

No. 607,622.

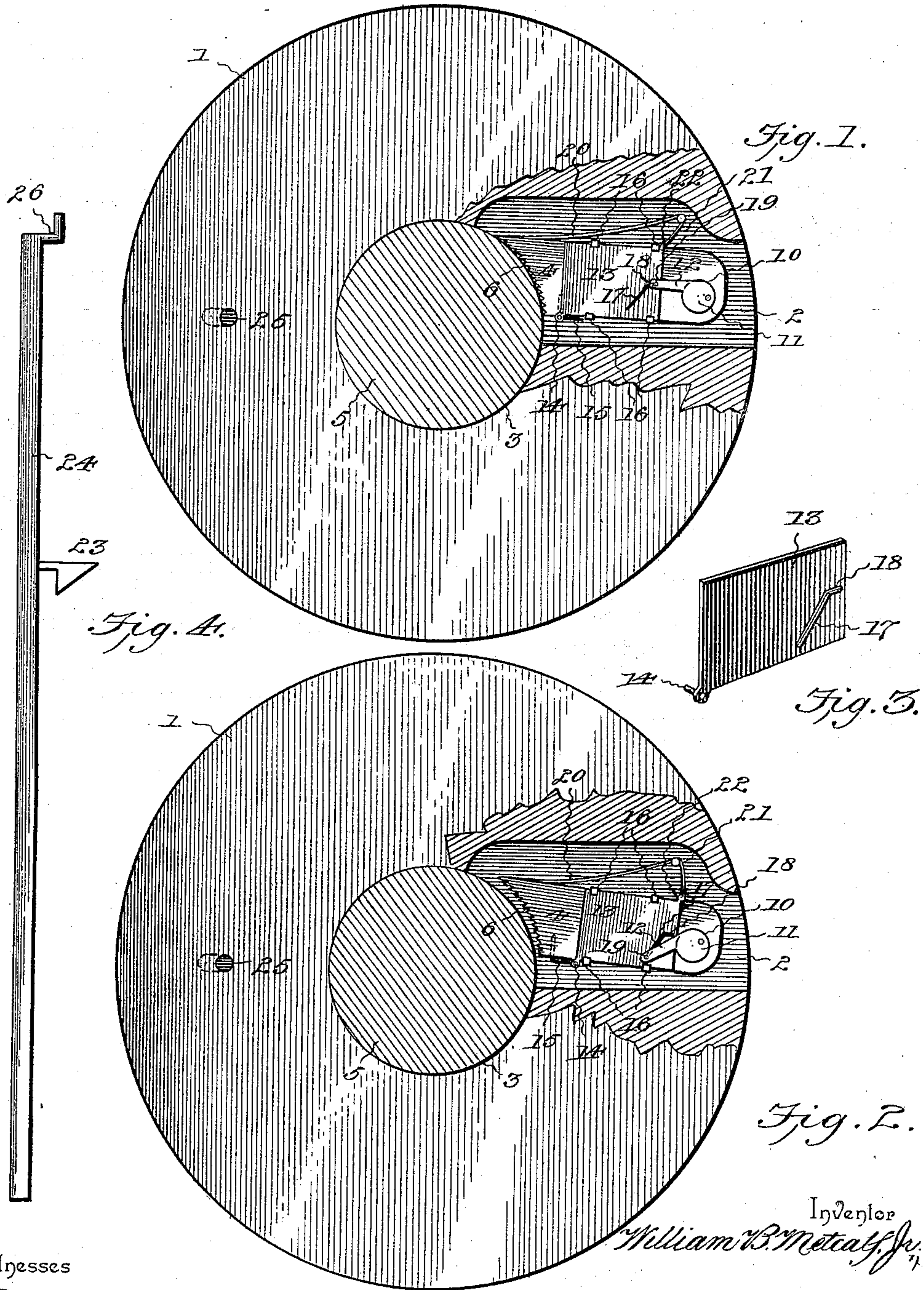
W. B. METCALF, JR.
NUT LOCK.

Patented July 19, 1898.

