A. B. CARLL.

WRENCH.

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953,515.

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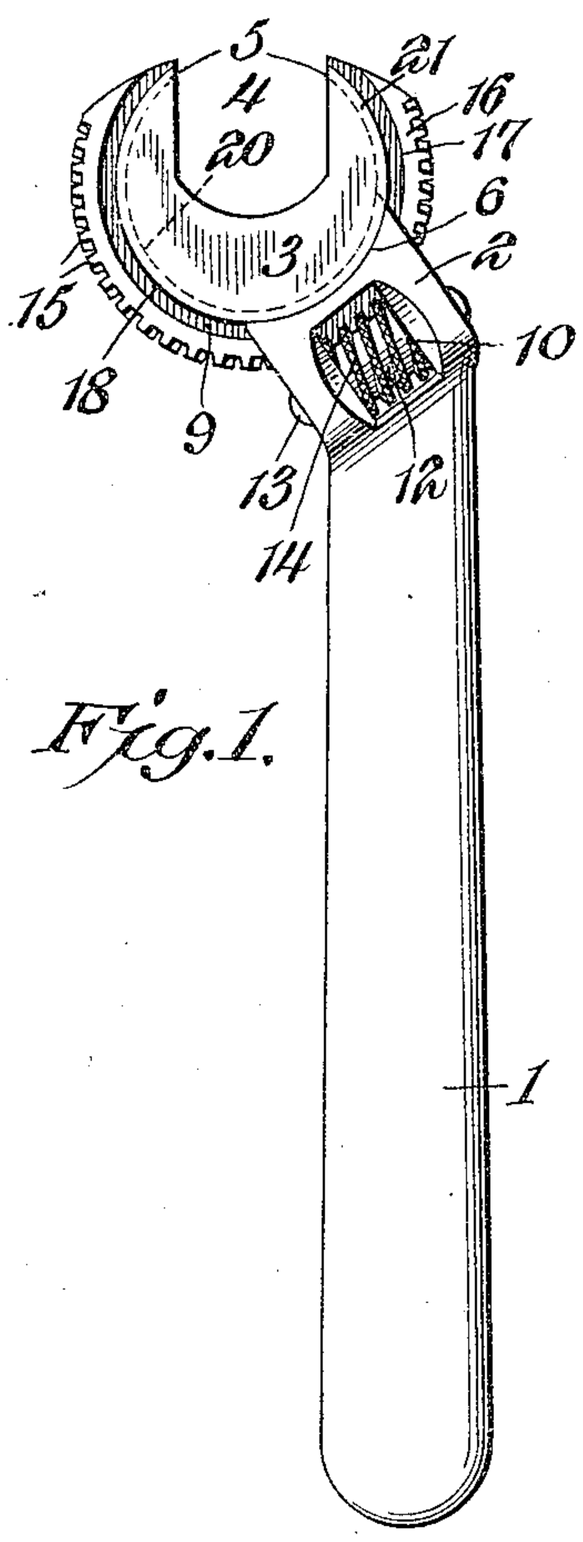

Fig. 1.

