

C. HANSEN & C. HEBERER.

WRENCH.

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1,071,666.

Patented Aug. 26, 1913.

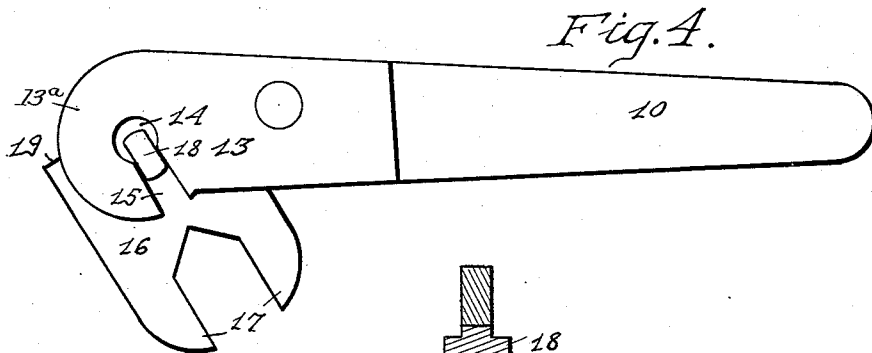
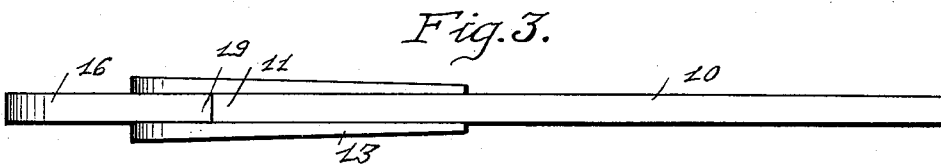
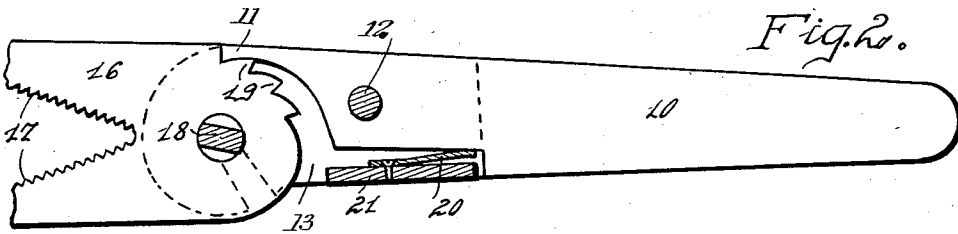
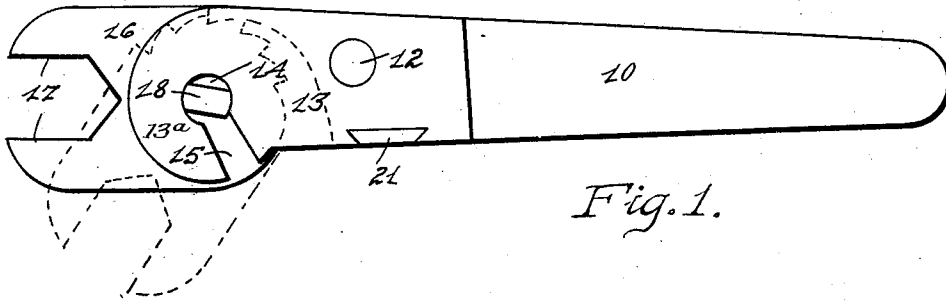
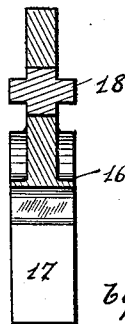


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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WRENCH.

1,071,666.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, CHARLES HANSEN and CONRAD HEBERER, citizens of the United States, residing at Mingo, in the county of Jasper and State of Iowa, have invented a certain new and useful Wrench, of which the following is a specification.

The object of our invention is to provide a wrench for general purposes consisting of a set of interchangeable heads of various types and sizes and a handle to which the heads may be firmly and instantaneously locked at any desired angle less than ninety degrees.

Our invention consists in certain details, in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in our claims and illustrated in the accompanying drawings, in which:

Figure 1 shows a plan view of our improved wrench having a head fitted in position therein. The dotted lines in said figure show the position of the head when our device is used as an S or diagonal wrench. Fig. 2 shows a longitudinal, central, sectional view of our device having a head fitted therein provided with alligator jaws. Fig. 3 shows an edge view of the device shown in Fig. 1. Fig. 4 shows a plan view of our wrench, the head therein being shown in position for removing or inserting, and Fig. 5 shows a central, sectional, edge view of one of the heads employed in our improved wrench.

Referring to the accompanying drawings, the reference numeral 10 indicates the handle which may be of any desired size and shape. The forward end of the handle is shaped to form a pawl 11 and pivoted to opposite sides of the handle near the pawl shaped end by means of a rivet 12 are similarly shaped receiving members 13, having arcuate heads 13^a. The heads 13^a are provided at their centers with circular openings 14, and extending from said openings to the periphery of said receiving members are parallel slots 15 of less width than the openings with which they communicate.

