June 30, 1925 1,544,132

H. COOK

NUT LOCK

Filed April 18, 1924

Fig. 1.

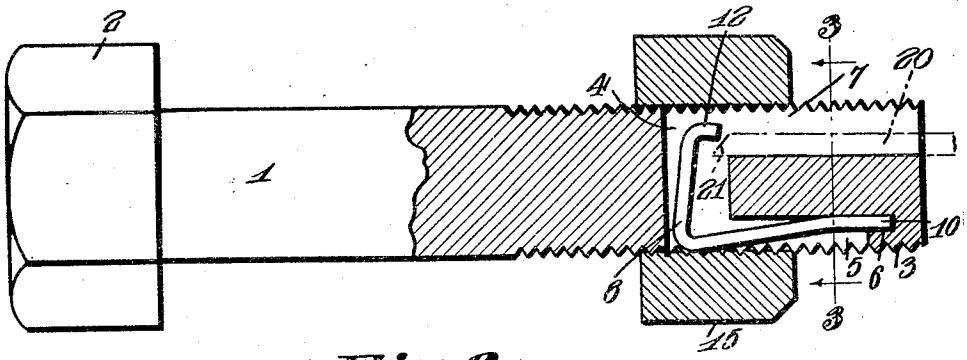


Fig. 2.

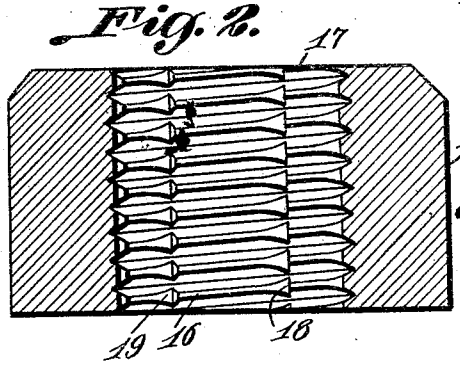


Fig. 5.

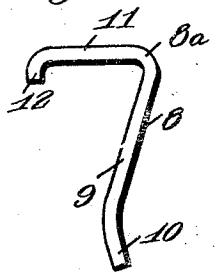


Fig. 3.

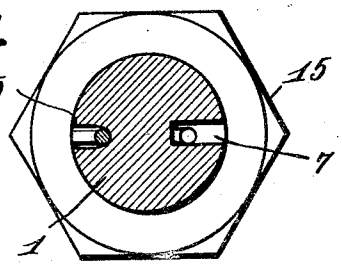
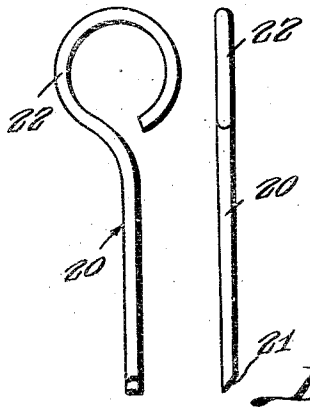


Fig. 6.



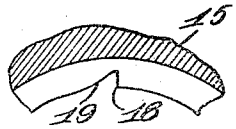


Fig. 4.

Fig. 7.

H. COOK, Inventor

By Cushman & Co.

Attorneys.

Patented June 30, 1925. 1,544,132

UNITED STATES PATENT OFFICE.

HENRY COOK, OF WELLSTON, OHIO.

NUT LOCK.

Application filed April 18, 1924. Serial No. 707,477.

To all whom it may concern:

Be it known that I, HENRY COOK, a citizen of the United States, residing at Wellston, in the county of Jackson and State of Ohio, have invented a new and useful Nut Lock, of which the following is a specification.

This invention relates to nut locks and the object thereof is to provide simple and efficient means for locking a nut on a bolt, pin or the like and which may be released by a suitable tool when desired to remove the nut.

Another object is to provide a lock of this character including a compressible element to be housed in the bolt or pin in connection with which the nut is to be employed, and which has a ratchet-like connection with the nut holding it against any possible accidental unscrewing yet permitting it to be released by a suitable tool when desired.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 represents a side elevation of a bolt equipped with this improved lock, the nut and parts of the bolt being in section to disclose the lock constituting the invention.

Fig. 2 is a transverse section of the nut constituting a part of the invention.

