

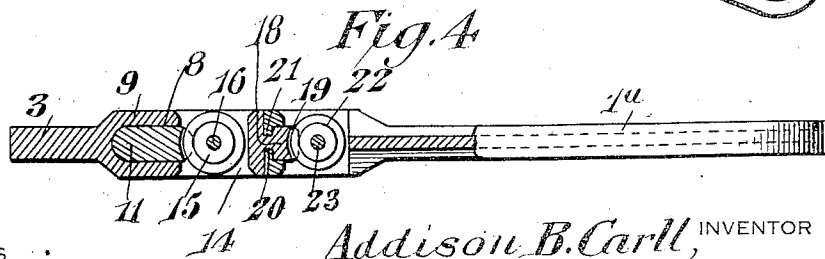
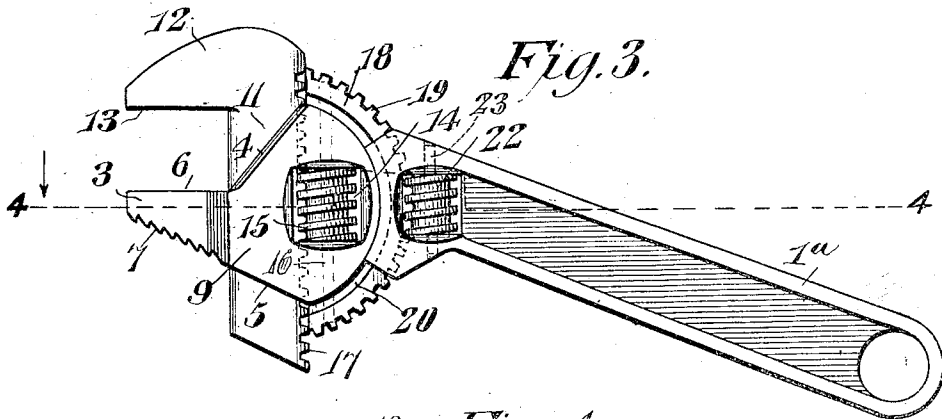
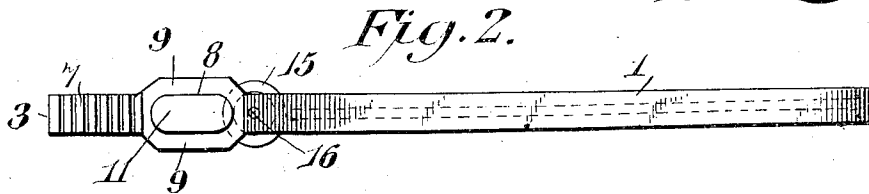
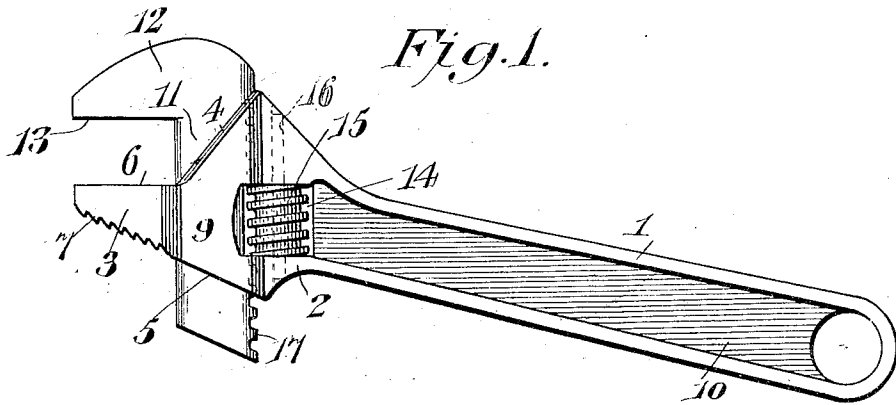
A. B. CARLL.

WRENCH.

APPLICATION FILED JULY 16, 1912.

1,060,891.

Patented May 6, 1913.



WITNESSES

Jas. E. McElathran
F. J. Chapman.

