No. 704,332. Patented July 8, 1902.

R. D. HUGHES.

NUT LOCK.

(Application filed Sept. 12, 1901.)

(No Model.)

Fig. 1.

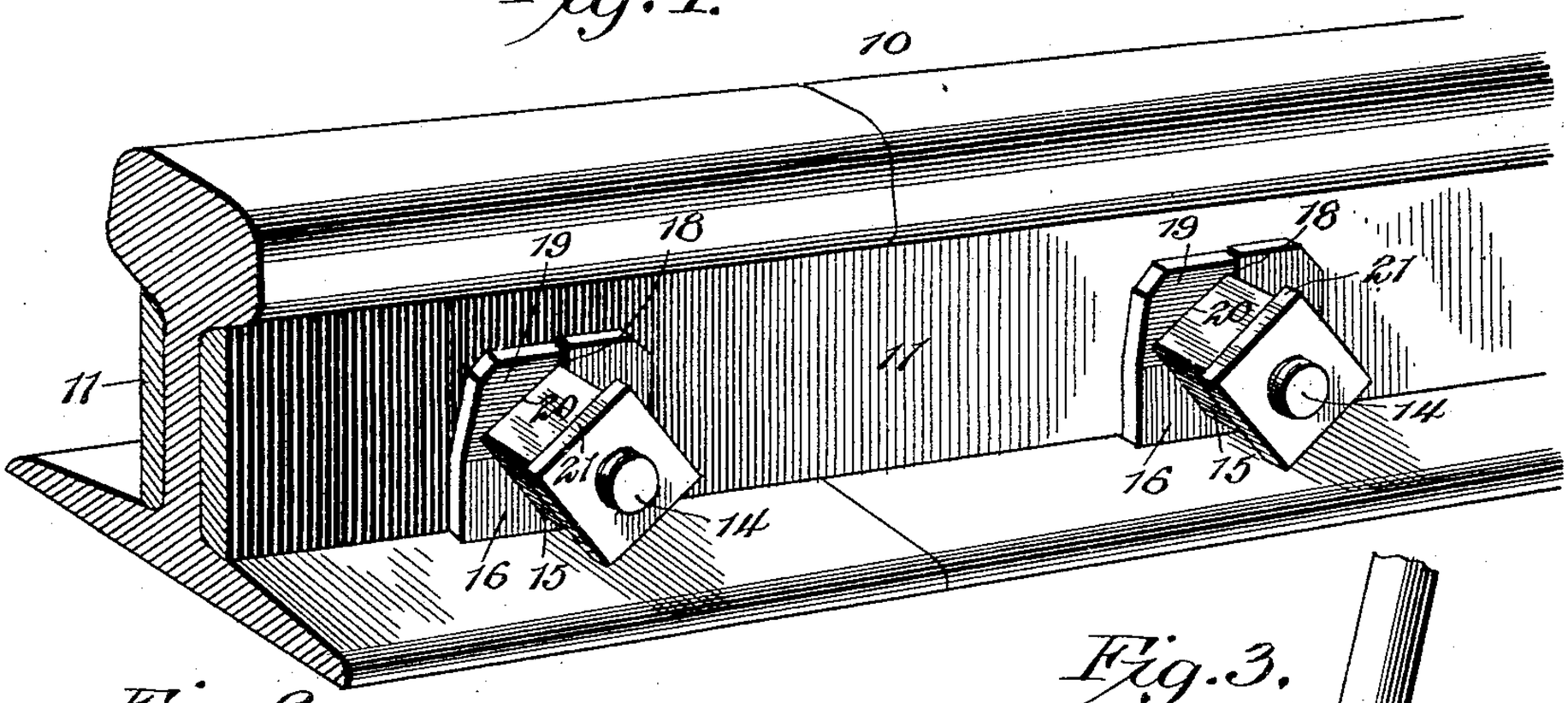


Fig. 2.

