

No. 662,023.

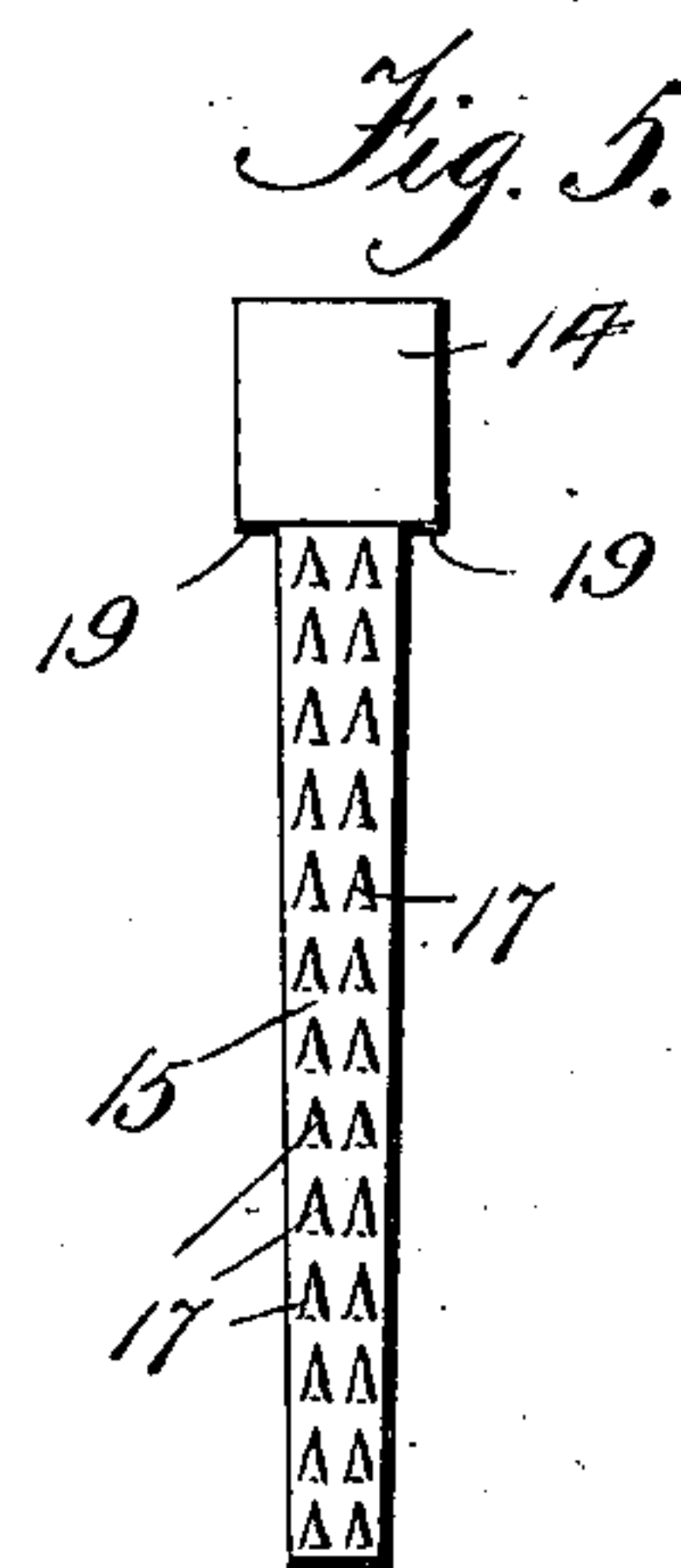
