J. POPP & C. PLOPA.

NUT LOCK.

APPLICATION FILED SEPT. 1, 1910.

983,928.

Patented Feb. 14, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

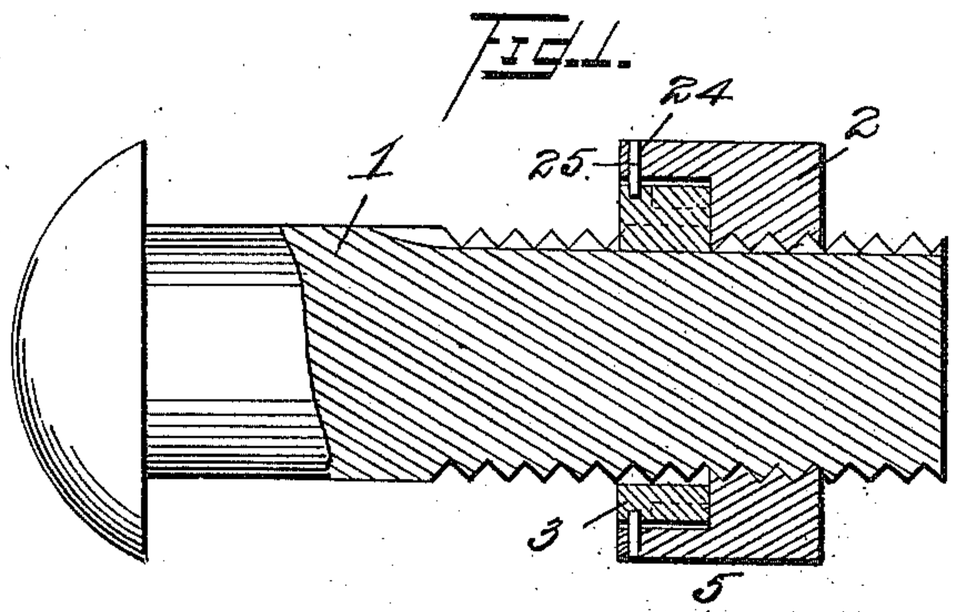


Fig. 2.

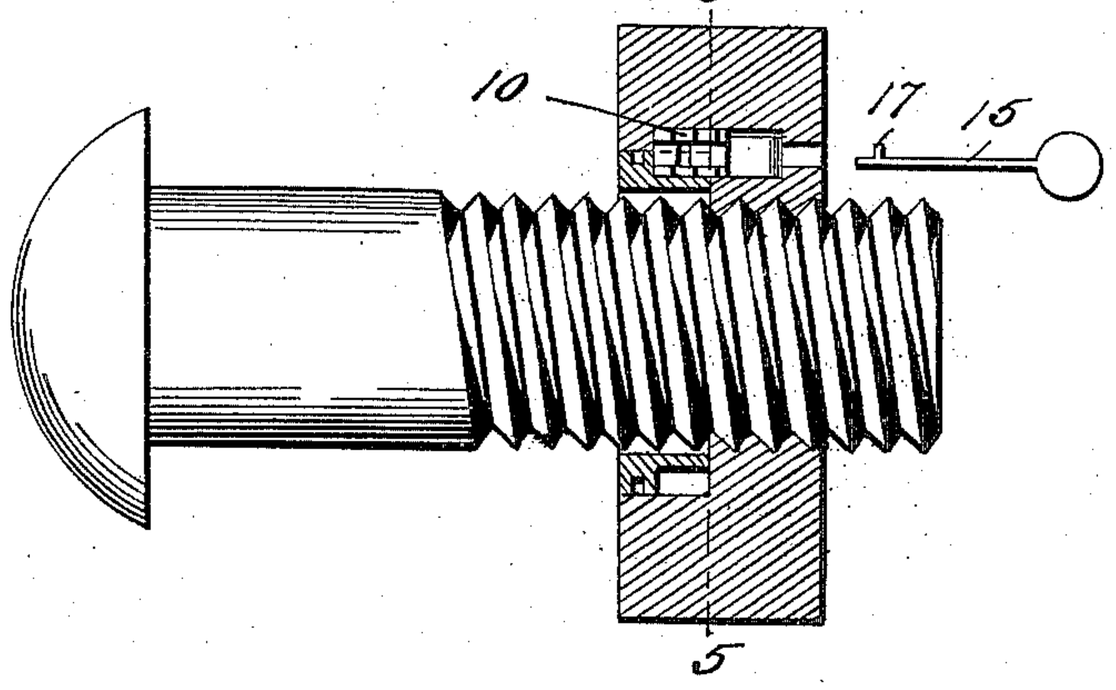


Fig. 3.

