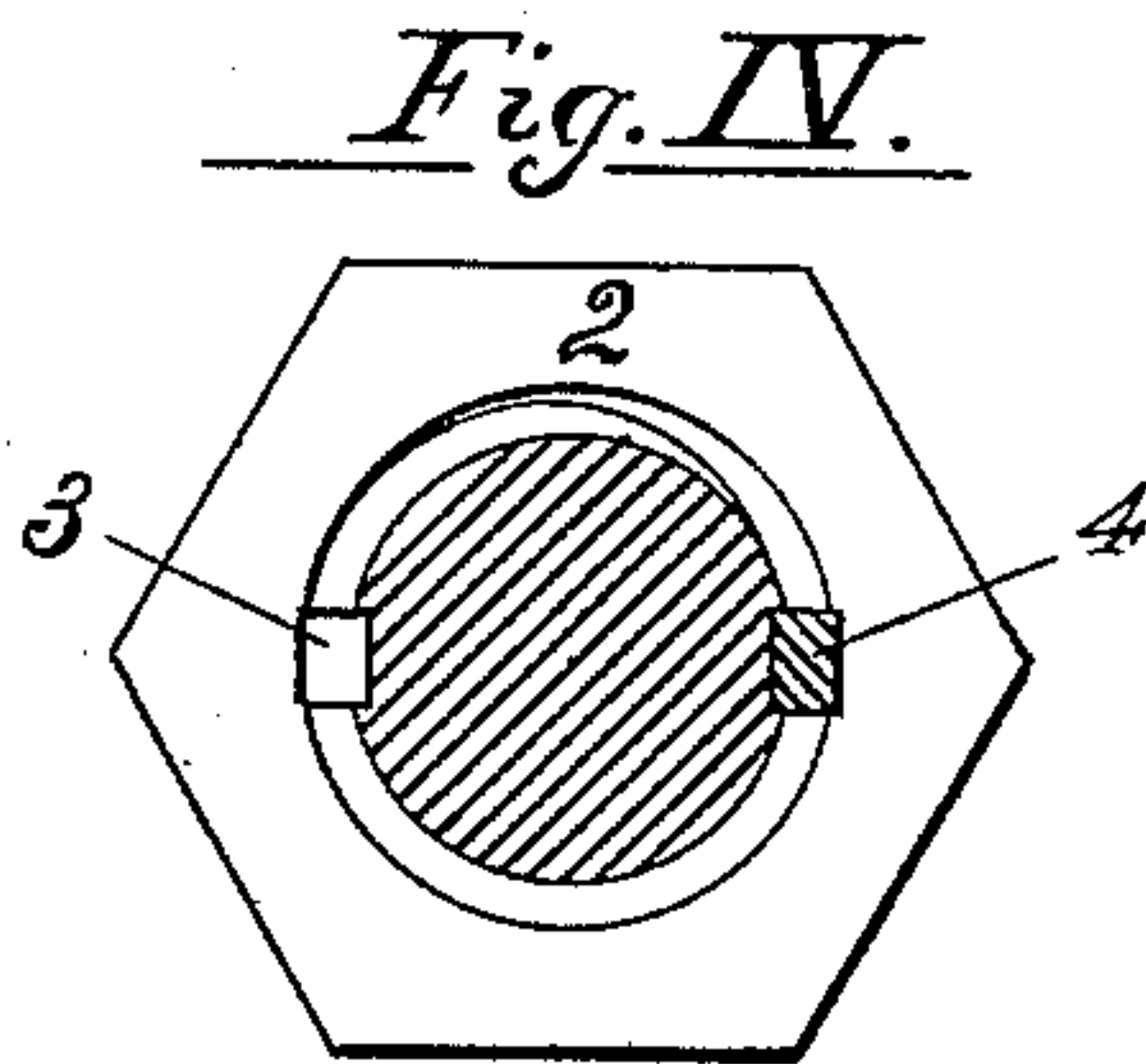
