Combination Drill/Brace

By Neil Searle

Past brace designers gave birth to many a chimera, was it a good idea, who knows? As Ronald Pearson states in his book 'The American Patented Brace' there appears to be a progression in the type of patents issued, the first US patents designed as replacements for the braces being imported from England at the time. Apart from the development of the chuck, what followed were the corner brace then the 'takedown' brace and finally the combination brace.

Fig.1. ca. 1882 — non-ratcheting; lignum vitae head; rosewood handle; brass rings in wrist handle to prevent splitting; drill assembly gear held in place by thumb screw; crank is cast as part of main gear; shiny parts nickel plated. (Some photos of this earliest drill brace courtesy Stan Morgan.)
The mounting block on the frame has two screws, the front one locates in the groove on the shaft to keep it in place and the rear one fits into the indent in the shaft and stops it rotating. When used in drill mode this screw is loosened to allow the shaft to rotate in the block, when used as a brace the screw is tightened into the indent to lock the chuck. The block is also drilled and tapped on three faces to accept the drive gear thumbscrew, thus giving the user the choice of three crank positions for clearance in tight situations. This combination is probably the Millers Falls Company first attempt at a drill brace. To date this drill brace is the only recorded example of this rare brace.

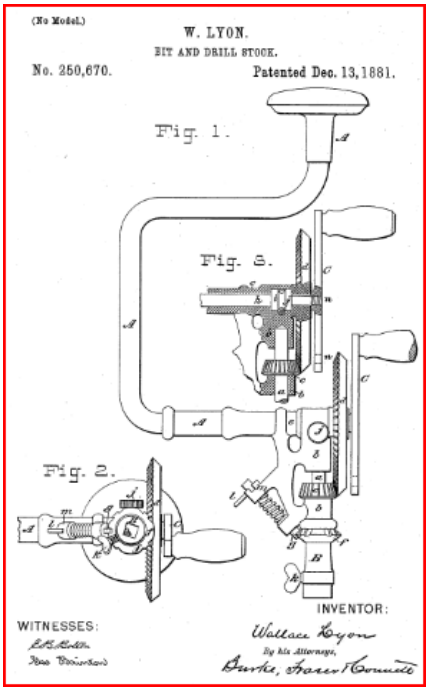

Fig.2. An early drill brace patented by W. Lyon of Bridgeport, Connecticut No. 250,670 on Dec. 13, 1881. 'I *have invented a Combined Bit Stock or Brace and Multiplying-Drill Mechanism'* This invention, Lyon goes on to say is for use in drilling metals. Indeed, many of the subsequent drill brace patents were also listed in mechanics catalogues. (Google Patents)
Wallace Lyon was assigned to the Millers Falls Company.

Before Wallace Lyon had any association with Millers Falls, he also designed and submitted a patent for a geared drill, pat. No. 30487, dated Oct. 23, 1860.

Note: Quimby Backus, The Bostwick patent (225,682) predates Lyon's (250,670) by a year and 3/4. According to an article in The Fine Tool Journal Vol 66 No 3 by the late Jim Schoenky, Bostwick's patent was first used by Quimby Backus.

The timeline is Backus first, Millers Falls second and Fray third.