Addison B. Carll, INVENTOR

BY

E. J. Siggers

ATTORNEY

UNITED STATES PATENT OFFICE.

ADDISON B. CARLL, OF BOOTHWYN, PENNSYLVANIA.

WRENCH.

1,060,891.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed July 16, 1912. Serial No. 709,767.

To all whom it may concern:

Be it known that I, ADDISON B. CARLL, a citizen of the United States, residing at Boothwyn, in the county of Delaware and State of Pennsylvania, have invented a new and useful Wrench, of which the following is a specification.

This invention has reference to improvements in wrenches, and relates more particularly to the type of wrench wherein the movable jaw has its shank extending through the body of the wrench at substantially right angles to the fixed jaw, which latter projects in generally the direction of the length of the handle.

It is the object of the present invention to provide a wrench of this character which shall be compact and light and yet markedly strong and free from danger of such breakage as occurs in like wrenches as heretofore made.

In accordance with the present invention the handle and fixed jaw are closely in line one with the other, although the working face of the fixed jaw is arranged at an acute angle to the central longitudinal line of the handle, and between the fixed jaw and handle the body of the wrench is laterally expanded and provided with a passage at right angles to that active face of the fixed jaw employed for turning nuts or the like. The side walls of this passage are made of a total thickness equal to that of the jaw or handle, so that there is no diminution of strength in this part of the wrench, despite the presence of the passage therethrough, and this passage is so shaped as to guide the shank of a movable jaw without the necessity of any guiding tongues or grooves, while traversing the body of the wrench in a manner to intersect the rear edge of the passage is another passage for the reception of the feed screw. The body of the wrench is expanded in the direction of the length of the passage, so that while the front wall of the passage, that is, the one next to the fixed jaw, is of a length about that of the corresponding end of the fixed jaw, the rear wall of the passage is laterally elongated in both directions, so as to form an extended support for the corresponding edge of the movable jaw shank, the movable jaw and its shank being of approximately the same thickness throughout, which thickness is the same as that of the fixed jaw.

The invention also comprises in conjunc-

tion with the structure herein described an adjustable handle, so arranged that the angle of the handle with respect to the jaws may be changed at will throughout a considerable range.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings forming a part of this specification, with the further understanding that while the drawings show practical forms of the invention, it is susceptible of other practical embodiments, wherefore the invention is not confined to any strict conformity with the showing of the drawings; but may be changed and modified within such limits as do not mark any material departure from the salient features of the invention.

In the accompanying drawings:—Figure 1 is a side elevation of a wrench constructed in accordance with the present invention. Fig. 2 is a bottom plan view thereof. Fig. 3 is a side elevation of a wrench wherein the handle portion is adjustable with relation to the remaining portion of the wrench. Fig. 4 is a section on the line 4—4 of Fig. 3.

Referring to the drawings, and more especially to the form shown in Figs. 1 and 2, the wrench is provided with a handle 1 of appropriate shape, a body portion 2, and a fixed jaw 3, all constructed as one casting or forging. The handle and jaw 3 may be of substantially the same thickness, while the body portion 2 is expanded in the direction of the width of the handle, and then tapers as indicated at 4, 5, toward the jaw 3, the taper 4 meeting one face 6 of the jaw 3 at an angle thereto, and the taper 5 merging into a face 7 of the jaw in substantial alignment therewith, the face 7 being usually serrated, as is customary in alligator wrenches, and this face 7 would meet the face 6 if both faces were continued beyond the outer end of the jaw 3.

Traversing the body 2 of the wrench between the tapered portions 4, 5 is a passage 8 at substantially right angles to the face 6 of the jaw 3, and of a width equal to the distance between the jaw 3 and the separated ends of the tapered portions 4 and 5. This passage is flanked by walls 9, each of a thickness about half the thickness of the jaw 3 or body portion 1, which jaw and body portion are of approximately the same thickness except that the interior portion of

the handle 1 is thinned to a web 10, such construction contributing to the lightness of the wrench without undue sacrifice of strength. The passage 8 has its ends rounded and receives the shank 11 of a movable jaw 12, the shank and jaw being of substantially the same thickness throughout, such thickness being that of the jaw 3, and the jaw 12 is formed with a plane face 13 extending at right angles to the shank and matching the face 6 of the jaw 3.

