

No. 688,308.

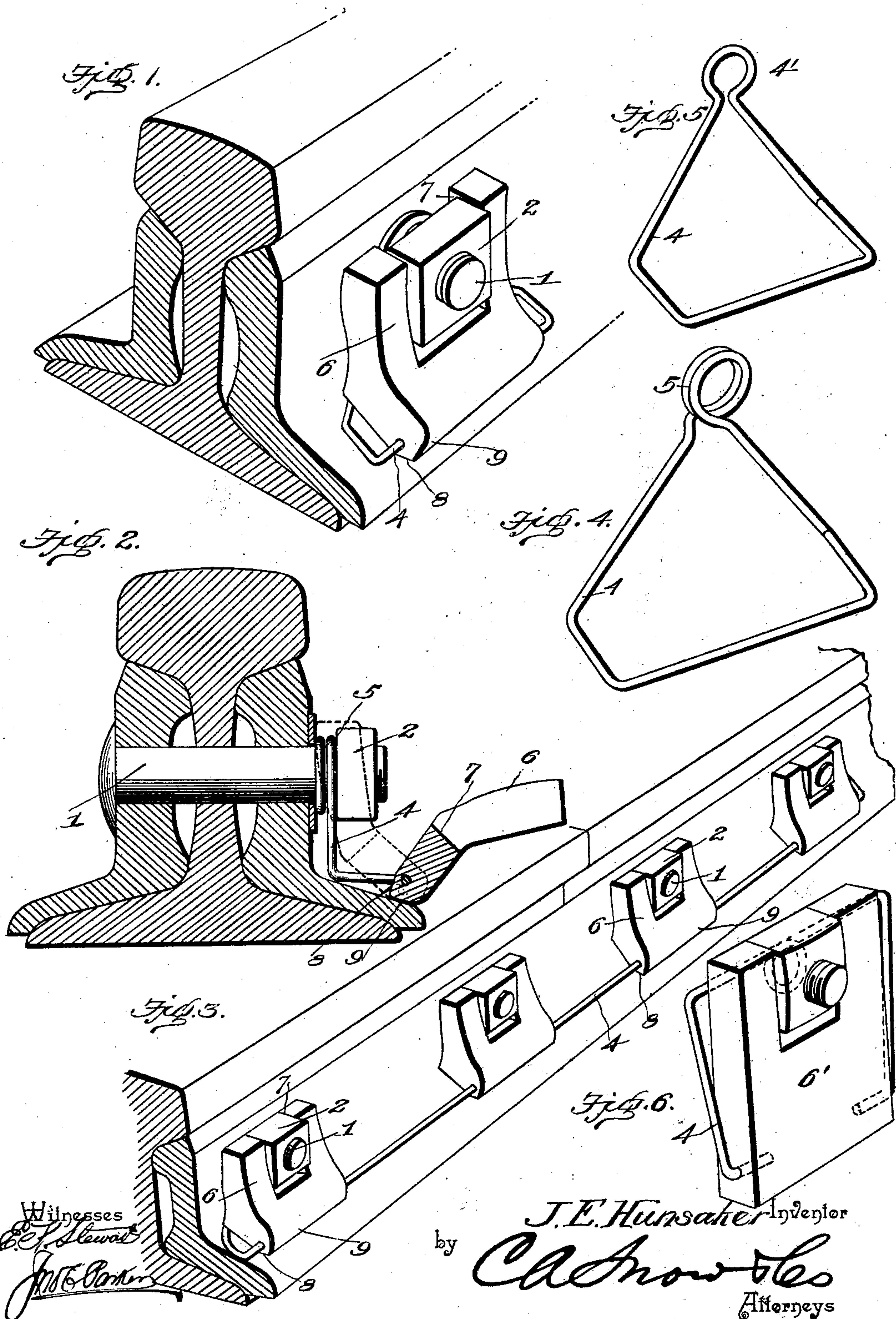
Patented Dec. 10, 1901.

J. E. HUNSAKER.
NUT LOCK.

(Application filed Sept. 6, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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2 Sheets—Sheet 2.

Fig. 7.

