No. 812,591. PATENTED FEB. 13, 1906.

# M. OMALIA.

## NUT LOCK.

APPLICATION FILED SEPT. 13, 1905.

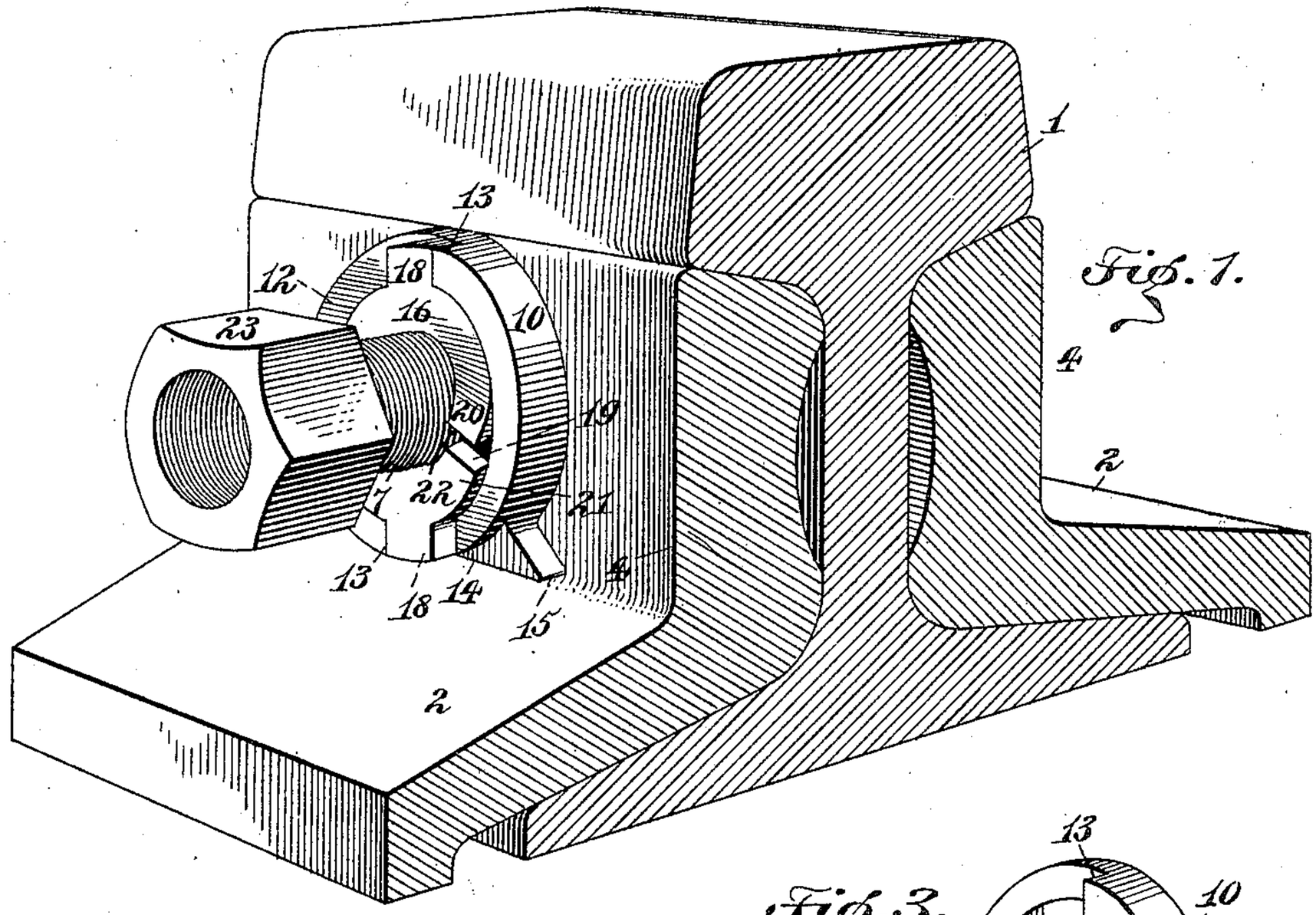


Fig. 1.

