

(No Model.)

2 Sheets—Sheet 1.

A. DEADMAN.
NUT LOCK.

No. 599,690.

Patented Mar. 1, 1898.

Fig 1

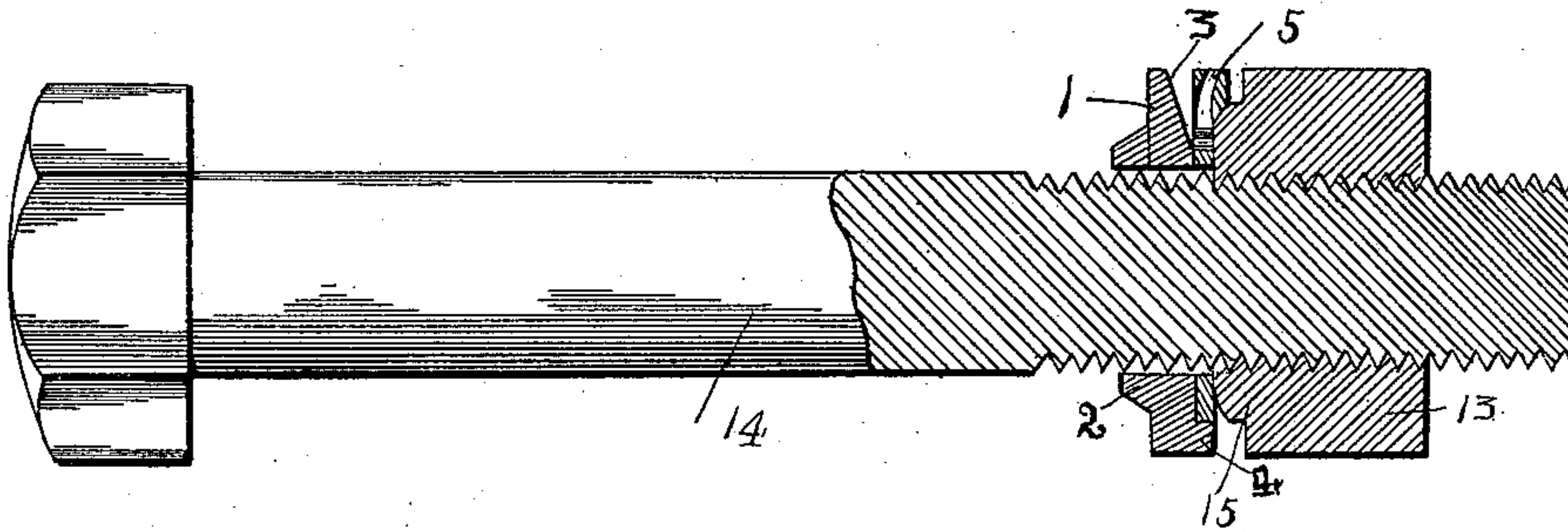


Fig 2

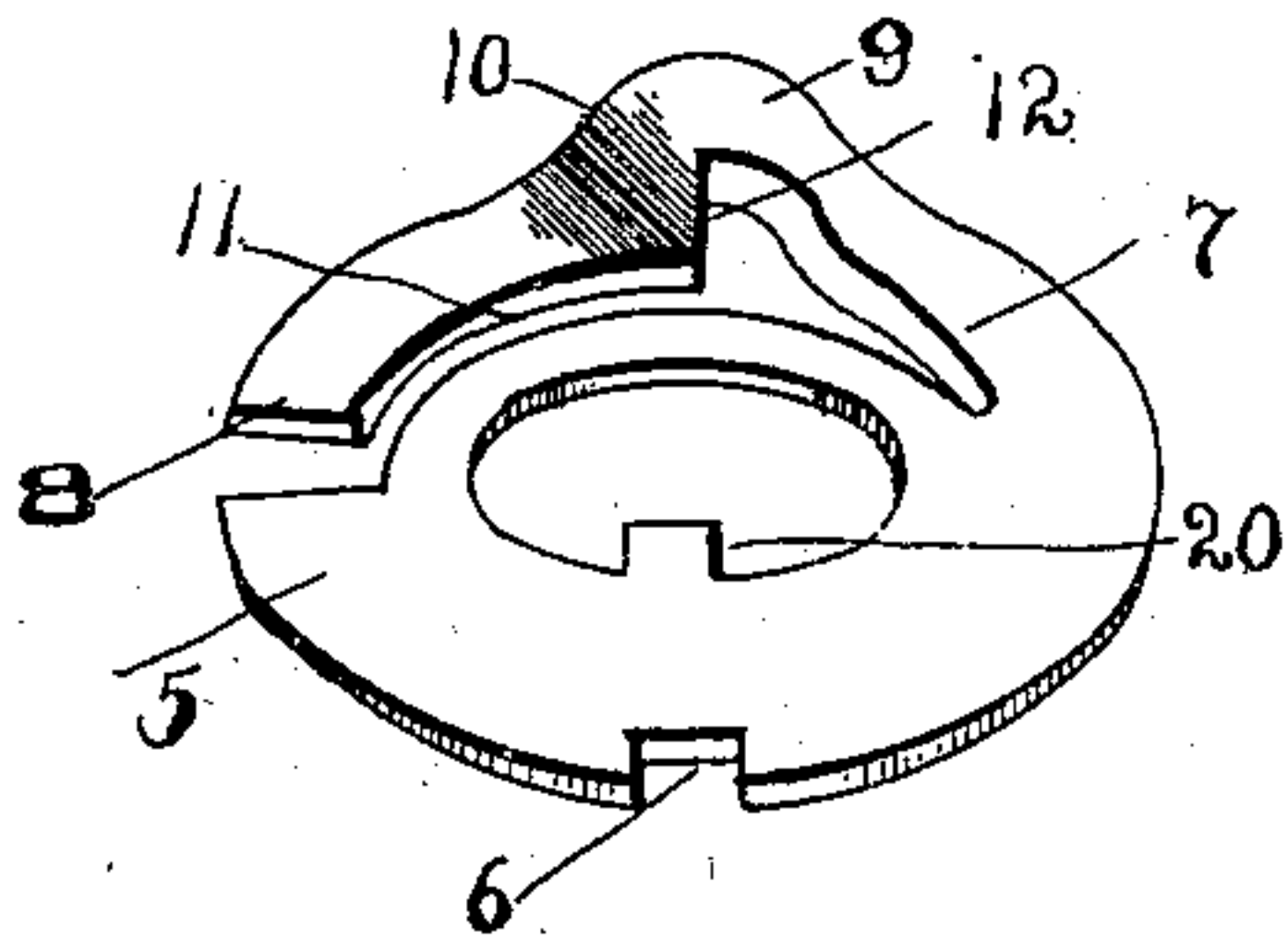


