E. F. SCHWORM.

WRENCH ELEMENT FOR NUT LOCKS.

APPLICATION FILED SEPT. 27, 1919.

1,335,131. Patented Mar. 30, 1920.

Fig. 1.

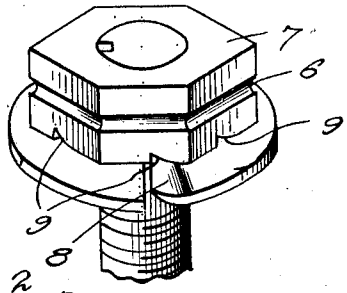


Fig. 4.

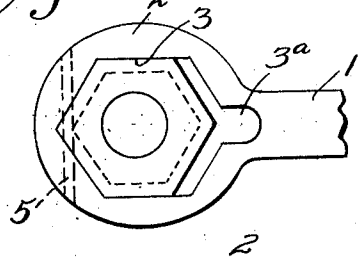
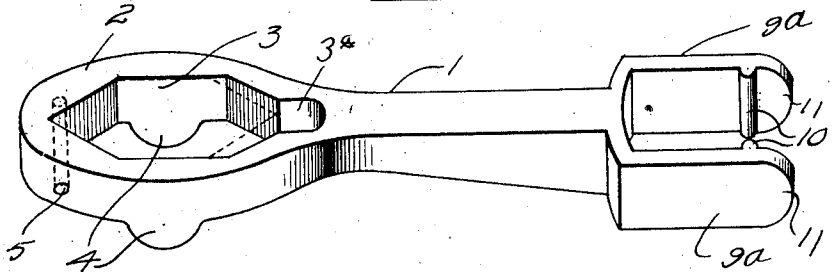


Fig. 2.



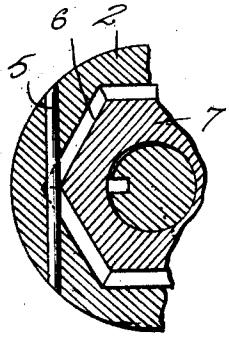


Fig. 3.

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UNITED STATES PATENT OFFICE.

EDWARD F. SCHWORM, OF GRANT TOWNSHIP, GRAND TRAVERSE COUNTY, MICHIGAN.

WRENCH ELEMENT FOR NUT-LOCKS.

1,335,131. Specification of Letters Patent. Patented Mar. 30, 1920.

Application filed September 27, 1919. Serial No. 326,773.

To all whom it may concern:

Be it known that I, EDWARD F. SCHWORM, a citizen of the United States, residing at Grant township, in the county of Grand Traverse and State of Michigan, have invented certain new and useful Improvements in Wrench Elements for Nut-Locks, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved wrench element, particularly adapted for use in connection with nut locks, and an object of the invention is to provide a device of this kind which is especially adapted for use in connection with the nut lock set forth, illustrated and claimed in the copending application of Edward F. Schworm filed September 27, 1919, Serial Number 326,772.

Another object of the invention is to provide a very simple, efficient and practical wrench element, capable of being manufactured for a relatively low cost and sold at a reasonable profit and having means at either end to engage a nut to be unlocked, whereby it may be anchored on the nut, while the wrench element is actuating and releasing the locking means.

A further object of the invention is the provision of a wrench element having means adapted to engage a groove or depressions of a nut to be locked by a split spring washer, so as to anchor the element to the nut, in combination with means on the wrench element, adapted to contact with the yieldable end of the lock washer, such as that shown in the copending application, so as to disengage the yieldable end from one of a series of ratchet teeth on one face of the nut, whereby the nut may be unscrewed by means of the wrench element, to which a turning action is imparted.

While the design and construction at present illustrated and set forth is deemed preferable, it is obvious that as a result of a reduction of the invention to a more practical form for commercial purposes, the invention may be susceptible to changes, and the right to these changes is claimed, provided they are comprehended within the scope of what is claimed.

The invention comprises further features and combination of parts, as will be hereinafter set forth, shown in the drawings and claimed.

In the drawings:

Figure 1 is a view in perspective of a nut lock, showing one form of nut to be engaged by the wrench element.

Fig. 2 is an enlarged detail perspective view of one form of wrench element.

Fig. 3 is a detail sectional view of a portion of the ring part of the wrench element, showing the fulcruming pin 5 in engagement with the groove 6 of the nut 7, which are shown in section.