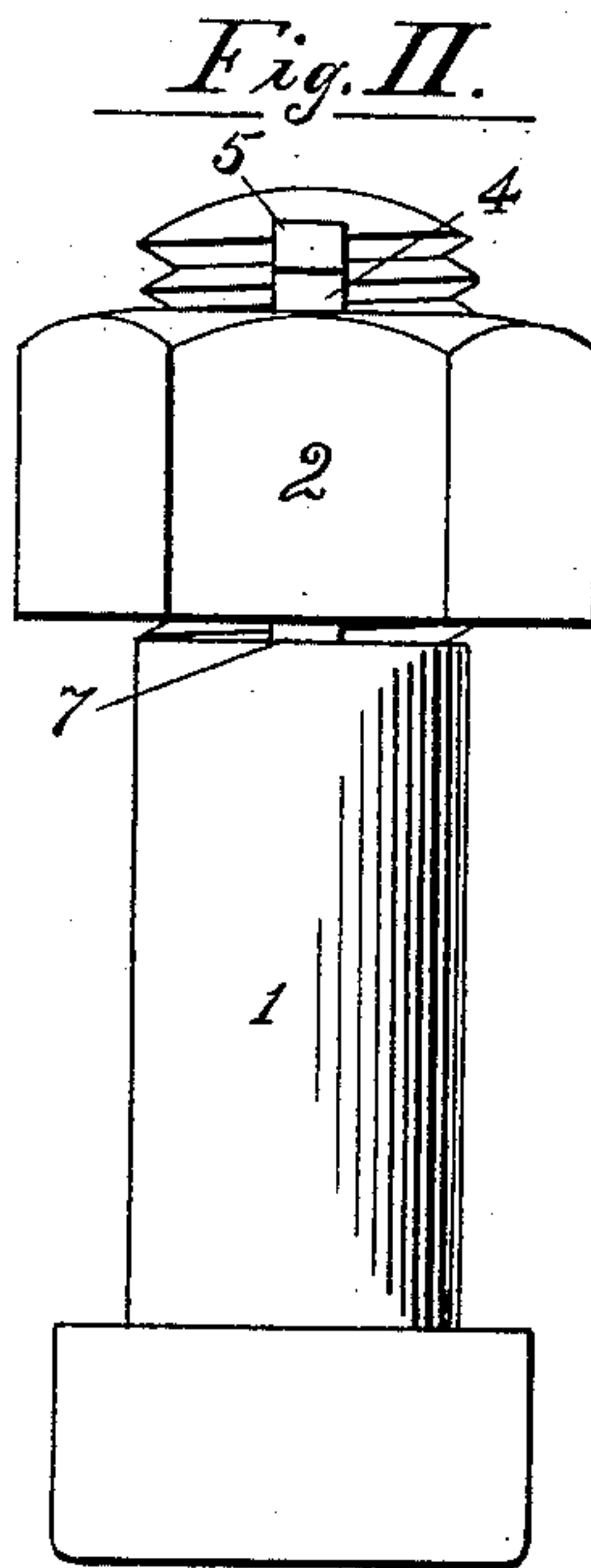
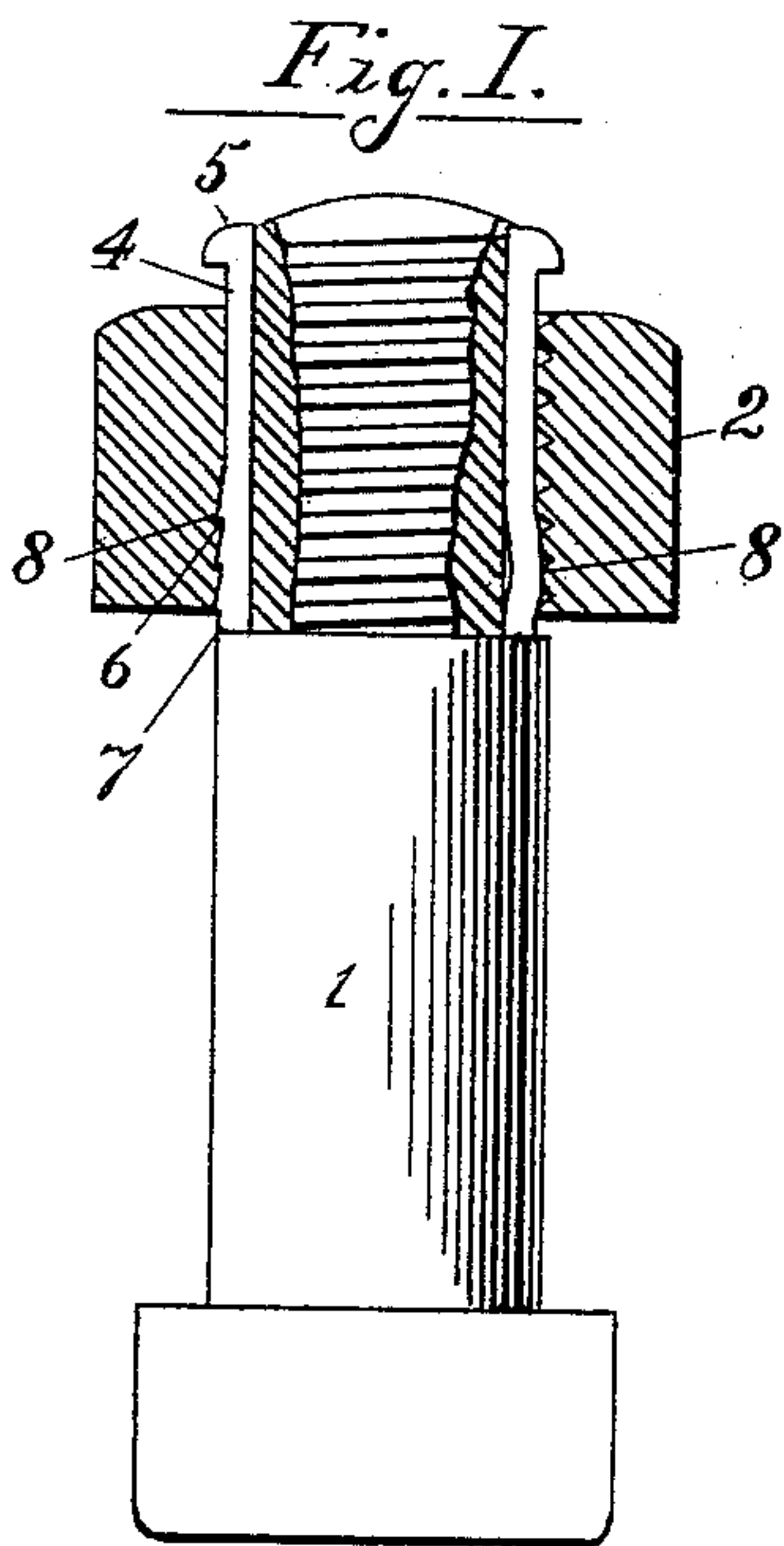
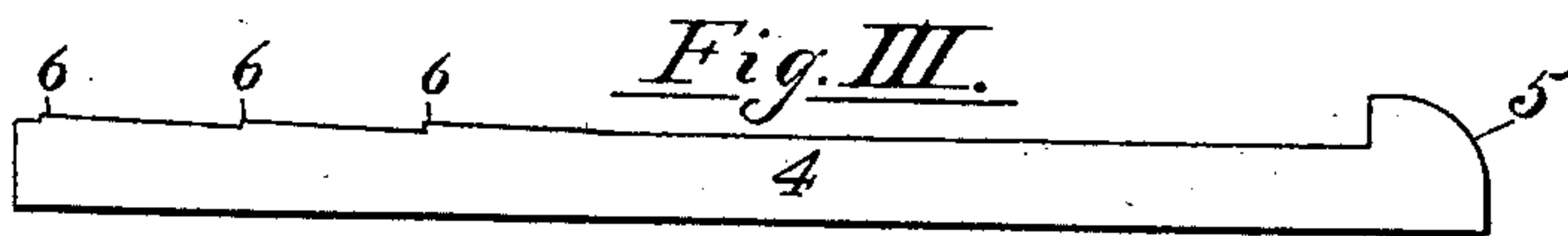


