

(No Model.)

H. E. LANTZ & S. L. NEELY.
NUT LOCK.

No. 486,565.

Patented Nov. 22, 1892.

FIG. 1.

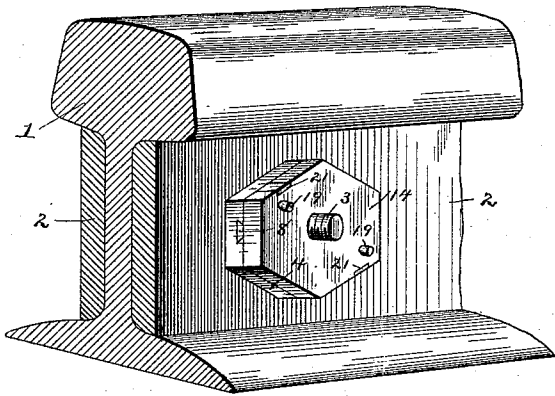


FIG. 2.

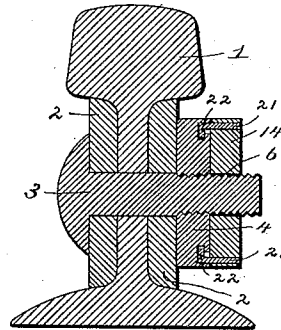


FIG. 3.

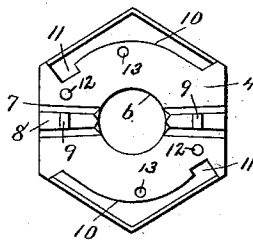


FIG. 4.

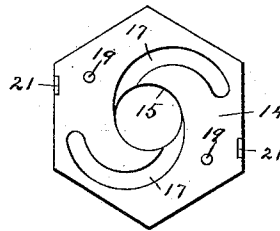


FIG. 5.

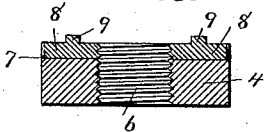


FIG. 6.

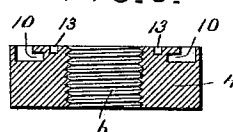
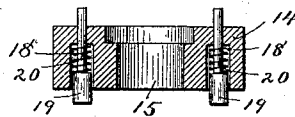


FIG. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

HARVEY E. LANTZ AND SAMUEL L. NEELY, OF VERA, ILLINOIS.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 486,565, dated November 22, 1892.

Application filed April 28, 1892. Serial No. 430,996. (No model.)

To all whom it may concern:

Be it known that we, HARVEY E. LANTZ and SAMUEL L. NEELY, citizens of the United States, residing at Vera, in the county of Fayette and State of Illinois, have invented a new and useful Nut-Lock, of which the following is a specification.

This invention relates to a combined nut and lock; and the objects in view are to provide a combined nut and lock adapted especially for use upon railroad-joints and upon bolts employed in shaking machinery or machinery subject to constant vibrations.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective view of a portion of a rail-joint the nuts of the bolts of which are constructed in accordance with our invention. Fig. 2 is a transverse sectional view of the same. Figs. 3 and 4 are inner face views of the two nut-sections. Fig. 5 is a transverse sectional view through the jaws of the inner nut. Fig. 6 is a similar view of the nut, the section being taken at a right angle to that at which Fig. 5 is taken. Fig. 7 is a transverse sectional view of the outer nut, the line of section being through the pins.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates in this instance a railroad-rail; 2, the fish plates or bars, and 3 the bolts passed through the fish-plates and web of the rail.

Upon the bolt there is mounted an inner nut-section 4, and the same may be hexagonal or other shape. The nut is provided with a centrally-threaded bolt-receiving opening 6, and at opposite sides of the same its inner face is provided with dovetailed recesses 7. In each of these recesses is mounted a sliding jaw 8, the inner ends of the jaws being serrated or roughened and the outer faces of the jaws being provided with lugs 9. Between the jaws, near the outer edge, and at opposite sides of the nut the same is provided with undercut grooves 10, each of which terminates at one end in a plain notch 11. Between the grooves and the bolt-opening 6 at diametrically-opposite points there is formed a pair of shallow and a pair of deep indentations or

cavities. (Designated as 12 and 13, respectively.)

14 designates the lock-nut section, and the same is provided with a central and preferably-plain opening 15 for the reception of the bolt. The nut 14 has extending from its bolt-receiving opening 15 at diametrically-opposite points eccentrically-disposed curved grooves 17, which are designed to engage the lugs 9, before described as being formed on the outer sides of the jaws 8. The inner face of the nut 14 is further provided with a pair of cavities 18, which cavities are smaller at their inner ends to form shoulders, and in each cavity is mounted a shoulder-pin 19, between which shoulder and that of the cavity there is a coil-spring 20. The inner ends of the pins are designed to take into or engage with the perforations 12 and 13. At diametrically-opposite sides the nut 14 is provided with inwardly-disposed fingers 21, and the same are provided at their inner ends or extremities with shoulders 22 to engage the grooves.

