

C. H. GARFIELD.
NUT LOCK.
APPLICATION FILED MAR. 2, 1908.

910,660.

Patented Jan. 26, 1909.

Fig. 1.

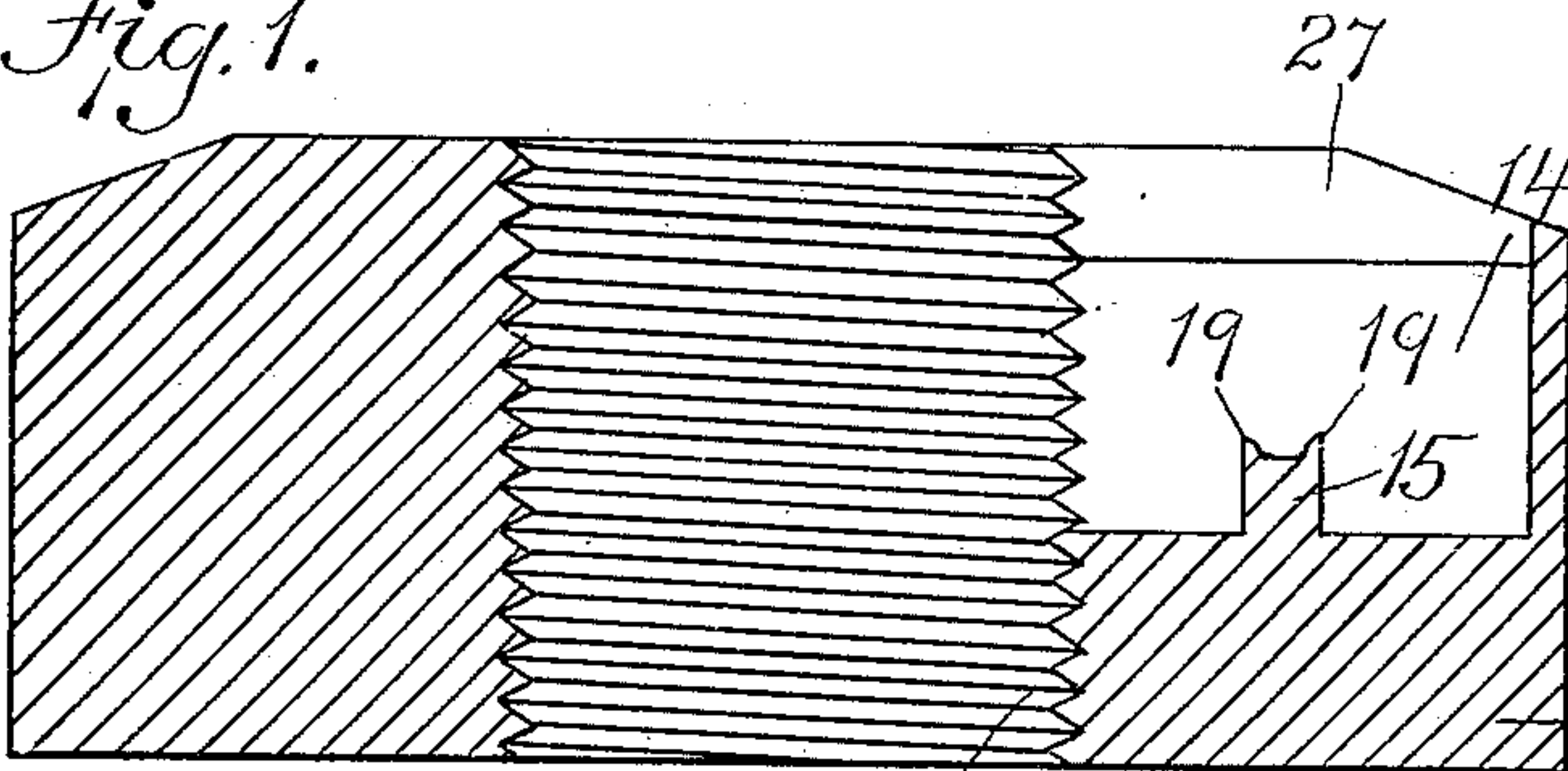


Fig. 3.



Fig. 2.