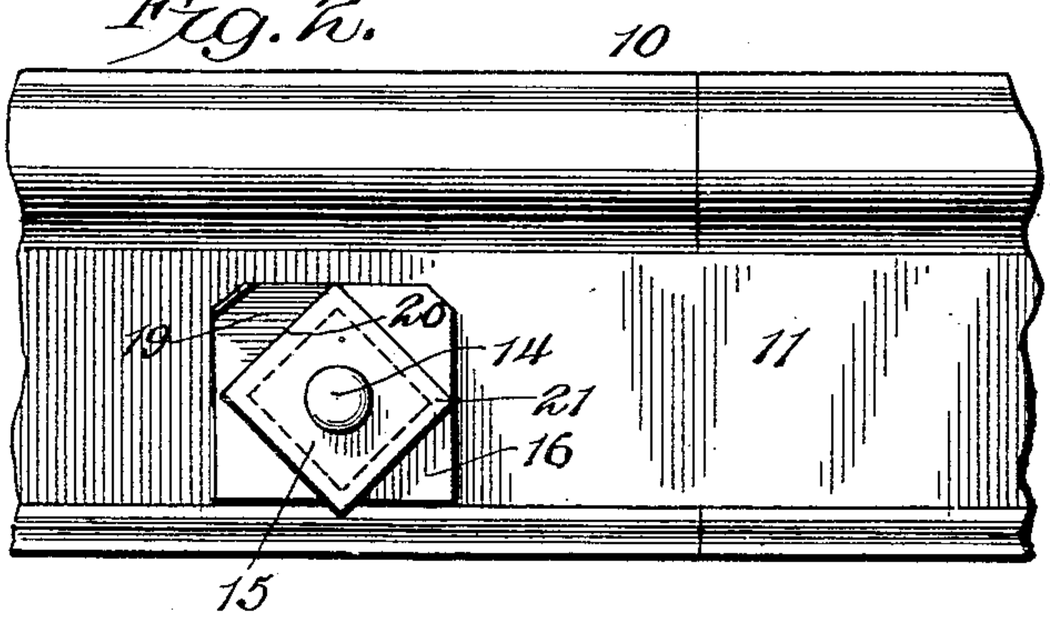


Fig. 3.

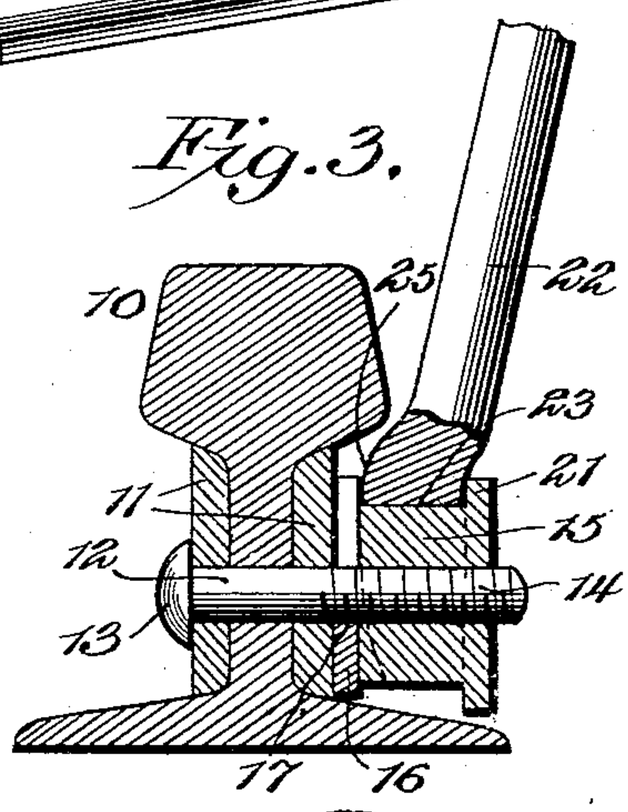


Fig. 4.

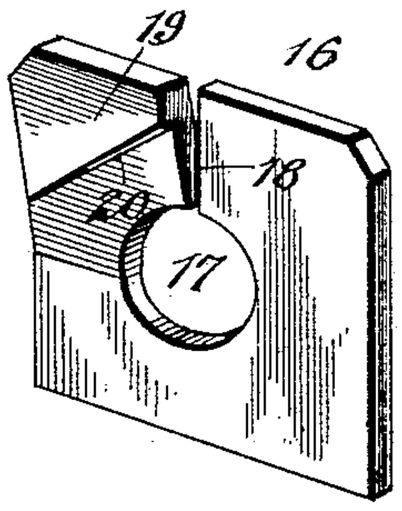


Fig. 6.

