US Design Patents, USPTO.

By Neil Searle

Some US patent drawings are works of art and I often include them in articles as I often find them as fascinating as the tool itself. The history of US patents is just as interesting.

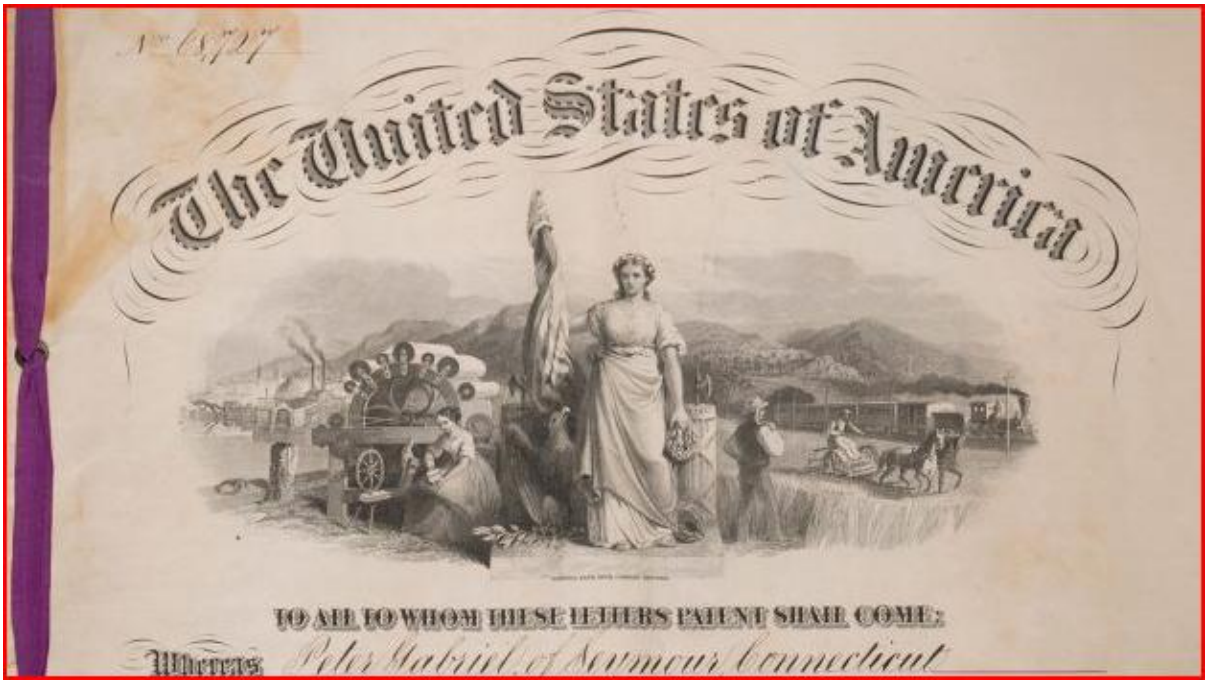


Fig.1. 'To all to whom these letters patent shall come'

Last year, September 26, 2023, the U.S. Patent and Trademark Office (USPTO) officially issued U.S. design patent 1 million, an important milestone in American innovation and creativity. Design patent one million came 181 years after printer George Bruce received the first design patent granted in the United States for a new typeface, or font, in 1842.

A US design patent covers the ornamental design of an article of manufacture. There are other types of patent, the main one being US Utility patents which protect the functionality of a given item, i.e., how a product works. These Utility patents number in the many millions. The two patents that cover the tools that you and I collect are **Design Patents and Letter Patents.** Letter Patents are a written or printed instrument issued by a sovereign power/government, conferring upon a patentee some right, as the exclusive right to land or the exclusive right to make, use, and sell an invention for a limited time. So the inventor must apply to the commissioner of patents for letters patent which secure to him his invention.

