No. 5,009. PATENTED MAR. 13, 1847.

Z. W. AVERY.

WRENCH FOR TURNING NUTS AND SCREWS.

Fig: 1

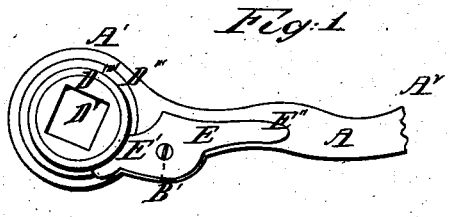


Fig: 3

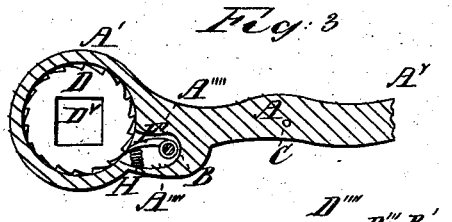


Fig: 5

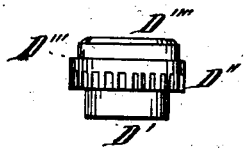


Fig: 2

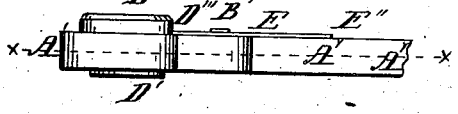


Fig: 4

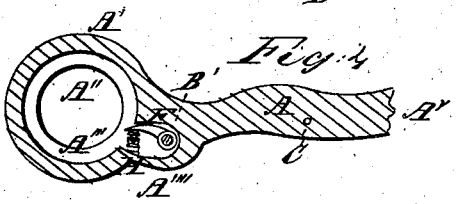
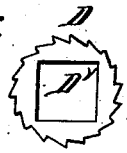


Fig: 6.



D Fig: 8

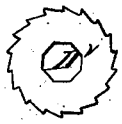


Fig: 7.

UNITED STATES PATENT OFFICE.

Z. W. AVERY, OF NEW BURLIN, NEW YORK, ASSIGNOR TO BENJ. WEBB.

RATCHET-WRENCH.

Specification of Letters Patent No. 5,009, dated March 13, 1847.

To all whom it may concern:

Be it known that I, ZELOTES W. AVERY, of New Burlin, in the county of Shenango and State of New York, have invented a new and useful Improvement in Rack-Wrenches for Turning Nuts and Screws, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

The nature of my invention and improvement consists in forming the wrench with a cylindrical chamber in its largest end, extending entirely through it, having a circular seat formed around the same for the reception of a number of cylindrical revolving notched cores or nuts of uniform diameter fitted to said circular seat having a square or polygonal opening in the center of the same corresponding with the size and shape of the nut or head of the screw to be turned, which is received into said square or polygonal opening—the said nut being made to turn with the wrench when turned to the left by means of a pawl attached to the wrench by a pin and spring and engaged with a tooth of the nut—said pawl when the wrench is turned to the right slipping back over one or more teeth of the nut without turning it and being again engaged with another tooth of the nut, and the wrench again moved to the left causing the nut to turn with it, and to turn the screw to which the nut is applied, and thus by a repetition of the aforesaid operation causing the screw to turn as many times as may be required without disengaging the wrench therefrom by simply moving the handle to the right and left in the arc of a circle vertically, or horizontally, or obliquely, to any degree required, being adapted to the turning of any sized screw by merely changing the cylindrical nut or core without changing the wrench-circle, and handle, and its appendages—the revolving notched nut or core being held down upon its seat in the circular chamber of the wrench by a turning catch attached to the wrench and made to overlap the rim of the core or nut.

Figure 1 is a plan of the wrench and a revolving notched nut inserted into the cylindrical chamber showing the turning catch in its proper position to secure the nut to the wrench, and a square socket in the nut adapted to turning a screw or bolt with a square head or a square nut of corresponding size. Fig. 2 is an elevation or side view of ditto. Fig. 3 is a horizontal section on the line $x\ x$ of ditto showing the pawl attached to the wrench which engages with the teeth of the revolving nut and recess in the wrench to receive the pawl and spring. Fig. 4 is a plan of the wrench and pawl disengaged from the nut. Fig. 5 is an elevation of a nut disengaged from the wrench. Fig. 6 is a plan of a nut pierced with a square socket for turning large screw bolts. Fig. 7 is a plan of a nut for turning small screws. Fig. 8 is a plan of a nut for turning screws with polygonal shaped heads.

A is the wrench made of brass, or iron, or any suitable material and of required size. A′ is its circular head.

A″ is the circular opening for the reception of the shank of the circular revolving notched nut. A‴ is the circular seat formed in the circular head for the reception of the circular notched rim of the nut.

A⁗ is the recess in the wrench for the reception of the pawl and spring.

A^{v} is the handle of the wrench shown as broken off.

The spring catch turns on the same pin B′ that passes through the pawl. C is an aperture for the reception of the end of the turning catch.

D is the revolving notched nut for turning screws, bolts, pins and other articles having square heads. D′ is the shank of the nut which passes through the opening A in the wrench.

D″ is the notched rim that turns on the seat A‴ of the wrench. D‴ is the top of the notched rim over which the turning catch is brought in order to hold the nut in its seat. D⁗ is the head of the nut. D^{v} is the opening in the head of the nut corresponding in shape and size to the head of the article to be turned. E is the turning catch attached to the wrench for holding the nut down in the circular seat in which it revolves. E′ is the concave end of the catch fitted to the circumference of the head of the nut. E″ is the tail end of the catch turned down and fitted to the aperture C in the wrench for holding the catch against the nut and preventing it from turning. To disengage the catch from the nut in order to withdraw the nut from its seat this end must be raised from the aperture C and the catch turned on the connecting pin B. The nut may then be withdrawn and another inserted. The catch is then restored

to its former position which will hold down the nut securely in its place in the wrench. The position of the catch is directly over the pawl and spring and covering the recess in which they are placed. F is the pawl for connecting the nut with the wrench during the operation of turning a screw, or a pin, or other article. B′ is the pin on which the pawl turns. H is a spring attached to the pawl and wrench for keeping the pawl in its required position in contact with the teeth of the nut during the operation of moving the wrench to the right and left in turning the screw or bolt.

One of the advantages possessed by this wrench over the common wrench and others in use is that of turning the screw, bolt or pin, to any required degree of a circle, more or less; or any required number of revolutions or turns in places where there are obstructions in the way of turning the handle completely around without the necessity of disengaging the wrench from the article to be turned in order to take a fresh hold, or effect a change of position of the handle, in order to continue the operation of turning the screw, which in many cases is very difficult to be accomplished.

Another advantage is that of enabling the user to turn, nuts, pins, bolts or other articles whose heads may be square, or many sided, and of various sizes with a single wrench to which a multiplicity of toothed cores or nuts of the same diameter, but differently pierced in the center, are adapted, it being only necessary to change the nut to suit the kind of article to be turned.

I make no claim to the invention of a ratchet wrench with a turning core or nut, but

I claim as my invention—

The peculiar mode or manner of adapting the wrench to the turning of screws, bolts, or nuts, or other articles, made with square, polygonal, or other shaped heads, by means of the changeable cores constructed as above set forth and represented in combination with the turning catch for holding the revolving core to its seat as constructed and operated, as above described.

Dated at Paris, Oneida county, February 25th, 1857.

ZELOTES WM. AVERY.

Witnesses:

PERRY W. CLARKE,

BENJAMIN CLARK, Jr.