No. 793,432. PATENTED JUNE 27, 1905.

J. E. G. GEISEL.

NUT LOCK.

APPLICATION FILED OCT. 5, 1904.

Fig. 1.

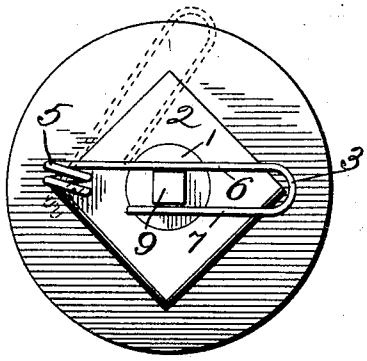


Fig. 2.

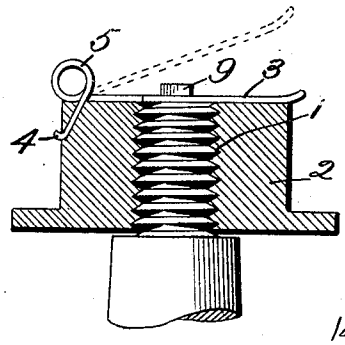
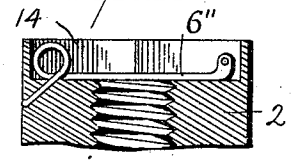


Fig. 11.



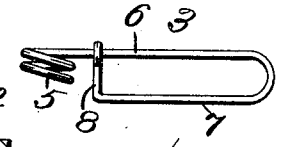


Fig. 13.

Fig. 4.

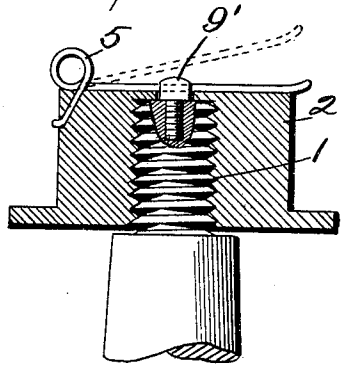


Fig. 5.

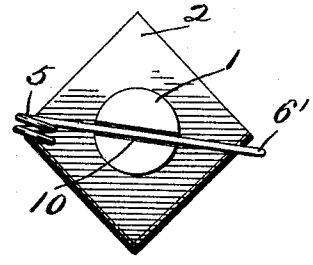
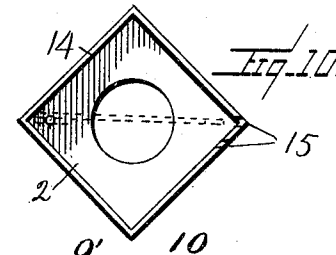


Fig. 10.



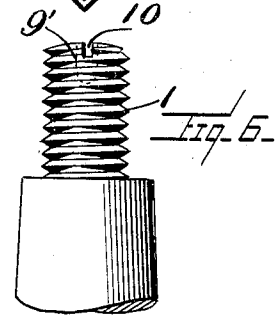


Fig. 6.

Fig. 7.

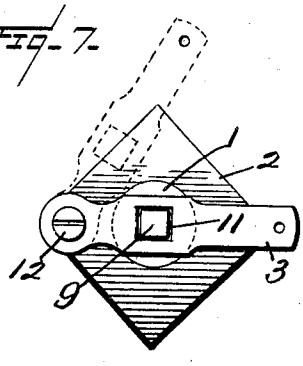


Fig. 8.

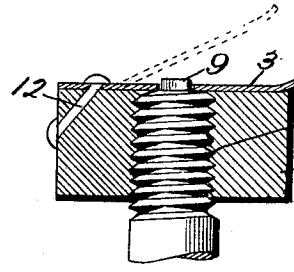
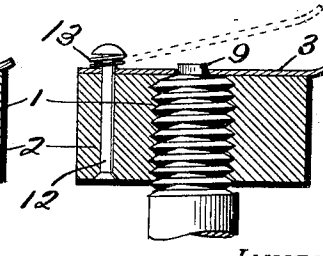


Fig. 9.



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No. 793,432. Patented June 27, 1905.

UNITED STATES PATENT OFFICE.

JOHN E. G. GEISEL, OF LEHIGHTON, PENNSYLVANIA.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 793,432, dated June 27, 1905.

Application filed October 5, 1904. Serial No. 227,217.

To all whom it may concern:

Be it known that I, JOHN E. G. GEISEL, a citizen of the United States, residing at Lehighton, in the county of Carbon and State of Pennsylvania, have invented a certain new and useful Nut-Lock, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to nut-locks, the object of the invention being to provide a device for locking a nut upon a bolt, axle, spindle, or other externally-threaded member or object, so that relative rotation between the nut and the threaded member will be prevented under ordinary conditions and still admit of the nut being removed whenever it becomes necessary without mutilating, injuring, or impairing the efficiency of the locking device for subsequent use.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction and combination of parts hereinafter fully set forth, illustrated, and described.

In the accompanying drawings, Figure 1 is a plan view of the nut-lock as applied to an ordinary bolt and nut. Fig. 2 is a sectional view of the same. Fig. 3 is a plan view of a lock of slightly-modified form. Fig. 4 is a section similar to Fig. 1, illustrating the adaptation of the lock to an axle-spindle and nut. Fig. 5 is a plan view showing a modified form of lock. Fig. 6 is an elevation of the bolt shown in Fig. 5. Fig. 7 is a plan view showing another form of lock. Fig. 8 is a sectional view of the same. Fig. 9 is a section similar to Fig. 8, illustrating a slight modification in the manner of mounting the lock. Fig. 10 is a plan view showing means for protecting the locking device. Fig. 11 is a sectional view illustrating the same feature.

