Oct. 21, 1924. 1,512,846

F. O. GUMPRECHT

WRENCH

Filed April 17, 1922

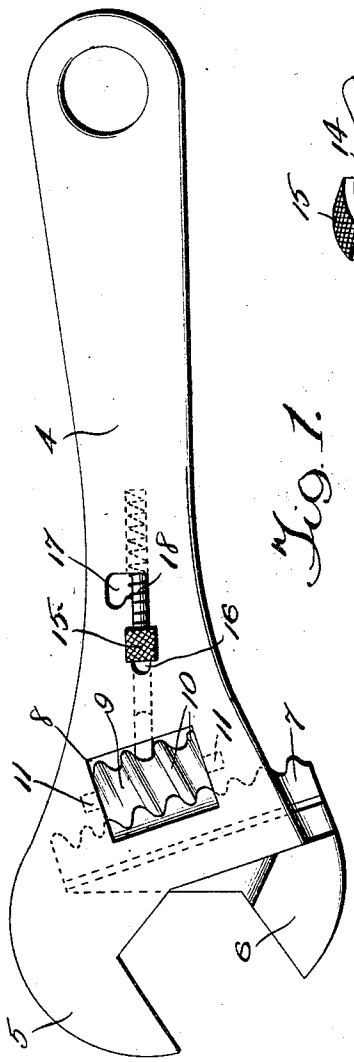


Fig. 1.

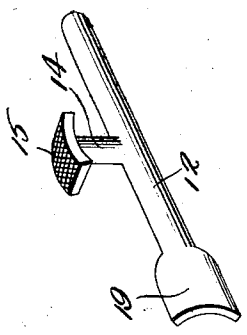


Fig. 3.

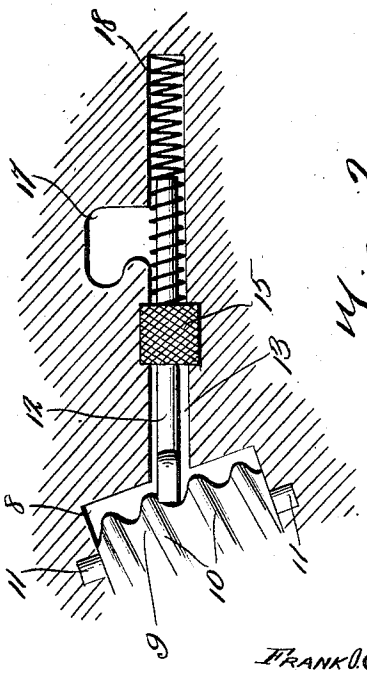


Fig. 2.

Inventor
FRANK O. GUMPRECHT.

WITNESSES

By Richard B. Owen,
Attorney

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UNITED STATES PATENT OFFICE.

FRANK O. GUMPRECHT, OF HELENA, MONTANA.

WRENCH.

Application filed April 17, 1922. Serial No. 553,679.

To all whom it may concern:

Be it known that I, FRANK O. GUMPRECHT, a citizen of the United States, residing at Helena, in the county of Lewis and Clark and State of Montana, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to new and useful improvements in wrenches which include a movable jaw, the primary object of the invention being to provide means for securely retaining the movable jaw in its adjusted position in such a manner that the wrench will not lose its adjustment by the handling or vibration thereof, except when means are manually operated to release the movable jaw for permitting the same to be newly adjusted.

Another important object of the invention resides in the provision of a spring pressed locking element adapted to retain the movable jaw in its adjusted positions, and having means associated therewith for retaining the member in a position to permit the movable jaw to be adjusted when desired.

A further object of the invention is to provide a spring pressed locking member adapted to be normally urged into engagement with rotatable means for adjusting the jaws of the wrench in such a manner that the rotatable element will be caused to frictionally engage its bearing to preclude accidental rotation.

Still another object of the invention resides in the provision of a specially formed means for engaging a jaw actuating worm between the threads thereof for preventing accidental rotation of the worm whereby the jaws actuated thereby may be securely locked in adjusted positions.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the accompanying drawings forming a part of the description and wherein like numerals are employed to designate like parts throughout the several views:—

Figure 1 is a side elevation of a wrench embodying the invention,

Figure 2 is an enlarged fragmentary section of a portion of a wrench with the invention applied thereto, and

Figure 3 is a detail perspective view of the wrench lock.

In the drawing wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 4 designates the handle of a wrench of the type which I have selected for the purpose of illustrating an application of the invention. This handle is provided with a stationary jaw 5 at one end which is suitably chambered to slidably receive therein a movable jaw 6. The relative inner face of this jaw which extends transversely of the stationary jaw 5 is equipped with a plurality of rack teeth 7 which are adapted to pass back and forth through an opening 8 in the stationary jaw portion of the wrench. This opening extends into the body of the wrench a substantial distance, or if preferred, the opening 8 may extend entirely through the wrench from one side thereof to the other. It will be noted that the opening 8 is arranged angularly relative to the longitudinal axis of the handle 4, and preferably at an obtuse angle thereto.

