

No. 717,382.

Patented Dec. 30, 1902.

Z. FREI.
NUT LOCK.

(Application filed Sept. 13, 1902.)

(No Model.)

Fig. 1.

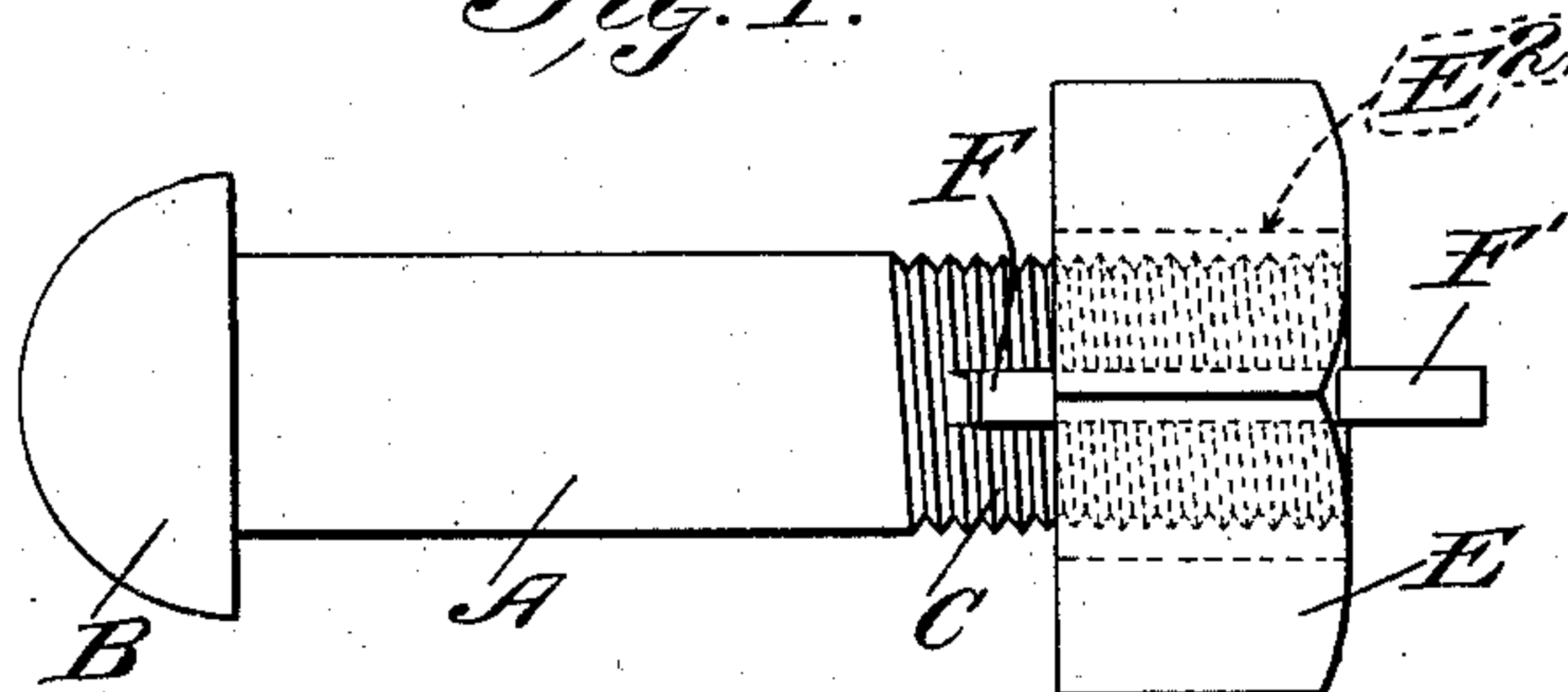


Fig. 2.

