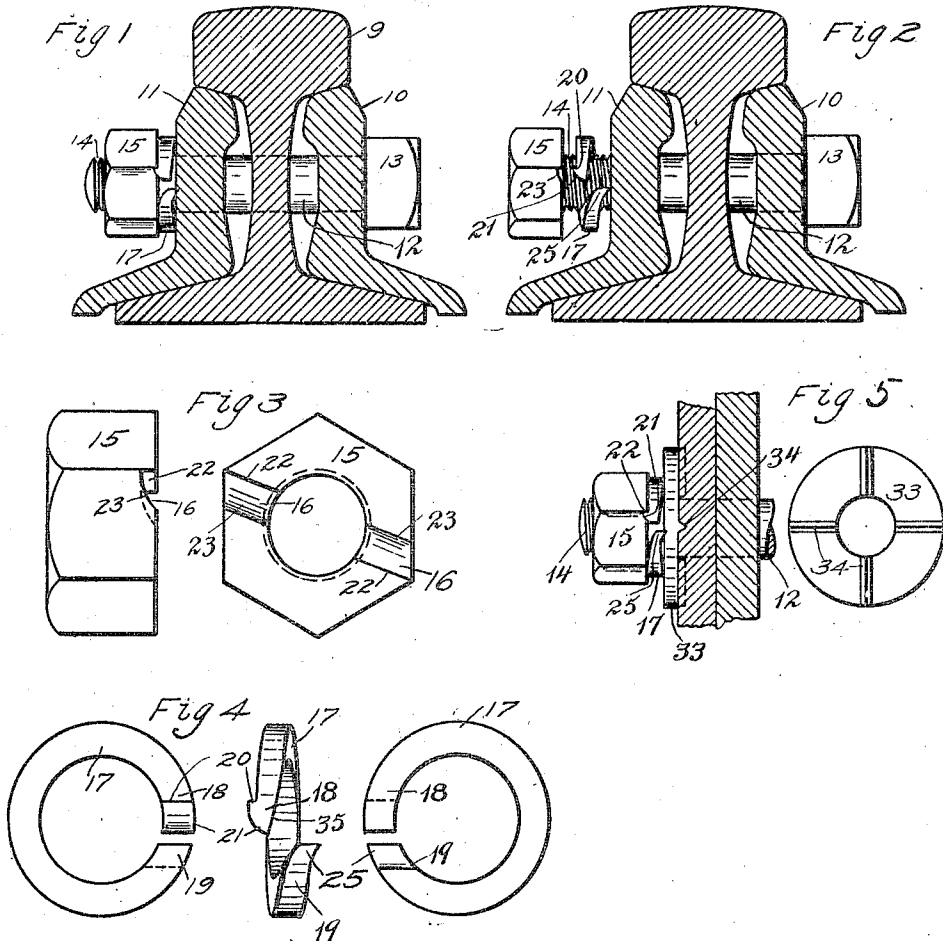


H. T. HUGHES.
NUT LOCK.
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1,049,489.

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UNITED STATES PATENT OFFICE.

HUGH T. HUGHES, OF FRANKFORT, NEW YORK, ASSIGNOR OF ONE-HALF TO EDWARD D. HAMER, OF FRANKFORT, NEW YORK.

NUT-LOCK.

1,049,489.

Specification of Letters Patent.

Patented Jan. 7, 1913.

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To all whom it may concern:

Be it known that I, HUGH T. HUGHES, a citizen of the United States, residing in Frankfort, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Nut-Locks, of which the following is a specification.

This invention relates to that class of mechanical constructions that are called, in practice, nut-locks.

One of the objects of the invention is to so arrange mechanical elements in combination, as to produce efficient results in locking a nut in a given or desired position on a bolt, without materially modifying the character of the nut; without changing the character of the bolt, and without special construction of the usual parts adapted to be confined between the bolt head and the nut.

Another object is to provide for automatically releasing the nut from mechanical retention, at will.

The inventive conception hereinabove recited, may be embodied in such suitable mechanical forms, as will best suit practical requirements. One of such forms is noted on the sheet of drawings, which accompanies this specification, and it is here proper to state that such form, and any others by which the invention may be carried forth, are susceptible to such usual mechanical equivalents and changes as fall within the scope of mechanical skill. This drawing sets forth in Figure 1, a cross-sectional view, in elevation, of the conventional T-rail, embraced by the ordinary style of fish-plates, and these are bolted together; the essence of the invention, serving to control or retain the nut upon the bolt—this illustration showing that nut under retention. The same elements are illustrated in Fig. 2, in that case however, the nut-retaining element is relieved from action upon its nut. Fig. 3, illustrates an ordinary nut adapted for use upon a bolt, and which is suitably constructed on one of its faces with a portion or portions adapted for coöperating with the nut-retainer, both for the retention and the release of the nut. Fig. 4, illustrates in three views, one of the forms of a nut-retaining element. Fig. 5 portrays a means whereby the nut-locking device can be advantageously employed in connection with fibrous materials.

