

(No Model.)

W. TIMMIS.
NUT LOCK.

No. 470,520.

Patented Mar. 8, 1892.

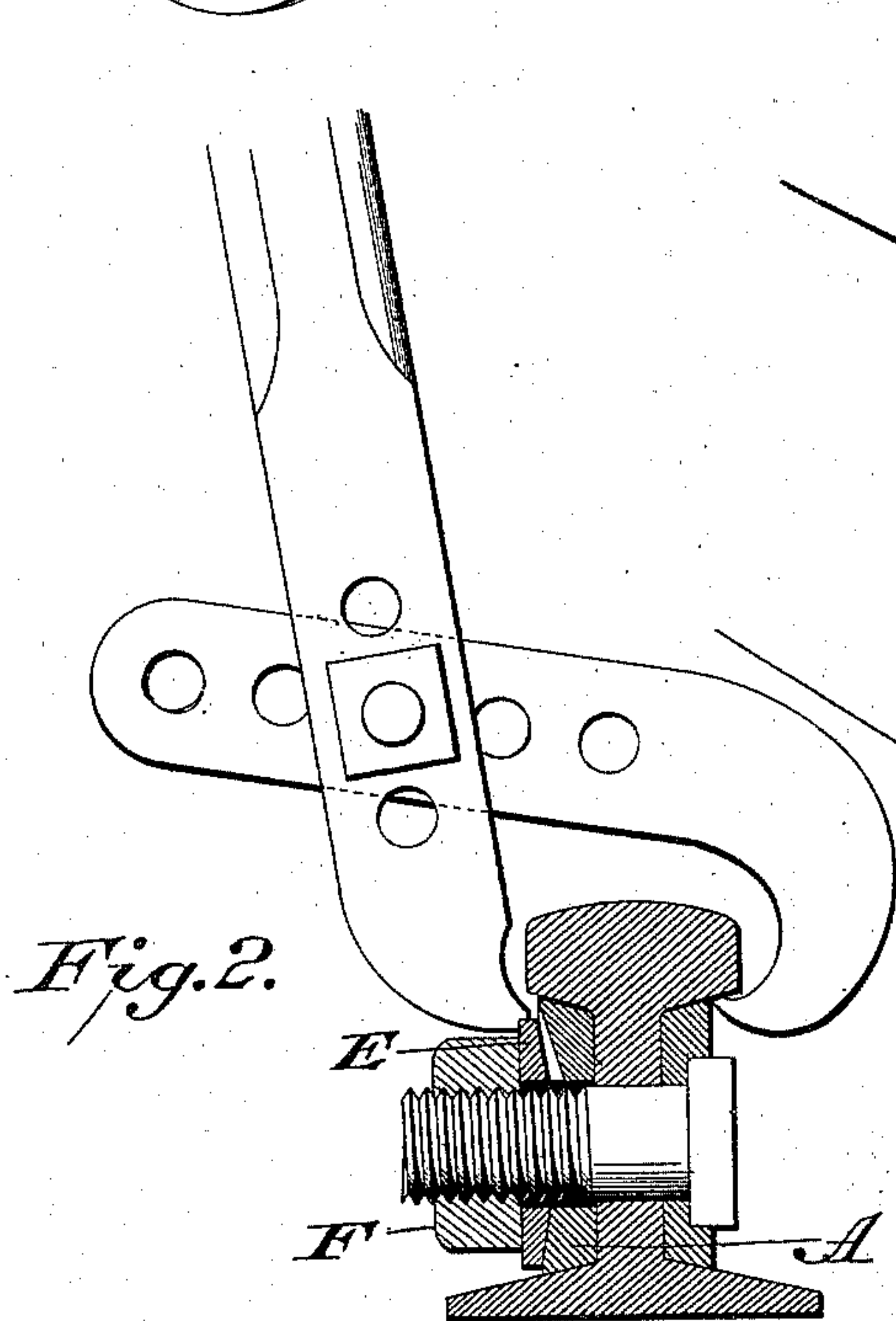
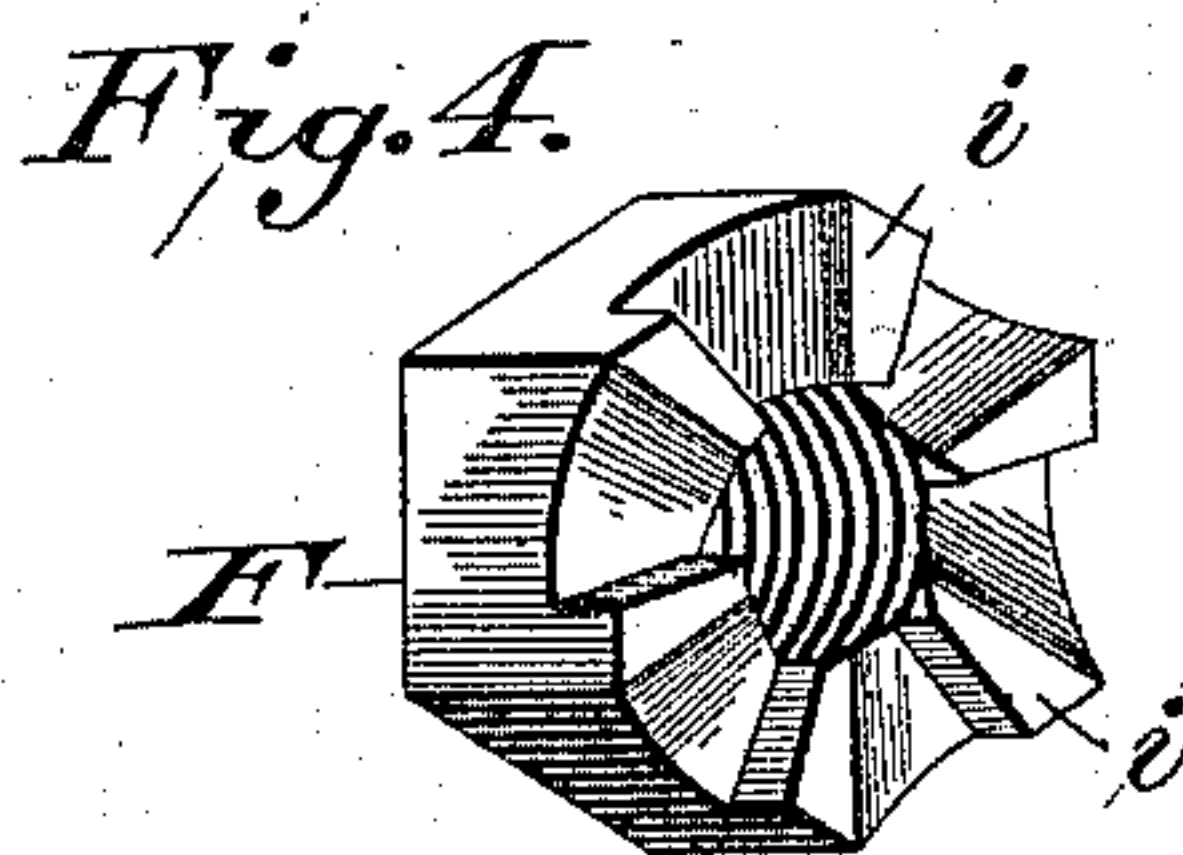