Fig 3

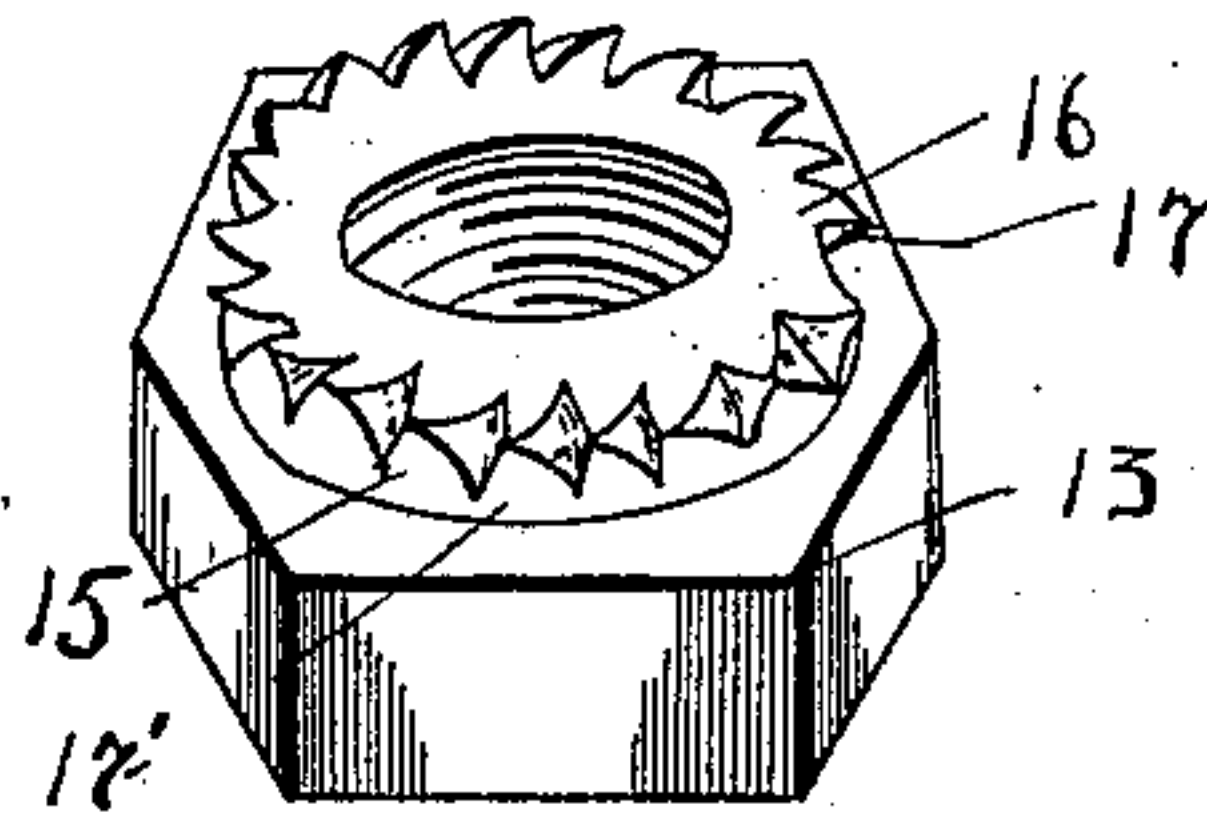
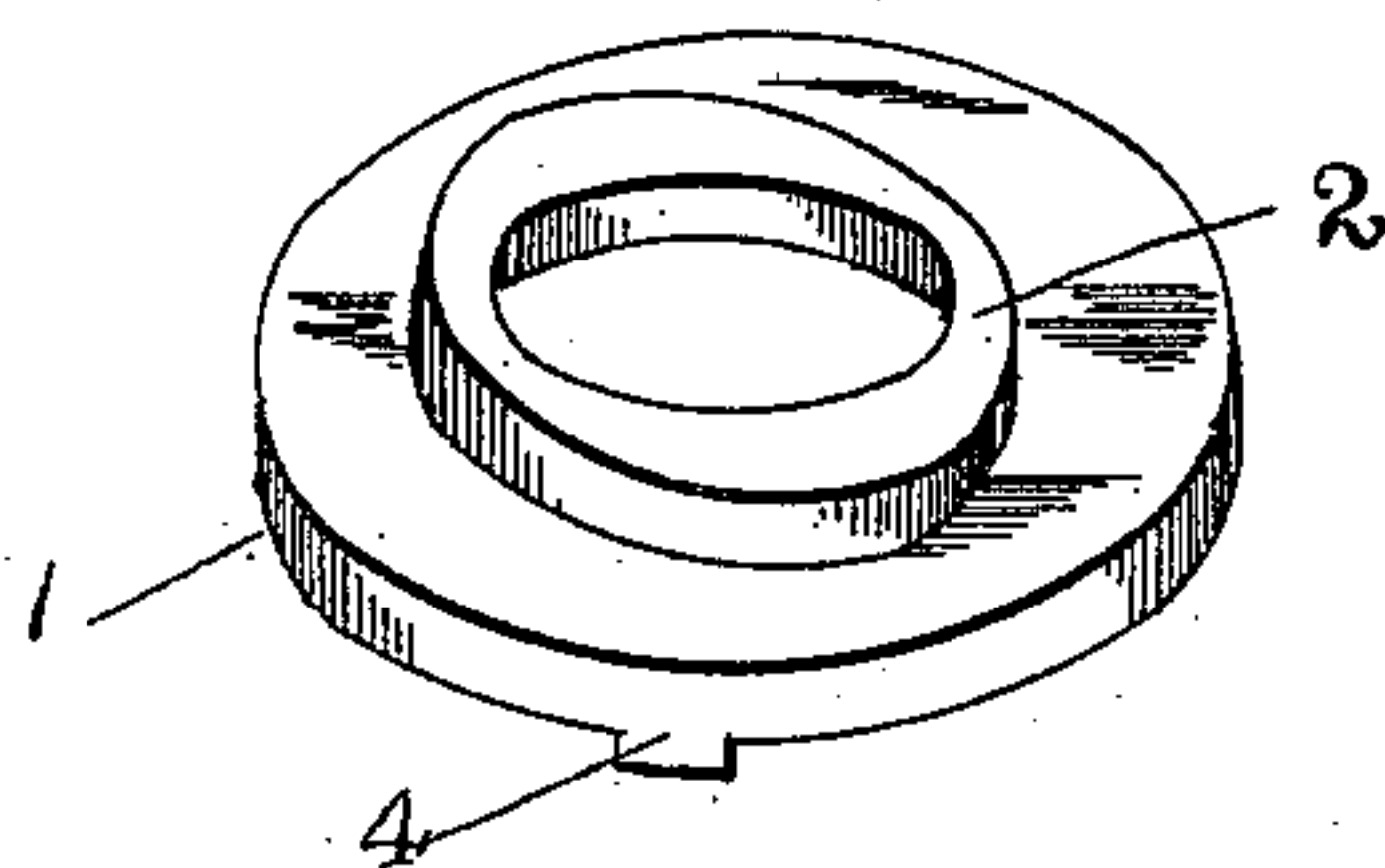


