(No Model.) 2 Sheets—Sheet 1.

B. HERSTEIN.

WRENCH.

No. 577,255. Patented Feb. 16, 1897.

FIG. 1.

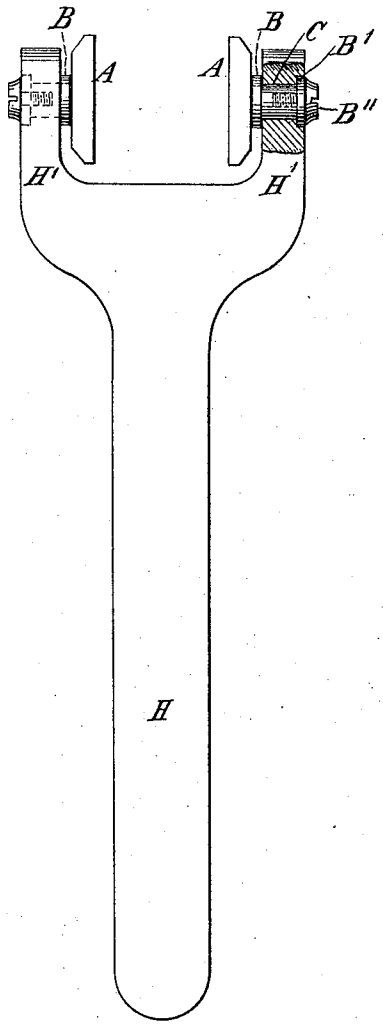
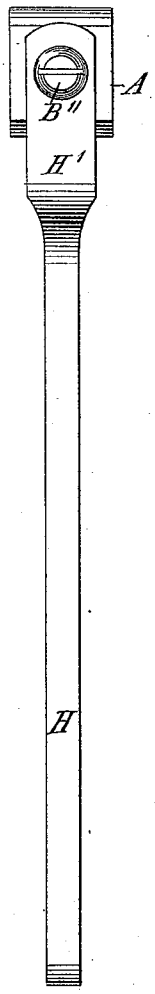


FIG. 2.



Witnesses:
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Palmer Coolidge.

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Inventor:
by his attorney
Herbert W. Grindall

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

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FIG. 3.

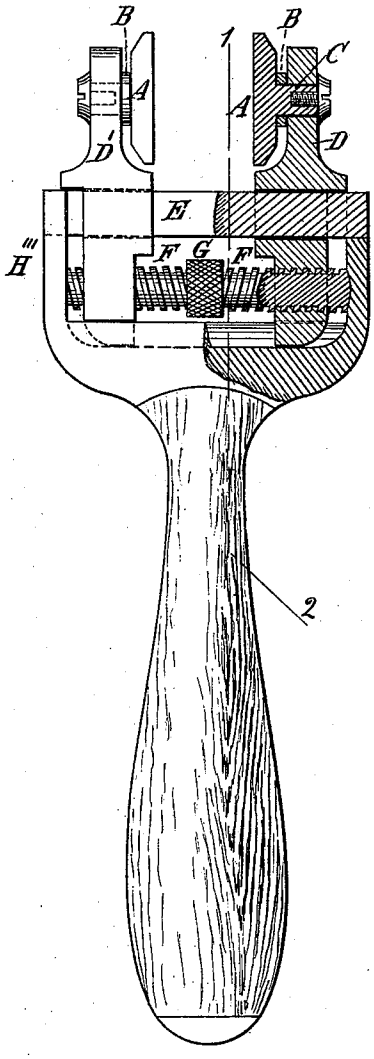


FIG. 4.

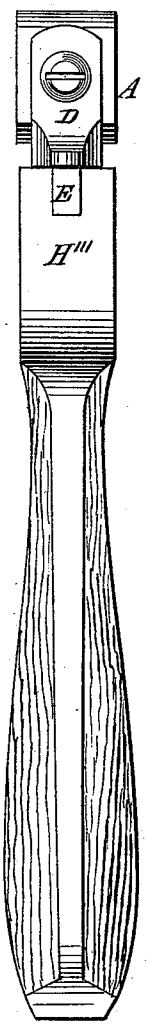


FIG. 5.

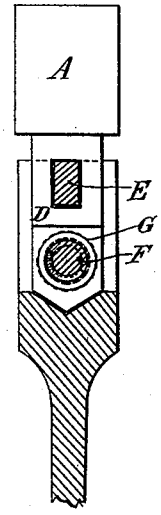


FIG. 6.

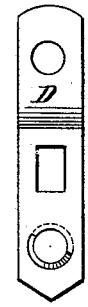
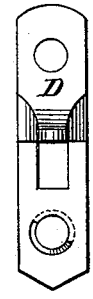


FIG. 7.



