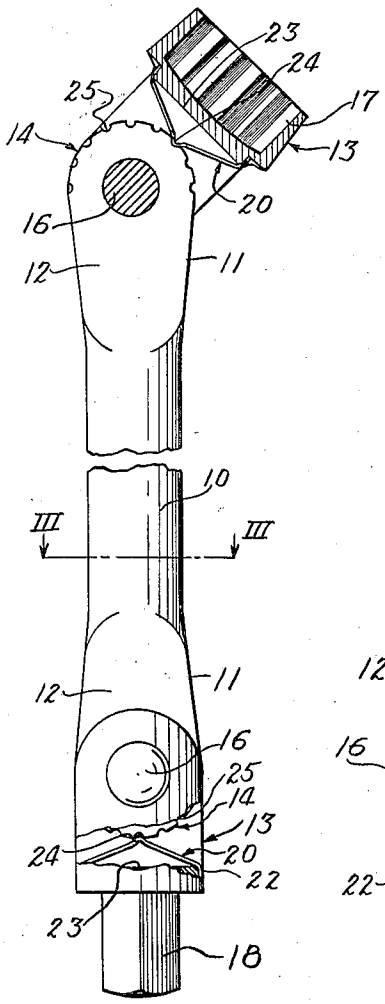
Jan. 21, 1936. E. F. PILGER 2,028,561

WRENCH HANDLE

Filed Oct. 19, 1931

Fig. 1.



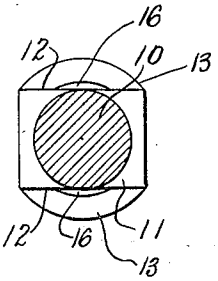


Fig. 3.

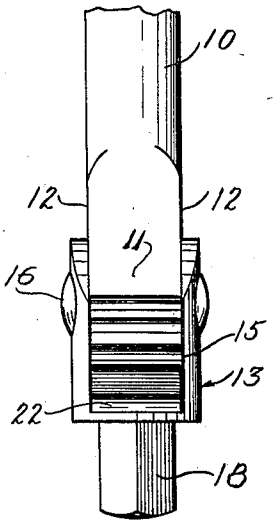


Fig. 2.

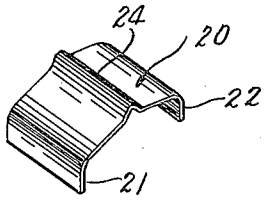


Fig. 4.

INVENTOR.
Emil F. Pilger
BY Harry C. Alberts
ATTORNEY.

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WRENCH HANDLE

Emil F. Pilger, Kenosha, Wis., assignor to Snap-On Tools, Inc., Kenosha, Wis., a corporation of Delaware

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4 Claims. (Cl. 81—177)

This invention relates to handle devices and more particularly to wrench handles, although it may be employed for other purposes with equal advantage.

It contemplates more especially the provision of an off-set handle that is capable of assuming any predetermined angular position for nut turning or other functions with the utmost effect and clearance.

Numerous types of off-set handles have heretofore been proposed, but these have not proven especially practical owing to the intricate character and the inability to maintain the adjusted position thereof. Off-set handles prove especially advantageous for nut turning, and it is desired that the handle assume predetermined angular positions with repect to the nut axis so that access and a turning couple may be exerted thereon even though clearance is restricted.

One object of the present invention is to simplify the construction and improve the operation of devices of the character mentioned.

Another object is to provide improved means for maintaining handle members off-set at selective angles relative to the turning member.

Still another object is to provide less intricate, more durable and increasingly effective means for maintaining pivoted members at predetermined angles of adjustment.

A further object is to provide an exceedingly effective retaining member for off-set handle structures.

A still further object is to provide a simplified and more effective spring structure for automatically retaining pivoted members in any predetermined angular adjustment.

Other objects and advantages will appear from the following description of an illustrative embodiment of the present invention.

In the drawing:

Figure 1 is a front view in elevation of a device embodying features of the present invention, parts thereof being shown in section to clarify the disclosure.

Figure 2 is an end fragmentary view in elevation of the lower portion of the device shown in Figure 1.

Figure 3 is a sectional view taken substantially along line III—III of Figure 1.

Figure 4 is a perspective view of the spring structure employed as an element of the combination disclosed in Figure 1.

The structure selected for illustration comprises a handle member 10 forged or otherwise shaped to impart an elongated configuration thereto for the purpose of enabling the convenient manipulation thereof for nut turning or other functions. The handle member 10 has one or both extremities thereof machined or otherwise shaped to present slightly enlarged extensions 11 preferable with straight confronting sides 12 for connection to a turning member 13. In the present embodiment, the extensions 12 have substantially circular extremities 14, and a turning member 13 is bifurcated as at 15 for the reception of the flat sides of the extensions 12 therein.

A pin 16 extends through the turning member 13 for connection to the handle extension 12 substantially along the axis of the curved extremities 14 thereof. The extremity of the pin 16 is swaged or otherwise deformed to preclude the removal and to connect the handle member 10 with the turning member 13 so as to allow relative pivotal movement therebetween. The turning member 13 may be shaped to provide a wrench socket 17 or a spindle 18 as commercial practice may dictate or require for any particular purpose or purposes.