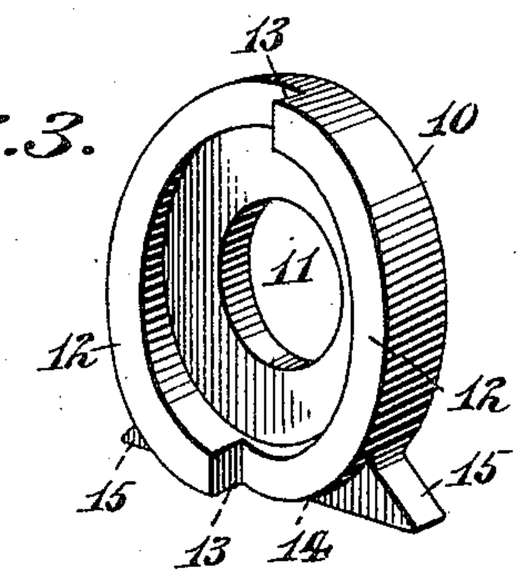


Fig. 3.

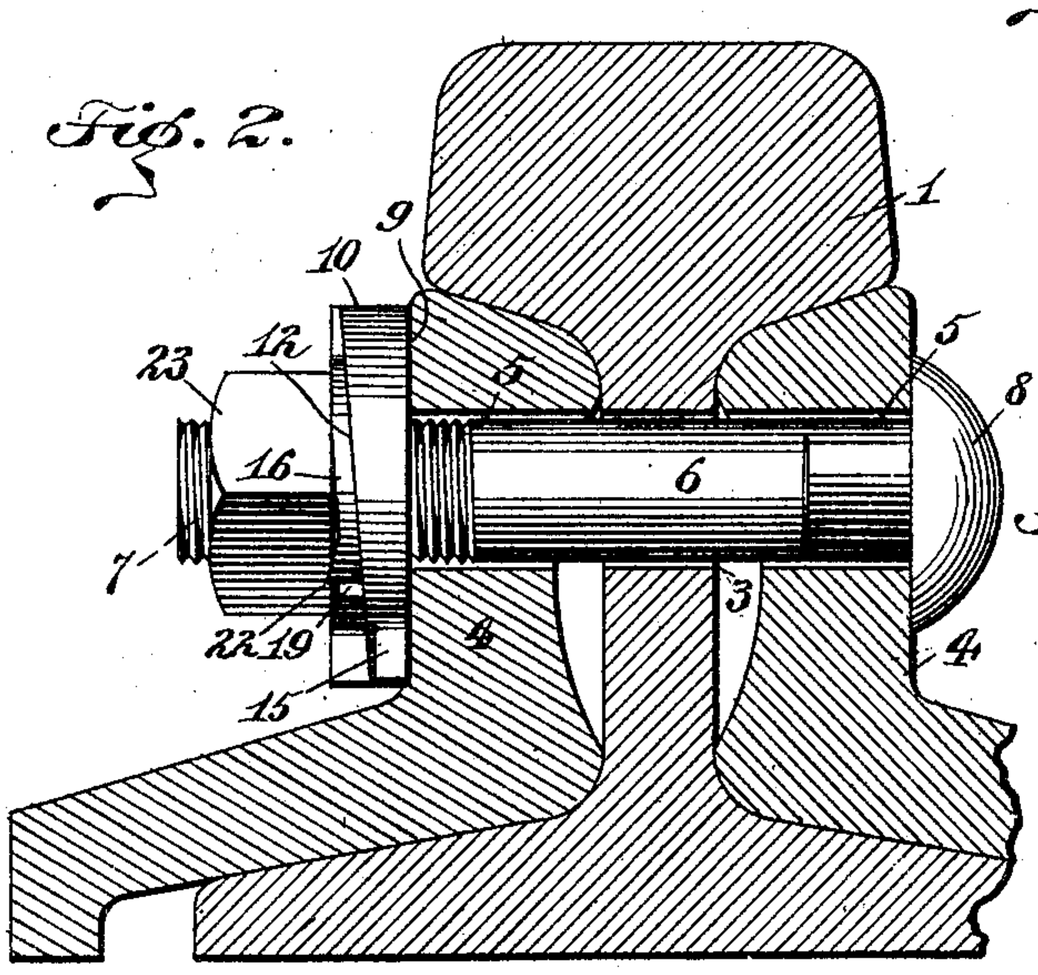


Fig. 2.

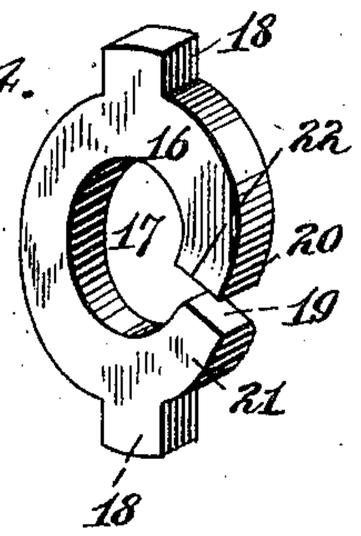


Fig. 4.

