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T. R. GRIFFIN

2,407,830

LOCK NUT

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Fig. 1.

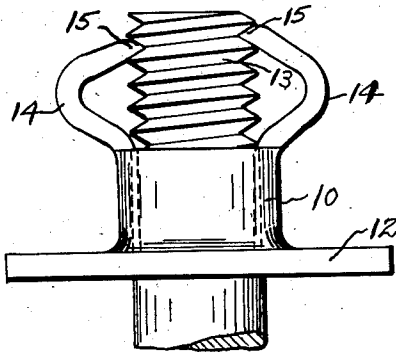


Fig. 2.

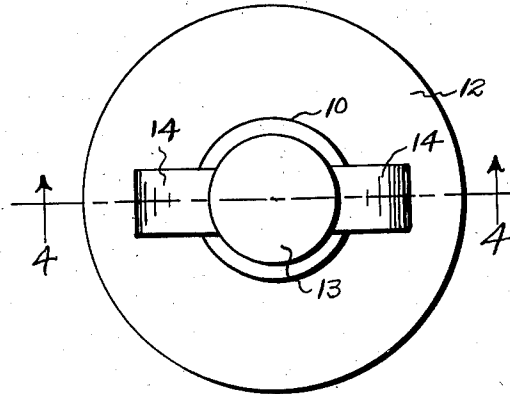


Fig. 3.

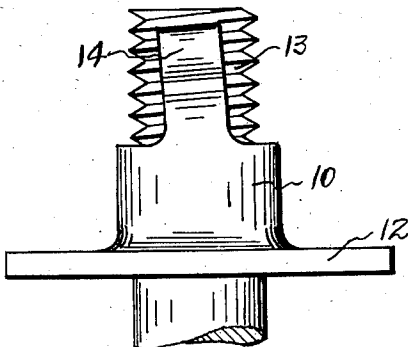


Fig. 4.

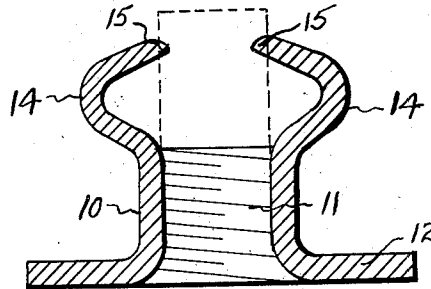
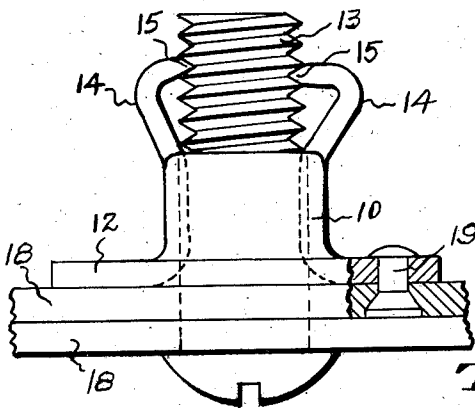


Fig. 5.



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LOCK NUT

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3 Claims. (Cl. 151-14)

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The present invention relates to tension nuts for screw threaded fastenings and aims generally to simplify and improve existing nuts of this type.

One of the primary objects of the invention is the provision of an improved tensional nut formed of sheet metal having a base and an interiorly threaded barrel drawn therefrom with a plurality of locking fingers tensionally engaging the threads of a screw passed through the barrel beyond the end thereof to effectively resist unintentional rotation of the screw in the nut in a withdrawing direction.

A further object of the invention is the provision of a tension nut of the type above described which may be quickly and economically manufactured.

Illustrative of the invention, reference is made to the accompanying drawing showing preferred embodiments of the invention and in which:

Fig. 1 is a side elevation of one embodiment of my improved tensional nut shown as applied to a screw;

Fig. 2 is a plan view thereof;

Fig. 3 is a side elevation as viewed from a side at right angles to Fig. 1;

Fig. 4 is a vertical sectional view of the nut; and

Fig. 5 is a side elevation of an installation employing a slightly modified form of tension nut, parts of the installation being shown in section.

Referring to the drawing, the nut proper comprises a tubular barrel 10 interiorly threaded as at 11, and integrally joined to a laterally extending base 12 preferably disposed in a plane at right angles to the barrel. The barrel 10 and base 12 are advantageously formed of sheet metal and the barrel may be drawn from a blank containing the base by regular drawing operations, as will be readily understood.

