

(No Model.)

J. M. FRY.

NUT LOCK.

No. 333,212.

Patented Dec. 29, 1885.

Fig. 1.

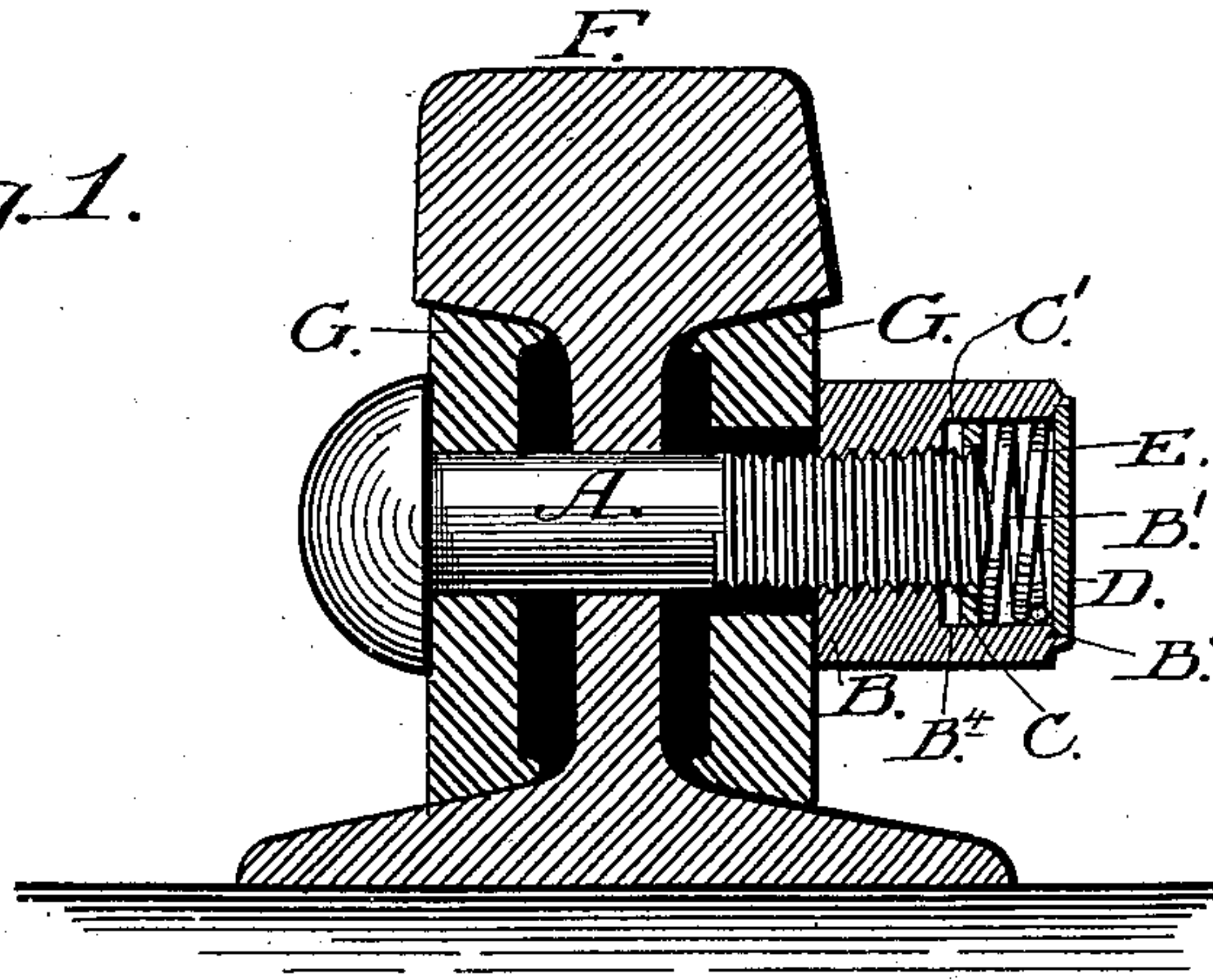


Fig. 2.

