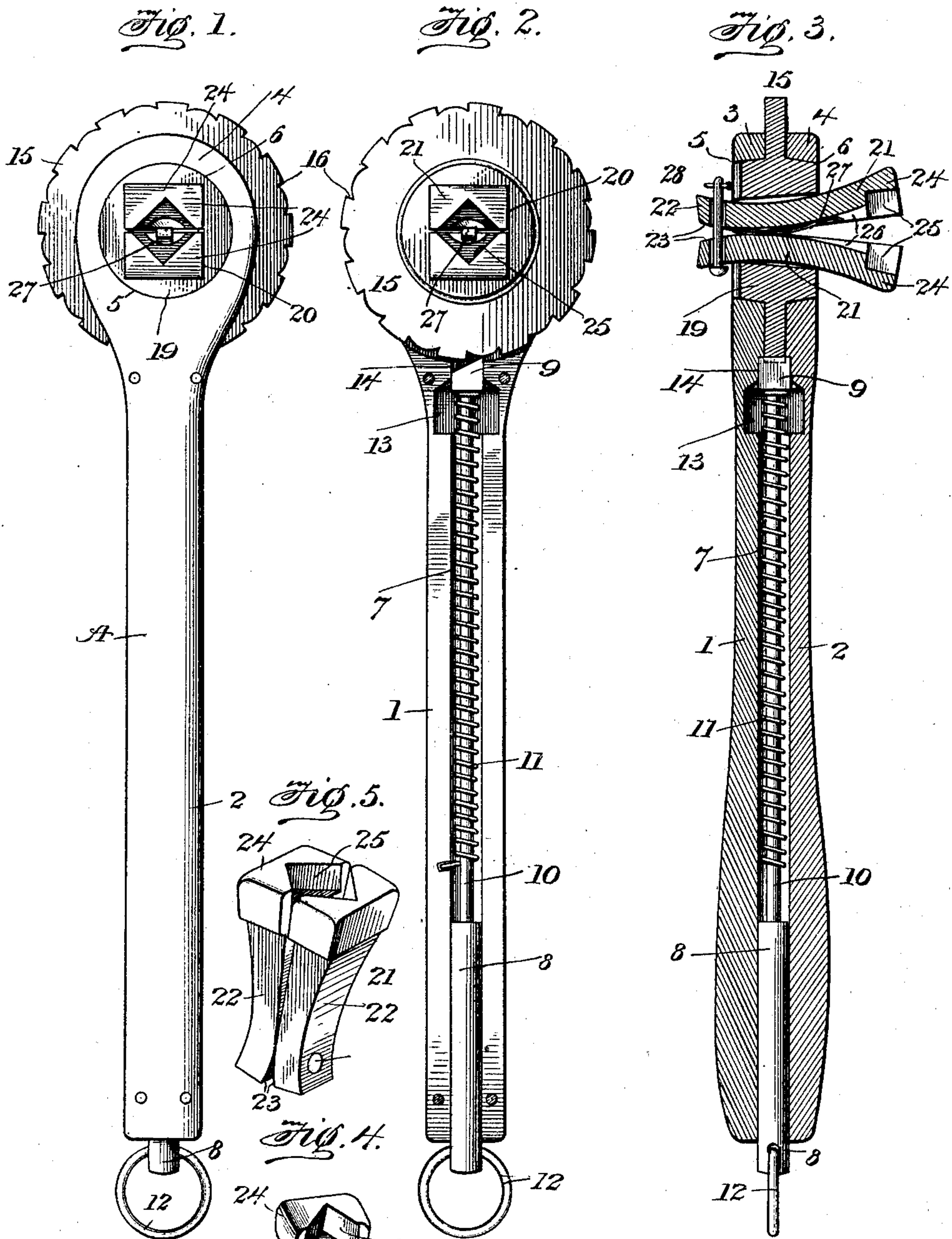


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J. C. CARLHIME.
REVOLVING RATCHET WRENCH.
APPLICATION FILED MAR. 3, 1902.

NO MODEL.



Witnesses
Anton S. Belt,
Ernest C. Yost.

Inventor
Jacob C. Carlhime,
By *J. N. Hicks.*

Attorneys

UNITED STATES PATENT OFFICE.

JACOB C. CARLHIME, OF ASHVILLE, PENNSYLVANIA.

REVOLVING RATCHET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 719,645, dated February 3, 1903.

Application filed March 3, 1902. Serial No. 96,413. (No model.)

To all whom it may concern:

Be it known that I, JACOB C. CARLHIME, a citizen of the United States, residing at Ashville, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Revolving Ratchet-Wrenches; and I do 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, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has relation to improvements in ratchet-wrenches; and the object is to provide a nut or bolt wrench of the kind named and for the uses to which such implements are intended which is of simple construction, efficient and convenient in operation, and having jaws which are readily adjusted to different-sized nuts or to screw and bolt heads.

The invention consists in the novel construction of parts and their arrangement and aggroupment in operative combination, as will be hereinafter fully described and the novelty thereof particularly pointed out and distinctly claimed.

I have fully and clearly illustrated the invention in the accompanying drawings, to be taken as part hereof, and wherein—

Figure 1 is a view of the wrench complete. Fig. 2 is a view with one of the parts removed, showing the pawl-and-ratchet mechanism. Fig. 3 is a central longitudinal section of the implement. Fig. 4 is a perspective view of one of the jaw members. Fig. 5 is a perspective view of the jaw members disposed as in operative relation.

