

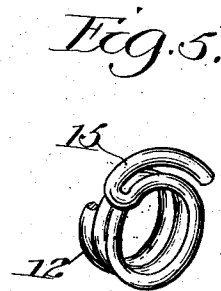
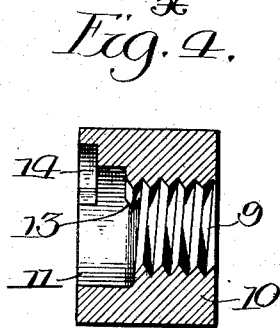
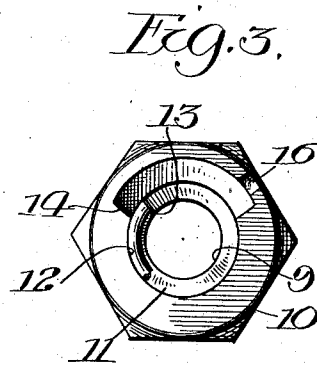
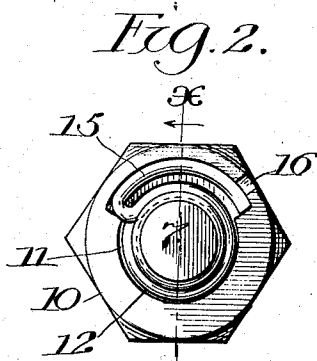
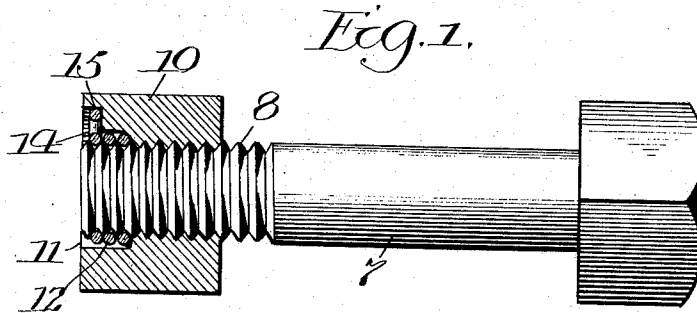
A. R. DOUGLASS & J. F. WILLETT.

NUT LOCK.

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947,057.

Patented Jan. 18, 1910.



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UNITED STATES PATENT OFFICE.

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NUT-LOCK.

947,057.

Specification of Letters Patent. Patented Jan. 18, 1910.

Application filed April 19, 1909. Serial No. 490,785.

To all whom it may concern:

Be it known that we, ARTHUR R. DOUGLASS and JAMES F. WILLETT, citizens of the United States, residing at Chariton, in the county of Lucas and State of Iowa, have invented certain new and useful Improvements in a Nut-Lock, of which the following is a specification.

This invention relates to improvements in means for locking nuts on screw-bolts, and it consists in certain peculiarities of the construction, novel arrangement, and operation of the parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to provide a nut-lock, which shall be simple and inexpensive in construction, strong, durable and effective in operation, and so made that it can be readily screwed on a bolt in the usual manner, and there securely retained to the end that it will be prevented from accidental unscrewing by reason of the vibration to which the nut and bolt may be subjected.

A further object of the invention is to so construct the nut-lock that when it is desired to remove the nut the same can be done with great ease or facility no matter how closely the nut may be located to another part so long as there is room enough for the nut to be turned backwardly on the bolt.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which our invention pertains, to make and use the same, we will now proceed to describe it, referring to the accompanying drawing, in which—

Figure 1 is a view partly in section and partly in elevation taken on line $x-x$ of Fig. 2 looking in the direction indicated by the arrows of a bolt having a nut-lock embodying our invention mounted thereon and showing the nut in locked position; Fig. 2 is an outer end view of the nut-lock and bolt; Fig. 3 is an outer end or face view of the nut removed from the bolt, showing a portion of the locking-spring in the chamber of the nut therefor and illustrating one end of said portion of the spring in engagement with the terminal or end of the screw-thread of the nut; Fig. 4 is a central sectional view

of the nut with the locking-spring removed; and Fig. 5 is a detached perspective view of the locking-spring.

Like numerals of reference refer to corresponding parts throughout the different views of the drawing.

The reference numeral 7 designates a bolt, which may be of the ordinary or any preferred construction, and is provided, as usual, at one of its ends with screw-threads 8 to engage the threads 9 of the nut 10, which nut may be of any suitable size and shape externally. As is, clearly shown in the different views of the drawing the nut 10 is provided with a central aperture which is enlarged at its outer portion to form a chamber 11 which chamber extends inwardly of the nut a sufficient distance to receive a plurality of coils of the locking-spring 12, which may be made of any good and suitable material.