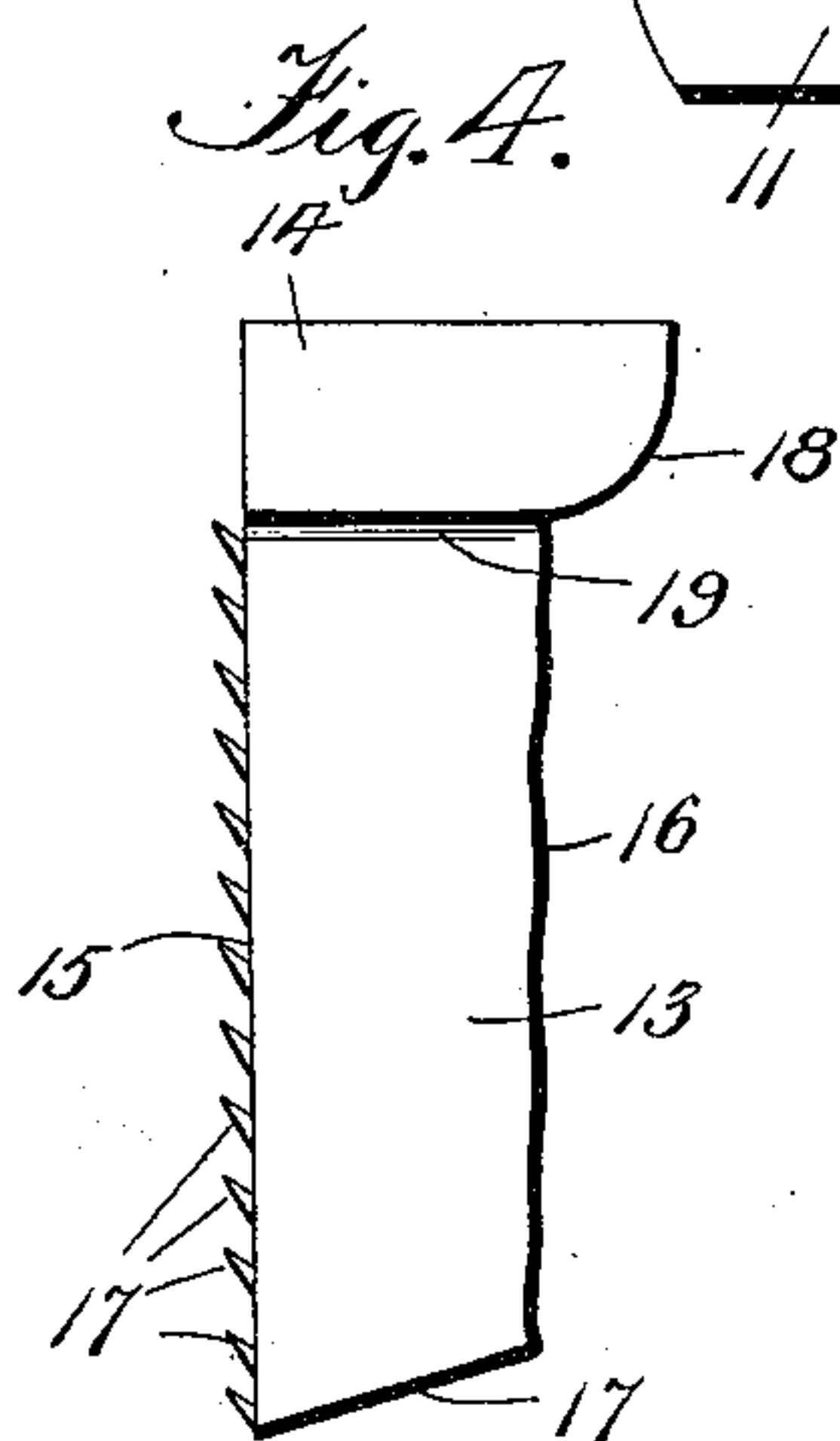
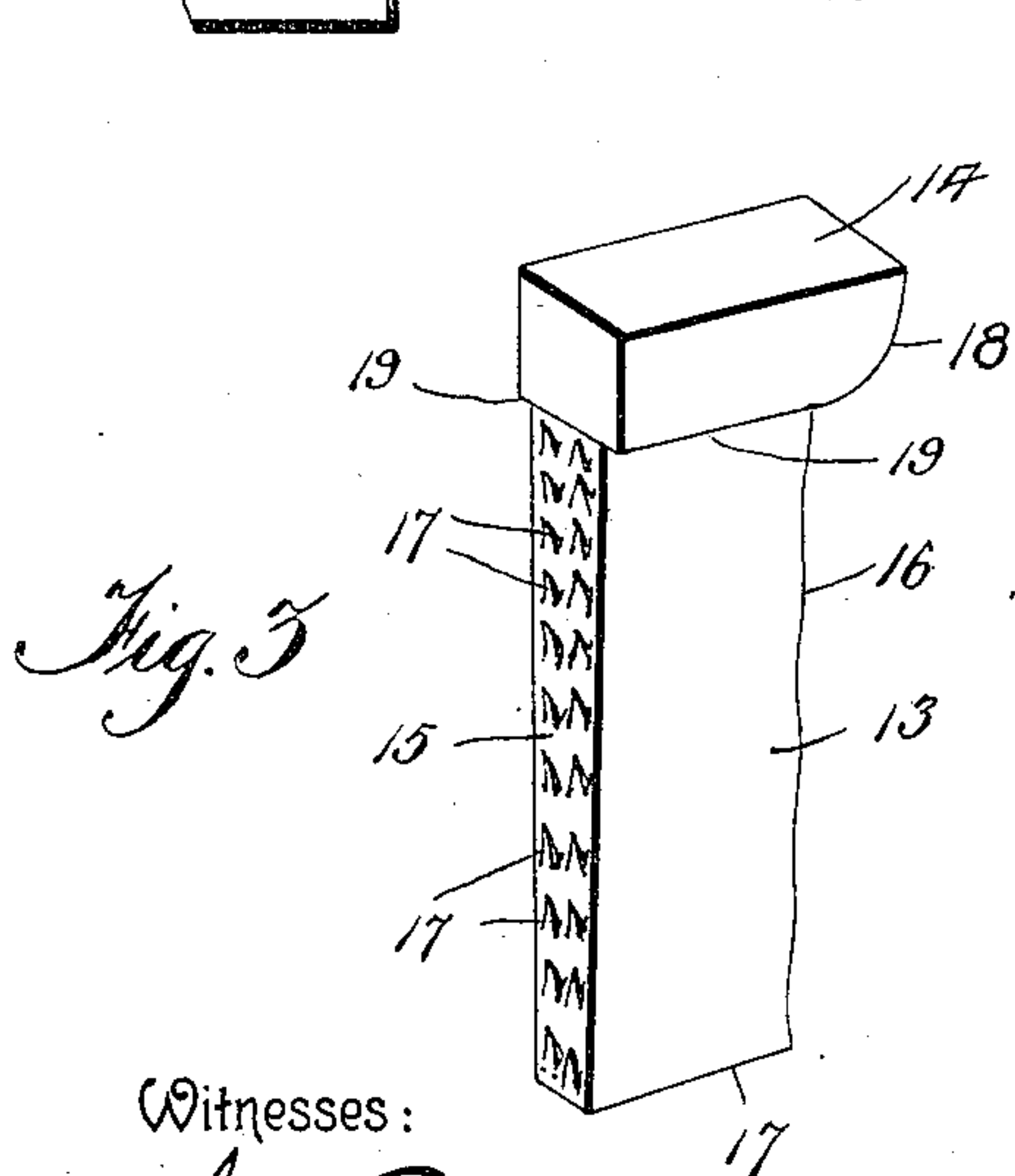
