No. 857,869. PATENTED JUNE 25, 1907.

A. W. CARLSON.

LOCK NUT.

APPLICATION FILED MAY 15, 1906.

Fig. 1.

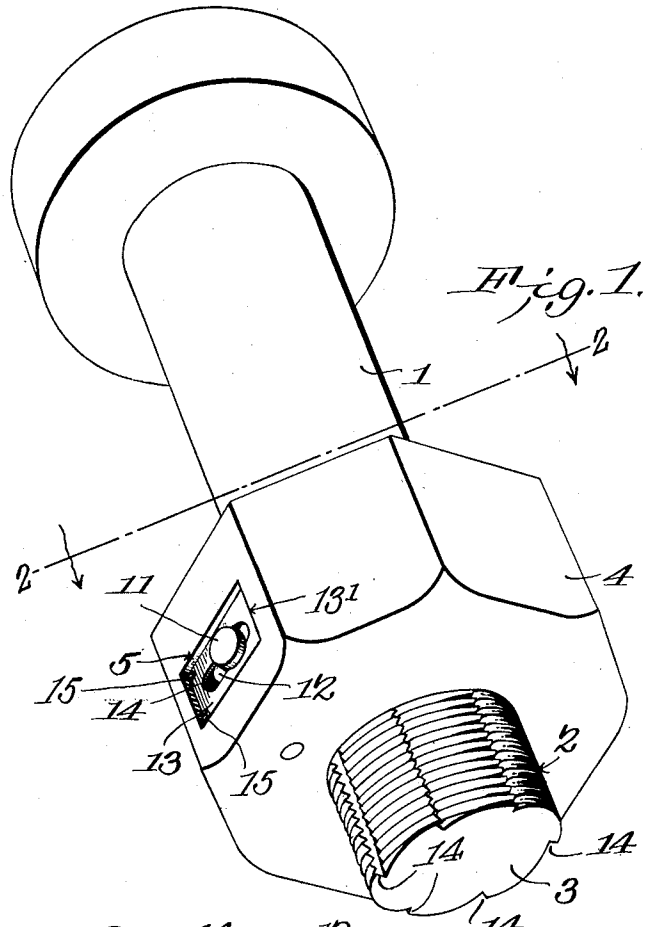
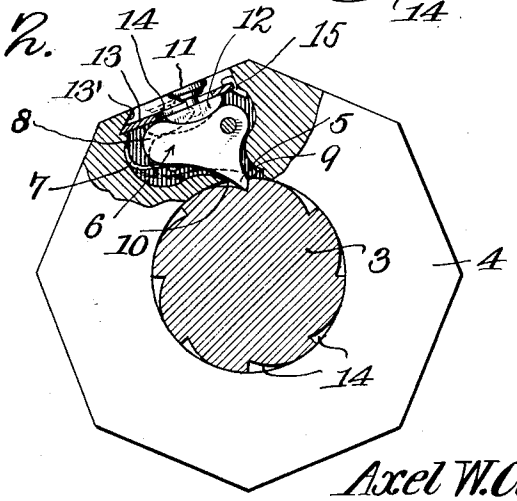


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

AXEL W. CARLSON, OF ELY, MINNESOTA.

LOCK-NUT.

No. 857,869. Specification of Letters Patent. Patented June 25, 1907.

Application filed May 15, 1906. Serial No. 316,955.

To all whom it may concern:

Be it known that I, AXEL W. CARLSON, a citizen of the United States, residing at Ely, in the county of St. Louis and State of Minnesota, have invented a new and useful Lock-Nut, of which the following is a specification.

The present invention relates to improvements in a nut whereby the nut can be positively locked to the bolt. Its object is to provide a lock nut which is of simple and improved construction containing a spring actuated dog or pawl adapted to grip the bolt, and an adjustable thumb piece or button for throwing the dog out of operative relation with respect to the bolt so that the nut can be readily unscrewed. In order to increase the grip of the dog, the bolt may be provided with a number of longitudinal grooves shaped somewhat after the fashion of ratchet teeth.

In the following description, the details of construction will be more fully described while the features of novelty will be set forth with particularity in the claims appended hereto.

In the accompanying drawing which illustrates one embodiment of the invention:—Figure 1 is a perspective view of the bolt and nut. Fig. 2 is a transverse sectional view of the bolt taken on line 2—2, Fig. 1, looking in the direction indicated by the arrows and showing the nut partially broken away.

