No. 794,952. PATENTED JULY 18, 1905.

F. W. SCHROEDER.

RATCHET SPANNER FOR SCREW BOLTS, &c.

APPLICATION FILED SEPT. 16, 1903.

Fig. 1

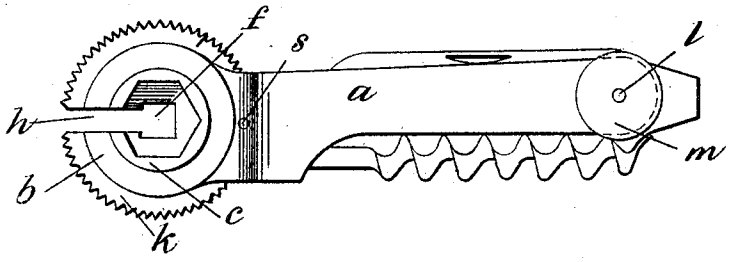
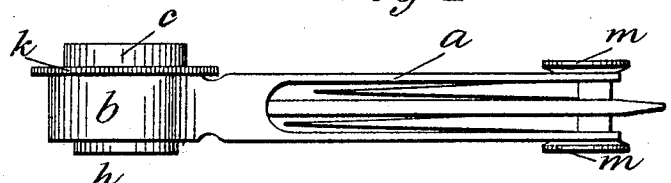


Fig. 2.



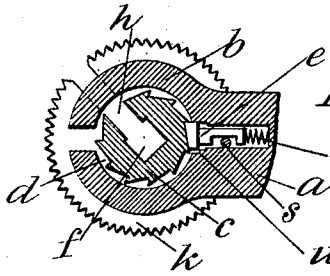


Fig. 3.

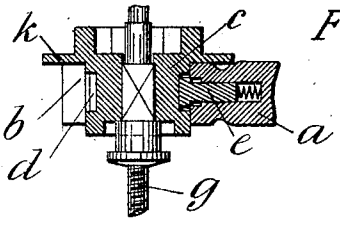


Fig. 4.

WITNESSES

A. M. Conwin.

John Miller.

INVENTOR

F. W. Schroeder

by Baldwin & Symes

his attys

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

No. 794,952. Patented July 18, 1905.

UNITED STATES PATENT OFFICE.

FREDERICK WILLIAM SCHROEDER, OF LONDON, ENGLAND.

RATCHET-SPANNER FOR SCREW-BOLTS, &c.

SPECIFICATION forming part of Letters Patent No. 794,952, dated July 18, 1905.

Application filed September 16, 1903. Serial No. 173,380.

To all whom it may concern:

Be it known that I, FREDERICK WILLIAM SCHROEDER, a subject of the King of Great Britain and Ireland, residing at 9 Arundel street, Strand, London, England, have invented certain new and useful Improvements in Ratchet-Spanners for Screw Bolts and Nuts, Nipples, and the Like and the Combination Thereof with other Tools or Implements, (for which I have applied for a patent in Great Britain, dated April 16, 1903, No. 8,672,) of which the following is a specification.

My invention relates more particularly to spanners for screwing up the tightening-nuts, screw-nipples, or sockets of wire wheel-spokes. It is, however, applicable with advantage in all cases where an ordinary ratchet-spanner is prevented from being fitted on a screw-nut or socket situated on a rod or tube. When using ordinary spanners for these purposes, as it is not possible to turn the spanner completely round with the nut, owing to want of space, great delay and inconvenience is caused in having after each partial turn through a certain angle to draw the spanner off the nut in order to fit it on again in position for effecting another part turn. According to my present invention I obviate this inconvenience by a special construction of ratchet-spanner shown in the accompanying drawings, in which—

Figure 1 is a side view, and Fig. 2 an edge view. Figs. 3 and 4 are longitudinal sections at right angles of the end of the spanner, showing the spanner applied to a wire wheel-spoke and its screw nipple or socket.

