No. 791,891. PATENTED JUNE 6, 1905.

A. C. FLETCHER.

NUT LOCK.

APPLICATION FILED APR. 10, 1905.

Fig. 1.

Fig. 5.

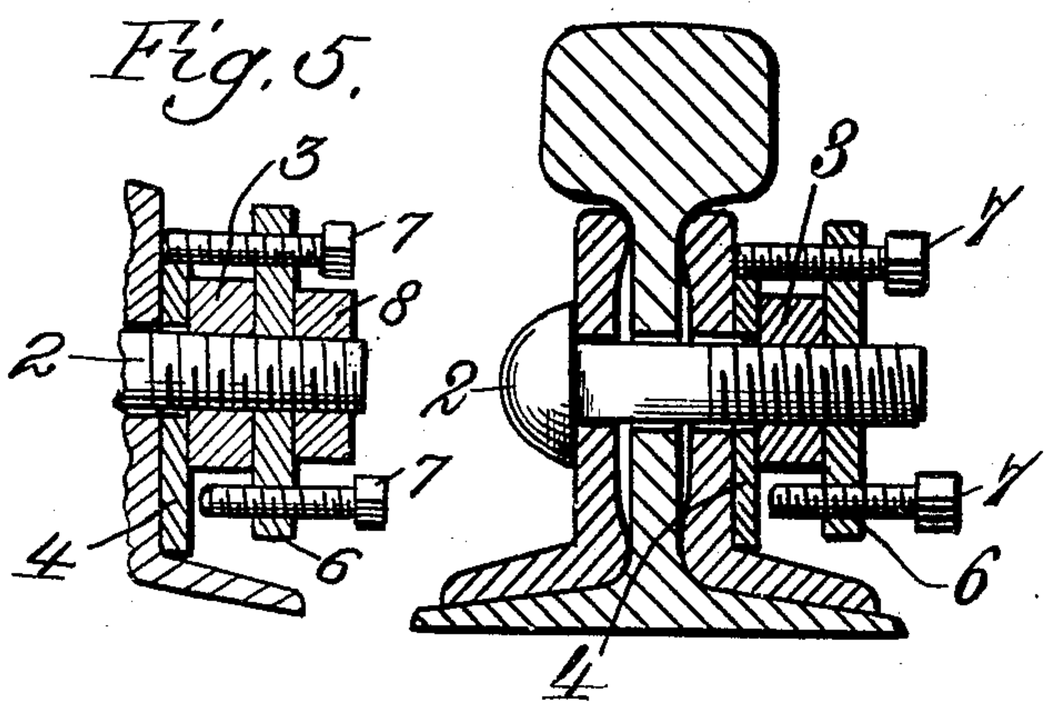


Fig. 2.

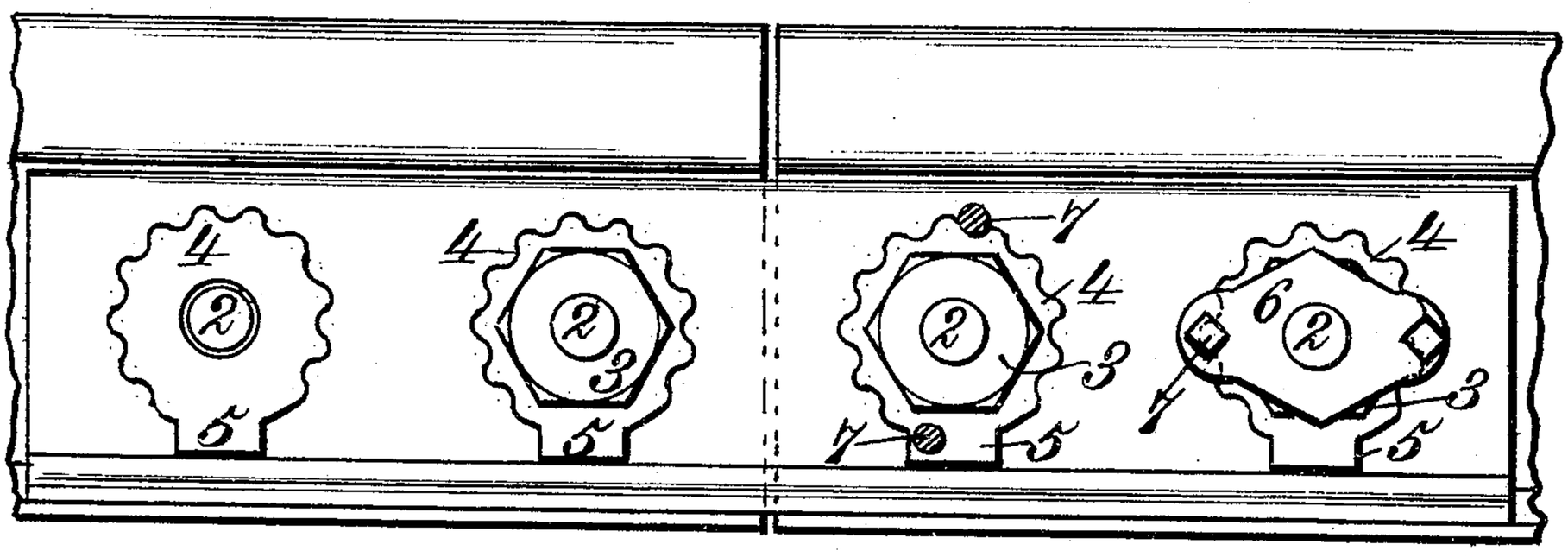


Fig. 3.