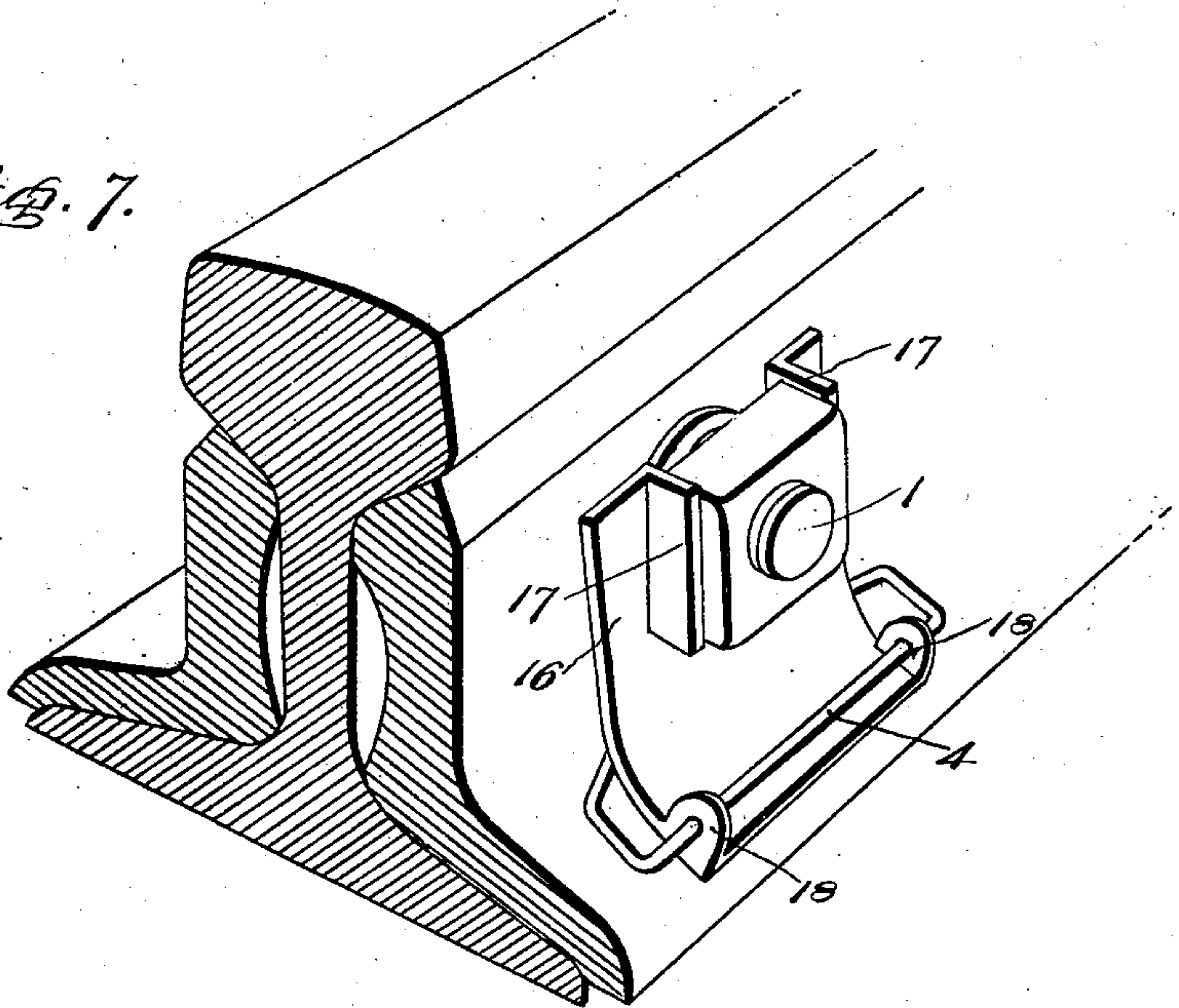


Fig. 8.

