

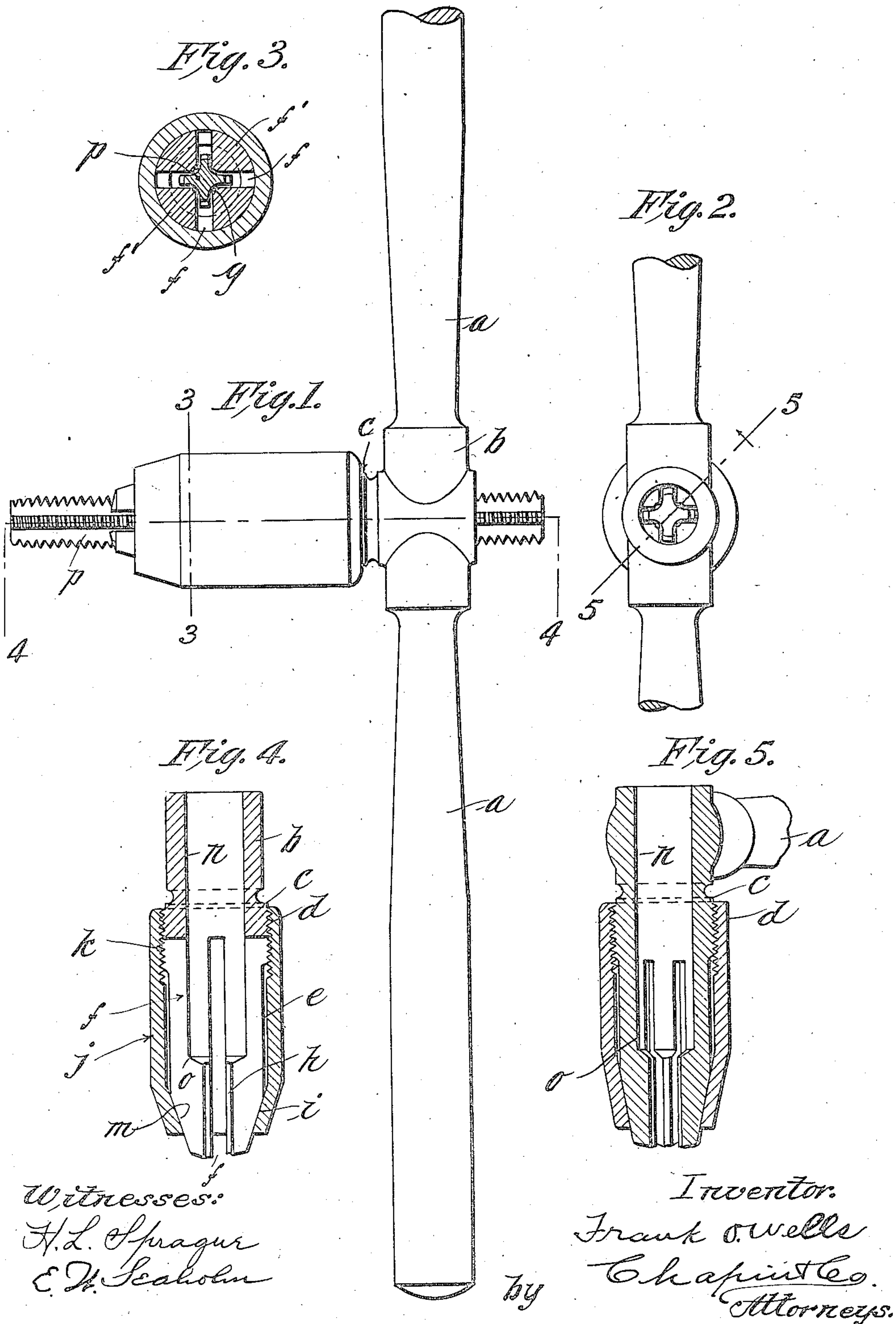
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TAP WRENCH.

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965,970.

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UNITED STATES PATENT OFFICE.

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TAP-WRENCH.

965,970.

Specification of Letters Patent.

Patented Aug. 2, 1910.

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To all whom it may concern:

Be it known that I, FRANK O. WELLS, a citizen of the United States of America, residing at Greenfield, in the county of Franklin and State of Massachusetts, have invented new and useful Improvements in Tap-Wrenches, of which the following is a specification.

This invention relates to screw-taps and particularly to a wrench for holding the same, and it has for its object to provide means by which a screw-tap fluted its entire length can be secured therein by having the jaws of the wrench grip or engage the tap close to the center, and at any portion of its entire length. It is designed primarily to permit taps to be entirely used before discarding the same, since it is desired to use what is known as "high speed" steel for making the taps, and as the cost of this steel is very expensive it is desirable as a matter of economy to use the entire tool before discarding the same. In case of breakage it is only necessary to regrind the tap and insert the tool again in the wrench, and so on until the whole tool is used. My invention therefore covers a field which will permit the use of "high speed" steel on an economical basis, which will be fully set forth in the body of the specification, and particularly pointed out in the claims.

