

H. S. FIRMAN.

Nut-Locks.

No. 156,078.

Patented Oct. 20, 1874.

Fig 1.

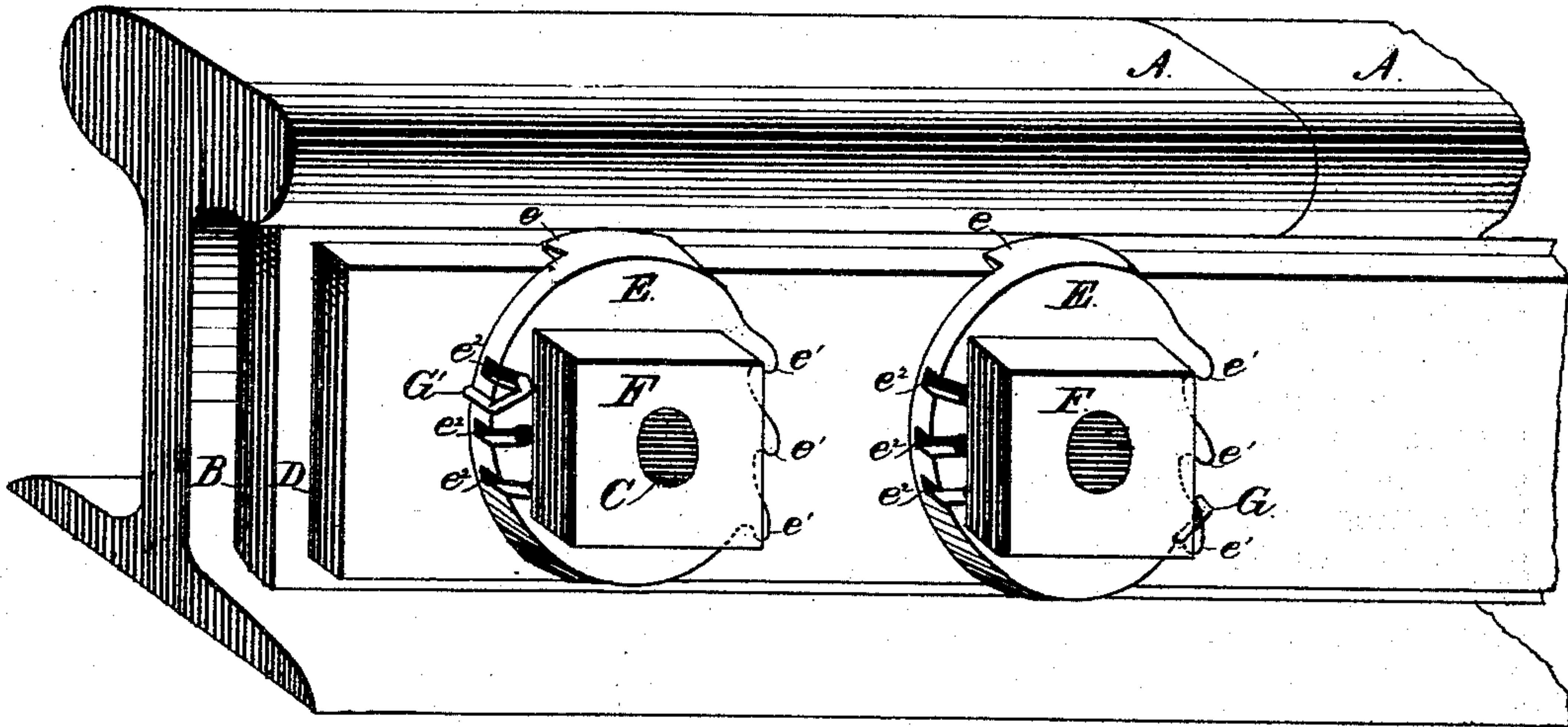


Fig 2.

