

1,065,698.

J. E. MANGINE.
NUT LOCK.
APPLICATION FILED OCT. 31, 1912.

Patented June 24, 1913.

Fig. 1.

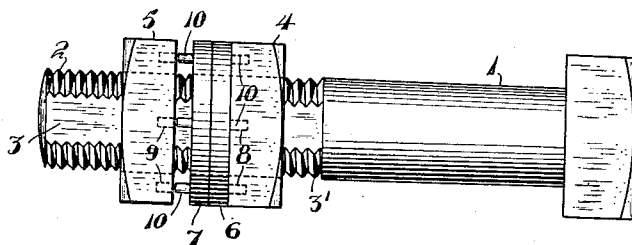


Fig. 2.

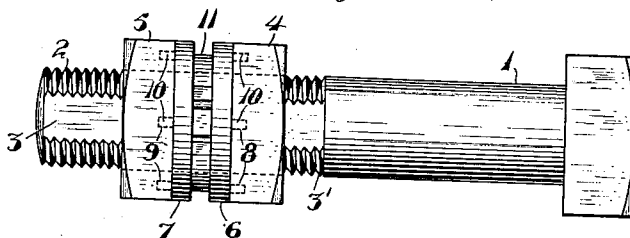


Fig. 3.

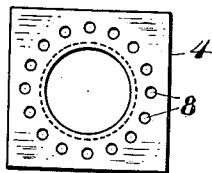


Fig. 5.

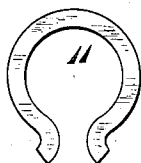
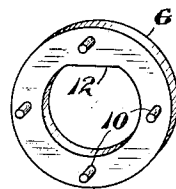


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN E. MANGINE, OF OAKLAND, CALIFORNIA.

NUT-LOCK.

1,065,698.

Specification of Letters Patent.

Patented June 24, 1913.

Application filed October 31, 1912. Serial No. 728,879.

To all whom it may concern:

Be it known that I, JOHN E. MANGINE, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented certain new and useful Improvements in Nut-Locks, of which the following is a specification.

The hereinafter described invention relates to means for positively holding nuts in locked position relative to the threaded structure—such as bolts and axles to which applied in order that the same may not work loose after being properly positioned and the locking parts assembled; the object being the production of a simple, effective and durable locking means for the nuts and by the employment of which the nuts are positively held locked against rotation or movement and displacement under the vibratory strains to which the same are subjected when applied for the securing of parts of movable structures, such as railway cars, carriages and vehicles generally.

To comprehend the invention reference should be had to the accompanying sheet of drawings, wherein—

Figure 1 is a side elevation of a bolt with the nuts applied thereto, said view disclosing the position of lock pin plates prior to separating the same. Fig. 2 is a similar view illustrating the lock pin plates in locked engagement with the nuts and the spring tension ring applied between the said plates for holding the same separated and in locked engagement with the inner and outer nuts screwed onto the threaded section of the bolt. Fig. 3 is a plan view of one of the nuts which is engaged by one of the lock plates. Fig. 4 is a perspective view of one of the lock plates. Fig. 5 is a detail view of the spring tension ring for insertion between the lock plates for holding them in locked engagement with the spaced nuts.

In the drawings, the numeral 1 is used to designate any suitable form of a threaded bolt to which the nuts are to be applied, the outer threaded section 2 of which is provided or formed with a flattened face or section 3 continued substantially to the unthreaded portion 3' of the bolt 1. On the threaded section of the bolt, axle, or other threaded structure 1 the nuts 4 and 5 are screwed, and between the same the lock plates 6 and 7 are disposed, said plates hav-

ing a central opening therein to conform with and permit of the same fitting snugly but freely over the threaded section 2 of the bolt 1.

In the outer face of the nut 4 is provided a series of circumferentially spaced bores or sockets 8, and the inner face of the nut 5 is provided with a similar series of bores, sockets, seats or countersunk openings 9, and into these fit the pins or studs 10 projecting from the inner face of the lock plate 6 and the outer face of the lock plate 7. These lock plates are held separated or spaced apart and into locked engagement by the split spring clamp ring 11, which is forced between the opposing faces of the lock plates 6 and 7. When the parts stand thus locked together it is impossible for rotation to be given to the nuts 4 and 5 inasmuch as the flattened or straight wall section 12 of the lock plates 6 and 7 engaging with the flattened face 3 of the threaded portion 2 of the bolt 1 prevent any turning action to said plates, which in turn being locked to the nuts 4 and 5 by the engaging pins 10 projecting therefrom hold the nuts against rotation, as the spring clamp ring 11 maintains the lock plates firmly pressed against and in locked engagement with the said nuts.

In assembling the nut 4 is screwed onto the threaded end 2 of the bolt 1, after which the lock plate 6 is slipped onto the bolt 1 and the projecting studs 10 thereof inserted within the seats or sockets 8 in the outer face of the nut 4. The lock plate 7 is then slipped onto the threaded portion 2 of the bolt 1 and the nut 5 screwed thereon its full distance, which bearing onto the studs 10 projecting outwardly from the lock plate 7 forces the same inwardly until it bears against the face of the lock plate 6, Fig. 1 of the drawings. By a slight movement of the nut 5 the sockets or seats 9 thereof are placed in registry with the studs 10 of the lock plate 7 and by a slight pressure the said plate is moved outwardly a distance equal to the length of the studs 10, so as to leave an annular space between the adjacent faces of the lock plates 6 and 7. Into this space is forced the split spring clamp ring 11, which forces apart the lock plates their full distance and holds the same securely locked respectively to the nuts 4 and 5, the length of the studs 10 of the lock

plates being equal to the thickness of the spring clamp ring 11—Fig. 2 of the drawings.

By the described manner of securing the parts the nuts 4 and 5 are positively held locked to the threaded portion of the bolt, axle or other structure, and can not work loose therefrom or turn thereon, so long as the spring clamp ring is held between the lock plates, thus providing an effectual, simple and durable locking means for the nuts.

Having thus described the invention what is claimed as new and desired to protect by Letters Patent is—

1. A locking means for securing nuts onto the threaded end of a bolt or similar structure, the same comprising an inner and outer nut provided with sockets on the opposing faces thereof, a pair of lock plates adjustably mounted on said bolt and held against rotation between the opposing faces of said nuts and provided on their outer faces with projecting pins which engage with the sockets of the nuts, and spring means encircling the bolt for holding the

lock plates separated and with the pins carried thereby in locked engagement with the sockets formed in the respective nuts.

2. In combination with a threaded bolt having a longitudinally extending flattened section, a pair of nuts screwed thereon, said nuts being provided in the opposing faces thereof with sockets, a pair of lock plates fitted over the bolt and held from rotation thereon intermediate the said nuts, an engaging device projecting from the outer face of each lock plate for fitting within the socket of the nut associated therewith, and a spring clamp inserted between the lock plates for holding the same separated and with the engaging devices in locked engagement with the sockets formed in the nuts on the threaded bolt.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN E. MANGINE.

Witnesses:

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D. B. RICHARDS.