

No. 617,462.

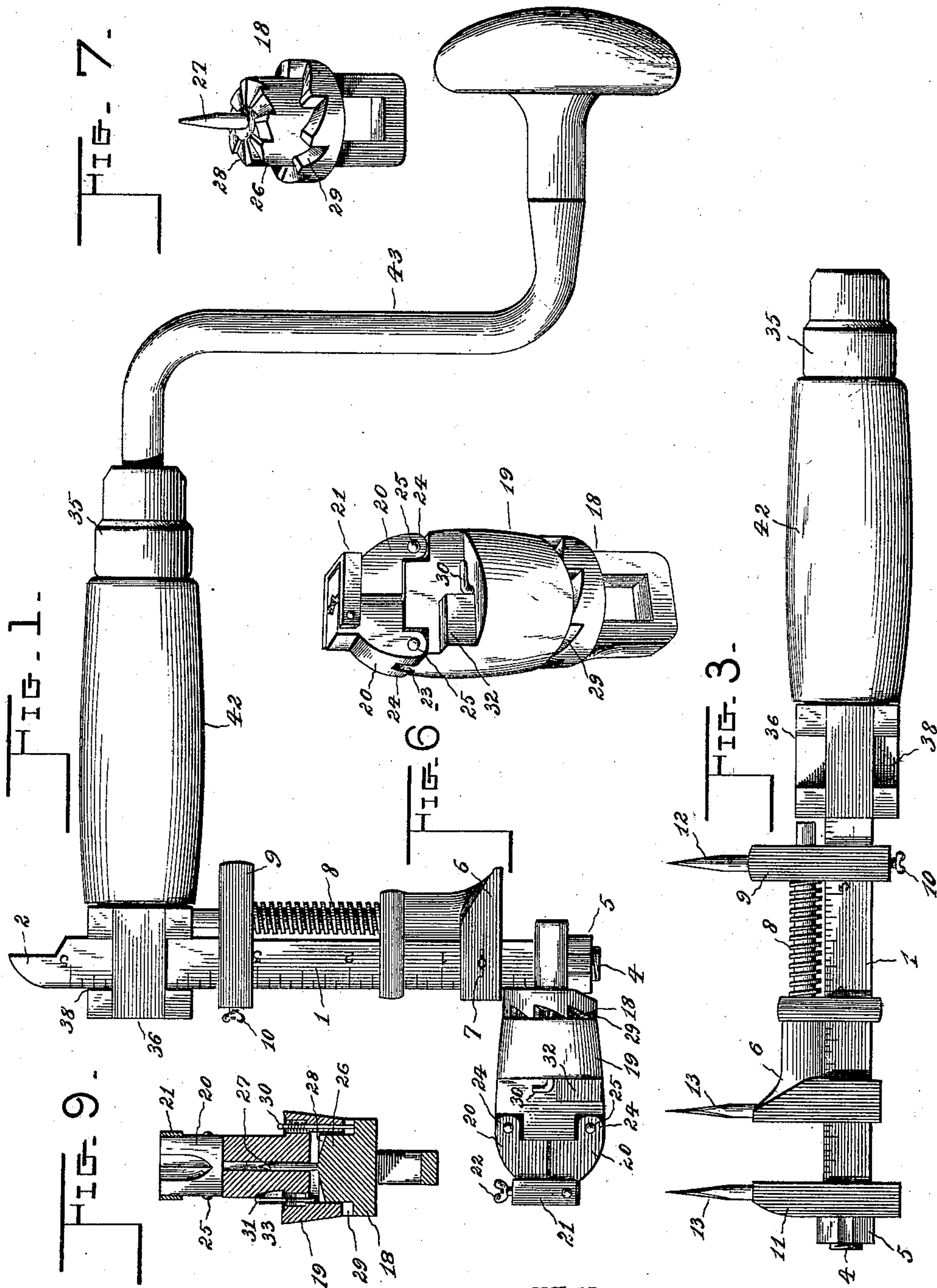
Patented Jan. 10, 1899.