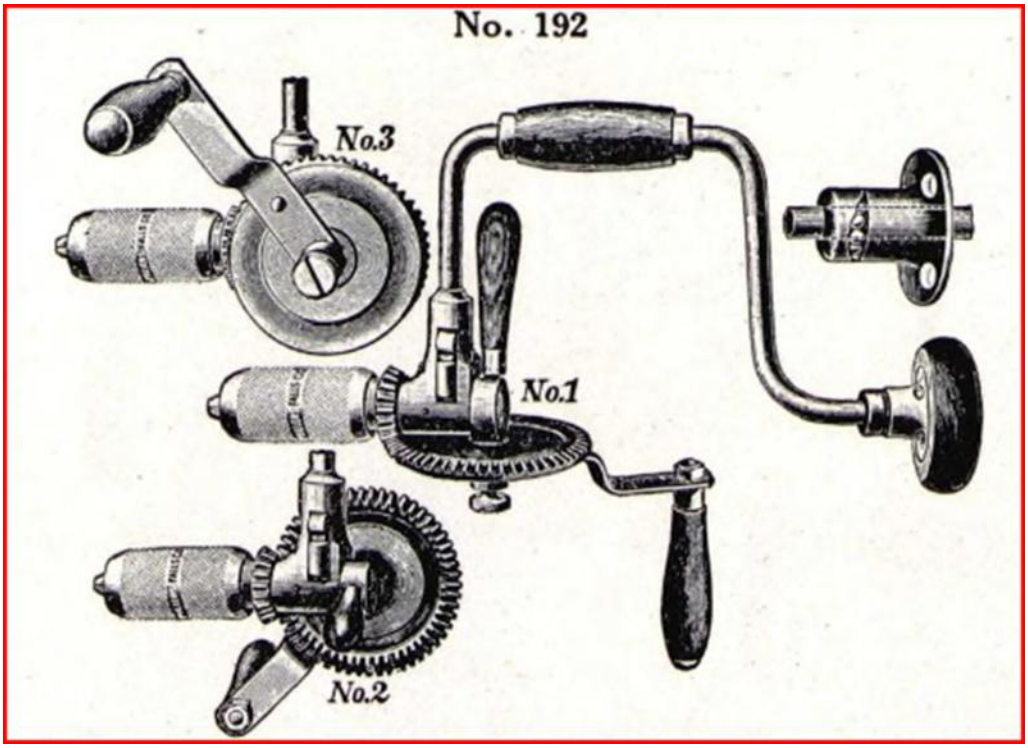

Fig.3. **MF Ratcheting Drill Brace No. 192**. Illustration from Millers Falls Co. 1912 Catalogue No. H. Master Chuck with Leland's universal jaws. They claim that this chuck will take most tang configurations including Morse taper, round and the standard tapered square tang.

The drilling assembly is detachable to allow for use as a traditional brace. It can also be swiveled into any one of three positions as illustrated in Fig.3.

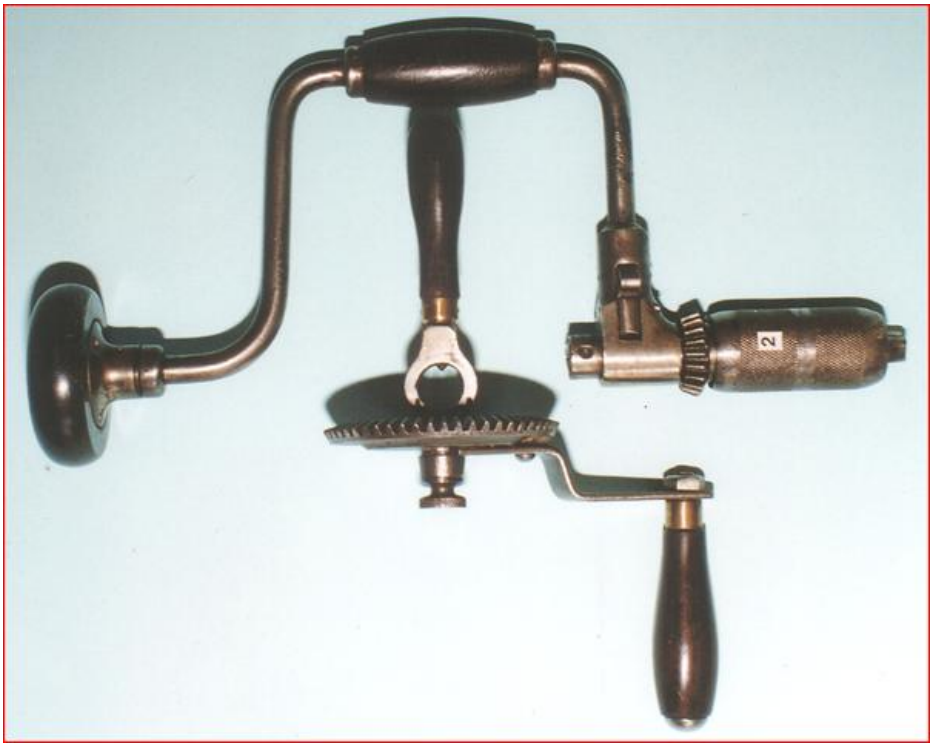

Fig.4. The No. 192 with the adjustment handle and gear wheel removed. Notice the indentation on the post and the locking pin protruding through the ring. This photo is from an article re the Australian club TTTG website by member, John Daniel.

These were sold approximately from 1912 ending in 1922. Only braces with 10 inch sweep were used.

Both the 192 & 182 are ratchet drill braces.