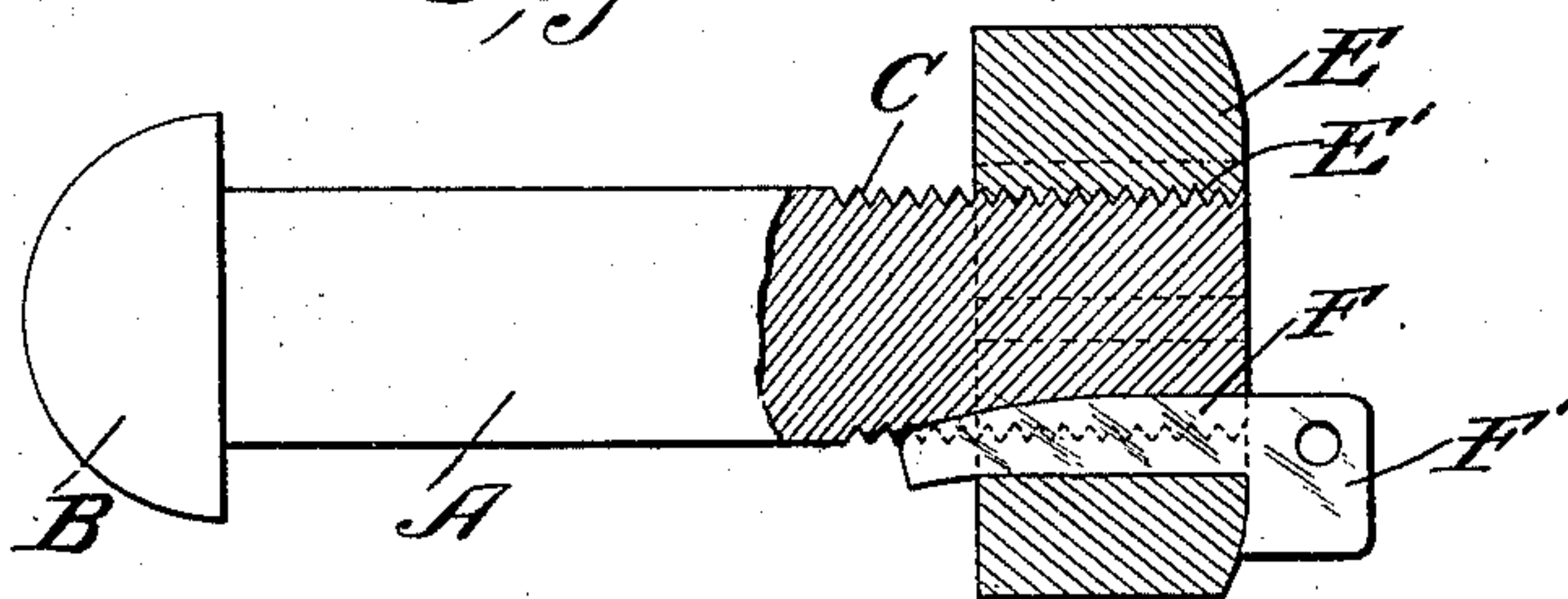


Fig. 3.