That portion of the head 2 between the walls 9 and the handle 1 is of a thickness corresponding to the thickness of the edges of the handle 1 and jaw 3, and is traversed by a passage 14, the forward edge of which intersects the rear edge of the passage 8, and this passage 14 is substantially opposite the wider end of the jaw 3 where it joins the walls 9. Lodged within the passage 14 is a feed screw 15 mounted on a pin 16 as is customary in jaws of this character, while the corresponding edge of the shank 11 is formed with teeth 17 with which the feed screw 15 engages, the construction of feed screw and teeth or rack being the same as is customary in wrenches of this character.

It is to be observed that the doubly extended rear wall of the passage 8 gives an elongated bearing for the shank of the movable jaw, thus greatly strengthening the wrench, while the lateral expansion of the body of the wrench where traversed by the passage 8 and the thickening of the walls 9 until the combined thickness of these walls is equal to the thickness of the rest of the wrench, greatly strengthens those portions of the wrench which heretofore in wrenches of this character have been easily broken. At the same time the wrench is of the thin or flat type, making it possible to manipulate nuts or other articles where a thicker wrench would not work. The jaw 12 is reversible, so that its working face 13 may be brought opposite the toothed face 7 of the jaw 3, thus converting the wrench from an ordinary smooth jaw nut wrench into an alligator wrench. The feed screw or nut 15 is located so as to engage the teeth 17 of the movable jaw substantially intermediate of a rearward projection of the base of the fixed jaw perpendicular to said base, so that the adjustment of the movable jaw with reference to either face of the fixed jaw may be of practically the same extent.

In the structure shown in Fig. 3 the body 2 of the wrench back of the passage 8 is formed into an arc 18 of somewhat greater diametric extent than the distance between the wider separation of the taper walls 4 and 5, and the curved margin of this arc-shaped portion is provided with gear teeth

19, while the opposite walls of the arc shaped portion are each formed with a curved groove 20. A handle 1* is provided, which in general construction is the same as the handle 1 of the structure shown in Fig. 1, except that at one end this handle is thickened and formed with tongues 21 directed one toward the other, so as to straddle the arc-shaped portion 18 where provided with the teeth 19, and to enter the grooves 20. This expanded portion of the handle 1 carries a feed screw 22 held in place by a pivot pin 23 and engaging the teeth 19, so that by manipulation of the feed screw 22 the jaw carrying head of the wrench may be adjusted about the center of generation of the arc-shaped portion 18, while the jaw 12 may be adjusted, as in the form shown in Fig. 1 without reference to the angle of the handle to the head. The relation of the jaws 2 and 12 one to the other and to the main portion of the head of the wrench in the form shown in Fig. 3 is substantially that of the form shown in Fig. 1, so that specific description of this part of the wrench is unnecessary, the same reference numerals being applied to the parts of the wrench shown in Fig. 3 which are counterparts of the structures shown in Fig. 1.

What is claimed is:—

A wrench terminating at one end in a fixed jaw extending in the same general direction as the handle of the wrench and provided with a movable jaw having a shank in laterally traversing relation to the wrench and to the fixed jaw, the fixed jaw having oppositely disposed active edges and the movable jaw being insertible into and removable transversely of the wrench from either side to bring the movable jaw into operative relation to either active edge of the fixed jaw, at will, the movable jaw having a laterally extending bearing for its rear edge in the body of the wrench and said rear edge being toothed, and a nut mounted in engagement with the teeth of the movable jaw substantially intermediate of the rearward projection of the base of the fixed jaw faces perpendicular to said base, the fixed jaw having one active edge perpendicular to the transversely elongated bearing and approximately intermediate thereof, and the other active edge inclined toward the corresponding end of the laterally elongated bearing.

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

A. B. CARLL.

Witnesses:

JOHN B. HOLT,
ORVIL W. SMITH.