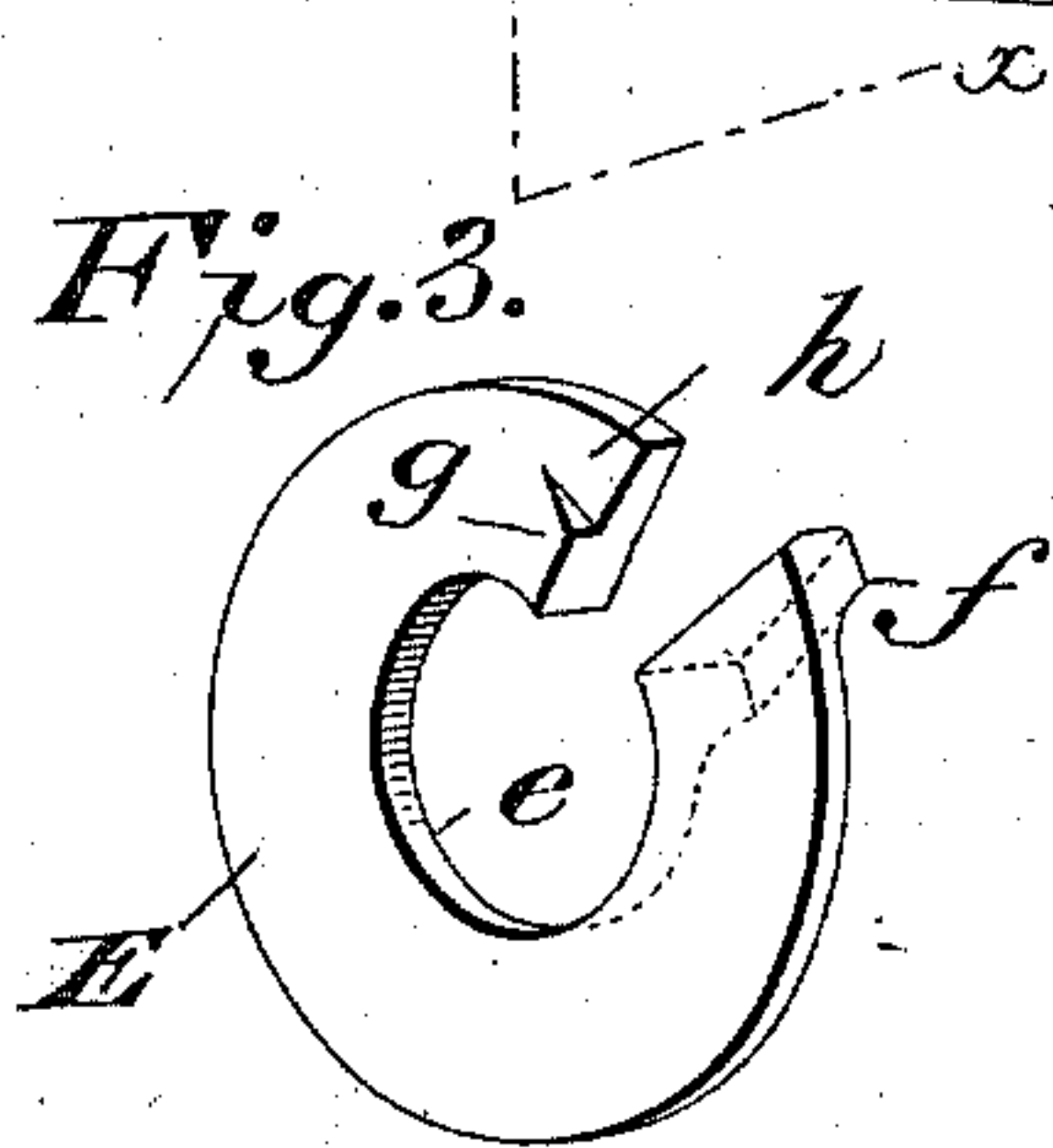