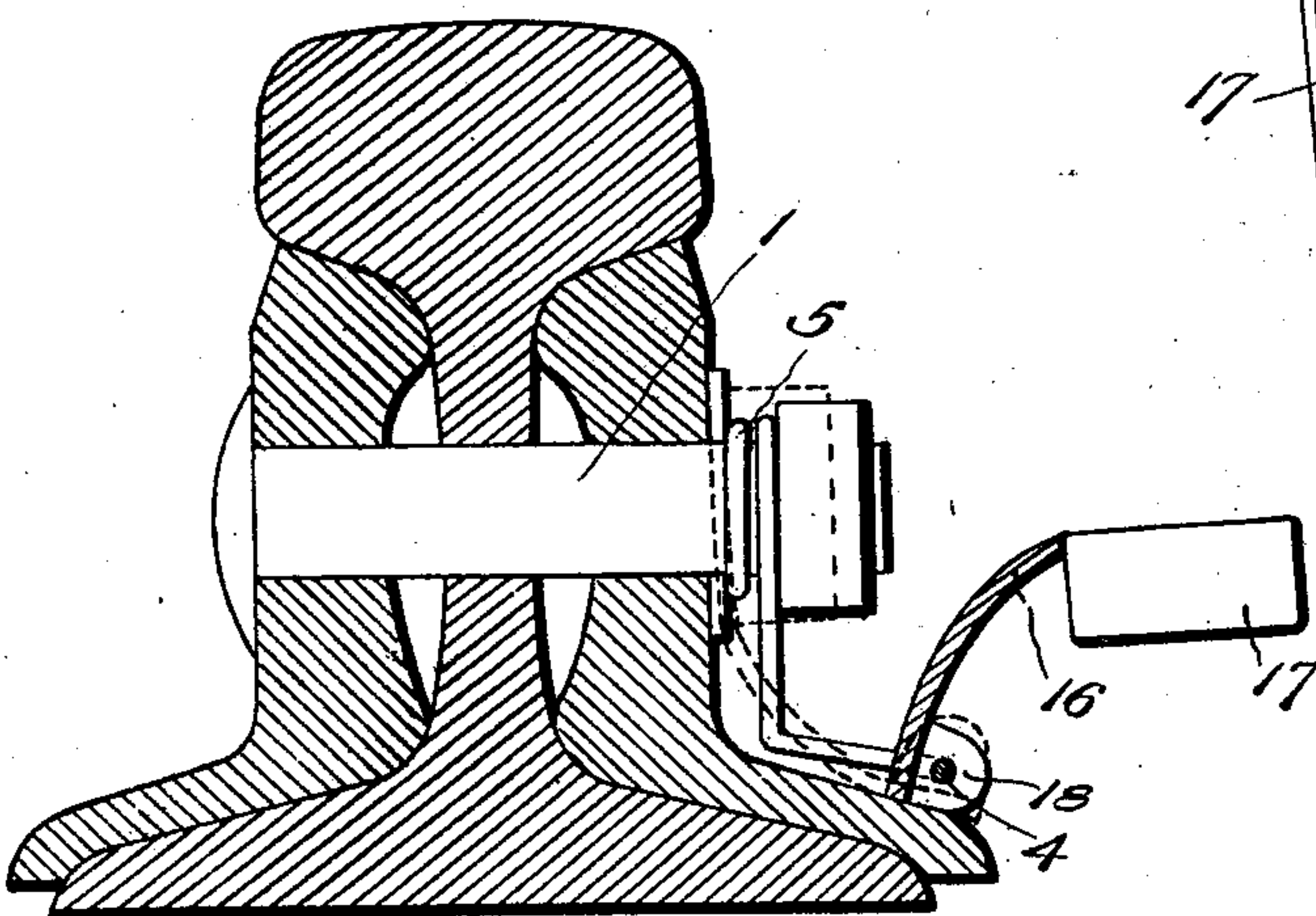
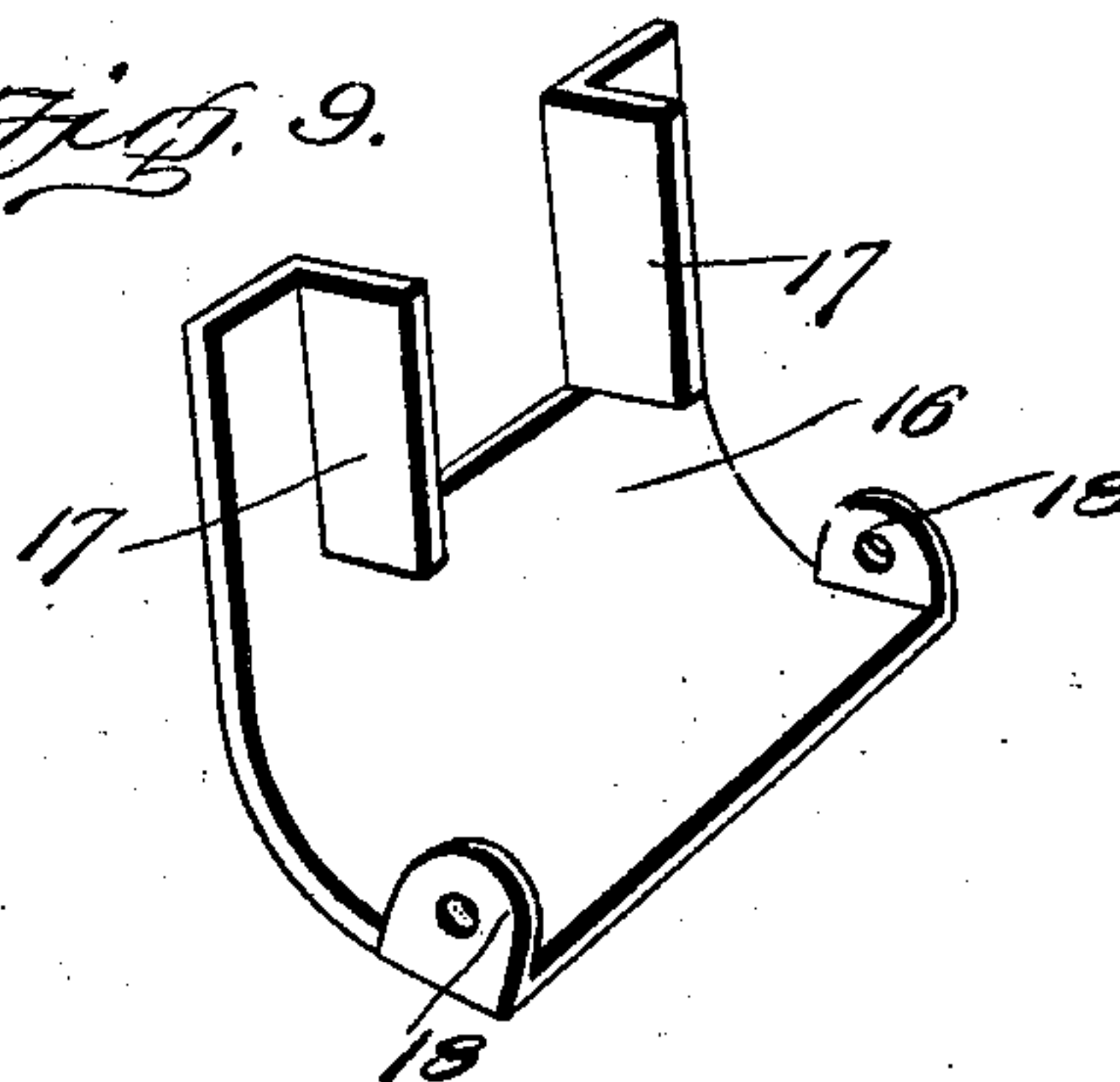


