Drag saw machines

By Neil Searle

The Matakohe Museum has in its collection a Wade Drag Saw. A drag saw is a large reciprocating saw using a long steel crosscut saw to cut logs to length. Prior to the popularization of the chainsaw during World War II, the dragsaw was an accepted means of taking the hard work out of cutting wood. They would only work for a log on the ground. Drag saws are known as the first mechanical saws to be used in the timber industry operation. These tools were most useful in the logging business, because they were efficient and very resilient.

The Matakohe Museum, Wade Drag Saw is the only example that I know of in NZ, there appear to be many examples in Australia and even Australian made Drag Saws, for example a 1952 Drag Saw made by Bern Smith Engineering, 8 Ladbrooke Street, Burnie, Tasmania. They also turn up in the UK and Canada.

It takes a big guy to move one around since they are around 300 lbs. At the 1920 Royal Show in London, King George V checked out the Wade Drag Saw on display.

Fig. 1. The Wade drag saw at the Matakohe Museum. Robert Marshall Wade founded R. M. Wade & Co. in 1865. The steel wheel came later to facilitate easier handling.

Fig. 2. Advertisement in 1918, a drag saw for the princely sum of $165. Its place of manufacture was Portland, Oregon, U.S.A. and was capable of cutting logs of up to eight feet in diameter at a cutting speed of up to 140 strokes per minute. The brochure claims that cutting speeds were recorded, a 2 foot log, 50 seconds, 4 foot log, 3½ minutes and a 6 foot log, 7½ minutes, although the type of timber being cut was not stated.

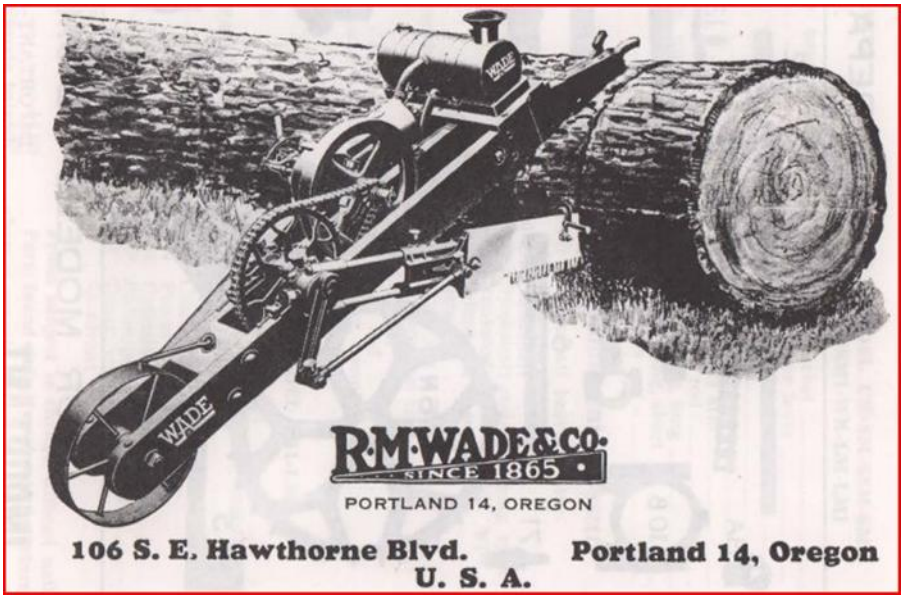


Fig. 3. This is the Wade Drag saw as shown in Fig. 1. The motor is what is known as a two cycle, water-cooled engine. An explosion takes place at every revolution of the crank shaft. Gasoline is the fuel used.

Early drag saws of the modern era were powered by levers or foot pedals, steam and later gasoline-powered.

The human-powered dragsaw was a much more commonly used dragsaw among the general population due to their relatively low cost compared with their higher efficiency. Dragsaws powered by humans would often stem from a lever the person would use to manipulate the saw blade in a much easier manner. Other common formats included foot pedals or treadles. These allowed for greater maneuverability when clearing a tree.

