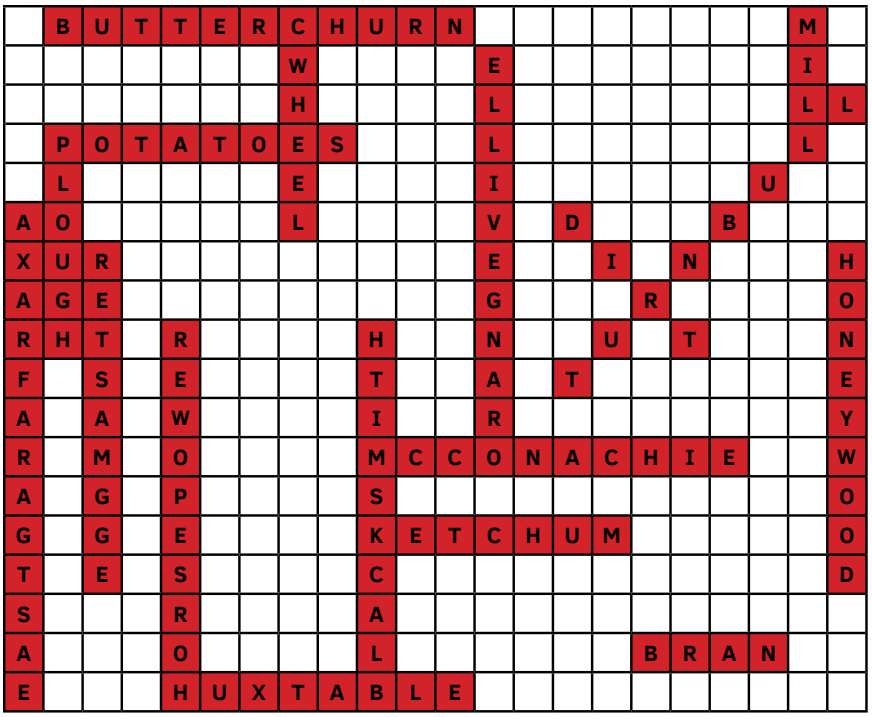
David Brown and George Reid found a way to re-invent this common everyday object.

This inventor was drafted into the Canadian Engineering Corps during the First World War. What was his last name?

Mary Jane Wylie and Ellen MacDonald lived in this town when they patented their inventions.

Elwood Duffy came up with this invention in the 1940s.

Answers



Orange Jull owned and operated a mill

Orange Jull is best known for inventing the Rotary Snow Plough

In the late 1880s, farms began to switch away from horse-power machinery

The Canadian Harvester-Binder was invented by Alexander and Robert Turnbull

Alexander Laidlaw invented a smut machine. Smut is a German word that means "dirt"

A middlings purifier helps remove the part of the wheat husk called "bran"

James Huxtable dreamed of bringing hydroelectric power to Dufferin County.

Roy Best was the inventor of improvements to a harvester for potatoes

Inventor Andrew Hughson was from this township in Dufferin County - East Garafraxa

Harold Leitch was born and raised on a farm in this community - Honeywood

William Pearson invented a butter churn

George Bell used experience and skill in this occupation to create his combined wagon-sleigh - blacksmith

This inventor had at least 16 patents to his name. What was his last name? Ketchum

David Brown and George Reid found a way to re-invent this common everyday object - wheel

This inventor was drafted into the Canadian Engineering Corps during the First World War. What was his last name? McConachie

Mary Jane Wylie and Ellen MacDonald lived in this town when they patented their inventions. Orangeville

Elwood Duffy came up with this invention in the 1940s. Egg Master

Match-Up Answers

Alexander and Robert Turnbull - Canadian Harvester Binder

Andrew Hughson - Safety Binder

Alexander Laidlaw - Barley Cleaner

Roy Best - Potato Harvester

Harvey McConachie - Reverse Engine Gear

David Loudon - Service Hoist

David Brown and George Reid - Traction Wheel

George Bell - Combined Wagon-Sleigh

Oliver Ketchum - Electric Wagon

William Pearson - Butter Churn

Harold Leitch - Root Puller and Loader

James Huxtable - Middlings Purifier

Mary Jane Wylie - Clothes Boiler

Games / Activities

Let's Talk Science has large collections of learning resources that include activities on strong and stable structures, simple machines, generating electricity, Canadian innovations and more - https://letstalkscience.ca/educational-resources/stem-home

Use simple machines to help Twitch get to the parts they need to fix a robot in this game by the Museum of Science & Industry in Chicago, https://www.msichicago.org/play/simplemachines/

Explore Simple Machines with resources by Kids Discover - https://online.kidsdiscover.com/infographic/simple-machines

Simple Machine Lesson from National Geographic - https://www.nationalgeographic.org/activity/simple-machine-challenge/

Engineering games from PBS Kids. Try out "How To Be An Inventor" by Raye Lankford. It is a great way to learn about the inventing process. https://pbskids.org/games/engineering/

Engineering games, activities, fact sheets and lessons by Science Kids - https://www.sciencekids.co.nz/engineering.html

Engineering games and activities by TRYEngineering - https://tryengineering.org/students/games/

Five Engineering Challenges with Clothespins, Binder Clips and Craft Sticks - https://frugalfun4boys.com/engineering-challenges-clothespins-binder-clips-craft-sticks/

LEGO engineering challenges - http://www.educatingyoungengineers.com/lego-club-activity-ideas#

STEM activities and experiments from TeachEngineering - https://www.teachengineering.org/curriculum/browse?Collection=Activities

Learn about types of waterwheels like the ones used in local historic mills - https://energyeducation.ca/encyclopedia/Waterwheel and experiment with building your own - https://www.wikihow.com/Make-a-Water-Wheel

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Resources

Learn about Canadian inventors and inventions from these websites:

- Canada Guide - https://thecanadaguide.com/data/canadian-inventions/
- Thought Co. - https://www.thoughtco.com/made-in-canada-1991456
- Radio Canada International - https://www.rcinet.ca/en/2019/05/11/more-than-30-inventions-you-wouldnt-expect-to-be-canadian/
- Canada's History: Made in Canada Video Series on YouTube - https://youtu.be/44t7LN-6u4o4
- Dictionary of Canadian Biography - http://www.biographi.ca/en/browse.php?-type=identifier&term1=43
- Rotary Snow Plough from the Canadian Encyclopedia - https://www.thecanadianencyclopedia.ca/en/article/rotary-snowplough
- Discover careers in engineering by TRYEngineering- https://tryengineering.org/students/engineering-computing-and-technology-fields/

Learn about Canadian inventors and inventions from these books:

- *Canadian Inventions: Fanstastic Feats & Quirky Contraptions* by Lisa Wojna
- *Innovation Nations: How Canadian Innovators Made the World Smarter, Smaller, Kinder, Safer, Healthier, Wealthier, Happier* by David Johnston and Tom Jenkins

STEM Kits / Toys

- Dilly Dally Toys and Delights - https://dillydallykids.ca/collections/stem-science
- STEM Store of Canada - https://ssoc.ca/

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