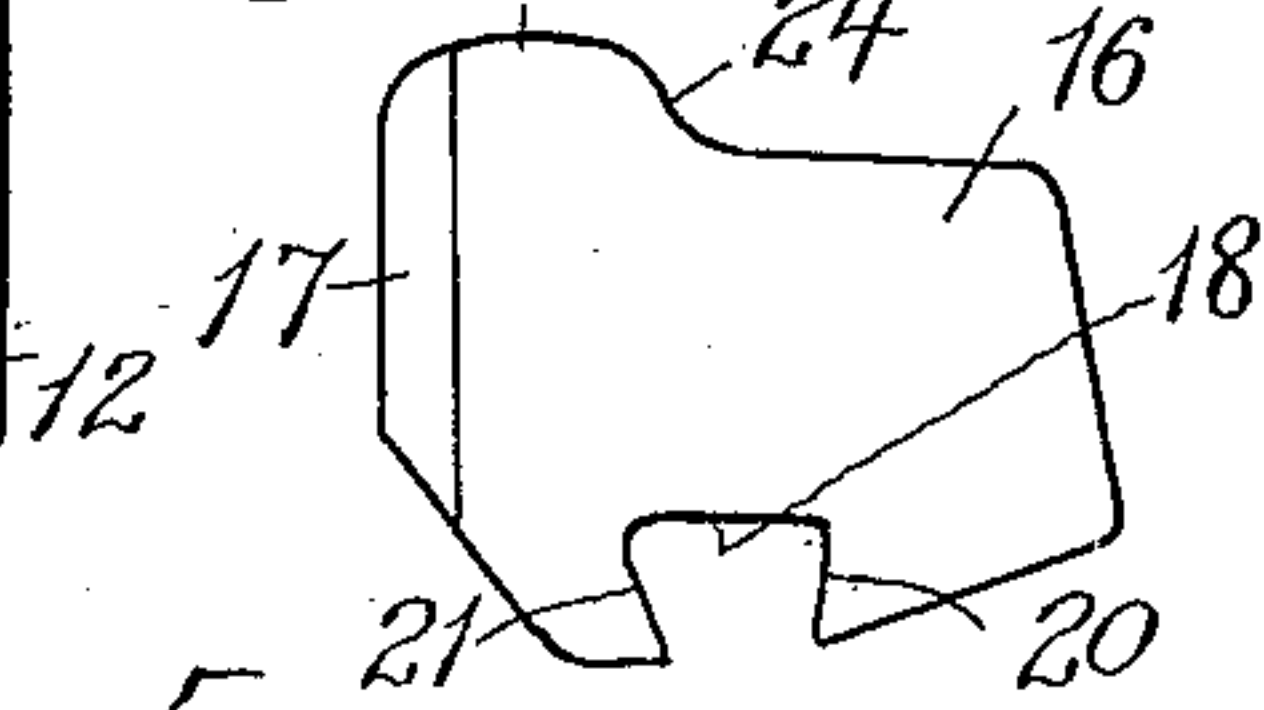


Fig. 4.

