

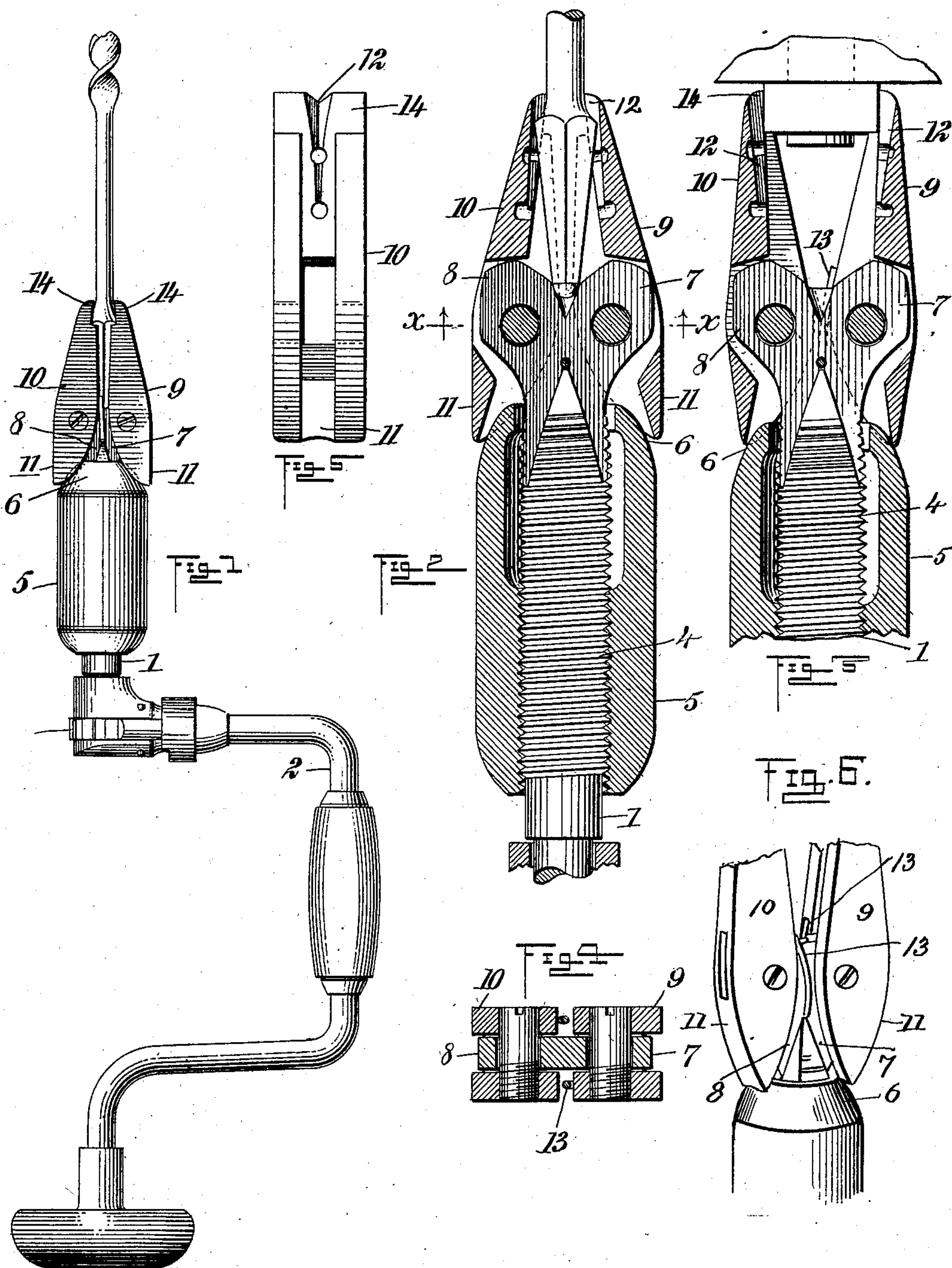
No. 747,746.

PATENTED DEC. 22, 1903.