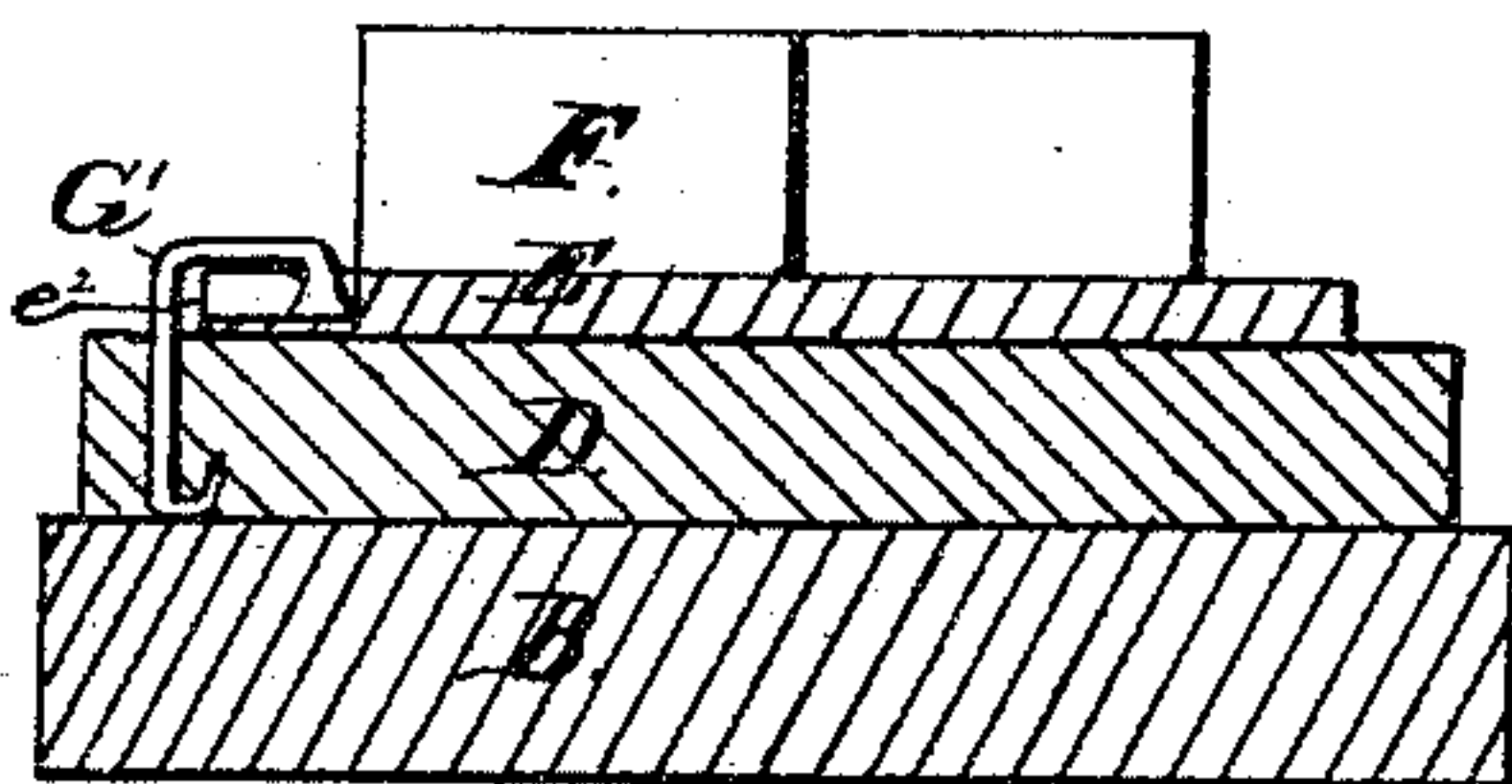


Fig 3.