Now just to confuse you, patents began in 1790. The era from 1790 to 1836 are known as "X-patents" not because they're shrouded in mystery (although they are) but because they predate the numbering system now in use. The fire of 1836 destroyed the specifications and scale models for nearly 10,000 X-patents. The only remaining records were kept by the inventors themselves, in the form of "letters patent," handwritten precursors to today's typed and digitized patent grants. The solution became the Patent Office's first attempt at crowdsourcing its own history. Within a few months, Congress and Commissioner Ellsworth put

out a call to patentees for information about their inventions, and based on the mailed-in responses, some 2,800 patents could be reconstructed. But the rest—more than 7,000—were never recovered. (An X-patent is shown in Fig. 12.)

Fig.2 North Patent Office Wing 1877 The Patent Office fire of 1877 was the second of several disastrous fires in the history of the U.S. Patent Office. It occurred in the Old Patent Office Building in Washington, D.C. This fire destroyed 80,000 models and 600,000 drawings.

Fig.3. Improvement in Ratchet-Drills. William Frankel, Patentee. Patent Number 114,545. May 09 1871 Frankel's invention "*relates to that class of ratchet-drills used by hand for drilling in places where machinery cannot be applied, such as boilers, iron-building fronts, &c."*

The following patent models I include in this article are from the Rothschild Patent Model Collection.

A patent model was a handmade miniature model no larger than 12" by 12" by 12" (approximately 30 cm by 30 cm by 30 cm) that showed how an invention works. It was one of the most interesting early features of the United States patent system. The American patent system was the only one in the world to mandate the submission of a model with a patent application.

In spite of these great monetary losses (many times those of the first Patent Office fire of 1836), there were no patents totally lost in the fire. There were duplicates of the drawings (a lesson learned from the first Patent Office fire in 1836) and it was just a matter of the expense of printing them again. Despite the loss of the upper floors and some accumulated "rubbish," the Patent Office was soon reopened.

Patents and the Patent Office), the 1836 Act specified how inventions should be described, called for drawings and references, and in a boon to other inventors throughout the 19th century (and later to the Smithsonian and other museums), asked inventors to submit of physical models of their inventions.

Fig.4. Alfred Tippett, Patentee. Nov 04 1856. Patent Number 16,041.

Tippett's patent *"consists in constructing a tenoning tool which may be used in an ordinary mortising machine, and thus save the expense of two machines - the tool being so constructed as to be adjustable, both as to the size of the tenon as well as to its shape, and is so arranged as not to require the turning of the cutters (as is common in tenoning machines) to finish a tenon..."*

Many of these unique artifacts of invention did not survive the nineteenth century. After the devastating Patent Office fires, in 1893, the models were removed from the Patent Office and placed in storage. In the early twentieth century, the Commerce Department gradually disposed of the patent model collection; some models were returned to the descendants of the inventors, approximately 10,000 were accessioned by the Smithsonian Institution, and the remaining models were sold at auction.

Fig.5. No matching patent numbers were found on DATAMP.

(Directory of American Tool And Machinery Patents)

Fig.5. Improvement in Wrenches. George Buzzell (b.1838, d.1897), Patentee. Oct 31 1876

Buzzell's patent produces *"a wrench which may be readily applied to the removal of nuts or screws in places that are not readily accessible to wrenches of ordinary construction; and the invention consists of two arms, which form the jaws, or to which the jaws may be attached, pivoted to and extending out from the end of a handle, and provided with a sliding clasp surrounding each arm, by means of which the jaws can be readily adjusted to a nut or screw-head, and held in position by means of a screw acting upon a central rod between the arms or jaws."*

Fig.6. George Booth, Patentee. May 07 1867. Patent Number 64,478

Booth said in his patent that it *"consists in a device by which the tenons of the spokes for wagon wheels and tenons for other purposes may be accurately and expeditiously made by revolving my auger in a lathe or by a hand brace, the main feature of the invention being in the manner in which the cutters are constructed and adjusted"*

Today, a description in a design patent application is not necessary, although not strictly prohibited. Furthermore, the rights obtained in a design patent today are entirely tied to the drawings. Indeed, the USPTO Design Patent Application Filing Guide explains: "The drawing disclosure is the most important element of the application." That is why high quality, exceptionally detailed drawings should always be filed in a design patent application.