This completes the construction of the locking-nut, and its operation may be described as follows: The locking-nut may or may not be employed in connection with the ordinary nut, as may be desired; but in either case the section 4 is first run down upon the bolt with the aid of an ordinary wrench, after which the section 14 is mounted on the bolt and if threaded is run down in a similar manner as was section 5. The faces of the two sections being brought together, the lugs 9 of the jaws 8 will engage with the eccentric grooves 17, formed in the face of the outer section 14, and the pins will take in the shallow perforations or cavities 12, while the shouldered fingers 21 will engage with the curved grooves 10 at their plain portions 11. Now by giving the outer nut-section 14 a partial revolution the eccentric groove 17, acting on the outstanding lugs 9, will cause the jaws 8, upon which the lugs are formed, to be drawn inwardly, so that their serrated ends will clamp upon the threads of the bolts and prevent any lateral movement upon the part of the inner nut. The outer nut is oscillated in the reverse direction, so as to withdraw the clamping-jaws from contact with the bolt. By thus moving the outer nut so as to lock the inner nut upon

the bolt the pins slide over the face of the inner nut and pass from the shallow cavities to the deep cavities 13, with which they engage, so that movement in either direction of the outer nut upon the inner nut is now prevented in that the movement of the outer nut upon the inner nut has served to clamp the jaws upon the bolt. Furthermore, in addition to the operation before described the movement of the nut causes the shouldered fingers 21 to pass from the notches 11 to the opposite ends of the grooves 10, and the said grooves being undercut the shoulders of the fingers engage therewith, as will be observed. Such engagement of the shouldered fingers with the groove 10, it will be observed, prevents any separation of the two nuts.

In order to separate the nuts it is simply necessary to withdraw the pins against the tension of their springs, so their inner ends no longer engage with the cavities of the inner nut-sections, whereupon the outer nut-section may be partly rotated in a direction reversely to that direction of movement which brings the members to their locked position and permits of a separation.

From the foregoing description, in connection with the drawings, it will be observed that we have provided a "self-locking nut," if it may be termed such, regardless of the fact that two nut-sections are employed; that the same is specially adapted for use upon bolts employed in all classes of machinery subjected to constant vibrations, and that the nut is capable of being readily removed at any time without in any way destroying its efficiency for further use.

Having described our invention, what we claim is—

1. The combination, with the bolt and inner nut-section the face of which is provided with opposite grooves and dovetail sliding jaws adapted to engage the bolt, mounted in the grooves and provided on their outer sides with lugs, of an outer nut-section the inner face of which is provided with opposite eccentric grooves engaging with the lugs of the jaws and means for locking the two nuts against separating, substantially as specified.

2. The combination, with a bolt, an inner nut-section the face of which is provided with a groove, and a jaw adapted to engage the bolt, having a lug mounted for sliding in the groove, of the outer nut-section provided with an eccentric groove for engaging the lug of the jaw and means for preventing a separation of the two nut-sections, substantially as specified.

3. The combination, with an inner nut provided with opposite grooves, serrated jaws adapted to engage the bolt, mounted in the grooves radiating from the bolt-hole of the nut, said jaws being provided with lugs, and cavities formed in the face of the nut, of an outer nut-section the inner face of which is provided with a pair of opposite eccentrically-disposed grooves engaging the lugs of the jaws, a pair of spring-pressed pins mounted in perforations formed in said outer nut-section and engaging with the cavities of the inner nut, and means for preventing a separation of the nut-sections, substantially as specified.

4. The combination, with a bolt and an inner nut having radial grooves and opposite undercut curved grooves, each of which curved grooves terminates at one end in a plain notch, of jaws having their inner ends serrated and adapted to engage the bolt and mounted in the radial grooves, lugs formed on the outside of the jaws, an outer nut-section the inner face of which is provided with opposite eccentric grooves engaging the lugs of the jaws, shouldered fingers extending from the sides of the outer nut-section and engaging the undercut grooves of the inner nut-section, and means for preventing oscillation of the nuts upon each other, substantially as specified.

5. The combination, with a bolt, an inner nut-section having a bolt-receiving opening, opposite radial grooves upon its inner face, provided with opposite curved undercut grooves terminating in notches and cavities formed at the sides of the grooves, a pair of which cavities are shallowed and the remaining pair deep, and sliding jaws mounted in the radial grooves, adapted to engage the bolt and provided with lugs, of the outer nut-section having a bolt-receiving opening, a pair of eccentrically-disposed grooves engaging the lugs of the jaws of the inner nut-section, a pair of shouldered pins, perforations for receiving the pins and provided with shoulders, coiled springs encircling the pins, and a pair of inwardly-disposed fingers having shoulders engaging the undercut grooves of the inner nut-section, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

HARVEY E. LANTZ.
SAMUEL L. NEELY.

Witnesses:

R. G. HAWLEY,
J. R. WILSON.