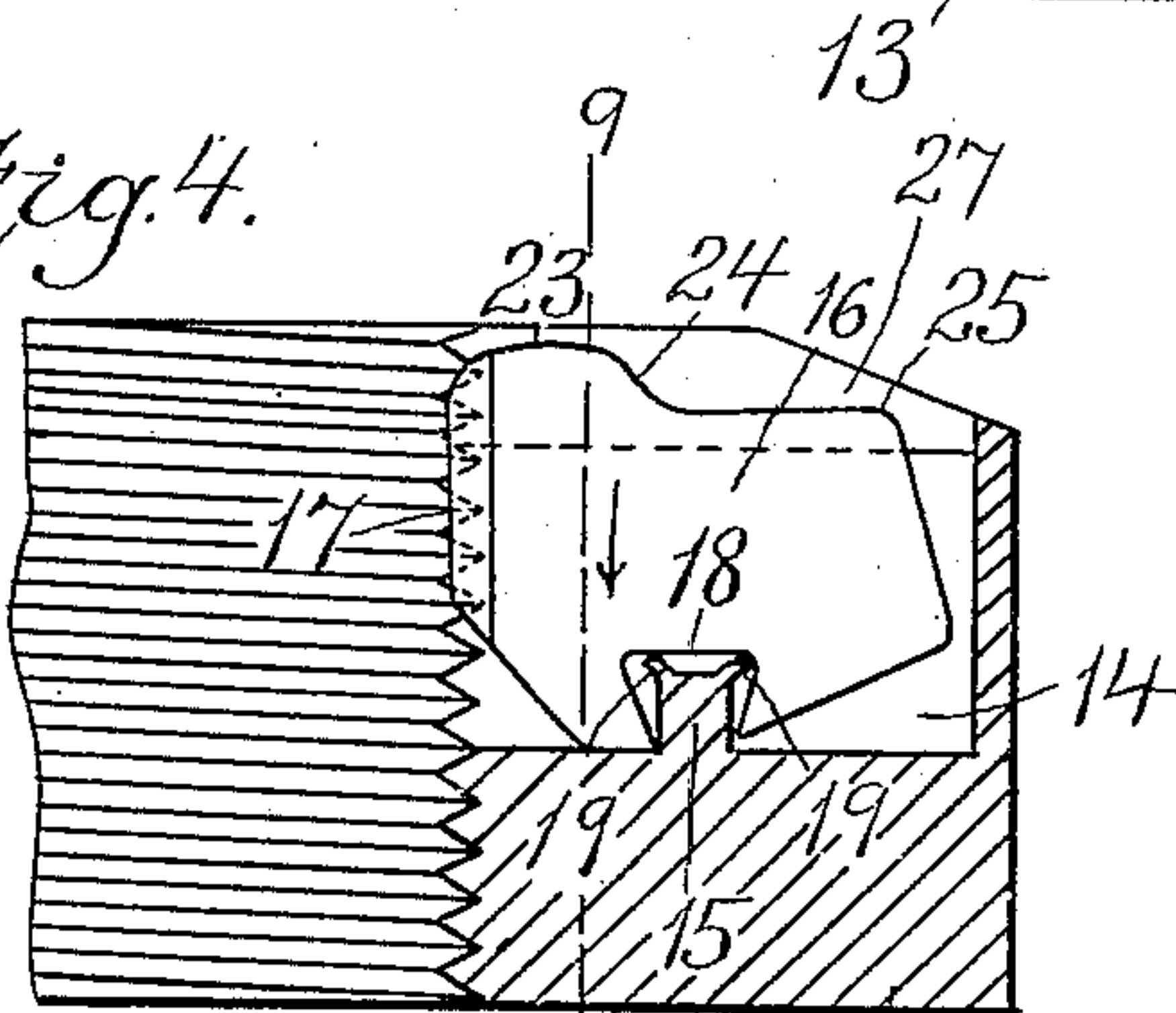


Fig. 5.