W. W. DAVIS.  
COMBINATION TOOL.

(Application filed Feb. 2, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

*John F. Deufferwiel*  
*U. B. Hillyard.*

By *his* Attorneys,

*William W. Davis,* Inventor

*C. A. Snow & Co.*

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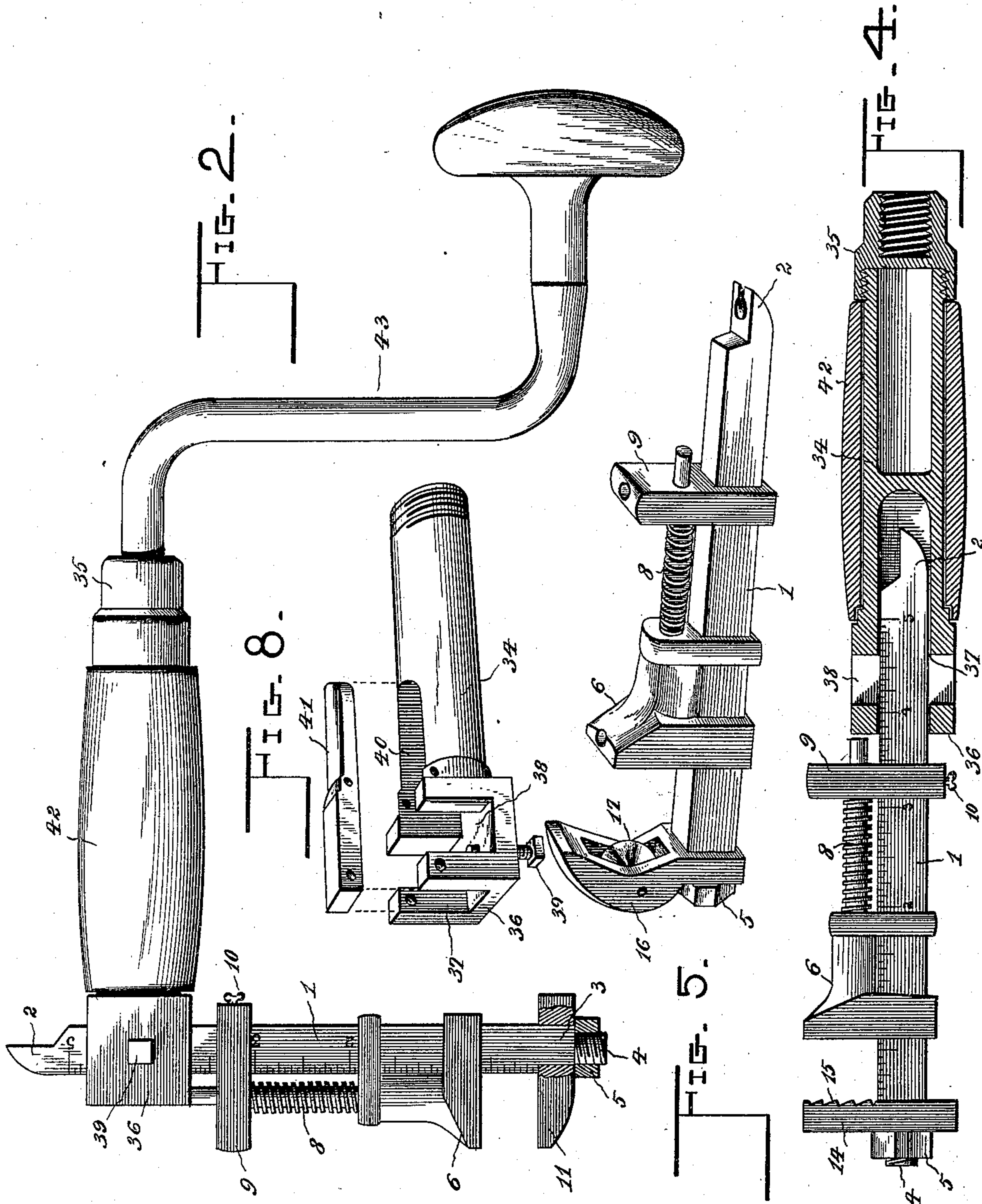
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# UNITED STATES PATENT OFFICE.

WILLIAM W. DAVIS, OF CORSICANA, TEXAS.

## COMBINATION-TOOL.

SPECIFICATION forming part of Letters Patent No. 617,462, dated January 10, 1899.

Application filed February 2, 1898. Serial No. 668,875. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. DAVIS, a citizen of the United States, residing at Corsicana, in the county of Navarro and State of Texas, have invented a new and useful Combination-Tool, of which the following is a specification.