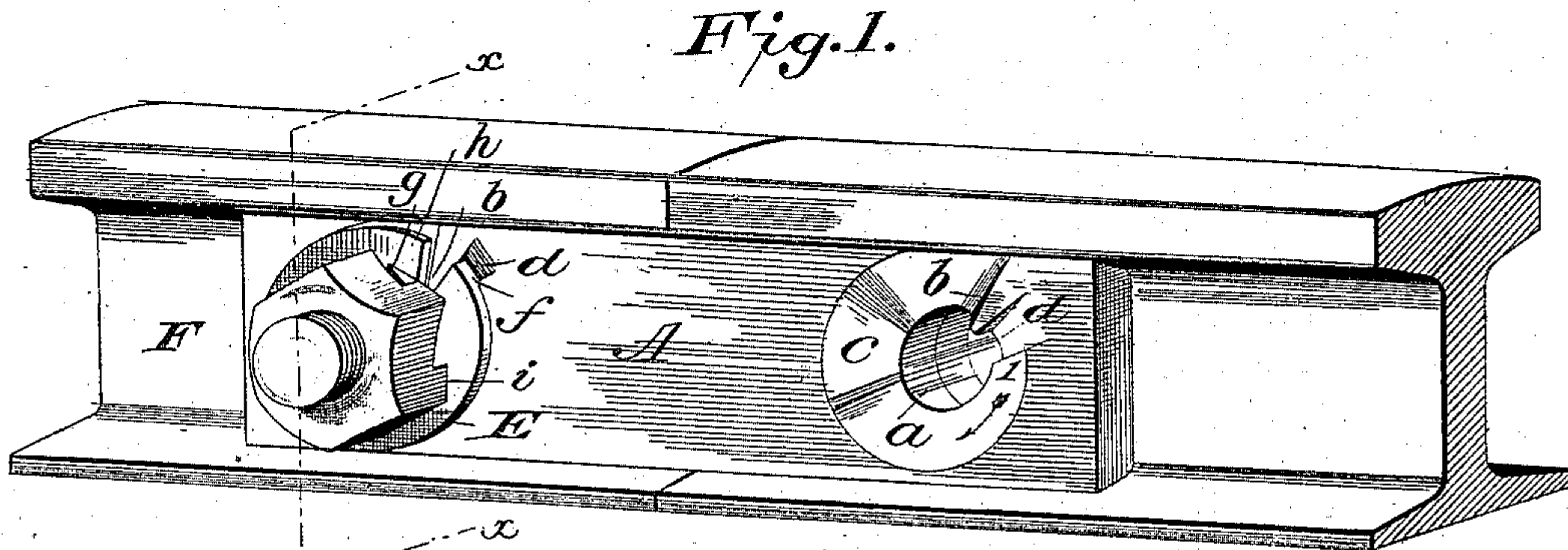
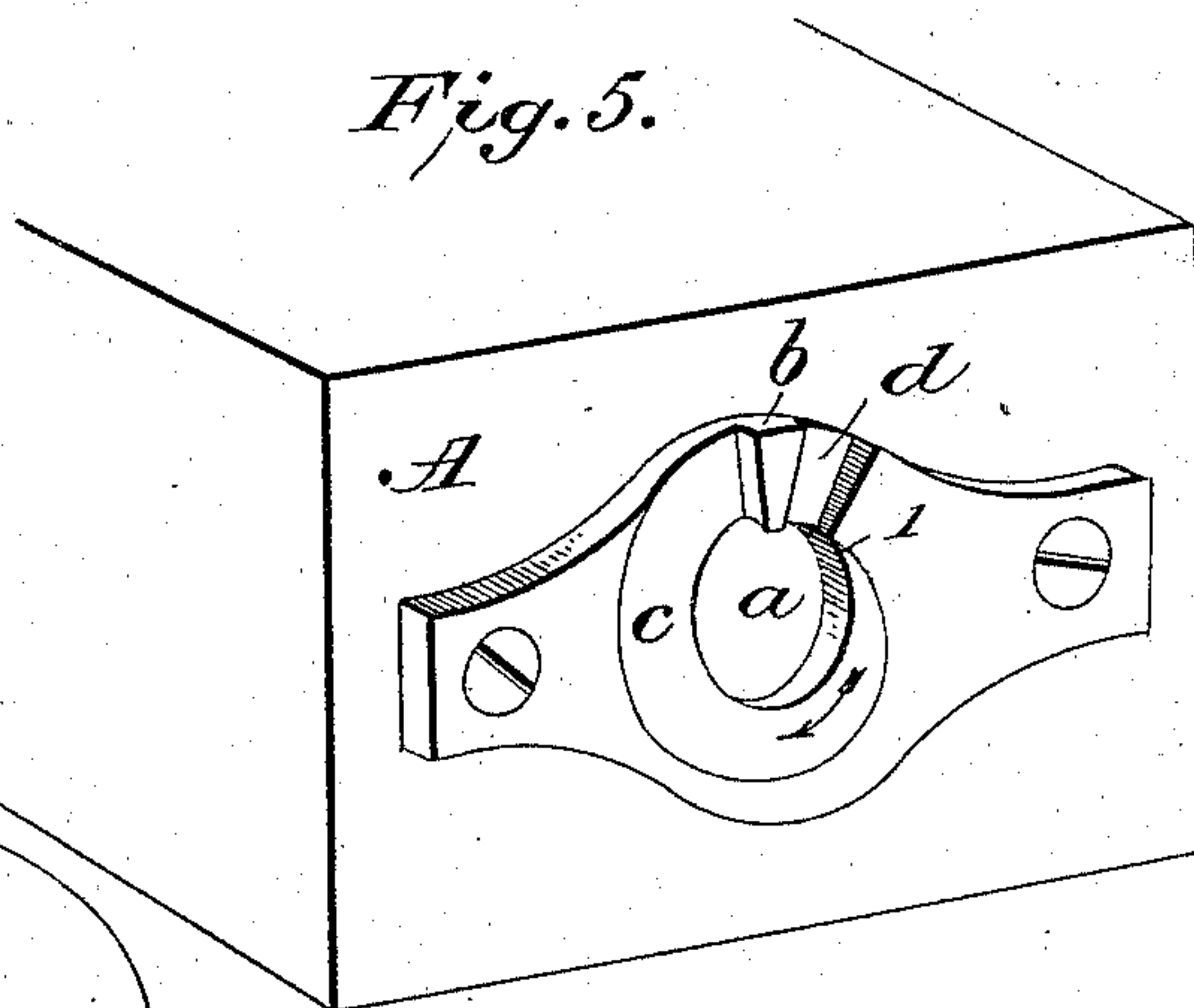