(Application filed Jan. 28, 1898.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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Inventor

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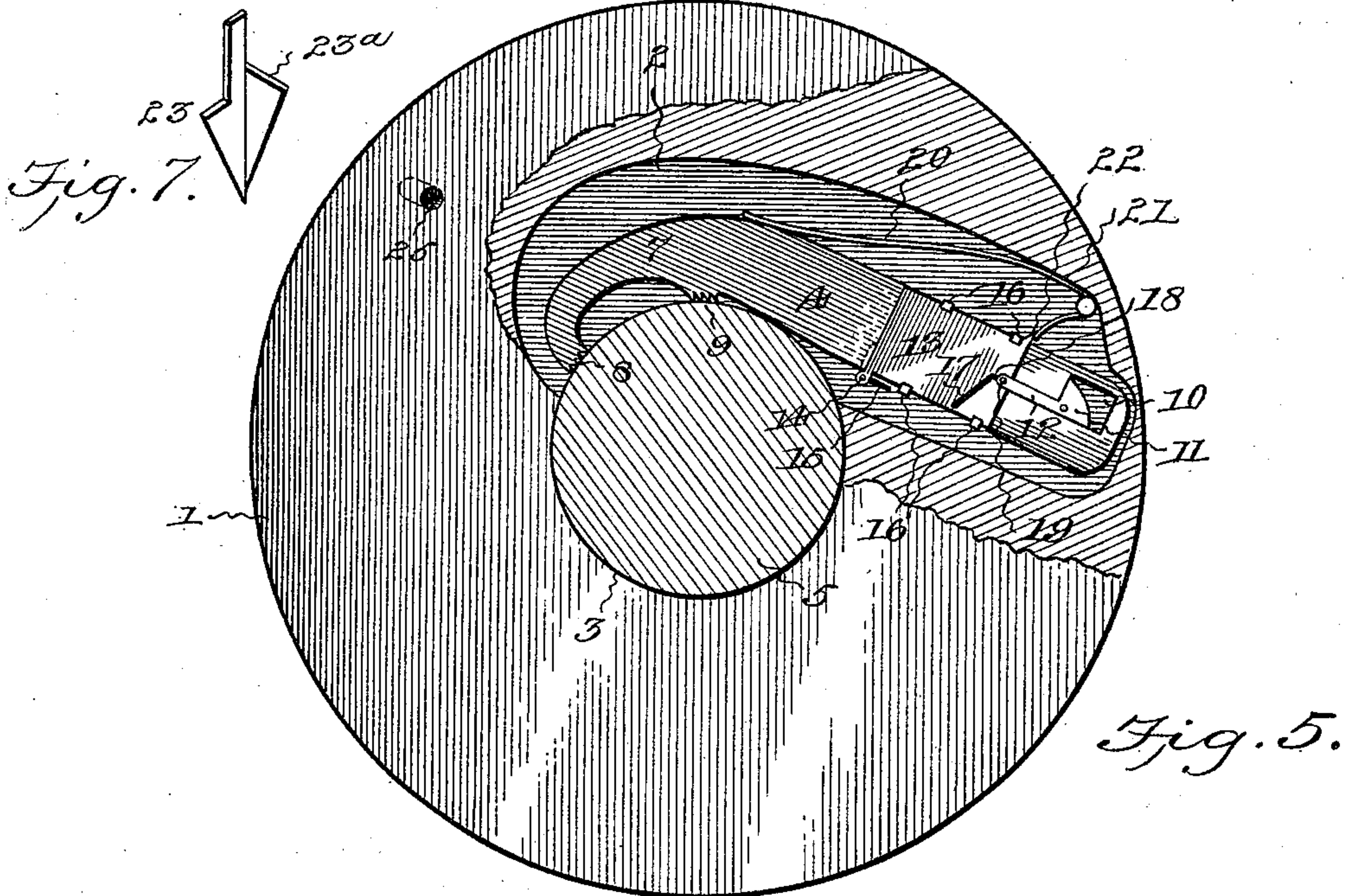
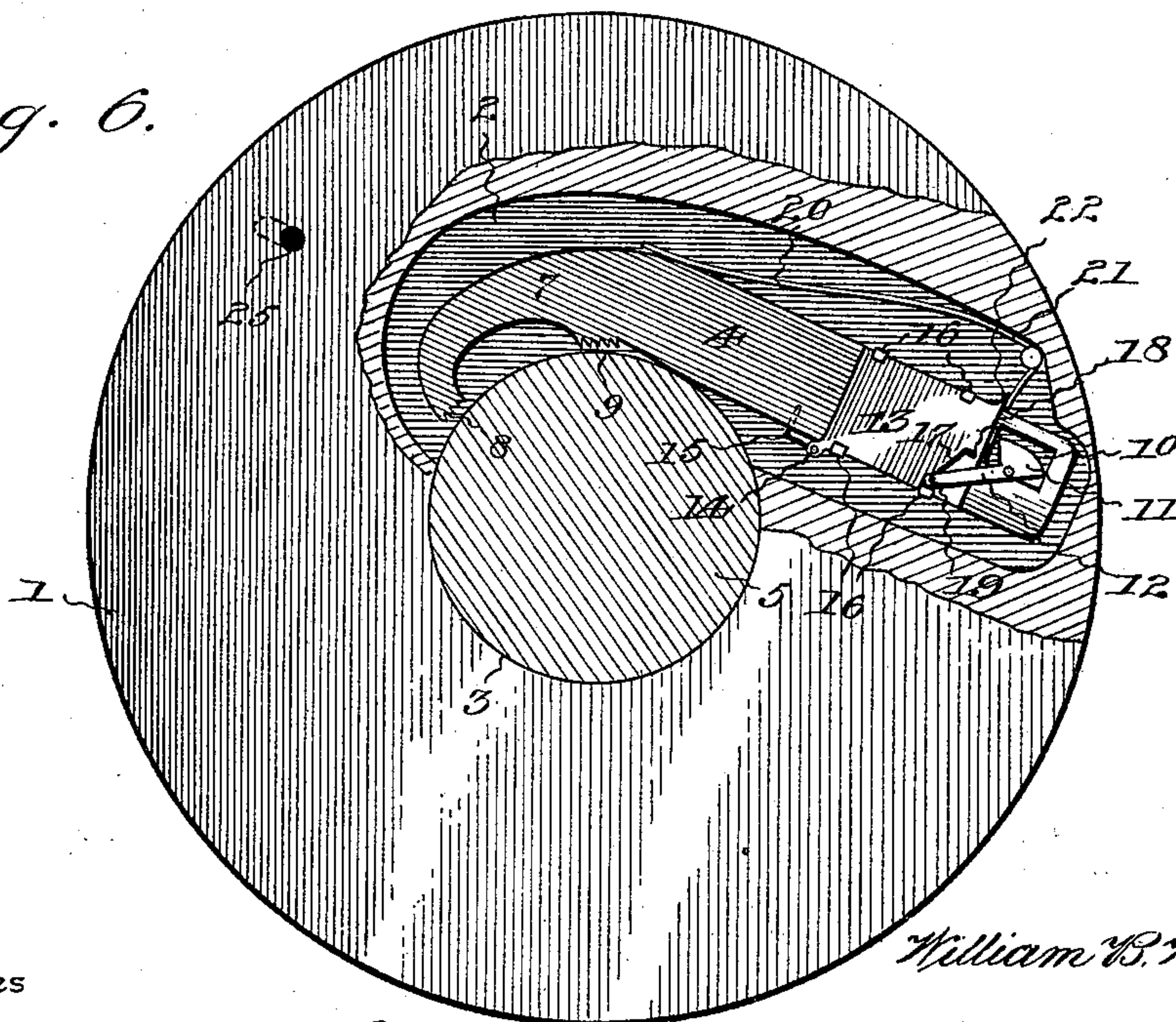