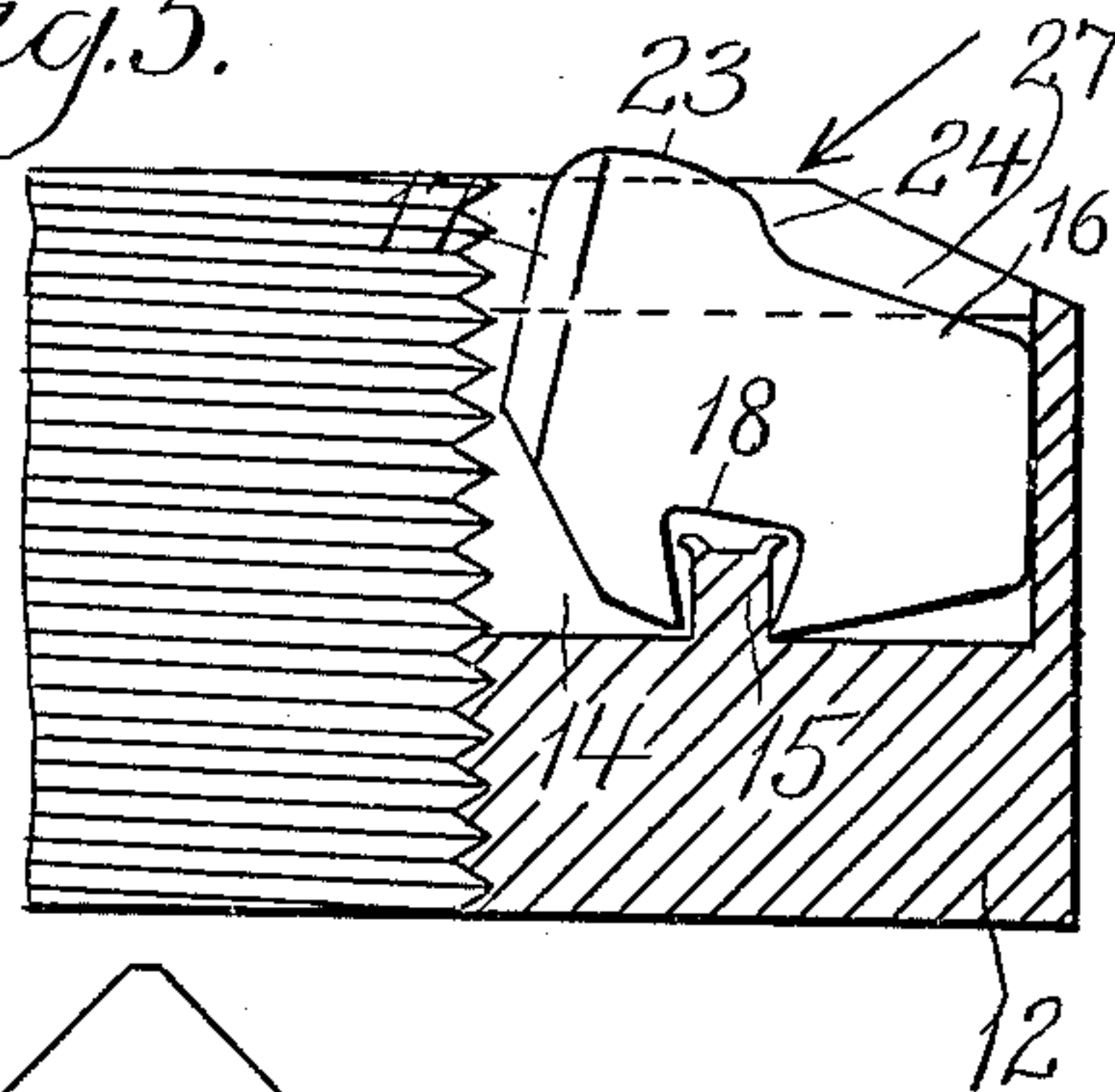


Fig. 7.

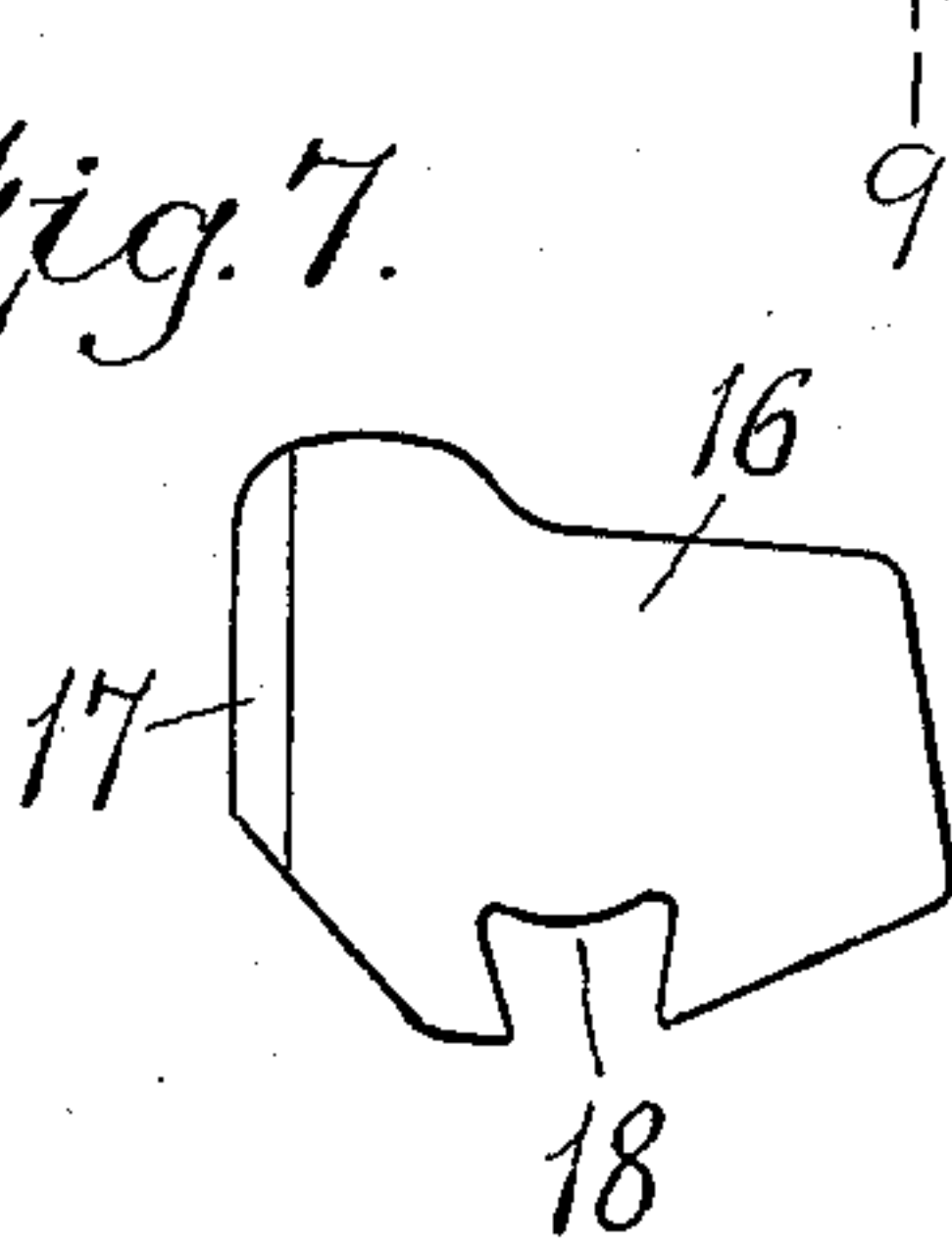


Fig. 6.