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM TIMMIS, OF WILKINSBURG, PENNSYLVANIA.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 470,520, dated March 8, 1892.

Application filed December 3, 1891. Serial No. 413,889. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM TIMMIS, a citizen of the United States of America, residing at Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Nut-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in nut-locks.

The object of the invention is to provide an improved lock which is adapted to hold the nut and bolt against rotation; and it consists in the employment of a fish-plate having a depression adjacent to the aperture through which the bolt passes, said depression gradually increasing in depth from one end until it meets an outwardly-projecting portion, adjacent to which is a recess as deep or deeper than the deepest part of the depression, said fish-plate being adapted to be used with a spring-washer having oppositely-projecting portions on its free ends, one end forming a spring-pawl, which is adapted to engage with the ratchet-teeth on the inner face of the nut, as will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective view of an improved nut-lock constructed in accordance with my invention, one of the nuts being shown locked in position. Fig. 2 is a vertical sectional view taken through the line xx of Fig. 1, said view also showing the application of a tool employed for compressing the spring-washer so as to release the nut. Fig. 3 is a detail perspective view of the washer. Fig. 4 is a perspective view showing the inner face of the nut. Fig. 5 is a perspective view showing the construction of the base or fish plate when applied to wooden surfaces.

A refers to the base or fish plate, which is provided with an aperture a , through which the bolt is passed, said bolt being held against

rotation by the head thereof lying in a recess in the fish-plate, or by providing the fish-plate with lugs and the head with recesses to receive the same. The base-plate A adjacent to the aperture a is recessed or reamed out from a point indicated by l , the said recess increasing in depth and width in the direction of the arrow until it reaches the lug or outwardly-projecting portion b , the side walls of which radiate from the aperture a . This recess c may be formed in the base-plate when it is cast or forged, and it will be noted that the projection b has its face on the same plane as the face of the base-plate. Between the commencement of the recess c and the projection b is formed a recess d , which is fully as deep or deeper than the deepest part of the recess c .

E designates a helical spring-washer, the under face e of which is inclined or convex, while its outer face is flat. This washer has a projection f formed on one end, which extends inward and is adapted, when the parts are organized, to lie within the recess d . The opposite end of the washer has formed thereon a rigid pawl g , and beyond the same a straight portion h , said straight portion being adapted to project beyond the nut. The nut F is provided with a ratchet-face, the inclined portion of each tooth terminating before it reaches the point thereof, so as to provide flat portions i , which will bear against the flat face of the spring-washer.