In the drawings forming part of this application,—Figure 1 is a side elevation of my improved tap-wrench showing the screw-tap engaged or held in an adjusted position by the chuck thereof. Fig. 2 is a top plan view looking from the right of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1 showing the jaws of the chuck engaging the flutes of the screw-tap close to its center. Fig. 4 is a longitudinal sectional view on the line 4—4, Fig. 1. Fig. 5 is a sectional view on line 5—5 of Fig. 2.

Referring to these drawings, *a* designates the handles of the tap-wrench; *b* the hub or middle portion of the wrench having a part *c* extending at right angles thereto which is threaded on its exterior, as at *d*, for a portion of its length.

e designates the bottom of the threaded portion.

The outer end of the part *c* is slitted, as shown in Fig. 3, the slits being designated by the letter *f*,—there being four of these

slits as shown. The adjacent edges of these slitted portions of the part *c* are close to each other and shaped so as to form a gripping nose or point *g* close to the center of the tap, as shown. The gripping points *g* are of considerable length, as shown at *h*. The outer surface of the part *c* is inclined as shown at *i*. A chuck-sleeve *j* is threaded on its interior for a portion of its length, as shown at *k*, while the outer end of the same on the interior thereof is inclined at an angle corresponding to the surface *i* of the part *c*, as indicated at *m*.

n designates the bored out portion of the hub *b* and part *c* and extends for about two-thirds of the length of the part *c*, as designated at *o*.

p designates a screw-threaded tap adapted to be used with the above described wrench which is fluted its entire length and is shown in place in Fig. 1, gripped by the wrench.

In order to tightly grip the tap after the same is inserted between the slitted jaws *f* of the portion *c*, the chuck-piece *j* is turned so that the inclined part *m* draws tightly against the inclined part *i* of the chuck-jaws, thus wedging the adjacent gripping points *g* toward the center and tightly grasping the fluted tap *p* close to its center.

It will be noticed that the diameter of the bored out portion of the hub *b* and part *c* is much greater than the distance between the gripping points *g* which engage the bottom portion of the fluted top. On account of the bored out portion *n* being of greater diameter than the distance between the gripping points *g* it is possible to use a long tap and such construction will permit the tap to be readily pushed through the hub *b* and part *c* as clearly shown in Fig. 1. This construction permits the use of either very long or very short taps. It will be seen that by this construction, when the tap is used and strain is placed thereon by the handles *a*, that all torsional strain on the tap *p* is avoided, as would be the case if the tap were gripped simply at its outer end, as in common practice. When a long hole is to be tapped, all liability of the twisting or breaking of the tap is avoided by this construction.

By using this wrench the operator is enabled to grip the tap at any desired point so that the same can be gaged for any depth of

hole desired by simply slipping the tap *p* through the chuck and then tightening up the piece *j*.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States, is:—

1. An improved means for holding an instrument fluted from end to end, the same being adjustable as to its length, comprising
10 a wrench, said wrench having a hub at right angles to the handles thereof, a bored out portion extending through the hub, the outer end of the hub being slitted, the slits communicating with the bored out portion, the
15 adjacent edges of the slitted portion being at right angles to each other for engaging the fluted portion of the instrument, a sleeve engaging the hub and having means at its outer ends for engaging the slitted portion
20 of the hub for forcing the slitted portions of the hub against the flutes of the instrument, the diameter of the bored out portion being greater than the distance between the gripping points of the slitted portion, whereby
25 a tap may be gripped at any portion of its length.

2. An improved means for adjustably clamping an instrument or tool fluted from end to end comprising a wrench, said wrench
30 having a hub extending at right angles to the handles of the wrench, the hub having a uniform bored out portion extending through the same, the hub portion being slitted at the outer end and opening into the
35 bored out portion, the slitted ends forming gripping surfaces for the fluted instrument or tool, the hub being externally threaded at

its inner end and beveled at its outer end on the portion constituting the gripping surfaces, a chuck sleeve internally threaded for
40 engaging the threaded part of the hub and also having an inclined inner surface for engaging the beveled outer portion of the hub, whereby when the chuck sleeve is threaded onto the hub the inclined inner surface
45 thereof will force the gripping surfaces against the fluted surface of the instrument or tool, the diameter of the bored out portion being greater than the distance between the gripping points of the slitted portion,
50 whereby a tap may be gripped at any portion of its length.

3. As an improvement in means for holding screw-taps fluted from end to end and at any portion of their length, including a
55 wrench having a hub, the same being bored therethrough for permitting the top portion of the tap to project therethrough, a portion of the hub being slitted at its outer end forming jaws for engaging the flutes of the
60 tool near the center thereof, a sleeve threaded onto the hub and having engaging means for forcing the jaws inward toward the flutes of the tool, whereby the tool may be gripped at any part of its length, the diameter of the bored out portion being greater
65 than the distance between the gripping points of the slitted portion, whereby a tap may be gripped at any portion of its length.

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