(No Model.) 2 Sheets—Sheet 1.

G. P. CRAGIN.

NUT LOCK.

No. 305,051. Patented Sept. 16, 1884.

Fig. 1.

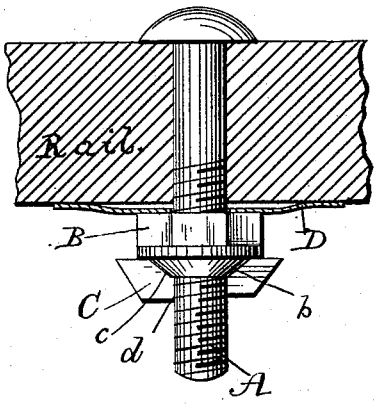


Fig. 2.

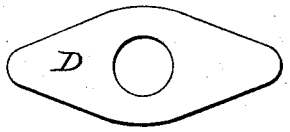


Fig. 3.

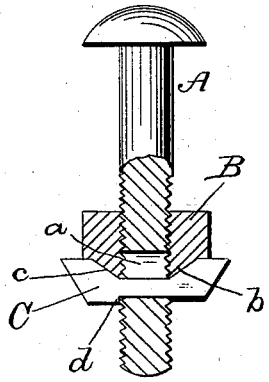


Fig. 4.

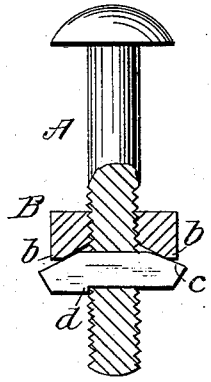


Fig. 5.

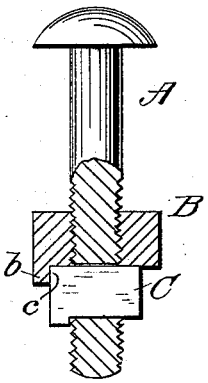


Fig. 6.

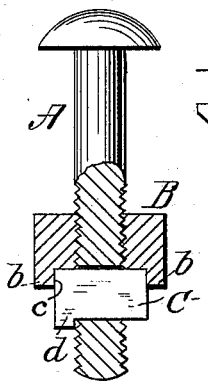
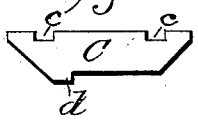


Fig. 7.



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(No Model.) 2 Sheets—Sheet 2.

G. P. CRAGIN.

NUT LOCK.

No. 305,051. Patented Sept. 16, 1884.

Fig. 12.

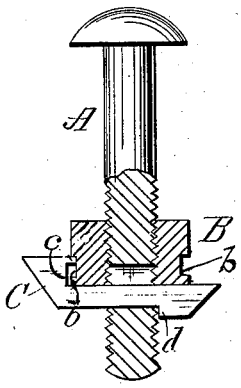


Fig. 8.

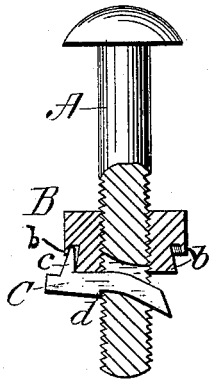


Fig. 11.

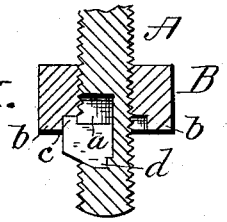


Fig. 9.

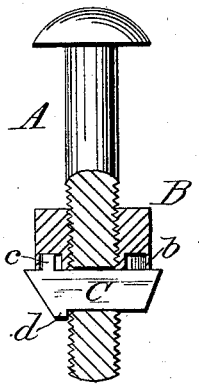
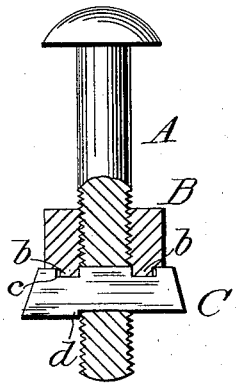


Fig. 10.



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Inventor:

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by Emmarth

Atty.

UNITED STATES PATENT OFFICE.

GEORGE P. CRAGIN, OF ADA, MINNESOTA.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 305,051, dated September 16, 1884.

Application filed February 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. CRAGIN, a citizen of the United States, residing at Ada, in the county of Norman and State of Minnesota, have invented certain new and useful Improvements in Nut-Locks, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in nut-locks of the class known as "top" nut-locks; and the invention consists in an improved construction and arrangement of the parts, whereby the nut is more effectively locked against accidental turning or displacement than by other devices of this class with which I am acquainted.