WITNESSES:

H. C. Abbott

E. E. Ellis

INVENTOR

Mathew Omalia

BY Munn & Co

ATTORNEYS

# UNITED STATES PATENT OFFICE.

MATHEW OMALIA, OF SCRANTON, PENNSYLVANIA, ASSIGNOR OF ONE-FIFTH TO JOHN F. DURKAN, ONE-FIFTH TO MARTIN B. CASEY, AND ONE-FIFTH TO A. J. CASEY AND P. J. CASEY, COPARTNERS TRADING AS CASEY BROS., OF SCRANTON, PENNSYLVANIA.

## NUT-LOCK.

No. 812,591. Specification of Letters Patent. Patented Feb. 13, 1906.

Application filed September 13, 1905. Serial No. 278,258.

*To all whom it may concern:*

Be it known that I, MATHEW OMALIA, a citizen of the United States, and a resident of Scranton, in the county of Lackawanna and State of Pennsylvania, have invented a new and Improved Nut-Lock, of which the following is a full, clear, and exact description.

This invention relates to nut-locks; and it consists, substantially, in the details of construction and combinations of parts hereinafter more particularly described, and pointed out in the claims.

The invention is applicable to various purposes in the arts; and one of the principal objects thereof is to provide a nut-lock of an embodiment to overcome numerous disadvantages and objections encountered in the use of many other structures of the kind hitherto devised.

A further object is to provide a nut-lock which is simple in construction and comparatively inexpensive to manufacture, besides being thoroughly effective and reliable for its purposes and possessing the capacity for long and continued service.

The above and additional objects are attained by means substantially such as are illustrated in the accompanying drawings, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view illustrating my improved nut-lock as employed in connection with fish-plates disposed on opposite sides of a rail-joint, the nut being shown as but partially screwed upon the bolt to disclose the operative organization of the several elements of which the structure is composed. Fig. 2 is a transverse sectional view showing the nut as screwed up in place on the bolt and locked. Fig. 3 is a view in perspective of the main washer or ring-plate, showing the construction thereof more clearly; and Fig. 4 is a similar view of the supplementary washer or ring-plate.

Before proceeding with a more detailed description it may be stated that in the form of my improvements herein shown I employ a main washer or ring-plate of special construction adapted to be placed over the bolt employed and flatly against the surface of a portion of the structure to be bolted, and in conjunction therewith I employ a specially-constructed supplementary washer or ring-plate also adapted to be placed over the bolt employed. Said main washer or ring-plate is also so adapted to a part of the structure to be bolted as to be incapable of turning about the bolt in either direction, while the two said washers or ring-plates are so adapted to each other as to effectually resist any tendency to reverse turning of the nut on the bolt, as will presently be explained.

Reference being had to the drawings by the designating characters thereon, 1 represents a portion of an ordinary railway-rail on opposite sides of which are located fish-plates 2, the former having through the web thereof an opening 3 and the latter each having through the vertical member 4 thereof a similar opening 5, all the said openings coinciding with each other and receiving therethrough a fastening-bolt 6 for the fish-plates, said bolt having a threaded portion 7 from one end thereof, as shown, and being provided at its other end with a head 8. Fitting upon the said bolt and against the outer side of the vertical member 4 of the fish-plate adjacent to said threaded portion 7 of the bolt is the inner flat face 9 of a main washer or ring-plate 10, (see Fig. 3,) having a central opening 11, through which the bolt extends and provided on its outer face with reversely-disposed inclined planes 12, bearing such relation to the bolt as to produce shoulders 13, disposed on opposite sides of both a vertical plane and a horizontal plane passing through the axis of the bolt. The said main washer or ring-plate 10 is formed with a lower straight edge 14 and lateral toes or extensions 15, so that a rest is provided therefor upon the fish-plate, and the same is thereby prevented from turning about the bolt in either direction, as will be apparent. Also fitting upon the bolt is a supplementary washer or ring-plate 16, (see Fig. 4,) the same having a central opening 17, through which the bolt extends and being formed at its outer edge with diametrically-

disposed projections or lugs 18, as shown. This washer or ring-plate is split or cut through at 19, thus to provide an upper terminal member 20 and a lower terminal member 21, the former of which is bent or sprung outwardly on a practically spiral curve and is formed with a chisel edge 22, adapted to bite or take into the material of the inner surface of the nut 23 whenever there is any tendency of the latter to loosen or turn in a reverse direction on the threaded portion of the bolt on which it is screwed.