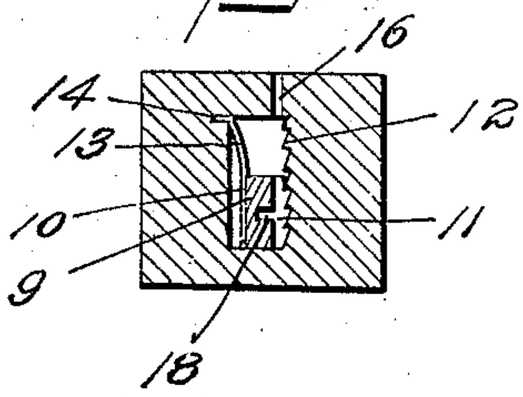


Fig. 4.

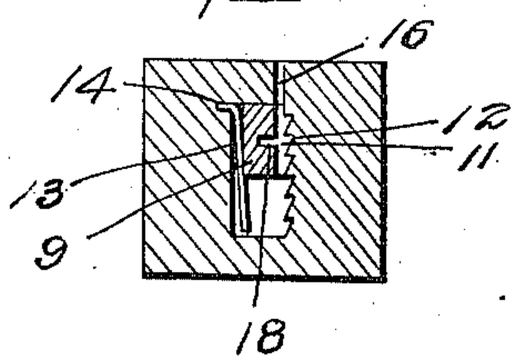
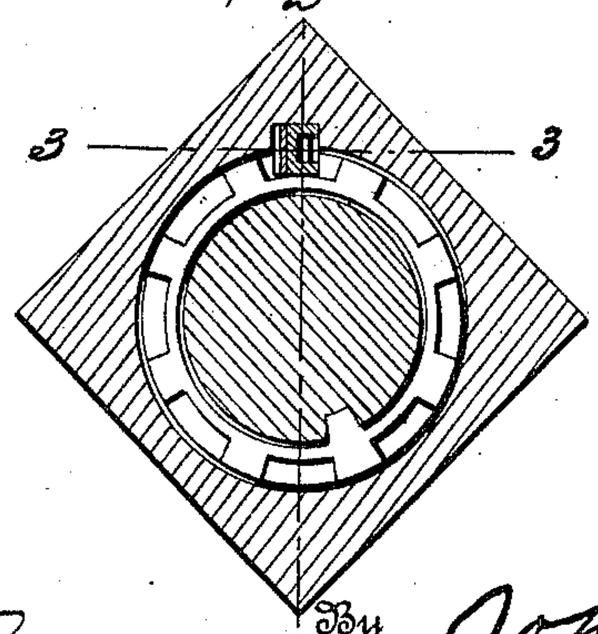


Fig. 5.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 6.

