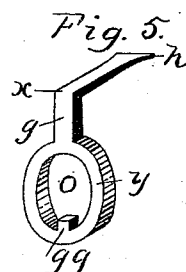
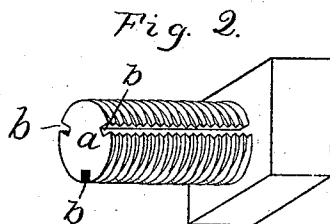
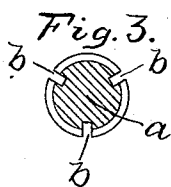
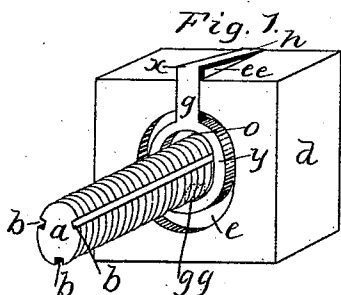
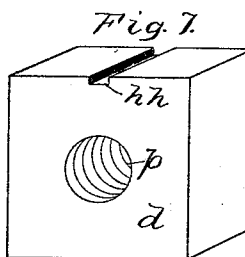
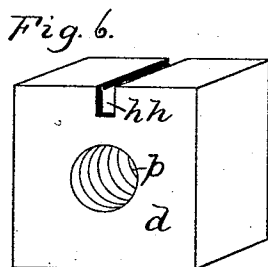
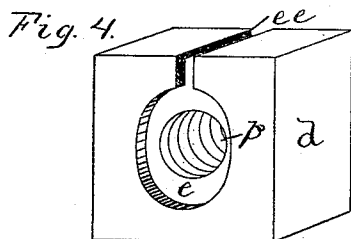


(No Model.)

J. D. CAMPBELL.
NUT LOCK.

No. 515,111.

Patented Feb. 20, 1894.



WITNESSES:

R. E. Tozer
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UNITED STATES PATENT OFFICE.

JOHN D. CAMPBELL, OF BINGHAMTON, NEW YORK.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 515,111, dated February 20, 1894.

Application filed October 9, 1893. Serial No. 487,624. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. CAMPBELL, a citizen of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented a certain new and useful Improvement in Nut-Locks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part thereof.

My invention relates to improvements in nut locking devices; and the object of my invention is to provide a device by which a nut can be safely and effectively locked, and which can be cheaply manufactured. I attain this object by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1. is a view, in perspective, of my invention, showing the nut screwed upon its bolt and locked by its spring catch. Fig. 2. is a view, in perspective, of the bolt, showing its rectangular, oblique grooves. Fig. 3. is a view, in cross section, of the bolt, showing its rectangular, parallel grooves. Fig. 4. is a view, in perspective, of the nut, showing the depression in its face for the reception of the spring catch. Fig. 5. is a view, in perspective, of the spring catch. Fig. 6. is a perspective view of the back of the nut, showing one method of securing the spring catch. Fig. 7. is a perspective view of the back of the nut, showing another method of securing the spring catch to the nut.

In Fig. 1., the letter (*d*) represents the nut, which is screwed upon the threaded bolt (*a*).

The letters (*b*) (*b*) (*b*) show three longitudinal, rectangular grooves running through the thread of the bolt and extending a little below the base of the thread, and situated equidistant from each other around the circumference of the bolt. The spring catch (*h*), (*g*), (*y*), fits into the groove (*e e*) and is secured to the nut at its end (*h*) (which is a little wider than the stem) by driving it into the groove (*e e*) from the back of the nut. This spring catch is made of steel and is twice or three times as thick as the ring (*y*) as at the end (*h*) toward which it gradually tapers. The ring (*y*) has the opening (*o*) the latitudinal

diameter of which corresponds with the diameter of the bolt (*a*), while its longitudinal diameter is about as much greater as the depth of the grooves (*b*) (*b*) (*b*). On the lower and inner part of this ring is an upright projection or pin (*g g*) of a size and shape necessary to engage with the grooves (*b*) (*b*) (*b*). The depression or sunken shelf (*e*) around the bolt hole of the nut, into which the ring (*y*) fits, is of such a size and shape as will allow the ring to work up and down in it, but not sidewise. The stem of this spring catch is normally about one quarter of an inch above the top of the nut, so that when the nut is on the bolt, the pin (*g g*) will enter any one of the grooves (*b*) (*b*) (*b*) with which it comes into contact, thus locking the nut. It will be seen that the nut is normally locked. When a wrench is placed on the nut to tighten or loosen it, the jaw of the wrench presses the spring down into the groove (*e e*), thus forcing down the ring (*y*), and releasing the pin (*g g*) from the groove (*b*) in the bolt, and allowing the nut to turn freely. The wrench is then removed when the pin (*g g*) is opposite a groove in the bolt, and the nut is locked. Even should the wrench be removed before the pin (*g g*) reaches a groove, the nut could turn but a very slight distance before the pin would slip into a groove and lock the nut.

In Fig. 2. is shown the bolt with the grooves (*b*) (*b*) (*b*) running diagonally with the direction of the screw thread instead of at right angles. The object of this is to leave the thread stronger than it might be with a straight groove. These grooves do not extend farther along the bolt than it is threaded.

The groove (*e*) and (*e e*) Fig. 4., into which the spring catch is to fit, and which is pressed into the nut when made, is of uniform width on the side of the nut, and is deep enough to admit of the spring being pressed in below the surface of the nut.

The spring, Fig. 5., is cut from steel thicker at one end than at the other, the ring (*y*) being of the thickest part, and it is bent at right angles at (*x*). The end (*h*) being cut slightly wider than the stem, when it is driven into the groove in the iron nut, binds and fastens itself. In a narrow nut, as in Fig. 6 the end of the spring is bent over the back of the nut and secured by driving it down into the

groove there; but in a wider nut as shown in Fig. 7 it is driven into the groove on the side of the nut from the back.

5 Having thus described my device, what I claim as my invention, and desire to secure Letters Patent for, is—

10 In a nut locking device, the combination with a bolt longitudinally grooved to receive an upright pin carried by the ring of the spring catch, of the grooved nut with an oblong countersink in its face surrounding the

bolt hole, and the spring catch whose shank fits over the side of the nut, and whose oblong ring fits into the said countersink and encircles the bolt, the longitudinal grooves of which 15 it engages with its upright pin; as described and for the purpose specified.

To which I hereby subscribe.

JOHN D. CAMPBELL.

Witnesses:

ROBERT E. TOZER,
J. E. BOOKSTAVEN.