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UNITED STATES PATENT OFFICE.

BERNARD HERSTEIN, OF ELIZABETH, NEW JERSEY.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 577,255, dated February 16, 1897.

Application filed June 19, 1896. Serial No. 596,130. (No model.)

To all whom it may concern:

Be it known that I, BERNARD HERSTEIN, residing in Elizabeth, in the State of New Jersey, have invented a new and useful Improvement in Wrenches, of which the following is a full and exact specification.

My invention relates to that class of wrenches which are used for setting up nuts, bolts, &c., and particularly to those which are used when the bolt is so situated that it is impossible to entirely turn the nut or bolt without removing the wrench therefrom.

To assist in understanding my invention, I have prepared the accompanying drawings, in which—

Figure 1 is a front view, and Fig. 2 a side view, of a non-adjustable form of my wrench. Fig. 3 shows a front view of an adjustable form of my wrench. In this drawing half of the upper portion is cut away to show a longitudinal section of the adjusting device. Fig. 4 is a side view of my device. Fig. 5 is a cross-section taken in the line 1 2 of Fig. 3. Fig. 6 is a side view of the inner side of the sliding head D, while Fig. 7 is an outside view of the same.

In the drawings, A A are the jaws or plates which fit over the nut to be turned.

H is the solid handle, provided at one end with the arms H′, to which the rotatable jaws A A are affixed by the studs C C, which are fastened by the screws B″.

The washer B is interposed between the jaws and the arm to facilitate the rotation of the jaws, and the washer B′ at the outer end is placed in a countersunk recess for the same reason.

In Fig. 3 H″ is the solid handle having the arms H‴, forming an integral part thereof. The jaws A A are affixed to the sliding heads D D. The washer B has the same function as in Fig. 1. The sliding heads D D, bearing the jaws A A, are held in position by the bar E, which is fastened to the arms H‴ H‴. The lower end of the head is V-shaped and moves in a groove in the lower part of the opening between the arms, as shown in Fig. 5. The right and left screw F works in the lower part of the sliding heads D D and serves to move the heads with the jaws attached to and from each other.

The operation of my device is simple. The jaws A A are placed over the head of the nut or bolt-head to be turned and are adjusted to the desired width of opening. The handle is brought around for one-half the circumference of the circle which it will describe, and then, if the adjacent objects prevent a complete revolution of the handle, it is carried vertically up and over to its former position without removing the jaws from the nut, the jaws A A turning so that this may be done without affecting the grip on the nut. This will of course bring the other side of the handle uppermost, but as the sides are alike that makes no difference, and upon the completion of the next half-circle the handle will again be brought back to its first position.

It will also be seen that the jaws A A are not perfectly square, but, as shown in the drawings, have their greatest dimension parallel with the length of the wrench. This may be sometimes changed to advantage, and the jaws may be turned so that they will be at right angles with the direction of the handle, when they will project beyond the line of the body of the handle, and may be used upon nuts or bolts situated so that they could not be easily operated upon by the jaws in their former position. This second position corresponds to that of the jaws in the ordinary monkey-wrench, with the additional advantage remaining that the handle can be adjusted to return to its first position by means of the vertical half-circle motion.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A wrench having its operating-jaws rotatable and their planes parallel with the line of the length of its handle, substantially as described.

2. A wrench having its operating-jaws located upon arms at the extreme end of its handle and adapted to be rotated thereupon, substantially as described.

3. An adjustable wrench having its operating-jaws rotatable and their planes parallel with the line of the length of its handle, substantially as described.

4. An adjustable wrench having its operating-jaws rotatable and arranged upon sliding or carrying heads, so as to permit a vertical semicircular motion of the handle, while the

jaws are closed upon a nut or other body to be operated on, substantially as described.

5. An adjustable wrench having rotatable jaws pivoted to sliding heads and provided with an adjusting device, substantially as described.

6. An adjustable wrench having rotatable jaws carried upon adjustable heads so arranged at the end of its handle that the planes of the jaws are in the direction of the length of the handle, substantially as described.

7. An adjustable wrench having rotatable jaws arranged upon sliding heads adapted to move upon a bar set between the arms at the end of the handle and provided with an adjusting-screw, substantially as described.

8. In an adjustable wrench the combination of rotatable jaws, carried upon sliding heads arranged at the end of said wrench and held in position by a bar while having their lower or inner points adapted to move in a slot or groove with a screw extending through said heads and adapted to adjust the same, substantially as described.

BERNARD HERSTEIN.

Witnesses:
E. C. BARR,
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