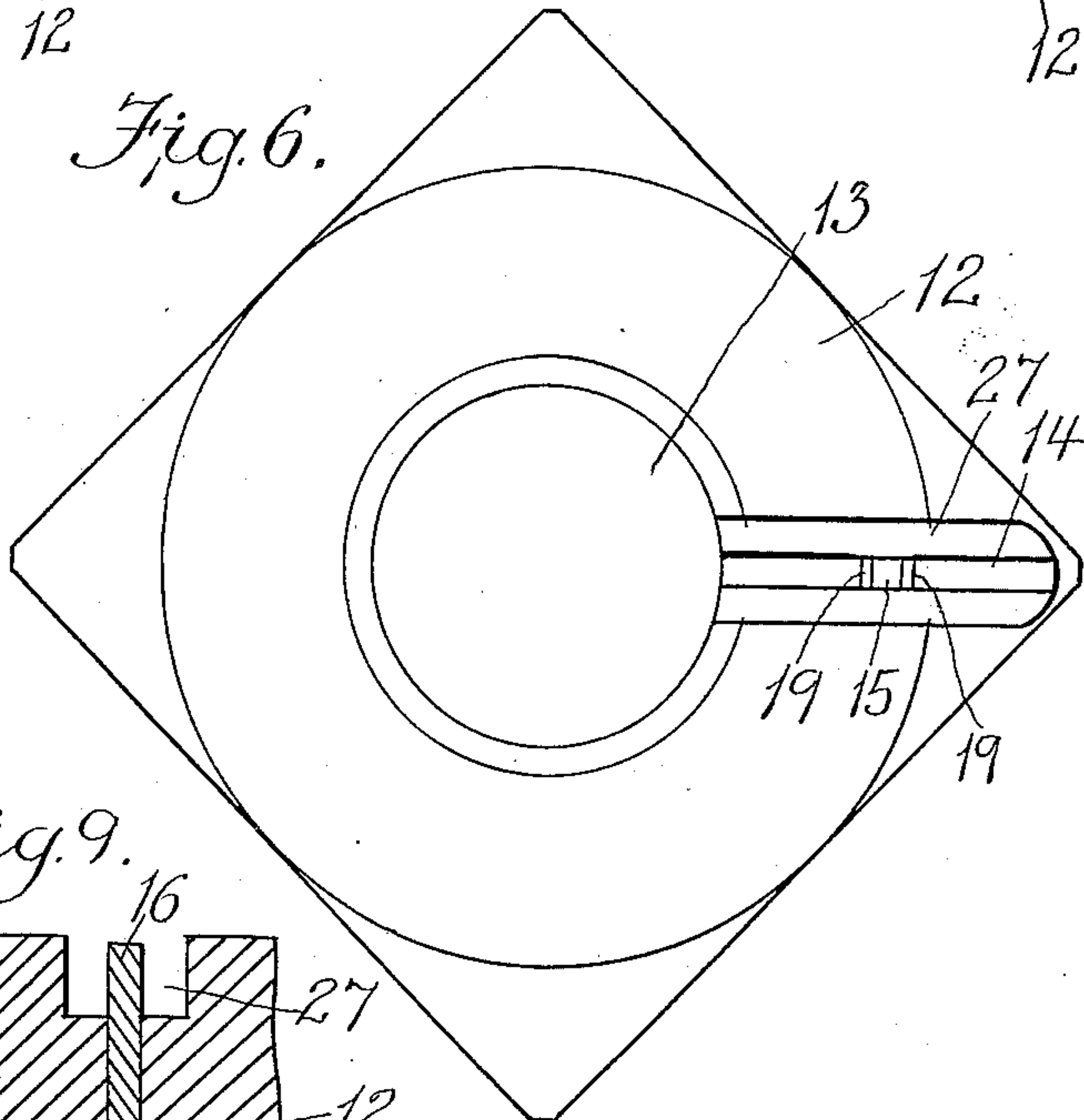


Fig. 8.