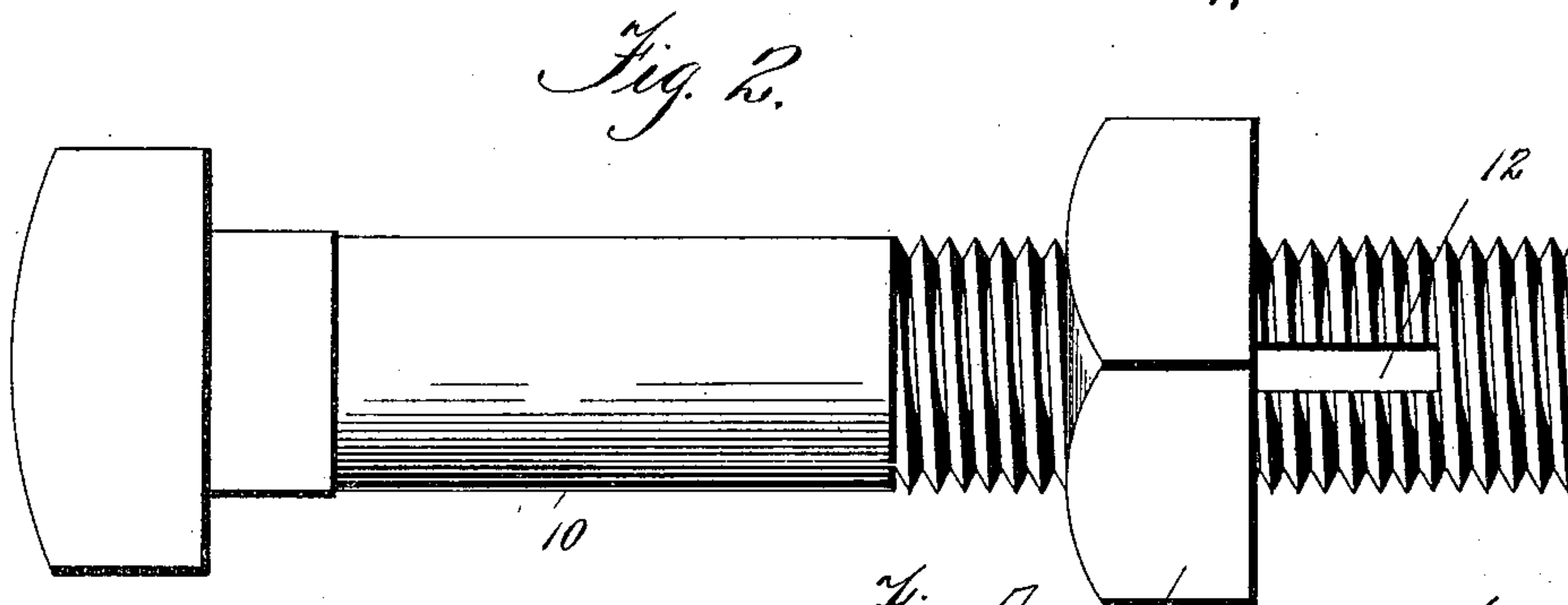