Some restored "X" patent drawings feature outstanding artwork, some in colour

Fig.7. Henry Shepardson, Patentee. Feb 27 1872 Patent Number 124,089

Shepardson's patent "*consists in a shank or holder made capable of holding interchangeable bits or cutters, whereby one shank is capable of fitting to and being used with many cutters or bits."*

Fig. 8. The maker's name isn't marked on the plane, but the plane uses the Hazard Knowles patent of 1827 and probably dates from the 1830's as well. See **Fig.9.**

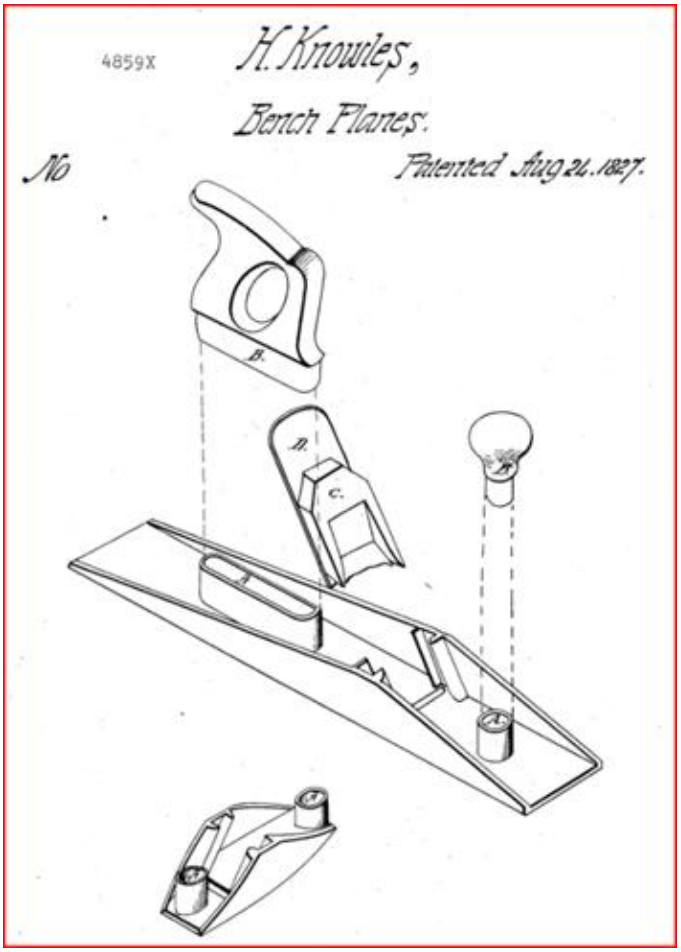


Fig.9. **An example of an "X" Patent.**

The US patented hand plane….. 4859X This patent is the earliest American patent for a metallic plane. Made by Savage Mfg. Co. Maryland.

'The drawings in a design patent application should contain a sufficient number of views to disclose the complete appearance of the design claimed. This generally requires at least six separate views (or angles), which should include drawings of the front, back, top, bottom, left and right. These six views should be considered essential unless one or more would be identical. USPTO Design Patent Application Filing Guide explains: "The drawing disclosure is the most important element of the application." That is why high quality, exceptionally detailed drawings should always be filed in a design patent application.'

An ongoing effort to recover the "X patents" lost in the fire continues to the present day.