The nut is provided with screw thread engaging and locking means preferably integral with the barrel 10 and adapted to engage the threads of the screw 13 at points spaced from the outer end of the barrel. In the illustrated embodiment of the invention this locking means comprises a plurality of outwardly bowed resilient fingers 14 integrally joined to and extending outwardly from the end of the barrel. For purposes of illustration, I have shown but two of such fingers 14 extending from opposite sides of the barrel though it will be apparent that a larger number of fingers may be employed. The fingers 14 may be bowed in such manner as to be substantially V-shaped as shown in Figs. 1 and 4 or to more

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nearly resemble the shape of the numeral 7 as shown in Fig. 5.

The terminal ends 15 of the fingers 14 are flattened or tapered to blade-like form so as to fit into and seat in the threads of the screw 13. Preferably the free terminal ends 15 of the fingers 14 are normally disposed inwardly of the path of the screw (as indicated in dotted lines, Fig. 4) so as to be expanded outwardly thereby and thus engage in the threads of the screw 13 under tension of the resilient fingers 14.

It will be observed from the drawing that as the screw 13 is threaded through the nut barrel 10 into engagement with the axially spaced fingers, the ends 15 of the fingers will be expanded by the nut and will be seated in the threads. As the lead of the threads of the screw 13 is towards the head end thereof the upper portions of the bowed fingers 14 and the terminal ends 15 thereof will be twisted to a slightly inclined position following the lead of the screw as shown in Fig. 3. The fingers 14 thus engage in any section of thread with an inward tension as well as an upward thrust. The ends of the fingers 14 thus exert a resilient tension on the opposed inclined faces of the threads of the screw and provide a drag to resist rotation of the screw in the nut. This tension on the screw is sufficient to resist accidental rotation of the screw in unthreading or withdrawing direction so that an installation embodying the tension nut of the present invention is secure against unintentional loosening after final tightening.

It is not necessary that opposed finger ends 15 lie in the same plane and seat in the same convolution of the thread of the screw as shown in Fig. 1. They may be disposed in different planes spaced axially from the end of the barrel 10 and engage in different convolutions of the screw as shown in Fig. 5.

A conventional installation comprises one or more apertured pieces of work or parts 18 through which the screw is passed and threaded into the nut on the side of the work opposite the head of the screw as shown in Fig. 5. The base 12 may simply bear upon the adjacent face of the work or be rigidly secured to the work as by rivets 19 as desired.

Advantages of the invention are the simplicity of construction, effectiveness of operation as well as economy in the cost of operation. As will be apparent, the barrel may be drawn to a greater length than illustrated in the drawing and end sections removed from opposite sides to leave the

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fingers 14, which may then be bowed and shaped to provide thread-engaging ends.

Although I have illustrated and described preferred forms of my invention, I do not wish to be limited thereby because the scope of my invention is best defined by the following claims.

I claim:

1. A lock nut for cooperation with a screw passed through an apertured piece of work, said nut being formed from a single piece of sheet metal and having a tubular internally threaded screw-receiving barrel and a base disposed at right angles to said barrel, and locking means integrally connected with the end of the barrel opposite the head for engaging the screw beyond said barrel, said locking means comprising a plurality of outwardly bowed resilient fingers having end portions normally disposed within the path of the threads of the screw and expandible thereby to engage the threads of the screw under tension to resist turning thereof in withdrawing direction.

2. A lock nut for cooperation with a screw passed through an apertured piece of work, said nut being formed from a single piece of sheet

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metal and having a tubular internally threaded screw-receiving barrel and a base disposed at right angles to said barrel, and locking means integrally connected as a part of the nut for engaging the screw beyond said barrel, said locking means comprising a plurality of bowed resilient fingers of relatively greater width than thickness and having thread-engaging edge portions normally disposed within the path of the threads of the screw thereby to engage the threads of the screw under tension to resist turning thereof in withdrawing direction.

3. A lock nut for cooperation with a screw passed through an apertured piece of work, said nut being formed from a single piece of sheet metal and having a tubular internally threaded screw-receiving barrel, a plurality of wings integral with said barrel and extending beyond one end thereof, said wings being bowed outwardly and having ends intumed and formed with terminal edges adapted to engage under tension in the threads of the screw passed through said barrel.

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