No. 845,137. PATENTED FEB. 26, 1907.

W. T. SOLOMON.

NUT LOCK.

APPLICATION FILED JUNE 19, 1906.

FIG. 1

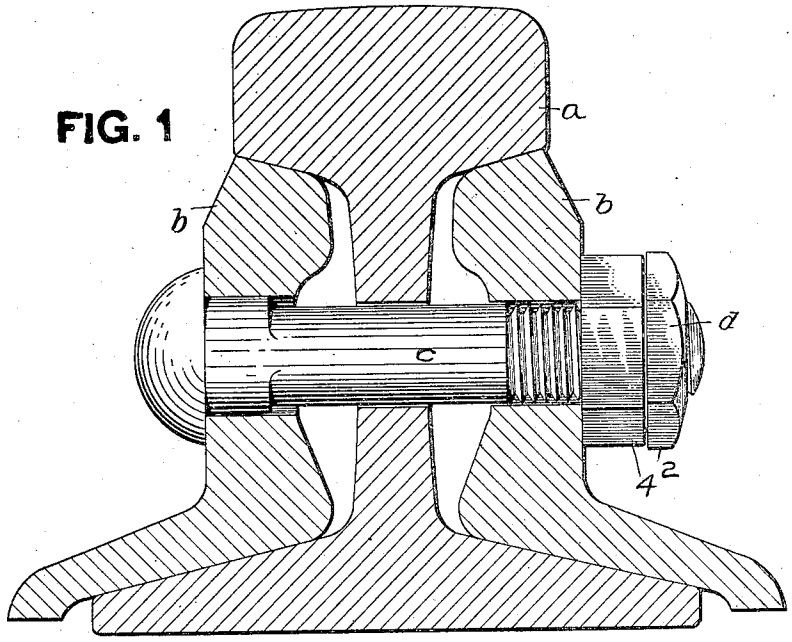

FIG. 2

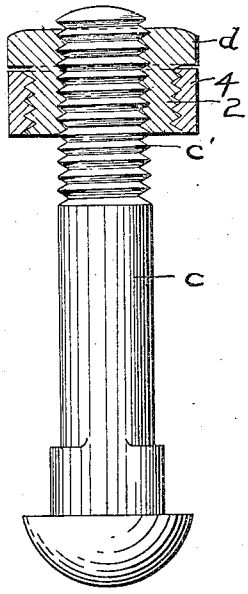

FIG. 3

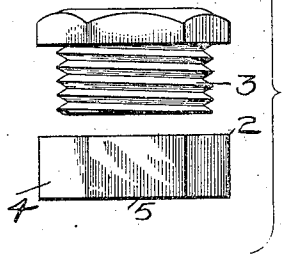

FIG. 4

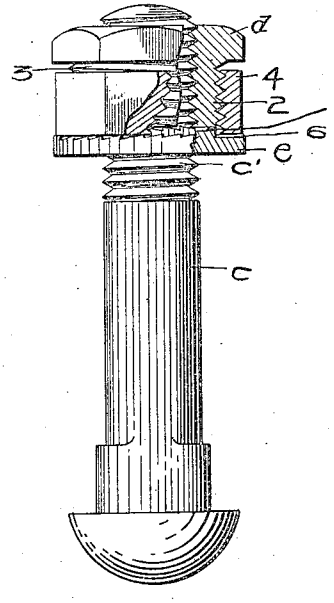

FIG. 5

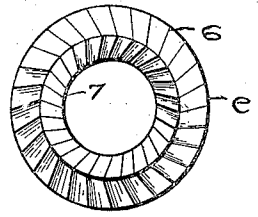

FIG. 6

WITNESSES.

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NUT-LOCK.

No. 845,137. Specification of Letters Patent. Patented Feb. 26, 1907.

Application filed June 19, 1906. Serial No. 322,371.

To all whom it may concern:

Be it known that I, WILLIAM T. SOLOMON, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Nut-Lock, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical sectional view illustrating my invention as applied to railroad-rails and fish-bars. Fig. 2 is an elevation of a bolt showing the nut in section. Fig. 3 is an elevation of the nut, the two parts of the same being separated. Fig. 4 is a view of the bolt and the nut, partially in section, illustrating a modification. Fig. 5 is a plan view of the washer employed in the modification shown in Fig. 4, and Fig. 6 is a vertical sectional view of the same.

I will now describe my invention, so that others skilled in the art may manufacture and use the same.

