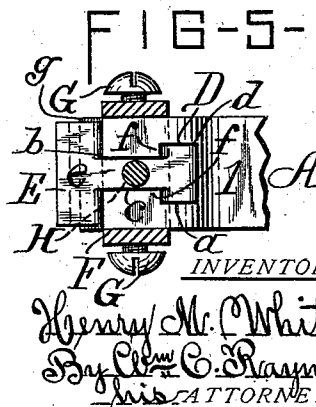
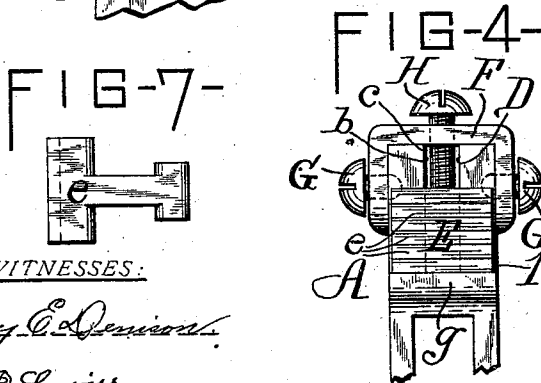
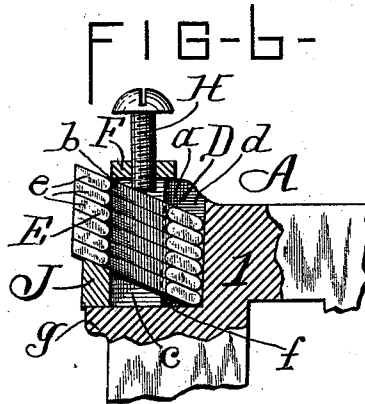
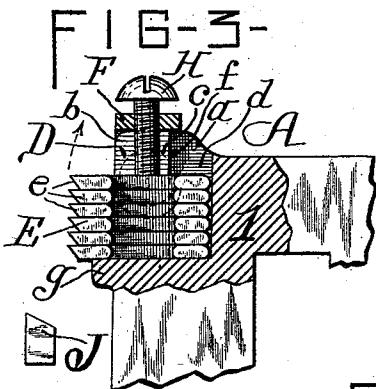
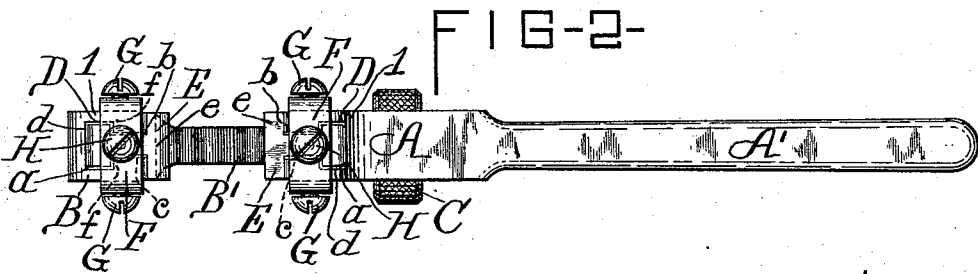
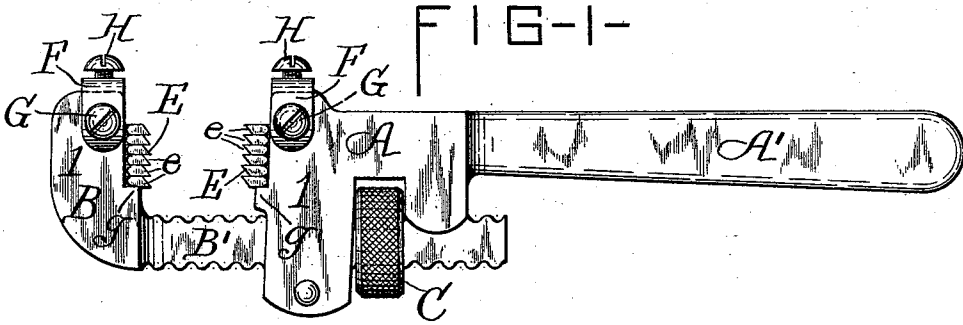


(No Model.)

H. M. WHITE.
PIPE WRENCH.

No. 537,256.

Patented Apr. 9, 1895.



WITNESSES:

Harry C. Denison.

M. D. Lewis.

INVENTOR,

Henry M. White,
By C. C. Raymond,
his ATTORNEY.

UNITED STATES PATENT OFFICE.

HENRY M. WHITE, OF ONEIDA, NEW YORK.

PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 537,256, dated April 9, 1895.

Application filed August 28, 1894. Serial No. 521,483. (No model.)

