

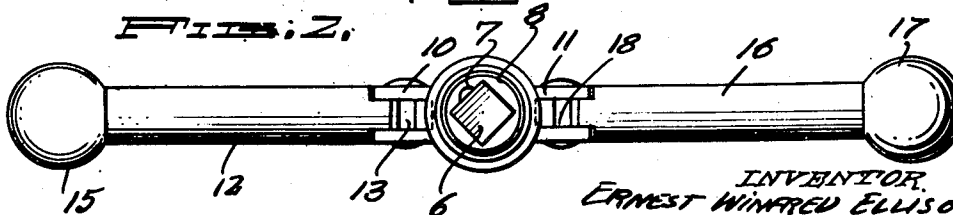
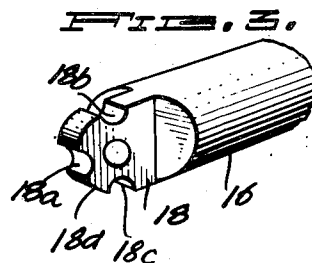
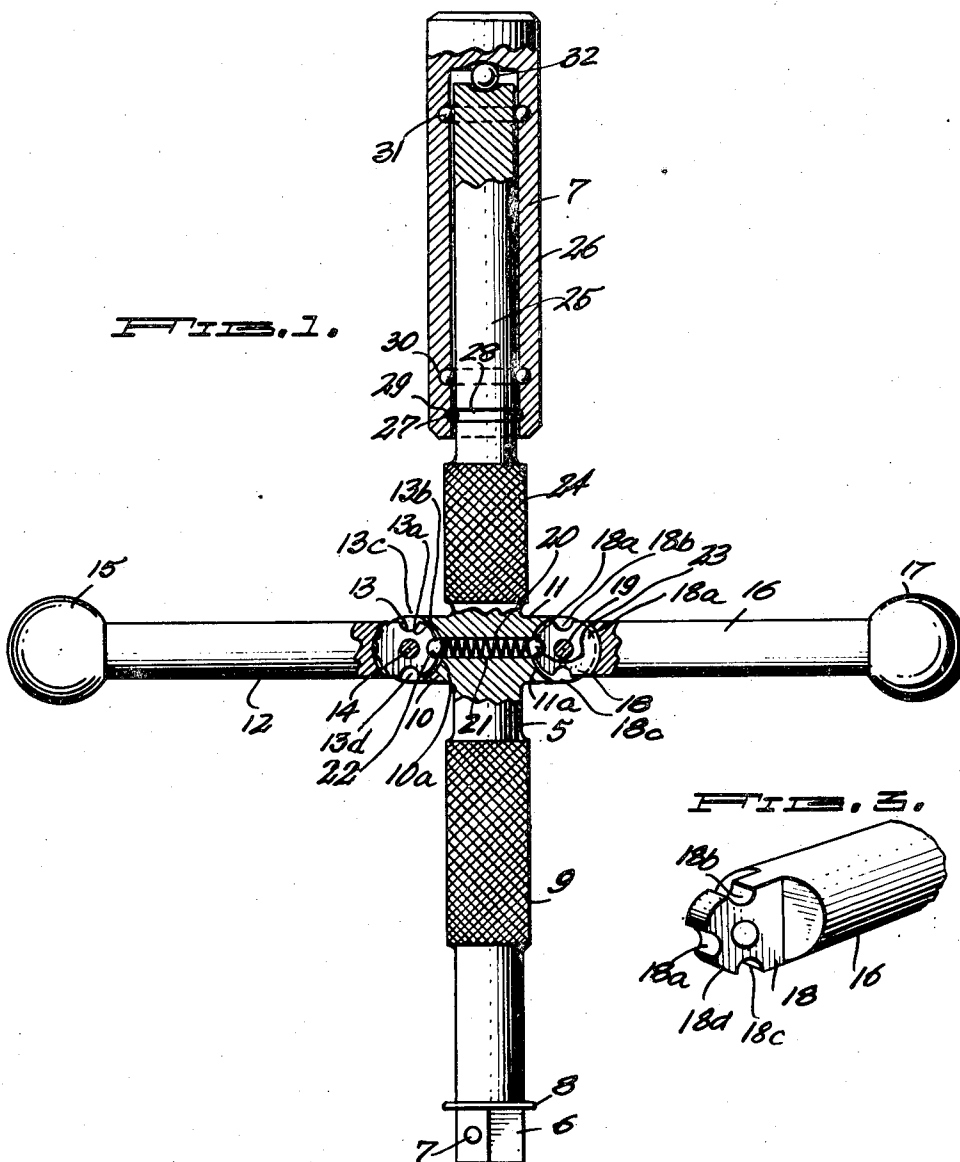
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2,465,152

FOLDING RAPID SPINNER WRENCH

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FOLDING RAPID SPINNER WRENCH

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1 Claim. (Cl. 81-177)

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This invention relates to an improved wrench, and one of its objects is to provide a wrench with lever handle bars which can be folded against the shank of the wrench.