My invention relates to combination-tools, and has for its object to provide a tool of adjustable and interchangeable parts adapted to perform various functions and particularly to improve the construction of devices of this class in the matter of the bit and wrench-brace, the specific wrench-jaw construction, and in the matter of details designed to increase the usefulness of the article.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a side elevation showing the tool adjusted for use as a ratchet-brace. Fig. 2 is a view similar to Fig. 1, showing the tool as it will appear when adjusted for use as a nut or tap brace. Fig. 3 is a side elevation of the tool, representing it when in condition for cutting washers or for use as a monkey-wrench by simply omitting the cutters. Fig. 4 is a detail view showing the tool adapted for use as a pipe-wrench, the handle being in longitudinal section. Fig. 5 is a perspective view of the shank portion, the pipe-cutter being in position. Fig. 6 is a detail perspective view of the ratchet, bit, or tool stock. Fig. 7 is a detail view in perspective of the ratchet portion of the bit-stock. Fig. 8 is a detail view in perspective of the tool-handle, the removable part being detached. Fig. 9 is a section of the bit-stock, showing one pawl out of action and the other in working position.

Corresponding and like parts are referred to in the following description and indicated

in all the views of the drawings by the same reference characters.

The shank 1 is provided at one end with a claw 2 for engagement with nails, brads, or like fastenings, and its opposite end is reduced and made angular, as shown at 3, to receive the various jaws and parts which are provided to be fitted to the shank, thereby adapting the tool for special kinds of work. The end portion of the shank is extended beyond the part 3 and is further reduced and threaded, as shown at 4, to receive a nut 5, by means of which the several tools are securely and firmly held upon the square or angular portion 3 of the shank. The jaw 6 is of ordinary construction, mounted to slide upon the shank, and may be secured at the required adjustment by a binding-screw 7, let into the threaded opening in the side thereof. To secure a nicety of adjustment, the sliding jaw 6 can be moved by means of an adjusting-screw 8, extending parallel with the shank and making screw-thread connection with the jaw 6 in the ordinary manner, the inner or rear end of the adjusting-screw being reduced and passing through an opening formed in a post 9, slidable upon the shank 1 and held thereon at an adjusted position by means of a binding-screw 10. The rear end of the adjusting-screw is loosely mounted in the post 9, and when it is desired to adjust the jaw 6 quickly it is only necessary to loosen the binding-screw 7 and slide the jaw 6 upon the shank 1 to the required position, when it is made fast by retightening the binding-screw 7. To secure the advantages of the adjusting-screw 8, the post 9 must be moved so that the shoulder formed at the base of the reduced end of the adjusting-screw will engage with the inner side of the post. It will thus be seen that upon loosening the binding-screw 7 and turning the adjusting-screw 8 the jaw 6 can be advanced positively and to a nicety. This disposition of the parts is of a special advantage when the tool is used in the capacity of a pipe or rod cutter. The means above described, consisting of the screw 7 for securing the jaw 6 at the desired adjustment with relation to the shank, relieves the thread of the feed-screw 8 from strain during the use of the tool as a wrench.



When the tool is required to be used as a monkey-wrench, the jaw 11 is secured upon the outer end of the shank 1 by being fitted upon the reduced and squared or angular portion 3 and held in place by the nut 5. This jaw 11 corresponds in form to the fixed jaw of a nut or monkey wrench of ordinary construction and coöperates with the sliding jaw 6 in the usual way. The jaws 6 and 11 and the post 9 have openings extending inward from their outer ends. A pointed pin 12 is adapted to be fitted into the openings of the post 9 and forms a center for the tool to turn upon when used for cutting washers. Cutters 13 of like formation are fitted into the openings of the jaws 6 and 11 and serve to cut washers of any desired size from leather, rubber, or other material from which the washers are to be formed. Obviously by proper adjustment of the jaws with reference to each other and to the post 9 washers of different diameters and of different widths may be cut. The parts 12 and 13, projecting laterally from the shank 1, enable the tool to be used as calipers and for taking inside or outside measurements. These measurements can be determined by properly graduating the sides of the shank 1, the scales provided thereon being in inches or graduated according to the purpose for which the tool is designed. Other forms of bits than the points 12 and 13 may be used in connection with the bit-sockets of the jaws 6 and 11 and the post 9; but I have found the above-described construction of bits particularly adapted for use in connection with plumbers' and steam-fitters' tools and others designed for analogous purposes.