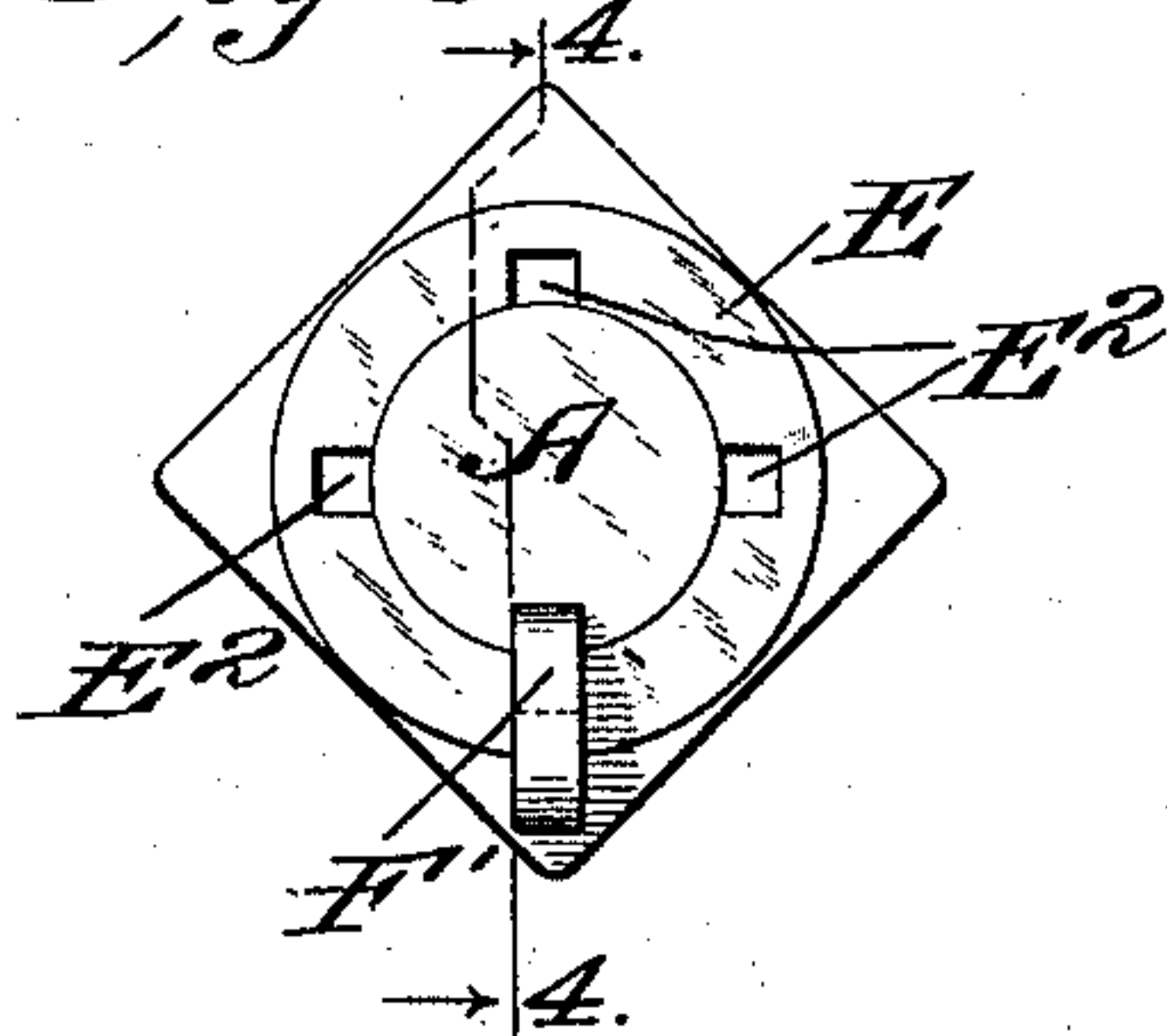
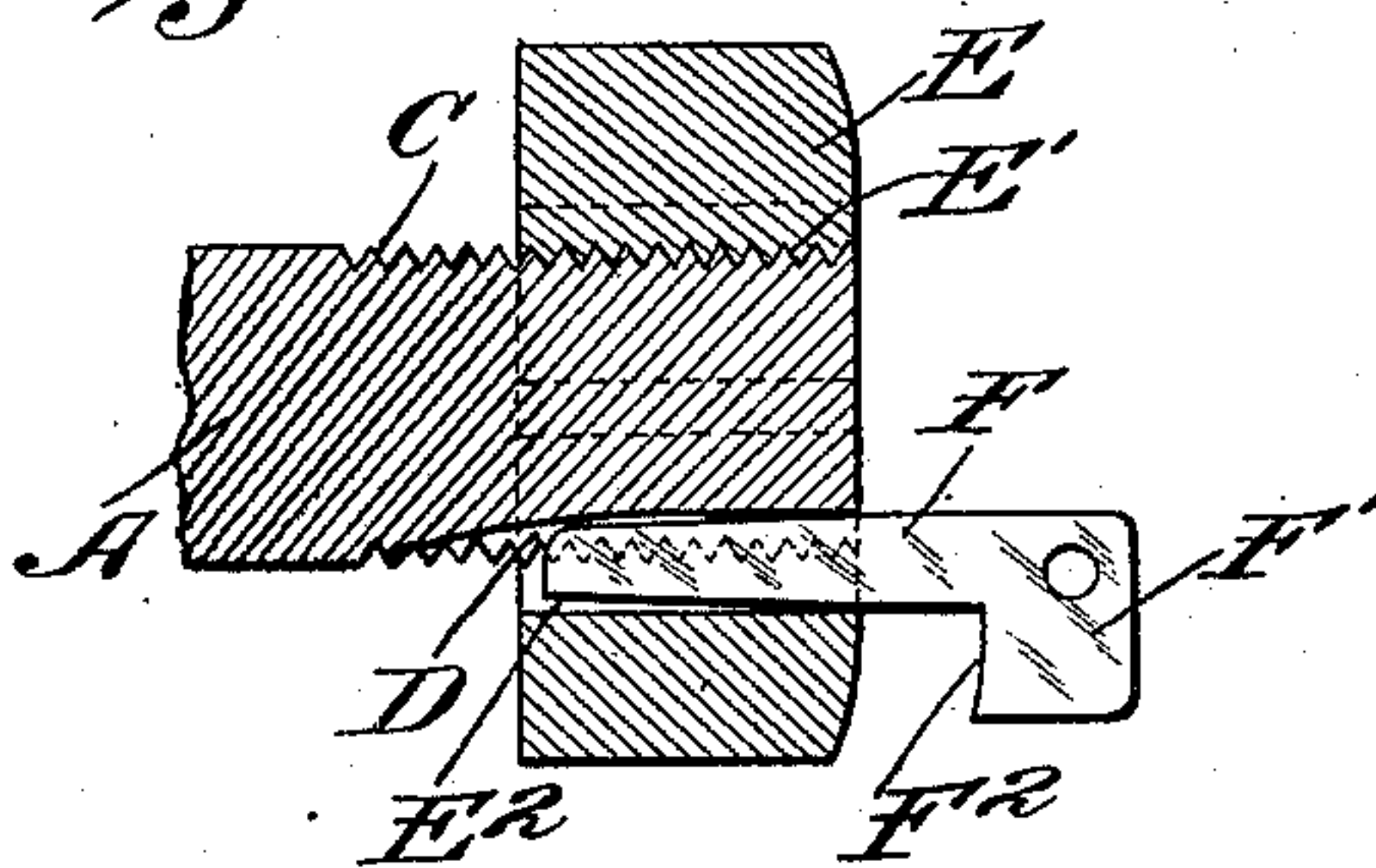


