(No Model.)

J. T. CLARK.

NUT LOCK.

No. 386,624. Patented July 24, 1888.

Fig. 1.

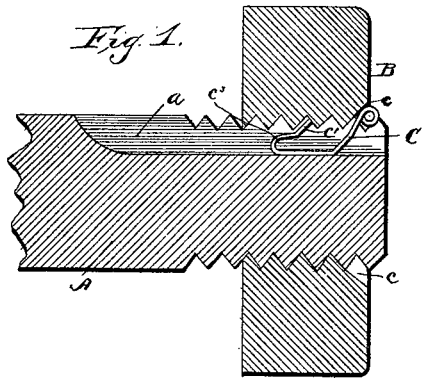


Fig. 2.

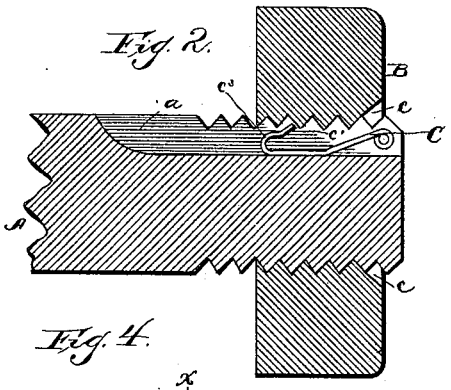


Fig. 3.

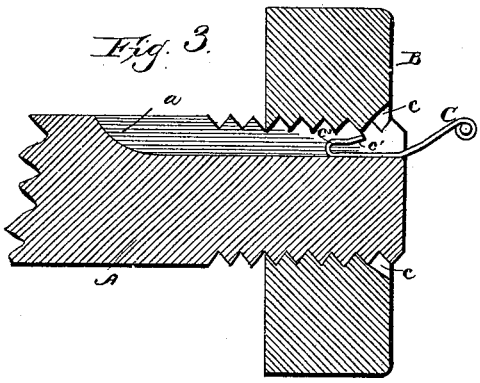


Fig. 4.

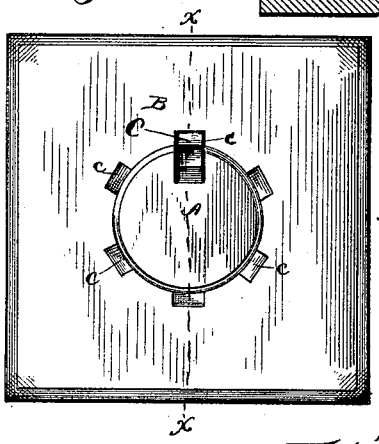


Fig. 5.

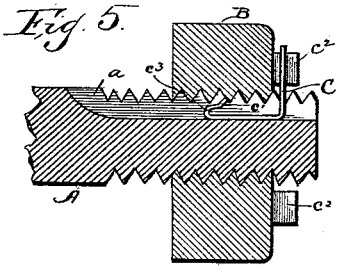


Fig. 6.

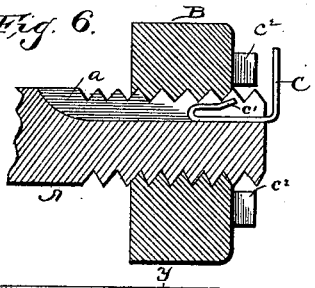


Fig. 7.

Fig. 8.

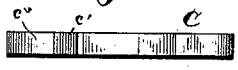


Fig. 10.

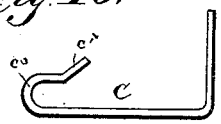


Fig. 11.

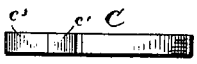
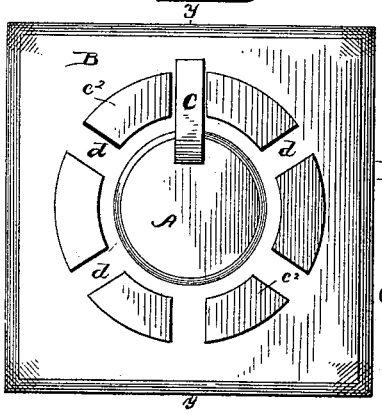


Fig. 9.



WITNESSES.

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INVENTOR.

James T. Clark

by:

Wm. Alexander

Attorney.

UNITED STATES PATENT OFFICE.

JAMES T. CLARK, OF DENVER, COLORADO.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 386,624, dated July 24, 1888.

Application filed October 19, 1887. Serial No. 252,821. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. CLARK, of Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Nut-Locks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in nut-locks of that class in which the nut is locked on the threaded portion of a screw-bolt by means of a spring-key which sets in a longitudinal groove in the bolt and engages the nut when screwed home; and the object of the present invention is to so construct the spring-key that it may be readily inserted in its seat, and when there cannot be pulled out or be accidentally removed by jars, shocks, or otherwise, unless the key be broken, and also to protect the outer end of the key when in place from accidental or other injury, as more fully hereinafter described.