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM B. METCALF, JR., OF AUBURN, NEBRASKA.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 607,622, dated July 19, 1898.

Application filed January 28, 1898. Serial No. 668,306. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. METCALF, Jr., a citizen of the United States, residing at Auburn, in the county of Nemaha and State of Nebraska, have invented a new and useful Nut-Lock, of which the following is a specification.

The invention relates to improvements in nut-locks.

10 The object of the present invention is to improve the construction of nut-locks and to provide a simple and comparatively inexpensive one which will positively lock a nut on a bolt, spindle, or other threaded part and effectively prevent the same from accidentally unscrewing.

Another object of the invention is to enable a nut to be readily removed when desired without injuring the locking device, the nut, 20 or the bolt or spindle.

The invention consists in the construction and novel combination and arrangement of parts, as hereinafter fully described, illustrated in the accompanying drawings, and 25 pointed out in the claims hereto appended.

In the drawings, Figure 1 is a sectional view taken transversely of a nut provided with a locking device constructed in accordance with this invention, the locking bar or dog being in engagement with a bolt or spindle. Fig. 30 2 is a similar view showing the parts unlocked. Fig. 3 is a detail view of the slide. Fig. 4 is a detail view of the wrench. Fig. 5 is a sectional view illustrating a modification of the invention, the locking bar or dog being in engagement with the bolt or spindle. Fig. 35 6 is a similar view showing the locking bar or dog out of engagement. Fig. 7 is a detail perspective view of the inner projection or arm of the wrench.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

1 designates a nut provided with a substantially radial opening 2, communicating with the threaded opening 3 and receiving a longitudinally-movable locking-bar 4, which is adapted to engage a bolt or spindle 5 or other threaded part and prevent the nut from accidentally unscrewing. The locking bar or 50 dog 4 is provided at its engaging end with

teeth 6, which may be arranged in either a curved or straight series and which may be of any desired size and number to hold the spindle securely, and the engaging end may 55 be curved, as illustrated in Figs. 1 and 2 of the accompanying drawings, or it may be hook-shaped, as shown at 7 in Figs. 5 and 6, and be provided with two sets of teeth 8 and 9. The locking-bar may engage the bolt or 60 spindle in any other suitable manner, such as providing the bolt or spindle with a groove or recess.

The outer end of the locking bar or dog is provided with a circular opening 10, receiving an eccentric 11, which is circular to conform to the configuration of the opening; but, as illustrated in Figs. 5 and 6, the eccentric may be triangular or of any other desired shape which will, when rotated, effect a re- 70 ciprocation of the locking bar or dog to throw it into engagement with the bolt or spindle and withdraw it therefrom. The cam or eccentric is provided with a rigid arm 12, which connects it with a slide 13, and the latter is 75 mounted on the locking bar or dog between the ends thereof and is provided at its inner end with a lug 14, fitting in a guide-slot 15 of the nut. Instead of constructing the arm 12 as shown in the accompanying drawings any 80 other form of arm or connection may be employed for enabling the slide to actuate the eccentric. The slide is provided with suitable ways 16 to receive the locking bar or dog; but the latter may be constructed to receive 85 the slide, if desired, and the ways 16 are preferably formed by tongues formed on one of the parts and extending inward over the other. The outer portion of the slide is provided with an angularly-disposed slot 17, having a longi- 90 tudinal extension 18 and receiving a pin 19 of the arm or link 12, whereby when the slide is reciprocated the cam will be rotated and effect a corresponding movement in the locking bar or dog. The extension 18 of the slot 95 17 forms a lock and prevents any movement of the locking bar or dog until the slide is reciprocated. The engaging end of the locking bar or dog has one arm 20 of a spring 21 bearing against it, and the other arm of the spring, 100 which is substantially L-shaped, bears against a projection 22 of the outer end of the slide

and is adapted to return the latter to its innermost position, as shown in Fig. 1 of the accompanying drawings, after the parts have been unlocked and the wrench removed. The
 5 lug 14, which may or may not extend into the guide-slot 15, is adapted to be engaged by a tapering arm or projection 23 of a wrench or tool 24, and when the device is in its engaging position the said lug 14 is located at the
 10 angle of the slot 15, which is substantially L-shaped, whereby the spring 21, yieldingly engaging the locking bar or dog, will cause the same to bear yieldingly against the bolt or spindle, the lug being adapted to play back
 15 and forth in the transverse portion of the slot 15. The slot may be varied in shape and the locking bar or dog may be provided with teeth that will prevent the nut from rotating in either direction when it is in engagement
 20 with a bolt or spindle. The nut is provided at one side with a socket, which is adapted to be engaged by a substantially L-shaped arm 26 at one end of the wrench 24, and the tapering projection or arm 23, which is substan-
 25 tially L-shaped in cross-section, is composed of two sides or wings provided with beveled or inclined edges and adapted to be introduced into the L-shaped slot 15 to reciprocate the slide sufficiently to disengage the locking
 30 bar or dog from the bolt or spindle.