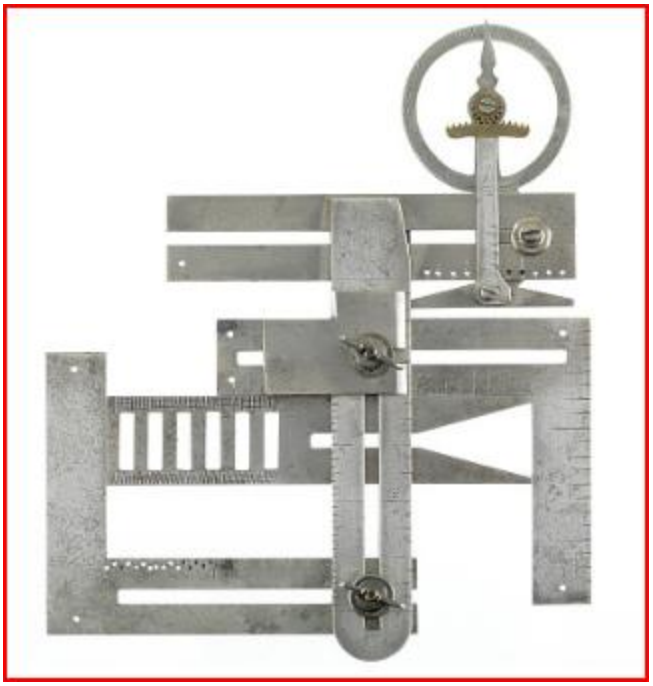


Fig.10.

Carpenter's Combination Tool, Patent Model
date made 1867

This combination bevel and try-square tool served as a model for patent application number 70,547 submitted by John Graham of Ludlow, Vermont November 5th, 1867. The tool combines several carpentry tools including a bevel, marker, gauge, try-square, and level (what Graham describes as an "indicator").

While researching the patent fire, I felt I had to include this approved patent……

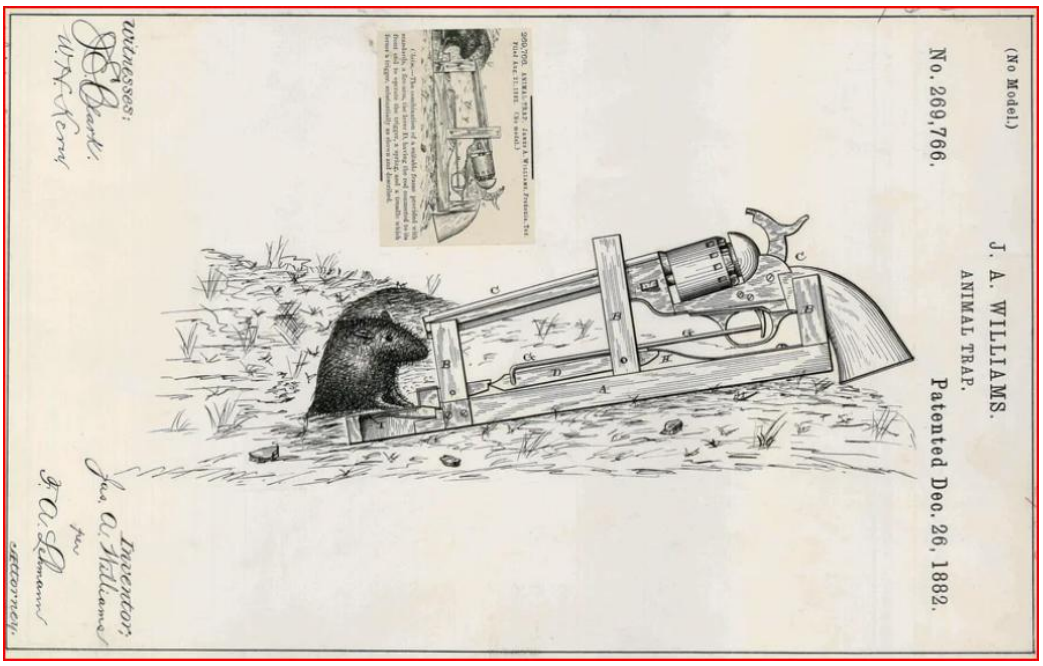


Fig.11. In 1882 on August 21, a man by the name of James Alexander Williams from San Saba County, Texas was filed a United States patent No.269,766. For a mousetrap incorporating a handgun, "by which animals which burrow in the ground can be destroyed". The patent application was approved on December 26 of 1882 and James Alexander Williams said *"The object of my invention is to provide a means by which animals that burrow in the ground can be destroyed, and which the trap will give an alarm each time that it goes off, so that it can be reset."*

"This invention may also be used in connection with a door or window, so as to kill any person or thing opening the door or window to which it is attached."