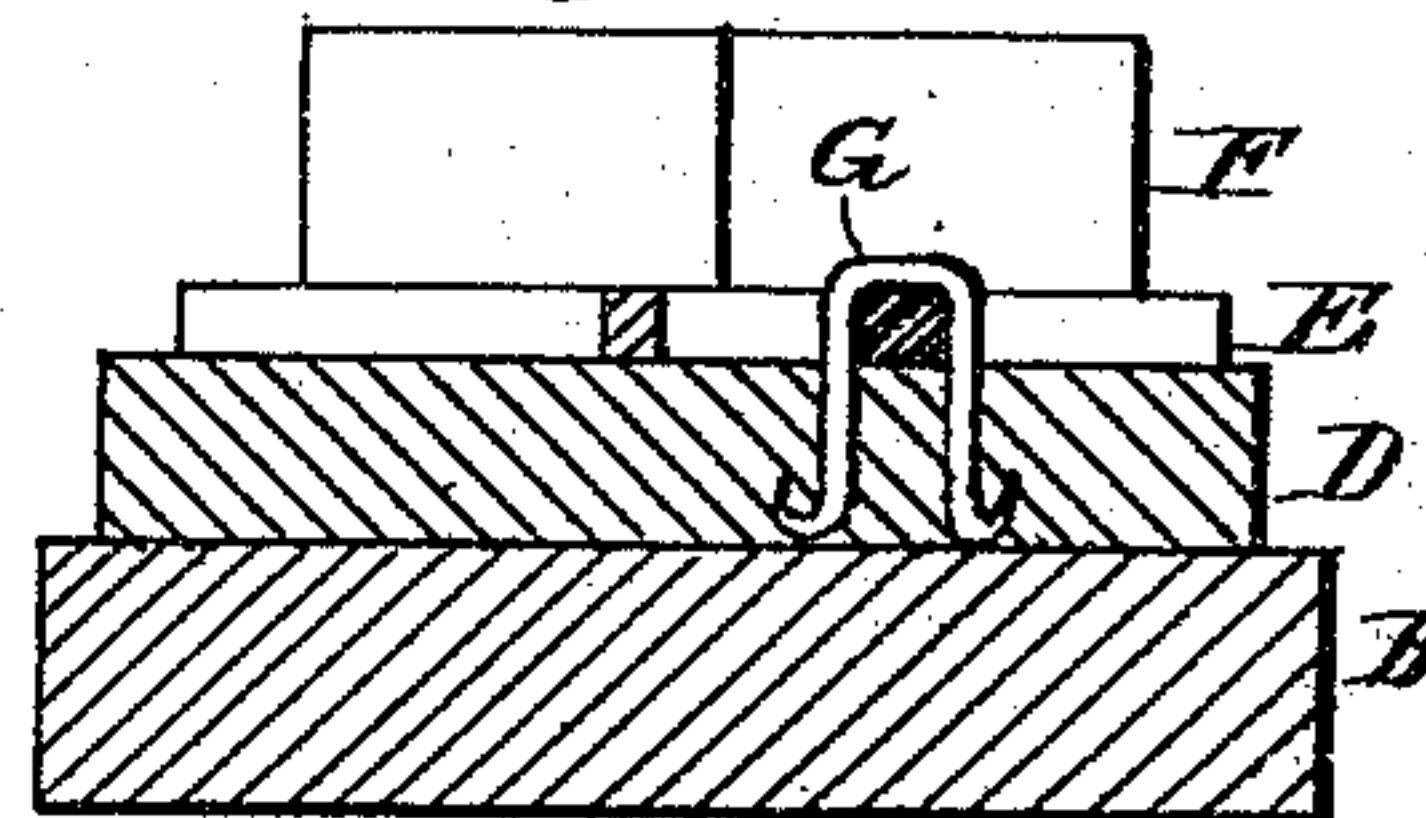


Fig 4.