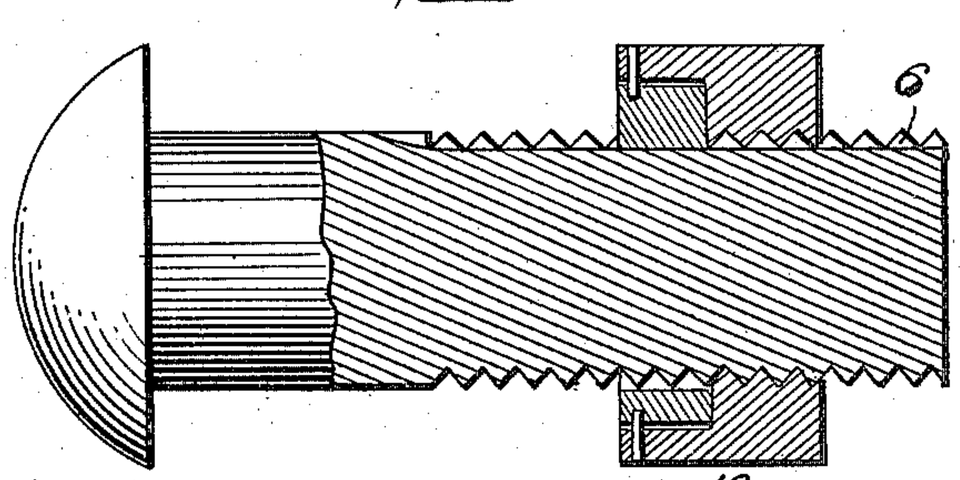


Fig. 7.

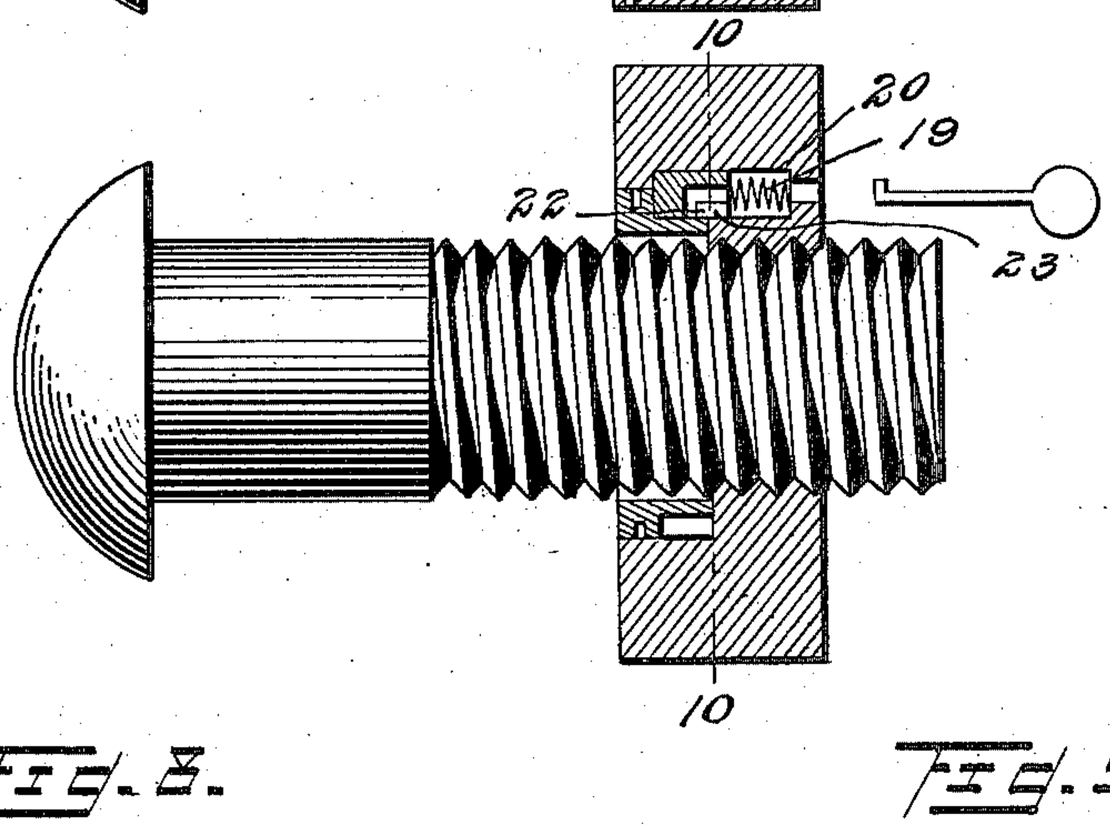


Fig. 8.

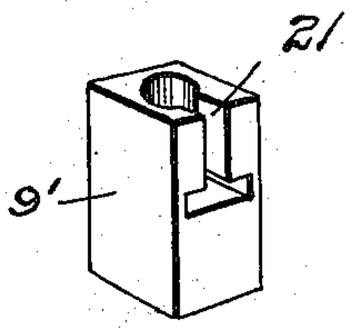


Fig. 9.

