

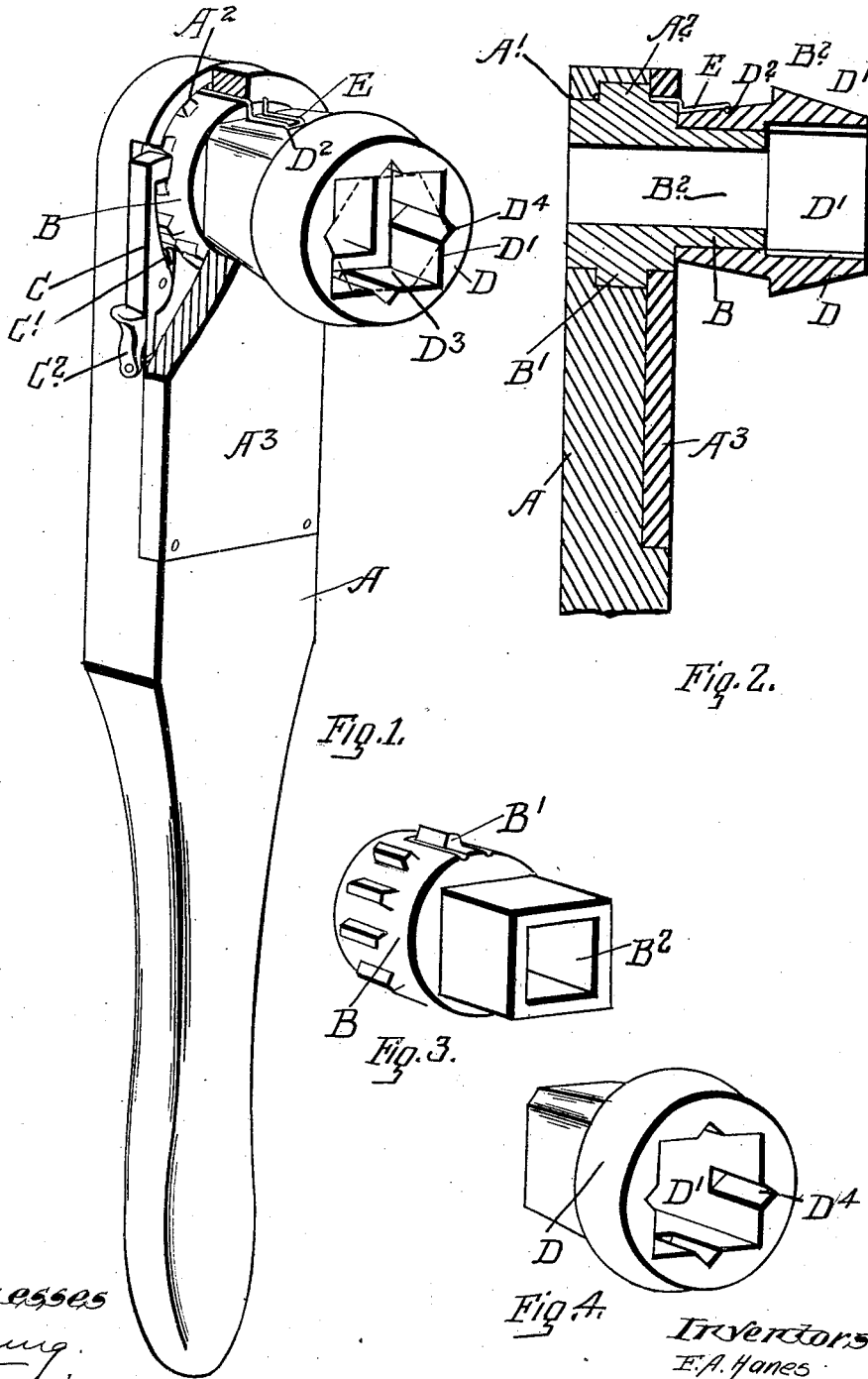
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F. A. HANES & W. STAPLES.

RATCHET WRENCH.

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Witnesses
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UNITED STATES PATENT OFFICE.

FREDERICK A. HANES AND WILLIAM STAPLES, OF HUNTSVILLE,
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RATCHET-WRENCH.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, FREDERICK ALONZO HANES, agent, and WILLIAM STAPLES, carpenter, of the town of Huntsville, in the district of Muskoka, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Ratchet-Wrenches, of which the following is a specification.

Our invention relates to improvements in ratchet-wrenches patented to us in the United States of America on the 24th day of April, 1906, under No. 818,761; and the object of the present invention is to devise such an improvement in the construction of the wrench as will enable it to be applied close to the nut and allow of the bolt passing therethrough in order to enable the nut to be screwed home, and also to so form the bit that the one bit may be used on square and hexagonal nuts of equal diameter; and it consists, essentially, of a lever-arm, a hollow socket held therein engaged by spring-pressed dogs, the orifice of the socket extending through from side to side of the arm, a bit adapted to fit exteriorly of the socket and having the square-nut-engaging end provided with central V-shaped side notches, and a spring-finger adapted to connect the bit to the hollow socket, the parts being otherwise arranged and constructed in detail as hereinafter more particularly explained.

Figure 1 is a perspective view of our improved ratchet-wrench, partially broken away to exhibit the construction of the socket. Fig. 2 is a longitudinal section. Fig. 3 is a detail of the hollow socket. Fig. 4 is a detail of the bit.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is the lever-arm, provided at one end with a recess A' extending therethrough and having an annular enlargement A².

B is a socket which is provided with gear-teeth B', which are designed to engage freely in the annular enlargement A².

A³ is a plate which holds the socket in place, being suitably fastened to the one side of the arm and flush therewith, as indicated and as described in our former patent.

C represents the lever pawls or dogs, which are controlled by the springs C' and the pivotal clips C², as described in our former patent.

It will be seen that the plate A³ holds the

socket B in position and that such socket has an orifice B², which extends therethrough, through which the threaded end of the bolt may freely extend. The outer end B² of the socket B is preferably square or sided, as indicated in the drawings.

D is a bit the orifice D' of which at the inner end is adapted to fit over the square end B² of the socket B.

E is a spring-finger which is formed, as indicated in Figs. 1 and 2, to fit around one of the gear-teeth B' at the inner end and extend at the outer end into the notch D² in the bit D.

It will be noticed that the bit D is provided with a square socket D³, having central V-shaped notches D⁴, adapted to receive the corners of a hexagonal nut of equal diameter to the square nut. This will be readily understood on reference to the dotted position of the hexagonal nut indicated in Fig. 1.

By such a construction of wrench as we have described we are enabled by means of the spring-catch E to insert bits of different sizes in position and on account of the construction of the socket at the end of the bit to take both square and hexagonal nuts of equal diameter. We also can readily spring the bit close down to the nut and yet obviate any liability of the threaded end of the bolt, which extends through the nut, from interfering with the screwing home of the nut on the bolt, as such threaded end of the bolt will extend freely through the orifice B², hereinbefore referred to.

What we claim as our invention is—

In a wrench, the combination with an arm having an orifice formed in the end thereof provided with an annular enlargement and a retaining-plate, of a socket having gear-teeth fitting in the annular enlargement and having an orifice extending therethrough and through the arm, and a bit fitting exteriorly on the outer end of the socket, and a spring-finger extending around one of the gear-teeth of the socket at one end and into a notch in the bit at the opposite end as and for the purpose specified.

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