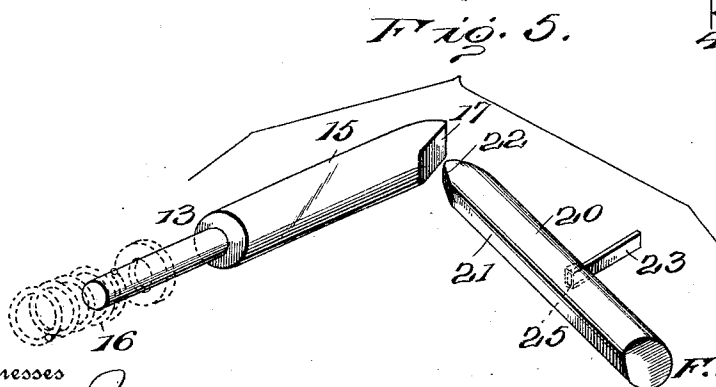
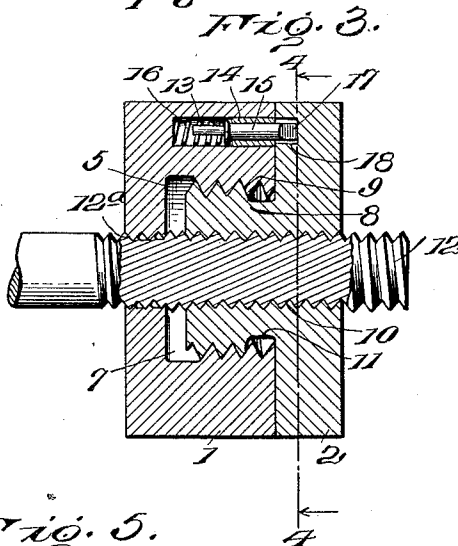
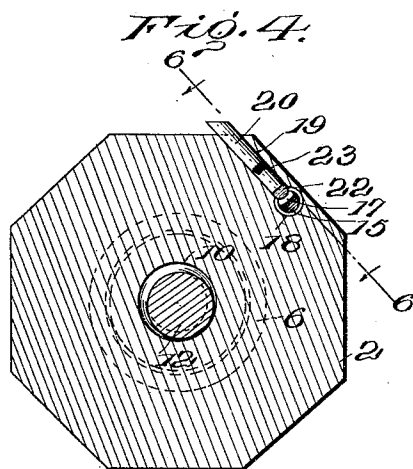
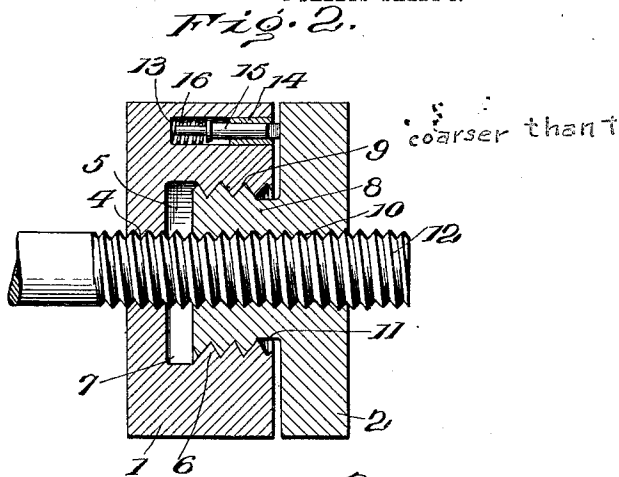
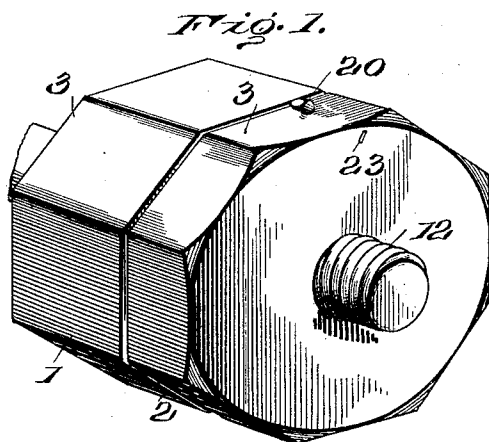


1,097,257.

2 SHEETS--SHEET 1.



Witnesses

Witnesses
 [Signature]
 [Signature]

Inventor

F. W. Newton.

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Wm. W. Macy, Attorneys.