Fig. 3 is a transverse section of the bolt taken on the line 3—3 of Fig. 1.

Fig. 4 is a detail perspective view showing the shape of the ratchet groove with which the nut is equipped.

Fig. 5 is a side elevation of the locking element detached.

Fig. 6 is a similar view of the tool used for releasing the locking element when it is desired to remove the nut, and

Fig. 7 is an edge view of the tool.

In the embodiment illustrated a bolt 1 is shown having the usual head 2 at one end and threaded at its other end as shown at 3 to receive a nut 15. This bolt 1 has a bore 4 extending transversely therethrough with one outer end communicating with a slot or groove 5 which extends throughout a portion of the length of the bolt and has a socket 6 to receive one end of the locking element 8. A groove 7 extends through one end of the bolt 1 and into which is designed to project one end 12 of the locking element 8. The locking element 8 is constructed of heavy wire and constitutes a spring pawl being substantially L-shaped with an inturned finger at the free end of the short arm thereof with the outer end of its shank 9 being designed to be mounted in the socket 6 said shank 9 being inclined obliquely as shown in Fig. 5. The head 11 of the pawl extends transversely of the bolt in the bore 4 and has its inturned end 12 extended into the groove 7. This pawl 8 normally projects beyond the perimeter of the bolt and is designed to interlocking engage with ratchet grooves 17 formed longitudinally on the inner face of the nut intersecting the threads thereof the apices of which are flattened as shown at 16 to permit the passage of the nut over the pawl when the nut is being screwed on.

Any desired number of these ratchet grooves 17 may be formed within the nut and each of them has one straight wall 18 and one wall 19 inclined so that the nut may be turned over the pawl 8 in one direction and locked against turning in the opposite direction.

When the pawl 8 is mounted in the bolt 1 as shown in Fig. 1 with its end 10 inserted in the socket 6 the corner 8^a of said pawl projects out through the bore 4 and when the nut 15 passes over the pawl will be forced inwardly into the bore 4 and swing out into locking engagement with one of the grooves in the nut.

To remove the nut a tool 20 is employed which is here shown formed of heavy wire and equipped with an obliquely disposed point at one end and a finger grip 22 at the other end. This tool is inserted through the groove 7 and the point 21 thereof engaged with the lug or finger 12 of the pawl, said tool operating as a lever to move the pawl inwardly into the bore 4 and permit the nut 15 to be unscrewed from the bolt passing out over the tool 20 which lies in groove 7 during such passage.

The nut lock comprising this invention consists of a bolt, a nut and a spring, which latter must be made of good spring steel wire or material that is resilient and the

bolt must be so made that the spring will fit neatly in the slot and in the holes.

A device constructed as herein shown and described will be safe and substantial affording protection to train men and passengers as well as to any kind of machinery where bolts are used or it may be used in connection with large rods.

I claim:—

1. The combination with a bolt or the like having a bore extending transversely therethrough with longitudinally disposed grooves leading from the ends of said bore, one of said grooves extending through the end of the bolt and the other terminating short of said end and equipped with a longitudinally extending socket, a spring locking pawl mounted in said bore with one end engaged with said socket, and a nut having a ratchet groove for cooperation with said pawl to lock the nut on the bolts.

2. The combination with a bolt or the like having a bore extending transversely therethrough with grooves leading from the ends thereof toward the outer end of the bolt, a resilient locking pawl mounted in said bore and secured in one of said grooves said pawl normally projecting beyond the periphery of the bolt at one end and having its other end extended into the other groove and provided with means for engagement by an implement whereby said pawl may be moved into said bore, and a nut having ratchet grooves interlockingly engaging said pawl whereby the nut is locked to the bolt.

3. The combination with a bolt or the like having a bore extending transversely therethrough with grooves leading from the ends, thereof toward the outer end of the bolt one of said grooves terminating in a socket, a substantially L-shaped locking pawl having the short arm extended through said bore and the long arm mounted in one of said grooves and engaged with said socket, the short arm having an inturned finger extending in the other groove, a nut having a ratchet groove for cooperation with said pawl to lock the nut on the bolt, said finger being adapted to be engaged by an implement whereby said pawl may be moved into the bore to release it from the nut.

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

HENRY COOK.

Witnesses:

LEANDER YOUNG, JR.,

MARION LIBBY.