

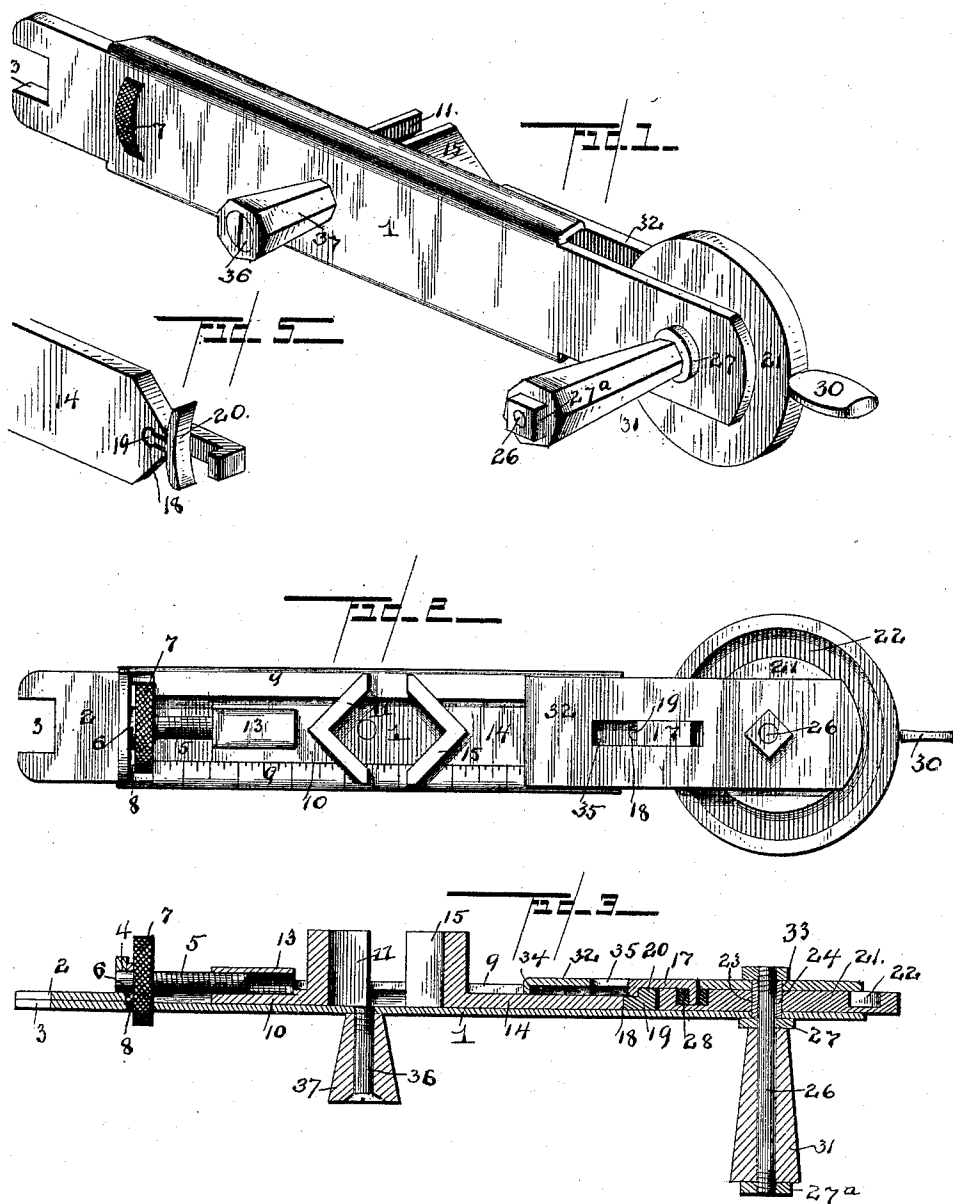
(No Model.)

2 Sheets—Sheet 1.

B. H. DUNLAP.
SOCKET WRENCH.

No. 473,617.