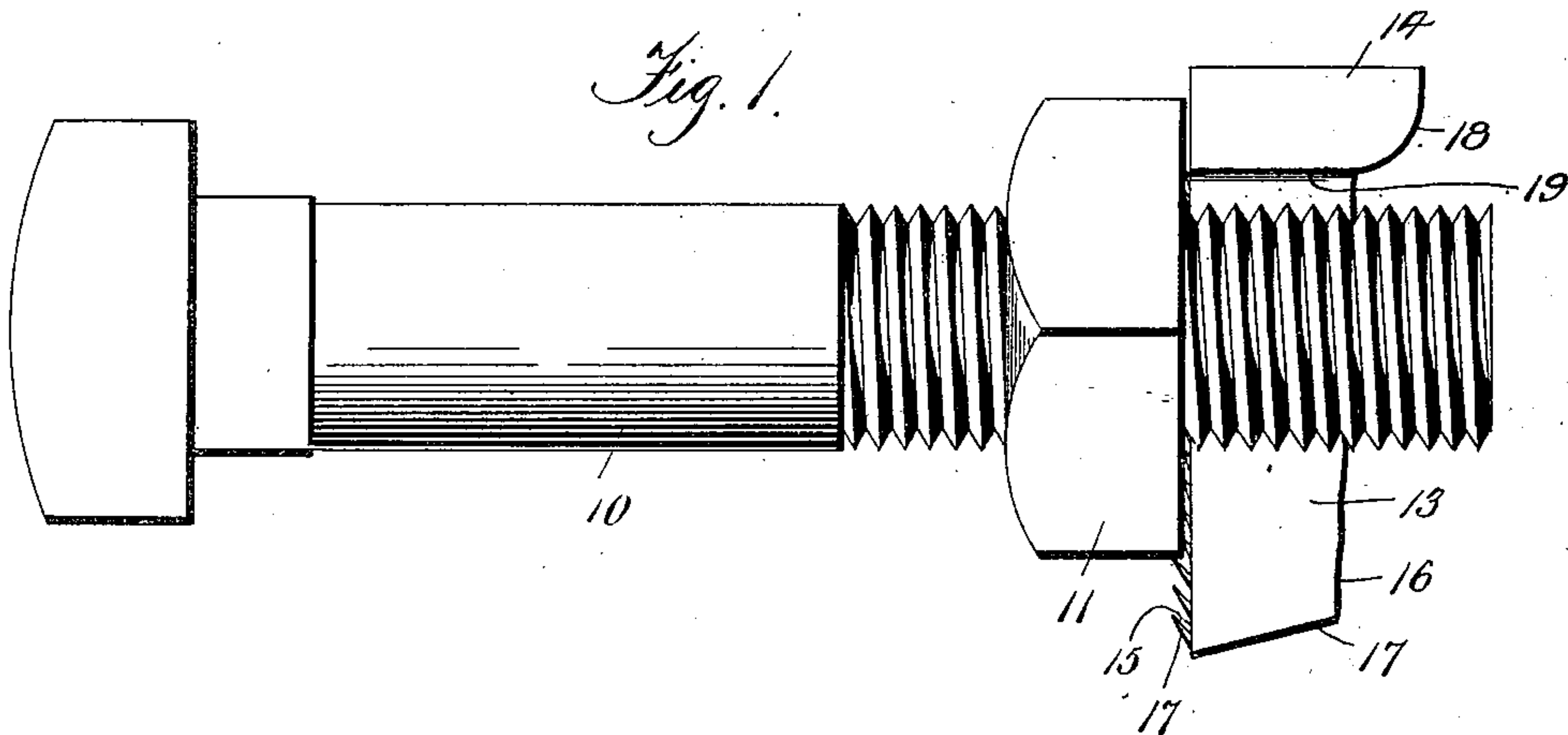
Patented Nov. 20, 1900.

