No Model.)

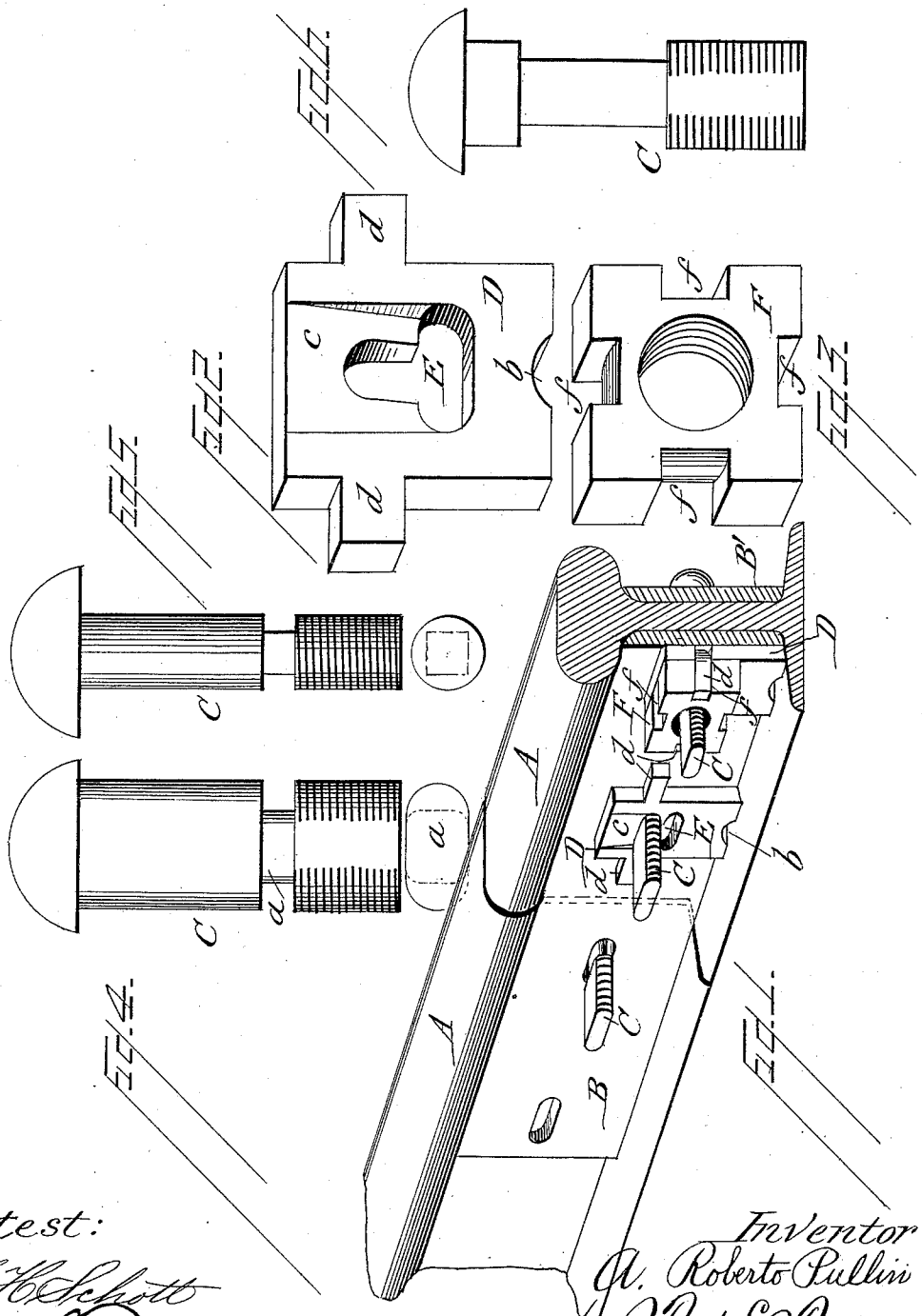
2 Sheets—Sheet 1.

A. R. PULLIN.

NUT LOCK.

No. 422,250

Patented Feb. 25, 1890.



Attest:

H. C. Schott

Wm. L. Boyden

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A. Roberto Pullin

per Fred E. Pasker

Atty

(No Model.) 2 Sheets—Sheet 2.

A. R. PULLIN.

NUT LOCK.

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Fig. 7.

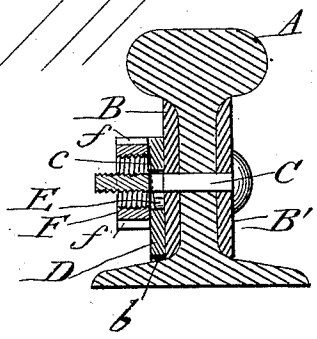


Fig. 9.

