

H. BARTLEY.
NUT LOCK.

APPLICATION FILED JUNE 20, 1911.

1,043,191.

Patented Nov. 5, 1912.

2 SHEETS—SHEET 1.

FIG. 1.

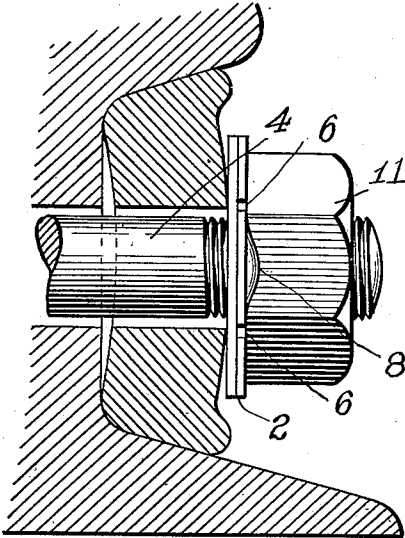


FIG. 2.

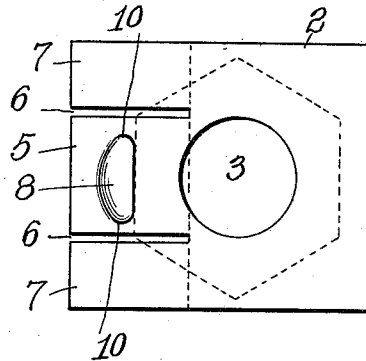


FIG. 3.

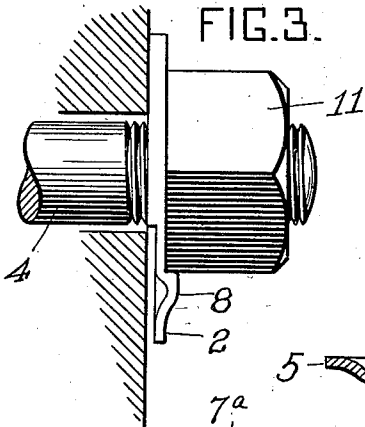


FIG. 4.

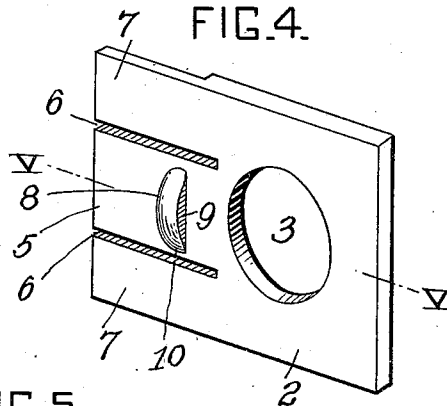


FIG. 5.

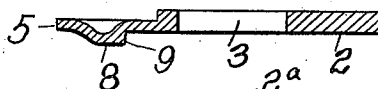


FIG. 6.

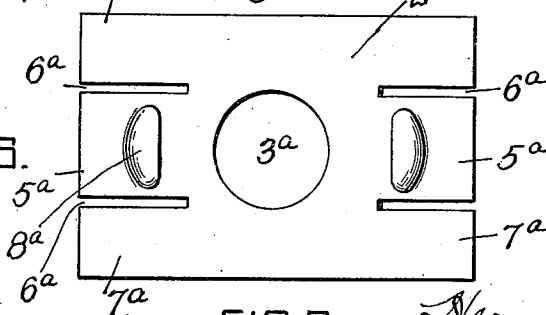
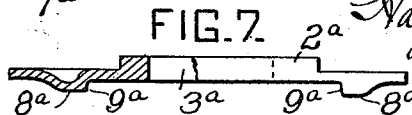


FIG. 7.



WITNESSES:

J. Herbert Bradley
Wassermann

Harry Bartley INVENTOR
C. M. Clark his Atty

H. BARTLEY.
NUT LOCK.
APPLICATION FILED JUNE 20, 1911.

1,043,191.

Patented Nov. 5, 1912.
2 SHEETS—SHEET 2.

FIG. 8.

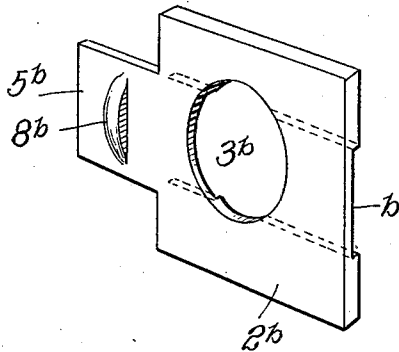


FIG. 9.