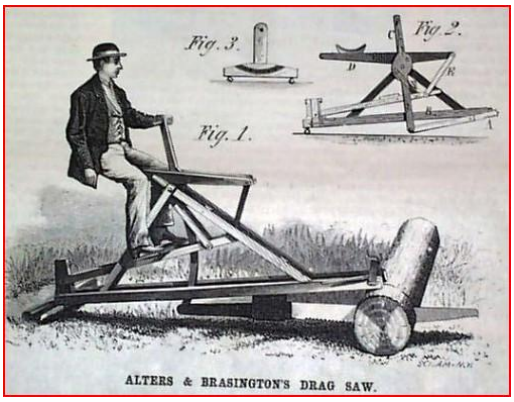


Fig. 4. Alters & Brasington Drag Saw from the Scientific American Magazine, 1879. One of the early Drag Saws, these were better known at the time as a Human Powered Drag Saw.

Fig. 5. 1879 wood engraving of a riding saw or dragsaw invented by William Giles of Cincinnati, OH and Chicago, IL. The apparatus is about 8 feet long and one end is fixed to the trunk of the tree to be sawn. The operator sits at the other end on a saddle with his feet on 2 treadles. The force applied to the treadles and the hand lever combine with the dead weight of the operator to draw the saw backwards and forwards. Many such inventions were patented in the 19th century based on changing the rotary motion of a hand crank or belt pulley into the reciprocating action of a cross-cut saw. This is the wood frame version heavily advertised in 1879 farm publications. Giles also claimed it was suitable for cutting stone (obviously with an appropriate blade) and was capable of a very long stroke.

William W. Giles had five patents for Drag Saws and improvements in Drag Saws from 1878 to 1881.

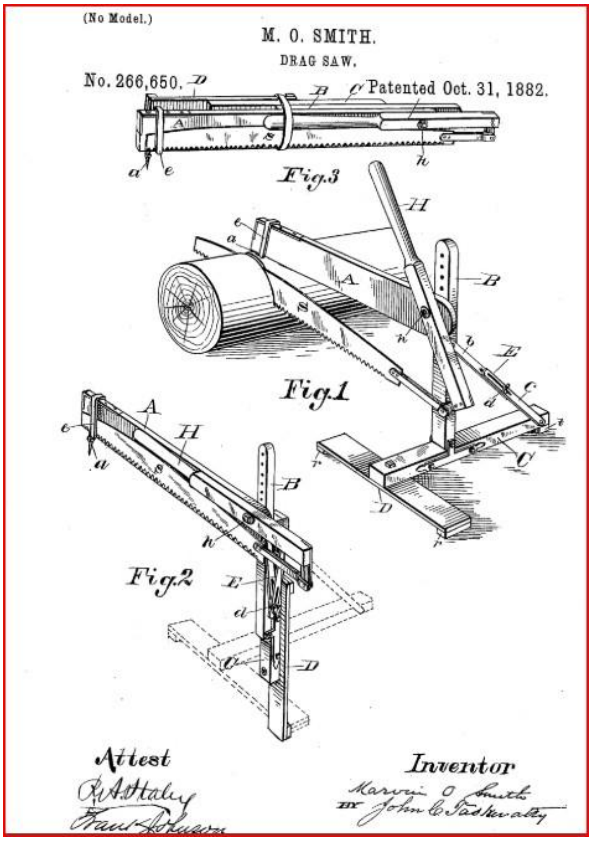


Fig .6. Marvin O. Smith SPECIFICATION forming part of Letters Patent No. 266,650, dated October 31, 1882.

Numerous examples of this machine have been reported, including a couple of unused machines still in their original box. A 1917 catalogue and a 1937 brochure from the maker, Folding Sawing Machine Co. of Chicago, show this machine.