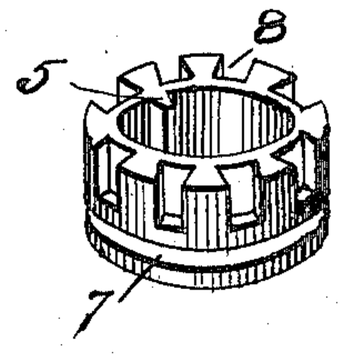
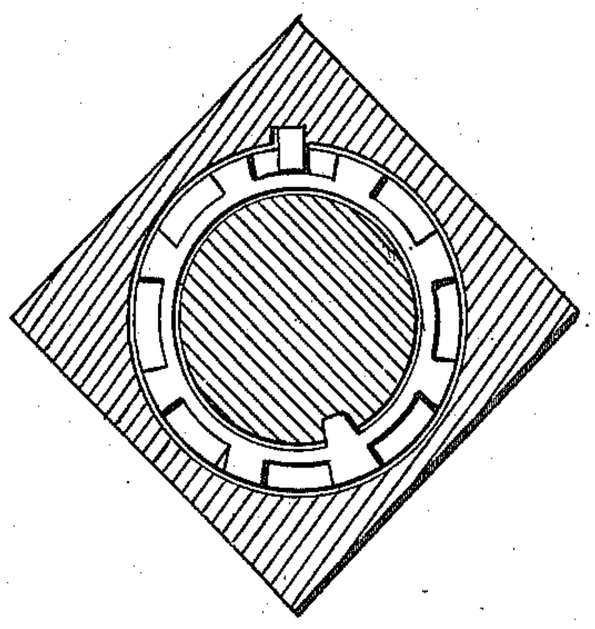


Fig. 10.



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UNITED STATES PATENT OFFICE.

JOHN POPP AND CHARLEY PLOPA, OF PORTAGE, PENNSYLVANIA.

NUT-LOCK.

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Application filed September 1, 1910. Serial No. 580,122.

To all whom it may concern:

Be it known that we, JOHN POPP and CHARLEY PLOPA, citizens of the United States, residing at Portage, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Nut-Locks, of which the following is a specification.

This invention relates to new and useful improvements in nut locks.

The primary object of this invention is to provide simple and effective means for securely locking the nut against working loose on the bolt after the former has been screwed up to the desired position.

A further object of the invention is to provide means whereby the operator may release the locking means to permit of the ready removal of the nut from the bolt should occasion necessitate.

With the foregoing and other objects in view, the invention consists in the novel features and construction, combination and arrangement of parts illustrated in the drawings and more particularly pointed out in the appended claims.

In the accompanying drawings:—Figure 1 is a sectional view of a bolt and nut illustrating the locking means for the latter. Fig. 2 is a vertical transverse sectional view taken through the nut and bolt on the plane indicated by the dotted line 2—2 of Fig. 5. Fig. 3 is a horizontal section taken on line 3—3 of Fig. 5. Fig. 4 is a similar view, showing the locking key in released position. Fig. 5 is a vertical transverse sectional view taken on line 5—5 of Fig. 2. Fig. 6 is a longitudinal sectional view of a modified form of nut lock. Fig. 7 is a similar view taken through the nut at a different point to more particularly disclose the construction and action of the locking means. Fig. 8 is a detail perspective view of the locking means. Fig. 9 is a similar view of the bolt-engaging member, and Fig. 10 is a vertical transverse section taken on line 10—10 of Fig. 7.

Referring more particularly to the drawings 1 indicates the bolt which is of any ordinary construction, 2 the nut, 3 the bolt-engaging member and 4 the locking means.

The bolt-engaging member, shown more particularly in Fig. 9, is in the form of a hollow ring or sleeve provided at its inner surface with a longitudinal key 5 adapted for sliding engagement with a longitudinal groove 6 in the threaded portion of the bolt. This member is further provided on its exterior surface with an annular groove 7 and with an annular series of equally spaced recesses 8, any one of which is adapted to receive a slidable locking key 9 mounted in a suitable recess 10 in the nut 2.