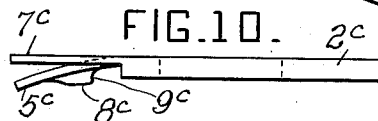
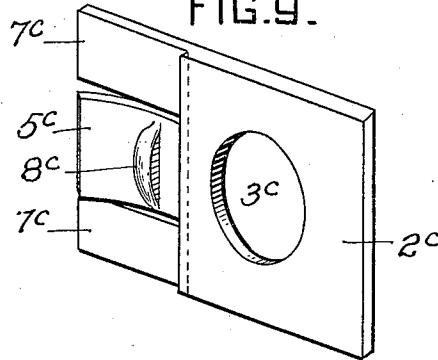


FIG. 11.

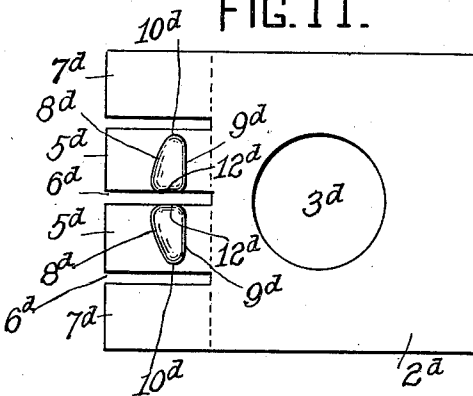


FIG. 12.

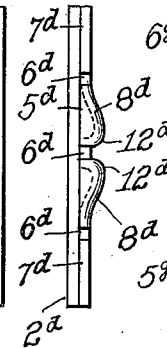


FIG. 16.

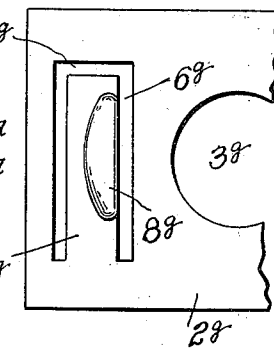


FIG. 13.

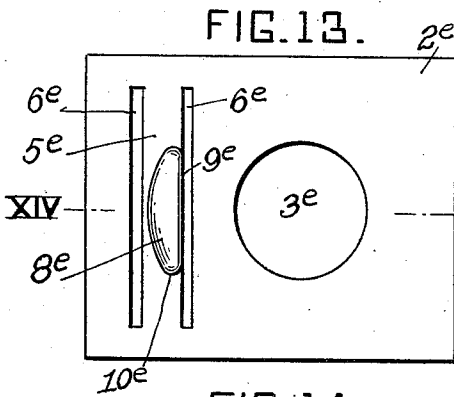


FIG. 15.

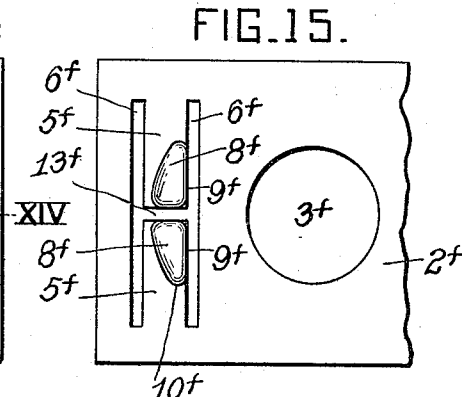
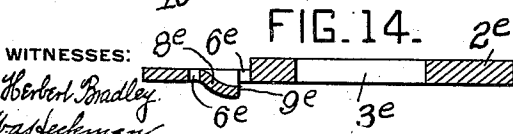


FIG. 14.



WITNESSES:
J. Herbert Bradley
W. A. Schuman

Harvey Bartley INVENTOR
by C. M. Clark his Atty

UNITED STATES PATENT OFFICE.

HARVEY BARTLEY, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR OF THREE-FOURTHS
TO MILTON BARTLEY, OF PITTSBURGH, PENNSYLVANIA.

NUT-LOCK.

1,043,191.

Specification of Letters Patent.

Patented Nov. 5, 1912.

Application filed June 20, 1911. Serial No. 634,347.

To all whom it may concern:

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

My invention is an improvement in nut locks and consists of a washer plate, preferably cut from a rolled blank of two thicknesses, and having one or more slitted spring tongues provided with a locking abutment for the nut.

The invention is designed to provide a nut lock which may be economically manufactured, and which will allow the nut to be tightened or loosened without affecting the efficiency of the device.