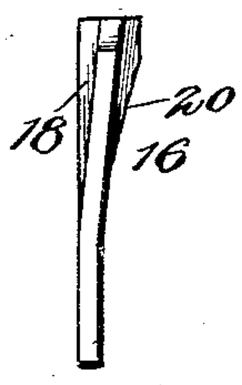
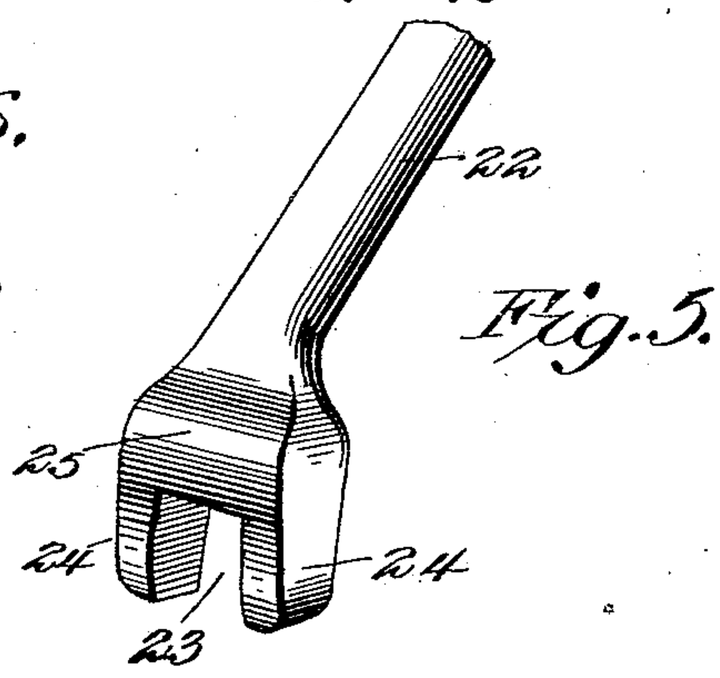


Fig. 5.



R. D. Hughes, Inventor;

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Attorney

Witnesses
Howard D. Orr.
B. G. Foster.

UNITED STATES PATENT OFFICE.

ROBERT D. HUGHES, OF VERMILION, VIRGINIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO ROBERT O. HORTON AND CHARLES P. PATTESON, OF LYNCHBURG, VIRGINIA.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 704,332, dated July 8, 1902.

Application filed September 12, 1901. Serial No. 75,202. (No model.)

To all whom it may concern:

Be it known that I, ROBERT D. HUGHES, a citizen of the United States, residing at Vermilion, in the county of Appomattox and State of Virginia, have invented a new and useful Nut-Lock, of which the following is a specification.

The present invention relates to nut-locks; and one of the principal features of the same relates to a simple device which may be placed upon an ordinary bolt and will coact with any well-known form of nut to hold the latter from turning in a direction to loosen it, this means being so constructed that it is held in place and to a great extent protected from injury by the nut which is locked by it.

A further and very important feature relates to a new combination of nut and lock therefor which are so constructed that when a wrench is applied to the nut for the purpose of removing it from the bolt the lock will be automatically moved to an inoperative position, so that the free retrograde movement of said lock will be permitted.

The embodiment which at present is considered preferable is illustrated in the accompanying sheet of drawings and its construction and operation are fully described in the following specification. Such changes may, however, be made from the construction set forth as will fall within the scope of the claims hereto appended.

In the drawings, Figure 1 is a perspective view showing the improved lock applied to a railway-rail joint. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical sectional view showing a wrench applied to the nut. Fig. 4 is a perspective view of the washer detached, and Fig. 5 is a perspective view of the preferred form of wrench employed in connection with the nut and lock. Fig. 6 is an end view of the locking-washer.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.