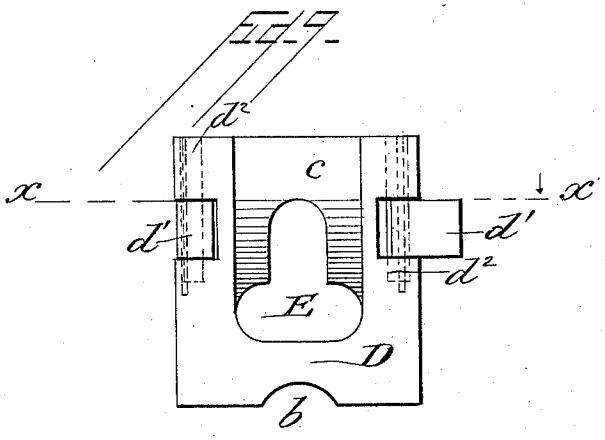


Fig. 8.

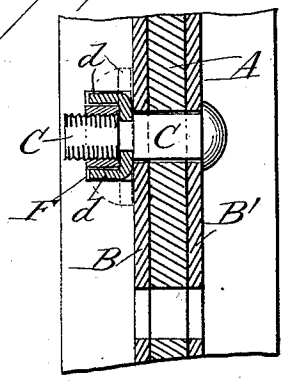


Fig. 10.

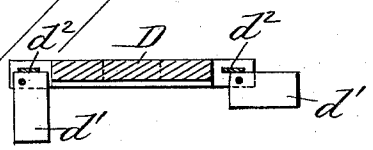


Fig. 12.

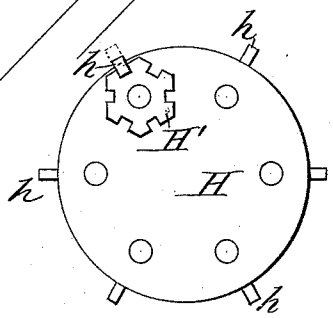
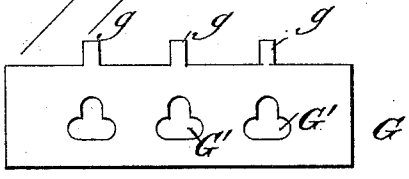


Fig. 11.



Attest:
F. H. Schott
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Atty

UNITED STATES PATENT OFFICE.

ALFRED ROBERTO PULLIN, OF SYDNEY, NEW SOUTH WALES.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 422,250, dated February 25, 1890.

Application filed May 15, 1889. Serial No. 310,830. (No model.)

To all whom it may concern:

Be it known that I, ALFRED ROBERTO PULLIN, a subject of the Queen of Great Britain, residing at Sydney, in New South Wales, Australia, have invented certain new and useful Improvements in Nut-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a nut-lock; and the invention consists in the combination of certain bolts, sliding latch-plates, or plates with clasps, and suitable nuts, and other combinations for making permanent or temporary but secure joints or fastenings, all of which will be hereinafter more particularly set forth and then claimed.

In order that my invention may be clearly understood, reference will be now made to the drawings herewith, which illustrate an application of the invention to a tram or railway line-coupling.

In the drawings, Figure 1 is a perspective view of the contiguous ends of two rails which are coupled together by means of my improved railway-rail-joint fastening. Fig. 2 is a perspective view of the sliding latch-plate having clasps adapted to be turned or bent into corresponding notches or concavities in a suitable nut, which is to be screwed against it when upon the bolt, and having a centrally-located hole or perforation through which the bolt is to pass, that portion of the sliding latch occupied by the hole being wedged or beveled from above downward and from the fore backward, so that when it is passed over the threaded end of the bolt it can be wedged down into the neck of the same. Fig. 3 is a perspective view of one of the nuts employed in my invention, said nut having four notches or indentations, one on each side, which are adapted for the reception of the clasps on the sliding washers or plates. Fig. 4 is a view of one form of bolt employed in this invention, which is slightly flattened throughout its length on two opposite sides and is formed with a square or rounded neck located at the inner end of its threaded portion, into which neck the sliding latch or clasp-provided plate is adapted to fit. Fig. 5 is a view showing another form of bolt, which is rounded throughout and provided with a square neck. Fig. 6 is a view of another form of bolt having a longer neck than that form shown in Figs. 4 and 5, so as to give more freedom for extensive expansion and contraction. Fig. 7 is a cross-section of a rail, the fish-plate, and the parts of my improvement. Fig. 8 is a longitudinal section of the same. Fig. 9 is a front view of one of the sliding latch-plates similar to that shown in Fig. 2, but provided with clasps fitted with springs and hinges, which operate upon the clasps in a manner similar to that of the spring of a pen-knife upon its blade, so that the clasp may be locked or unlocked when desired. Fig. 10 is a cross-section on line $x\,x$ of Fig. 9. Fig. 11 is a view of a plate, which may be of any shape or may have any number of holes and projections, said plate being used for splicings in connecting girders or other joints. Fig. 12 is a plan view of a circular plate with spring or plain clasps for securely fastening ends of cylinders, &c.

Similar letters of reference denote corresponding parts throughout all the different figures.

In Fig. 1 is shown a portion of a tram or rail way line in connection with which my improved railway-rail-joint fastening or coupling is arranged. A A denote the contiguous ends of two railway-rails, and B B′ represent the fish-plates located on the opposite sides of the rails, said fish-plates being provided with any suitable number of apertures or holes.

