

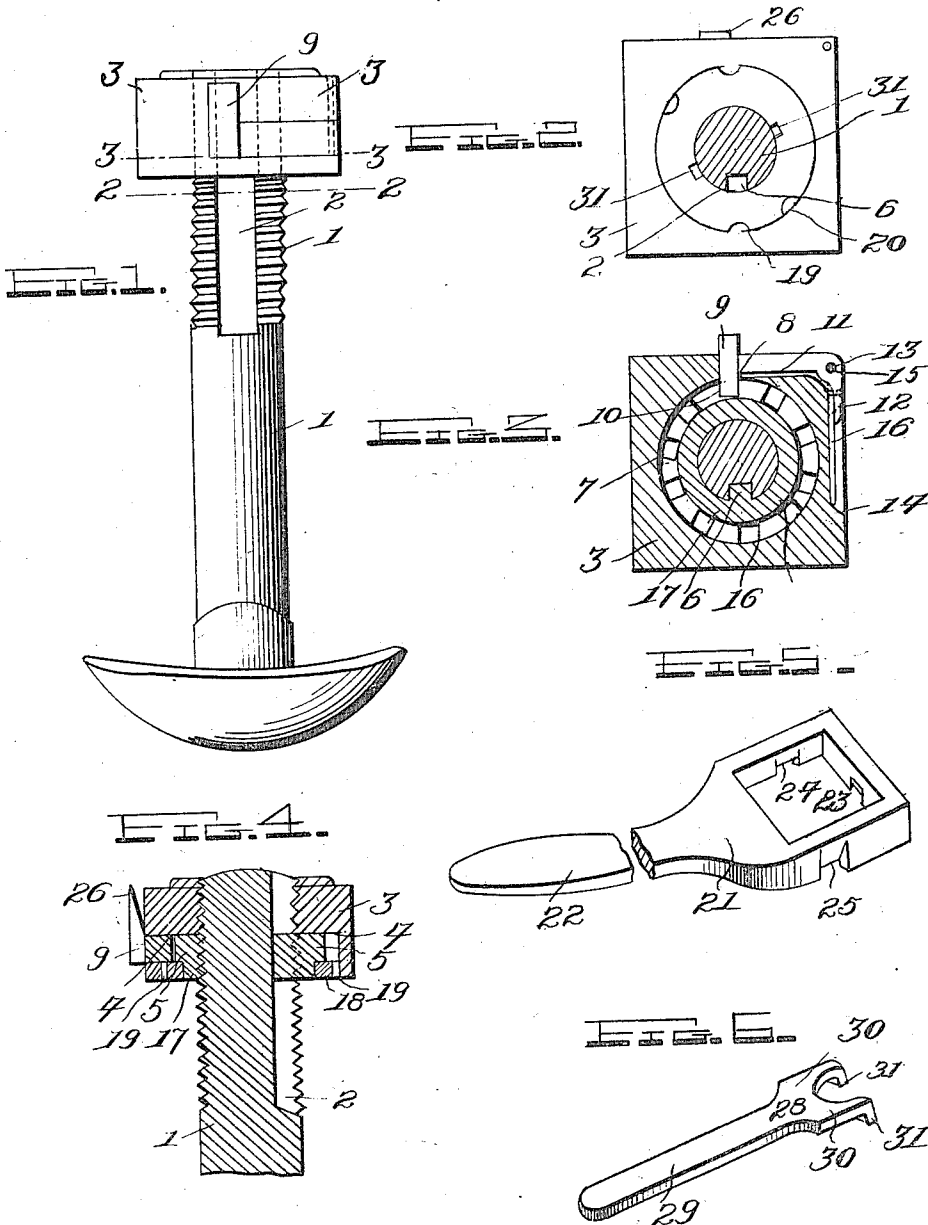
J. T. KISTLER.

NUT LOCK.

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1,060,005.

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NUT-LOCK.

1,060,005.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN THOMAS KISTLER, a citizen of the United States, residing at Caroleen, in the county of Rutherford and State of North Carolina, have invented certain new and useful Improvements in Nut-Locks, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to locks and more particularly to the class of nut locks.

The principal object of the invention is the provision of a nut lock which is cheap and inexpensive to manufacture, and of durable and substantial design.

A further object of the invention is the provision of a nut provided in one face thereof with a recess adapted to receive a ratchet disk which is slidably keyed to the grooved end of the bolt and is adapted to be held within said recess through the medium of a locking ring, the ratchet disk being engaged by a spring actuated pawl which when released the nut may be revolved or screwed upon the bolt into various locked positions against rotation in the opposite direction.