A. S. E. METCALF.
BRACE.

APPLICATION FILED JAN. 16, 1903.

NO MODEL.



WITNESSES

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ARTHUR STERLING ETHELBIRT METCALF, OF MOVILLE, IOWA.

BRACE.

SPECIFICATION forming part of Letters Patent No. 747,746, dated December 22, 1903.

Application filed January 16, 1903. Serial No. 139,298. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR STERLING ETHELBIRT METCALF, a citizen of the United States, and a resident of Merville, in the county of Woodbury and State of Iowa, have invented a new and Improved Brace, of which the following is a full, clear, and exact description.

This invention relates particularly to improvements in a combined brace, chuck, and wrench, the object being to provide a device of this character having a wide range of adjustment for holding bits and drills and for removing or applying nuts of various sizes.

I will describe a brace embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a brace embodying my invention and showing the jaws as clamping a bit. Fig. 2 is a longitudinal section thereof. Fig. 3 is a longitudinal section showing the jaws engaging with a nut. Fig. 4 is a section on the line $x-x$ of Fig. 2. Fig. 5 is an inner face view of one of the jaws, and Fig. 6 is a perspective view showing the spring connection between the jaws.

Referring to the drawings, 1 designates the shank of the brace, connected to the handle 2 by the ordinary ratchet mechanism 3. This shank 1 is provided with a thread 4, engaged by the interior thread of a sleeve 5, the outer end of which is curved or made cam shape, as indicated at 6, for engaging with the jaws and operating them, as will be hereinafter described.

On the end of the shank 1 are oppositely-extended lateral wings 7 8. A jaw 9 is pivotally connected to the wing 7, and a jaw 10 is pivotally connected to the wing 8, the jaws, as clearly indicated in the drawings, being provided with recesses to receive said wings. The inner ends of the jaws, as indicated at 11, are extended downward below the pivotal points and are curved for engaging with the cam-surface 6 of the sleeve 5. Outward of the pivotal points each jaw is provided with

a V-shaped channel 12 for receiving the angular end of a bit or drill, and these channels, as clearly indicated in Fig. 5, are longitudinally tapered. The outer ends of the jaws are caused to move outward or from each other by means of a spring, here shown as consisting of a wire 13, passed through a perforation in the shank, one member of said spring being engaged with the jaw 9, while the other branch or member of the spring engages with the jaw 10.

In the operation by moving the sleeve 5 downward on the shank or toward the handle the jaws will be separated by the spring, so as to receive the desired tool or to engage with a nut, and obviously the range of movement is such as to adapt the jaws to various sizes of nuts.

By moving the sleeve 5 outward against the portions 11 of the jaws the outer ends of the jaws will be clamped firmly in connection with the tool or with a nut. To engage firmly with a nut, the jaws have transversely-extended parallel jaws 14 at their inner sides.

A substantially-V-shaped notch is formed between the wings 7 and 8, which by receiving the end of the tool will center the same, and the walls of the notch engaging with the angular end of the tool will reduce twisting strain on the jaws, and by making the notch V-shaped it will receive and hold the ends of different-sized tools.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A threaded shank, oppositely-extended wings on the end of said shank and having a V-shaped notch between them, jaws pivoted to the wings, and a jaw-operating sleeve on the threaded shank.

2. A brace having a threaded shank, a sleeve operating on the shank and having a cam end, opposite laterally-extended wings on said shank and having a notch between them, jaws pivoted to said wings, extensions on the jaws for engaging with the cam end of said sleeve, and a spring for opening the jaws.

3. A brace having a threaded shank, a sleeve for operating on the shank and having a cam end, opposite laterally-extended wings

on said shank and having a V-shaped notch
between them, jaws having recesses in which
said wings extend, the said jaws being piv-
oted to said wings, curved projections on said
5 jaws for engaging with the cam end of the
sleeve, and a spring for opening the jaws.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

ARTHUR STERLING ETHELBIRT METCALF.

Witnesses:

JAMES GRAHAM,
GEO. H. FLYNN.