(No Model.)

J. A. STANTON.

WRENCH.

No. 294,413. Patented Mar. 4, 1884.

Fig. 1.

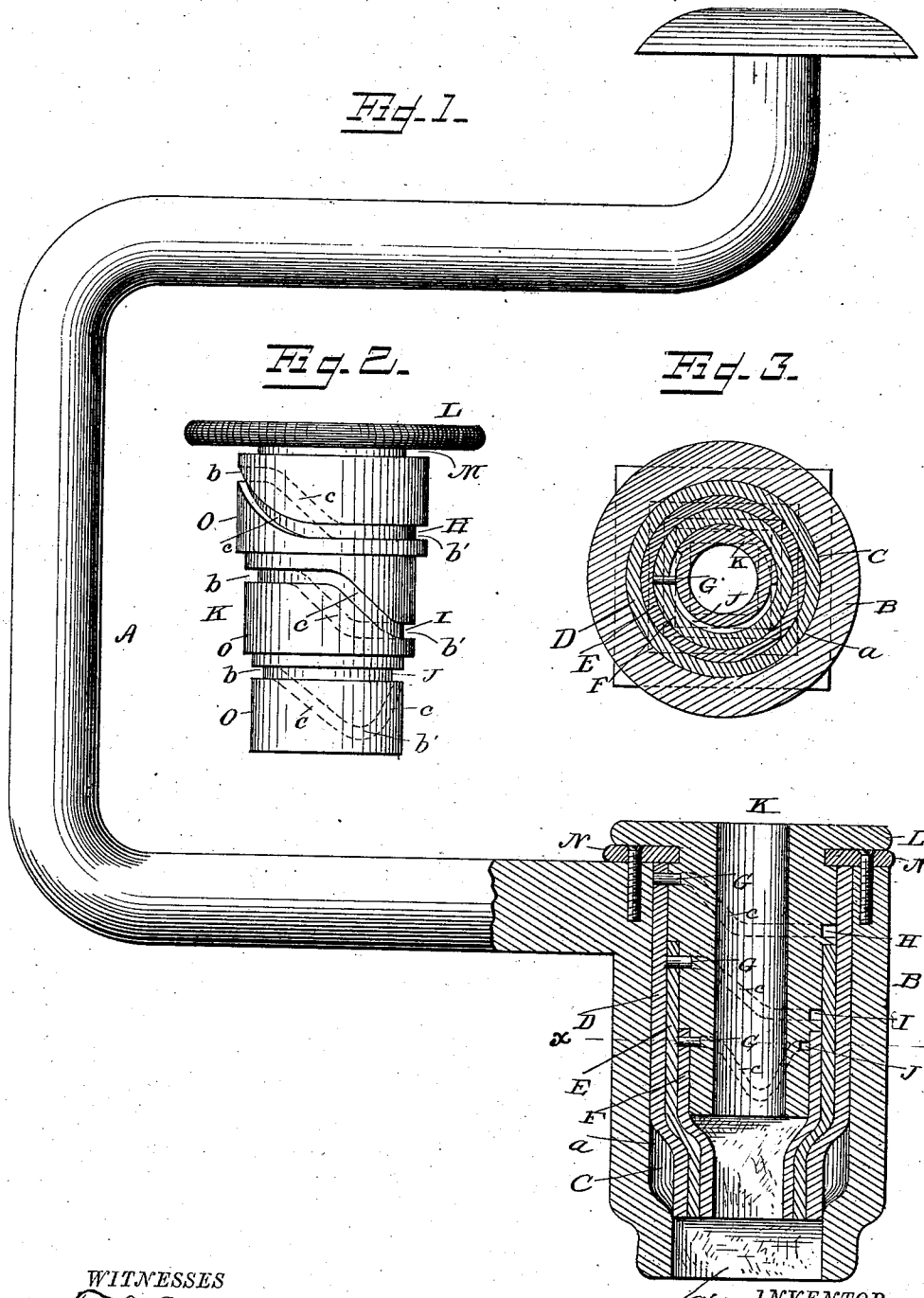


Fig. 2.

Fig. 3.

WITNESSES

F. L. Durand.

E. G. Siggers.

INVENTOR

Judson A. Stanton

by C. A. Snow & Co.

Attorneys

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JUDSON A. STANTON, OF SAUK RAPIDS, MINNESOTA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 294,413, dated March 4, 1884.

Application filed January 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, JUDSON A. STANTON, a citizen of the United States, residing at Sauk Rapids, in the county of Benton and State of Minnesota, have invented a new and useful Wrench, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to wrenches, and especially to that class of the same which are arranged to be operated by a brace; and it has for its object to provide a device by means of which nuts may be screwed on or off by one continuous motion.

A further object of my invention is to provide different sizes of sockets to correspond with the usual sizes of nuts, said sockets being adapted to move up and down, as desired.

With these and other objects in view the said invention consists in certain details of construction and combination of parts, as hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of my improved wrench, partly in section. Fig. 2 is a detail view of the spindle or chuck. Fig. 3 is a horizontal sectional view on the line *x x*, Fig. 2.

Like letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates an ordinary brace, formed at its lower end with a hollow hub, B, having a vertical passage, C, the upper portion, *a*, being cylindrical, and its lower end, *a'*, is square, so as to fit the usual size of nuts.

