A. S. E. METCALF.

WRENCH.

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993,268.

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Fig. 1.

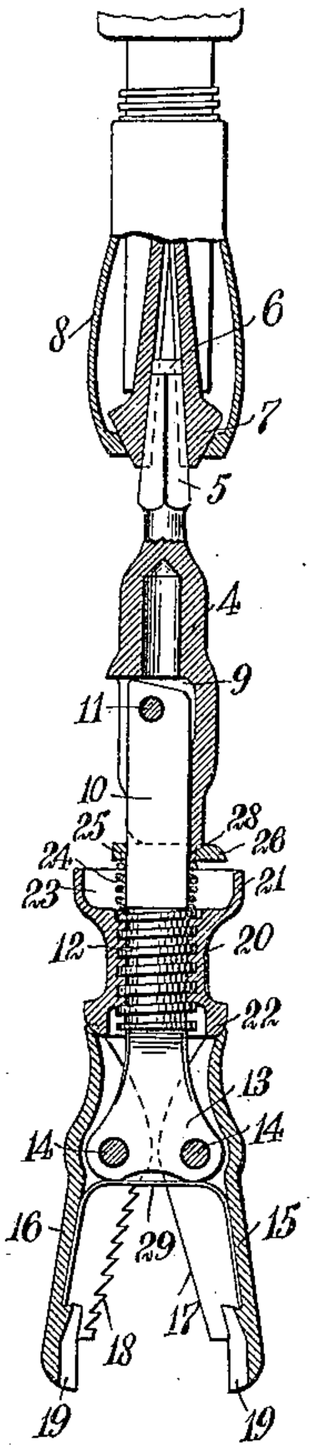
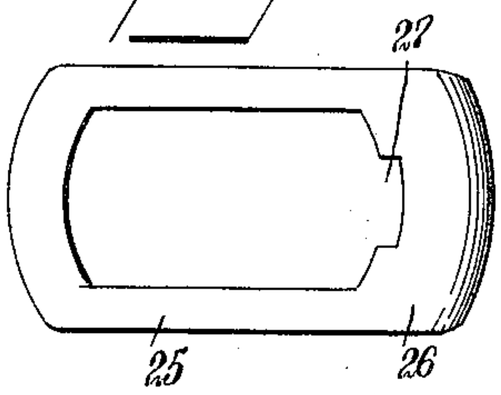


Fig. 3.



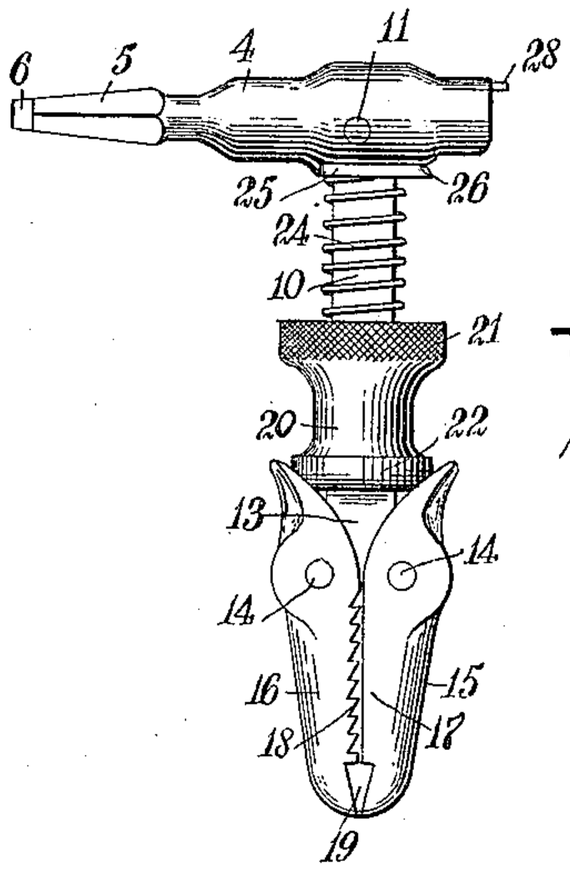


Fig. 2.

WITNESSES:

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ARTHUR S. E. METCALF, OF DRISCOLL, NORTH DAKOTA.

WRENCH.

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To all whom it may concern:

Be it known that I, ARTHUR S. E. METCALF, a citizen of the United States, and a resident of Driscoll, in the county of Burleigh and State of North Dakota, have invented a new and Improved Wrench, of which the following is a full, clear, and exact description.

My invention relates to wrenches, my more particular purpose being to provide a tool of this general character suitable for use either alone as a hand instrument or in combination with a rotary brace.

