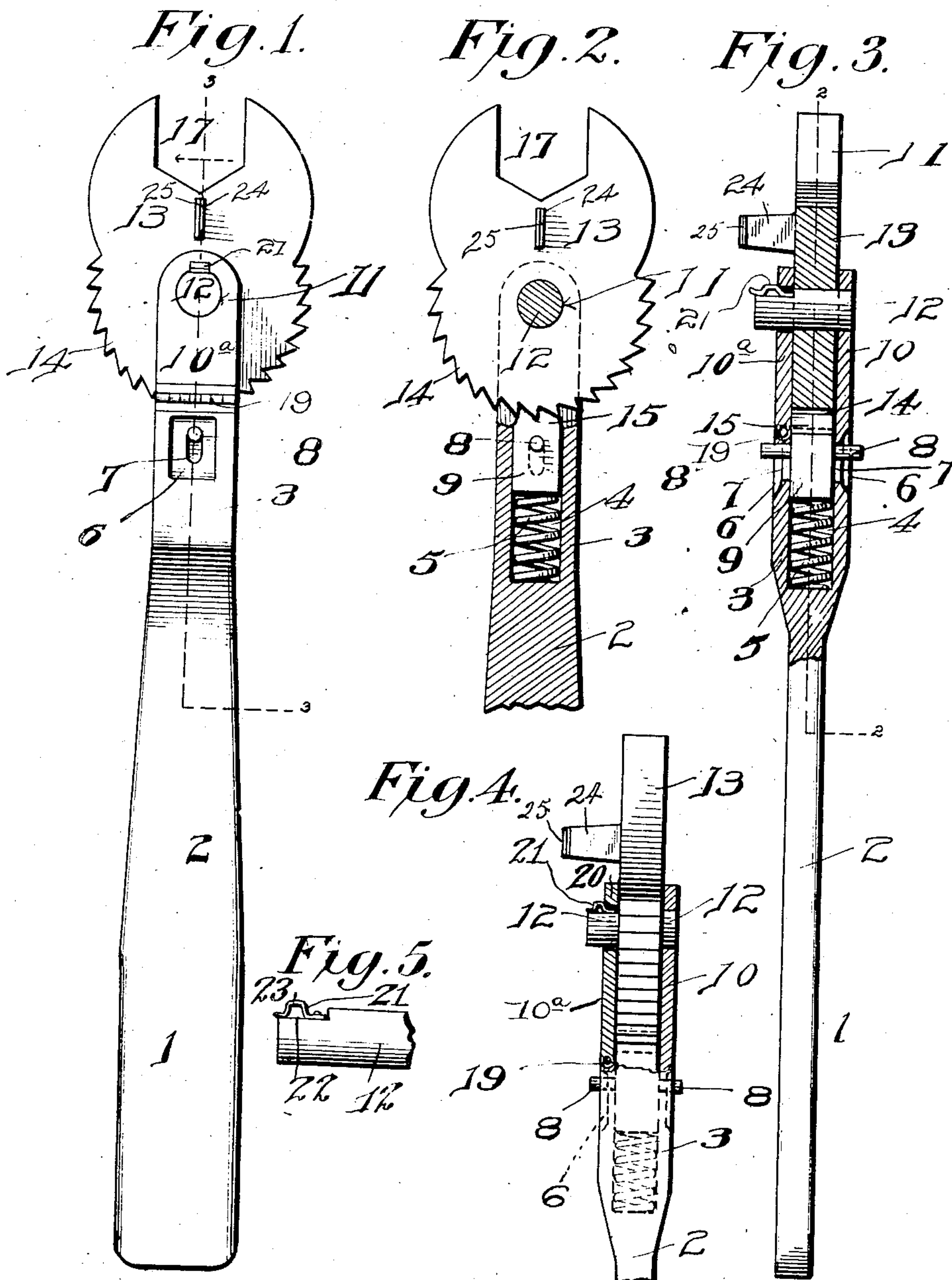


H. E. STEPHENS.
WRENCH.
APPLICATION FILED NOV. 10, 1908.

943,757.

Patented Dec. 21, 1909.



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Witnesses
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UNITED STATES PATENT OFFICE.

HARRY E. STEPHENS, OF ELGIN, ILLINOIS.

WRENCH.

943,757.

Specification of Letters Patent. Patented Dec. 21, 1909.

Application filed November 10, 1908. Serial No. 461,917.

To all whom it may concern:

Be it known that I, HARRY E. STEPHENS, citizen of the United States, residing at Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Wrenches, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to wrenches, and has in view certain improvements in the same whereby the nut engaging head thereof may be set at various angles relatively to the handle, so as to adapt the tool for operations in corners and the like, and also means whereby the said head may be readily removed from the handle when necessary or desirable.

In carrying out the object of the invention set forth above it is contemplated employing a ratchet on the underside of a pivoted segmental head with which coöperates a spring-pressed dog for holding said head in various positions relatively to said head, said dog being so mounted in and guided by a pair of spaced apart arms provided with a handle that it will immediately slide to an engaging position with said ratchet when manual restraint of the same is removed.

It will be understood of course, that the essential features of the invention are susceptible of structural changes and variations, but a practical and preferred embodiment of the same is shown in the accompanying drawings, wherein—

Figure 1 is a front elevation of the improved wrench. Fig. 2 is a longitudinal sectional view of the same partially taken on the line 2—2, Fig. 3. Fig. 3 is a similar view partially taken on the line 3—3, Fig. 1. Fig. 4 is a fragmentary view similar to Fig. 3. Fig. 5 is an enlarged fragmentary view of the pivot pin.

Like characters of reference designate corresponding parts.