Fig 4



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Fig 5

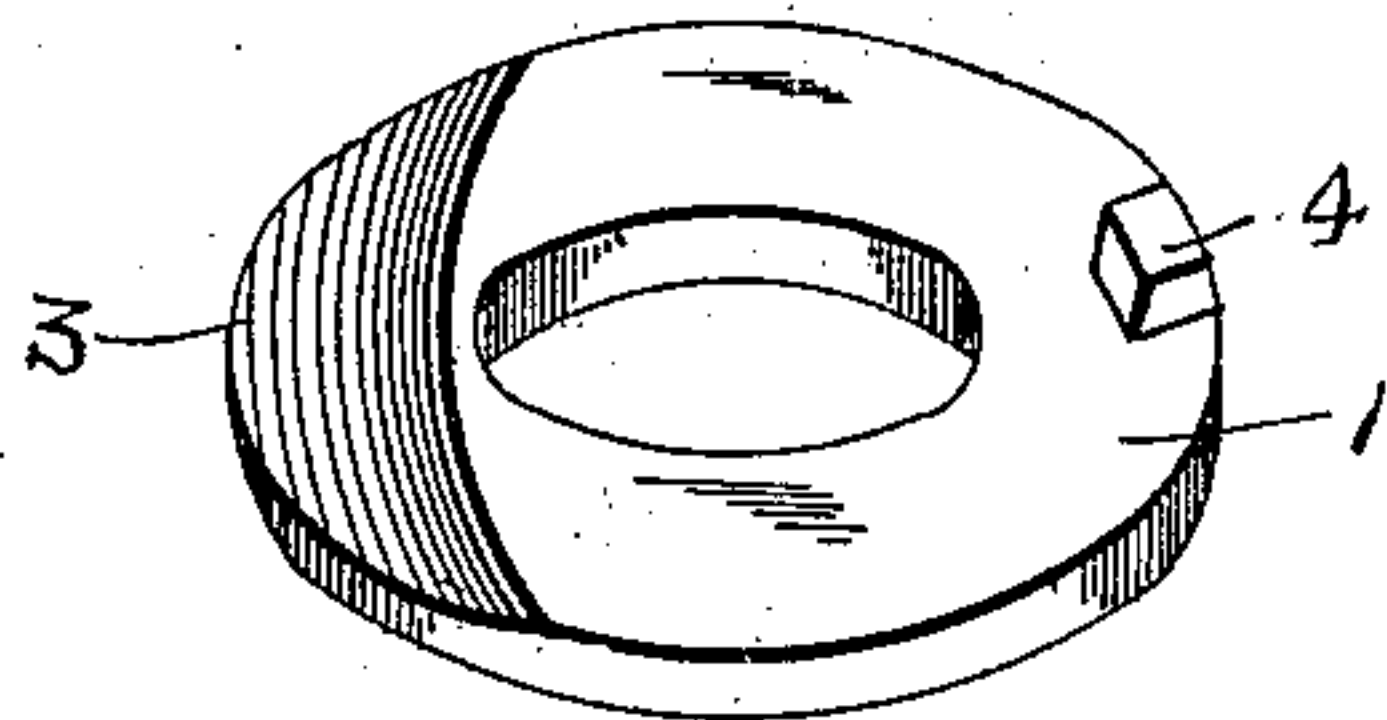


Fig 6

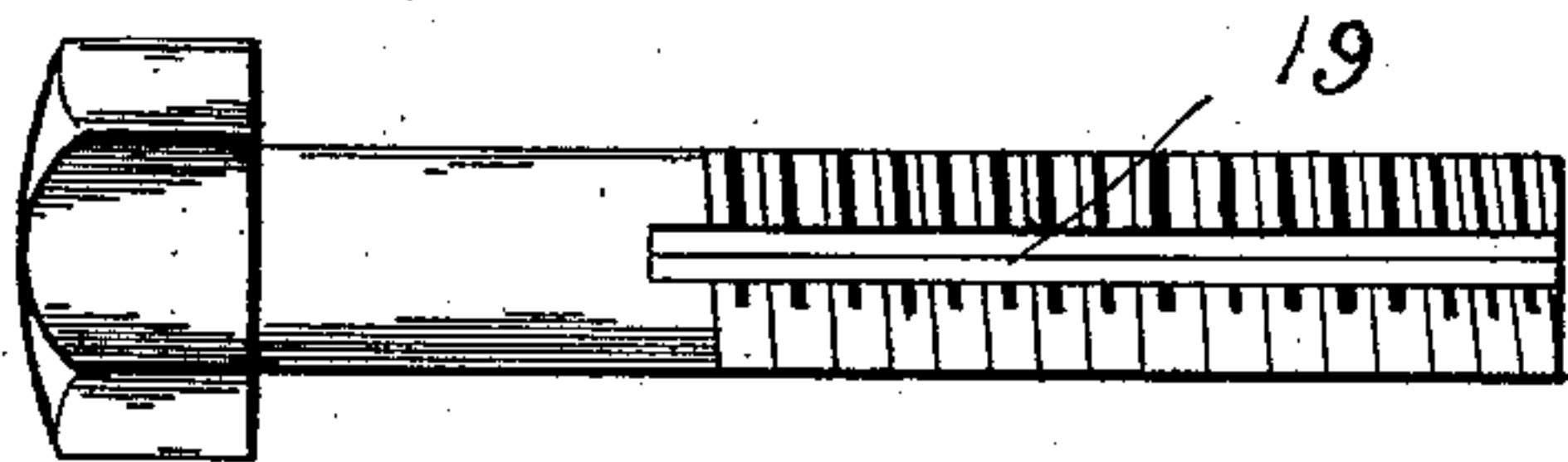


Fig 7

