

(No Model.)

S. GISSINGER.

NUT LOCK.

No. 285,122.

Patented Sept. 18, 1883.

Fig. 1,

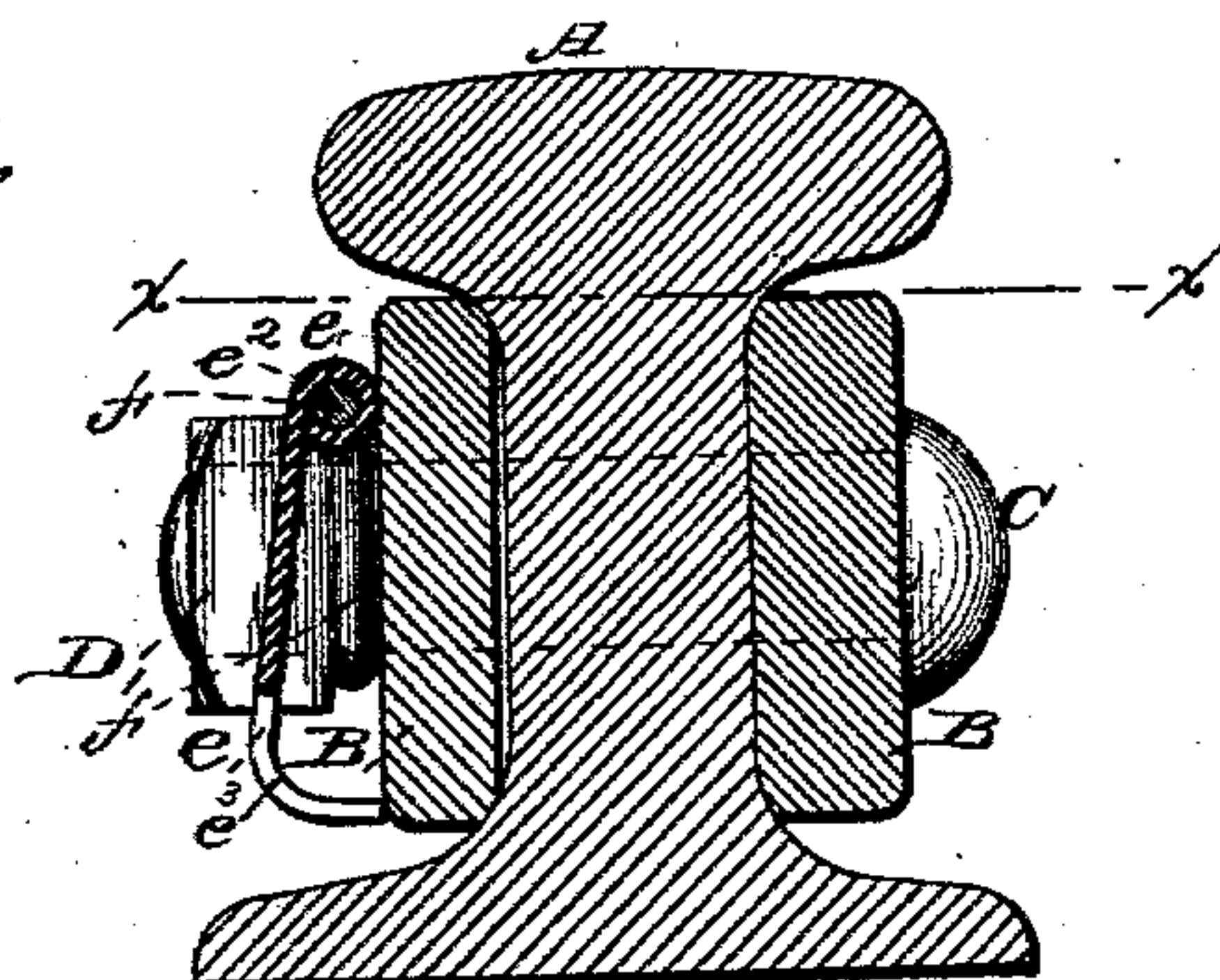


Fig. 2,

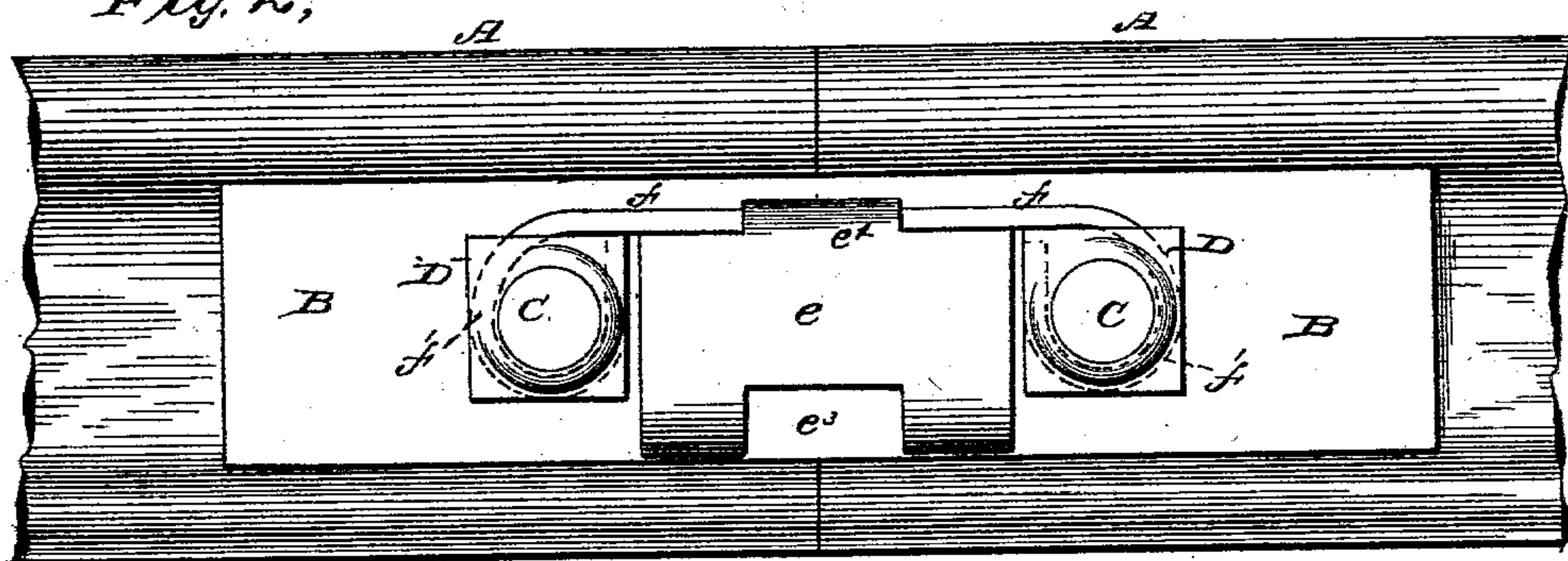