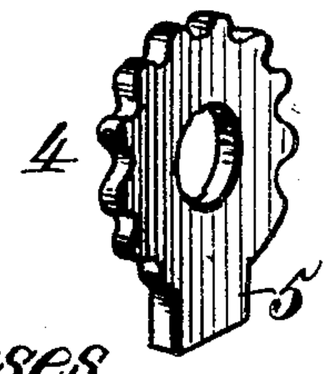
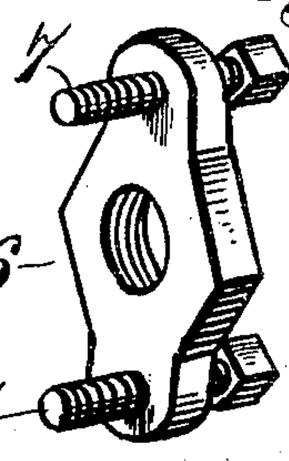


Fig. 4.



Witnesses.
Robt Ewalt,
Wilbur L. Morris, Jr.

Inventor.
Addison C. Fletcher.
By James Z. Norris.
Atty.

No. 791,891. Patented June 6, 1905.

UNITED STATES PATENT OFFICE.

ADDISON C. FLETCHER, OF NEW YORK, N. Y.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 791,891, dated June 6, 1905.

Application filed April 10, 1905. Serial No. 254,824.

To all whom it may concern:

Be it known that I, ADDISON C. FLETCHER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Nut-Locks, of which the following is a specification.

This invention relates to nut-locks.

The device is capable of use is various connections, it being particularly adapted for use in conjunction with rail-joints and being of such a character as to securely maintain a nut in place under the heavy vibration and jar to which it is subjected in the use indicated.

In the drawings accompanying and forming a part of this specification I illustrate one form of embodiment involving my invention, which I will set forth in detail in the following description; but I do not restrict myself to the precise disclosure thus made, for certain variations may be adopted within the scope of my claims succeeding said description.

Referring to the drawings, Figure 1 is a cross-sectional elevation of a rail and fish-plates with a bolt and nut associated therewith and also representing my invention. Fig. 2 is a face view of the joint of which the preceding figure is a cross-section and in which I have represented the successive steps followed in applying the lock. Fig. 3 is a detail view in perspective of a washer; and Fig. 4 is a like view of a nut and screws carried thereby, both hereinafter more particularly described. Fig. 5 is a detail view of certain of the parts shown in Fig. 1 with an additional nut hereinafter described.

Like characters refer to like parts throughout the different views.

In Fig. 2 of the drawings I have shown a rail-joint of ordinary construction which is maintained by a lock or locks, such as that hereinafter particularly described.

The joint involves two abutting rails overlapped upon opposite sides by fish-plates, the bases of which rest upon the bases of the rails. The rails and fish-plates are provided with the usual registering perforations, through which headed bolts, as 2, of the ordinary kind may be passed. I will describe in detail one bolt and the nut-locking parts immediately associated therewith, and such description will suffice for the other bolts and their associated parts. The bolt 2 is provided with a nut 3 of some standard or substantially standard construction. The nut 3 is represented as being polygonal, so that it can be easily set up by a wrench. It may have the form of a hexagon, for example. Between the nut 3 and the outer fish-plate I interpose a washer, as 4, of novel construction. The washer is preferably, though not necessarily, of some soft material, such as malleable iron, in contradistinction to something hard, such as steel, so that into its exterior surface one or more screws, of steel, say, can bite.