Referring to the drawings, A designates the handle of the implement, consisting of two parts 1 2, of duplicate construction, laid and secured together for the length of the handle and formed with circular extensions 3 4 at their inner ends, having circular openings 5 6, constituting hub-bearings and so arranged that a space is made between them, in which the ratchet-disk is held and rotated. Each section or part of the handle is coincidently hollowed out, as at 7, forming a tube when the sections are laid upon one another and are secured together firmly by clamps,

screws, or any other suitable fastenings. In the tube thus formed is slidably disposed the rod or stem 8 of the pawl 9, formed on the inner end of the stem. The stem of the pawl for a proper distance is made smaller than the tube, as at 10, and has arranged thereon an expansive spring 11, having one end anchored to a point in the tube and the other end lodged against the base of the pawl. A ring 12 or other finger-piece is secured in or to the projecting outer end of the pawl-stem, whereby it may be manipulated. In the tube is made a space or chamber 13 of greater diameter than the remainder of the tube, into which the head of the pawl may be drawn from its square seat 14 and then turned on its axis so that its nose will engage the ratchets to turn the disk reversely.

15 designates the ratchet-disk consisting of a disk formed with ratchet-teeth 16, which may be engaged by the pawl at either end. The disk 15 is formed with a strong hub 19, extending from each face thereof and formed with a rectangular opening 20, having tapering or inclined end walls, whereby the jaws may have room to expand.

21 designates the jaws, duplicates in shape and construction and consisting of a stem 22, having a straight inner face extending the greater portion of their length and outwardly-curved portions at their lower end portions, as at 23, to engage against the inclined end walls of the rectangular opening 20. At the upper end of the jaws are formed heads 24, made with a nut-seat 25 and constituting the gripping portion of the jaws. The backs of the jaws are curved inward longitudinally, as shown, so they will spread automatically in the hub. In the inner faces of the jaws are formed alining grooves 26, in one of which is secured a spring 27, the free end of which rests in the companion groove and bears against the other jaw and tends to keep the jaws always pressed outward to the capacity desired. In the lower ends of the jaws is loosely secured a pin 28, which serves to keep the jaws in alinement.

To utilize the implement after the parts have been assembled and secured together in relative positions, all that is necessary is to place the jaws over the nut or bolt-head and turn the implement in the proper direction.

If it is desired to reverse the direction of rotation, the stem is withdrawn until the pawl-head is drawn from its square seat in the end of the handle and into the adjacent space and
 5 then turn the stem half around and let it loose, when the spring on the stem will move the pawl again into engagement with the ratchet-teeth.

Having described my invention, what I
 10 claim is—

1. A ratchet-wrench comprising a tubular handle formed with a square opening at its inner end and a chamber of enlarged diameter immediately adjacent to the opening, and
 15 having parallel extensions formed with circular openings, a ratchet-disk formed with teeth adapted to be engaged from either direction of rotation and having a hub journaled in the circular openings of the handle
 20 extensions, and formed with a rectangular passage therethrough having tapering end walls, a spring-actuated stem arranged in the tubular handle formed on its inner end with a square pawl-head slidably fitted in the
 25 square opening and adapted to be withdrawn therefrom by the stem and be reversed, and adjustable jaws having curved outer faces to engage the inclined walls in the opening in the hub.

30 2. In a ratchet-wrench the combination of the ratchet-disk having a rectangular opening therethrough having tapering end walls, and jaws arranged in said opening consisting of stems with straight inner face for a portion of their length and outwardly-curved end
 35 portions and curved outer faces to engage the end walls of the opening through the hub and heads formed with nut-seats.

40 3. In a ratchet-wrench the combination of the ratchet-disk having a rectangular opening therethrough having tapering end walls, and jaws movable endwise of the said opening consisting of stems with straight inner faces for a portion of their length and outwardly-curved end portions, and inwardly-curved outer faces to engage the inclined end
 45

walls of the opening in the hub and heads formed with nut-seats, and a spring between the jaws to press them apart.

4. In a ratchet-wrench the combination of 50 the ratchet-disk having a hub with a rectangular opening therethrough having inclined end walls, jaws movable endwise in the said opening consisting of stems with straight inner faces for a portion of their length and 55 outwardly-curved end portions, inwardly-curved outer faces to engage the end walls of the opening in the hub and heads formed with nut-seats, a spring between the jaws and a pin projected loosely through the curved ends 60 of the jaws, a handle journaled on the hub of the ratchet-disk, and a spring-actuated pawl within the handle to engage said disk.

5. The nut-wrench herein described, comprising a tubular handle formed with end ex- 65 tensions arranged on parallel planes and having circular openings therein, a square opening in the inner end of the handle and an enlarged space immediately adjacent thereto, a stem slidably placed in the handle and 70 formed with a square pawl-head at its inner end to project through the square hole in the end of the handle, a spring to push the stem inward, a ratchet-disk having a hub journaled in the openings in the handle exten- 75 sions, said hub being formed with a rectangular hole therethrough having tapering end walls, jaws arranged loosely and adjustably posited in said hub-opening and consisting of stems having alining inner faces and outwardly-curved ends and heads formed with 80 nut-seats and inwardly-curved outer faces to engage the end walls of the hub-opening, a pin to hold the jaws in alinement and a spring to push them apart. 85

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

JACOB C. CARLHIME.

Witnesses:

C. B. HICKS,
 LUCY MARKLE.