"My invention relates to a sawing-machine particularly adapted to the wants of farmers or others for sawing felled timber into wood or logs; and the objects of my invention are, first, to provide a sawing-machine which shall be at once simple and cheap in construction and readily adjustable to saw at any angle, and, second, to provide such a machine which shall be lightly constructed and so arranged that it may be quickly and easily folded up into small compass for convenience in transport-a ton from place to place."

There were many variations of the drag saw made and patented, even one for cutting down a tree.

Fig. 7. The Smith Drag Saw, manufactured by the Folding Sawing Machine Co., Chicago, IL.

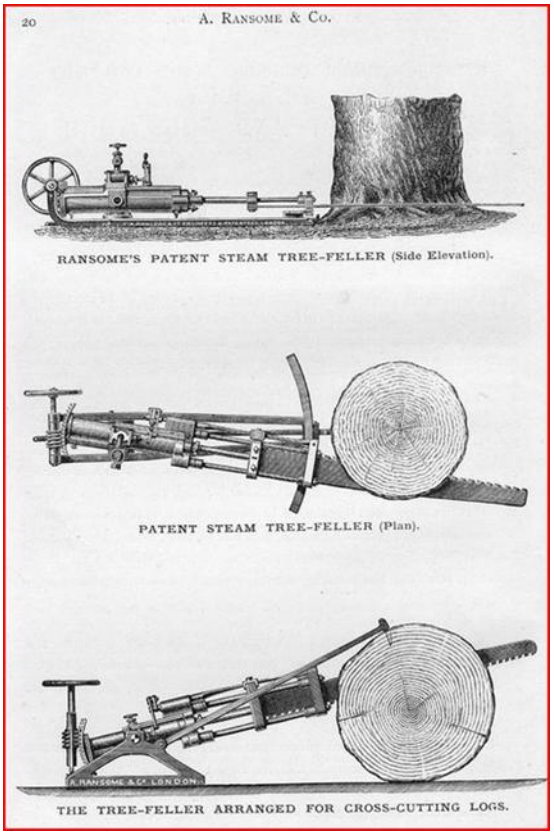


Fig. 8. A. Ransome & Co. made a whole line of woodworking machines, saws, planers etc. They made two versions of the base, one that held the saw horizontal for felling trees, and the other that held the saw vertically for crosscutting the logs into shorter lengths. The saw itself is the same, just mounted differently. The hand wheel at the back pivots the cylinder and blade to traverse it across the cut. They would use a portable boiler on skids to power the saw, with a flexible hose running to the end of the trunnion where the valve block is.