Referring to the accompanying drawings, it will be observed that the handle of the improved wrench has one end portion flattened and provided with parallel rounded sides as indicated at 1 which permits of the same fitting snugly in the hands of the operator, and from the upper end of said flattened portion 1, the handle decreases in width, but increases in thickness, as indicated at 2, and from such last mentioned portion, the handle terminates in the outstanding sides 3—3, between which the body

of the metal is bored out to form a longitudinally extending recess, or pocket, 4, forming a seat for a coiled spring 5. The sides of the outstanding portions 3—3, preferably just below the upper end of the longitudinally extending pocket, 4, have an external recess 6 formed in them, and the bottom of each of said recesses 6 has a guiding notch or slot 7 cut through it, said notches extending into the said pocket and forming guides for outstanding lugs 8 of a dog 9 which is mounted in said pocket 4 upon the spring 5.

The outer end of the shouldered portion 3 terminates in spaced apart arms 10 and 10^a provided with registering pivot openings 11 which receive the ends of a pivot pin 12 of a nut-engaging head 13. The said head 13 extends well down between the said arms 10 and 10^a so that it will just clear the ends thereof, and on its lower, semi-cylindrical surface, is provided with a ratchet segment 14 with which the teeth 15 of the spring-pressed dog 9 engage, as is shown in Figs. 2, 3 and 4 of the accompanying drawings. The outer end of said head 13 has been shown as provided with a nut-engaging recess 17, but it will of course be understood that, if preferred, it may be provided with the usual recess for manipulating pipe sections, should the tool be used for such purpose.

It will be understood from the foregoing description that the head 13 is normally held in a fixed relative position to the handle by means of the engagement between its ratchet and the spring-pressed dog 9, and that the ratchet teeth of the head and the dog are so shaped that pressure exerted on the handle in one direction will permit of a relative movement of said handle to said head in one direction, but movement in the other direction will be prevented, unless the dog is pushed down into the pocket 4 against the pressure of the spring 5. This arrangement of parts facilitates the manipulation of the tool when removing a nut or uncoupling pipe sections, as it will be understood that the handle may be readily swung to a new position to compensate for any movement of the head when turning a nut.

In applying the head 13 to a nut or pipe section that is to be turned, the dog 9 is pushed down in to its pocket 4 by pressure exerted upon the lugs 8, which disengages the same from the ratchet teeth 14 of the

head, whereupon the said head may be rocked upon its pivot to the desired angle to permit its nut-engaging recess to be placed over the nut. When the head is in the desired position, the manual pressure upon the dog is removed, whereupon the pressure of the spring 5 will cause the same to slide into engagement with the teeth of the head, and thereby lock the head and handle together.

In order that the nut-engaging head 13 may be removed from between the arms 10 and 10^a, one of said arms (10^a) has a hinge connection 19 with one of the outstanding sides 3 of the handle so that said arm may be swung outwardly therefrom to disengage its pivot opening 11 from the pivot pin 12. The pivot opening of said hinged arm is provided with a recess 20 adapted to snap over a spring 21 mounted in a recess 22 in the pivot 11. The spring 21 is provided with a shoulder 23 which bears against the outer side of said hinged arm to retain the same in a closed position.

The ratchet head 13 may be provided with an outstanding side extension 24 which has a sharpened edge 25 which may be used as a screw driver, prying tool, or the like.

It will be seen from the foregoing that by means of the hinged arm 10^a, the head 13 may be removed from between the arms 10^a and 10, thereby permitting a different type of head to be substituted when necessary or desirable, and also greatly facilitating the cleaning of the same.

What I claim as my invention is:—

1. A wrench comprising a handle provided with a longitudinal pocket in one end, arms projecting from opposite sides of said pocket, one of said arms being integral with said handle, the other arm having a hinge connection with said handle and being provided with an opening, a pivot pin carried by the integral arm and having a spring mounted on one end over which said hinged arm snaps when in a closed position, a spring seated in said pocket, a dog mounted on said spring and adapted to be guided longitudinally by said arms, and a head pivotally mounted between said arms and adapted to be engaged by said dog.

2. A wrench comprising a handle provided with a longitudinal pocket in one end, arms

projecting from opposite sides of said pocket, one of said arms being integral with said handle, the other arm being hinged to said handle, a pivot pin carried by the integral arm and having a recess in one end, a shouldered spring seated in said recess and over which said hinged arm snaps when in a closed position, a spring seated in said pocket, a dog mounted on said spring and adapted to be guided longitudinally by said arms, and a head pivotally mounted between said arms and adapted to be engaged by said dog.

3. A wrench comprising a handle provided with a longitudinal pocket in one end, arms projecting from opposite sides of said pocket, one of said arms being integral with said handle and the other hinged thereto and provided with a latching opening, a pivot pin carried by the integral arm, and with which said hinged arm engages, a nut-engaging head carried by said pivot pin, and a spring-pressed dog for retaining said head in various positions relative to said handle.

4. A wrench comprising a handle provided with a pocket in one end, arms projecting from opposite sides of said pocket, one of said arms being hinged thereto and provided with a latching opening, a pivot pin carried by the other arm and carrying a latch which engages with the opening in the hinged arm, a nut-engaging head carried by said pivot pin, and a spring-pressed dog seated in said pocket and guided longitudinally by said arms to engage with said head.

5. A wrench comprising a handle, arms projecting from opposite sides thereof, one of said arms being hinged thereto and provided with an opening, a pivot pin carried by the other arm and carrying a latch which engages with the opening in the hinged arm, a nut-engaging head carried by said pivot pin, and means carried by said handle for engaging with said head.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

HARRY E. STEPHENS.

Witnesses:

GEO. B. WALTER,
GEORGE M. HART.