The above-mentioned objects I attain by the means illustrated in the accompanying drawings, in which—

Figure 1 represents a longitudinal sectional view of a bolt and nut taken on the line *x x* of Fig. 4, with the spring-key in position locking the nut. Fig. 2 represents a similar view with the outer end of the spring-key bent down to release the nut, so as to turn the same off the bolt or tighten it up on the same. Fig. 3 is a longitudinal section showing the key partially inserted. Fig. 4 represents an end view or front face view of the nut and bolt with the nut locked thereon. Fig. 5 represents a longitudinal sectional view of a bolt and nut taken on the line *y y*, Fig. 9, and showing a nut of slightly-modified form. Fig. 6 is a similar view showing the spring-key in position just before locking the nut. Fig. 7 represents a side elevation of the spring-key. Fig. 8 represents a top view thereof. Fig. 9 represents a front or end view of the bolt and nut, showing the modified form of the nut. Fig. 10 is a side elevation of the key employed in connection with the modified nut, and Fig. 11 represents a top view thereof.

Referring to the drawings, the letter A indicates a bolt of the ordinary description, having a longitudinal groove, *a*, entering the entire length of the screw-threaded portion and slightly beyond it into the plain portion of said bolt.

B indicates the nut, which is provided with the usual internal screw-thread, so as to fit over the threaded portion of the bolt in the ordinary manner. The outer face of the nut, immediately around the aperture in the same, is provided with a series of recesses, *c*, to engage the outer end of the spring-key to lock the nut on the bolt, as more fully hereinafter explained.

The letter C indicates the spring-key. The said key consists of a short piece of elastic metal, of suitable shape in cross-section, being preferably flat, as shown in the drawings. One end of said key is bent on a short curve upward and backward upon itself, as indicated at c^3, and then upward again, as indicated by the letter c' in the drawings, for the purpose hereinafter explained. The other end of the key is bent upward at an angle, as shown in the respective figures of the drawings.

The recesses in the face of the nut, as shown in Figs. 1, 2, 3, and 4 of the drawings, are inclined and flush with the face of the nut, but as shown in Figs. 5, 6, and 9 are between the lugs c^2 surrounding the aperture in the nut. In this case the nut is not weakened by cutting away its body, and the outer end of the key, which sets between the lugs, is protected thereby from accidental injury.

The operation of my invention is as follows: The nut is placed upon the bolt and screwed home, as usual, and when tight up to its seat the key is pushed into the slot until it assumes the position shown in Figs. 1, 4, 5, and 9, the outer end engaging one of the recesses *c*. It is obvious that in this position it will hold the nut from turning upon the bolt, firmly locking it in place. In this position the inner bent end, c', of the key sets into the thread in the nut, as shown in Figs. 1, 2, 5, and 6, in such position as to prevent it from being withdrawn by main force, unless the portion c' of the key be broken, and unless this portion is broken off any outward pull on the key will cause end c' thereof to bind upon the angular face of the adjoining thread more firmly, as greater strain

is exerted to withdraw the key, as will be obvious from said figures. To remove the nut, the outer end of the key is depressed, so as to clear the recess in the nut, when the nut can be turned off over the key with ease. It will thus be seen that it is simply impossible for the nut to become accidentally removed by any shock or jar, as the nut is absolutely held from turning so long as the outer end of the key remains in its recess, and that the key cannot designedly be removed by main force so long as the inner end of the key remains unbroken, thus rendering the nut comparatively secure against mischievous or evil-designed persons.

I am aware that lock-nuts have heretofore been devised, in which the nut is held in place by a spring-key engaging recesses at each end of the nut and located in a longitudinal groove in the bolt—such, for instance, as is shown in Patent No. 329,861, dated November 3, 1885; but in such devices the key has been bent simply upward at its inner end, so that the inclined portion binds against the inner recess of the nut and not against the threads thereof. In such cases the nut is not held positively, as in the present case, and the key can readily be drawn out, besides being liable to be shaken out or otherwise accidentally displaced.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The herein-described nut-lock, consisting of a bolt having a longitudinal groove in its threaded portion, and a screw-threaded nut fitting on said bolt, having a series of radial recesses in its outer face, in combination with a spring-key placed in the groove of the bolt under the nut, and having its outer end bent upward for engaging with one of the recesses of the nut and its inner end curved upward and backward upon itself, so that it will yield and pass under the threads of the nut when the key is being inserted, but will positively bite or engage against the inner face of one of the nut-threads and prevent its retraction, substantially in the manner and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JAMES T. CLARK.

Witnesses:
F. B. SEMPLE,
W. D. RECTOR.