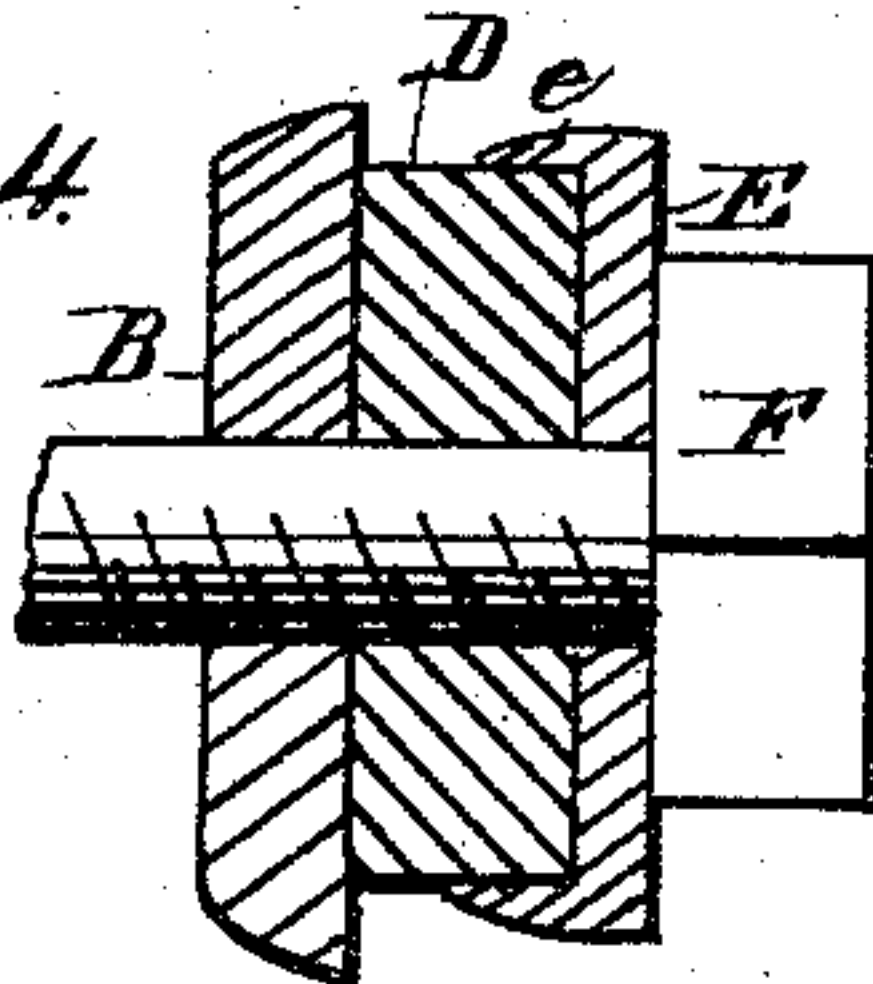
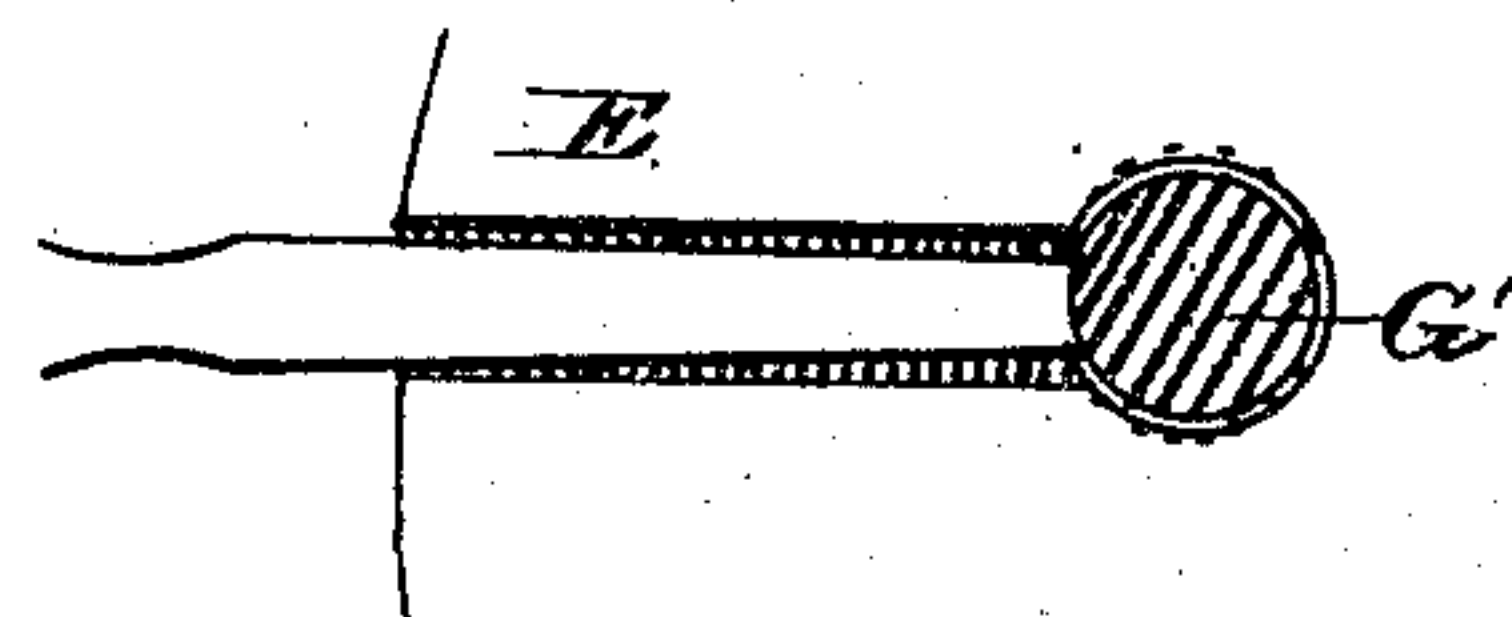


Fig 5.