The United States Patent Office has issued more than 4,400 mousetrap patents. The gun-powered mouse trap proved inferior to spring-powered mousetraps descending from William C. Hooker's 1894 patent.

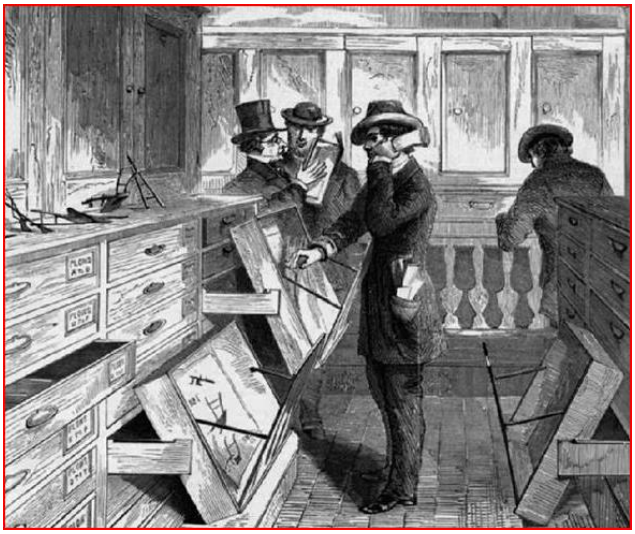


Fig.12. ***This illustration published in Harper's Weekly in July 1869 shows patent examiners at work.***

Examiners decide which ideas are useful, new, and clever enough to be patentable. If a patent application is granted, the idea becomes intellectual property.

Interesting facts about patents…… Source: WIPO Statistics Database, September 2022. Patents in force worldwide grew by 4.2% to reach around 16.5 million. Generally China issues more patents than any other country and mostly now in computer technology.

From 'O' starting in 1848, US patents were generally issued on Tuesdays.

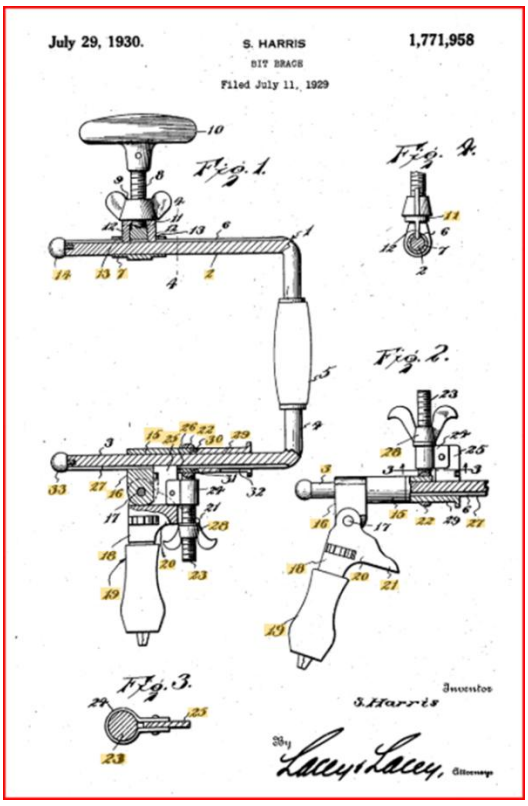
There is a patent which shows the correct way to hang toilet paper . Pat. No. 459516

Examination is the chief task of the patent division of the U.S. Patent and Trademark Office, which currently employs about 8,000 patent examiners.

What caused the Patent fire in D.C.? Employees of the patent office stored firewood in the basement near where they also disposed of hot ashes and, during the early hours of December 15th, 1836, the ashes ignited the firewood and caused the devastating blaze

In 1899 Charles H. Duell Commissioner US Office of Patents claimed *"Everything that can be invented has been invented."*

New Zealand: In 1900 the country had the world's highest per-capita number of patent applications. One of the more unusual NZ inventions was the paint tin lid still used today. John Eustace was a Tinsmith in Dunedin and during the early 1900s that he was asked to find a way to make paint can lids that did not leak.