By reference to Figs. 1, 3 and 4 of the drawing it will be seen that the screw-threads 9 of the nut terminate at their inner ends at the inner portion of the chamber 11, thus forming an abrupt shoulder 13 against which the end of the inner coil of the spring 12 will abut, thus causing said end of the spring to engage the nut. The outer surface or face of the nut is provided with a segmental recess 14, which communicates, preferably throughout its entire length, with the chamber 11, and is for the reception of a looped portion 15 with which the outer portion of the locking-spring 12 is provided by bending the same approximately back upon itself. The looped portion of the locking-spring is of sufficient length to fit snugly in the segmental recess 14, that is, so that its free end may rest against one of the end-walls of said recess and its bent end against the other end-wall of said recess, as will be clearly understood by reference to Fig. 2 of the drawing. The outer surface or face of the nut 10 is also provided with an open ended slot 16, which is somewhat deeper than the recess 14, and is for the purpose of receiving a suitable instrument to be inserted under the looped portion 15 of the locking-spring when it is desired to relax the tension of said spring in order that the nut may be removed.

It will be observed by reference to Fig. 2 of the drawing that the slot 16 is located near the free end of the looped portion 15

of the spring, so that when an instrument is inserted under said looped portion it will offer but little resistance in being pried out of the recess.

5 The operation of the device is simple and as follows: The locking-spring 12 is placed in the chamber 11 so that its inner end will be free from the shoulder 13 or terminal of the screw-threads of the nuts, while the
10 looped portion will lie in the segmental recess 14, as shown in Fig. 2 of the drawing. When the parts are thus arranged the nut may be screwed onto the threaded portion of the bolt 7, in which operation it is apparent that the coils of the spring 12 will
15 act as a continuation of the screw-threaded portion of the nut or will engage the screw-threaded portion of the bolt which comes in contact therewith. The screwing of the
20 nut on the bolt will have a tendency to expand the coils of the locking-spring so that the latter does not interfere with the inward movement of the nut on the bolt. The tension of the spring leaves the nut locked in
25 any position left on the bolt, while the free end 15 of the spring is engaged in the segmental recess 14 of the nut. Any backward motion of the nut bears against the outer free end 15 of the spring making the spring
30 grip the bolt-threads all the tighter, thus effectually preventing the removal of the nut. When it is desired to remove the nut the free portion of the looped part 15 of the locking-spring may be removed from
35 the segmental recess 14, when a slight backward motion of the nut will disengage the outer or free end 15 of the spring from the segmental recess 14 allowing the inner end of the spring to engage the end of the thread
40 13 in the nut releasing the tension of the spring, allowing the nut to be removed with any standard wrench which will fit the nut.

The nut-lock is particularly intended for use on machinery or other constructions subject to great vibration, but it is apparent
45 that it may be used wherever desired and for any suitable purpose.

It is manifest that the improved nut-lock can be easily and cheaply manufactured,

and that, by reason of the peculiar construction and location of the parts thereof, especially of the segmental recess, open ended slot and looped portion of the locking-spring, access to the looped portion of the spring may be had in order that it may be
55 removed from its recess to relax the tension of the spring, so long as access to the nut can be attained, thus rendering it possible to easily remove the nut when desired.

As the looped portion 15 of the locking-spring lies circumferentially with respect to the bolt, it is apparent that when the nut is turned in either direction the strain on the looped portion will be presented in the direction of the greatest resistance, that is,
65 longitudinally thereof, which will insure absolute protection against the loss or accidental removal of the nut.

Having thus fully described our invention, what we claim as new, and desire to
70 secure by Letters-Patent, is—

A nut provided with a screw-threaded opening extending from its inner surface partly through the nut, the inner end of the screw-threads terminating abruptly and
75 forming a shoulder, the nut having in its outer portion an unthreaded chamber concentric and communicating with the threaded opening thereof, the nut also having in its outer portion a segmental recess in communication with the chamber and provided
80 near one end of said recess with an open ended slot, a locking-spring located within said chamber and provided on its outer portion with a looped part to lie in the segmental slot with its ends in engagement
85 with the ends of said slot, the inner end of said spring adapted to engage the shoulder formed by the inner end of the screw-threads of the nut when the latter is moved
90 backwardly for the purpose of releasing the locking-spring.

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