

(No Model.)

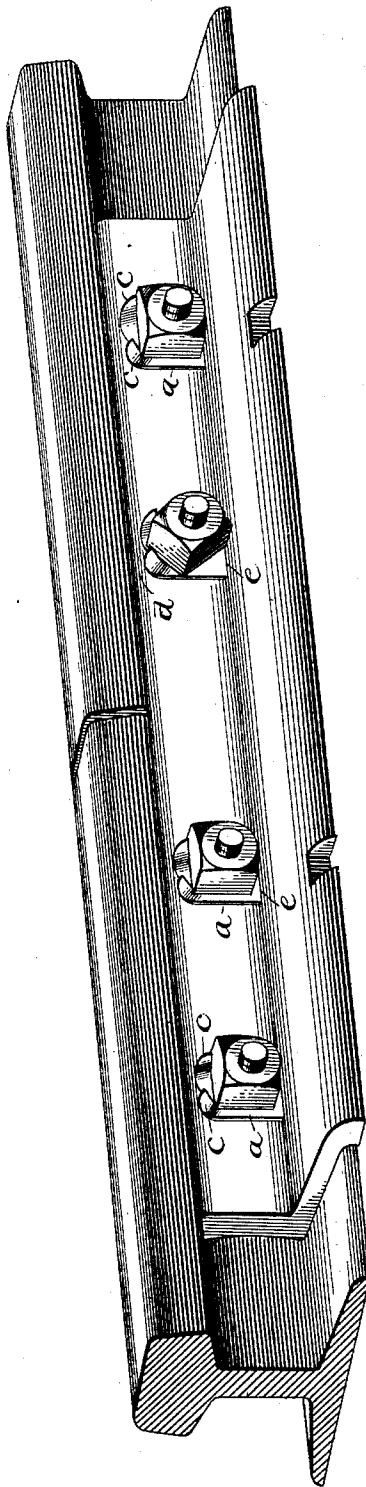
2 Sheets—Sheet 1.

B. EDGAR,
NUT LOCK.

No. 468,315.

Patented Feb. 2, 1892.

Fig. 2.



WITNESSES

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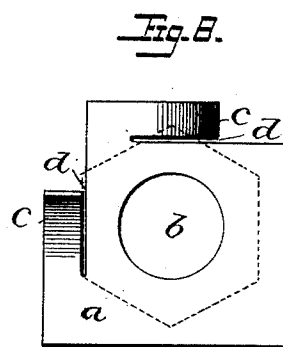
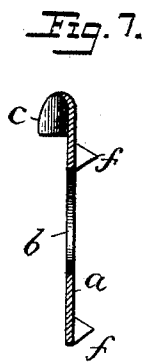
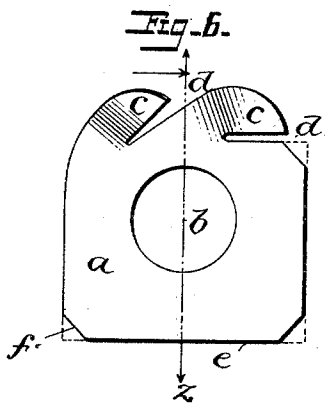
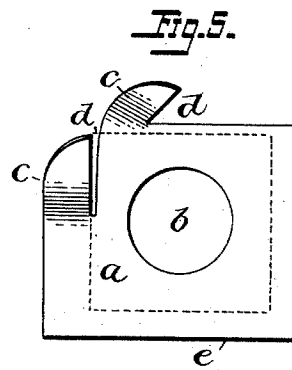
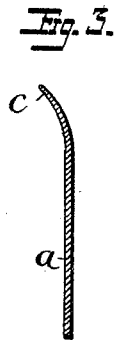
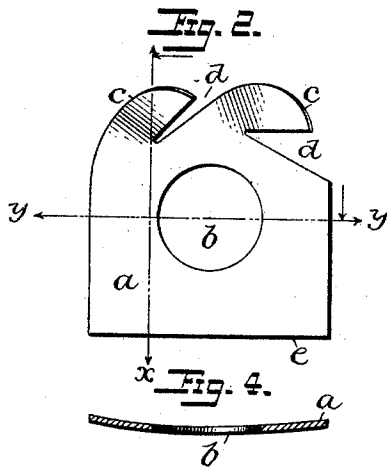
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WITNESSES

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UNITED STATES PATENT OFFICE.

BUTLER EDGAR, OF SUNBURY, PENNSYLVANIA.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 468,315, dated February 2, 1892.

Application filed June 25, 1891. Serial No. 397,458. (No model.)

To all whom it may concern:

Be it known that I, BUTLER EDGAR, a citizen of the United States, residing at Sunbury, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Nut-Locks, of which the following is a specification.

My invention relates to improvements in nut-locks; and it consists in a device which is simple in construction, effective in its action, and yet inexpensive to manufacture.

A detailed description of its various features will be found in the following specification, reference being had to the accompanying drawings, in which like reference signs refer to similar parts throughout the several views.

In the drawings, Figure 1 is a perspective view of a rail-joint, showing my improved nut-locks applied to the bolts. Fig. 2 is a side elevation of one form of locking-plate. Figs. 3 and 4 are sections on the lines $x x$ and $y y$, respectively, of Fig. 2; and Figs. 5 to 8, inclusive, show modified forms of construction.