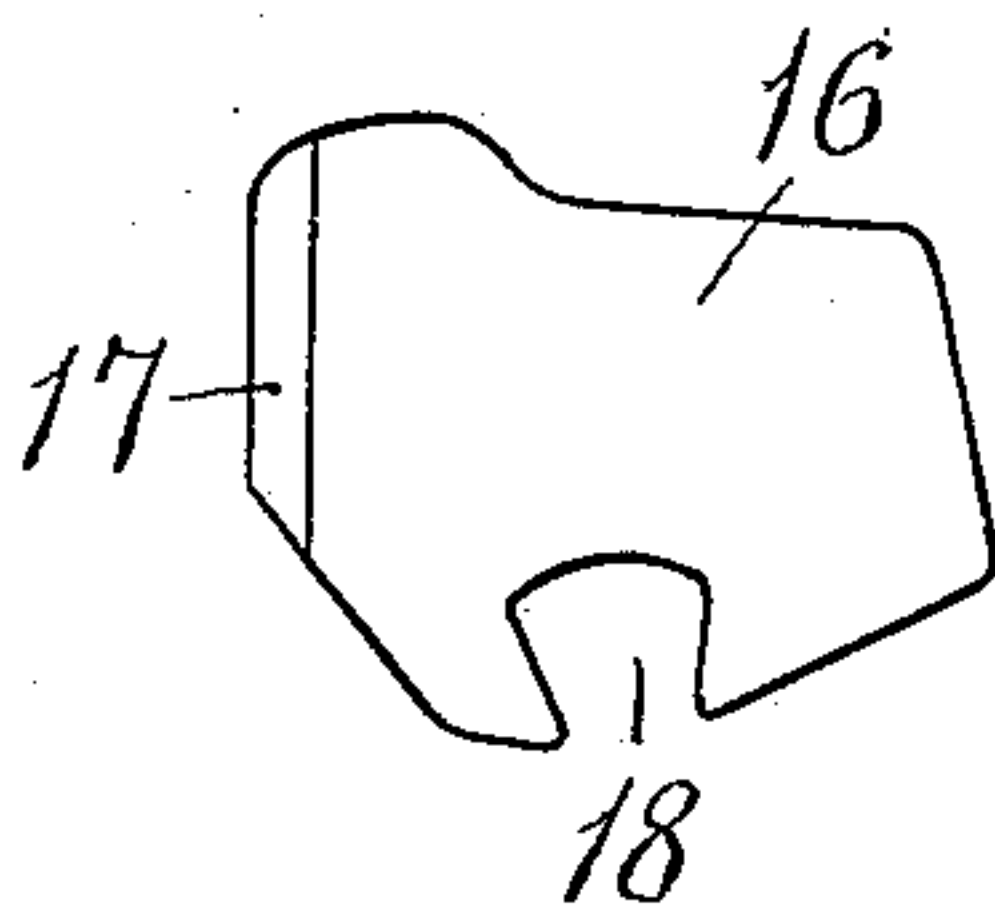
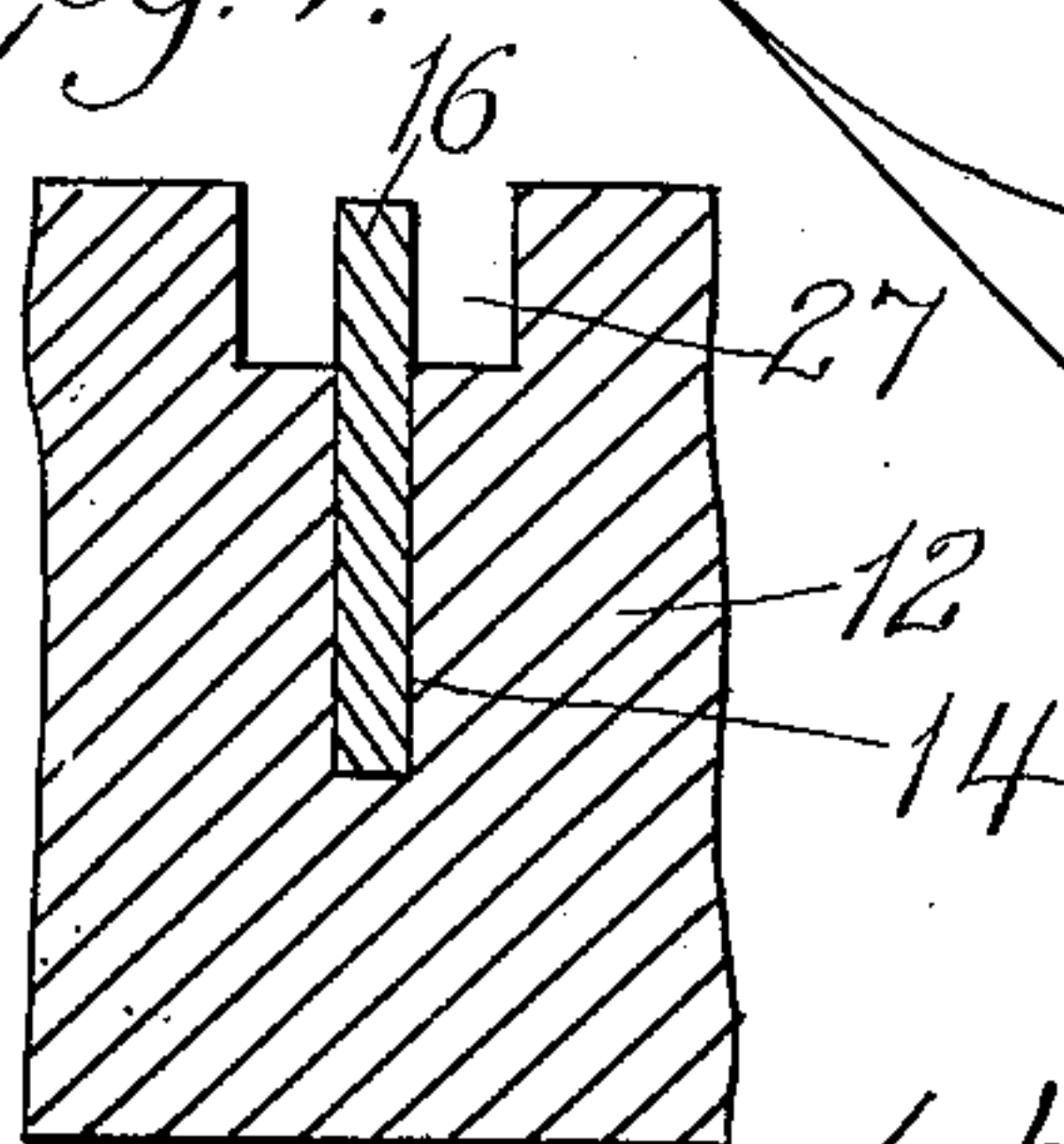