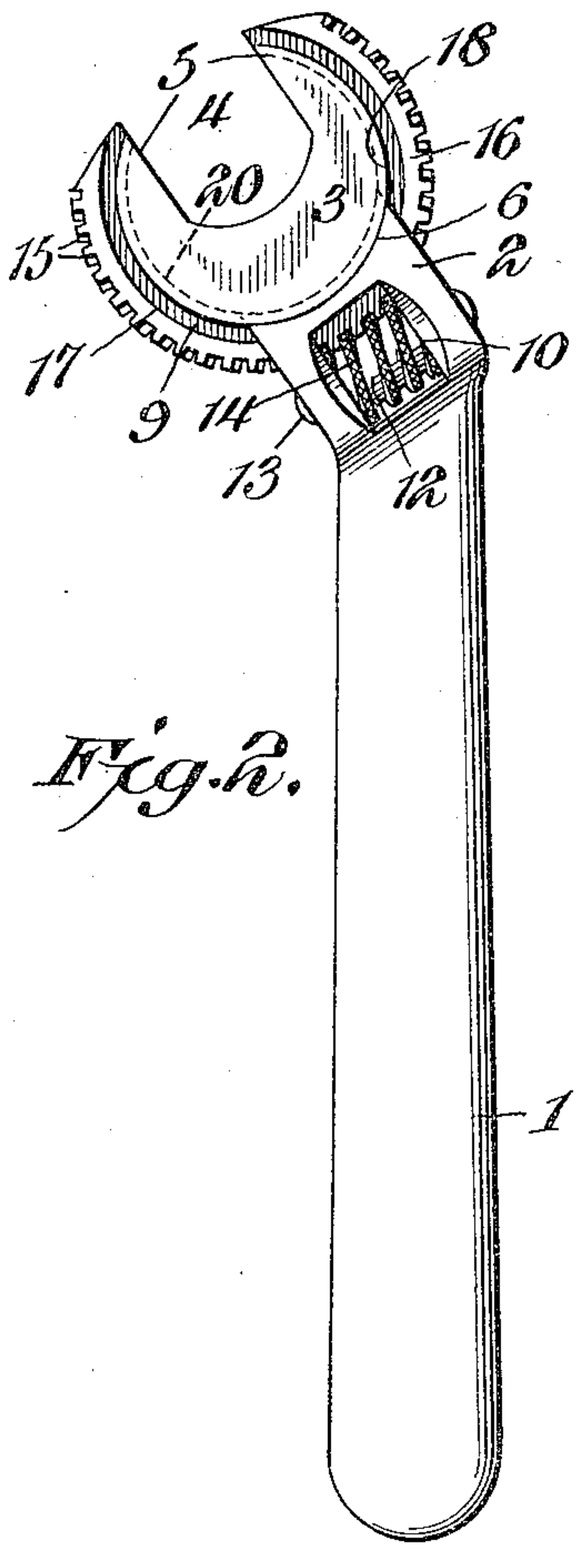

Fig. 2.

