No. 810,599. PATENTED JAN. 23, 1906.

E. K. ANSORGE.

WRENCH.

APPLICATION FILED APR. 10, 1905.

Fig. 1.

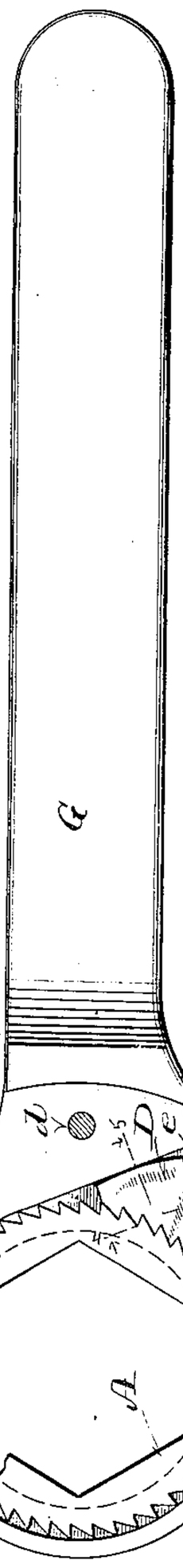


Fig. 2.

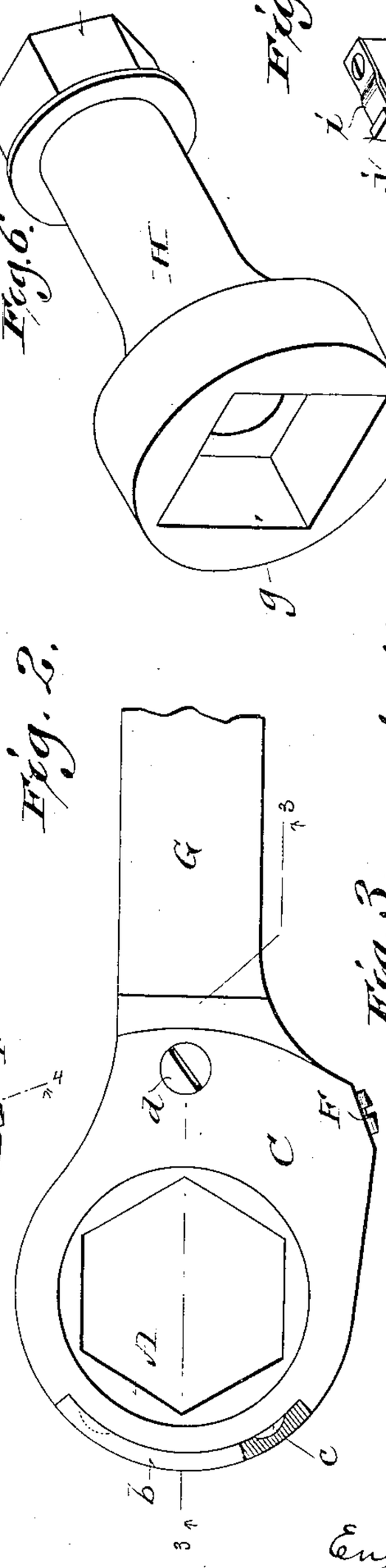


Fig. 3.

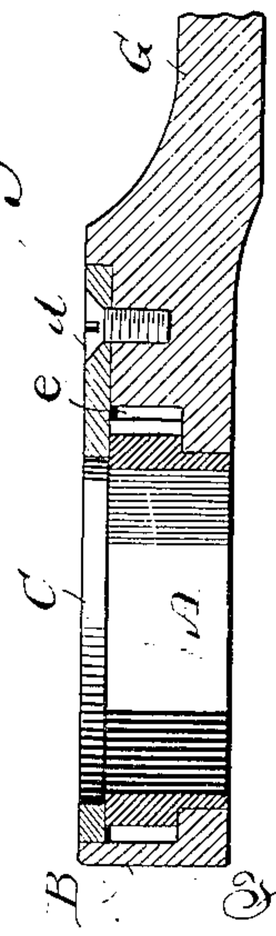


Fig. 4.

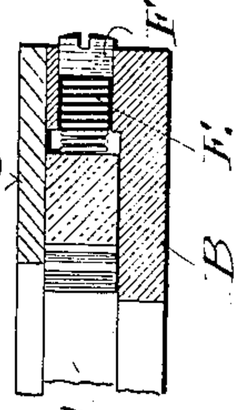


Fig. 5.

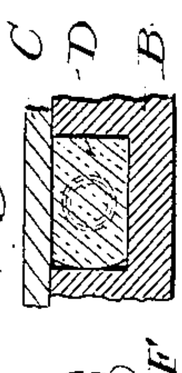
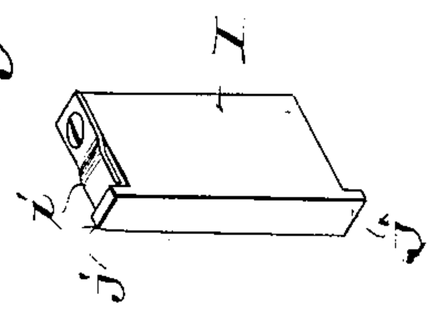


Fig. 6.

Fig. 7.



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WRENCH.

No. 810,599. Specification of Letters Patent. Patented Jan. 23, 1906.

Application filed April 10, 1905. Serial No. 254,813.