No. 616,419.

Patented Dec. 20, 1898.

A. HOWARD.  
NUT LOCKING DEVICE.  
(Application filed Oct. 29, 1897.)

(No Model.)



Witnesses  
H. Lockwood-Verins.  
H. Sanderson.

Augustus Howard, Inventor.  
By his Attorney: J. Richards & Co.

# UNITED STATES PATENT OFFICE.

AUGUSTUS HOWARD, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO  
WILLARD REED GREEN, OF DENVER, COLORADO.

## NUT-LOCKING DEVICE.

SPECIFICATION forming part of Letters Patent No. 616,419, dated December 20, 1898.

Application filed October 29, 1897. Serial No. 656,852. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUSTUS HOWARD, a citizen of Great Britain, residing at San Francisco, county of San Francisco, and State of California, have invented certain new and useful Improvements in Nut-Locking Devices; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to what are technically called "lock-nuts"—screw-nuts that are provided with a detent that prevents their coming loose under jarring action, as in the case of fastening fish-plates on railway-bars.

My improvements consist in providing such screw-nuts with a feather or key inserted at the side in the plane of and through the screw-threads of both the nut and the bolt, acting as a key, preventing movement between the two, the key or detent being of malleable metal, capable of being upset or deflected by blows on the projecting end and formed with projections or raised portions on the outer or inner face or with recesses on the sides of the grooves in which the key is fitted, so that when the key is struck and upset it will expand and engage either the screw-bolt or the nut, forming a mechanical fastening for the key, so that it cannot be withdrawn except by intention and the force of a special implement.

The object of my invention is security from the coming loose of screw-nuts upon the moving parts of machinery or in structures of any kind subject to concussion or jar. To this end I provide devices as illustrated in the drawings herewith, forming a part of this specification, in which—

Figure I is a side elevation, partially in section, showing a bolt and screw-nut provided with my improved locking device. Fig. II is an elevation of the same bolt and nut at a right angle to Fig. I. Fig. III is an enlarged side view of one of the keys or feathers detached. Fig. IV is a top view of the nut.

Similar numerals of reference are applied

to like parts throughout the several figures of the drawings.

The bolts 1 can be of any form or material such as is commonly employed, being always of a malleable nature and soft enough to be screw-threaded.

The nuts 2 may be square, polygonal, or round and of any depth, the method of fastening remaining the same.

Shallow grooves 3 are formed in both the bolt 1 and the nut 2, preferably a little deeper than the screw-thread in the bolt 1, and the key 4 is inserted, as shown in Fig. I. These keys are made to fit loosely, but to as nearly as possible fill the grooves, and are made with a hook-head 5, adapted for withdrawal by means of a crab-bar or other suitable implement. At or near the inner end are formed projections 6, as seen in Fig. III, slightly raised above the surface or face line of the key, or, what is equivalent, slight recesses are formed in the bottom of the grooves 3 on the nut or bolt, so the key 4 when struck will expand or be deflected into these recesses, as seen at 8 in Fig. I.

The key 4 when inserted is struck on the head and driven down at 7 against the bottom of the groove 3, so as to upset its central section, and thus force outward the projections 6, which impinge upon and cause a slight depression in the soft metal of the nut or of the bolt as the key may be turned to the right or left, or the key will be expanded or bent into a recess formed in the bolt or nut, and thus guard against its withdrawal except by intention and with a suitable implement.

The upsetting of the key 4 can also be accomplished by providing a shallow recess at the bottom of the grooves 3, in which the key may bend or expand, as at 8 in Fig. I, preventing it from coming out when upset by driving in the manner before described.

Having thus described the nature and objects of my invention and the manner of applying the same, what I claim as new, and desire to secure by Letters Patent, is—

In a nut-locking device, the combination of a bolt and a nut having corresponding grooves



in their adjacent faces, and a key or feather forcibly seated lengthwise therein, whereby the said key or feather is given an endwise upset or expansion within the grooves to prevent displacement and lock the parts against relative movement, substantially as specified. In testimony whereof I have hereunto af-

fixed my signature in the presence of two witnesses.

AUGUSTUS HOWARD.

Witnesses:

WILLARD REED GREEN,  
H. SANDERSON.