I am aware that prior to my invention it has been proposed to provide a nut-lock with a spring-washer having the ends bent to lie in different planes, one of the ends engaging with a nut having a ratchet-face and the other with the base-plate to hold the washer and nut against rotation, and I do not therefore claim such construction, broadly, as my invention, the same being distinguished therefrom in that the base-plate has not been recessed and provided with a projection, nor a further recess in which the end of the washer lies, and, further, in that the nut employed with such construction has not been provided with flat bearing-surfaces.

In operation the bolt is passed through the objects it is desired to connect and the headed end of the same held against rotation. The washer E is then placed over the bolt, so that

its end *f* will lie in the depression or recess *d*, and it will be observed that as the end *f* is of less width than the recess *d* said end will have a slight play therein. The nut is now placed
 5 upon the bolt and screwed home, and the flat portions *i* thereof will bear upon the straight face of the washer, while the inclined face thereof will be forced into the depression *c*. When the nut has been turned sufficiently,
 10 the pawl will engage with the ratchet-teeth and hold said nut securely locked. When it is desired to remove the nut, I employ a suitable tool, preferably as shown in Fig. 2, the same consisting of a lever and hook, the end
 15 of the lever being adapted to engage with the projecting portion *h* of the washer and compress the same to free the pawl *g*, adjacent thereto, from the ratchet-teeth of the nut, and when this is done the nut can be turned.
 20 One great advantage which accrues from providing a recess *d* of greater width than the projecting portion *f* is that the required degree of play is given to the helical washer, so that when it is compressed by the nut it can
 25 move so as to enter the deep portion of the recess. It will also be noted that the shallow portion of the depression *c* will hold what may be termed the "rigid" end of the helical washer securely and in a substantially fixed
 30 position, so that in some cases the projection *f* and recess *d* may be dispensed with. By providing the recess or depression *c*, which gradually increases in depth and width adjacent to the aperture through which the bolt
 35 passes, and a helical washer constructed as shown, one end of said washer will be held by the nut in positive engagement with the fish-plate, while the other end is allowed a sufficient spring movement to engage with the
 40 ratchet-face of the nut, and when the parts are locked together and it is desired to release the nut the spring end of the washer can be depressed to spring the locking-pawl out of engagement with the teeth of the nut.

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

1. The combination, in a nut-lock, of a base-plate having an aperture through which the

bolt passes, a recess *d*, a projection *b*, adjacent thereto, an eccentric depression commencing at one wall of the recess *d* and gradually increasing in depth and width therefrom to the projection *b*, a spring-washer having flat outer face and inclined inner faces, said
 55 washer being thickest at the portion adjacent to the aperture therein, one end of the washer having a projection *f* and a pawl on the opposite end and face, a flat portion being formed on the face of the washer adjacent to
 60 the pawl *g*, and a nut having a ratchet-face, said nut being of less diameter than the washer, substantially as shown, and for the purpose set forth.

2. As an improved article of manufacture, 65 a base-plate for nut-locks, having an aperture *a*, through which the bolt passes, and an eccentric recess of gradually-increased depth surrounding the bolt-aperture, said depression also increasing in width from its commencement or narrowest point, for the purpose set forth. 70

3. In combination with a nut-lock, a spring-washer constructed substantially as shown and provided with a flat outer face and projection or pawl *g*, a beveled or inclined inner face, a nut *F*, having a ratchet-face the teeth of which terminate in flat portions, adapted for use with a base-plate having a central aperture, and a recessed and eccentric
 80 depression *c*, substantially as set forth.

4. The combination, in a nut-lock, of a base-plate *A*, having an aperture through which the bolt passes, a recess *d*, a projection *b*, and a depression *c*, the periphery of which is eccentric with the aperture *a*, said depression increasing in depth from the recess *d* to the projection *b*, a helical spring-washer *E*, having a projecting portion *f* and pawl *g*, and a nut having a ratchet-face, the parts being organized substantially as shown, and for the purpose set forth. 90

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM TIMMIS.

Witnesses:

THOS. M. BROWN,
 JOHN S. LAMBIE.