July 29, 1930. S. HARRIS 1,771,958

BIT BRACE

Filed July 11, 1929

Fig. 1.

Fig. 4.

Fig. 2.

Fig. 3.

Inventor

S. Harris

By Lacey & Lacey, Attorneys

Australia: An example of a brace with a US patent.

I, SAMUEL HARRIS, of Bruce Rock, in the State of Western Australia, Commonwealth of Australia, Ironmonger, British.

Subject, do hereby declare the nature of this invention, and in what at manor the same is to be performed, to be particularly described and ascertained in and by the following statement :-

The present invention is directed to an improved adjustable drill brace. The primary object of the invention is to provide a device of this character so constructed that the chuck and hand rest can be easily and quickly adjusted upon the crank in order that various leverages may be obtained.

Another object of the invention is to provide a device so constructed that the various parts can be conveniently assembled, and when in. assembled relationship, can be quickly and firmly clamped in a desired adjusted position.

Ref: USPTO. Hagley…. Toolsforworkingwood.com. Smithsonian "The Museum of History and Technology" https://catalog.archives.gov/ WIPO (World Intellectual Property Organisation)

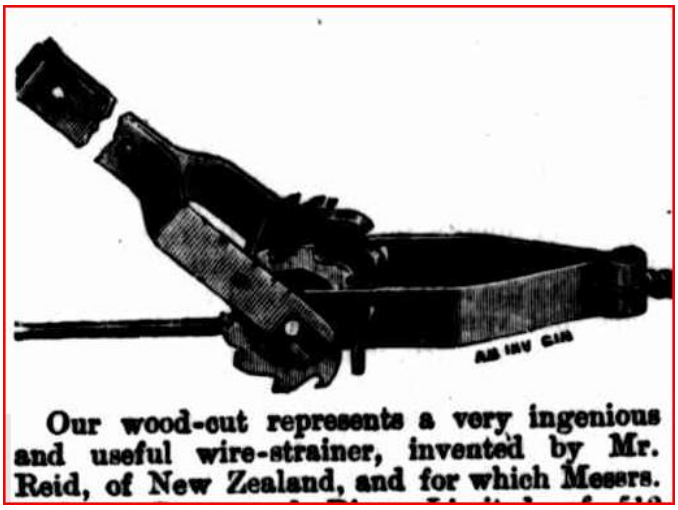
Footnote: A patented wire strainer.

From Otago Daily Times. 6 June, 2016. (https://www.odt.co.nz/lifestyle/magazine/straining-find-truth)

"Recent study has clearly shown that despite decades of claims to the contrary, Hayes was not at all responsible for the design of the Hayes Permanent Wire Strainer, a widely celebrated "icon'' of New Zealand design that is particularly treasured for its rural ingenuity.

Due credit for the design of the Hayes Permanent Wire Strainer rests almost entirely with the work of another Otago inventor, John Reid, the son of Donald Reid, a prominent Taieri businessman and politician of the latter half of the 19th century.

Reid's design was patented in the United States as the Triplex Wire Strainer in 1886, almost a decade before Hayes founded his company, Hayes Engineering in 1895. The highly successful and much vaunted Hayes version of Reid's strainer was much more likely the work of his son Llew, and was only produced by Hayes Engineering following the expiry date of Reid's patents in the mid-1920s.



Our wood-cut represents a very ingenious and useful wire-strainer, invented by Mr. Reid, of New Zealand, and for which Messrs.

Called the Titan wire strainer in Australia and Triplex in New Zealand

The early wire strainers were cast iron and had 'REID'S PATD TITAN WIRE STRAINER' on other examples were '"DEC 1887 TITAN WIRE STRAINER".

This is the wire strainer invented and manufactured by Ernest Hayes in 1905.

N.B. I did fail to find any claim by Hayes that they had invented the Titan/Triplex wire strainer.