To all whom it may concern:

Be it known that I, EUGENE K. ANSORGE, a citizen of the United States, and a resident of Greenbay, in the county of Brown and State of Wisconsin, have invented certain new and useful Improvements in Wrenches; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention has for its object to improve the wrench set forth in my Patent No. 766,577, of August 2, 1904; and it consists in certain peculiarities of construction and combination of parts herein specified with reference to the accompanying drawings and subsequently claimed, a result of the improved wrench being an elimination of friction between the ratchet and its spring-controlled actuating-pawl when the handle is moved in one direction and an immediate automatic grip of said pawl and ratchet when said handle has its return or wrench-working movement.

Figure 1 of the drawings represents a plan view of my improved wrench having a cover-plate portion thereof removed and other portions partly broken away; Fig. 2, a plan view of a fragment of the wrench partly broken; Fig. 3, a sectional view indicated by lines 33 in Fig. 2; Figs. 4 and 5, sectional views, respectively indicated by lines 4 4 and 5 5 in Fig. 1; Fig. 6, a perspective view of an attachment to be used in connection with the wrench, and Fig. 7 a similar view of a spacer for use in said socket.

Referring by letter to the drawings, A indicates the ratchet of the wrench exteriorly shouldered and having a loose fit in a corresponding aperture of the head B of said wrench, the same as is shown in the patent above noted. Like in said patent a cover-plate C is held on the wrench-head over that end of the ratchet that has the greatest diameter. A notch in the cover-plate is engaged by a corresponding fin *b* of the wrench-head, and lugs *c* of the cover-plate engage recesses in said fin. A single screw *d* serves to fasten said plate in working position, and thus the expense attendant upon the use of the plurality of screws, as shown in the former patent, is avoided.

Communicating with the ratchet-space in the wrench-head is an angular depression *e* at a tangent to said space, and set in the depression is a pawl-block D, having a plurality of teeth engageable with those of the ratchet. The back of the pawl-block is shown convex in opposition to the long side of the wrench-head depression *e* in order that the leverage on said block may be exerted centrally of the same. Opposing the outer end of the pawl-block, central of same, is a spiral spring E in an aperture *f* of the wrench-head communicating with the depression aforesaid, and the dimensions of said block are such that it has longitudinal play in said depression, the tension of the spring being regulated by the adjustment of a screw-plug F in said aperture. The pressure of the spring is as near as practicable at a right angle to the outside surfaces of the ratchet-teeth in contact with the pawl-block, and hence friction between this pawl-block and ratchet is practically eliminated upon movement of the wrench-head by its handle in the direction to permit slip of said block over the teeth of the ratchet; but said block has immediate automatic engagement with said ratchet on the reverse movement of said head. This is an important feature of my invention, as it effects a saving in wear, increases the efficiency of the wrench, and renders said wrench easy of operation.

The aperture or socket of the ratchet may be hexagonal, as herein shown, or of any other angular contour to correspond with that of nuts or bolt-heads upon which it is designed to operate, and ratchets of varying size and contour of aperture or socket may be interchangeable in the wrench-head.

The wrench is herein shown as having a single handle G; but it may be made with another handle extending in a direction opposite the one illustrated.

In Fig. 6 is shown an attachment H to be used in connection with the wrench, one end of this attachment being provided with a square socket *g* and its other end with a head *h* of hexagonal contour or otherwise than square and which is designed to fit in the aperture in the ratchet of said wrench. By the employment of the attachment the wrench can be employed to operate on square nuts or bolt-heads when the aperture in the ratchet of said wrench is of a contour and dimensions corresponding to that of the head of said attachment. To diminish the area of the socket *g* in the attachment H, a block I, engageable with said socket, is provided. Shown in connection with one end of the block is a flat spring *i*, that is compressed when said block is inserted in the socket *g* of the attachment H, and this spring operates

to prevent automatic displacement of the aforesaid block. The block is also preferably provided with end flanges *j*, that lap the socket end of the attachment H when said block is in working position and facilitate withdrawal of the device.

Various changes in form, proportions, and minor details of my invention may be made at will without departing from the spirit and scope thereof.

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

1. A wrench comprising a head, a ratchet having loose fit in the head and provided with an angular aperture or socket, and an angular partly-concave block having play in a corresponding depression of said head at a tangent to the ratchet-space, the concavity of the block being provided with a plurality of teeth matching those of the ratchet from which said block has yield in a direction at a right angle to the outer faces of the proximate teeth of said ratchet.

2. A wrench comprising a head, a ratchet having loose fit in the head and provided with an angular aperture or socket, an angular partly-concave block having play in a corresponding depression of said head at a tangent to the ratchet-space, the concavity of the block being provided with a plurality of teeth matching those of the ratchet from which the block has yield in a direction at a right angle to the outer faces of proximate teeth of said ratchet, and a spring arranged under tension to resist yield of said block.

3. A wrench comprising a head, a ratchet loose in the head and having an angular aperture or socket, a pawl-block having play in a space within said head at a tangent to the ratchet-space, the back of the block being convex in opposition to the long side of said play-space; and a spring arranged under tension against the pawl-block in a direction approximating a right angle to the outer faces of the ratchet-teeth opposing said block.

In testimony that I claim the foregoing I have hereunto set my hand, at Greenbay, in the county of Brown and State of Wisconsin, in the presence of two witnesses.

EUGENE K. ANSORGE.

Witnesses:

FRANCES COLE,

FLORA ANSORGE.