Directing an explanation of the invention to the form illustrated, the numeral 9 is applied to a T-rail, which is shown as being embraced by two fish-plates which are numbered 10 and 11, and through these elements is passed an ordinary bolt 12, having the usual head 13 and screw-threaded end 14 upon which an ordinary nut 15 may be suitably adjusted. This nut is suitably provided with portions or seats—one or more—16, which will coöperate with the nut-retaining device heretofore mentioned, in a manner shortly to be explained. This nut-retaining device comprises a convolute or helical member, 17, or a member so bent upon itself as to extend its free ends 18 and 19 in opposed lateral directions, for instance, as more clearly illustrated in the central figure in the group in Fig. 4. It will be observed that one of the free laterally extending extremities as 18, is provided with a latch having an abutment 20, and a cam-face 21, and the part 20 comes into positive engagement with a corresponding portion 22 created in one or more of the portions 16, hereinbefore mentioned in connection with the description of the nut 15, while the cam-face 21, will register with a corresponding wall 23 in the portion 16, The opposite and oppositely extending free end 19 of the retaining element 17 is formed with a beak 25, which will bite into a member with which it will associate when the parts are so assembled that the nut is locked in desired position.

The restraining element 17, as may be observed from the drawing, surrounds the body of the bolt 12, with its latch end 18 bearing toward the nut 15, while its beak end 19, bears in the direction of one of the fish-plates, as 11. In forcing the nut 15, "home", distortion of the free ends 18 and 19, of the nut-retainer takes place, and therefore the tendency for these ends to perform their respective duties becomes more positive.

By looking at Fig. 1, illustrating the parts in place and the nut in locked position, it will be observed that for the nut 15 to attempt to move in a direction opposite to that of its application, would mean to cause the beak 25 to dig deeper into the body of the fish-plate 11. The high resilience now in the retainer, which has been set up by distortion of the free ends thereof, will cause the beak 25 to positively abrade the plate.

It is desirable that the point of strain in the nut-retaining device be of somewhat greater capacity and strength, than would ordinarily be required at other points.

5 Fig. 5 gives an illustration of the nut locking device being employed to unite portions of fibrous materials. In such a case, obviously, it would be impractical to cause the beak 25 of the retainer 17, to simply bite
10 into the fibrous body; therefore an intermediate metallic member must be introduced which, in the present case, may, as shown, be a washer 33, which may be provided with a plurality of cleats or other suitable retaining devices 34, which are adapted to sink
15 into the body with which it is intended it shall associate, and it is into the face of this metallic element 33, that the beak 25 will bite.

20 Should it be desired to release the nut 15 from the control of the nut-retaining element 17, it will be observed that the extremity 18 thereof which carries the latch, is sufficiently tapered as at 35 to permit the
25 latch-head to be forced away from engagement with the nut 15. This is accomplished by urging the nut in a direction reverse to that of its direction of application, which will cause the portion 23 of the seat portion
30 16 on the nut 15, to bear against the cam-face 21 on the latch head. Continuous co-operation of these faces 21 and 23, finally results in disassociating the abutment 20 on the latch head and the wall 22 on the nut,
35 when the nut is released from retention.

I fully understand the applicability of the invention for various purposes: also that various mechanical forms to carry out the inventive idea may be adopted within
40 the purview of this invention, wherefore I am not restricted to one or another form in which the invention may be embodied.

Having thus described the invention, and one of the convenient forms in which the
45 same may be embodied, I claim Letters-Patent protection on the invention in the following manner:

1. The combination in a nut lock of a stationary member, a bolt projecting there-
50 through, a nut engaging said bolt, a shoulder

and a cam face on said nut, a resilient nut retaining element interposed between said nut and said stationary element and having oppositely laterally disposed extremities, a
55 shoulder and a cam face on one of said extremities adapted respectively to engage said nut shoulder and said cam face, said shoulders adapted to positively lock said retainer to forward movement with said nut and said
60 cam faces normally preventing reversal of said nut from said retainer, but allowing such reversal upon further compression of said retainer and a beak upon the other ex-
65 tremity of said retainer adapted to slide over said stationary member upon forward movement of said retainer and to bite into said stationary member upon reverse move-
ment of said retainer.

2. The combination in a nut lock of a stationary member, a bolt projecting there-
70 through, a nut engaging said bolt, a shoulder and cam face on said nut, a spring-ring surrounding said bolt between said nut and said stationary element and having oppo-
75 sitely laterally disposed extremities, a shoulder and a cam face on one of said extremities adapted respectively to engage said nut shoulder and cam face, said shoulders adapt-
80 ed to positively lock said spring-ring to forward movement with said nut and said cam faces normally preventing reversal of said nut from said retainer, but allowing such
85 reversal upon further compression of said spring-ring and a beak upon the other extremity of said spring-ring adapted to slide over said stationary member upon forward
movement of said spring-ring and to bite into said stationary member upon reversed movement of the said spring-ring.

In testimony whereof I have, this 22nd
90 day of April, in the year of our Lord 1909, set my hand and seal in the presence of two witnesses, in the offices of Fred. W. Barnaclo, my patent counsel at Utica, Oneida county New York.

HUGH T. HUGHES. [L.S.]

Witnesses:

FRED. W. BARNACLO,
M. B. BARBOR.