To all whom it may concern:

Be it known that I, HENRY M. WHITE, a citizen of the United States, residing at Oneida, in the county of Madison and State of New York, have invented certain new and useful Improvements in Pipe-Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved pipe-wrench; Fig. 2, a top plan thereof; Fig. 3, an enlarged sectional detail of one of the jaws—the stationary one herein being shown for exemplification; Fig. 4, an enlarged detail of the jaw as appearing at its front or gripping face; Fig. 5, an enlarged top plan detail of the jaw, with portions broken away for clearer illustration of underlying parts; Fig. 6, an enlarged sectional detail similar to that of Fig. 3, but that the laminar toothed body appertaining to the jaw (or jaws) is indicated in an inclined position for proper sharpening of the teeth, instead of its normal operative position for gripping service; and Fig. 7 is an enlarged detail—top plan—of one of the beveled edge plates of the series forming a laminated serrated or toothed body for the respective jaws of the wrench.

Similar letters and figures of reference denote corresponding parts throughout the several views.

My invention broadly has reference to that class of gripping tools known as wrenches, and especially to that sub-class thereof denominated pipe-wrenches and peculiarly adapted for the gripping and manipulating of pipes, tubes, rods, and analogous uses; and specifically my invention has direct reference to the construction of the stationary and movable jaw members of wrenches of the species stated.

The prime object and intent of my invention is, the production of a wrench provided with jaws and teeth so constructed and arranged as to admit of the ready and expeditious sharpening of the teeth appertaining to a particular jaw concurrently and uniformly; the simultaneous and accurate sharpening of the teeth of a laminar block or body while same is in connection with a jaw head; the

utilization of separable teeth forming a component part of a laminated gripping body removably and adjustably seated in a jaw head; the insuring of the series of beveled-edge plates constituting a laminar serrated body remaining compact and stationary in a jaw for gripping; and in the detachability of a single plate or a series for replacement by new ones in the jaw or jaws—when desirable.

My invention consists in the novel features of construction, arrangement, co-adaptation, and operation, hereinafter described; and specifically set forth in the annexed claims.

Referring to the accompanying drawings illustrative of my improved pipe-wrench, A denotes the stationary jaw, which, except as to its forward and upward teeth retaining portion, may be of the formation shown or any common or preferred form, and A' is the customary handle extending lineally rearward from said jaw member wherewith it is integral.

B is the movable or adjustable jaw member, of any ordinary or preferred formation except as to its upper teeth-provided portion, and B' indicates a threaded stem or arm extending rearwardly from the bottom of the jaw a suitable distance, said screw stem being longitudinally movable through the stationary jaw member supporting it in any ordinary or preferred way, while C is a customary cylindrical adjusting nut, located in a recess of the jaw, and working on the stem of the jaw B, the rotation of the nut obviously causing approach or retreat of the movable jaw in reference to the stationary one.

D D are recesses or slots formed vertically in the head portions 1 1 of the respective jaws A B, and forming seats for the laminar teeth-provided bodies or blocks E E hereinafter to be specifically described, which slots lie longitudinally central the heads of the jaws, and opening out lineally the same both upwardly and forwardly as at *a*, *b*, respectively; the sides and inner end of the slotted seats being vertical and the bottom horizontal and at a right-angle to the aforementioned.

In plan the retaining seats D D are of T-configuration, the neck or contracted portion *c* extending centrally inward from the front face of the head of a jaw a medium distance and then terminating in the transverse en-

larged orifice *d*, all as clearly shown forth in the drawings.

The laminated blocks or bodies *E E* carrying the gripping teeth of the respective jaws *A B* and retained in the mortise-like seats of the jaw heads, comprise respectively a series of plates, *e*, preferably of casehardened steel of moderate thickness, laid flatwise one upon another, and each of corresponding length, width and thickness. In plan each plate *e* presents an **I**-configuration or boundary, the neck and small headed end thereof flatwise loosely fitting and dropping into the portions *c, d*, respectively, which form the slotted retaining seat *D* of each jaw, while the larger headed end, beveled at its outer straight edge to form a gripping-tooth, lies in front of the face of the jaw-head, closely or rather quite near thereto. The inner edges of the large head portion of the plates *e* are rounded or convex, and also both the forward and rearward edges of the smaller head portion thereof. Obviously, to insure proper gripping of an object the toothed plates of one jaw are so disposed that the bevels creating the teeth lie parallel, while in the opposite jaw the series of plates are so laid that the beveled edges of the teeth lie parallel on planes antagonistic to those pertaining to the companion jaw.

As is evident, the offsets *ff* of the walls of seats *D* of the jaws serve as shoulders against forward displacement of the tooth-plates under any conditions.

FF are bridge or yoke plates of **U**-shape removably secured to the upper part of the head portions of the jaws, their front edge standing flush with the forward vertical edge of the respective jaws; the horizontal straight portion of the bridge-plate lying upon the top of the jaw head and bridging the open seat *D*, and the arms thereof extending a distance down either side of the jaw and provided with machine screws *G, G*, working therein and screwing into or tightly impinging the sides of the jaw head, the slitted heads of the screws rendering by the use of a screw-driver the loosening or tightening of said screws an easy matter.