In the drawings, *a* is the railroad-rail, and *b* are the fish-bars. Extending through the fish-bars and the web of the rail is the ordinary railroad-bolt *c*, having the usual right-hand thread *c'* formed thereon. These parts may all be of any ordinary construction. Screwed on the end of the bolt is the nut *d*, formed in two parts 2 and 4. The part 2, which is the nut proper, is provided with the usual right-hand thread, adapted to engage with the thread of the bolt *c*. The outer circumference of this nut 2 at the end which is adapted to come in contact with the fish-bar *b* is provided with a left-hand thread 3, adapted to receive and engage with the threaded locking-nut 4, which is provided interiorly with a left-hand thread. The parts 3 and 4 when united with each other outwardly have the form of a single nut. In applying this nut *d* to the bolt *c* it is screwed on the bolt by a wrench in the usual manner until the face 5 of the part 4 comes in contact with the face of the fish-bar *b*, and the bolt *c* draws the fish-bars together exactly as in the case of the use of an ordinary nut. After the nut has been so applied, whenever the jarring to which it may be subjected tends to unscrew the part 2—that is, to run it off the bolt by a motion to the left—this same jarring tendency tends to run the lock-nut 4 forward against the fish-bar by a like motion to the left, the thread being in this case a left-hand thread instead of a right-hand one, and thereby carries the part or locking-nut 4 more tightly against the fish-bar, thus creating a pressure between the interior thread *d'* of the nut 2 and the thread *c'* of the bolt. This pressure will increase under these opposing forces until the nut is absolutely locked against further movement.

In Figs. 4, 5, and 6 I show a modification which consists of a washer *e*, having a series of teeth 6, inclined to the left and adapted to engage with the face of the nut 4, and an inner series of projecting teeth 7, inclined to the right on an exterior plane, adapted to project within the part 4 without coming in contact with the same and to bear against the inner face of the nut 2. The purpose of this washer *e* is to give frictional bearing-faces for each part of the nut *d*. The washer in Figs. 4, 5, and 6, therefore, constitutes the substructure to be locked by engagement with the nut and the locking-nut, while in Fig. 1 the fish-plate itself is the substructure engaged directly by the nuts.

Although I have described the nut as having a right-hand thread and the nut-lock as having a left-hand thread, this may be reversed without departing from my invention.

The advantages of my invention will be appreciated by those skilled in the art.

The nut *b* may be applied to the bolt *c* with no greater effort than is required in the case of an ordinary nut, yet when so applied it will automatically lock itself whenever a jarring tendency is exerted to loosen the same. In order to unscrew the nut by means of a wrench, the part 4 should be held stationary until the part 2 is released by the wrench. Under the same rotation the speed of the part 4 will of course be greater than the speed of the part 2, the diameter of the thread portions being of different sizes. Consequently any jarring force which would tend to give the part 2 half a rotation in a direction to run it off the bolt would tend to give the part 4 a complete revolution in a direction toward locking the nut. This renders the lock very sensitive and prevents even the commencement of a loosening of the bolt.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A nut having an interior thread adapt-

ed to carry the nut forward on a threaded bolt when the nut is turned in one direction, and having an exterior thread adapted to engage with an interiorly-threaded locking-nut and to carry such locking-nut forward when the locking-nut is turned in a direction opposite to that which carries the nut forward on the bolt, the inner faces of the nut and the locking-nut being arranged for frictional engagement with the part to be locked when in locked position.

2. The combination of a nut having an interior right-hand thread and an exterior left-hand thread, and a threaded locking-nut, the thread of which is adapted to engage with the exterior thread of the nut, the inner faces of said nut and said locking-nut being in engagement with the substructure when in locking position.

3. The combination of a nut having an interior right-hand thread and exterior left-hand thread; a threaded locking-nut adapted to engage with the exterior thread; a washer having teeth adapted to engage with the face of the nut and having teeth adapted to engage with the face of the locking-nut; substantially as specified.

4. The combination of a nut having an interior right-hand thread and an exterior left-hand thread, and a threaded locking-nut, the thread of which is adapted to engage with the exterior thread of the nut, and a washer arranged to engage the inner faces of said nut and said locking-nut when in locked position, substantially as specified.

5. The combination of a nut having an interior right-hand thread and an exterior left-hand thread, a threaded locking-nut adapted to engage with the exterior thread, and a washer having oppositely-directed teeth concentrically arranged, and adapted to engage respectively with the face of the nut and the face of the locking-nut; substantially as specified.

In testimony whereof I have hereunto set my hand.

WILLIAM T. SOLOMON.

Witnesses:

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