In the use of my improved nut-lock the main washer or ring-plate is first placed in proper position with reference to the bolt and the structure to be bolted, after which the supplementary washer or ring-plate is applied with the said chisel edge thereof disposed outwardly and with one of the lugs or projections 18 thereof in engagement with one shoulder 13 on one side of the axis of the bolt and the other of said projections or lugs 18 in reverse engagement with the remaining shoulder 13 on the other side of the axis of the bolt, whereupon the nut 23 is screwed up on the bolt tightly against the outer face of the said supplementary washer or ring-plate, which tends to place the member 20 under tension, with the result that whenever the nut is subjected to any force or strain tending to loosen or unscrew the same the said chisel edge positively engages the nut in such a manner as to overcome such tendency. Should, however, the force or strain be great enough to overcome the resistance thus offered, then inasmuch as on any reverse turning of the nut the supplementary washer or ring-plate must turn therewith it follows that the projections or lugs 18 of the supplementary washer or ring-plate are caused to ride upon the hereinbefore-mentioned inclined planes 12 of the main washer or ring-plate, thereby absolutely preventing back turning of the nut, as will be apparent, no slack of the nut resulting whatever but what is taken up or compensated for in the manner hereinbefore set forth.

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

1. A nut-lock comprising a bolt, a main washer thereon adapted for contact with a part of the structure to be bolted, and having means for preventing the same from turning about the bolt in either direction, a supplementary washer also on the bolt, and a nut, the two said washers having reverse engagement with each other on opposite sides of both a vertical plane and a horizontal plane passing through the axis of the bolt, and said supplementary washer having a spring member formed with a chisel edge for engaging with the nut.

2. A nut-lock, comprising a bolt, a nut, a main washer having means for preventing it from turning on the bolt, and provided with oppositely-arranged inclines forming shoulders, and a supplementary washer provided with lugs engaging the shoulders of the main washer and with an outwardly-projecting spring member having a chisel edge for engaging the nut.

3. A nut-lock comprising a bolt, a main washer thereon adapted for contact with a part of the structure to be bolted, and having means for preventing the same from turning about the bolt in either direction, a split supplementary washer also on the bolt, and a nut, the two said washers having reverse engagement with each other on opposite sides of both a vertical plane and a horizontal plane passing through the axis of the bolt, and said supplementary washer having a terminal thereof sprung outwardly and formed with a chisel edge for engaging with the nut on reverse turning thereof.

4. A nut-lock comprising a bolt, a main washer thereon adapted for contact with a part of the structure to be bolted, and having a straight lower edge and lateral extensions for preventing the same from turning about the bolt in either direction, a split supplementary washer also on the bolt, and a nut, the two said washers having reverse engagement with each other on opposite sides of both a vertical plane and a horizontal plane passing through the axis of the bolt and said supplementary washer having a terminal thereof sprung outwardly and formed with a chisel edge for engaging with the nut on reverse turning of the latter.

5. A nut-lock comprising a bolt, a main washer thereon adapted for contact with a part of the structure to be bolted, and having means for preventing the same from turning about the bolt in either direction, a split supplementary washer also on the bolt, and a nut, the said main washer having reversely-disposed inclined planes on its outer face, forming shoulders located on opposite sides of both a vertical plane and a horizontal plane passing through the axis of the bolt, and said supplementary washer having diametrically-disposed projections engaging with said shoulders, and also having means for engaging with the nut on reverse turning of the latter.

6. A nut-lock comprising a bolt, a main washer thereon adapted for contact with a part of the structure to be bolted, and having means for preventing the same from turning about the bolt in either direction, a split supplementary washer also on the bolt, and a nut, the said main washer having reversely-disposed inclined planes on its outer face, forming shoulders located on opposite sides

of both a vertical plane and a horizontal plane passing through the axis of the bolt, and said supplementary washer having a terminal thereof sprung outwardly and formed with a chisel edge for engaging with the nut on reverse turning of the latter.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MATHEW OMALIA.

Witnesses:
CHAS. E. DANIELS,
NELLIE DUFFY.