Fig. 3,

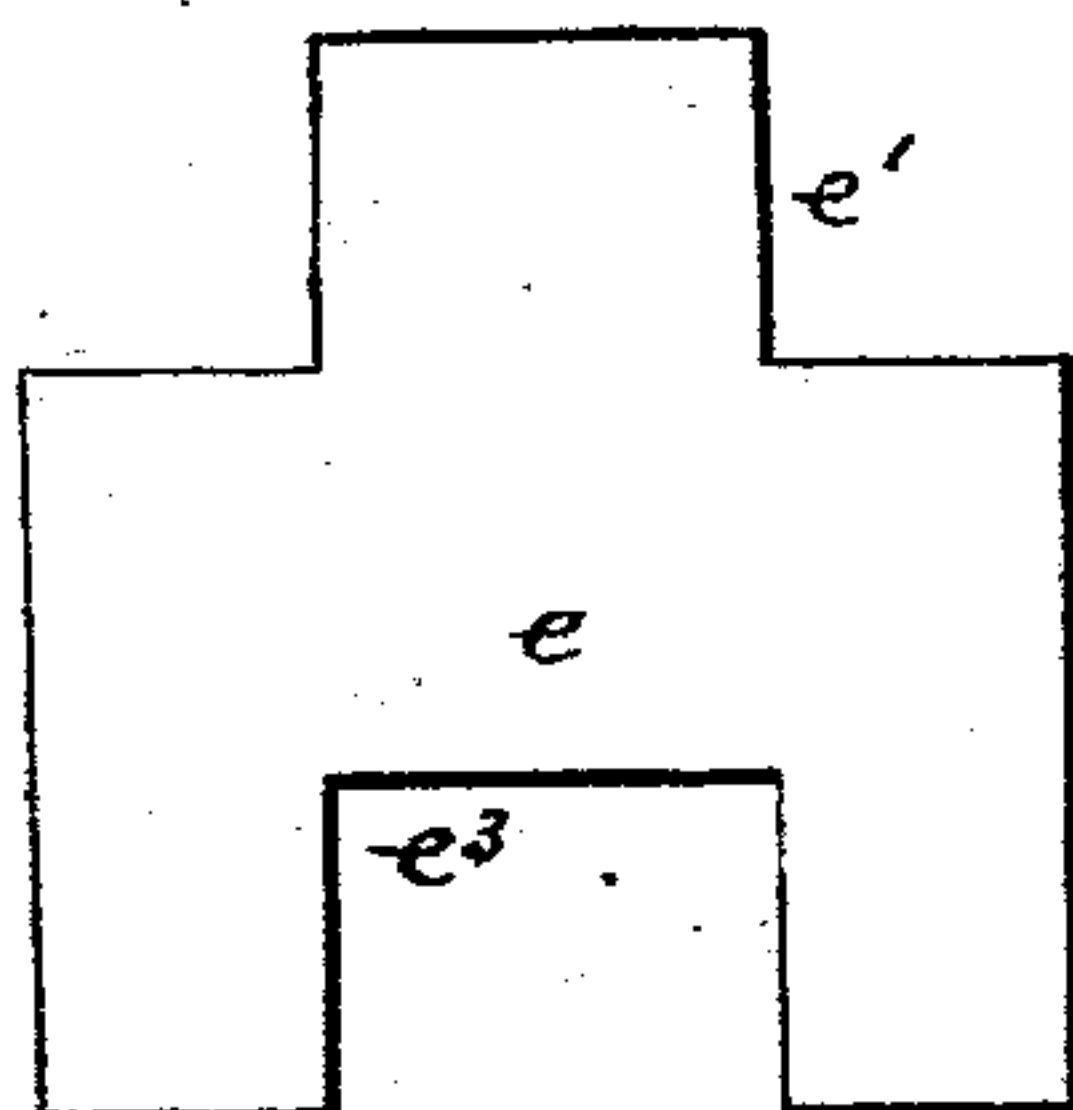
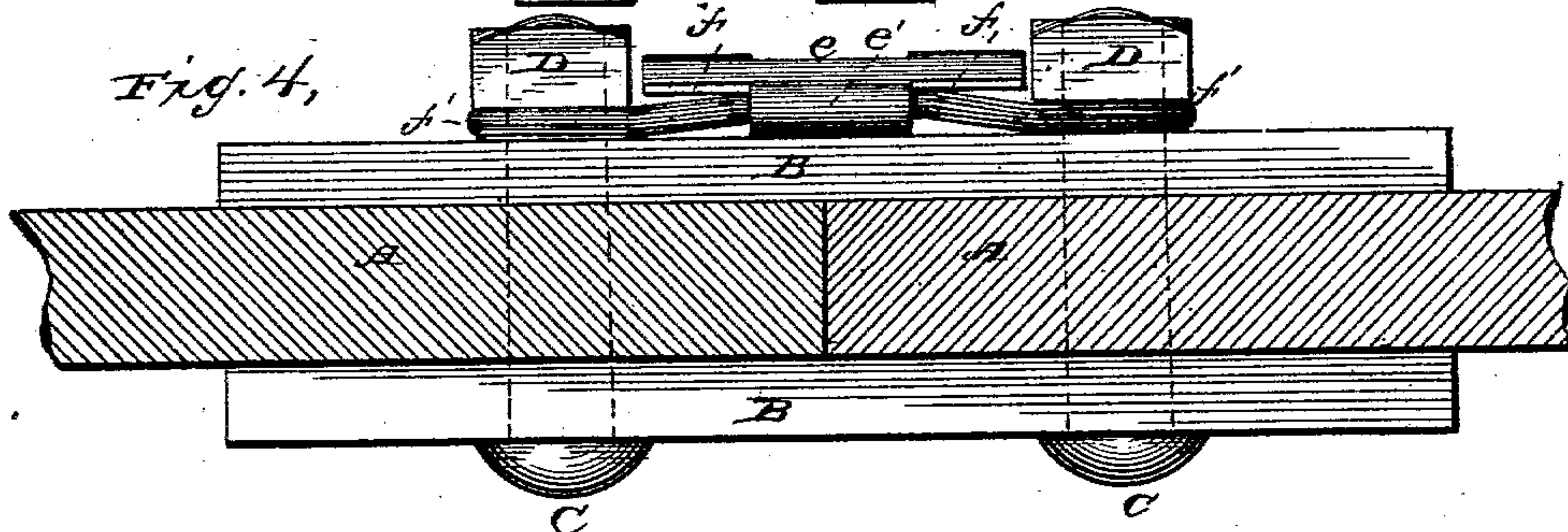