The interchangeable pipe-wrench jaw 14 is similar in formation to the jaw 11, except that it is toothed or serrated upon its inner side, as shown at 15, to enable it to bite into a pipe or rod, and the interchangeable cutter-jaw 16 is also substantially identical in construction with the jaw 11, except that its outer end is curved and longitudinally slotted to receive a disk cutter 17. Either of said interchangeable jaws may be substituted for the plain jaw 11. Thus the tool-head seat formed by the reduced end 3 of the tool-shank is adapted to receive either of a plurality of heads or jaws, successively, to suit different uses to which the tool is adapted; but in addition to the above-named heads I have provided another constructed in the form of a bit-stock and having a ratchet portion 18, a head 19, pivoted jaws 20, and a bail 21, the latter being pivoted to the outer end of one of the jaws 20 and adapted to be turned so as to engage with the outer end of the other jaw and provided at its other end with a set-screw 22, by means of which the jaws 20 are drawn together, so as to forcibly grip a bit or other tool placed between them. The side portions of the head 19 are cut away, forming side lugs 23 at the outer end of the head, and the inner ends of

the jaws 20 are formed with pairs of ears 24, between which are received the lugs 23 and to which they are pivotally connected by pins 25 passing through transversely-aligning openings in the lugs and ears. The inner end of the head is recessed and receives a projecting portion 26 of the part 18, thereby preventing relative lateral displacement of the ratchet and head portions of the bit-stock. The parts 18 and 19 are connected by an axial pin or bolt 27 on one of said parts extending into an axial bore of the other part to admit of relative turning of the parts when the tool is in operation. The end portion of the reduced part 26 is formed with ratchet-teeth 28, and the shoulder formed at the base of the said part 26 is provided with corresponding ratchet-teeth 29, the two sets of ratchet-teeth 28 and 29 being reversely disposed, so as to enable the bit-stock to be used either as a right or left hand tool-holder in the manner common to tools constructed to be used on the ratchet principle. Spring-actuated dogs 30 and 31 are mounted in openings extending lengthwise of the head 19, and their inner ends are adapted to engage with the ratchet-teeth 28 and 29. The outer ends of these spring-actuated dogs or pins are bent so as to be brought into engagement with shoulders 32 and 33 at the sides of the head 19 when it is required to throw one or the other of the dogs or pins out of action, according as the bit-stock is to be turned to the right or left. This head, in common with those before described, is provided with means for engaging the seat 3.

The handle of the tool embodying my invention consists of a core 34, of exteriorly-cylindrical construction, upon which is fitted for rotation a grip 42, and one end of the core is shouldered exteriorly and the other end is fitted with a removable cap 35 to hold the grip against endwise displacement. Also the core is preferably hollow to form a bit receptacle or sheath, one end of which is permanently closed by a transverse partition in the bore and the other by said cap 35.

Beyond the outer end of the grip 43 the core is extended to form a head 36, provided with perpendicularly-disposed longitudinal and transverse shank-seats 37 and 38, the former of which communicates with an adjacent portion of the bore or cavity of the core, whereby when the tool-shank is fitted in the longitudinal seat 37 the extremity may project into the sheath formed by the bore of the core. Thus the tool-shank is adapted to fit in either of the intersecting seats of the core-head 36 and to be secured at the desired adjustment therein by means of a set-screw 39, arranged at the intersection of said seats. To facilitate the manufacture of the handle-core by adapting it to be either cast or drop-forged, a portion of one side thereof may be made separate to form a detachable section 41, let into a side opening 40 in the core and held by means of pins or their equivalents.



Furthermore, the cap 35 is provided with a socket, preferably threaded, for detachable engagement with a brace-arm 43 when the tool-shank is disposed in the transverse seat 5 of the handle-core head.

The body portion of the shank is of uniform diameter throughout to facilitate the removal and replacement of the jaw 6 and post 9 or the substitution of other slidable 10 members. When the shank is fitted in the longitudinal seat of the handle - core, the brace-arm may be detached, as shown in Fig. 4, to adapt the tool to be used as a wrench, and when the shank is in the transverse seat 15 it forms one limb of a brace, with which a bit of any desired construction may be used. Also, as will be obvious, the other end of the shank may be fitted in the seat 37 (the tool heads or jaws and post 9 having been re- 20 moved) to adapt the tool-blade end 2 of the shank to perform its function, (it being obvious that the claw 2 is shown merely to indicate a suitable form of tool-blade which may be formed at one end of the shank.) Thus the 25 shank is reversible with relation to the handle (which consists of the core 34 and grip 42) and may be seated at either end in the handle, the bit-engaging elements, which are mounted upon the shank and consist of the jaws or 30 heads and attachments, being removable.

Having described my invention, what I claim is—

1. In a tool of the class described, the combination of a handle having a shank-seat, and 35 a reversible shank having removable bit-engaging elements, and adapted to fit at either end in said seat, substantially as specified.