Like reference-numerals designate corresponding parts in the several figures of the drawings.

Referring to the drawings, 1 designates the threaded member, which may consist of an ordinary bolt, as shown in Fig. 1, or an axle-spindle, as shown in Fig. 2, or any other substantially cylindrical and externally-threaded object. The nut 2 may be of the usual form, open at both ends, as shown in Fig. 1, or closed at one end, as shown in Fig. 4.

In carrying out the present invention the locking device 3 is attached to the nut and adapted to be moved into and out of engagement with the bolt or an extension of the bolt for the purpose of preventing relative rotation between the bolt and nut. Under the preferred embodiment of the invention the locking device is composed of a single piece or length of spring-wire, one end of which is connected directly to the nut, as shown in Fig. 1, by being inserted through a hole extending obliquely through one corner of the nut and having its extremity bent, headed, or clenched, as shown at 4. The part of the lock which passes through the nut forms a pivot or journal upon which the lock is adapted to turn for a purpose hereinafter explained. At the outer portion of such pivot or journal the wire is bent to form one or more spring-coils 5 for imparting the requisite elasticity to the remainder of the locking device, which extends from the coils 5 outward across the face of the nut, as shown in Fig. 1, the wire being bent to form substantially parallel arms 6 and 7, which are connected at the outer end of the locking device by a recurvature of the wire of which the locking device is formed. If desired and in order to form an extra strong lock, the extremity of the wire may be bent laterally, as shown at 8 in Fig. 3, and secured to the primary arm 6, thus forming a complete loop or band or eye.

The threaded member is provided with a square shoulder to be engaged by the arm or arms of the locking device, and such shoulder is preferably formed by providing the threaded member with an end extension 9 smaller than the member itself and having a plurality of flat surfaces. While such extension is illustrated as of square form in cross-section, it will be apparent that a triangular or polygonal shape may be given thereto. The eye or loop comprised by the arms of the locking device is adapted to receive the extension 9 in the manner shown in Fig. 1, thus preventing the nut from turning on the threaded member. To release the locking device, the latter

is lifted, as shown by dotted lines in Fig. 2, and swung to one side, as shown by dotted lines in Fig. 1, this being permitted by the pivot or journal of the locking device and the presence of the coils 5. It will also be noted that by the angular or oblique position of the pivot or journal the locking device swings outward or away from the surface of the nut as it is moved laterally, thus assisting in the disengagement of the lock. Instead of squaring the end of the threaded member the extremity thereof may be formed with a notch or kerf 10, as shown in Figs. 5 and 6, and the locking device may have a single arm 6′ to extend diametrically across the nut and engage the square shoulder formed by either wall of said notch or kerf. The extension 9, instead of being an integral portion of the threaded member, may consist of a plug 9′, as shown in Figs. 4 and 6, either screwed or driven into a socket in the end of the threaded member so as to turn therewith, and said plug may either have a squared end, as shown in Fig. 4, or a notched end, as shown in Fig. 6, according to the form of locking device used.

Where a vehicle spindle-nut is employed as shown in Fig. 4, the plug 9′ projects beyond the end of the threaded member, and the outer wall of the nut is provided with a small hole through which the plug projects far enough to be engaged by the locking device, the locking principle being the same as heretofore described. Instead of forming the locking device of wire it may be in the form of a flat leaf-spring, as shown in Figs. 7, 8, and 9, secured at one end by a screw or rivet which forms the pivot or journal and provided with an eye 11 to fit the shouldered end of the threaded member or the plug extension thereof, as the case may be. While the pivot 12 is preferably set at an angle, as shown in Fig. 8, to provide for outward-swinging action above explained, said pivot may extend transversely through the nut, as shown in Fig. 9, in which latter case the pivot is made longer, and a spring 13 is interposed between the head of the pivot and the nut to more readily admit of the lifting of the locking device, as indicated by the dotted lines in Fig. 9, and to assist in holding the locking device in engagement with the threaded member.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

In some instances it may be desirable to protect the locking device from accidental displacement. This may be accomplished as shown in Figs. 10 and 11, in which the nut is shown provided with a guard in the form of a marginal flange 14, within which the locking device 6″ lies, which flange prevents objects from coming in contact with the locking device and moving it out of engagement with the threaded member. The flange may be provided with one or more notches 15 to receive and retain the arm or arms of the locking device and assist in maintaining the engagement between the nut and the threaded member.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a nut-lock, a threaded member provided with a square terminal shoulder, a nut, and a locking device carried by the nut and comprising a journal portion set at an oblique angle, and an arm which engages said shoulder.

2. In a nut-lock, a threaded member provided with a square terminal shoulder, a nut, and a locking device carried by the nut and comprising a journal portion set at an oblique angle, an arm projecting therefrom and engaging said shoulder, and spring-coils at the inner end of said arm.

3. In a nut-lock, a threaded member provided with a squared extension, a nut, and a locking device carried by the nut and adapted to fit around and engage said extension and pivoted at a single point so as to swing both laterally and away from the face of the nut.

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

JOHN E. G. GEISEL.

Witnesses:
WM. I. DOLL,
H. SEABOLDT.