F. W. NEWTON.
NUT LOCK.
APPLICATION FILED JAN. 2, 1913.

1,097,257.

Patented May 19, 1914.

2 SHEETS—SHEET 2.

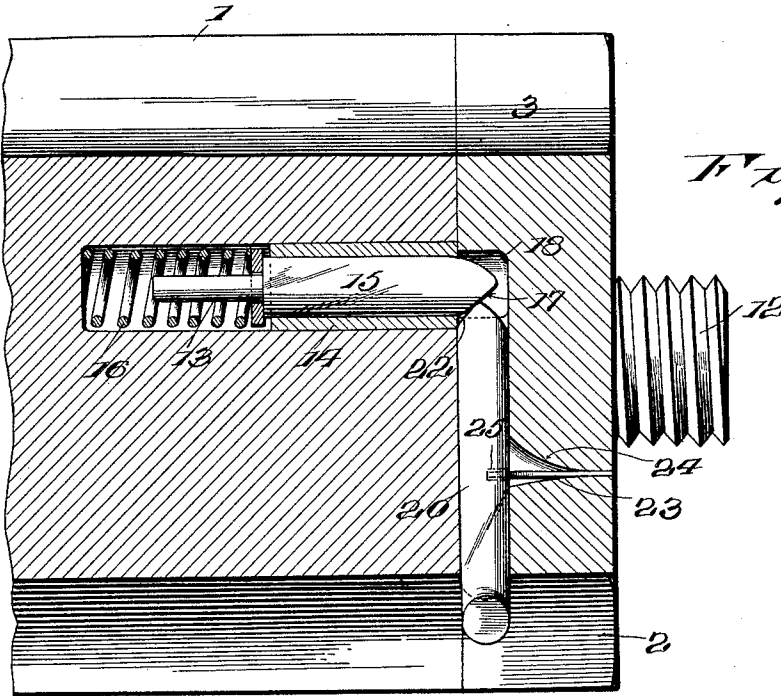


Fig. 6.

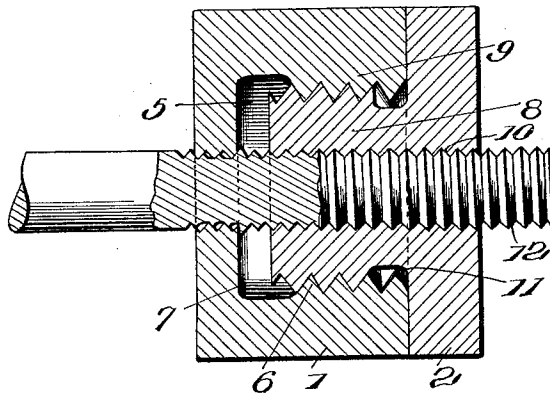


Fig. 7.

Witnesses
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Attorneys.

UNITED STATES PATENT OFFICE.

FRANK W. NEWTON, OF DANVILLE, OHIO, ASSIGNOR OF ONE-FOURTH TO ROBERT G. BAKER AND ONE-FOURTH TO WILLIAM WAGNER, OF DANVILLE, OHIO.

NUT-LOCK.

1,097,257.

Specification of Letters Patent.

Patented May 19, 1914.

Application filed January 2, 1913. Serial No. 739,777.

To all whom it may concern:

Be it known that I, FRANK W. NEWTON, citizen of the United States, residing at Danville, in the county of Knox and State of Ohio, have invented certain new and useful Improvements in Nut-Locks, of which the following is a specification.

This invention relates to lock nuts and has as its object to provide a nut of this type which may be locked upon any ordinary bolt at any point on the threaded portion of the bolt and which will, when locked, be securely held against backward rotation upon the bolt.

It is one aim of the present invention to provide a lock-nut, which while simple in construction and inexpensive to manufacture, may be readily threaded onto any ordinary bolt and locked in place at any desired point without the use of any tool other than the wrench employed in threading it onto the bolt.

Another aim of the invention is to provide a positive locking device in connection with the nut, which device will be automatically rendered inoperative upon application of a wrench to the nut so that when desired the nut may be unthreaded from the bolt without mutilating the nut, or without injuring the locking device or rendering the same inoperative for further use.

It is a further object of the invention to provide a lock nut so constructed that it may be locked with relation to the bolt to which it is applied even though only a relatively short length of bolt is threaded into the nut.