In order to maintain the turning members 13 in any desired or predetermined angular position relative to the handle member 10, a flat spring 20 is shaped to provide substantially confronting flanged extremities or angular ends 21 and 22 which yieldingly embrace a correspondingly sized shoulder 23 provided on the wrench socket 17 or spindle 18 between the bifurcations 15. The spring member 20 is shaped to converge in an aligned ridge 24 along the median line for frictional contact with the substantially circular surface 14 of the handle extensions 12. Consequently, the turning members 13 may be pivoted to any desired position and retained by virtue of the frictional reaction existent between the flat spring member 20 and the curved handle extremities 14 throughout the pivotal range thereof.

In order to insure the maintenance of the turning members 13 in predetermined angular positions, the curved surfaces 14 are provided with a plurality of flutes or shallow grooves 25 extending between the flat surfaces 12 thereof to coact with the aligned ridge 24 formed on the flat spring 20. The flutes 25 correspond in shape and size with the flat spring ridge 24, thereby requiring appreciable turning effort to remove the ridge 24 from registry with the flutes 25 so that the turning members 13 may be displaced or maintained to assume any desired angular relation relative to the handle 10.

With the arrangement of parts above described it will be apparent that a very simple, durable and positive expedient has been provided to

maintain pivoted members in predetermined angular relation. A number of flutes **25** as well as the spacing thereof may be varied, and it will be apparent that an exceedingly wide range of adjustments is afforded so that the handle **10** may be off-set to effectively procure access to a restricted location as well as to impart a turning couple thereto. The spring **20** may be readily replaced, and with the use of the spindle **18**, different types and sizes of turning members such as wrench sockets **17** may be substituted depending upon the requirements of any particular problem.

Various changes may be made in the embodiment of the invention herein specifically described without departing from or sacrificing any advantages of the invention as defined in the appended claims.

I claim:

1. In a device of the character described, the combination with a handle member, of a turning member pivoted to said handle member, one of said members having a curved surface, the other of said members being bifurcated to receive the other of said members with the curved surface in confronting relation to the bottom of said bifurcation, a shoulder formed in the bottom of said bifurcation, there being circumferentially spaced elongated transverse flutes in said surface, a flat spring member associated with the other of said members, and a projecting elongated transverse ridge formed in said flat spring to present diverging portions terminating in angular extremities that resiliently embrace said shoulder to retain said spring in compression so that said ridge resiliently engages said curved surface for selective registry with said flutes.

2. In a device of the character described, the combination with a handle member, of a turning member pivoted to said handle member, one of said members having a curved extremity formed substantially about said pivotal connection, the other of said members being bifurcated to receive the other of said members with the curved surface in confronting relation to the bottom of said bifurcation, a shoulder formed in the bottom of said bifurcation, there being a plurality of transverse flutes circumferentially and uniformly spaced on said curved extremity in parallelism to said pivotal connection, and a flat spring detachably associated with the other of said members, said spring having an elongated ridge formed therein throughout the width thereof for resilient engagement with said fluted surface, said ridge being permanently bent in said spring to present diverging portions terminating in angular extremities that normally confront each other to maintain a distance of lesser dimension than the length of said shoulder to resiliently embrace the upstanding sides thereof for detachable retention in compression so that said ridge will be urged in the direction of said flutes for selective registry therewith.

3. In a wrench of the character described, the combination with a handle member, of a turning member pivoted to said handle member, one of said members having a curved extremity formed substantially about said pivotal connection, said shoulder defining upstanding sides that are of lesser spread than the bottom of said bifurcation, a flat spring detachably associated with the other of said members for yielding engagement with said curved surface, and cooperating means formed on said curved surface and flat spring to hold said turning member in predetermined angular positions, said flat spring having flaring sides and angular extremities that are normally spaced as to require spreading to embrace the upstanding sides of said shoulder, said spring being yieldingly sprung into compressed position within said bifurcation between said curved surface and upstanding shoulder of said relatively pivoted member without other attachment to maintain said handle member and turning member in adjusted angular position within the limits of relative rotational movement therebetween.

4. A tool adapted for use as a means for rotating machine elements, said tool comprising a driving element, a driven element pivotally connected for limited relative rotational movement about an axis perpendicular to the axis of rotation of the tool, one of said elements having a pair of oppositely disposed recessed portions to serve as seats for the ends of a spring, and a spring consisting of a thin bar of resilient metal of rectangular form in cross-section having its end portions bent at abrupt angles to form a pair of stops adapted to cooperate with said seats and prevent endwise movement and its central portion bent to the form of a nose adapted to enter a depression in the other element from which it may be dislodged by the application of force to permit one of said elements to be rotated to an angular relation with respect to the other, the portions of the spring between the nose and the stops being flared in opposite directions whereby it may be slightly flattened to permit the nose to be dislodged from the depression, and the bent end portions of the spring being of a depth less than the width of the gap between the two tool elements in which the spring is housed, whereby the spring may be detached from the tool by flexing one end sufficiently to lift its bent portion free of the opposed portion of the adjacent tool element.

EMIL F. PILGER.