For the purpose of clearly illustrating the application of the nut and lock a portion of a railway-rail is shown and designated 10, the fish-plates bridging the joint thereof being shown at 11. An ordinary bolt is illustrated comprising a shank 12, having a head 13 at one end and a screw-threaded shank 14 at the other, the nut 15 being threaded upon the shank and held in place by the lock (designated as a whole by the reference-numeral 16.)

This nut-lock is preferably made of sheet metal, rectangular in form, and having a centrally-disposed bolt-receiving opening 17, a slit 18 extending from one edge into said opening and dividing one side of the washer into two sections. One of these sections is offset or struck up to form a spring-tongue 19, and this tongue is provided on its outer or operative face with a locking or nut-engaging shoulder 20, which shoulder is located intermediate the side edges of the tongue and preferably extends from the slit 18 diagonally across said tongue, tapering in thickness toward its outer end. It will thus be seen that when the washer has been placed upon a bolt and the nut screwed down thereon said nut will readily ride over the upstanding portion of the tongue, thereby forcing it back until the edge has cleared the shoulder 20, whereupon said shoulder will snap back behind the edge of the nut and prevent its retrograde movement. While it will be readily apparent that any of the well-known forms of polygonal-sided nuts may be employed, there is illustrated a special form of nut which has decided advantages over the ordinary structures.

As shown, this nut has on its outer side edge an outstanding flange 21, which preferably extends completely around the nut. This flange is therefore spaced a considerable distance from the spring-tongue 19 when the nut and lock are in operative relation and forms a fulcrum for the wrench employed in turning the nut. The wrench is clearly shown in Fig. 5, where it will be seen that a handle or stock 22 is provided at one end with a socket 23, formed by a pair of spaced rigid jaws 24, one of the side faces of the head formed by these jaws being offset, as shown at 25. When the wrench is applied to the nut, the jaws being slightly greater in thickness than the distance between the flange

and spring-tongue, said jaws, or at least the one located over the free end of the tongue, will force said tongue inwardly against the fish-plate, so that its shoulder will be moved out of engagement with the edge of the nut. As a result the nut may be readily removed by turning the wrench. Said wrench therefore constitutes an unlocking device. By this construction it will be seen than an exceedingly simple lock is provided which may be stamped from sheet metal, and is therefore inexpensive in construction. By locating the holding-shonlder between the side edges of the spring-tongue a portion of said tongue will be located beneath the nut, and will thereby be stiffened and protected against bending or breaking. By the combination of nut and washer it will be seen that no separate tool or instrument is necessary to hold the tongue in its inoperative position while the nut is being removed.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. A nut-lock comprising a washer having a bolt-opening therein, and a slit extending from one edge of the washer to the opening, the section on one side of the slit being outturned from the remainder of the washer to form a yielding tongue, said tongue being provided on its outer face with a locking-shoulder that extends transversely across the same from the slit to the outer edge and tapers in thickness toward said outer edge.

2. The combination with a bolt, of a nut threaded on the bolt and having an outstanding flange on its outer side edge, and a lock for the nut comprising a washer having an opening through which the bolt passes and a slit extending from one edge of the washer to the opening, the section of the washer on one side of this slit being outturned from the remaining portion of said washer to form a yielding tongue, said tongue being provided on its outer face with a locking-shoulder that extends diagonally across the same from the slit to the outer edge and tapers in thickness toward said outer edge, the outer end of the tongue beyond the shoulder being disposed outside of the nut and beneath but spaced from the flange thereof.

3. The combination with a bolt, of a nut threaded on the bolt and having an outstanding flange on its outer side edge, and a lock for the nut interposed between the article held and the nut, said lock comprising a washer projecting beyond the side edges of the nut, one projecting side of said washer fitting flat against the article to be held, the opposite side constituting a spring-tongue that is raised above the article to be held and is spaced from the flange of the nut a sufficient distance to receive the head of a wrench, whereby, when the wrench is inserted between said flange and tongue, the latter will be forced back and out of engagement with the nut to release the same.

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

ROBERT D. HUGHES.

Witnesses:
A. W. HAWKINS,
R. REID HARDING.