My improved nut-lock consists of a plate of steel or other spring metal having a hole or holes punched therein for the bolts and provided at its edges with one or more outwardly-bent wing portions forming detents to retain the nut in any desired position.

As shown in the drawings, a indicates the plate having one or more perforations b and detents c . The perforations should be very slightly larger than the bolt, so that the plate may be slipped over the bolt easily, but prevented from moving laterally after it is in place. The detents c are formed by cutting notches d in the edge of the plate. These notches are formed by removing portions of the plate and they prevent the inner edge of the detent from catching upon the adjacent edge of the plate when a nut is being screwed upon a bolt. The inner edge of the detent is designed to abut against the faces of the nut and is therefore straight and located upon a line tangent to a circle which is concentric with the bolt-hole and may be inscribed in the nut, so that the edges of the nut will correspond successively with the inner edge of the detent as the nut is revolved.

Although the plate and the detents may be made of uniform thickness, I prefer to use a

strong plate and, as shown in Figs. 2, 3, and 4, to reduce the thickness of the same, preferably by stamping or compression at the detents, so that they may be more flexible than the remainder of the plate. I preferably taper the detents gradually from the body of the plate to their outer extremities, as shown most clearly in Fig. 3.

My invention is chiefly designed as a nut-lock for the rail-joints of railroads, although it may be used in other forms of iron or wood work.

In order to prevent the plate from turning in either direction and thus permitting the nut to turn, I make the lower edge of the plate e straight and at such a distance from the bolt-hole b that it will rest upon or lie close to the flange portion of the splice or the foot of the rail in cases where plain splices are used instead of angle splices. It is not essential that the lower edge should be absolutely straight, although this is the most convenient form, it being only necessary that it shall come in contact with the splice or rail at two or more points. With the construction above described it will be evident that when the nut is screwed up tightly it will be positively retained in such position by one or more of the detents c . It is found, however, that after a bolt has been in use for some time upon railroads the lateral strain upon the joints, together with the oxidation of the metallic surfaces, will cause the bolt to become slightly loose, even when the nut is prevented from turning. In order to prevent bolts from rattling when in this condition I prefer to make the nut-lock slightly convex outwardly, the plate being cylindrically curved upon lines parallel with the base, as shown in the sectional view, Fig. 4. If the nut is screwed up tightly in the first instance, so that the plate is held flatly against the splice or other article to be bolted, the tendency of the metal to resume its curved shape will take up any slight wear in the bolt and prevent rattling for a long period of time, if not for the life of the bolt. The straight inner edges of the detents are preferably arranged at such an angle to each other that one or the other of them will engage the edge of the nut at short intervals in its rotation. Thus in Figs. 1 to 5, inclusive, and

Figs. 7 and 8 the edges of the detents are inclined at an angle of forty-five degrees to each other, in order that they may engage the edge of a square nut at each eighth of a revolution, while in Fig. 6 the edges of the detents are set at right angles, so that they will engage the edge of a hexagonal nut at each twelfth of a revolution. I am thus enabled to lock the nut in any desired position.

Fig. 5 shows detents arranged upon a different portion of the plate from those shown in Figs. 1 to 4.

In Figs. 7 and 8 I have shown a form adapted for use in wooden structures. Upon the outer side or that which abuts against the nut this plate is similar to that shown in Fig. 2; but upon the reverse side it is provided with points adapted to penetrate the wood, which points may be conveniently formed by striking down the corners *f*, (shown in dotted lines in Fig. 7,) so that they project inwardly, as shown in Fig. 8. Thus I am able to form a combined washer and nut-lock for wooden structures which will take a positive hold upon the wood and positively retain the nut.

In Fig. 6 I have shown my invention adapted to a hexagonal nut. It is to be understood that I do not confine myself to any particular form of nut, as the principle of my invention can be adapted to other forms than those shown.

A nut secured in place by my improved nut-lock may be readily removed when desired by pressing the wrench inward, so as to force the detents off the nut, and at the same time turning the nut backward. In this respect it will be found superior to many nut-locks which require special forms of nuts adapted

to the lock or with which the nut has to be mutilated in order to cause it to be retained upon the bolt.

It will be evident that my invention is intended for use with ordinary forms of bolts and nuts and that it is very simple in its application.

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

1. As a new article of manufacture, a nut-lock consisting of a spring-metal plate having a central bolt-hole, a substantially-straight lower edge, and integral detents bent outwardly upon one or more of its remaining edges, said plate being curved cylindrically on lines parallel with the base and said detents having straight inner edges which are tangent to a common circle, so as to engage the peripheral faces of the nut, and being arranged so as to come into action successively at short intervals in the revolution of said nut, substantially as described.

2. A nut-lock consisting of a cylindrically-curved metal plate having a straight lower edge, a central bolt-hole, and integral detents bent outwardly upon the convex side of the plate, said detents tapering in thickness toward their outer extremities and having their inner edges separated from the body of the plate by notches *d*, formed by removing portions of the metal, substantially as described.

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

BUTLER EDGAR.

Witnesses

J. A. WATSON,
J. S. BARKER.