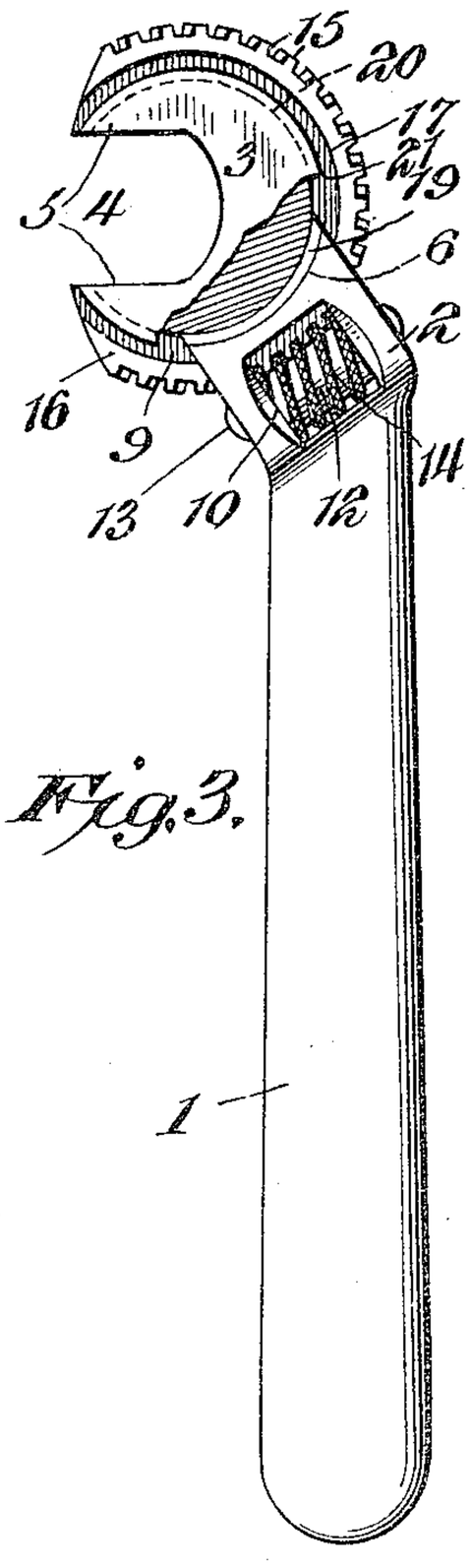

Fig. 3.

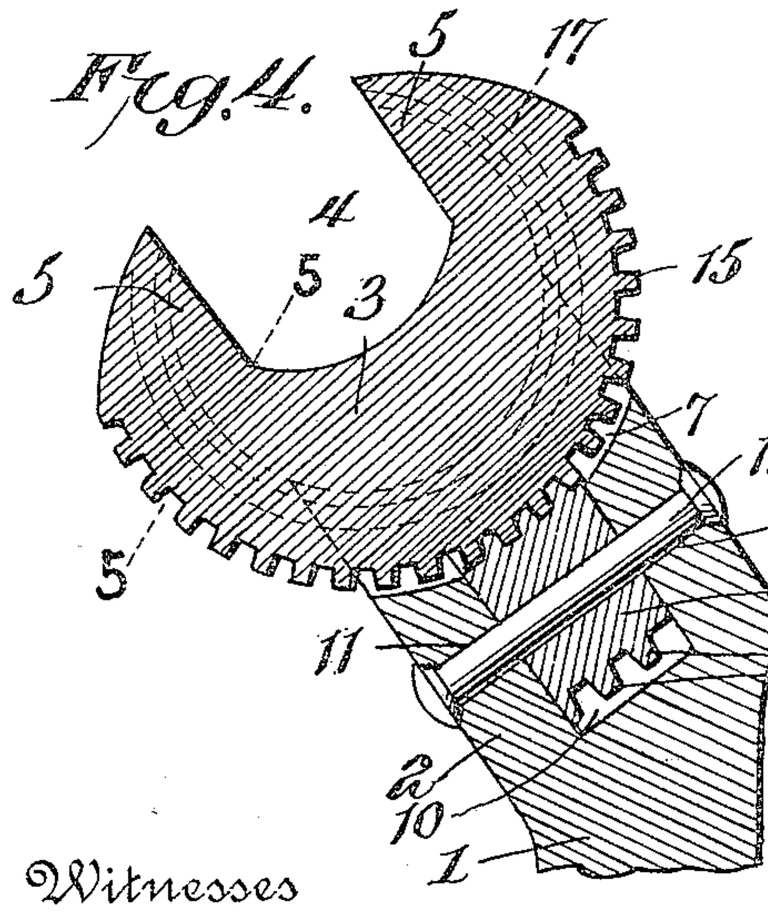

Fig. 4.

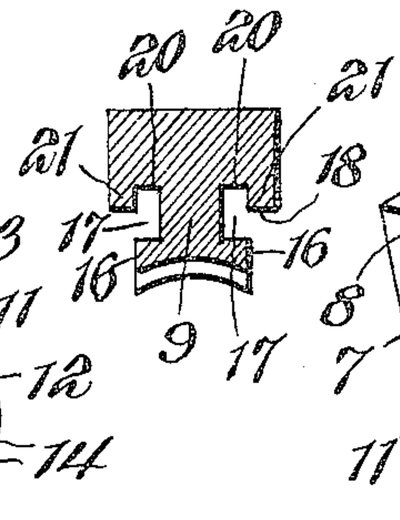

Fig. 5.