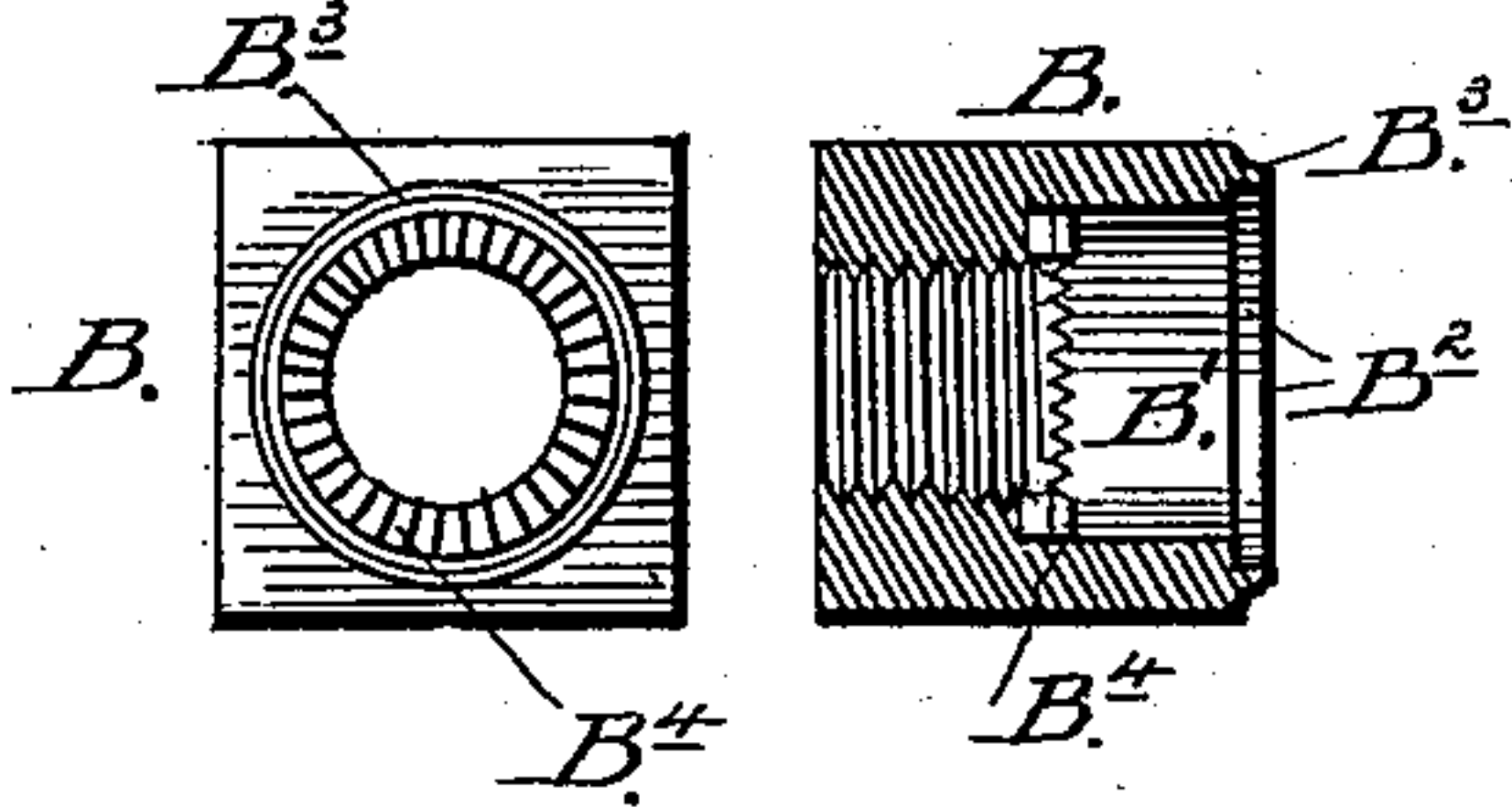


Fig. 3.