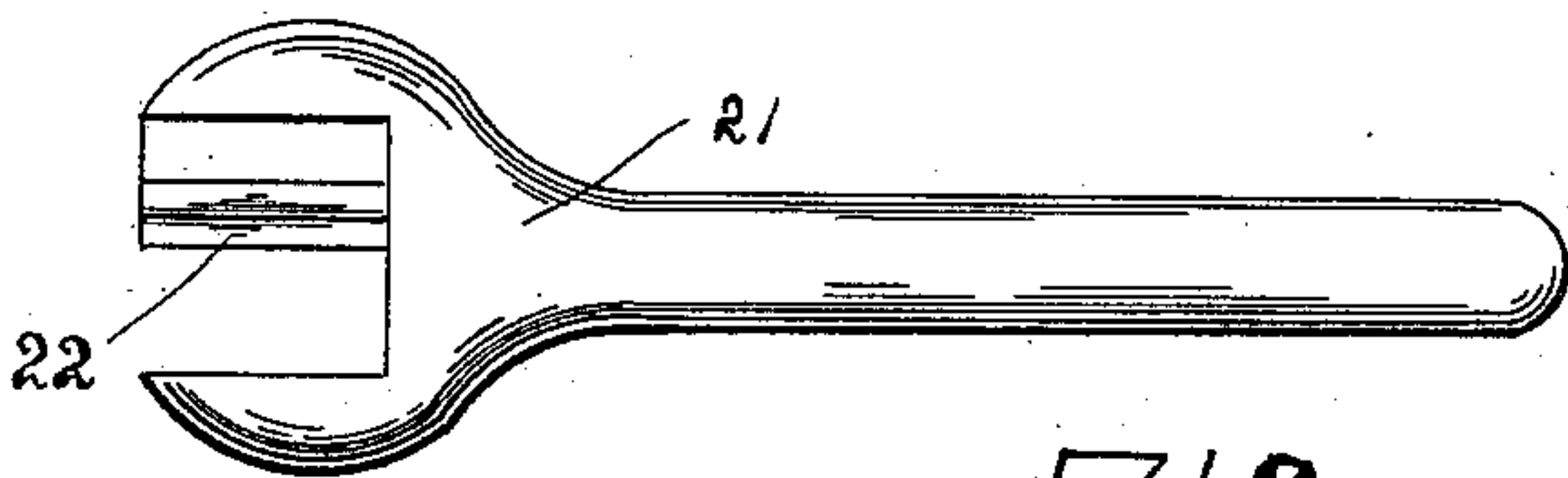
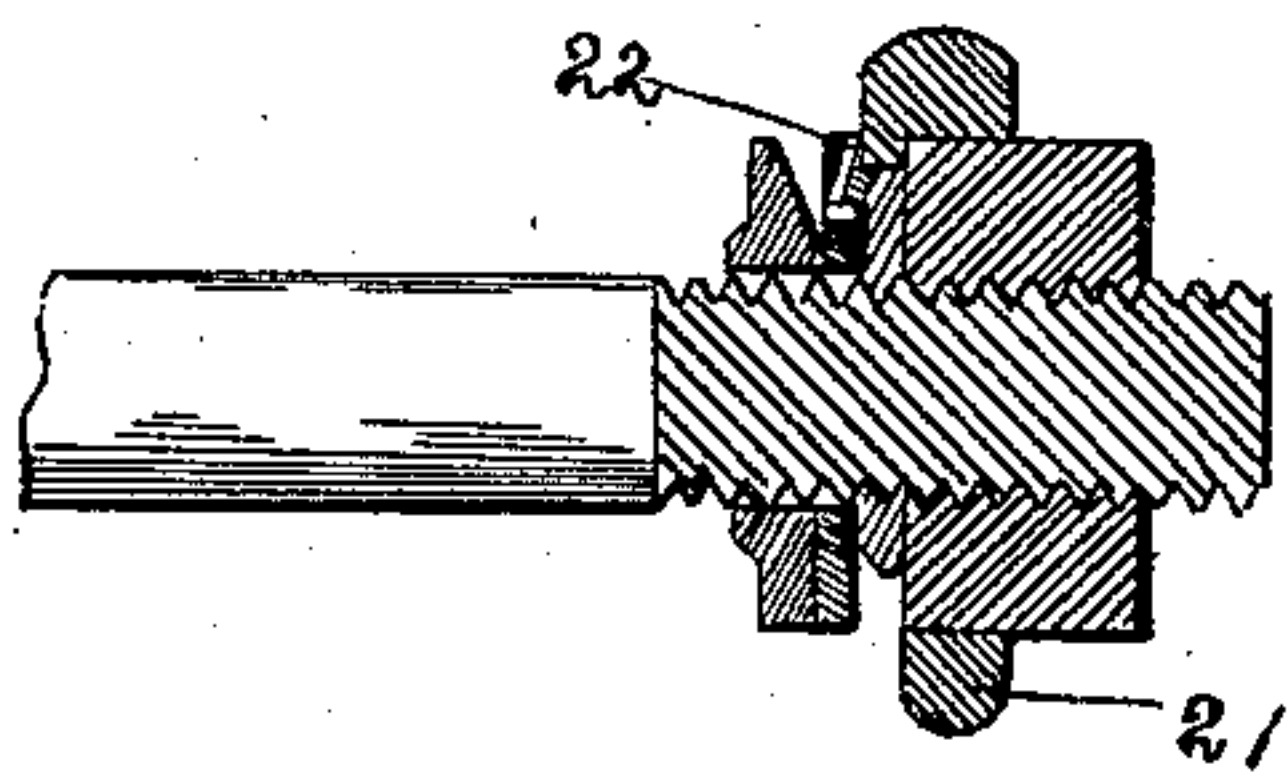