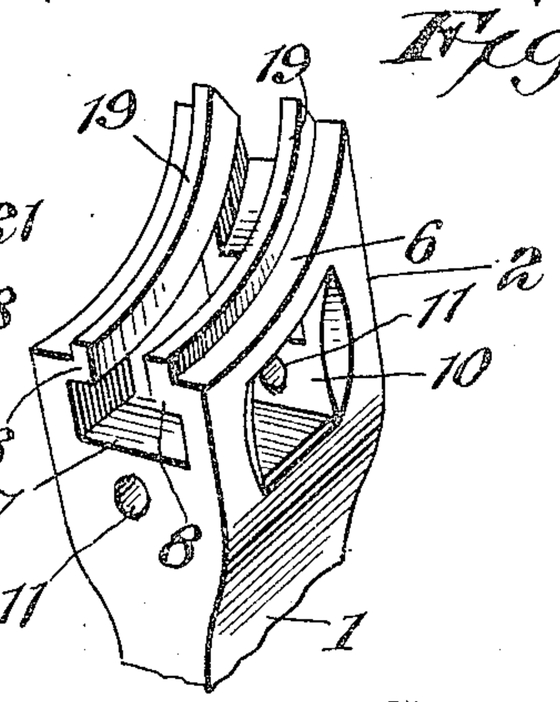

Fig. 6.

Witnesses

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UNITED STATES PATENT OFFICE.

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WRENCH.

953,515. Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed April 23, 1909. Serial No. 491,694.

To all whom it may concern:

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

This invention relates to a wrench of that type consisting of a nut-engaging head mounted on the handle in such a manner that the jaws can be turned to any angle required.

The invention has for its principal objects to provide a simple, durable and satisfactory wrench having a handle of novel construction whereby the device can be used as an offset, angle or square wrench to thus take the place of separate wrenches and including improved means for detachably connecting the head to the handle so that a variety of heads may be used interchangeably for fitting nuts of different sizes and shapes.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one embodiment of the invention, Figure 1 is a plan view of the tool shown as an offset wrench. Figs. 2 and 3 are similar views showing the tool as an angle and square wrench, respectively. Fig. 4 is an enlarged sectional view taken through the head and shank of the wrench. Fig. 5 is a sectional view on line 5—5, Fig. 4. Fig. 6 is a perspective view of the shank portion of the wrench handle.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawing, the handle 1 of the wrench is preferably a solid piece of metal such as a drop forging of bar form suitably finished so as to be comfortably gripped, and one end of the handle is formed with a shank 2 which is offset to the length of the handle at an angle of approximately forty-five degrees, and rotatably mounted on this shank is the nut-engaging head 3, the head being in the form of a disk having a recess 4 to form spaced nut-engaging jaws 5.

The end face 6 of the shank 2 extends transversely thereto and is concave to form a bearing on which the head 3 is adapted to turn, and this arcuate face 6 is provided with a longitudinal centrally-disposed groove or recess 7 whose opposed walls are undercut to form inwardly-extending parallel flanges 8 to interlock with segmental base ribs 9 extending around the periphery of the head 3. The bottom of the groove or recess 7 opens into a chamber 10, the seats of which are open, as clearly shown in Fig. 6, while the end walls are provided with alining apertures 11. In the chamber 10 is an adjusting screw 12 that rotates on an axle 13 rigidly held in the bearings 11. The threads 14 of the screw engage in teeth 15 arranged in the periphery of the head, so that the turning of the screw will rotate the head in one direction or the other, the threads 14 extending through the open sides of the chamber 11 of the shank and being milled so that the screw can be tightly gripped between the thumb and finger for turning. The circular base rib 9 of the head is of T-shaped cross-section, as clearly shown in Fig. 5, having laterally-extending arcuate flanges 16 which slidably engage under the flanges 8 of the shank. These flanges correspond with each other in curvature, so that broad engaging surfaces are provided between the head and shank. The flanges 8 of the shank engage in circular grooves 17 formed between the peripheral face 18 of the head and the flange 16, and these grooves 17 are open at their ends adjacent the extremities of the jaws 5, so that the flanges 8 can pass out or enter the grooves in detaching one nut-engaging head and for the substitution of another, it being really necessary to turn the worm or screw 12 until the threads disengage the terminal teeth 15 when the head can be detached. It may be desirable, in order to prevent spreading of the walls of the grooves 7 when a lateral strain is placed on the wrench, to provide ribs 19 on the arcuate end face 6 of the shank to engage in circular grooves 20 in the peripheral face 18 of the head, so that the ribs 21 formed by the grooves 20 will prevent the side walls of the shank from spreading. It will thus be seen that the head is firmly interlocked with the shank while at the same time the head can be freely turned without binding. By offsetting the shank at an angle to the handle, the head is disposed approximately tangentially to the center line of the handle and the head can be adjusted to a great variety of positions, in all of