The more commonly found of all the Drill Brace combinations is the Millers Falls No. 182. This came in 8, 10 and 12 inch sweeps and was produced from 1882 to 1931. The drilling assembly is detachable to allow for use as a traditional brace.

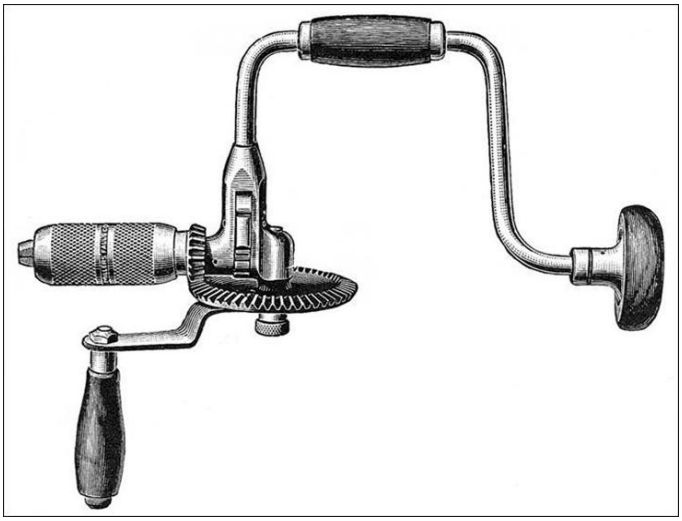

Fig. 5. MF's No. 182. The image on the right was the first produced of the two types shown, circa 1884. This is a half-boxed ratchet with ring-type shifter; drill assembly held in place by means of wing nut located above ratchet mechanism. Later in 1887, the large gear wheel came with an extendable handle. It was not until 1901 that (the left image) the drill assembly is now attached by a screw passing through the large gear.
The left Illustration is from the MF 1915 catalogue. Patented by Wallace Lyon on Dec. 13, 1881. Many years later another patent was issued, the patent was submitted by W.J.Parsons & J.A. Leland for a drill brace. Patent No. 942586. Dec. 07, 1909, again the assignee was Millers Falls Company.

An interesting observation with the right hand image is that this drawing is from the US Central Electric Company Catalogue: 1899. What is interesting is what is included in the right hand drawing on the left side of the chuck shell (you will see this as indistinctive) **"Petri & Pels &V"** Petri & Pels were known for their wood engravings. The engravings are much sought after and very collectable. An original wood engraving of the Drill Brace in Fig. 5. would be worth many times more than the tool itself today.

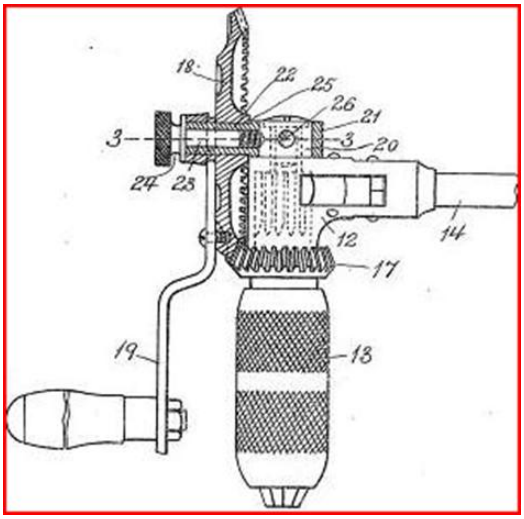

Fig. 6. This patent was submitted by W.J.Parsons & J.A. Leland for a drill brace. Patent No. 942586. Dec. 07, 1909. That part of the patent shown in Fig.6. is contributed to William Parsons.

Other makers found with the brace drill configuration are John Fray. John S. Fray (1833-1916) Fray immigrated to Bridgeport, Connecticut from England in the 1850s and apparently established a working relationship with Nelson Spofford, who held an 1858 patent for a bit brace, and then later, a business relationship with Horace Pigg.