R. M. READE.

NUT LOCK.

(Application filed Sept. 20, 1900.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

RALPH MAYNE READE, OF QUEBEC, CANADA.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 662,023, dated November 20, 1900.

Application filed September 20, 1900. Serial No. 30,592. (No model.)

To all whom it may concern:

Be it known that I, RALPH MAYNE READE, a subject of Her Majesty the Queen of Great Britain, residing in the city and district of Quebec, Province of Quebec, Canada, have invented certain new and useful Improvements in Nut-Locks; and I do hereby declare that the following is 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.

My invention relates to improvements in nut-locks; and the primary object is to provide a simple construction which will positively prevent the slackening or loosening of nuts on screw key-bolts of every description irrespective of the use of the bolt—such as when used for railway-joints, in machines generally, in carriages and vehicles, and in stoves and other structures—and also irrespective of the style of the bolt, such as a screw-headed bolt, a T-headed bolt, an I-bolt, &c.

A further object of the invention is to provide an improved form of key which will not only securely lock the nut from turning on the bolt, but which will also hold itself against displacement in the bolt, and thereby contribute to the security of the lock, because the key cannot fall down or drop out of the bolt after its insertion therein when the nut is in place nor can the key be jarred or displaced in an upward direction. Furthermore, the peculiar configuration and construction of the key facilitate its easy insertion into the bolt, while at the same time the key can be withdrawn by the use of a hammer and drift without destroying the nut or key-bolt itself, a peculiarity of my invention consisting in the secure locking of the nut by a key which does not in any way destroy or mutilate the threaded point of the bolt.

The invention consists in the novel construction and combination of parts which will be hereinafter fully described and claimed.

In the drawings hereto annexed and forming a part of this specification, Figure 1 is a side elevation of a nut-lock embodying my improvements and illustrating parts in operative position. Fig. 2 is a plan view of the bolt and the nut before the insertion of the locking-key. Fig. 3 is a detail perspective view

of the key removed from the bolt or the nut. Fig. 4 is a side view in elevation of the improved key; and Fig. 5 is a rear view, also in elevation, of the key.

The same numerals of reference denote corresponding parts in each of the several figures of the drawings.

10 designates an ordinary bolt, and 11 is an ordinary nut adapted to be screwed on the threaded part of said bolt. The slot 12 is cut longitudinally in the threaded part of the bolt, and the nut is designed to be screwed in place, so as to have its outer face terminate adjacent to the inner terminal of the slot in order that the improved key of my invention may properly engage with said front face of the nut and the front terminal or wall of the slot 12. This key is made from a single piece of metal in any manner preferred by the skilled constructor, and it consists of the shank 13 and the head 14. Said shank tapers in two directions both in width and thickness—that is to say, the side faces of the shank are inclined slightly, so as to converge from the head toward the free end of the key, and the front and back edges of said shank also incline somewhat, thus producing the desired taper from the head toward the free end of said key, all as more clearly shown by Figs. 3 to 5, inclusive. The back edge 15 of the key is a straight line, whereas the front edge 16 presents a wavy line or irregular curvature, although said wavy front edge has the desired general inclination heretofore mentioned. The bottom edge of the key inclines forwardly and upwardly, as at 17, from the straight back edge 15 toward the wavy front edge 16.