For a full understanding of the invention reference is to be had to the following description and accompanying drawing, in which:—

Figure 1 is a perspective view of the nut embodying the present invention, the same being shown applied to an ordinary bolt. Fig. 2 is a vertical longitudinal sectional view through the nut, the sections thereof being in position to permit of the nut being threaded on the bolt. Fig. 3 is a similar view, but illustrating the sections in locked relation. Fig. 4 is a vertical transverse sectional view on the line 4—4 of Fig. 3. Fig. 5 is a perspective view of the locking device for holding the nut-sections in locked relation. Fig. 6 is a sectional view on the line

6—6 of Fig. 4 on an enlarged scale. Fig. 7 is a view similar to Fig. 3 illustrating a slight modification of the invention.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawing by the same reference characters.

In the drawing, the nut embodying the present invention is illustrated as consisting essentially of two sections, one of which is indicated in general by the reference numeral 1, and the other by the numeral 2. Both sections are of the conventional square or hexagonal form, and are provided with the usual faces 3 for the engagement of a wrench.

The section 1 of the nut is formed with a bolt opening 4 which opens at the rear face of the nut-section, and with a threaded bore 5 which opens at the forward face of the nut-section and is in axial alinement with the bolt-opening 4. The threads 6 of the bore 5 are reversed with relation to the threads of the bolt opening, or in other words the threads of the bolt-opening are right-hand threads, whereas those of the bore are left-hand threads.

It will be seen from inspection of Figs. 2 and 3 of the drawing that the bore 5 is of greater diameter than the bolt-opening 4, and it will also be noted that the threads of the bore terminate short of the inner ends of the bore so that the bore at its inner end portion is unthreaded, as indicated at 7. The other section of the nut indicated at 2 is formed upon its rear face with a boss 8 threaded as at 9 and fitted into the bore 5. The section 2, in its body portion and throughout the length of its threaded boss is formed with a bolt opening 10, the wall of which is threaded to correspond with the wall of the bolt opening 4, and it will be apparent by reference to Figs. 2 and 3 of the drawing that when the sections of the nut are assembled the bolt-openings 4 and 10 will be in axial alinement so that the nut as a whole may be threaded onto the bolt. It will also be noted by reference to these figures that the boss 8 adjacent its juncture with the face of the body portion of the section 2, is unthreaded as at 11 and it will also be noted that the boss is of a length less than the bore 5 so that the former may be thread-

ed into the latter to the full extent without the end of the boss being brought to bear upon the inner end of the bore.

It is further to be noted that the nut-section 1 and its portion which constitutes the inner end-wall of the bore 5, is relatively thin and that consequently the threads of the bolt-opening 4 will be relatively few in number, but that the bolt-opening 10 is relatively long and that the threads thereof being greater in number than those of the opening 4, will have a better purchase on the bolt when the sections of the nut are rotated to lock the nut, as will be presently explained.

The nut construction as so far described, may be locked upon any bolt upon which it is threaded, in the following manner. The section 2 is first assembled with the section 1 by threading the boss 8 into the bore 5 until the sections assume about the positions shown in Fig. 2 of the drawing, whereupon they are rotated in unison on the bolt, which is indicated at 12, until the desired adjustment is obtained. The section 2 is then further rotated with relation to the section 1 and in the same direction as that in which it was first turned so that the boss 8 will be further threaded into the bore 5 and the inner face of the section 2 will be brought to bear firmly against the outer face of the section 1 in the manner shown in Fig. 3. This final rotation of the section 2 with relation to the section 1 will serve to draw the sections together, but inasmuch as the threads 9 are of a size different from the threads 12 upon the bolt, and the threads of the bolt-openings, the threaded portion of the bolt received by the wall of the bolt opening 4 will be mutilated as indicated at 12^a in Fig. 3, and backward rotation of the nut as a whole upon the bolt will be prevented. The threads of the bolt engaged by the threads of the bolt opening 10 will however, not be distorted or mutilated, for the reason that being greater in number than the threads of the bolt-opening 4, they will obtain a better purchase upon the bolt.