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN E. HUNSAKER, OF VIENNA, ILLINOIS, ASSIGNOR OF ONE-HALF TO
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NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 688,308, dated December 10, 1901.

Application filed September 6, 1901. Serial No. 74,562. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. HUNSAKER, a citizen of the United States, residing at Vienna, in the county of Johnson and State of Illinois, have invented a new and useful Nut-
Lock, of which the following is a specification.

My invention relates to certain improvements in nut-locks; and it has for its principal object to construct a device of this character which will firmly hold a nut in adjusted position and which may readily be removed from contact with the nut when the latter is to be removed or tightened.

A further object of the invention is to provide, in connection with the nut-lock holder, means for compensating for the alterations in the length of the bolt due to expansion and contraction.

With these and other objects in view the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a nut-locking device constructed and arranged in accordance with my invention and illustrating its application to the securing-bolts of a rail-joint. Fig. 2 is a sectional elevation of the same, showing the nut-engaging keeper moved from operative position. Fig. 3 is a perspective view showing the application of a plurality of keepers to a single supporting means. Fig. 4 is a detached perspective view of a preferred form of bail and illustrating also the spring for compensating for expansion and contraction of the bolt. Fig. 5 is a similar view of a modified form of supporting-bail. Fig. 6 is a detached perspective view of a modified construction of keeper. Fig. 7 is a perspective view illustrating a locking device of modified construction. Fig. 8 is a transverse sectional elevation of the same. Fig. 9 is a detached perspective view of the keeper.

Similar numerals of reference are employed to designate corresponding parts throughout the several views.

1 designates a threaded bolt to which is applied a nut 2 of ordinary construction, these being shown in the present instance in con-

nection with the fish-plates of a rail-joint, although it will be understood that the device is not limited in its application to work of this class.

4 represents a spring-wire bail, the ends of which are bent to form one or more coils 5, arranged in the form of a helical compression-spring and placed on a bolt between the inner face of the nut and the adjacent face of the fish-plate. The nut 2, being locked in the manner hereinafter described, need not be screwed up so tightly as is necessary in ordinary cases, the spring acting to keep the parts in proper relative position and at the same time permitting the contraction of the bolt when exposed to low temperature or its expansion when exposed to a high temperature without danger of breaking the bolt or lessening its holding effect.

