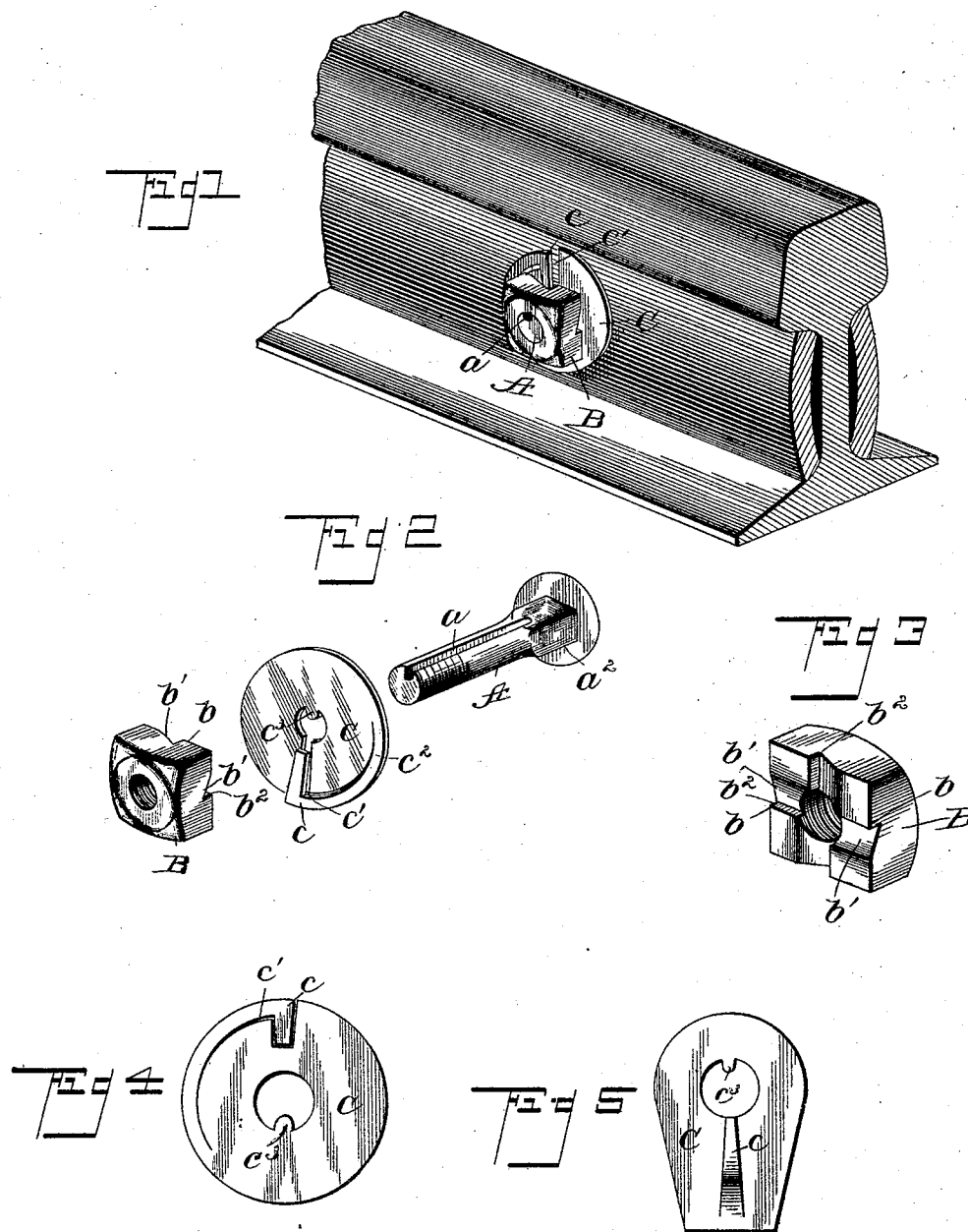


(No Model.)

G. GIBSON.
NUT LOCK.

No. 492,672.

Patented Feb. 28, 1893.



Witnesses

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UNITED STATES PATENT OFFICE.

GEROLT GIBSON, OF ST. LOUIS, MISSOURI.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 492,672, dated February 28, 1893.

Application filed September 29, 1892. Serial No. 447,315. (No model.)

To all whom it may concern:

Be it known that I, GEROLT GIBSON, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Nut-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to that class of mechanical contrivances or devices termed nut-locks, primarily, as its name denotes, for locking nuts upon their bolts as against accidental displacement or unscrewing of the nut from any jarring action, as in the case of an engine or train of cars passing over its rails, or from other cause, or when used with their bolts for any other purpose or under any other circumstances, and to these ends the invention consists in the novel combination and construction of parts substantially as hereinafter more fully disclosed and pointed out in the claims.

In the accompanying drawings:—Figure 1 is a perspective view of my improved nut-lock, showing one way of applying it for use, among others of which it is capable. Fig. 2 is a similar view of the several parts of my nut-lock dissociated and relatively disposed. Fig. 3 is an inverted perspective view of the locking nut. Figs. 4 and 5 are modifications of my invention.