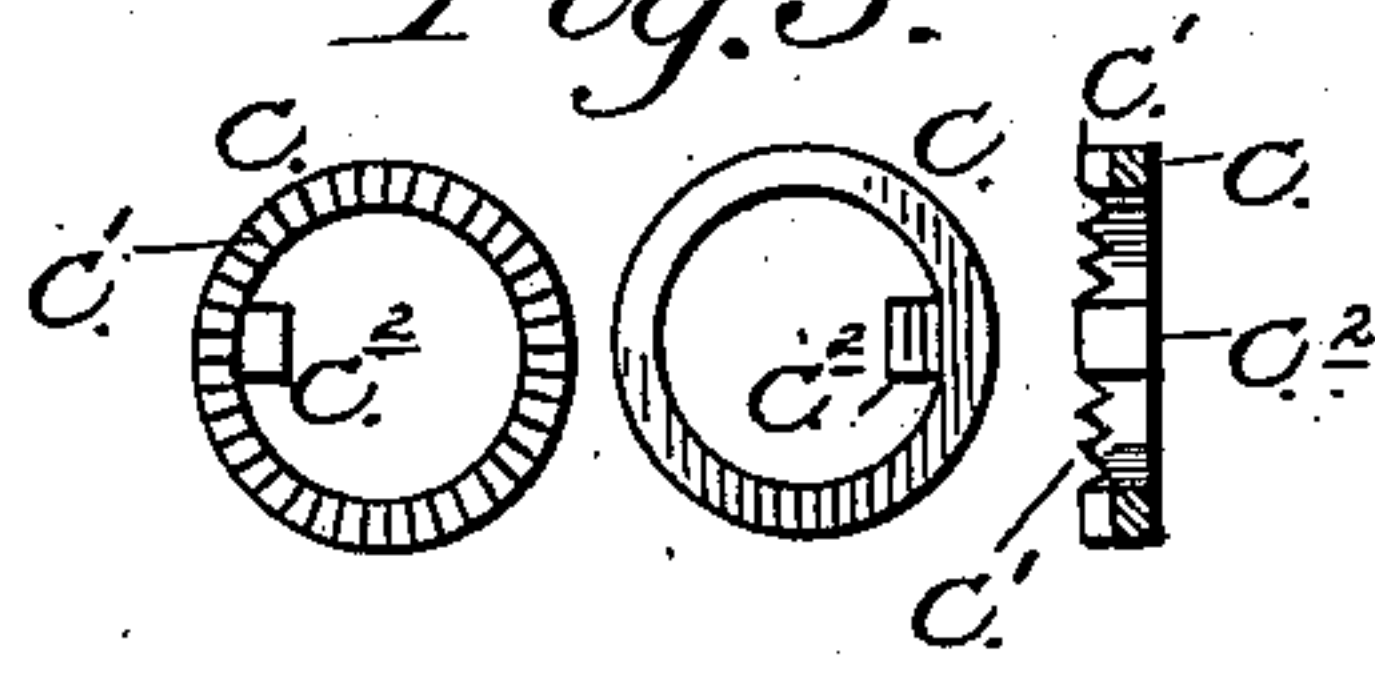


Fig. 4.

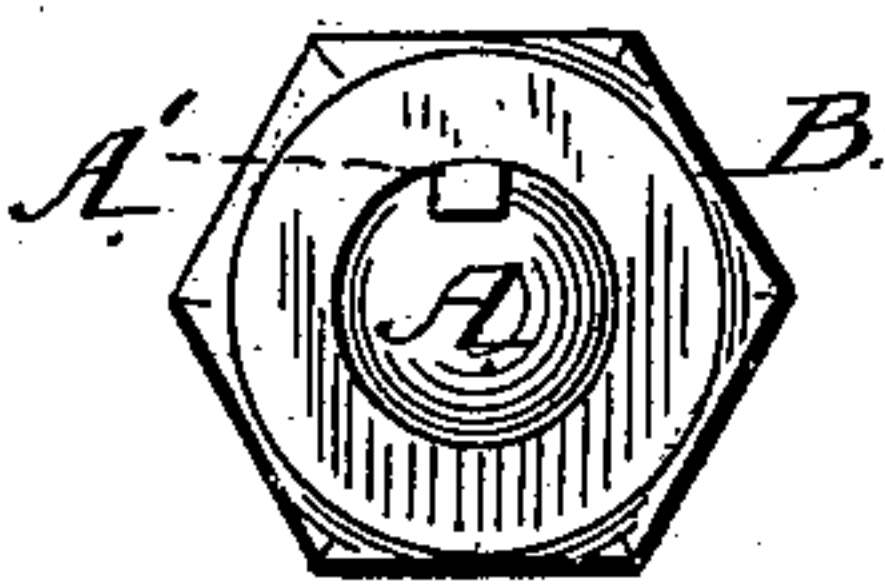


Fig. 5.

