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MULTIPLE JAW JAR CAP WRENCH

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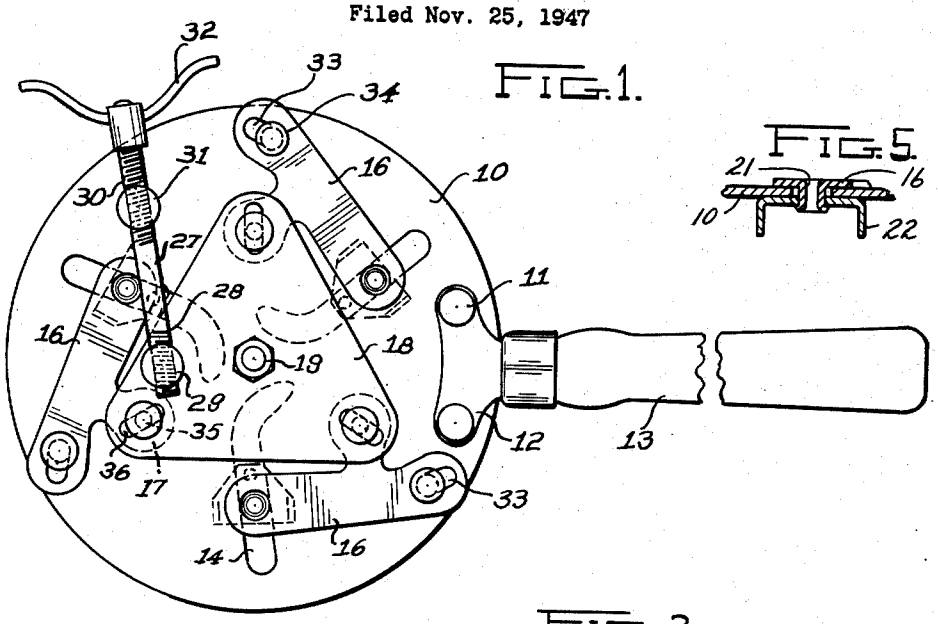


FIG. 1.

FIG. 5.

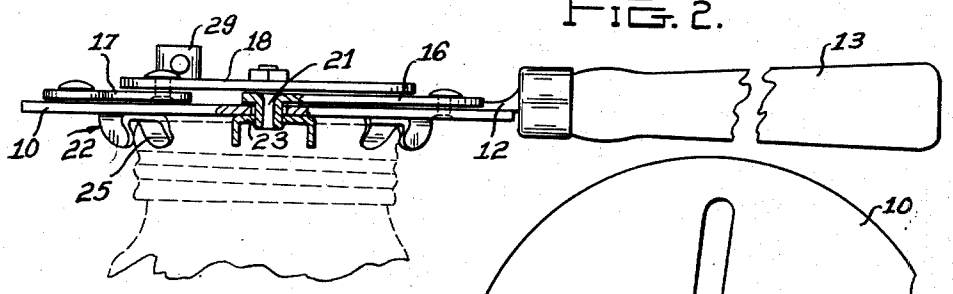


FIG. 2.

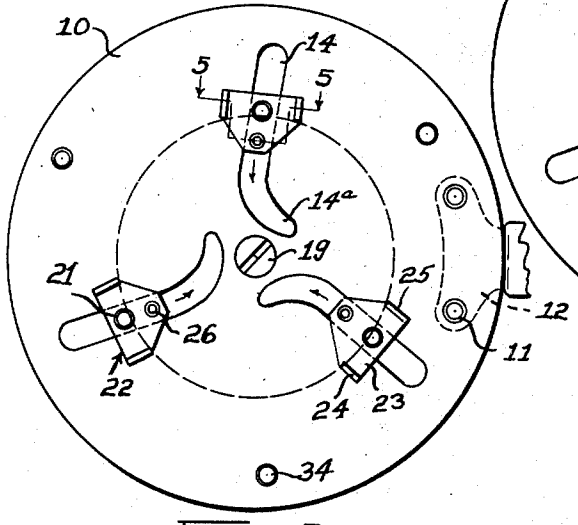


FIG. 3.