In carrying out my invention, I employ a bolt A, a notched or ratchet-faced nut B, and a washer C. The bolt A has a longitudinal groove or channel *a* traversing, preferably, the greater portion of its length. The ratchet-face of the nut is composed of a series of notches or steps *b*, having continuously gradually sloping or inclined bottoms *b'* with their maximum depressions terminating at perpendicular walls *b''*, forming in part said notches, and these notches face inward toward the surface of the rail or article to be bolted. The washer C is struck up preferably, of spring metal, into disk or other form and has projecting transversely toward the axis of the bolt inward from a point coincident with its

outer edge or circumference, a stop or detent *c*, arranged in a radial slot *c'*, produced in the body of the washer, and having its termini at the outer edge or circumference of the washer and the central bolt-hole thereof. The slot *c'*, in permitting the detent *c* to sink flush with the washer, as it does as the nut engages the detent, instead of standing in a plane above the washer, lessens the strain on the detent and the spring and permits the nut to be brought jam against the washer, the advantages of which are apparent.

The stop or detent *c* is formed at its outer end integral with, or in continuation of a spring *c''*, itself preferably integral with the washer C, being stamped therefrom in the form of a segment in this instance following the outer edge-contour or circumference of the washer, but inclined or curving outward toward, and at, its outer detent or stop-carrying end, to cause the stop or detent to stand a short distance above the washer to cause it to automatically engage the notched or ratchet-face of the nut as the latter is turned or screwed home.

The plate or washer C has a spline-like projection or tongue *c'''* extending into its bolt-hole and engaging the longitudinal groove or channel *a* of the bolt A, to prevent the turning of the washer independently of the bolt, the bolt, itself, being prevented from turning or having axial movement by forming thereon the usual angular portion or shoulder *a''* engaging a corresponding recess in the part through which the bolt passes. It will therefore be seen that, with the washer and the nut initially in position on the bolt, upon turning the nut in the required direction a short distance, its ratchet or notched face will be engaged by the detent or stop and the latter will alternately be retracted and projected at each turn of the nut, during such engagement, the detent or stop thus projecting or springing into each notch and providing for the retention of the detent, in any, or whichever, one of the notches that may be stopped opposite the detent.

In order to release the nut it is only necessary to press down or inward upon the detent and hold it until the nut has been turned in the reverse direction sufficiently to become disengaged from the detent. It will be also

observed that, while the perpendicular wall of the coincident notch of the nut, which the detent has to pass or be disengaged from before release, effectually prevents the reverse movement of the nut, the notched or ratchet face of the nut is not acted upon by spring pressure to hold it in place, nor yet required to have any part of its surface specially provided for that purpose, or otherwise, bent up against the nut to secure it in position.

The spring, it will be noticed in my invention, is used only to project or spring the detent or stop into the required notch of the nut, consequently metal possessing but a minimum amount of elasticity, and no great strength of spring is needed, and the spring itself is subjected to the least possible resistance, therefore the detent, with its spring does not require premature renewal, and a great deal of time and attention to keep them in working order.

My invention also forms both a washer and a nut-lock at the same time; and the washer fits tight and flat upon the surface against which the nut pushes or forces it, meeting said surface at all points; and the nut bears flat against the washer on all sides, thus leaving no longitudinal waste space between the nut and the washer, and the latter and the surface against which it rests.

The spring of the detent or stop exerts no appreciable pressure upon the nut, consequently does not tend to pry the nut off the bolt, nor exert lateral strain upon, and tend to distort, the threads of the screw bolt.

The spring locking action of the detent or stop produces a clicking action upon the ratchet or notched face of the nut as the latter is screwed upon the bolt and therefore gives notice when the locking point has been reached. This feature is, it is obvious, of especial advantage in screwing on nuts in perilous positions, as at difficult places on bridges and other elevated points, shortening up the time consumed in locking them, the nut requiring but a few turns to effect the clicking action between it and the detent, signaling the locking of the nut. The spring is low down and well out of the way of accident or disarrangement and is never engaged, and, therefore, never subjected to unnecessary compression and straining, by the nut as it is screwed home. The detent or stop and its spring being a continuous or one piece and integral with the washer, can never become displaced or lost.

In lieu of the tongue c^3 the washer may be struck up with one or more lips or points which are embedded in the surface to which the washer is applied in case such surface should be wood, and in this way prevent the independent movement or displacement of the washer.

In the modifications as disclosed in Figs. 4 and 5 instead of extending the slot c' and detent c clear into the bolt-hole of the washer, they are stopped a short distance away from said bolt-hole, Fig. 5 also showing the integral detent and spring in alignment throughout their length, the washer being elongated or extended for that purpose as shown.

I make no specific claim herein to the pawl at right angles to its spring, the same being specifically claimed in my concurrent application, filed October 14, 1892, Serial No. 448,883.

I claim—

1. In a nut-lock, the combination, with a nut whose base is provided with a series of notches or ratchets, of a longitudinally grooved bolt, and a locking washer or plate having a tongue engaging the groove of said bolt, and a spring stop or detent, the point of connection of said stop with its spring and the spring, itself, being outside of the base of the nut, substantially as and for the purpose set forth.

2. In a nut-lock, the combination, with a nut whose base is provided with a series of notches or ratchets, of a locking plate or washer having a radial or transverse slot, and a radial or transverse spring-detent or stop standing above, and in alignment with, said slot, the point of connection of the stop with its spring, and the spring, itself, being outside of the base of the nut, substantially as and for the purpose set forth.

3. In a nut-lock, the locking-plate or washer, having a detent or stop standing transversely to the axis of the bolt and adapted to engage a notched or ratchet-faced nut, and having its integral spring constituting a segment of the washer and curved or inclined outward or upward along the outer edge of said washer, out of alignment or engagement with said nut, substantially as set forth.

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

GEROLT GIBSON.

Witnesses:

C. E. GIBSON,
R. E. PERRY.