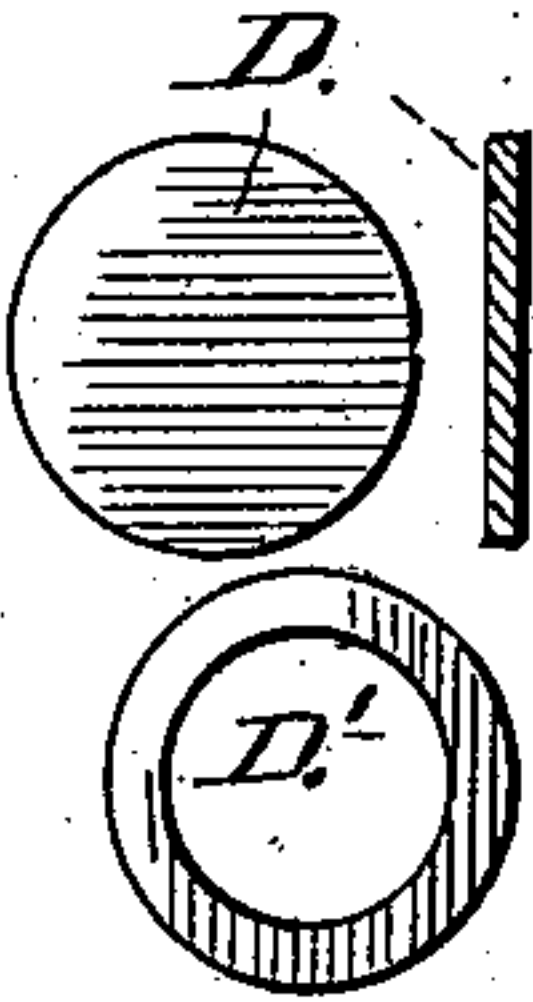
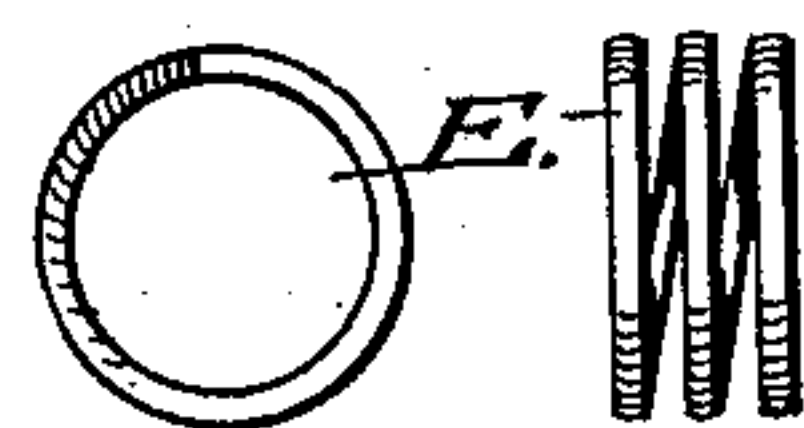


Fig. 6.



WITNESSES

J. Walter Fowler
H. B. Appluwaite

INVENTOR

John M. Fry
by Thomas P. Kusey
Attorney

UNITED STATES PATENT OFFICE.

JOHN M. FRY, OF ROTHSVILLE, PENNSYLVANIA.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 333,212, dated December 29, 1885.

Application filed May 1, 1885. Serial No. 164,068. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. FRY, a citizen of the United States, residing at Rothsville, county of Lancaster, State of Pennsylvania, have invented a new and useful Improvement in Nut-Locks, of which the following is a specification.

This improvement relates to that class of nut-locking devices which are especially adapted to railroad-rail fish-joints, for wooden bridges, and frame-work of like character.