Witnesses:

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# UNITED STATES PATENT OFFICE.

HENRY S. FIRMAN, OF NEW YORK, N. Y.

## IMPROVEMENT IN NUT-LOCKS.

Specification forming part of Letters Patent No. **156,078**, dated October 20, 1874; application filed August 8, 1874.

*To all whom it may concern:*

Be it known that I, HENRY S. FIRMAN, of the city, county, and State of New York, have invented certain new and useful Improvements in a Combined Washer and Nut-Lock, of which the following is a specification:

This invention consists in the employment of a wrought-metal staple or nail, in connection with a serrated or indented washer, provided with a lip or flange, and a piece of wood interposed between the washer and fish-plate, the staple or nail, when employed to lock the nut, being driven through the interposed strip of wood, in such manner that the points or point is clinched against the metal fish-plate, and also so that it is securely held by one of the serrations or indentations of the fixed washer, in such manner as to prevent the nut from turning, as will be fully described hereinafter.

In the drawings, Figure 1 represents a perspective view of a rail-joint having my improved lock-nut applied thereto; Figs. 2, 3, and 4, sectional elevations; and Fig. 5, a plan view representing the manner of fastening the end of the staple in one of the indentations of the washer.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and manner of operation.

A A represent the adjacent ends of two ordinary rails; B, the fish-plate upon one side; and C C, the securing-bolts, these parts being of the usual well-known construction. D represents a suitable strip of wood of proper size, which is provided with holes corresponding with the securing-bolts, so that it may be caused to lie against the fish-plate, as shown. E E represent washers, each of which is provided with the lip or lips *e*, adapted to project over the sides of the wooden strip D, as shown, or be inserted in the wood, for the purpose of preventing the washer from turning. These are also each provided, upon their side edges, either with a series of serrations, *e*<sup>1</sup> *e*<sup>1</sup>, or a series of indentations, *e*<sup>2</sup> *e*<sup>2</sup>, as shown. F represents the usual nut, and G G' the securing device, consisting of a staple or nail made of wrought metal, so that the points may be clinched against the metal fish-plate.

The devices lettered G are adapted for use with the series of serrations, and those lettered G' with the series of indentations.

The manner of using my improved nut-lock is as follows: The fish-plates, bolts, wooden strip D, washer E, and nut being properly applied to the rails, as indicated in the drawings, and the latter having been turned up to its place in the usual manner, a staple or nail, G, is then set in that one of the serrations which will hold it in the best position to prevent the nut from turning, and driven home through the strip of wood in any suitable manner, by which means its point or points are turned by contact with the metal fish-plates, and clinched into the inner surface of the wood, the nail or staple being made sufficiently long for this purpose. When thus applied the nail or staple will be securely held at its inner end by its clinched points, and at its outer end by the fixed washer, and being so held it is obvious that the nut cannot turn. If the indentations are used the staple G', with one short leg, is employed, the latter resting at its lower end in the recess or indentation, while its long leg extends through the wooden strip, as before described.

If desired, the short leg may be strongly secured in the indentations of the washer by forming the latter with an enlarged taper in a downward direction, as shown in Fig. 2, and providing the same with a connected slot or channel extending to the edge of the washer, by which means, when the leg is in position, it may be secured by upsetting the metal of its lower end by means of a suitable punch introduced through the slot or channel, as indicated in Fig. 5.

It will be observed that the fastening serrations or points upon each side of the washer are so arranged that the nut cannot be turned into any position without its being in such relation to one of the fastening-points that it can be secured in that position.

If desired, the strip of wood may be strengthened by metal caps, bands, or bolts at the ends, and also in the center, if of great length; but it will be found in practice that the washers will have a tendency to retain these properly in place, and prevent them from splitting by warping or by unequal strain.

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

1. The nut-lock described, consisting essentially of the interposed wooden strip D, the fixed washer E, having lip *e* and serrations or indentations, as described, and a clinched staple, combined as and for the purpose set forth.

2. The staple, having a long leg adapted to

be clinched in the interposed wooden strip, and a short leg adapted to be secured to the indented washer, in combination with the interposed strip and washer, as described.

This specification signed and witnessed this 5th day of August, 1874.

HENRY S. FIRMAN.

Witnesses:

HARRY C. CLARK,  
JAS. J. FINLEY.