In carrying my invention into practical effect I first adjust the fish-plates in proper position and bolt them together through two of the holes by using any ordinary bolts, the purpose of this bolting being simply to hold the rails and fish-plates in close contact while I am placing the several parts of my present invention in the proper location. I do not therefore represent these ordinary bolts in the drawings, as they form no part of the invention, and I simply allude to them here to show how my invention will be best applied practically for its purpose. Then one of the necked bolts which I use—as, for instance, the form shown in Fig. 4, or in Fig. 5, or in Fig. 6—is passed through one of the holes or perforations in the fish-plate B′, then through the adjacent opening in the neck of the rail,

and lastly through the opening in the other fish-plate B. (See Fig. 1.) The sliding latch-plate D (see Fig. 2) is then located upon the projecting end of the bolt C by passing it over the threaded end thereof and causing it to slide down and fit nicely within the neck *a*. This latch-plate will fit nicely between the fish-plate and the collar formed on the inner end of the threaded portion of the bolt, thereby securely locking the bolt, even without the assistance of a nut. After the sliding latch has been firmly wedged down, so that its lower edge rests upon the base or foot flange of the rail, the nut F (see Fig. 3) is screwed upon the bolt close up against the sliding latch-plate. This nut F is provided on each of its four sides with a notch or indentation *f*.

The common bolts, which, as above explained, are used temporarily to connect the fish-plates while connecting the several parts of the invention, may now be withdrawn and bolts similar to those shown in Figs. 4, 5, or 6 substituted in their stead. In actual practice I find it convenient to allow the bolts to remain in the condition hereinabove explained, with the nuts F pressing close upon the sliding latch-plates D, but not otherwise connected thereto, until the line of rail has been subjected to the test of having a greater or less amount of traffic pass thereon, so as to make sure that these nuts F have been screwed up tightly enough against the latch-plates D. If this traffic result in loosening the nuts F, they can then be screwed up more tightly. The projections *d d* on the sliding latch-plate (see Fig. 2) may now be hammered or inturned into the notches *f f* in the sides of the nut F. These notches *f f*, it may be stated, are preferably formed with convex bases, (see Fig. 3,) as it is thought that this form of notch will serve to enable the projections *d d* to be bent over more neatly and tightly into the said notches. When these clasps or projections *d d* are bent over said convex bases and inwardly toward the central perforation of the nut, the nut will be firmly locked and effectually prevented from stripping or turning.

The sliding latch-plate, which fits into the neck *a* of the bolt, takes off a greater part of the strain generally and unavoidably put upon ordinary nuts. The sliding latch is prevented from turning around from the fact of its being square at its base or foot, which causes it to fit nicely down upon the base or foot flange of the rail.

It will be manifest that either one of the bolts shown in Figs. 4, 5, and 6 may be employed to carry my invention into practical effect. In some locations one form will be found preferable and in other locations another, and hence I do not desire to be restricted to any one of them, but reserve the liberty of using whichever one appears best for the case in hand. The form in Fig. 5, being round throughout, will be found suitable for drilled round holes, and is prevented from turning around by means of its square neck, into which the sliding latch or plate fits.

In Fig. 9 I have shown another form for a sliding latch-plate, which may be substituted for that shown in Fig. 2. Instead of having the rigid projections or clasps *d d*, which are integral with the plate D, the form shown in Fig. 9 is provided with hinged projections or clasps *d′ d′*, and also with flat springs d^2 d^2, which bear upon the hinged projections *d′* in the same manner as the spring of a knife bears upon the knife-blade. Fig. 10 shows this clearly. These hinged clasps are found very serviceable for use for couplings or joints that require to be unfastened occasionally.

Both the form of sliding latch-plate shown in Fig. 2 and that form shown in Fig. 9 are provided on their lower or base edges with an indentation *b* for the insertion of the end of a lever, whereby these latch-plates may be raised from out of the neck of the bolts after having turned back the clasps *d d* or *d′ d′* whenever it may be desired to remove the latch-plates for any purpose.

In Fig. 11 I have shown a portion of a plate G, having the holes G′ G′, of which there may be any number, and having the projections or clasps *g g*, of which there may be any number, which plate may be used for joining girders in bridge-work.

In Fig. 12 is shown a circular plate H, provided with projections *h*, which serve as clasps suitable for the ends of cylinders. H′ denotes the notched nut, which can be also locked by the clasps *h* when they are turned down.

These appliances can be used for all kinds of machinery, railway, bridge-work, or any construction in wood and iron.

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

1. In a nut-lock, the combination of a bolt having a transverse slot or shoulder, the sliding latch-plate having a central opening, whereby the plate engages the said slot, and having also clasping projections, and the nut having notches or indentations in its edges adapted to receive the inturned projections of the latch-plate, substantially as described.

2. In a nut-lock, the combination, with the notched bolt, of a nut having notches in the edge thereof, and a locking-plate D, having a central opening E and wedging-face *c*, and opposite projections *d d*, said projections being adapted to enter the notches in the edges of the nut, substantially as described.

In witness whereof I affix my signature in the presence of two witnesses.

Dated February 13, 1889.

A. ROBERTO PULLIN.

Witnesses:

JAMES C. CROWLEY,

THOMAS WM. HELMORE.