The head 16, provided with suitable jaws 17, to engage a nut or the like, is designed to be fitted between the receiving members 13 and held in place therein by means of segmental lugs 18 arranged at opposite points on the sides of said head and oper-

ating within the openings 14. The lugs 18, when in position with their narrow edges presented toward the slots, may be freely moved therethrough to position within the circular openings 14 and when turned a slight distance to present a wider dimension toward the said slots, they will be securely held in place within said openings.

The end of the head 16 is provided with ratchet teeth 19 and when the head is in position between the receiving members the pawl-shaped end of said handle engages one of said teeth and holds the head secure against rotation in more than one direction. To keep the pawl 11 in engagement with the ratchet teeth, a flat metal spring 20 is provided. The handle 10 is notched at its forward end to permit a transverse strip 21 to be inserted between the receiving members 13 and the spring 20 is secured to the inner surface of this transverse strip. The free end of the spring is arranged to exert an upward pressure against the under surface of the notched portion of the handle and the spring being arranged in position on that side of the rivet 12, opposite the pawl, the action of the spring will therefore move the pawl-shaped end of said handle against the ratchet teeth.

The operation of our device is as follows: With the handle and receiving members in proper working order, a head provided with jaws of the desired width is inserted between the receiving members by placing the head at the angle shown in Fig. 4 so that the narrow dimension of the lugs is presented to the opening of the slot. Then by moving the head inwardly a sufficient distance, the lugs will enter the circular openings and the head may then be swung a slight distance to prevent the lugs from moving back into the slots. The operator, by grasping the handle 10 with his fingers, and pressing inwardly on the transverse strip 21 with his thumb, will cause the pawl-shaped end of said handle to be raised a sufficient distance to clear the ratchet teeth and permit the head to be moved to the position in which it is desired to use the wrench.

With the present arrangement of our device, it is obvious that the head can be moved to positions where it will operate as a diagonal or an S wrench. These positions may be at any desired angle less than ninety degrees.

In the use of our device many varying

sizes and different types of heads may be employed in connection with one handle and illustrative of this feature, we have shown in the drawings one head provided with
 5 the ordinary form of jaws to receive a certain sized square tap and another head provided with alligator jaws.

In some instances where nuts are difficult of access, it is necessary to employ a head
 10 such as is shown in Fig. 5. Here it will be seen that the head, in place of being a constant width, has its projected end greatly enlarged to present a surface flush with the surfaces of the adjacent receiving members.

15 We claim as our invention:

1. A device of the class described, comprising a handle having a pawl formed at one end, receiving members pivoted to the sides of said handle and projecting beyond
 20 the pawl-shaped end thereof, said receiving members being provided with parallel slotted openings, and spring actuated means on said receiving members for yieldingly holding the pawl-shaped end of said handle
 25 inwardly, for the purposes stated.

2. A device of the class described, comprising a handle having a pawl-shaped end, receiving members pivoted to said handle and projecting beyond the pawl-shaped end
 30 thereof and provided with parallel slotted openings in their projecting ends, a head provided with ratchet teeth in position between said receiving members, lugs on said
 35 head to enter said slotted openings, and spring actuated means for yieldingly holding the pawl-shaped end of said handle in engagement with the ratchet teeth on said head.

3. A device of the class described, comprising a handle having one end pawl-shaped, receiving members pivoted to the sides of said handle and projecting beyond
 40 the pawl-shaped end thereof, said receiving members being provided with parallel slotted openings, a head designed to be received between said receiving members, jaws on said head, lugs arranged at opposite
 45 points on the sides of said head and designed to enter said slotted openings and operate therein, ratchet teeth on the periph-

ery of said head adjacent to the pawl-shaped end of the handle, and spring actuated means secured on said receiving members for yieldingly holding the pawl-shaped
 55 end of said handle in engagement with the ratchet teeth on said head.

4. A device of the class described, comprising a handle provided with a pawl-shaped end, receiving members pivoted to the sides of said handle and projecting beyond
 60 the pivoted end thereof and provided at their projecting ends with slots extending from enlarged central openings to the periphery of the receiving members, a head in position between said receiving members
 65 and removably secured therein by means of segmental lugs operating in said central openings and admitted therein through the said slots, ratchet teeth on the periphery of said head adjacent to the pawl-shaped end
 70 of the handle, and means for yieldingly holding said pawl in engagement with any one of said ratchet teeth.

5. A device of the class described, comprising a handle provided with a pawl-shaped end, receiving members pivoted to the sides of said handle and projecting beyond
 75 the pivoted end thereof and provided at their projecting ends with slots extending from enlarged central openings to the periphery of the receiving members, a head in position between said receiving members and removably secured therein by means of
 80 segmental lugs operating in said central openings and admitted therein through the said slots, ratchet teeth on the periphery of said head adjacent to the pawl-shaped end of the handle, means for yieldingly holding
 85 said pawl in engagement with any one of said ratchet teeth, said means comprising a transverse strip extending between said receiving members, and a spring on said transverse strip in engagement with the under
 90 surface of said handle.

Des Moines, Iowa, March 15, 1913.

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Witnesses:

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