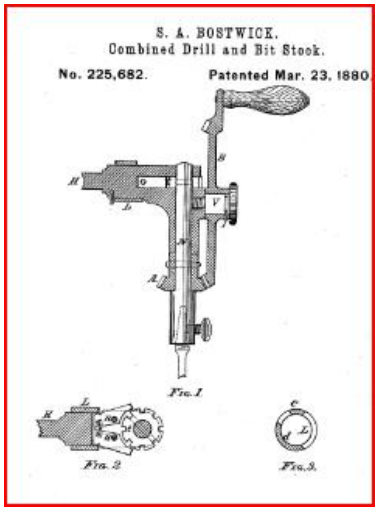

Fig.5. **John Fray**. Drill Brace marked with Patent #225682 of S.A. Bostwick. No. 101 ratchet Drill Brace as shown in Fray's 1911 catalogue No. 26. The chuck shell is decagonal. Fray referred to these as D sleeves. The distinctive chuck shell design may have been borrowed from James Chapman in Sheffield, England (The last issue of the 'Collector' I show Chapman's registered design number 1894 [both copyright and patent] and an image of a nonagon chuck shell)

Notice the decagonal chuck sleeve; these were furnished with this sleeve. Interestingly these Brace Drills are found with a plain sleeve which was an option Fray provided for other braces in the catalogue.

Fig.7. **Quimby S. Backus & Co**. From his 1884 Catalogue, a Drill Brace. Similar to the Millers Falls drill brace, Backus used the 1880 chuck design and the 1881 featured a single concealed pawl with a tooth on its leading edge that engaged the notches of the ratchet wheel.
Patent issued Nov. 29, 1881.
U.S. Letters Patent No. 250047.
The patent was for controlling and adjusting the spring pawl.

Fig.8. On the top of the knurled locking bolt is

" BACKUS SOLE MANUFACTURER. PATD. MAR. 23 OCT.19 & NOV. 16. 1880."

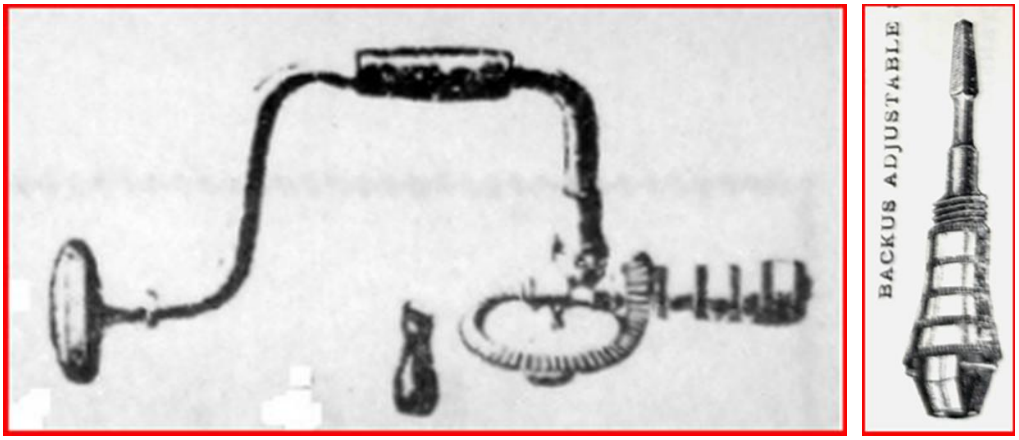

Fig.9. A very old image (drawing) that will look very blurred once printed in the magazine. I include this because the chuck shown matches the patent date, Nov.5, 1872 and the only one I have seen on a Quimby Backus Drill Brace.

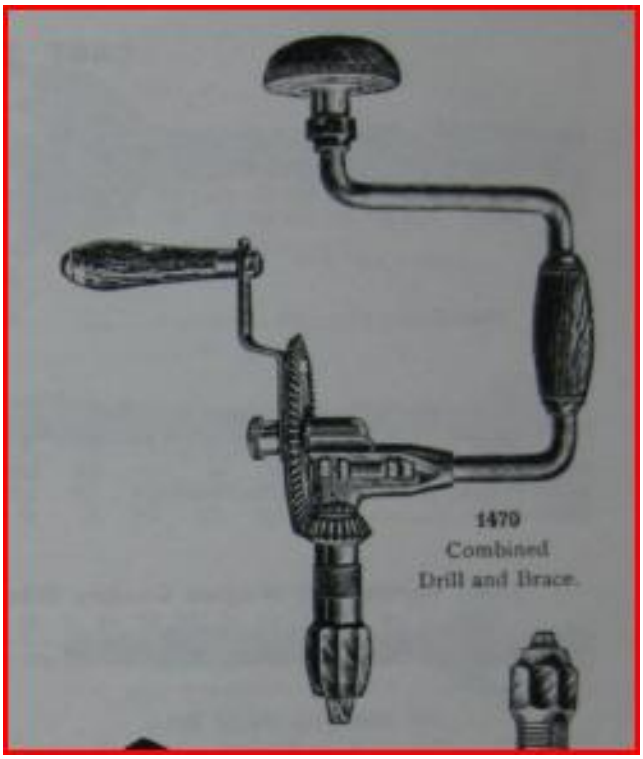

Fig. 8. Was this made by Fray? From William Marples 1921 catalogue. Alex Mathieson & Sons, Glasgow show the same brace in their catalogue. They state the ratchet brace drill is not kept in stock and can be ordered if required.