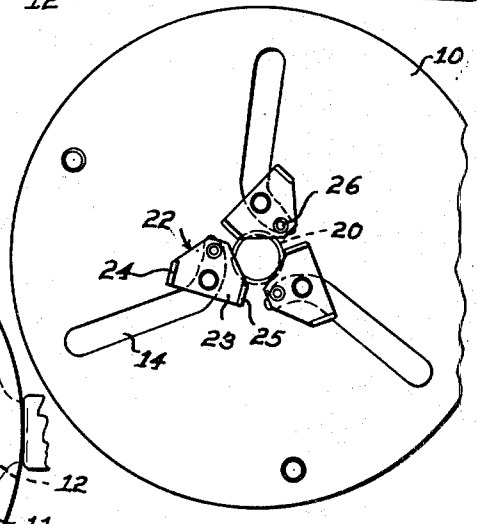


FIG. 4.

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MULTIPLE JAW JAR CAP WRENCH

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2 Claims. (Cl. 81—3.42)

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This invention relates to a tool such as a wrench used for support or turning purposes. More particularly, it relates to a tool for screwing and unscrewing couplings, jar tops, covers and the like having threaded engagement with another element such as a jar, can, pipe or the like.

It is an object of this invention to produce a new and improved wrench of the type described which has a wide range of adjustments whereby it is adapted to be used with large and with very small elements.

Another object is to produce a jar wrench having a plurality of clamping jaws, which are adapted manually to be adjusted with respect to each other to grip variously sized jar tops, covers and the like prior to the application of turning forces.

A further object is to produce a wrench which is durable and simple in construction, efficient in operation, and economical to manufacture.

These and other objects and advantages of this invention will hereinafter appear, and for purposes of illustration but not of limitation, an embodiment of the invention is shown in the accompanying drawings, in which

Figure 1 is a top plan view of the wrench embodying the features of the invention;

Figure 2 is a side elevational view partially in section of the wrench shown in Figure 1;

Figure 3 is a view of the under side of the wrench shown on Figure 1, with the handle portion broken away;

Figure 4 is a view similar to that of Figure 3, but with the clamping jaws in their position of adjustment for gripping a jar cap of exceptionally small diameter; and

Figure 5 is a sectional view taken substantially along the line 5—5 of Figure 3.

Referring now to the drawings, the numeral 10 indicates a disc-like body member of sheet metal or the like rigid material secured by rivets 11 to a bracket 12 which is rigid with one end of an elongate handle 13. A plurality of equiangularly spaced guide slots 14 are provided in the body member 10, each slot extending radially throughout the major portion of its length with the inner end portion 14a turning off rather sharply to the right in the region of the center of the body. Each slot, three of which are shown in the illustrated embodiment, appears to be J-shaped.

Pivotally mounted, at one end, to the outer portion of the body member 10 are rigid arms 16, one being provided for each slot, and intermediate the ends of each arm is an integral extension 17

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which is pivoted to a turntable, illustrated as being in the form of a triangular plate 18, each extension 17 being pivotally connected to a respective corner of the triangular plate. The triangular turntable is pivoted, as at 19, to the center of the body member. A bearing member 20 in the form of a spacer is disposed between the plate and body member to maintain the parts in spaced apart relation so that wear on the extension 17, also disposed therebetween, will be at a minimum.

A connection in the form of a sleeve 21 extruded from the free end of each arm 16, passes through the respective J-shaped slot 14 in the body member. Each sleeve carries a pivotal clamping jaw 22 disposed on the opposite side of the body member. The clamping jaw is illustrated as being formed of a relatively flat base plate 23 with a pair of upstanding lobe-shaped ears 24 and 25 integral with the lateral edges of the base plate and extending forwardly therefrom to provide a groove which more or less simulates the contour of the upper rim of a jar cap thereby enabling the clamping jaws to engage a more substantial portion thereof. A pin 26 extending into the slot from the forward portion of each base plate 23, limits the pivotal movement of the clamping jaws and aids in guiding the same during the movement of the jaws radially of the body portion.