Fig. 9.



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UNITED STATES PATENT OFFICE.

CHARLES H. GARFIELD, OF PROVIDENCE, RHODE ISLAND.

NUT-LOCK.

No. 910,660.

Specification of Letters Patent.

Patented Jan. 26, 1909.

Application filed March 2, 1908. Serial No. 418,641.

To all whom it may concern:

Be it known that I, CHARLES H. GARFIELD, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Nut-Locks, of which the following is a specification.

This invention relates to a nut having a cavity opening into the threaded bolt hole of the nut, and a thread-indenting key inserted in said cavity, and having a sharpened inner end adapted to indent the threads of the bolt with which the nut is engaged, to prevent the removal of the bolt from the nut, the key and the recess having inter-engaging members which permit an endwise rocking movement of the key, so that it may be swung inwardly toward the bolt to indent the threads thereof, and outwardly from the bolt to release the threads and to permit the removal of the nut.

The object of the invention is to enable the key to be rocked to and from its locking position by force applied to the key outside of the cavity, so that the key may be rocked without the employment of a special tool adapted to enter the cavity.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a sectional view of a nut provided with a cavity adapted to contain a locking key, the cavity having a key-engaging member embodying my invention. Fig 2 represents a side view of the key which is to be inserted in the cavity shown in Fig 1. Fig. 3 represents an edge view of the key. Fig. 4 represents a sectional view of a portion of the nut showing the key in its locking position in the cavity of the nut. Fig. 5 represents a view similar to Fig. 4, showing the key rocked to its unlocking position. Fig 6 represents an end view of the portion of the nut which contains the cavity. Figs. 7 and 8 represent views showing slight variations in the form of the socket in the key. Fig. 9 represents a section on line 9—9 of Fig. 4.

The same letters of reference indicate the same parts in all the figures.

In the drawings 12 represents a nut having the usual threaded bolt hole 13, and having also a cavity 14, one end of which opens into the bolt hole.

15 represents a stud which projects upwardly from the bottom of the cavity 14, and is preferably formed as a web, which is integral with the nut, and extends across the cavity, as shown in Fig. 6.