H is a clamping-screw provided with a rounded slitted head, said screw working centrally through the horizontal bridge-plate, and bearing tightly upon the upper plate *e* of the laminated toothed body *E* binds the several plates immovably together and the laminar body rigidly in the seat therefor in the jaw members, and in condition for requisite operation of the teeth, an auxiliary bearing being insured the outstanding tooth portions of the plates by the under shoulder *g* projecting slightly beyond the front face of each jaw flush with the bottom of the seat *D* thereof, and thus strengthening the row of teeth, the operative position of, and retention of the gripping plates being well brought out in Figs. 3, 4, and 5, and to some degree in the first two views.

The teeth requiring sharpening, and the

tooth plates *e* being disposed in their seats as exemplified in Fig. 3, as to position of same and the bevels of the teeth, I retract the clamp-screw *H* a requisite degree, then grasp the body of tooth plates and swing the same upwardly to such incline that the beveled edges of the plates lie substantially lineal on a corresponding plane parallel to the face of the head of the jaw, (see Fig. 6,) the upward forward portion of the top plate *e* of the laminated and compact body *E* impinging the forward edge of the above bridge plate *F*, and the downward rearward end of the lowermost plate of the series abutting the contiguous rear corner of the mortise seat. While the rear ends of the plates abut against the back wall of the seat and the rear edges of the beveled heads abut the front face of the jaw head at either side the mortise seat, I take in hand a metallic wedge *J* and crowd it tightly in between the under forward portion of the bottom plate *e* of the series and the shoulder *g* of the jaw, coincidently rotating (if not already done) the clamp-screw *H* that it will press firmly against the top surface of the upper plate *e*. Arranged as described, all that is essential for the proper grinding and sharpening of the teeth is, to hold same against a revolving grindstone or emery wheel and almost instantaneously the several teeth will concurrently attain the proper and uniform bevel which being accomplished the wedge is withdrawn permitting the laminar body to re-assume the operative position indicated in Fig. 3, &c., the clamp-screw being screwed down against the plates, and everything in readiness for service. The rounding of the portions of the plates *e*, as hereinbefore referred to, admits of the easy swinging upward or downward of same when essential or desirable.

Any suitable metal may be employed in the construction of my device.

For the removal of the tooth-plates or the substitution of new ones, all that is necessary is to detach the bridge-plate from position, replacing it when the plates are in position, and screwing it firmly in place.

The exceeding value and utility of my invention are evident, insuring as it does a simple and serviceable wrench, and in particular admitting of the ready replacing of damaged or excessively worn teeth, as well as expeditious sharpening of a number of teeth concurrently, in lieu of the employment of the slow and laborious manner and means common to the use of the forms of wrenches now in use, and which drawbacks or disadvantages are thoroughly overcome by my invention.

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

1. A wrench having a jaw, or jaws, provided with a recess, or recesses, which extend vertically in the jaw, or jaws, guide slots in the lateral walls of the recesses, and a series of

plates, forming teeth, placed in each slotted recess, and a set screw for each series of plates to hold them rigidly in contact with each other, substantially as shown.

5 2. A wrench provided with one or more jaws, having a shouldered recess, or recesses, formed therein, a series of plates forming teeth, and shaped at their inner ends to correspond to the shape of the shouldered recess
10 or recesses, a removable bridge which spans the open end of each recess, and a clamping screw for holding each series of plates rigidly in contact, the sides of the recesses forming
15 guiding walls to prevent the plates from being displaced endwise substantially as described.

3. A wrench having a T-shaped recess formed in one of its jaws and a series of sharp edged plates having their inner ends made T-shaped, a bridge spanning the top of the
20 recess, and a set screw passing through the bridge, to clamp the plates together, substantially as set forth.

4. A wrench comprising a stationary and a movable jaw, a series of beveled metallic

plates detachably retained in a gripping position by slots or recesses in said jaws, and means for permitting the adjustment of the plates while in the jaws for simultaneous sharpening of their outer ends, substantially as described.

5. A wrench having a recess in its jaw, provided with side slots, a series of movable plates, forming teeth, placed therein, and a means for supporting a clamping screw, combined with the clamping screw; the plates being adapted to be raised at an angle in the jaw, clamped together in that position and sharpened simultaneously, the sides of the recesses forming guiding walls to prevent the plates from being displaced endwise substantially as shown.

In testimony whereof I affix my signature, in presence of two witnesses, this 13th day of February, 1894.

HENRY M. WHITE. [L. S.]

Witnesses:

WM. C. RAYMOND,
E. KANKEMOELLER.