The flange or wing 23^a extends laterally from the wrench at right angles to the other flange or wing of the projection or arm, and when the wrench is in engagement with the
 35 nut the latter may be unscrewed, the wrench operating as a handle or lever. When the wing 23^a is employed, the lug 14 does not engage the L-shaped slot, so that the slide may move longitudinally of the locking bar or dog
 40 while the latter swings away from the spindle or bolt, the wing 23^a being adapted to swing the locking bar or dog away from the bolt or spindle and the other wing being adapted to reciprocate the slide. The flanges or wings
 45 may be proportioned and arranged to effect a reciprocation of the slide before the dog is swung away from the spindle, in order to withdraw the dog before such swinging movement takes place, and thereby prevent the
 50 spindle and the locking bar or dog from being injured. In order to provide an exceedingly inexpensive nut-lock, the locking dog or bar may be employed without the eccentric or cam and the slide, and in this construction
 55 the wrench will be provided between its ends with only one wing, arranged similar to the wing 23^a, and, if desired, more than one locking bar or dog may be mounted on a nut, so that the latter may be held against rotation
 60 in either direction, and any suitable form of spring may be employed.

The invention has the following advantages: The nut-lock is positive and reliable in operation and effectually prevents a nut
 65 from accidentally unscrewing. It will permit a nut to be rotated forward to tighten it, and a nut may be readily removed by the wrench

without injuring any of the parts of the device or the threads of the bolt or spindle.

Changes in the form, proportion, and minor
 70 details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention, such as mounting the locking devices on a bolt or screw instead of upon a nut, as shown. 75

What I claim is—

1. In a device of the class described, the combination of a reciprocating locking-bar designed to be mounted on a nut, bolt or spindle and adapted to prevent a nut from
 80 unscrewing accidentally, a pivotally-mounted cam or eccentric engaging the locking-bar and adapted to reciprocate the same, and mechanism carried by the locking-bar for oscillating the cam or eccentric, substantially 85 as described.

2. In a device of the class described, the combination of a reciprocating locking-bar designed to be mounted on a nut, bolt or spindle and adapted to prevent a nut from
 90 unscrewing accidentally, a slide mounted on the locking-bar, and a cam or eccentric connected with the slide and engaging the locking-bar, substantially as described.

3. In a device of the class described, the
 95 combination of a reciprocating locking-bar designed to be mounted on a nut, bolt or spindle, a pivotally-mounted cam or eccentric engaging the locking-bar and adapted to reciprocate the same, and a slide mounted on
 100 the locking-bar and connected with the cam or eccentric, substantially as described.

4. In a device of the class described, the combination of a locking-bar, a pivoted cam or eccentric engaging the locking-bar and
 105 adapted to reciprocate the same, a slide mounted on the locking-bar and provided with an angularly-disposed slot or shoulder, and an arm extending from the cam or eccentric and engaging the slot or shoulder, sub- 110 stantially as described.

5. In a device of the class described, the combination of a reciprocating locking-bar, a pivoted cam or eccentric engaging the lock-
 115 ing-bar and adapted to reciprocate the same, a slide mounted on the locking-bar and connected with the cam or eccentric, and a spring having one arm bearing against the locking-bar and another arm engaging the slide, sub- 120 stantially as described.

6. In a device of the class described, the combination of a reciprocating locking-bar provided with an opening, a pivoted cam or eccentric arranged in the opening, a slide
 125 mounted on the locking-bar and provided with an angularly-disposed slot, an arm rigid with the cam or eccentric and engaging the said slot, and a spring, substantially as described.

7. In a device of the class described, the
 130 combination of a nut, a reciprocating locking-bar mounted thereon and having a hook-shaped engaging end provided with teeth and adapted to engage a bolt or spindle at differ-

ent points, a slide, and a cam or eccentric connected with the slide and engaging the locking-bar, substantially as described.

8. The combination of a locking-bar capable of reciprocation and adapted to swing to carry it away from a bolt or spindle, a slide mounted on the locking-bar, a cam or eccentric connected with the slide and engaging the locking-bar, and a nut receiving the locking-bar and provided with an L-shaped slot

adapted for the reception of a projection of a tool, substantially as and for the purpose described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM B. METCALF, JR.

Witnesses:

CARLE NELSON,
OLIVER M. DEAKIN.