The lock is constructed and adapted to operate in the manner more fully hereinafter described.

In the drawings: Figure 1 is a partial sectional view through a portion of a rail and fish plate, showing the application of my improved nut lock to the bolt and nut of a rail joint. Fig. 2 is a view of the locking washer in front elevation ready for application, indicating the position of the nut in dotted lines. Fig. 3 is a sectional plan view of the device. Fig. 4 is a perspective view of the device. Fig. 5 is a horizontal section on the line V. V. of Fig. 4. Fig. 6 is a view similar to Fig. 2 showing a plurality of spring locking tongues. Fig. 7 is a sectional edge view of Fig. 6. Fig. 8 is a view similar to Fig. 4, showing the spring locking tongue extending radially from the washer plate with the side portions removed. Fig. 9 is a similar view showing the plate recessed on the front side and the spring locking tongue bent forwardly. Fig. 10 is an edge view of Fig. 9. Fig. 11 is a face view, similar to Fig. 2 showing a modified construction in which the locking tongue is divided centrally with a locking abutment at each side. Fig. 12 is an edge view of Fig. 11. Fig. 13 is a face view showing a further modified construction in which the spring locking tongue is divided from the main washer plate by a transverse slot across the middle portion. Fig. 14 is a longitudinal sectional view on the line XIV. XIV. of Fig. 13. Fig. 15 is a partial view similar to Fig. 13 showing a further modification.

Fig. 16 is a partial face view showing a further modification.

The nut lock is composed of a single piece of metal, preferably rectangular in shape, or of other suitable form, the main body portion of which is of a suitable gage to provide strength and a solid bearing for the nut, in the manner of a washer plate 2. The plate is centrally apertured as at 3 for the bolt 4. At one or both sides of the center, the metal is of reduced thickness to provide resiliency in the spring tongue. The reduction in the metal is preferably either wholly or partially at the back side as indicated, to insure clearance for depression of the spring locking tongue, but in some constructions the washer plate may be reduced in thickness on the front side, as hereinafter described. Said tongue 5 is provided by partly severing the central portion of the thin metal part of the washer plate by slits 6, 6, at each side of the center line, in the preferred construction, whereby the tongue extends longitudinally and centrally of the washer, between the outer partly severed portions 7, 7, and the tongue is free to be depressed backwardly beyond the normal outer surface.

For the purpose of providing a locking abutment for engagement of the side of the nut, the metal of the tongue is pressed or struck up, or otherwise extended outwardly beyond the face of the tongue 5, to form the abutment 8. The inner face 9 of said abutment is as nearly at right angles to the face of the washer as it can be made for engagement of the nut, and highest at about the middle part. It is tapered off at each inner end flush with the face of the washer, as at 10, so that in turning the nut in either direction, the corner of the nut will easily ride over the abutment 8 and depress it. When the next adjacent face of the nut is brought into register with the face 9 of the abutment, the tongue 5 will spring out, firmly engaging the nut by abutment 8 and holding it against accidental removal.

In Figs. 6 and 7. I show a washer 2^a having a plurality of spring tongues 5^a and their abutments 8^a, the spring tongues extending radially outward from the center of the bolt hole in the same manner as described as to the single tongue washer. The construction and operation otherwise is the

same as above described, the plural tongues and abutments merely amplifying the holding effect.

In Fig. 8 the side portions flanking the spring tongue 5^b are eliminated, the locking abutment 8^b extending into the path of the nut and operating like the device of Fig. 4. This figure also shows the washer made from a blank in which the thinned portion of the metal is located longitudinally of the middle portion, as indicated at 7. The blanks are cut from a longitudinally rolled strip, and the tongue 5^b, formed of the thinned middle web, thereby possesses the advantage of extending in the same direction as the grain of the metal.

In Figs. 9 and 10 the washer plate 2^c is reduced in thickness at one side by thinning the metal backwardly from the front face, the back being substantially flush or on the same plane throughout. The spring tongue 5^c is bent forwardly, whereby to throw the locking abutment 8^c outwardly beyond the front face of the washer for engagement by the nut, in the same manner as above described. The side portions 7^c may extend normally in the same plane as the main washer.