which the handle will be so disposed as to permit a ready engagement with the nut to be turned and the best leverage on the wrench is obtained. Furthermore, a single wrench constructed in this manner takes the place of separate offset, angle and square wrenches.

From the foregoing description, taken in connection with the accompanying drawing, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

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

1. A wrench comprising a handle, a shank integrally connected therewith and arranged at an obtuse angle to the handle at one end thereof, a rotatable head having circular grooves in opposite sides, peripheral teeth on the head, arcuate members spaced apart on the outer end of the shank to receive the peripheral portion of the head between them and engaging in the grooves of the latter to rotatably mount the head on the shank, the teeth of the head being movable between the members, and a screw on the shank engaging the teeth of the head for turning the latter to different positions, said head having a recess extending inwardly from its periphery to form spaced jaws.

2. A wrench comprising a handle having a shank disposed at an angle thereto, a rotatable head mounted on the shank and disposed approximately in tangential relation to the center line of the handle and with its center approximately in the center line of the shank, peripheral teeth on the head, and a screw mounted on the shank with its axis disposed at an angle to the handle and having its thread engaging the teeth of the head for turning the latter.

3. A wrench comprising a handle provided with an angularly disposed shank having an arcuate end face, said end face being provided with a longitudinal recess forming spaced walls having inwardly-extending flanges, a nut-engaging head having its marginal portion disposed in the recess and provided with circular open-ended grooves in its side faces in which the said flanges engage, peripheral teeth on the head, and means on the shank engaging the teeth for turning the head to different positions and for also moving the head to a position to disengage the flanges from the open ends of the grooves in detaching the head.

4. A wrench comprising a handle formed with a shank provided with a recess presenting spaced side walls and having a chamber communicating with the recess and open at opposite sides of the shank, a head having its peripheral portion disposed in the recess, interlocking flanges on the head and said spaced walls for rotatably connecting the head and shank, peripheral teeth arranged on the head to extend into the said chamber, and a screw disposed in tangential relation to the head and arranged in the chamber of the shank with its threads engaging the peripheral teeth and also projecting out of the open sides of the chamber to be engaged by the fingers for turning the head.

5. A wrench comprising a handle formed with a shank having a recess in its end face presenting spaced side walls and having also a chamber communicating with the recess and open at the sides of the shank, inwardly-extending arcuate flanges on the side walls of the recess, outwardly-extending ribs on the flanges, a nut-engaging head having a peripheral rib of T-shaped cross section extending through the said recess and engaging under the flanges of the shank, said head having open-ended circular grooves in its opposite faces for receiving the said flanges, said grooves being undercut to form ribs interlocking with the ribs on the shank, teeth on the peripheral rib, a screw disposed in the chamber of the shank with its thread engaging the teeth of the head and projecting out of the open sides of the chamber, and an axle on which the screw is mounted in the shank.

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

ADDISON B. CARLL.

Witnesses:
A. C. KAY,
M. F. HANLON.