Fig. 4.



Witnesses:

G. A. Pennington
J. H. Gibbs

Inventor:

Zölestin Frei,
by Rakewell Cornwall
Attys.

UNITED STATES PATENT OFFICE.

ZÖLESTIN FREI, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
CHARLES A. MORENO AND WILLIAM FINN, OF ST. LOUIS, MISSOURI.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 717,382, dated December 30, 1902.

Application filed September 13, 1902. Serial No. 123,312. (No model.)

To all whom it may concern:

Be it known that I, ZÖLESTIN FREI, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented
5 a certain new and useful Improvement in Nut-Locks, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference
10 being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my invention. Fig. 2 is a side view with the end on which is secured the nut shown in section. Fig. 3
15 is an end view showing the nut and pin in position, and Fig. 4 is a sectional view of the nut end of the bolt with the parts interlocked.

This invention relates to a certain new and useful improvement in nut-locks, the object
20 being to provide a simple and economical means for locking a nut on the end of a bolt by insertible means which may be placed in position when the nut is at any one of a number of predetermined positions; and the in-
25 vention consists in certain features of novelty in the construction and arrangement of the parts, all as hereinafter more fully specified, and particularly pointed out in the claims.

Referring to the drawings, A is the shank
30 of a bolt; B, its head; C, the screw-thread on its end, and D a channel cut in the shank at the threaded end, the bottom of which channel extends in substantially a straight line for some distance, after which said channel
35 becomes gradually of less depth, and finally ceases within the screw-threaded portion of said bolt, the inner end thereof rising to the surface of the bolt in a gradual incline for the purpose hereinafter set forth. The side walls
40 of said channel are substantially parallel and at right angles to the bottom thereof.