In some cases, particularly on railway-lines exposed to any considerable range of temperature, nuts and bolts applied during the summer season and screwed tightly in place will often be broken by the contraction due to exposure to the lower temperature of the winter months, and in similar manner those applied during cold weather will become loose during warm weather. The employment of the compensating spring 5 remedies this effect in that it will permit contraction to any possible extent without subjecting the bolt to a breaking strain, and when the bolt is expanded the spring will still act to preserve close and binding contact between the parts which the bolt unites.

The main or body portion of the bail 4 is substantially rectangular in form, and on its outer portion, parallel with the fish-plate, is pivoted a keeper 6, conforming in general contour to the part to which it is to be attached and having at its upper end a slot 7, adapted to engage with the opposite vertical sides of the nut 2. The pivotal point of the keeper 6 is within and above the extreme outer portion of the keeper, at which point a comparatively sharp bearing edge or shoulder 8 is formed for contact with the lower flange of the fish-plate. The shoulder 8 forms the fulcrum-point for the keeper 6, the spring-bail being attached thereto at a point within the shoulder and, exerting downward pres-

sure on the keeper, will normally hold the upper portion of said keeper in contact with the fish-plate, as illustrated in Fig. 1. The extreme outer end of the keeper is flattened, as at 9, so that said keeper may be pulled out to the position shown in Fig. 2 when it is desired to remove the nut or to tighten the same, the keeper when moved back past the fulcrum-point again coming under the influence of the spring and being forced to the locking position.

In some instances—as in fish-plates where six bolts or four bolts are employed—the wire bail may be attached to the outer bolts only and a sufficient number of keepers be pivoted upon the single bail in the manner shown in Fig. 3.

Where the compensating spring is not necessary or desirable, a simple form of bail, such as shown at 4' in Fig. 5, may be employed.

In the application of the device to flat surfaces the keeper 6' is made in the manner illustrated in Fig. 6, the wire bail passing through an opening in the same and acting to keep its upper slotted end in engagement with the bolt.

It will be understood, of course, that the keeper need not necessarily be slotted, a simple opening conforming to the contour of the nut being in some cases desirable.

It will be understood that various modifications in the form, proportions, and size of the device herein described may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the modified structure illustrated in Figs. 7, 8, and 9 the keeper 16 is formed of sheet metal, shaped by suitable guides and having ears 17 for engagement with the vertical sides of the nut. At the lower end of the keeper are struck up ears 18, perforated for the passage of the holding-bail 4. The structure presents some advantages over that shown in the remaining figures of the drawings in that it is much lighter and can be readily formed by dies from sheet metal of any thickness.

Having thus described my invention, what I claim is—

1. In a nut-lock, a spring-bail carried by the bolt, a keeper having an outer end or shoulder forming a fulcrum-point, there being an opening in said keeper at a point within the shoulder for the passage of the bail, and a receiving slot or pocket formed at the upper end of said keeper for the reception of the nut to be locked, substantially as specified.

2. A device for locking a nut to a bolt, comprising a spring-bail having one or more coils encircling the bolt and forming a compression-spring, and a slotted keeper carried by said bail and movable thereon into or out of contact with said nut, substantially as described.

3. A nut-lock comprising a spring-bail bent to form a compression-spring and situated between the inner face of the nut and the adjacent face of a bolted section, a keeper pivoted on the outer portion of the said bail and having a nut-engaging slot, said keeper having at its outer end a fulcrum-shoulder and being provided with a flat outer end to permit its locking in inoperative position, substantially as specified.

4. In a nut-lock, a keeper having a slot or recess for engagement with a nut, said keeper having at its outer end a fulcrum-shoulder and being provided with a flat outer face, a spring-bail pivotally connected to said keeper at a point near said fulcrum-shoulder and adapted to lock said keeper in operative or in inoperative position, substantially as specified.

5. In a nut-lock, a spring-wire bail having its opposite ends secured to the outer of a series of bolts, the nuts of which are to be locked, and a plurality of keepers pivoted to said bail and adapted to engage with and lock the intervening nuts, each of said keepers having at its outer end a fulcrum-shoulder to permit its being locked by the bail in operative or inoperative positions, substantially as specified.

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

JOHN E. HUNSAKER.

Witnesses:

C. E. HOYLE,

FRANK S. APPLEMAN.