With these and other objects in view, as will appear as the description proceeds, the invention comprises the various novel features of construction, combination and arrangement of parts as will be more fully described hereinafter and set forth with particularity in the appended claims.

Referring to the drawings Figure 1 is a side elevation of my improved nut lock; Fig. 2 is a section on line 2—2 of Fig. 1; Fig. 3 is a transverse section taken on the line 3—3 of Fig. 1; Fig. 4 is a longitudinal sectional view through the nut and a portion of a bolt; Fig. 5 is a perspective view of the ratchet releasing member, and Fig. 6 is a perspective view of the locking ring arrangement.

Like characters of reference are used to denote like parts throughout the accompanying drawings and the annexed specification.

Referring more particularly to the drawings, the reference character 1 indicates the threaded end portion of a bolt which may be of any desired construction and is provided with a longitudinal groove 2 which extends throughout the length of the thread-

ed end portion of the bolt. A nut 3 of any design is threadedly mounted upon the bolt 1 for free rotation in one direction. The inner face of the nut 3 is provided with a circumferential recess 4 which is adapted to receive a ratchet 5, the latter being slidably keyed to the bolt 1 through the medium of a key 6 formed at and to project inwardly of the central opening of the disk. This key 6 seats within the groove 2 of the bolt whereby the ratchet disk 4 may have free longitudinal movement upon the bolt. The peripheral edge of the ratchet disk 4 is provided with a plurality of notches 7 to form what might be termed ratchet teeth. The nut 3 is provided at the upper portion thereof, as clearly seen at Fig. 3, with a vertically extending slot 8 through which projects a ratchet pawl 9, the lower end thereof being adapted, as shown at 10, to engage the ratchet teeth 7 of the disk 4. The ratchet pawl 9 is provided with a laterally extending arm 11 which terminates in an arm 12 formed at right angles to the arm 11, the angle of connection of said arms being provided with an aperture 13. As shown the nut is provided at its upper and one side face thereof with a continuous groove 14 in which is arranged the arms 11 and 12. A pivot pin 15 is passed through the upper corner of the nut and through the aperture 13 whereby the ratchet pawl may have free rocking movement to disengage the ratchet pawl 9 from the ratchet teeth 7 when the pawl 9 is lifted out of engagement therewith for the free rotation of the nut 3 upon the bolt. Secured to the arm 12 is a flat leaf spring 16 seated within the lower portion of the recess 14 and adapted to exert an outward tension upon the arm 12 to cause the ratchet pawl 9 to lockingly engage the ratchet teeth 7 of the disk 4. The disk 4 is provided with an inwardly extending bearing collar 17 upon which is arranged a locking ring 18, the latter being provided in its periphery with notches 19. The outer edge of the recess formed in the inner face of the nut 3 is constructed inwardly at diametrically opposite points to form locking lugs 20. To arrange the locking ring 18 in position, it is revolved so that the notches 19 align with the locking lugs 20 whereby the ring 18 may be dropped thereover into the recess of the nut 3 and then revolved so that

the peripheral edge of the ring engages beneath the locking lugs 20 whereby the ring will be prevented from disengagement with the nut. By the provision of such a locking ring as described the ratchet disk 4 will be securely held within the nut against displacement and yet allow of a free longitudinal movement upon the bolt, during the tightening of the nut thereon.

In Fig. 5 of the drawing will be seen a particular form of ratchet releasing member 21. This member includes a handle 22 the forward end of which is flattened and widened and formed with an opening 23 which is of the same size and shape as the nut 3 whereby the operating member may be arranged over the nut to release the ratchet pawl 9 and to revolve the nut upon the bolt. This operating member 21 is provided in its side edges adjacent the opening formed in the end thereof with notches 24. That portion of the member between the notches 24 and the opposite side edge of the member is beveled as shown at 25 from the inner edge of the notches 24 outwardly as will be clearly seen by reference to Fig. 5.

In the operation of the invention the operating member 21 is placed over the nut 3 and is pushed inwardly sufficiently far so that one of the beveled faces 25 rides inwardly under the beveled face 26 formed on the under face of the projecting portion 27 at the upper end of the ratchet pawl 9 whereby the pawl 9 may be lifted out of engagement with the ratchet teeth 7 to allow of a free rotation of the nut 3 in one direction in the removal of the nut from the bolt. When it is desired to screw the nut upon the bolt, the nut is freely rotated in the opposite direction, the lower face 10 of the ratchet pawl 9 having been disengaged from teeth 7 to permit of this free rotation of the nut 3 upon the bolt 1.