By turning the triangular plate in one direction or the other, conjoint swinging movement is imparted to the arms 16 causing the clamping jaws 22 to be moved radially along the slot. Means imparting rotary motion to the triangular plate include a screw-threaded rod 27 having a threaded portion 28 with the lead in one direction in screw-threaded engagement with a post 29 rigid with the triangular turntable 18, and another screw-threaded portion 30 with the lead in the opposite direction of the first in screw-threaded engagement with a post 31 rigid with the body member 10. A crank handle 32 is provided on the end of the rod to facilitate turning. Thus, as the rod is turned clockwise in Figure 1, the posts are moved apart and the turntable is rotated counterclockwise on the body portion. Movement of the rod in the opposite direction causes clockwise movement of the turntable.

Since the J slots do not constitute an arc, and especially an arc having the pivotal point of its respective arm as its center, each arm is provided with an elongate slot 33 through which the rivet 34 pivotally mounting the arm extends. Thus such relative linear arm movement is enabled as will compensate for the variation in the distance between the sleeve 21 and the pivotal mounting

as the arm is rocked through its permissible range. For similar purposes, the rivets **35** pivotally connecting the extensions to the triangular plate, operate through slots **36** therein.

Heretofore considerable difficulty has been experienced in producing a wrench capable of use with large jar caps of the type enclosing quart or two quart jars and at the same time adjustable for use with small screw closures used on containers filled with flowable liquids, i. e., caps of about 44 millimeters in diameter or less. My wrench is capable of use with the large jar covers and is adapted readily to be adjusted and effectively to grip small caps merely by moving the clamping jaws into the curved portion **14***a* at the ends of the J slots. When in this region, each clamping jaw is turned counterclockwise in response to the coaction between the pin **26** and the respective side walls of the slots, so that one of the upstanding gripping ears **25** of each clamping jaw **22** is in position to grip the smaller jar cap, as illustrated in Figure 4 of the drawings.

While the ultimate object is a wrench for removing jar covers by first causing the clamping jaws to move radially into gripping relation with the jar cover, and then turning the wrench and the gripped jar cover in one direction or the other through leverage applied at the handle, it will be understood that the tool may equally be used for turning any other end member which is threadably engaged, such as a pipe coupling, bolt, nut or the like. It may also be used as a holding or positioning support for objects which it is desired to maintain in a static position or to carry from place to place.

It will be understood that numerous changes in the details of construction, arrangement and operation may be effected without departing from the spirit of the invention especially as defined in the appended claims.

What I claim is:

1. In a wrench, the combination of a handle, a body rigid with the handle and having a plurality of equiangularly spaced radial elongate guide slots, a rigid arm extending transversely of each guide slot and pivoted at one end to one side of said body for swinging movement over the respective guide slot, said pivot means including an elongated slot in said one end of each arm, a jaw member for each arm on the opposite side of said body, a connection through the respective slot pivotally mounting the jaw member to the respective arm, an extension on each jaw member disposed within the respective guide slot for limiting the pivotal movement of the jaw member, and means for rocking said arms conjointly in one direction or the other.

2. In a wrench, the combination of a handle, a disc-like body rigid with said handle and having a plurality of equiangularly spaced radial elongate guide slots having a curvilinear portion at their inner ends, a rigid arm for each guide slot pivoted to one side of said body by a pivot extending through a slot in one end of said arms for swinging movement and limited linear movement over the respective guide slot, a sleeve extending from each arm through the respective guide slot, a jaw member pivotally carried by each sleeve on the opposite side of said body, a pin extending from each jaw member into the respective guide slot for limiting the pivotal movement of the jaw member and cooperating with said extending sleeve to guide the jaw member along the guide slot, a turntable pivotally mounted to the center and on said one side of said body, a pivotal connection between each arm and said turntable, and means for turning said turntable in either direction with respect to said body whereby the arms are conjointly rocked causing the jaw members to move radially along the guide slots.

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