With the bolt, which may be of any convenient or desired form in all but the channel D, is a nut E, which is provided with the
45 usual central screw-threaded orifice E', from which extends a number of radial slots or half-channels E², preferably four, which are arranged at substantially diametrically opposite points. These radial slots are provided

with substantially parallel side walls and a 50 flattened bottom, though the latter may be curved in cross-section, if desired. Cooperating with said bolt and nut is a pin F, provided with a head F', the edge F² of which, adapted to contact with said nut, being sub- 55 stantially at right angles with the central axis of its shank, so as to fit snugly when in position. This pin as originally formed has a shank, the opposite sides of which are substantially parallel, and the edges of which 60 are parallel from the head portion inward for a portion of its length, from which point they gradually converge slightly toward the end where said pin is smallest. The nut being placed in position upon the bolt and one of 65 the slots E² registering with the channel D, the pin F is inserted and driven into position, during which the shank thereof will impinge the bottom of said channel and, following the lines thereof, be deflected from a straight line, 70 whereby it will assume the curve shown in Fig. 2, in which a portion of said pin lies back of the nut, the head of said pin resting next thereto and the shank in the coincident channels therefor in nut, and bolt will be securely 75 locked in position.

When my device is used in connection with materials of a yielding nature, it will be seen that when in its "home" position the inner end of the pin may project beyond the sur- 80 face of the bolt and be embedded in such material, thus assisting not only in securing the nut in position, but also preventing rotation of the bolt on its own axis in the event of torsional strain thereon. 85

The head B of the bolt may be provided with any suitable or desirable auxiliary securing means, such as a hook or ring, but as the invention is not limited to such combination it is shown as a plain head. 90

When desired, the head of the pin may be provided with an eye to aid in withdrawing the same, or it may be withdrawn by any convenient means, whereupon the nut may be rotated to tighten the same or for removal. 95

I am aware that minor changes in the construction and arrangement of the several parts of my nut-lock may be made and sub-

stituted for those herein shown and described without in the least departing from the nature and principle of my invention.

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

1. A locking means for nuts, &c., comprising a screw-threaded bolt with a channeled shank, said channel being deepest at the end of said bolt and extending therein at a uniform depth for a predetermined distance, from whence it becomes gradually less deep to a point where it disappears within the screw-threaded portion of said shank, in combination with a key having an offset head portion and a shank portion of sufficient length to extend within said channel sufficiently far to be deflected from a straight line by the tapering bottom portion thereof; substantially as described.

2. A locking device of the described class comprising a screw-threaded bolt with a channel therein provided with a bottom portion of substantially uniform depth to a predetermined point from whence it rises to the outer line of the shank of said bolt, in combination with a nut provided with a central screw-threaded orifice, and radial slots extending therefrom, and a locking-pin with an offset head, parallel sides, parallel edges for a portion of its length, and tapering edges for the remainder of its length to the end opposite the head, said pin being of sufficient length

to be deflected from a straight line by the rising bottom portion of said channel; substantially as described.

3. In a nut-lock, a screw-threaded bolt and nut having coincident channels for a locking-key, the side walls of said channels being substantially parallel with the bottom of the bolt-channel extending for a portion of its length in a substantially straight line and thence to its end of gradually less depth, in combination with a key adapted for insertion therein and of sufficient length to be bent thereby to lock the same in position; substantially as described.

4. In a nut-lock, a nut with a series of radial channel portions extending from a central screw-threaded orifice, a bolt with longitudinal channel cut therein substantially deepest at its end away from the head, and disappearing at a point removed from said head, in combination with a tapering pin insertible in said channels where they are in coincidence and of sufficient length to be bent by said bolt-channel at the point of its lesser depth; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 9th day of September, 1902.

ZÖLESTIN FREI.

Witnesses:

GEORGE BAKEWELL,
G. A. PENNINGTON.