Patented Apr. 26, 1892.



Witnesses:

H. J. Seitz

W. S. Duval

Inventor

Benjamin H. Dunlap,

By his Attorneys,

C. A. Snow & Co.

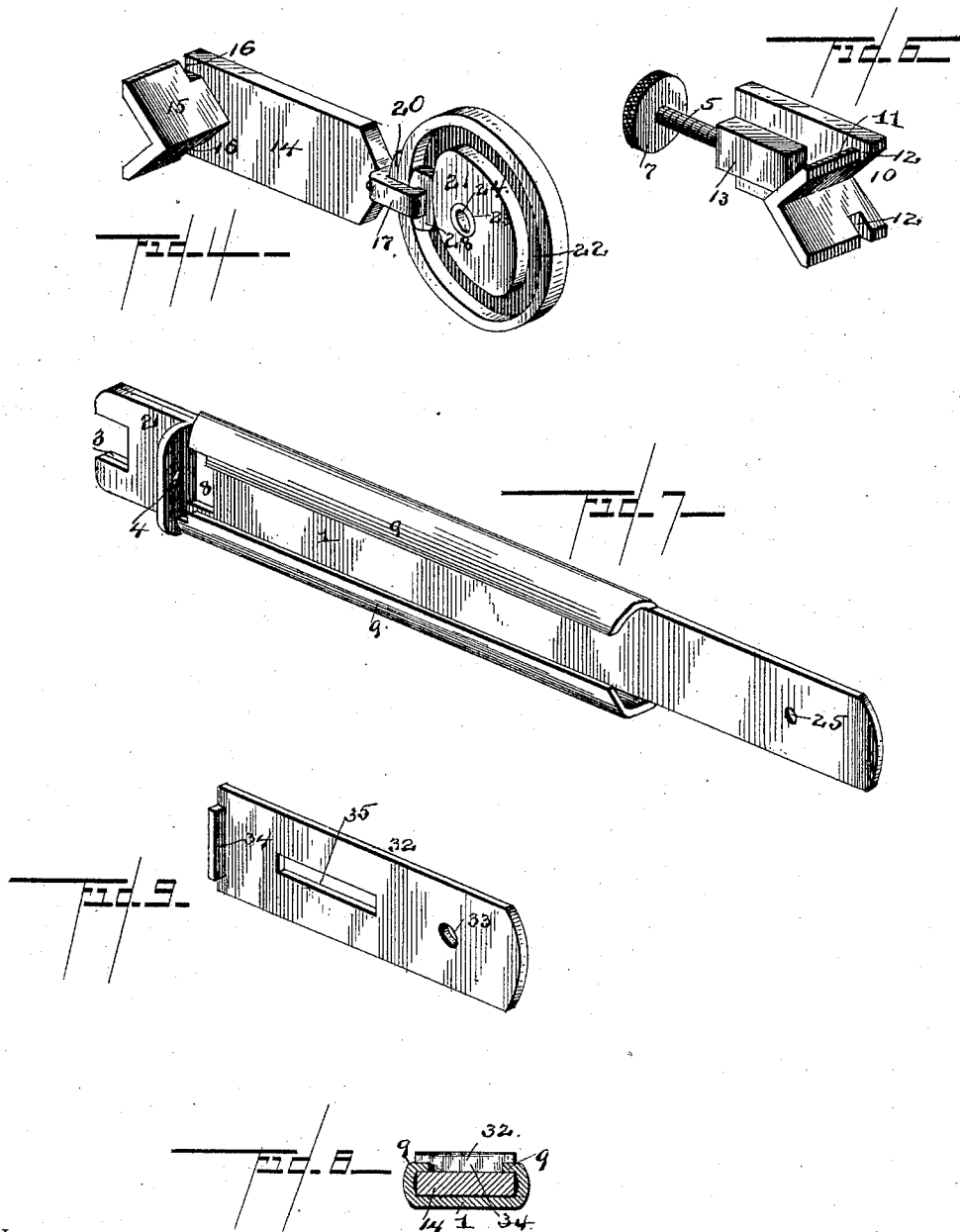
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H. J. Lutz
M. S. Duwall

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UNITED STATES PATENT OFFICE.