Fig. 4,



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 285,122, dated September 18, 1883.

Application filed October 20, 1882. (No model.) Patented in England April 26, 1882, No. 1,970.

*To all whom it may concern:*

Be it known that I, SAMUEL GISSINGER, of Pittsburg, in the county of Allegheny, State of Pennsylvania, have invented a new and useful Improvement in Nut-Locks; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

To enable others skilled in the art with which my invention is most nearly connected to make and use it, I will proceed to describe its construction and operation.

In the accompanying drawings, which form part of my specification, Figure 1 is a vertical cross-section of a railroad-rail joint provided with my improvement. Fig. 2 is a side elevation. Fig. 3 is a view of the blank for forming my improved locking-plate. Fig. 4 is a horizontal section on the line  $x x$  of Fig. 1.

In the drawings, A A indicate two adjoining rails; B B, the fish-bars; C C, the bolts; D D, the nuts, and  $e$  the locking-plate, which is preferably formed by cutting, as shown in Fig. 3, from a plate of iron or other suitable material. One side of the locking-plate, or a portion,  $e'$ , thereof, is bent over to one side and forms the eye of the hinge. The other side is bent inward in the same direction at a right angle, so that when the locking-plate is laid down against the side of the fish-bar the lower edge will rest against the fish-bar. By cutting the locking-plate, as shown in Fig. 3, with a projecting portion,  $e'$ , I provide means for forming the eye  $e^2$  of the hinge, and at the same time do not injure the lower edge of the next-preceding blank, as the recess  $e^3$  thus formed does not destroy the utility of the plate. Thus I am enabled to cut these blanks with great economy of material. The locking-plate is hinged to a steel wire,  $f$ , which is passed through the eye and has its ends coiled so as to form washers  $f'$ , which are placed over the ends of two adjacent bolts, as shown in Fig. 4. The wire  $f$  may be inserted into the eye  $e^2$  before forming the washers  $f'$ , or the knuckle of the locking-plate may be bent around the wire after the washers are formed.

My improvement is used as follows: The washers  $f'$ , as shown in Fig. 4, are placed on the ends of two adjacent bolts, with the knuckle

of the locking-plate placed inward. The locking-plate is then turned up and the nuts are screwed onto the bolts.

It will be noticed that the thickness of the locking-plate comes between the fish-bars and the wire  $f$ , and that when the nuts D are screwed down tight on the washers  $f'$  the wire  $f$  will be bent inward at the ends by the nuts and held out in the center by the knuckle of the locking-plate. This causes the wire to act as a spring, which has a tendency to hold the locking-plate down in position, and prevents it being jarred or turned up by accidental causes. After the nuts are secured their sides are turned parallel to the adjacent sides of the locking-plate, and then the plate is turned down between them, which thus opposes a straight side against the sides of the nuts, and will prevent the nuts from turning. An additional effect of the bending of the wire  $f$  by the screwing down of the nuts is to cause the nuts to become jammed on the washers  $f'$ , and to prevent all tendency to their starting or unscrewing. The portion of the wire between its washer ends  $f'$  is normally adapted, when in the knuckle of the locking-plate, to stand away from the fish-bar; and when the locking-plate is hinged to it as described, and it is applied to the joint, the screwing on of the nuts causes it to be deflected toward the fish-plate, with the spring action described.