For the purpose of moving the jaw 6 to and from the stationary jaw 5, a worm 9 having threads 10 thereon to fit the rack teeth 7 is adapted to be rotatably mounted in the opening 8 for mesh with the wrench. This worm is provided with oppositely extending pintles 11 which are adapted to be journaled in opposite ends of the opening 8 so that the worm extends in the same direction from the longitudinal axis of the handle 4 as the opening 8. As is well understood in the art, rotation of the worm 9 causes the movement of the movable jaw 6 to or from the stationary jaw 5 depending upon which direction the worm 9 is rotated. It has been found that after the desired adjustment of the jaws has been obtained, that very often mere continued use of the wrench, or accidental vibration thereof will cause partial movement of the worm or the movable jaw, so that the original, desired adjustment of the jaws exists no longer. It is therefore the object of the present invention to eliminate this difficulty in wrenches of this type, and in furtherance of the object, the particular angular arrangement of the worm with respect to the longitudinal dimension of the handle is resorted to, not of necessity, but in order to obtain the best results from the device.

A spring pressed detent or locking member 12 is slidably mounted in an opening 13 extending longitudinally in the handle 4,

and communicating at its forward end with the opening 8 which receives the worm. The spring pressed member 12 in the present instance assumes the form of an elongated pin 12 which is provided between its ends with a lateral projection 14 terminating in arcuated finger engaging piece 15 as shown. The lateral projection 14 is adapted to extend through and operate within a bayonet slot 16 provided in the handle of the wrench and having its elongated arm arranged in alinement with the opening 13 in the handle, while the angular portion 17 of the slot is arranged transversely and laterally of the opening 13. A coiled spring 18 is received in the closed end of the opening 13 so that one end abuts the closed end of the opening and the other end receives the relative inner end of the spring pressed member and abuts the lateral projection 14 thereof to normally urge the member 12 toward the open end of the opening 13, and into engagement with the worm 9. The forward end 19 of the spring pressed member 12 is enlarged and flattened as seen more clearly in Fig. 3 and furthermore is curved or arcuated so as to be able to engage the worm between the threads 10 thereof.

From the foregoing description it will be seen that when it is desired to adjust the relation of the jaws of the wrench, the finger piece 15 of the detent is engaged and moved away from the jaws so that the spring pressed detent will be moved against the tension of the coiled spring 18 and the lateral projection 14 will be disposed in the angular portion of the bayonet slot 16. Thus, the spring detent will be retained disengaged from the worm while it is being rotated to effect the desired adjustment between the jaws. After the adjustment has been obtained, the finger piece 15 is engaged and moved so as to cause the lateral projection 14 to enter the longitudinally extending portion of the slot 16, whereupon the coil spring 18 will be permitted to exert a pressure on the spring detent to force the same forwardly so that the forward end 19 of the detent is moved to engage the worm between the threads thereof. As the worm is disposed at approximately an obtuse angle, with relation to the longitudinal axis of the handle of the wrench it will be seen that one end of the worm will be forced into frictional contact with one end of the opening 8 so that this friction will assist in preventing accidental rotation of the worm. Furthermore, as the forward end of the spring detent bears firmly against the threads of the worm, this action will also assist in preventing accidental movement of the worm to preclude accidental readjustment of the jaws of the wrench.

The foregoing description and accompanying drawings have reference to what might be considered to be the approved form of my invention. I desire it to be understood that I may make changes in the construction, combination and arrangement of parts, materials, dimensions, etc., as may prove expedient and fall within the scope of the appended claims.

Having thus fully described and illustrated the invention, what I claim is:—

1. In a wrench having a movable jaw, a rotatable worm journaled in the wrench for actuating the movable jaw, a sliding locking member having its tooth engaging end arcuated, extending diagonally to the worm and spring means engaging the other end of the locking member and adapted to force said locking member in automatic engagement with said worm to prevent rotation thereof.

2. In a wrench having an elongated opening therein and a bayonet slot in communication with said opening, a movable jaw for said wrench, a rotatable worm journaled in the wrench for actuating said movable jaw, and a spring pressed locking member positioned diagonally to the worm and mounted in the elongated opening of the wrench, said locking member having a finger engaging member between its ends adapted to be placed in the bayonet slot of the opening to hold said locking member in inoperative position from said worm.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK O. GUMPRECHT.

Witnesses:
NELLE D. LIDDY,
HUGH R. ADAIR.