D E F designate a series of sleeves within the hub B, and shaped to correspond therewith, the body of the sleeves being cylindrical, while their lower ends are formed square. Said sleeves are telescoped within each other, and increase in length and in width, as seen, pins G projecting inward from the upper ends of the sleeves, and working in grooves H I J of a chuck or spindle, K, the latter being disposed within the hub B, and formed at its upper end with a projecting rim or flange, L. A recess, M, is formed around the chuck or spindle, below the rim L, a divided or two-part washer-plate, N, fitting in the recess, and secured to the upper face of the hub, and thus holding the rim from contact with said hub, and retaining the chuck or spindle firmly in position. The chuck or spindle K is formed on its face with bands O, increasing in size in proportion to the increasing size of the sleeves, the grooves H I J being formed in the bands, said grooves having circular portions *b b'* extending around the upper and lower ends of the bands for a certain part of the circumference, an inclined or angular portion, *c*, connecting the circular portion *b* with the other portion, *b'*. It will be seen that the upper portion, *b*, of the grooves increases in length downward in the several bands O of the chuck or spindle, so that the attachment or connection of the angular portion *c* is farther around the sides of the spindle for the different sleeves. Thus the pins G, hereinbefore referred to, will enter the angular portion *c* of the upper band of the spindle before they enter the lower bands, and thereby the outside sleeve, D, will be lowered in position first, as will be seen. The edge of the rim L of the chuck is milled or serrated, to allow ready manipulation with the fingers.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the annexed drawings.

When it is desired to loosen a nut or turn it off entirely, the chuck is operated by the hand and turns within the hub, the groove H of the upper band O working over the pin G of the upper sleeve, D, and as said pin passes downward through the inclined portion *c* of the groove the said sleeve gradually begins to slide downward over the adjacent sleeve until the square end of the upper sleeve fits inside the square end of the hub. When the upper sleeve reaches this point, the pin G is at the lowest part of the angular portion *c*, and by continuing the turning of the spindle any one or all of the remaining sleeves may be lowered, in order to suit the size of the nut desired to be turned. When the sleeve which fits the nut has been lowered, the remaining sleeves rest upon the top of the nut, and are upheld in their proper relative positions, and by turning the brace A the hub will be revolved so as to cause the unscrewing of the nut. When this has been done, the turning of the spindle or chuck is continued, so as to carry the pin G around the lower portion, *b'*, of

the groove H and up the inclined portion *c* on the opposite side, and as it reaches the upper portion, *b*, the sleeve D will be drawn up in the hub. It will be seen that by turning the spindle or chuck first the outer sleeve, D, will move downward or descend into position, then the middle sleeve, E, and finally the inner sleeve, F, so that any of the four sizes of nuts herein provided for may be screwed on or off by a continuous motion of the brace. By reason of the increasing lengths of the angular portion *c* of the grooves H I J, each of the sleeves from the top will be lowered a greater distance from the others, so that the smallest sleeve will reach the same point in its descent as the other and larger sleeves. It will be further seen that the sleeves fit around the bands O of the spindle, the pins G entering the grooves therein and working in the same, as described. By the telescoping arrangement of the sleeves, when one is lowered so as to fit around the nut the others rest upon the upper face of the said nut, and are thus held in their relative positions. The square ends of the sleeves which come in contact with the nuts are made of hardened cast-iron or steel, to prevent wear by constant use, and, since they fit inside of the square portion of the hub, they will form a solid bearing for the nut.

I do not limit myself to the use of the brace for turning the hub, since a straight handle may be provided when found desirable.

My improved wrench will be found to act efficiently in screwing or unscrewing nuts by a continuous motion, thereby saving the time and labor heretofore expended in the use of the ordinary style of wrench.

My wrench provides for four different sizes of nuts, the hub taking one ordinary size, and for the same purpose the number of the sleeves may be increased as desired.

It will be readily apparent that my wrench prossesses superior advantages over the ordinary style. The adjustment to different sizes of nuts is simple and effective, while the construction of the wrench is durable and its operation renders the unscrewing of nuts to become a matter of ease.

It will be seen that the revolution of the chuck or spindle brings all the sleeves consecutively in position for work, and finally withdraws them from around the nut into the normal position.

Having described my invention, I claim as new--

1. In a wrench, the combination, with a hub and means for operating the same, of a series of vertically-sliding sleeves moving therein and increasing in size, a spindle or chuck disposed within the hub, and devices whereby as the spindle is operated the sleeves are caused to descend successively into position, as set forth.

2. In a wrench, the combination, with a hub having a series of vertically-sliding sleeves moving therein and increasing in size, of a spindle or chuck disposed within the hub, pins projecting from the sleeves and entering grooves in the spindle or chuck, and means for operating the hub, as set forth.

3. In a wrench, the combination, with a hub and means for operating the same, of a series of vertically-sliding sleeves increasing in size and moving therein, a spindle or chuck disposed within the hub, means for guiding and limiting the descent of the sleeves, a projecting rim or flange at the upper end of the spindle, and a washer-plate interposed between the rim and the top of the hub, as set forth.

4. In a wrench, the combination, with a hub having a series of vertically-sliding sleeves increasing in size and moving therein, of a spindle or chuck disposed within the hub and formed with bands increasing in size in proportion to the sleeves, grooves formed in the bands to receive pins projecting from the sleeves, said grooves having an angular or inclined portion, and means for operating the hub, as set forth.

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

JUDSON A. STANTON.

Witnesses:

E. G. SIGGERS,

C. W. DASHIELL.