BENJAMIN HOPKINS DUNLAP, OF ST. LOUIS, MISSOURI, ASSIGNOR TO
WILLIAM W. DUNLAP, OF SAME PLACE.

SOCKET-WRENCH.

SPECIFICATION forming part of Letters Patent No. 473,617, dated April 26, 1892.

Application filed August 7, 1891. Serial No. 401,993. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN HOPKINS DUNLAP, a citizen of the United States, residing at St. Louis, in the State of Missouri, have
5 invented a new and useful Socket-Wrench, of which the following is a specification.

This invention relates to improvements in wrenches, and has particular reference to that class of wrenches known as "socket-wrenches" and adapted for buggy and wagon
10 work.

The objects of the invention are to provide a wrench of economical and simple construction, adapted to be applied with facility and
15 dispatch to the nuts of vehicles to tightly clamp the same when so applied and obviate the necessity of touching the nut with the fingers during either the operation of applying or removing the nut.

A further object in view is to provide means for conveniently adjusting the nut-receiving
20 socket, so as to adapt the same for the accommodation of nuts of various sizes.

With the above objects in view the invention consists in certain features of construction hereinafter specified, and particularly
25 pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a nut-wrench constructed in
30 accordance with my invention. Fig. 2 is a reverse plan. Fig. 3 is a vertical longitudinal section. Fig. 4 is a detail in perspective of the sliding jaw and its operating-eccentric. Fig. 5 is a detail in perspective of the pivotal
35 shoe. Fig. 6 is a detail of the sliding jaw. Fig. 7 is a detail in perspective of the frame or case of the wrench. Fig. 8 is a transverse section through the sliding jaw and wrench-case, the securing-plate being viewed in end
40 elevation. Fig. 9 is a reverse view of the securing-plate.

Like numerals of reference indicate like parts in all the figures of the drawings.

In practicing my invention I construct or
45 form an oblong metal base-plate 1, and secure to one end of the same, at its under side, an L-shaped plate 2, the outer edges of the plate and base being correspondingly recessed or
50 notched to form a nut-receiving socket or recess 3. The inner end of the plate, which is

disposed at a right angle to the base, is provided with a perforation or bearing 4 and receives and forms a bearing for the outer end of a screw 5, the shank of which is disposed
55 along the under side of the base and parallel thereto. Adjacent to the inner end of the plate 2 the screw has mounted upon its unthreaded portion a loose washer 6, and beyond the washer there is formed upon the screw a
60 milled disk 7, which extends through a slot 8, formed in the base-plate, and is adapted to be rotated by the thumb of the operator, for a purpose hereinafter apparent.

From the L-shaped plate to near the opposite end of the base the latter is provided at
65 its opposite edges with bent-over flanges or ways 9, and mounted for sliding therein is the base-plate 10 of the sliding jaw 11, which latter is mounted upon the end of the base-plate and is of L shape or right angular, as shown.
70 The opposite edges of the jaw 11 are notched, as at 12, to receive the edges of the ways, which constitute guides for the movements of the plate and jaw. A lug or rib 13, having an internal threaded bore, is mounted
75 upon the upper side of the base-plate, and its threads are engaged by those of the screw, so that, as will be obvious from the foregoing description, rotations of the screw through
80 the medium of its milled disk will cause a backward or forward movement, in accordance with the direction of rotation thereof, of the jaw 11 and its plate 10.