In Fig. 6 will be seen an operating member 28 which is provided with a handle 29, the forward end of which is bifurcated or forked to provide spaced arms 30 which have their terminal ends bent at right angles to provide lugs 31. When it is desired to remove the locking ring 18 the operating member 28 is taken in one hand and the lugs 31 on the end thereof are engaged with diametrically opposed notches 32 formed in the inner circumferential face of the locking ring 18, whereby the latter may be revolved so that the notches 19 in the periphery thereof are disposed opposite the locking lugs 20 thus enabling the ring 18 to be moved outwardly of the recess in the nut 3. By the removing of the locking ring 18 it will be apparent that free access may be had to the ratchet disk 4.

From the foregoing description taken in connection with the accompanying drawings, the advantages of construction and the

method of operation will be readily apparent to those skilled in the art to which the invention relates, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire it to be understood that such changes may be made when desired as are within the scope of the appended claims.

Having thus fully described my invention what I claim as new is:

1. In a nut lock, the combination with a bolt provided with a longitudinal groove, a ratchet disk keyed to and movable upon said bolt, said disk being provided with a laterally extending collar, of a nut provided in one face thereof with a recess adapted to receive the ratchet disk, a locking ring removably mounted in said recess and arranged upon said collar, and means adapted for engagement with said ratchet disk whereby the nut may be normally locked against rotation in either direction.

2. In a nut lock, the combination with a bolt, of a ratchet disk keyed to and movable upon said bolt, a nut provided in one face thereof with a recess adapted to receive the ratchet disk, a locking ring removably locked in said recess to hold the ratchet disk therein, and means adapted for engagement with said ratchet disk whereby the nut may be normally locked against rotation in either direction.

3. In a nut lock, the combination with a bolt provided with a longitudinal groove, a ratchet disk keyed to and slidably mounted upon the bolt, said disk being provided with a laterally extending collar and with ratchet teeth in the peripheral edge thereof, of a nut provided in its inner face with a recess adapted to receive the ratchet disk, a locking ring arranged upon the collar of the ratchet disk and adapted to lie flush with the inner face of the nut, the edge of the recess being struck inwardly to overlie the locking ring, said locking ring being provided in its periphery with diametrically opposed notches, and a spring actuated ratchet pawl projecting through one side of the nut into engagement with the ratchet disk for the purpose set forth.

4. In a nut lock, the combination with a bolt, a ratchet disk keyed to and movable upon the bolt, said disk being provided with a laterally extending collar, a locking ring arranged upon the collar, of a nut formed in its inner face with a circumferential recess to receive said ratchet disk and locking ring, the wall of said recess being struck inwardly at diametrically opposite points to form locking lugs to maintain said ring within said recess, said ring being formed with peripheral diametrically opposed notches, said notches being adapted for engagement with said lugs whereby the ring

may be removed from the nut, and means adapted for engagement with said ratchet disk to prevent rotation of the nut.

5 In a nut lock, the combination with a bolt provided with a longitudinal groove, a ratchet disk keyed to and movable upon the bolt, of a nut provided in one face thereof with a recess adapted to receive the ratchet disk, a locking ring lockingly engaged with
10 the nut to hold the ratchet disk within the recess thereof, a ratchet pawl projecting through one side of the nut into engagement with the ratchet disk and provided with an angular arm arranged and pivoted within
15 a groove intermediate its ends formed in the faces of the nut and a leaf spring secured to the terminal end of the arm and adapted to bear against the end portion of the groove to maintain the ratchet pawl in engagement
20 with the disk.

6. In a nut lock, the combination with a bolt provided with a longitudinal groove, a ratchet disk keyed to and movable upon the bolt, of a nut provided in one face thereof
25 with a recess adapted to receive the ratchet disk, a locking ring detachably and lock-

ingly engaged with the nut, and a spring actuated pawl projecting through one face of the nut to engagement with the ratchet disk, the outer terminal end of the ratchet pawl
30 being provided with a laterally extending portion beveled on its under face for the purpose set forth.

7. In a nut lock, the combination with a bolt, a ratchet disk keyed and movable upon
35 said bolt, said disk being provided with a laterally extending collar, and locking ring arranged upon the collar, of a nut formed in its inner face with a recess adapted to receive said ratchet disk and locking ring,
40 means formed upon the wall of said recess adapted for interlocking engagement with said locking ring, and means adapted for engagement with said ratchet disk whereby
45 the nut may be normally locked against rotation.

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

JOHN THOMAS KISTLER.

Witnesses:

F. C. JAMES,

C. J. OWEN.