One of the peculiarities of my improved key is the provision of a plurality of rasp-like or "alligator" teeth 17 on the straight back edge 15 of the key, said teeth extending generally in upwardly-inclined directions from said back face or edge 15. These teeth may be forced out of the metal by any suitable means, or they may be struck up along with the key by dies in the process of manufacture of the invention. Furthermore, the teeth may be arranged in regular rows or series, as shown by the drawings, or they may be produced indiscriminately on the back edge 15 at the election of the skilled constructor. The head 14 has its back edge flush with the straight edge

15 of the key; but the front edge of this head is extended on curved or rounded lines, as at 18, beyond the wavy front edge of the key-shank. The thickness of the head exceeds
5 that of the shank in order to form the shoulders 19, that project beyond the side faces of the key-shank and which serve to limit the movement of the key in the slot 12 of the bolt when the parts are removed.

10 The key of my invention is designed to be manufactured in different sizes and in accordance with the construction shown more clearly by Figs. 3 to 5, inclusive. In utilizing the improvements a key should be selected which
15 will exceed in width the length of the slot between the front terminal or wall thereof and the front face of the nut after the latter shall have been screwed on the bolt to rest firmly against the work. The beveled end 17 of the
20 key is first inserted in the slot, and the key should be forced home until its teeth 17 have proper engagement with the front face of the nut, while the wavy front edge 16 binds against the front terminal or wall of the key-slot 12.
25 It will be noted that the key holds itself in place in the slotted bolt by a wedging action which is due to that taper that is given to the key-shank, and at the same time said key has
30 a positive locking engagement with the nut, owing to the presence of the inclined teeth 17 on the clean-cut back edge 15 of the key-shank. Some of the inclined key-teeth engage frictionally with the flat front face of the nut, while one or more of said inclined
35 teeth have proper engagement with the under edge of the nut, so as to positively restrain the latter from turning in an opposite direction on the bolt, whereby the nut will be held securely in place under all conditions of
40 service of the improvement. The peculiar shape of the key, having in addition the alligator teeth on its back edge, insures security of the key in the bolt, because the back edge and the slightly-waved front edge converge somewhat, and the side faces also converge, so as to give the key the form of a wedge,
45 whereby the key when driven into the bolt frictionally engages with the walls of the slot 12. This prevents any possibility of the key
50 moving in an upward direction, while the head of the key being larger than the shank thereof said head prevents the key from falling out or moving downward. The key is of

solid construction and slightly tapered toward its free end, which construction facilitates the insertion of the key easily into the bolt. The use of my improvement does not
55 in any way destroy the thread on the bolt or in the nut, and said key can be withdrawn by the operation of a hammer and drift. 60

My improvements are especially useful on hanger-hooks and on the brake-shafts of electric cars, because the nut cannot by any possibility become displaced. The improvement, furthermore, does away with the now
65 common method of employing double nuts on bolts, one of which nuts serves as a check-nut for the other, and said improvement also obviates the necessity of burring the bolt, thus prolonging the life of the latter. 70

Changes within the scope of the appended claims may be made in the form and proportion of some of the parts, while their essential features are retained and the spirit of the invention is embodied. Hence I do not desire to be limited to the precise form of all
75 the parts as shown, reserving the right to vary therefrom.

Having thus described my invention, what I claim as new is— 80

1. In a nut-lock, the combination with a headed bolt, and a nut, of a key having a tapering shank formed with a straight back edge and a wavy front edge, and a series of upwardly-inclined teeth projecting from said
85 straight back edge of the key-shank, whereby the teeth are adapted to positively and frictionally engage with the nut and the wavy front edge of the key binds against the front terminal of the slot in the bolt, substantially as described. 90

2. In a nut-lock, a headed key having a shank which tapers both in width and thickness from the head thereof toward the point, and is provided with a straight back edge and
95 a wavy front edge, and a plurality of teeth extending upwardly from said straight back edge of the key-shank, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses. 100

RALPH MAYNE READE.

Witnesses:

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HUBERT CLIFFORD FOY.