Another object of the invention is the provision of a wrench with a shank having a ball bearing hand grip sleeve, and lever handles extending away from the shank, so that the shank can be rapidly rotated or spun about the work, and a nut or bolt rapidly secured in position, or rapidly released.

A still further object of the invention is the provision of a wrench with a shank having bifurcated bearings on the opposite side thereof, a lever handle arm pivoted to each bearing, and spring pressed means for locking each lever arm either in extended handle position, or in folded position against the side of the shank.

With the above and other objects in view the invention comprises certain new and useful constructions, combinations and arrangements of parts, clearly described in the following specification, and fully illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation, showing certain parts in section.

Fig. 2 is a bottom plan view.

Fig. 3 is a detail perspective view, broken away, of the inner portion of one of the lever handle arms.

Referring to the accompanying drawings, which illustrate the practical embodiment of the invention, 5 designates the main central shank, which is formed on its lower end with a wrench or polygonal end bit 6, having a spring pressed clutch ball 7, and constructed to engage a socket bolt or screw or a socket nut. This lower end is also formed with an integral stop collar 8.

The shank 5 is also formed with a slightly enlarged cylindrical section 9, which is shown to be externally knurled. Above the knurled section 9 integral bearing lugs 10 and 11 are formed on opposite sides thereof and in the same transverse plane. Each lug is bifurcated.

A lever handle bar 12 is provided with a flat end tenon 13, which is disposed between the spaced sides of the bifurcated bearing lug 10, and is held in place by means of the pivot pin 14. The body of the lever handle bar 12 is formed round, and the outer end of the same is formed with an integral end ball 15, while the sides of the end tenon 13 are formed parallel so as to have a flat bearing between the sides of the bifurcated lug 10.

A second lever handle bar 16 is provided, which

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is a duplicate of the lever handle bar 12, and is formed with a terminal ball 17 on its outer end and a flat tenon 18 on its inner end, which is pivoted between the sides of the bifurcated lug 11 by the pivot pin 19.

The tenon 13 is formed with a curved outer edge face 13a, which is radial to the pivot pin thereof, and this edge is formed with an end ball recess 13b, and with side ball recesses 13c and 13d. The tenon 18 is similarly constructed, being provided with the end ball recess 18a, the side ball recesses 18b and 18c, and the radial edge 18d. The bifurcated bearing lug 10 is also formed with a concave face 10a, which is radial to the pivot pin of the lever handle bar 12, and the bearing lug 11 is formed with a concave face 11a, which is radial to the pivot pin of the lever handle bar 16.

The shank 5 is provided with a transverse hole 20 in which the expansion coil spring 21 is disposed, and one end of this spring engages the small clutch ball 22, which is adapted to snap into any one of the ball recesses of the tenon 13, and the other end of this spring engages the clutch ball 23, which is adapted to snap into any one of the ball recesses of the tenon 18.

Above the bearing lugs 10 and 11 a second knurled section 24 is provided, and above this knurled section a smooth cylindrical section 25 is provided, on which the hand grip sleeve 26 is mounted to freely turn. This sleeve is retained in place by means of the keeper ring 27, which engages the external groove 28 of the section 25, and the internal groove 29 of the lower end of the sleeve 26. The sleeve turns freely on the ball bearings 30, located above the keeper ring 27, and upon the ball bearings 31, located near the upper end of the sleeve. A single end thrust ball 32 is provided between the end wall 33 of the sleeve 26 and the upper end of the cylindrical section 25 of the shank 5, so that maximum freedom of turning of the sleeve on the shank 5, or of the shank in the sleeve, when the latter is firmly gripped, will be obtained.

When it is desired to tighten or loosen a screw or bolt, or a socket cap nut, the lever handle bars are extended to right angular handle positions, and the tool is rapidly spun by applying manual pressure to one of the bars, while the wrench bit is held downwardly by manual pressure on the sleeve.

Due to the ball bearing mounting of the sleeve on the wrench shank there is practically no resistance offered by the hand grip to the rapid rotation of the wrench, and due to the leverage

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obtained by each of the lever handle bars, a tight screw or nut may be quickly and safely loosened, or a free screw or nut quickly coupled in place, and then tightened home, by a final manual effort applied on one or both of the lever handle bars.

It is understood that various changes may be made in the construction of the parts, their arrangement and combination, within the scope of the invention, as defined by the claim hereof.

Having described the invention, I claim as new:

A hand operated tool comprising a shank having a bit on one end thereof to engage a screw, at least two fixed bearing lugs on opposite sides of said shank intermediate its ends, each bearing lug having parallel bifurcations forming a mortise, a lever handle bar with an outer ball terminal and having a tenon pivoted to each bearing lug and having parallel sides positioned between said parallel bifurcations, each said tenon having an end ball recess and side ball recesses radial to its pivot center, a bore extending through said shank on an axis lying between said bifurcations and intersecting the pivotal axis of each handle bar, a spring pressed clutch-ball within said bore engaging each tenon and

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adapted to snap into any ball recess aligned therewith, and a hand grip sleeve mounted to turn on the shank and provided with ball engagement therewith including a sole top thrust bearing.

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