In its general features my nut-lock consists of a plain threaded and slotted bolt, a nut having a locking projection, a spring-washer interposed between the nut and the fish-plate or other surface, a rabbeted key fitting the slot in the bolt and engaging with the projection on the nut, and having also a locking projection, for purposes hereinafter set forth. These general features will be more fully hereinafter described in connection with the drawings, in which—

Figure 1 is a sectional view of the web of a railway-rail and an elevation of my nut-lock in connection therewith. Fig. 2 is a view of the spring-washer. Fig. 3 is a partial section of the nut-lock shown in Fig. 1. Figs. 4 to 12, inclusive, represent various modifications, which will be hereinafter specifically described.

A represents an ordinary threaded bolt, in which is formed a slot, *a*, having parallel sides and plane faces.

B is nut of square or polygonal form. In the process of manufacturing the nut a projection, *b*, is formed on its face, which I prefer to make of circular form, as shown in all the figures, save Fig. 5, where it extends only partly around the nut. In Figs. 1, 3, and 4 the projections are shown in addition as of conical shape.

The key C is shown clearly in Fig. 3. It is adapted to pass transversely through the slot *a*, and is provided with a stopping and gaging projection, *d*, which catches over the edge of the slot, and stops the key and holds it in the right position in the slot to present its rabbet *c* to the projection *b* of the nut when the nut is turned outward to lock it and the key together. At that edge of the key which is in proximity to the nut is formed a rabbet, *c*, which corresponds, substantially, to the shape of the projection on the nut. Thus in Figs. 1, 3, and 4 it is shown as having opposing inclines, which fit the interior conical projection of the nut.

In the modification shown in Fig. 4 the projection *b* on the nut is a conical exterior flange. The key has rabbets *c c*, which enter into the space within the projection of the nut.

In Fig. 5 the projection *b* is in the shape of the arc of a circle, and does not extend entirely around the nut. The rabbet *c* of the key in this form is at the end of the inner edge of the key.

In Fig. 6 the construction is substantially similar, except that the projection *b* of the nut is a complete circular flange. The key is precisely similar to that shown in Fig. 5.

Fig. 7 shows a form of key adapted to the nut shown in Fig. 11, and will be hereinafter described.

In Fig. 12 the projection *b* is the side of the nut, and in this instance is in a circular groove around the angular nut. In this form that portion of the key which passes through the slot is of ordinary form, having straight edges and the projection *d*. The opposite end has the rabbet *c*, which bears firmly against the projection *b*, being the side of the nut.

In Fig. 8 the projection *b* flares outwardly from the face of the nut. The slot *a* in the bolt has curved or slightly-angular sides, and the key having the rabbet *c*, with which the projection *b* engages, is shaped to fit the peculiar contour of the edge of the slot. The key has the usual gaging-stop, *d*. In Fig. 9 the projection *b* is an exterior flange.

In Fig. 10 the projection *b* is also a flange, and engages with two similar rabbets, *c c*, one on each side of the middle of the key, as shown.

In Fig. 11 the slot *a* of the bolt is somewhat elongated, and extends only partly through such bolt. The nut has a circular projection, *b*, which engages with a short key, rabbeted at *c*, and having the stop or projection *d* bearing on the edge of the slot in the bolt. Between the inner face of the nut and the rail or other

surface is inserted a spring-washer, D, (shown in Fig. 2,) which tends to press the nut outward.

In the operation of the device the nut is first screwed tightly up toward the plate or bar, forcing the spring inward. The key is then inserted in the slot until checked by the stop *d*, and the nut is given a slight backward turn sufficient to crowd the projection *b* into engagement with the rabbeted key to force the key against the side of the slot.

To operate the modification of Fig. 12, insert that end of the key which has the projection *d* first into and through the slot of the bolt until the rabbet at the other end of the key is engaged by the projection *b* on the side of the nut. Then screw the nut back until its outer plane edge abuts against the outer wall of the slot in the bolt and the projection *d* overlaps the bolt-thread. Any tendency of the nut to unscrew simply forces the locking parts into closer engagement—a result to which the spring-pressure contributes.

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

1. In a nut-lock, the combination of a slotted bolt, a nut having a projection on its face, a rabbeted key, and a spring-washer, substantially as described.

2. In a nut-lock, the combination of a bolt having the slot *a*, the nut having a projection on its face, the rabbeted key having the projection *d*, and a spring-washer, substantially as described.

3. The combination of a slotted bolt, a nut having a circular projection from its face, and a rabbeted key having a stopping and gaging projection, substantially as described.

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

GEORGE P. CRAGIN.

Witnesses:
E. H. REEVES,
E. M. MARBLE.