More particularly stated, I provide a wrench having a two-part shank adapted to be bent and used as a handle or to be straightened and put into a brace, the tool further comprising various portions whereby it is adapted to be used as an alligator wrench, a monkey wrench, or a socket wrench.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a central vertical section through the combination tool, showing how it is used in connection with a brace; Fig. 2 is a plan view of the tool, showing how it is used as a screw driver, and also how it is used by itself as a hand instrument; and Fig. 3 is a detail showing the link used for holding the two parts of the shank rigid in relation to each other.

A shank section 4 is provided with an angular portion 5, the latter being fashioned at 6 so as to form a screw driver blade. The angular portion 5 is engaged by jaws 7 carried by the brace head 8, this brace head forming a part of an ordinary rotary brace in common use by workmen. The shank section 4 is provided with a slot 9, and extending into the latter is another shank section 10 pivoted at 11, and which is provided with a substantially cylindrical threaded portion 12 and with a flattened head 13. This flattened head carries two pivot pins 14, and journaled upon the latter are jaws 15, 16 provided respectively with gripping edges 17, 18, and also provided internally with angular surfaces 19. A sleeve 20 is threaded internally and revolubly fitted upon the threaded portion 12 of the section 10. The sleeve 20 is provided with a rounded annular portion 22 which engages the upper ends of the jaws 15, 16 for the purpose of forcing the same apart. The sleeve 20 is further provided with an annular cavity 23.

A spiral spring 24 encircles the flat bar 10 and directly engages the upper end of the threaded portion 12. A link 25 encircles the shank section 10 and fits slidably thereupon. This link is slightly rounded upon one of its edges 26, as will be understood from Fig. 1. The link 25 is further provided with a recess 27. The shank section 4 is provided at one of its ends with a lug 28 which is adapted to fit into the recess 27 when the shank sections are straightened out, as indicated in Fig. 1. The shank section 4 has two normal positions relatively to the shank section 10, as will be understood by contrasting Figs. 1 and 2. That is to say, the shank section 4 may be in substantial axial alinement with the bar 10, as indicated in Fig. 1, or it may be bent over to a right angle as compared with the shank section 10, as indicated in Fig. 2.

When the parts are in the positions indicated in Fig. 1, the spring 24 is compressed and the link 25 is forced toward the pivot 11 so that the lug 28 occupies the recess 27, thus locking the shank sections 4, 10 rigidly in the relation indicated. In order to release the shank sections from this position, the operator places his thumb upon the rounded portion 26 of the link 25, and by pulling this rounded portion downward according to Fig. 1, disengages the lug 28. This leaves the shank section 4 free to turn upon the pivot 11 as a center. The pressure of the spring 24 being against the under side of the link 25 tends to move the shank sections into the relative positions indicated in Fig. 2. This being done the link 24 presses firmly against the side of the shank section 4 and this holds the two shank sections in the position indicated in Fig. 2.

At 29 is a leaf spring which tends to force the jaws 15 and 16 apart.

The operation of my device is as follows: The shank sections 4 and 10 being connected by aid of the link 25, as above described, and the angular portion 5 being secured within the brace head 8, the jaws 15, 16 are brought to bear upon the object to be turned. If it be desired to use the device as an alligator wrench, the gripping surfaces 17, 18 are applied to the work. The sleeve 20 being now rotated, so as to move downward

according to Fig. 1, the lower ends of the jaws 15, 16 are forced together contrary to the tension of the spring 29 and thus caused to grip tightly upon the work, so that the latter may be turned by rotation of the brace. In order to use the device as a socket wrench, the angular surfaces 19 are brought toward each other to the desired extent and are simply fitted over the work to be operated upon; for instance, a nut or angular head which is then turned by rotation of the brace. If desired, the angular surfaces 19 may be tightly fitted upon the work by rotation of the sleeve 20 before the brace is turned. When the angular surfaces 19 are first fitted loosely over the work and then gripped against it, the action of the device is more or less analogous to that of a monkey wrench, but in instances where the angular surfaces 19 are first adjusted to position and then applied without changing them any further, the action is analogous to that of a socket wrench. Suppose, now, that the operator desires to use the tool as a screw driver. The parts are brought into the positions indicated in Fig. 2 and the operator uses the member 6 as a screw driver blade and the shank section 10 and parts carried by it as a handle.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

The combination of a shank section provided with a slot and further provided with an angular portion to be gripped by a brace, a second shank section extending into said slot and pivoted relatively to said first-mentioned shank section, a link encircling said second-mentioned shank section and adapted to press upon different portions of said first-mentioned shank section as the latter is turned, a spring engaging said link and encircling said first-mentioned shank section, jaws pivotally connected with said second-mentioned shank section, and means for actuating said jaws.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR S. E. METCALF.

Witnesses:
GEO. V. CUNNINGHAM,
E. L. DEPUE.