14 designates a plate corresponding to the
85 plate 10, and the same is mounted for reciprocation within the ways of the base-plate and has formed at its inner edge and upon its under side a right-angular or L-shaped jaw 15, which latter is the movable jaw of the wrench. The jaw 15, like the jaw 11, has opposite
90 notches 16, which receive loosely the edges of the ways. The rear or outer end of the plate 14 of the movable jaw is provided with an L-shaped extension or lug 17 and in front of the same, at the edge of the plate, with a key-
95 hole 18, in which latter loosely takes the key-shaped lug 19, formed at the rear side of a curved shoe 20, which latter rests under the L-shaped lug or extension 17.

21 designates a disk, which is provided upon 100

its under side with an annular groove or track 22, and is provided with an eccentric opening 23. A loose bushing 24 fits within the opening and its internal diameter agrees with a perforation 25, formed in the base-plate 1 near the outer end of the latter. Through the perforation 25 and the bushing is passed the inner end of the bolt 26, which latter is provided with a boss 27 near its inner end, between which the bushing and base are clamped by means of a nut 27^a. When in this position, the L-shaped lug 17 projects over and into the annular groove of the eccentric disk and takes into an elliptical shoe or block 28, mounted in the groove and preferably formed of leather or other frictional material. The disk is provided at its periphery with a thumb-lug 30, by which the disk may be oscillated. The bolt 26 beyond its head or boss receives a swiveled handle or grip 31 and beyond the same is provided with a nut 27^a. 32 designates an oblong securing-plate, which is provided with a perforation 33, through which the bolt 26 passes, and upon the exterior of which the nut of the bolt rests. At its opposite end the plate rests upon the ways or bent edges of the base-plate, and is provided at its inner side with a rib 34 for taking between the ways, whereby lateral movement of the plate is prevented. Between its ends the plate is provided with an elongated slot 35, through which projects the L-shaped lug or extension 17 of the plate 14, which lug, it will be observed, is offset from the plate 14. A stud 36 extends laterally from the outer face of the base-plate and has swiveled thereon a handle or grip 37.

This completes the construction, and the manner of operation is as follows:

The thumb-piece of the disk is swung outwardly or toward the end of the wrench, after which by manipulating the milled disk of the set-screw the fixed jaw may be adjusted a suitable distance from the movable jaw to adapt it to nearly fit the nut upon which it is desired to operate. The wrench is now applied so that the nut is received by the two jaws, after which the eccentric disk is laterally swung in either direction, and by reason of its eccentric pivoting forces the movable jaw upon the nut, thereby clamping the latter between the two jaws. Now by employing the handle 37 to retain the wrench in position or steady it and the longer handle 31 as a crank power may be exerted to rotate the wrench and thus remove or apply the nut. It will be seen that in order to release the nut it is simply necessary to partially rotate the eccentric disk, which withdraws the movable jaw from contact with the nut.

From the foregoing description it will be seen that I provide a wrench of simple construction and which is powerful and applicable with the greatest ease and facility to nuts of various sizes, and when so applied is adapted to manipulate the nuts, either in ap-

plying or removing the same, without the necessity of handling the nuts with the fingers, thus rendering the wrench especially designed for carriage use. It will be understood that the proportions of the wrench may be increased or diminished, as may also the size of the handles, whereby the wrench is adapted for various kinds of work.

Having described my invention, what I claim is—

1. In a wrench, the combination, with a base-plate having ways and a bearing located between the same, of a feed-screw mounted in the bearing, a jaw-carrying plate mounted in the ways and having a threaded opening for the reception of the screw, a sliding plate mounted in the ways and carrying a jaw, and means for moving said sliding plate, substantially as specified.

2. In a wrench, the combination, with a base-plate having opposite ways and a bearing at one end of the ways, of a jaw located between the ways, a plate located for movement within the ways between the jaw and bearing and carrying a companion jaw, and a threaded feed-screw journaled in the bearing and having its threaded end entered into a threaded bore formed in the base-plate, substantially as specified.