In Figs. 11 and 12 the washer plate 2^d is provided with a double locking tongue 5^d, 5^d, centrally divided by the radial slot 6^d, each tongue having the transversely arranged locking abutment 8^d, 8^d. These abutments together are substantially the same in outline and form as the single transverse abutment 8 being rounded and merged into the outer faces of the tongues as at 10^d. The inner upper portions or corners of the abutments are rounded as at 12^d. By this arrangement the corner of the nut will engage and depress each abutment successively, riding first over one and then over the other. The square side of the nut seats against the inner shouldered portions 9^d, 9^d, in the same manner as with the single tongue and abutment. Such construction renders the resilient operation of the locking tongues easier, and is of especial advantage with large size nuts.

In Fig. 13, I show the resilient locking tongue or strip 5^e separated from the main washer plate 2^e by transverse slots 6^e, 6^e, extending across the radial center line XIV. XIV. at right angles, the spring tongue being joined to the main washer plate at each end of the closed slots 6^e. The abutment 8^e is pressed upwardly from the inner edge of the tongue or strip 5^e providing the inner nut-engaging face or shoulder 9^e and is tapered or merged into the face of the tongue as at 10^e, 10^e. The spring tongue, in such form, constitutes a resilient bridge between the side portions of the washer plate extension. In Fig. 15 the same general arrangement is shown, except that the tongue is di-

vided centrally by a radial slot 13^f whereby the tongues 5^f, 5^f, are independent of each other, joined at opposite sides to the main plate 2^f and formed by the transverse slots 6^f, 6^f. The abutments 8^f are pressed out and rounded at their inner corners in the same manner as are the abutments of Fig. 11.

In Fig. 16 the tongue 5^g is connected with the blank 2^g at one side of the longitudinal center and severed therefrom by surrounding slots 6^g. The locking abutment 8^g is substantially the same in form and function as has been already described and will provide for positive engagement and release of the nut, due to the resiliency of the tongue.

It will be understood that the device may be made of any appropriate metal, as steel, and of any desired quality, temper, resiliency, etc., suitable to carry out the objects in view. Its manufacture may be cheapened and simplified by cutting the washers from a previously rolled blank having the thinned side portion or portions for the necessary resiliency, and by pressing the abutments out of the flat metal by suitable dies.

The slits 6 may be punched or sawed, care being taken to leave sufficient metal between the inner ends of the slits and the bolt hole or other portions of the washer plate to insure proper strength.

The nut lock may be made in different proportions, shapes, or sizes, and can be made and used in many different forms to suit special conditions of use.

What I claim is:

1. A nut lock consisting of a flat metallic body portion having a bolt hole, and a radially extending resilient tongue of reduced thickness having a nut holding abutment extending upwardly from the surface of the tongue and inwardly from the edge thereof, substantially as set forth.

2. A nut lock consisting of a flat metallic body portion having a bolt hole, and a plurality of radially extending resilient tongues of reduced thickness each having a nut holding abutment, substantially as set forth.

3. A nut lock consisting of a flat metallic body portion having a bolt hole, and a radially extending resilient tongue of reduced thickness having a nut holding abutment, substantially as set forth.

4. A nut lock consisting of a flat metallic body portion having a bolt hole, and a radially extending resilient tongue of reduced thickness partly separated from the body portion by parallel slits and having a nut holding abutment, substantially as set forth.

5. A nut lock consisting of a flat metallic body portion having a bolt hole, and a radially extending resilient tongue of reduced thickness provided with a projecting abutment tapered down to the surface of the

tongue at each end, substantially as set forth.

6. A nut lock consisting of a flat metallic body portion having a bolt hole, and a radially extending resilient tongue of reduced thickness provided with a projecting abutment tapered down to the surface of the tongue at each end, and having a locking face adjacent to the bolt hole, substantially as set forth.

7. A nut lock consisting of a flat metallic body portion having a bolt hole, and a radially extending resilient tongue of reduced thickness spaced outwardly from the back face of the body portion and having a nut holding abutment, substantially as set forth.

8. A nut lock consisting of a flat metallic body portion having a bolt hole, and a radially extending resilient tongue of reduced thickness spaced outwardly from the back

face of the body portion and having a nut holding abutment pressed outwardly from the metal of the tongue, substantially as set forth.

9. A nut lock consisting of a flat metallic body portion having a bolt hole and an integral resilient tongue of reduced thickness spaced outwardly from the back face of the body portion and having a nut holding abutment pressed outwardly from the metal of the tongue, said abutment being narrower in width than the width of the tongue and provided with a tapering rounded terminal, substantially as set forth.

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

HARVEY BARTLEY.

Witnesses:

O. M. CLARKE,
FRED L. STAUB.

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