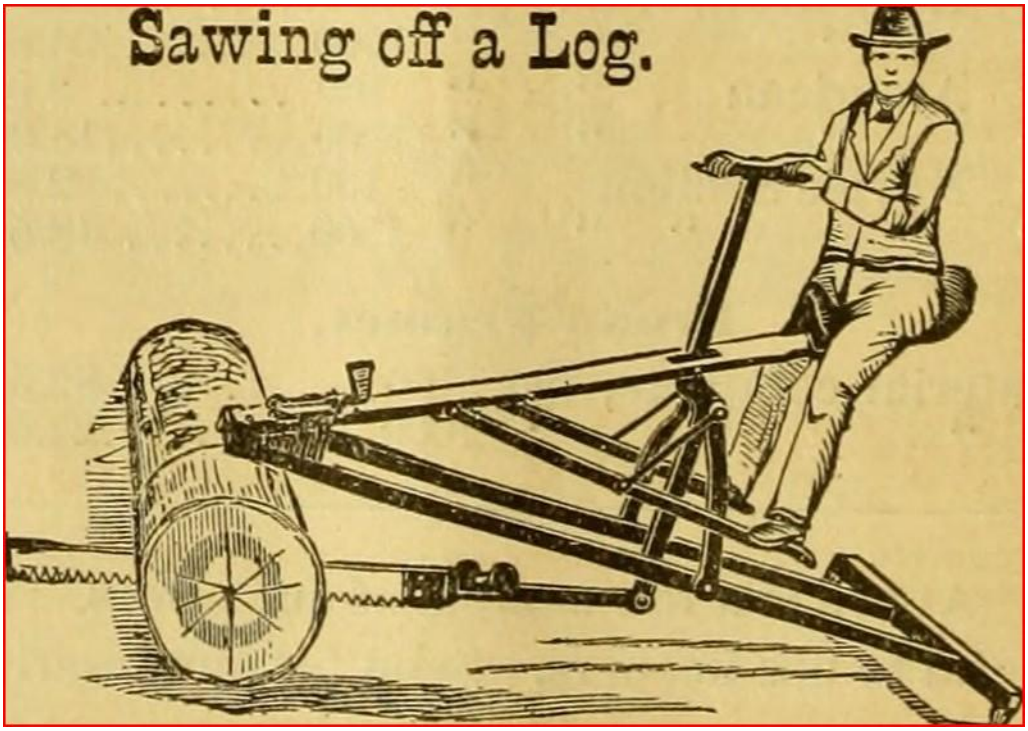
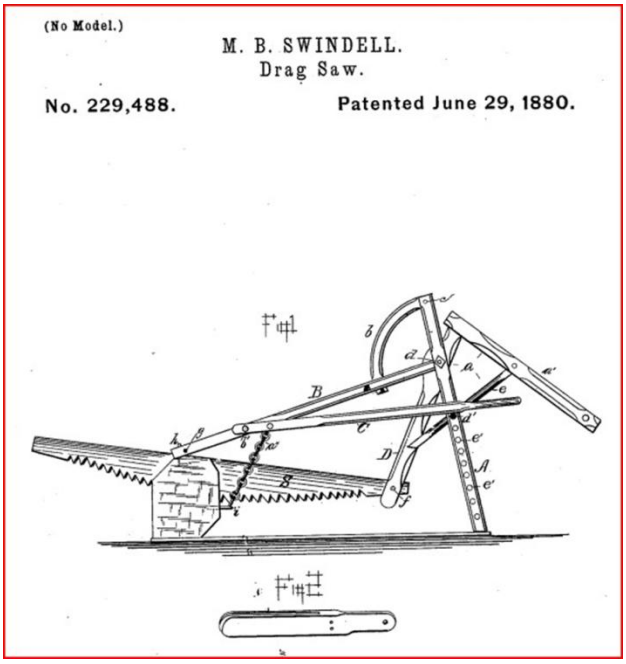


Fig. 9. The earliest mention of a Drag Saw that I have found 1861. Image from page 189 of "American bee Journal" (1861). The above image was very likely the Drag Saw that Henry Potter from Carthage, N.Y., invented in 1858.


(No Model.)

M. B. SWINDELL.

Drag Saw.

No. 229,488. Patented June 29, 1880.

Fig.10. Many inventors had to state that their inventions were in relation to improvements, it may only be small modifications. There were dozens of patents issued over the years until the chainsaw came into being. Many of these drag saws turn up surprisingly often, including on eBayUSA.