The object of the invention is to furnish a sure and reliable lock to the nut, occupying no more room upon the bolt than a jam-nut would take up, and superior to the jam-nut in its holding power. This is attained in the use of the improvement, shown in the accompanying drawings, similar letters of reference indicating similar parts.

Figure 1 shows the application of the improvement to a fish-plate joint of a railroad-rail, the bolt in full elevation, the rest in section; Fig. 2, a plan and section of the locking-nut; Fig. 3, top and reverse plan of the annular locking ratchet-ring and a transverse section of the same; Fig. 4, an end view of the bolt, to show the ratchet-tongue locking-groove; Fig. 5, a plan of the nut-cap when the bolt is concealed within the nut, also a plan of the annular cap used when the bolt passes through the nut, a cross-section of the cap at the right-hand side of the plan; Fig. 6, a plan and elevation of the spiral compression-spring placed between the cap and annular ratchet-ring.

A represents the bolt, which, for adaptation to the nut-lock, is provided with a groove, A', running the full length of the thread upon the bolt.

B represents the nut, which, on its exterior plan, does not differ from the usual standard nut in size. In thickness it is, however, about double the depth of the standard nut. To produce the nut special dies and punches are necessary, but provided with those the nuts are produced with little additional cost over the ordinary nut for the same diameter of bolt. A recess, B', is produced within the nut, of about one and one-half times the diameter of the bolt upon which it is to be placed. At the base of

the recess ratchet-teeth B⁴ are pressed into the annular space surrounding the bolt-hole. The punch, beside the provision upon its first shoulder for forming the ratchet-teeth B⁴, has also a second shoulder surrounded by a concavity for striking upon the outer face, an annular recess, B², to receive the cap D or D', and the annular raised locking-ledge B³. An annular ring, C, preferably cast of steel, is made to drop freely within the nut-recess B' and to slip freely over the bolt, is furnished with ratchet-teeth C' upon one face of the ring, adapted to mate with the teeth B⁴ in the base of the nut-recess. The ring is also provided with an integral tongue, C², to fit snugly within the groove A' of the bolt. A spring, E, of a diameter to fill the recess, and a cap, D or D', of an outer diameter to fill the recess B², completes the separate portions of the nut.

The nuts are threaded. The annular ring C is placed in the recess B', with its teeth C' in contact with the teeth B⁴ of the recess. The spring E is then introduced, the cap D or D', as the case may be, is laid within the annular recess B². A proper recessed tool is then set upon the outer diameter of B³, and, being struck a smart blow, is compressed upon the cap edge and locks the same in place. I prefer to make the periphery of the cap with a slight bevel, as it will require less force to lock it within the recess.

The nuts are applied as usual, and as soon as the point of the bolt enters within the annular ratchet-ring C the groove A' comes in contact with the tongue C², and interlocking therewith carries the ring C around with it, the ratchet-ring being held by the spring E in contact with the nut-teeth B⁴, rises against the pressure out of gear therewith, and as soon as the movement ceases it again interlocks and securely holds the nut from turning, either from its own gravity or by the vibrations of the material to which it is attached. Should subsequent shrinkage of the material occur, an additional turn is given to the nut.

The ratchet-teeth may be constructed with a right-angle face to each; but I prefer to make them of an equal angle upon both faces. In the latter case the nut may be backed off with a wrench without injury. In the former case

the nut could only be removed by shearing off the ratchet-teeth or by removing the cap D and releasing the ring C from the nut-recess.

Having shown the construction, use, and advantages of my improvement, I desire to claim as follows:

1. As an improvement in lock-nuts, a nut provided, in addition to its threaded hole, with a recess, B', having teeth impressed in the base of the same, a recess, B², of a somewhat larger diameter in the face of the nut, and a raised annular ledge, B³, in combination with an annular ratchet-faced ring, C, a spiral spring, E, and cap D, the latter locked upon the nut by

the compression of the ledge B³, substantially as and for the purpose set forth.

2. As an improvement in nut-locks, an annular ring, C, ratchet-faced at C', having a tongue, C², in combination with a recessed nut correspondingly ratcheted in the base of the recess, a spring, E, cap D, and grooved bolt A, substantially as shown, described, and for the purpose specified.

JOHN M. FRY.

Witnesses:

A. F. KILLIAN,
HAYDN H. TSHUDY.