16 represents a locking key, which is inserted in the cavity 14, and is sharpened at its inner end to form a cutting edge 17 adapted to indent the threads of a bolt with which the nut is engaged. The lower edge portion of the key is provided with a socket 18, which is formed to have a loose rocking engagement with the stud 15, the form of said socket and stud being such that the key is adapted to stand in the locking position shown in Fig. 4, with its cutting edge indenting the bolt thread, or in the unlocking position shown in Fig. 5, with its cutting edge withdrawn from the bolt. The width of the outer end of the stud 15 is greater than that of the inner end or base portion of the stud. The socket 18 has a contracted mouth, which is narrower than the outer end of the stud. The inner end of the socket is considerably wider than the wider outer end of the stud, the proportions and relative arrangement of the stud and socket being such that the widened inner end of the socket permits the key to rock on the stud, while the widened outer end of the stud and the contracted mouth of the socket prevent the removal of the key from the cavity 14.

In practice the widening of the outer end of the stud is preferably effected by the upsetting of two lips or ridges 19 formed on the outer end of the stud, these lips being upset from the position shown in Fig. 1 to that shown in Fig. 4 by pressure of the inner end of the socket against the said lips. This pressure is caused by driving the key downwardly into the cavity 14 in the direction indicated by the arrow in Fig. 4, the inner end of the socket being thus caused to bear upon the lips 19, and force the same outwardly, thus augmenting the width of the outer end of the stud, and causing the width of said outer end to exceed the width of the contracted mouth of the socket. Care is taken, however, to have the width of the inner end of the socket exceed the augmented width of the outer end of the stud, so that notwithstanding the said augmentation, the key is adapted to rock on the stud.

It will be seen from the foregoing that provision is made for loosely locking the key to

the nut by the act of forcing it into the cavity 14, the loose locking of the key being effected wholly by complementary members provided at the bottom portion of the cavity, and at the inner edge portion of the key. Heretofore in nut locks of this character, the removal of the key from the cavity has been prevented by indenting or upsetting portions of the outer surface of the nut at opposite sides of the cavity, to cause said portions to overhang the key, and contract the mouth of the cavity. This contraction of the mouth of the cavity is objectionable because it interferes with the free rocking movements of the key, an objection which is entirely overcome by my invention above described.

The outer side 20 of the socket 18 is made shorter than the inner side 21, to permit the rocking of the key from its locking to its unlocking position, as clearly illustrated in Figs. 4 and 5.

The width of the key is such that its outer edge projects above the cavity, and is therefore adapted to be engaged by a hammer or other like tool, applied to the key outside the cavity. Heretofore in nut locks of this character, it has been necessary to form the key so that its outer edge is mainly within the cavity, in order that the key may be retained by upsetting portions of the nut, and contracting the mouth of the cavity, as above described. It has therefore been necessary heretofore to apply driving force or pressure to the key by means of a special tool, such as a nail set, having a narrow end adapted to enter the mouth of the cavity, and bear upon the outer edge of the key within the cavity. It will be seen that the extension of the key outside the cavity, which is made feasible by the loose interlocking of the inner portion of the key with the bottom portion of the cavity, enables any convenient driving tool, such as a hammer, of greater width than the cavity, to be used in rocking the key. I prefer to provide the projecting portion of the key with a protuberance 23, presenting an edge 24 which

faces outwardly from the bolt hole, and enables a hammer to be applied conveniently to the key in the direction indicated by the arrow in Fig. 5. The outer portion 25 of the upper edge of the key also projects above the mouth of the cavity, and forms a bearing for a hammer applied in the direction required to rock the key to its unlocking position.

The portion of the outer edge of the key which projects from the cavity 14, is guarded by portions of the nut projecting above the cavity, when the key is engaged with the bolt, as clearly shown in Figs. 4 and 9, the mouth of the cavity being in the bottom of a recess 27 formed in the outer face of the nut. Said recess is of such width that it can receive a driving tool which is considerably wider than the cavity. This guarding of the outer edge of the key is advantageous, particularly, when the nut is in an exposed position on a moving or working body, so that the key if allowed to project from the outer face of the nut might inflict damage.

My invention is not limited to the particular form of the interlocking members of the key and nut here shown, as the same may be variously modified without departing from the spirit of the invention. In Figs. 7 and 8 I show modified forms of the inner end of the socket member 18 of the key.

I claim:—

A nut having a cavity opening into the bolt hole, and a recess of greater width than the cavity, and a thread-indenting key inserted in said cavity and projecting from the latter between the sides of the recess for engagement with a driving tool, the outer edge of the key being guarded by the sides of the said recess when the key is engaged with a bolt.

In testimony whereof I have affixed my signature, in presence of two witnesses.

CHARLES H. GARFIELD.

Witnesses:

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PETER W. PEZZETTI.