Fig. 4 is a detail plan view of the left hand end of the wrench element, showing the same in engagement with a nut in full lines, illustrating the fact that the opening in wrench element is elongated, in fact longer in diameter in one direction than the diameter of the nut in order to permit relative movement of the wrench element with respect to the nut.

Referring to the drawings, 1 designates a wrench element, which comprises an elongated handle having at one end a circular ring part 2 provided with a polygonal shaped opening 3, through which the nut to be unscrewed engages, that is to say after the lock washer has been released. By referring to the dotted lines in Fig. 3, which discloses the diameter of the nut, it will be seen that the opening is longer than the diameter of the nut, in a direction at right angles to the axis of the pin, to permit the opening to more readily receive the nut. At diametrically opposite portions of the ring part 2 projecting lugs 4 are formed. Extending transversely of the opening of the ring part near one end of the element is a transverse pin 5. The opening 3 has a recess 3^a at a point diametrically opposite the pin 5, to permit the opening to more readily fit over the nut. This pin 5 is designed to engage a groove 6 of the nut 7 shown in Fig. 1, so as to fulcrum the wrench element in position. When the wrench element is operated toward the nut, one of the projections or cams 4 is designed to bear against the spring or yieldable end 8 of the lock washer, so as to deflect it or depress it sufficiently to disengage from one of the ratchet teeth 9 of the nut, so as to prevent the nut from being unscrewed. The handle at the other end includes a pair of forks 9^a, the inner faces of which near their ends being provided with ribs 10. The ribs 10 are designed to engage diametrically opposite portions of the channel or groove 6

of the nut shown in Fig. 1, while one of the extremities 11 of the forks 9 bear against the yieldable or spring end 8 to disengage it from the ratchet teeth of the nut. Referring to the drawings, it will be noted that when the wrench element is applied to the nut, so that the transverse pin 12 may engage the channel 6, the wrench element may be oscillated until one of its cams engages the yieldable spring end 8 of the lock washer so depressing it that it will be deflected out of engagement with the ratchet teeth of the nut. When the yieldable spring end has been pressed sufficiently, the ring part of the wrench element may be used for unscrewing the nut. In fact, the nut is unscrewed intermittently, for it is obvious that when the nut is partially turned, the spring or yieldable end will engage another of the ratchet teeth. This will occur until the nut is so sufficiently unscrewed that the nut will ride over the yieldable or spring end 8. From the disclosure in the drawing, the operation of the modified form of the wrench element will be obvious.

The invention having been set forth, what is claimed as new and useful is:

1. A wrench element comprising a body having a ring part at one end, said ring part having a transverse pin extending across the opening of the ring part adjacent the outer wall of the opening and adapted to fulcrumly engage on a nut, said ring part having diametrically opposite cams, one of which being adapted to ride against a yieldable or spring end of a locking member for releasing it from engagement with a member to be locked.

2. In a wrench element, the combination with a handle having a ring part at one end, of a pin extending transversely across the marginal edge of the opening of the ring part and adapted to fulcrumly engage on a nut, the opening of the ring part diametrically opposite said pin having an extension recess to facilitate the fitting of the opening over a nut, said ring part having diametrically opposite semi-circular cams disposed at right angles to the pin, and either one adapted to ride against a yieldable or spring end of a locking member for releasing it from engagement with a member to be locked.

3. In a wrench element, the combination with a handle having a ring part at one end, of a pin disposed transversely across the marginal edge of the opening of the ring part, the opening of the ring part being longer than the diameter of the nut in a direction at right angles to the axis of the pin, the ring part at a point diametrically opposite the pin having a recess merged from and communicating with the opening of the ring part, so that together with the elongation of said opening, the ring part is adapted to fit over a nut, said ring part having diametrically opposite cams disposed at right angles to the pin, one of which being adapted to ride against a yieldable or spring end of a locking member for releasing it from engagement with a member to be locked.

4. In an article of manufacture, the combination with a handle having a ring part at one end provided with an opening, of a pin disposed transversely across the marginal edge of the opening, said opening being longer than the diameter of the nut in a direction at right angles to the axis of the pin, said ring part at a point diametrically opposite the pin having an extension recess merging into and communicating with the opening of the ring part, said ring part having diametrically opposite cams at right angles to the pin.

In testimony whereof I hereunto affix my signature.

EDWARD F. SCHWORM.