Fig 8



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UNITED STATES PATENT OFFICE.

ARTHUR DEADMAN, OF FORT WILLIAM, CANADA.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 599,690, dated March 1, 1898.

Application filed March 29, 1897. Serial No. 629,706. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR DEADMAN, of Fort William, in the Province of Ontario and Dominion of Canada, have invented certain
5 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
10 use the same.

This invention relates to nut-locks; and the object in view is to provide a simple, cheap, and effective device of the character referred to which while designed for use upon bolts
15 and railway-joints is also equally applicable to machinery-bolts in general or wherever it is necessary to prevent the loosening of the nut.

The detailed objects and advantages of the
20 invention will be pointed out in the course of the subjoined description.

The invention consists in an improved nut-lock embodying certain novel features and details of construction, illustrated in the drawings, and incorporated in the claims hereto
25 appended.

In the accompanying drawings, forming a part of this specification, Figure 1 is a longitudinal section through a bolt and nut, showing the improved lock applied thereto. Fig.
30 2 is a detail perspective view of the spring-washer. Fig. 3 is a similar view of the nut, looking toward the inner side thereof. Fig. 4 is a detail perspective view of the rigid
35 washer. Fig. 5 is a similar view of said washer, looking from the opposite side. Fig. 6 shows a special form of bolt which may be used in connection with the improved nut-lock. Fig. 7 is a detail perspective view of
40 the wrench for use in connection with the nut. Fig. 8 is a detail section showing the operation of the wrench.

Similar numerals of reference designate corresponding parts in all the figures of the drawings.
45

Referring to the drawings, 1 designates a rigid or non-resilient washer which is provided upon its inner surface with an ellipsoidal offset or flange 2, surrounding the central opening in the washer and adapted to fit
50 into a correspondingly-shaped recess in the fish-plate or in any other surface to which the

nut is to be applied, whereby said washer is prevented from rotating. Upon its outer face the washer 1 is beveled or chamfered off at
55 one edge, as indicated at 3, and said washer is also provided on this side near its periphery with a lateral projection or stop 4 for engaging and holding the spring-washer.

5 designates the spring-washer, which is
60 about the same size as the washer 1 and which is provided at its peripheral edge with a notch 6 to engage the projection or stop 4 on the washer 1, thus preventing the spring-washer from turning with relation to the
65 washer 1. The spring-washer 5 is formed with a segmental slot 7, extending approximately half-way around the washer and, if desired, opening out at one end, as indicated at 8, so as to afford increased resiliency to the
70 portion of the washer lying outside said slot, said outlying portion being designated by the numeral 8. The resilient portion 8 of the washer is provided intermediate its ends with an offset 9, the active surface of which is
75 substantially V-shaped or provided with reversely sloping or inclined surfaces 10, adapted to cooperate with teeth on the nut. The segmental slot 7 is provided with an outward offset, extension, or notch 11, of V shape,
80 thus forming a radial shoulder 12, adapted to engage positively with teeth on the nut for preventing the nut from turning backward and becoming loose.