3. In a wrench, the combination, with a base-plate having ways and a jaw located between the ways, of a plate mounted for movement in the ways and carrying a companion jaw and terminating at its rear end in an L-shaped lug or extension, an eccentrically-pivoted disk having an annular groove, and a shoe mounted in the groove and loosely connected with the outer end of the lug, substantially as specified.

4. In a wrench, the combination, with the base-plate having ways and a jaw located between the ways, of a plate mounted for sliding in the ways and carrying a companion jaw, an eccentrically-pivoted disk located upon the base, and devices connecting the disk with the plate, whereby a rotation of the disk will cause a reciprocation of the plate, substantially as specified.

5. In a wrench, the combination, with the base having opposite ways, of the two plates mounted for sliding in the ways, each carrying a jaw at its inner end, an eccentrically-pivoted disk mounted on the base, connections between the same and one of the plates, whereby an oscillation of the disk causes a reciprocation of the plate, and means for adjusting the opposite plate, substantially as specified.

6. In a wrench, the combination, with the oblong base having the opposite ways and a bearing at one end of the ways, of the pair of plates mounted loosely in the ways and carrying angular jaws at their inner ends, one of said plates being provided with a threaded bore, a feed-screw having a milled nut mounted in the bearing and engaging the bore of

one of said plates, a disk eccentrically pivoted upon the base, and means for connecting the disk with the remaining plate, whereby an oscillation of the disk causes a reciprocation of the plate, substantially as specified.

7. In a wrench, the combination, with the oblong base having its opposite edges upwardly and inwardly turned to form ways, of plates mounted loosely in the ways and terminating at their inner ends in jaws provided with grooves for fitting the edges of the ways and devices for adjusting the jaws within the ways, substantially as specified.

8. In a wrench, the combination, with the oblong base provided upon one of its sides with opposite ways, jaws mounted loosely in the ways, and means for adjusting the jaws, of a central stud, a handle loosely mounted thereon, a second stud located near one end of the base, and a handle loosely mounted thereon, substantially as specified.

9. In a wrench, the combination, with the base having ways, the plate having the jaw mounted in the ways, and means for adjusting the plate, of a second plate having a jaw provided at its rear end with a key-hole-shaped opening, and beyond the same with an L-shaped lug or extension, a disk eccentrically pivoted upon the base and provided with an annular groove, a shoe mounted in the groove and engaging the outer end of the lug, and a shoe located outside of the disk and having a key-hole-shaped lug engaging the opening of the plate, substantially as specified.

10. In a wrench, the combination, with the base having the ways and the jaw located on the under side of the ways, of a plate mounted for reciprocation in the ways and carrying a companion jaw, said plate being provided at its outer end with a rearward L-shaped extension or lug, an eccentrically-pivoted disk

mounted on the base, having an annular groove, and a friction-shoe mounted in the groove and engaging the rearward extension of the plate, substantially as specified.

11. The combination, with the oblong base having the opposite ways and the L-shaped bracket or plate at one end having a bearing, the stud projecting from the rear side of the base and provided with a swiveled handle, and the two jaw-carrying plates mounted in the ways, the inner one of which is provided with a threaded bore, of a screw-shaft journaled in the bearing of the plate and engaging the threads of the bore, having a milled nut projecting through a slot in the base, the opposite plate being provided with an outward L-shaped extension, a disk having an eccentric opening and provided with a loose centrally-bored bushing, the same registering with the perforation in the base near the outer end thereof, a securing-plate slotted to receive the L-shaped lug and having on its under side a rib fitting between the ways and at its outer end an opening registering with that of the bushing, a bolt having at its outer end a loose handle and near its inner end a head and beyond the same passed through the base, bushing, and securing-plate, a nut mounted on the bolt, a lug extending from the periphery of the disk, and a friction-shoe mounted in the groove of the disk and provided with a perforation for engaging the outer end of the L-shaped lug of the plate, substantially as specified.

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

BENJAMIN HOPKINS DUNLAP.

Witnesses:

T. J. CHENEY,
W. I. WILSON.