Referring to the drawing, 1 represents a bolt having the threads 2 on its shank 3 and on the threads is screwed the nut 4. The nut is of common construction with the exception that at one side it is provided with a chamber 5 extending inwardly and communicating with the tapped bore of the nut. Pivoted in the chamber 5 is a dog or pawl 6 which is actuated by a spring 7 that may be of any approved construction. The spring is arranged in the chamber and engages the heel 8 of the pawl so that the toe 9 is thrown outwardly, through the opening 10, by the spring when the pawl is permitted to move into operative position. Arranged over the top portion of the heel 8 is a slidable button 11 which has a rounded head 12 that is adapted to engage the heel and move the pawl against the tension of its spring so that the toe 9 is withdrawn. When the button is moved to the left as shown by dotted lines in Fig. 2, the parts are in position just described. When the button is moved to the right, the head 12 is disengaged from the pawl so that the latter is permitted to move to its operative position and engaged by its toe 9, the threads of the bolt. The button is carried by a plate 13 which is provided with a slot 14 in which the button moves. The plate, which serves to close the chamber 5 and prevent dirt and other foreign matter from entering the latter, can be secured in place in any desired manner. I find one convenient way of doing this is to provide an overhanging shoulder or bevel 13′ in the wall of the chamber with which one end of the plate engages, and at the opposite end wedged into the corners of the opening or chamber, a small piece of soft wire 15, such as copper or lead, and then turn the outer ends of the wire down over the plate. The side walls of the chamber 5 may also be shouldered so as to receive the side edges on the button supporting plate.

In order to increase the locking effect, the bolt is preferably provided with a number of spaced longitudinal grooves 14 which form shoulders 15 which are adapted to be engaged by the toe of the dog or pawl and prevent the nut from unscrewing. These grooves may be formed after the bolt has been threaded by a suitably shaped milling cutter in any well-known manner.

When the nut is to be screwed on, the dog may be moved out of engagement with the bolt by setting the button in the position shown in dotted lines, Fig. 2 or it may be left in its operative position since it will freely ride over the shoulders on the bolt while turning in the direction for screwing the nut. After the nut is screwed home the button is moved out of engagement with the dog so as to permit the toe of the latter to engage the shoulder on the bolt adjacent thereto. The dog will thus prevent the nut from the unscrewing. Should it be desired to remove the nut, the button is moved to the left thereby disengaging the dog from the bolt and holding it out of the path of the shoulders formed thereon. The nut can then be freely unscrewed without destroying any of the threads.

It will be seen that a bolt and nut constructed on the principle described can be used any number of times without the locking means producing any injurious effects.

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof; but I desire to have it understood that the apparatus shown is merely

illustrative, and that the invention can be carried out by other means.

What I claim as new and desire to secure by Letters Patent is:—

1. The combination of a bolt, a nut thereon having a chamber open at the bore and at one side of the nut, a pivotally mounted dog in the chamber adapted to grip the bolt, a spring pressing on the dog to hold it in locked position, a slotted plate fitted over the outer open end of the chamber for closing the same, a sliding button mounted in the slot of the plate for holding the dog out of engagement with the bolt against the tension of the spring, and means for holding the plate in place.

2. The combination of a bolt, a single piece nut having a chamber provided with an opening communicating with the bore of the nut, a means mounted in the chamber and extending through the opening thereof for locking the nut on the bolt, a member arranged permanently in engagement with the said means and bodily slidable back and forth for moving the said means into an operative or inoperative position, and a leaf spring arranged with its ends engaging the wall of the chamber and said means for holding the latter yieldingly against the said member.

3. The combination of a bolt, a single piece nut having a chamber communicating with the bore of the nut and extending radially therefrom, a pivotally mounted dog arranged in the chamber for engaging the bolt, a spring within the chamber for actuating the dog in one direction, and a sliding button arranged in permanent engagement with the dog and projecting from one side of the nut for holding the dog in an inoperative position against the tension of the said spring.

4. The combination of a bolt, a nut having a chamber therein, a dog in said chamber which is adapted to engage the bolt, a spring pressing on the dog at one side, a plate arranged in the chamber over the dog, and a freely slidable member on said plate which is independent of and engages the dog on the side opposite from the spring for moving the dog to its inoperative position.

5. The combination of a grooved bolt, a nut having a chamber therein, a pivotally mounted member adapted to interlock with the grooves of the bolt, a spring for holding the said member in interlocked position, a plate which closes the chamber, and a sliding button carried by the plate and adapted to engage the said member for holding it in an inoperative position against the tension of the spring.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

AXEL W. CARLSON.

Witnesses:

GUST WESTBLOOM,

A. J. THOMAS.