The spanner consists of a handle *a*, formed with a ring-shaped head *b*, in which is mounted a rotatable block *c*, provided with ratchet-teeth *d*, with which gears a spring-pawl *e*, mounted in a recess of the handle *a*. In order to enable the rotatable block to be easily removed, the pawl *e* is made to slide in the recess against the action of a light spring *t*. To make certain of the pawl acting, the space in which it slides is provided with a recess *u*, into which the pawl is forced when in action, thus preventing it from being pushed back. The rotatable block *c* is formed on both sides with central square, hexagonal, or other-shaped openings *f*, adapted to fit on to screw-nuts of various sizes, so that when thus fitted on the block and nut will be rotated with a step-by-step ratchet-motion by the to-and-fro movement of the handle. It is, however, not possible to employ spanners as usually formed in cases such as above mentioned, as the wire spoke, rod, or tube *g* prevents the closed eye of the spanner from being fitted on to the nut. According to the present invention, therefore, I form both in the ring-shaped head *b* of the handle and in the central rotatable block *c*, on one side thereof, a transverse slot *h*, extending through both parts from the circumference to the center, so that for using the spanner, the slots in the two parts having been brought in line with each other, the wire spoke or rod *g*, or it may be a tube, is passed in through the slots, so as to be centrally within the square or other hole of the block, whereupon the spanner can be passed along the spoke rod or tube until its hole engages with the nut, nipple, or the like that requires to be screwed up, this being now effected by the to-and-fro movement of the handle, as before described. The spring-pawl of the ratchet is made with a stop *s* for preventing it from entering into the slot of the central block as this passes round relatively to it.

The block *c* is preferably made with hexagonal recesses of different sizes on each face to fit different-sized nuts and with the central small square holes *f* for fitting on small square nuts or nipple-heads. Other similar blocks having different sized or shaped recesses may be substituted, so as to fit nuts of other sizes or shapes. The blocks are preferably made with an enlarged disk *k*, having a milled edge, so that on the spanner being held firmly in the hand the rotatable block can be caused to move round by moving it with the finger and thumb applied to the milled edge of the disk *k* until greater leverage is required to tighten the nut or nipple quite home, this being effected by operating the block by means of the handle.

As spanners of this kind are generally made of small size for the convenience of carrying and handling them, I prefer to mount on the rivet or pin *l*, near the end of the handle *a*,

two hollowed disks *m*, so that instead of grasping the handle the operator merely holds the disks between his finger and thumb, so that in moving the handle to and fro the disks turn, and consequently do not subject the finger and thumb to friction. As shown in the drawings, the said rivet or pin constitutes the pivot of the blade of a knife combined with the spanner. When the spanner has no blades, a separate eye is formed at the end of the handle in which the disks *w* are mounted. I prefer to combine such spanners with other tools or implements, for which purpose I form the handle thereof in a similar manner to a pocket-knife, as shown, so as to contain one or more hinged knife-blades, a hinged corkscrew, a rimer, or the like, while the end of the handle is formed as a screw-driver.

Having thus described the nature of my said invention and the best means I know of carrying the same into practical effect, I claim—

1. A spanner comprising a ring-shaped, radially-slotted head, a similarly-slotted block rotatably mounted in the ring-shaped head, ratchet-teeth on said block, a spring-pawl mounted in the spanner-head and adapted to engage with the ratchet-teeth, and a positive stop for preventing the disengagement of the ratchet and pawl during the effective operation of the spanner; substantially as described.

2. A spanner having a rotatable block, a handle and a spring-urged pawl having a projection arranged to engage a corresponding recess in the handle, to prevent disengagement of the block and pawl during the working stroke; substantially as described.

3. A spanner having a ratchet-block, a hollow handle, a pawl mounted in the hollow handle with longitudinal and lateral freedom, a spring to urge said pawl lengthwise into engagement with the ratchet-block, a recess in the pawl-seat and a corresponding projection on the pawl, adapted to engage the rearward side of said recess when the block is rotated.

4. In a spanner, a ratchet-block, a hollow handle, a shouldered, sliding pawl mounted in the handle and adapted to be displaced laterally, a groove in said pawl and a pin in the handle coöperating with said groove; substantially as described.

5. In a spanner, a rotatable ratchet-block, a handle, a pawl, and a pair of buttons revolubly mounted on opposite sides of said handle; substantially as described.

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

FREDERICK WILLIAM SCHROEDER.

Witnesses:
JOSEPH MILLARD,
WALTER J. SKERTEN.