I am aware that a locking-plate has been hinged to a slotted flat metal washer placed under the nuts; but such device differs from mine not only in construction, but also in effect, as nuts can be screwed more tightly down on a curved than on a flat surface, and consequently I obtain a better and tighter joint, which is desirable on account of the sudden and heavy jars to which said joints are exposed. Moreover, the wire is adapted to form the pintle of the hinge without any preparation, and can be fitted for use by simply bending its ends to form the washers, while the flat metal washer requires to be slotted for the application of the locking-plate, and punched for the passage of the bolts. My device is also much stronger, simpler, and altogether better fitted for use than the other device above mentioned.

The construction of nut-lock herein de-



scribed and claimed differs essentially from that described in my former patent of April 4, 1882, in the following important particulars of construction and operation:

5 In the patent of 1882 the wire which forms the pintle of the hinge of the locking-plate is bent outwardly from the fish-bar, so as not to come in contact with it excepting at the two ends which rest against the fish-bar, without  
10 any spring action whatever against the under surface of the nuts. Furthermore, in the construction shown in that patent a curved spring is formed from an extension of the hinge portion of the plate, for the purpose  
15 of holding the plate down between the nuts. This spring-extension of the locking-plate is, however, objectionable in practice, for the reason that when the locking-plate is raised, as it must be to screw and unscrew the nuts,  
20 it is very difficult to get the end of the spring in between the knuckle of the hinge and the fish-bar, and that when in place the spring is very apt to be broken off by the jarring to which it is exposed, and is apt to break at the  
25 hinge, so as to detach the locking-plate entirely, and it would in any event necessitate the making of the entire locking-plate of the best quality of steel. It is an important matter for these reasons to dispense entirely with  
30 the spring-extension, and I therefore make the locking-plate with a plain knuckle—that is to say, without any spring extension or attachment, and provide otherwise for keeping the locking-plate in place between the nuts.  
35 By my present improvement the spring action is entirely in the wire, which for that purpose is made of steel. The curl of the wire forming the washers for the nuts is immediately at each extremity of that portion of the  
40 wire which extends beyond the locking-plate at each end, and the intermediate portion forms the pintle of the hinge, the curved portion of the plate, which forms the knuckle of the hinge, passing round the wire. By this  
45 construction, when the nut-lock is applied to the fish-bar, the wire does not touch it at any point, as the knuckle of the hinge holds it away; but when the nuts are applied to the

bolts which are passed through the washers formed by curling the wire at each end, and 50 are screwed down against those spring-wire washers, they are pressed down against the fish-bar, the wire on either side of the knuckle of the hinge being forcibly deflected, so that the spring-washers now bear with spring action outwardly against the under sides of the 55 nuts and the wire forcibly presses the hinge of the locking-plate against the fish-bar, thereby keeping the locking-plate securely in place when it is turned down between the nuts after 60 they are screwed home.

By thus dispensing with a spring on the locking-plate, and transferring the spring action from the plate to the wire, I not only obtain the advantages resulting from the absence 65 of the spring-extension before referred to, but I secure the additional effect of spring-washers under the nuts, while also keeping the locking-plate from derangement.

Having thus described my improvement, 70 what I claim is—

1. As a nut-lock, the combination of a metallic locking-plate having a plain knuckle of a hinge formed at its upper edge with a rod or wire forming the pintle of the hinge, and bent 75 around at each end, so as to form washers for nuts, substantially as hereinbefore described.

2. The combination, in a nut-lock for fish-bars, of a spring-wire bent at each end, so as to form washers to encircle two adjacent bolts, 80 and a locking-plate hinged to said wire by a knuckle formed on the upper edge of said plate and passing around said wire as its pintle, the wire, including the washers, being normally adapted to stand away from the fish- 85 bar by the interposition of the knuckle between the wire and the fish-bar, whereby the screwing down of the nuts against said washers shall deflect the wire, thus causing it to act as a spring both on the locking-plate and 90 on the under side of the nuts, substantially as described.

S. GISSINGER.

Witnesses:

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CHARLES LARGE.