In order to lock the nut sections 1 and 2 in the position shown in Fig. 3 of the drawing, and thereby positively prevent rotation of these sections, which might under some circumstances permit of the nut rotating backwardly upon the bolt, a locking means is provided and will now be described. The nut-section 1 is formed with a bore 13, the axis of which is parallel to the axis of the bolt opening of the said section and within this bore is arranged a bushing 14 in which is slidably fitted a locking pin 15, normally held by a spring 16 to project at one end beyond the outer face of the section 1, as shown in Figs. 2 and 3. The projecting end of the pin is beveled upon one

side, as at 17, and this end of the pin is designed to seat in a socket 18 formed in the inner or rear face of the section 2 of the nut, when the sections are brought into the relative positions shown in Fig. 3. As a consequence of this construction, when the nut as a whole has been threaded upon the bolt to the desired point and the section 2 is rotated backwardly with relation to the section 1, the sections will be locked upon the bolt, and when fully locked the socket 18 will be in registration with the end of the bushing 14 and the projecting end of the pin 15 will be forced into the said socket, thereby locking the sections against further relative rotative movement. With the nut thus locked upon the bolt, it cannot be removed without entirely stripping the threads of the bolt or without mutilating the nut, and inasmuch as it is desirable that the nut may be repeatedly used, means is provided for automatically disengaging the pin 15 from the socket 18 upon the application of a wrench to the nut. The nut-section 2 is formed in its face from which the boss 8 projects with a groove 19 which opens also at one of the faces 3 and disposed for sliding movement within this groove is a pin 20 having a flat side 21 which occupies the same plane as the said face of the nut-section. The pin at its inner end is beveled as at 22 and has its beveled end resting against the beveled end 17 of the pin 15. The opposite end of the pin 20 projects a short distance beyond that face 3 of the nut-section 2 in which the groove 19 opens in a manner clearly shown in Figs. 1, 4 and 6, of the drawing.

A leaf-spring 23 is secured in a recess 24 in the nut section 2 in a manner shown in Fig. 6 and has its inner end engaging in a notch 25 formed in the rear side of the said pin 20. This leaf-spring normally holds the pin 20 in the position shown in Figs. 1, 4 and 6, that is to say, with its beveled end 22 resting in engagement with the beveled end 17 of the pin 15 and its opposite end projecting beyond the face of the nut-section 2. It will now be understood that upon application of a wrench to the nut so that one of its jaws will engage with the end of the pin 20, this pin will be pressed against the tension of the spring 23 and its inward movement will serve to force the beveled end of the pin 15 from engagement in the socket 18, whereupon the section 2 of the nut may be rotated independently of the section 1 to assume the position shown in Fig. 2. The nut as a whole may then be turned backwardly upon the bolt and completely or partly unthreaded therefrom.

It will be understood, of course, that the portions of the elements comprising the nut lock herein shown and described may be varied to suit different conditions under

which the nut is to be used and to adapt the same to bolts of various sizes. And it will also be apparent that within the scope of the present claims, the construction of the locking device may be varied, if desired.

Having thus described the invention what is claimed as new is.

1. In a lock nut, sections having adjustable threaded connection with each other and provided with alined bolt openings, means for holding the sections against relative rotative movement, and means arranged for actuation upon engagement of a wrench with the nut for rendering the holding means inoperative.

2. In a lock nut, sections having adjustable threaded connection with each other and provided with alined bolt openings, a locking pin carried by one of the sections and arranged to engage with the other section to hold the sections against relative rotative movement, and means carried by one of the sections and arranged for engagement by a wrench applied to the nut, and upon such engagement to move the locking pin out of engagement with the second mentioned section.

3. In a lock nut, sections having adjustable threaded connection with each other, the sections being provided with alined bolt

openings, a locking pin carried by one of the sections and engageable with the other section to hold the sections against relative rotative movement, and means carried by the last mentioned section and engageable by a wrench applied to the nut to render the locking pin inoperative to perform its locking function.

4. In a lock nut, sections having adjustable threaded connection with each other, the sections having alined bolt openings, a locking pin carried by one of the sections, the other section having a socket arranged to receive the end of the pin, the said end of the pin being beveled, the second mentioned section having a groove in communication with the said socket, a pin slidably fitted in said groove and having a beveled end engaging the beveled end of the locking pin, the other end of the second mentioned pin projecting beyond one face of the section by which the pin is carried whereby to be engageable by a wrench applied to the nut.

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

FRANK W. NEWTON. [L. s.]

Witnesses:

J. D. YOAKLEY,
SAMUEL N. ACKER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."