In the preferred form of nut lock, illustrated in Figs. 1 to 5 inclusive of the drawings, the key is provided at one face and at opposite sides with the toothed or serrated ribs 11, the teeth of which are adapted to engage corresponding teeth 12, formed in the adjacent wall of the recess 10 in the nut. To provide for the normal engagement of the teeth 11 of key 9, with the teeth 12 in the nut, a flat spring 13 is employed, one end of which bears against the key and the opposite end of which is attached, as at 14, to the opposite wall of the recess 10. When the key 9 is in locking position, as indicated in Fig. 3, it engages one of the recesses 8 of the bolt-engaging member 3 and locks the nut against rotation upon the bolt-engaging member.

In screwing the nut on the bolt, the key 9 must be in the position indicated in Fig. 4 when the nut may be turned with relation to the bolt-engaging member which is caused to slide bodily upon the bolt until the nut has been screwed up to the required extent. This done, a key 15 is inserted through an aperture 16 in the nut and the bit 17 of the key caused to engage a corresponding recess 18 in the face of the key 9 when the latter is forced or moved in the position indicated in Fig. 3, when it engages one of the recesses 8 of the bolt-engaging member and locks the nut against rotation with relation thereto. To remove the bolt, the key 9 is removed from the position indicated in Fig. 3, to the position as indicated in Fig. 4. In the modified form of the invention, illustrated in Figs. 6 to 10 inclusive, the locking key 9^1 is held in engagement with one of the recesses of the bolt-engaging member by a coil spring 19 arranged in a suitable recess 20 in the nut. The outer end of the locking key 9^1 is provided with a key shaped longitudinally disposed recess 21 for the reception of a key used to slide the key 9^1 into retracted position during the operation of screwing the nut upon the bolt. After the nut has been screwed to the desired position, however, the key is removed when the lock-

ing key 9¹ is projected into engagement with one of the recesses 8 of the bolt-engaging member 3 by the action of the spring 19. The key 9¹ is provided with an undercut recess 22 at the inner end of the key shaped opening 21, leaving a shoulder 23 adapted to be engaged by the bit of the key in moving the latter into retracted or releasing position.

The nut is provided at its inner end with an annular series of apertures 24 adapted to receive a plurality of pins or screws 25 which pass through the nut and project into the annular recess 7 in the exterior surface of the bolt-engaging member. The purpose of these pins or screws is to prevent bodily displacement of the nut on the bolt-engaging member.

From the foregoing description taken from the drawings, it is thought that the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Having described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. A nut lock of the class described comprising a bolt-engaging member, means for permitting sliding engagement between the bolt and said member, a nut mounted to turn upon the bolt-engaging member, said nut having a recess formed therein provided in one wall with teeth or serrations, a locking key slidably mounted in the recess of the nut, and having toothed portions to engage the teeth of the nut, resilient means to normally hold the teeth of the locking key in engaged relation with the teeth of the nut.

2. A nut lock of the class described comprising a bolt-engaging member having a plurality of annular recesses formed in its exterior surface, means for permitting sliding engagement between the nut and bolt, a spring-controlled locking key mounted in a recess of the nut and adapted to engage anyone of the recesses of the bolt-engaging member, said key being capable of bodily adjustment whereby it may be moved into projected or retracted position and resilient means to hold the key in projected position.

3. A nut lock of the class described comprising a bolt-engaging member having a plurality of annular recesses formed in its exterior surface, means for permitting sliding engagement between the nut and bolt, a spring-controlled locking key mounted in a recess of the nut adapted to engage anyone of the recesses of the bolt-engaging member, said key being capable of bodily adjustment whereby it may be moved into projected or retracted position and resilient means to hold the key in projected position and means to hold the bolt-engaging member against bodily displacement upon the nut.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN POPP.
CHARLEY PLOPA.

Witnesses:
J. WALLACE PAUL,
JOHN BURNNETT.