In applying the lock after the making of a joint a bolt is first passed through registering holes in the fish-plates and the web of a rail and the washer 4 is slipped over the bolt (it being centrally perforated to receive said bolt) until it strikes the outer fish-plate. Said outer fish-plate serves in the present case an important office in that it prevents the turning of the washer 4. For this purpose said washer is shown as having a circumferential wing, (designated by 5,) the outer edge of which is perfectly straight and which when the washer strikes against said outer fish-plate is adapted to be sustained upon the upper side of the base of the said fish-plate, so as to effectually prevent turning motion of the washer. It will be understood that the washer is not resilient, but that I rely upon a firm bearing or solid engagement between the two parts to prevent the washer from turning. It is made sufficiently thick to provide an ample circumferential surface into which the threaded surface of a screw can be pressed to effectually prevent turning motion of said screw. After the washer 4 is put in place the nut 3 is set up onto its bolt until it bears firmly against the washer. The washer 4 is peripherally corrugated or toothed, the recesses of the corrugated periphery or spaces between the teeth thereof providing pockets for a screw, and upon reference to Fig. 2 it will be seen that the corrugated or toothed periphery of the washer is of such a character that a recess or pocket will be exactly diametrically opposite a salient portion or tooth of the washer, so that I assure

the positioning of one recess to receive one of a plurality of screws carried by a nut, as 6, outside the main or joint-holding nut 3. The nut 6 serves as a lock-nut. It is provided with means consisting of one or more screws directly coöperative with the washer 4. I have shown two of such screws and designate each of them by 7. They are shown as being diametrically opposite, and they may be tapped through wings or lugs upon the nut or centrally tapped locking-plate 6. After the washer 4 and nut 3 are applied the nut or plate 6 is put on the outer threaded end of the bolt and turned thereon until it strikes the nut 3. The screws 7 are then introduced into their holes in the diametrically opposite wings of the nut 6 and run in. By reason of the fact that the screws are diametrically opposite each other and the further fact that each recess or space in the washer is diametrically opposite a tooth or salient portion thereof one or the other of the screws 7 can be run all the way in or until it abuts against the outer fish-plate. When a screw is thus run all the way in, its threaded portion will be seated in a peripheral recess or pocket in the washer, so as to prevent the nut 6 from turning. It will be remembered that the washer 4 is of softer metal than the two screws 7, by reason of which the threaded surface of that screw which is seated in the pocket or recess in the washer can bite into the peripheral surface of the washer to an extent sufficient to prevent backward rotation of the screw, so that not only is rotation of the nut 6 prevented, but the same applies with respect to one of the screws carried thereby. From this it will be evident that I provide an effective lock wherein none of the parts can be accidentally turned. A slight movement by a wrench, however, on that screw which is set up tight will disengage the same from the outer fish-plate and the washer, so that thereafter the nut 6 can be removed, freeing the other parts in order that they may be withdrawn.

In some cases I may, as illustrated in Fig. 5, employ an additional nut, as 8, adapted to abut against the nut or locking-plate 6. I rely upon this nut 8 when present to hold the parts in proper relation in case the working one of the two screws 7 should be broken or in case the washer should be fractured.

In Fig. 2 I have illustrated, commencing with the left, the steps that are followed in applying the nut. On the extreme left in the figure I have shown simply the washer. Next I show the washer and the inner nut, then these two parts with one of the screws 7, or the upper one, as it happens to be, in its operative position, and finally the lock complete.

The structure hereinbefore described is one that is quite simple and capable of ready, inexpensive, and easy manufacture. The nuts 3 cannot be turned off by accident, owing to the peculiar form of locking arrangement described.

Having thus described my invention, what I claim is—

1. The combination of a bolt, a nut thereon, a non-rotative washer between the head of the bolt and said nut, a second nut on the bolt to fit against the first-mentioned nut, and a screw carried by the second nut and engaging the washer, the latter preventing said second nut from turning.

2. In a nut-lock, the combination of a bolt, a nut thereon, a non-rotative washer between the nut and the head of the bolt, a second nut bearing against the first nut, a screw carried by the second nut, the threaded surface of which is adapted to bite into the washer to prevent turning of the screw and the washer serving to prevent rotation of the second nut.

3. The combination of a bolt, a nut thereon, a non-rotative washer surrounding the bolt and provided with peripheral pockets, a second nut on the bolt, and a removable member carried by the second nut for fitting in one of the pockets of said washer.

4. The combination of a bolt, a nut on the bolt, a peripherally-pocketed non-rotative washer surrounding the bolt, a second nut on the bolt, and a screw carried by the second nut, the threaded surface of which is adapted to enter a pocket and to bite into the stock of said washer.

5. The combination of a bolt, a nut thereupon and a peripherally-toothed non-rotative washer surrounding the bolt, each recess between two teeth being diametrically opposite a tooth, a second nut on the bolt, and diametrically opposite screws carried by the second nut, one of which is adapted to fit a recess in the washer.

6. The combination of a rail, and a fish-plate fitted against the same, the two parts having registering perforations, a bolt passing through the registering perforations, a peripherally-toothed washer fitted against the fish-plate and provided with a wing, having a straight edge to bear against the base of said fish-plate, a nut on the bolt, fitted against the washer, a second nut also carried by the bolt, and a screw carried by the second nut and adapted to bear against the fish-plate and to fit in the space between two teeth of the washer.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ADDISON C. FLETCHER.

Witnesses:
HEATH SUTHERLAND,
GEO. W. REA.