2. In a tool of the class described, the combination of a handle having a shank-seat, and 40 a reversible shank provided at one end with a tool-blade and at the other end with removable bit-engaging elements, and adapted to fit at either end in said seat, substantially as specified.

3. In a tool of the class described, the combination of a handle having a shank-seat, and 45 a reversible shank provided at one end with a removable head, and at the other end with a tool-blade, and adapted to fit at either end in said seat, substantially as specified. 50

4. In a tool of the class described, the combination of a handle having a shank-seat, and a reversible wrench-jaw-carrying shank terminally constructed to fit at either end in 55 said shank-seat and provided at one end with a tool-blade, substantially as specified.

5. In a tool of the class described, the combination of a handle having terminal longitudinal and transverse shank-seats, and a reversible shank having movable bit-engaging 60 elements and a terminal tool-blade, and adapted to fit at either end in said seats, substantially as specified.

6. The combination with a tool-shank and 65 a brace-arm, of a hollow handle having one end closed and provided with shank-seats for holding the tool-shank in different positions

with relation to the handle, and having at the other end a removable cap provided with means for detachably engaging said brace- 70 arm, substantially as specified.

7. The combination with a tool-shank and a brace-arm, of a hollow handle having one end closed and provided with shank-seats for holding the tool-shank in different positions 75 with relation to the handle, and having at the other end a removable cap provided with a socket in which said brace-arm may be detachably fitted, substantially as specified.

8. The combination with a tool-shank and 80 a brace-arm, of a handle having a hollow core, closed at one end and provided with shank-seats for holding the tool-shank in different positions, open at the other end and fitted with a removable cap provided with means 85 for engaging said brace-arm, and a revoluble grip exteriorly mounted upon said core, substantially as specified.

9. The combination with a tool-shank and a brace-arm, of a handle having a hollow core, 90 closed at one end and provided with shank-seats for holding the tool-shank in different positions, open at the other end and fitted with a removable cap provided with means for engaging said brace-arm, and a revoluble grip 95 exteriorly mounted upon said core between exterior shoulders projecting therefrom, one of said shoulders being formed by the said removable cap, substantially as specified.

10. In a tool of the class described, the combination of a handle provided at one end with 100 longitudinal and transverse shank-seats and at the other end with a detachable brace-arm secured thereto, and a reversible shank fitted at one end in one of said shank-seats and provided with bit-engaging elements, substan- 105 tially as specified.

11. In a tool of the class described, the combination with a shank, of wrench-jaws carried by the shank and provided with bit- 110 sockets facing in a common direction, and means for adjusting one of the jaws, substantially as specified.

12. In a tool of the class described, the combination with a shank, of fixed and movable 115 jaws, and a post, said post and jaws being provided with bit-sockets facing in a common direction, and connections between said post and the movable jaw whereby the latter may be adjusted, substantially as specified. 120

13. In a tool of the class described, the combination with a shank, of fixed and movable jaws, a post mounted to slide upon the shank, means for securing said post at the desired 125 adjustment, and connections between the post and the movable jaw whereby the latter may be adjusted to vary the interval between the same and the post, said jaws and post being provided with bit-sockets facing in a common direction, substantially as specified. 130

14. In a tool of the class described, the combination of a shank terminating at one end in a head, a post adjustably mounted upon the shank, a movable jaw mounted upon the



shank, and means for securing the post and movable jaw at the desired relative adjustment, said post and jaw having bit-sockets, substantially as specified.

5 15. In a tool of the class described, the combination of a shank terminating at one end in a head, a post and a movable jaw mounted to slide upon the shank, an adjusting connection between the post and movable jaw,  
10 and means for securing the post at the desired adjustment, said post and jaw having bit-sockets, substantially as specified.

16. In a tool of the class described, the combination of a shank terminating at one end  
15 in a head, a post and a movable jaw mounted to slide upon the shank, an adjusting connection between the post and movable jaw, and independent means for securing the post and movable jaw at the desired adjust-

ment, said head, post and jaw having bit- 20 sockets, substantially as specified.

17. In a tool of the class described, the combination with a handle provided at one end with a brace-arm and terminating at the other end in longitudinal and transverse 25 shank-seats, and a reversible shank fitted at one end in one of said seats and provided at one extremity with a head-seat, of a head constructed to engage said head-seat, and means for detachably securing the same in 30 place thereon, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM W. DAVIS.

Witnesses:

HAMILTON WITHERSPOON,  
R. T. BRIGGS.