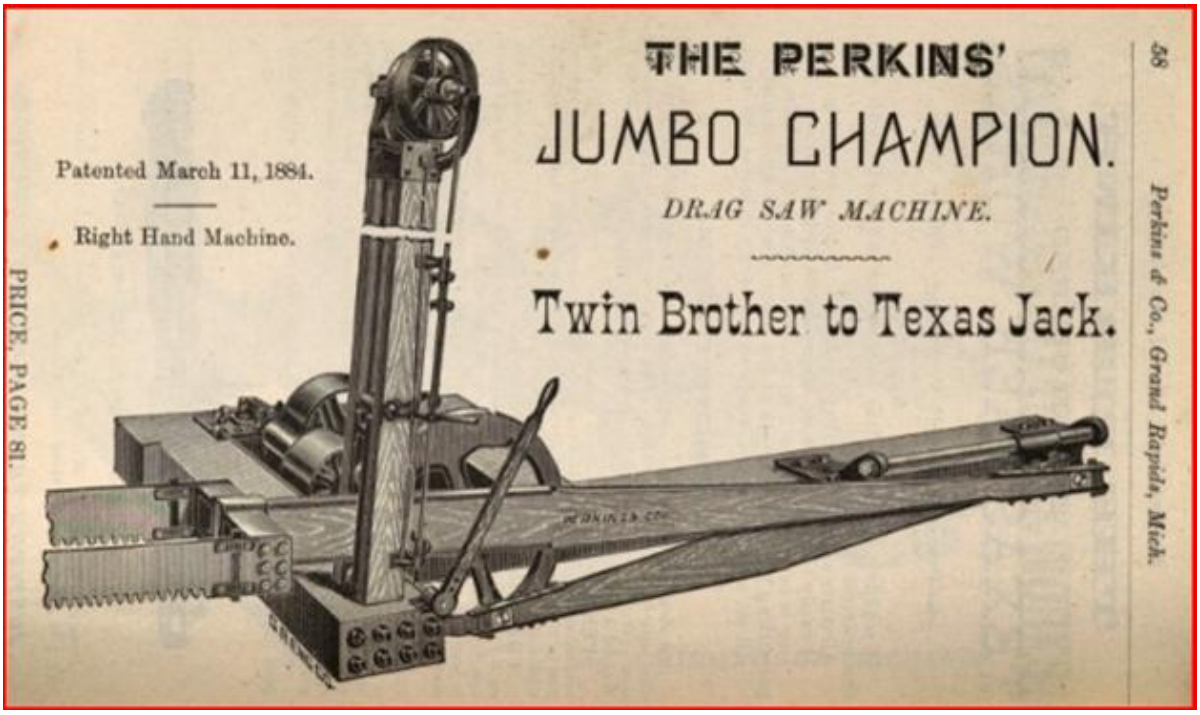


Fig. 11. Twin blade…. From Perkins & Co. Grand Rapids, Mich. 1873-1888 catalogue.

And then came the chainsaw…. The timber cutting chainsaw is patented by Samuel Bens—1905. The first Chain Saw is first developed in 1918 but really didn't take off until 1927.

It just happens that approximately 75 years earlier the chainsaw used for tree falling/dicing seems to be a spinoff of a surgical instrument introduced in 1830. That instrument was referred to as an osteotome - a term which in current use references chisel like surgical appliance having symmetric tip profile.

Fig. 12. While technically a type of chain saw, this medical instrument, invented by Bernard Heine around 1830, wasn't used to cut down trees. The osteotome was initially used in trepanning. The sharp spike was driven into the patient's skull to hold the instrument in place, then the doctor cranked the handle to turn the saw-toothed blade. The osteotome was considered superior to a reciprocating saw or hammer and chisel when it came to getting through human bone without splintering or damaging nearby tissue. Later variations made the tool useful in arm and leg amputations and dental surgeries.

Why were chainsaws used in childbirth?

We often take for granted how miraculous cesarean sections are. The ability to surgically remove a baby from the womb has saved millions of lives and has reduced the death rate during childbirth astronomically. However, back in the 1700s, this option didn't exist. If a baby got stuck in the mother's birth canal, there was a real chance that either the baby or the mother would die.

Symphysiotomy dates back to Severin Pineau in 1597. His idea was for a doctor to remove the bones and cartilage from a woman's pelvis and then manually open it to allow the baby to pass through. Unfortunately, anesthesia hadn't been invented yet, so the process was extremely brutal. Plus, the best tools to perform it were knives and saws, which aren't very effective at cutting through cartilage and bone.

How did the chainsaw become the solution? These poor tools created a problem that needed a solution, and between 1783 and 1785, two doctors took up the challenge. John Aitken and James Jeffray wanted to make the dangerous and extremely painful symphysiotomy easier**, so they invented what would later become the chainsaw**. (so this really was, the birth of the chainsaw)

Ref: Smokstack.com. Vintagemachinery.com practicalmachinist.com. https://listverse.com/

American Bee Journal. DATAMP www.pharmacytimes.com