Regarding the potential manufacturer of these brace drills shown in British catalogues, while there are certainly similarities to the illustration from the Fray 1911 catalogue, there are also differences including the method of attaching the gear wheel, the width of the ratchet selector, and the style of the gear wheel handle.

There are enough anomalies to promote more research on whether this brace was manufactured by James Arscott Chapman (see previous magazine) in Sheffield who was known for copying American braces.

Also classified as a Drill Brace is the **L.M. & K. Works, Drill Brace**. Also wrongly referred to as the **Adkins Combination Corner Brace**. This Drill Brace operates more effectively in a corner where the other drill braces will not. Two different makers are claimed for this design: L.M. & K. Wks. and E.C. Atkins & Co., but Atkins was best known for making handsaws, circular saw blades and bandsaw blades, but they also made grinders and cooperage machinery and marketed braces made by others.

E.C. Atkins was merely the marketer of the Bennett & Bloedel braces, as they also were for other braces.

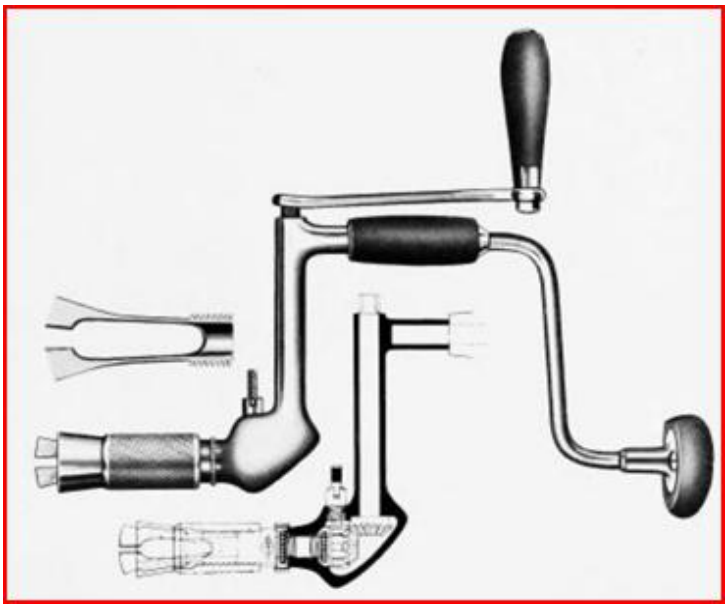

Fig.9 This Bennett & Bloedel patent Brace Drill is Marked "L.M. & K WORKS, LANCASTER NY" and "OCT. 10, 1905 PATENT" Pat. No. 801566 The Lancaster Machine & Knife Works operated from 1896 to 1916 and then sold to Stanley Rule & Level.
These are sometimes found missing the detachable crank handle.

Georgesbasement.com does make the distinction that a cruder version of the MF 182 was made and it seems I have one of each in my collection. The wing nut being replaced with a knurled nut is one of the differences (the wing nut from the premium model does not fit the cheaper version)

Some other Drill Brace combinations patented were O. Grantum, Patent No. 863384. Aug. 13, 1907 and also Patent No. 614385. Nov. 15, 1898. Also A. Larson, Patent No. 863927. Aug.20, 1907. Others were L.F. Wright patented a combined ratchet drill, brace and breast drill, No. 452589, May 19, 1891. W. Lyon, Patent No. 250670. Dec. 13, 1881. There are others, most not known to have been produced.

Fig.10. The assembled No. 192, MF Brace Drill. It is marked with 3 patent dates: June 25, 1907, Feb. 16, 1909, and Nov. 8, 1910. From the Jim McGie collection.

Ref: Old Tool Heaven.com. (Millers Falls) Google Patents. Georgesbasement.com.
Under The Choko Tree (Australia). TTTG(The Traditional Tools Group) Australia.
Geoff Emms (Club member, Western Australia)