13 designates the nut, which may be of
85 square or horizontal form, said nut being internally threaded to screw upon the bolt (indicated at 14) and being provided upon its inner side with an annular offset or flange 15, notched to form a circular series of triangular-shaped teeth 16, one edge of each tooth
90 being in the form of an abrupt transverse shoulder 17, while the opposite face of the tooth is inclined, as indicated at 17', to adapt the nut to be screwed inward with ease upon
95 the bolt and to enable the teeth to pass over the inclined surface 10 of the spring-washer and by the lateral shoulder 12 of said washer.

In operation the rigid or non-resilient washer is first placed in position and engaged
100 with the surface to which it is applied in the manner indicated, so that it cannot rotate. The spring-washer 5 is then placed upon the outer side of the washer 1, with the notch 6

in engagement with the projection or stop 4, the said parts being at the same time placed upon the bolt. The nut 13 is now applied and screwed inward, the teeth thereof passing by the shoulder 12. When the nut has been screwed firmly to place, the teeth 15 and shoulder 12 of the spring-washer will cooperate to prevent the loosening of the nut in a manner that will be readily understood. As the nut is screwed inward the offset 9 in the spring-washer will yield to allow the teeth 15 to pass by the shoulder 12 and will then spring forward to engage said teeth.

In some cases it may be desirable to provide the bolt with a longitudinal groove 19 and the spring-washer with the inwardly-projecting spur or lip 20 to engage said groove, thus preventing relative rotation between said washer and bolt. In this event the notch 6 may be dispensed with and the rigid or non-resilient washer 1 may also be dispensed with. It is, however, preferable to use the construction first described, as it will avoid a great outlay, which will be rendered necessary by substituting new bolts on railways for the old ones already in use.

In order to remove the nut, a special form of wrench is provided, the same being indicated at 21. This wrench is adapted to embrace the nut, as shown, and is provided at its inner edge with an inwardly-projecting flange 22, adapted when the wrench is applied to the nut to lie between the inner surface of said nut and the adjacent surface of the spring-washer. The flange 22 acts on the offset 9 of the spring-washer in such manner as to force the same back and remove the shoulder 12 from engagement with the teeth 15. This allows the nut to be turned backward and removed from the bolt as the spring-washer is rendered inactive by the wrench.

The nut-lock hereinabove described is extremely simple in construction and may be manufactured at minimum cost. The spring-washer may be pressed or stamped from sheet metal, thus involving little expense.

While, as above stated, the nut-lock is especially applicable to the bolts of railway-joints, it will of course be understood that the principle of the invention is applicable to a bolt of any description and at any place and wherever it is desirable to prevent nuts from working loose.

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

1. The combination with a rigid or non-resilient washer having provision for preventing its turning and provided with a lateral projection or stop, of a resilient washer having a notch to engage said projection or stop and also provided with a shoulder or offset, and a nut having teeth to engage said shoulder, substantially as described.

2. The combination with a bolt, of a non-resilient washer beveled or chamfered on one side and also provided with a lateral projection or stop, means whereby said washer is prevented from turning, a spring-washer having a notch to engage said projection or stop, and also embodying a resilient portion lying adjacent to the chamfered portion of the non-resilient washer, and a nut having teeth to engage the resilient portion of the spring-washer, substantially as described.

3. A spring-washer for the purpose described, provided with a segmental slot leaving a resilient portion of the washer lying outside of said slot, said resilient portion being provided intermediate its ends with a V-shaped offset forming reversely-inclined surfaces, and also provided with a V-shaped notch forming an abrupt radial shoulder, substantially as and for the purpose specified.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

ARTHUR DEADMAN.

Witnesses:

JOSEPH G. KING,

THOMAS A. FISHER.