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O. A. NORLUND ET AL

LOCK HOUSING FOR SCREWS OR BOLTS

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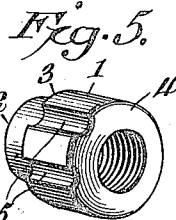
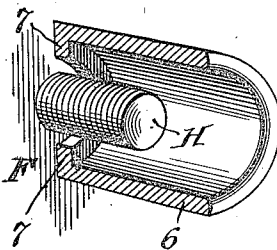
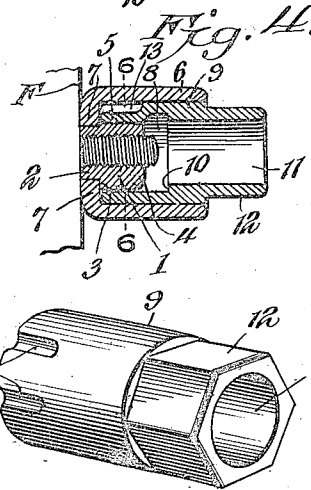
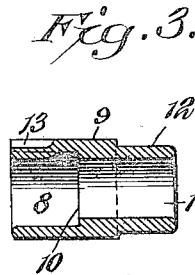
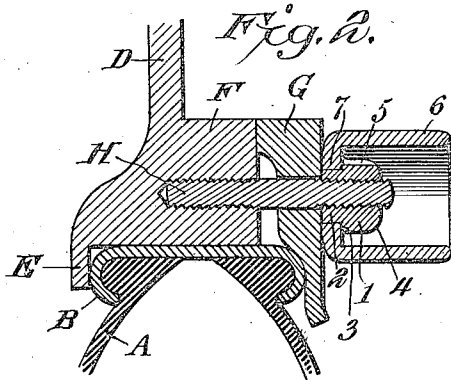
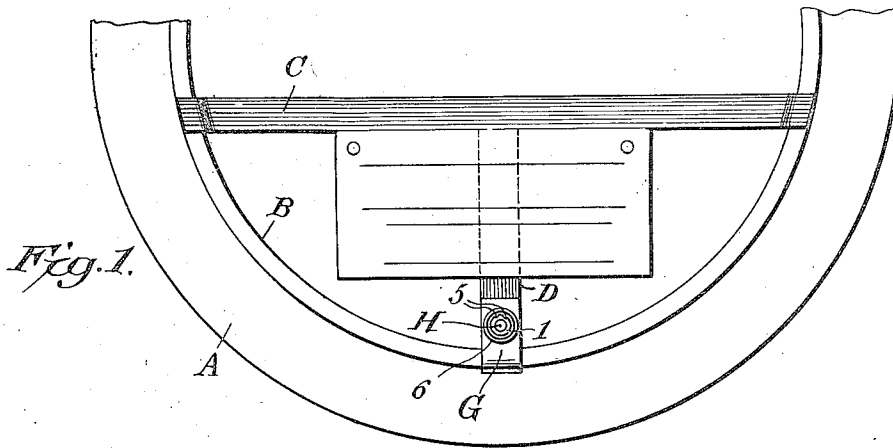
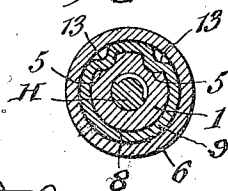


Fig. 6.



WITNESSES

Howard D. Orr

O. A. Norlund, INVENTORS,
and Frank Oehrli,

BY

E. J. Siggers

ATTORNEY

UNITED STATES PATENT OFFICE.

OLOF A. NORLUND AND FRANK OEHRLI, OF WILLIAMSPORT, PENNSYLVANIA.

LOCK HOUSING FOR SCREWS OR BOLTS.

Application filed November 10, 1921. Serial No. 514,362.

To all whom it may concern:

Be it known that we, OLOF A. NORLUND and FRANK OEHRLI, citizens of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and useful Lock Housing for Screws and Bolts, of which the following is a specification.

This invention relates to lock housings for screws and bolts.

The object is to provide a metallic housing of strength and durability for protecting the heads of bolts or screws or nuts and preventing their removal by any one not provided with the proper key for the purpose, the said housing preventing the application of an ordinary wrench or other tool.

Another object is to provide a device of this character wherein the head of the bolt or screw or the nut, as the case may be, serves to hold the housing in place, with the open end of the housing in projecting relation thereto, and permitting only the introduction of the key which is provided with interfitting parts for coaction with similar parts of the bolt head or nut, the said interfitting features of the device being capable of wide variation so that the danger of one device being operable by the key in possession of another party is reduced to a minimum.

A full and complete understanding of the invention may be obtained from a consideration of the following detailed description, taken in connection with the accompanying drawing forming a part of this specification; it being understood that while the drawing shows a practical form of the invention, the latter is not confined to strict conformity therewith, but may be changed or modified, so long as such changes or modifications mark no material departure from the salient features of the invention, as specifically pointed out in the appended claim.

In the drawing, in which similar reference characters designate corresponding parts throughout the several figures:—

Fig. 1 is an elevation of a portion of a spare tire for automobiles, held by any suitable form of holder and showing the improved housing in connection with the latter.

Fig. 2 is an enlarged detail vertical section through the lower portion of the holder

having the improved housing mounted thereon and illustrating the manner of engaging the rim of the spare tire.

Fig. 3 is a similar view of the removable operating key.

Fig. 4 is a similar view of the parts being engaged by the key to unscrew the nut or bolt-head.

Fig. 5 is a displayed view, in perspective, of the parts of the device, partly in section.

Fig. 6 is a transverse sectional view taken on the line 6—6 of Fig. 4.

While the improved lock housing has been illustrated in connection with a holder for spare tires for automobiles which are usually placed at the back of a machine, and has means for supporting and displaying tags, etc., it is to be understood that the invention may be used to equal advantage elsewhere to prevent the unauthorized removal of a screw or bolt having a head shaped for the reception of a wrench or a nut correspondingly formed.

The invention comprises three parts or members including a specially formed bolt or screw head or nut therefor, an open-ended housing or sleeve having an inwardly-directed flange at one end for engagement with the head or nut, and a removable, open-ended, tubular key adapted to slide into the housing and to surround the head or nut and having interfitting parts to coact with interfitting parts of the head or nut to forcibly turn the latter to tighten or loosen the same, the outer end of the removable key being provided with a polygonal exterior to be engaged by an ordinary wrench beyond the open end of the housing, to provide for the necessary pressure to accomplish such turning action. When the tightening or loosening has been accomplished, it is only necessary to withdraw the key from the housing, when the head or nut is effectively guarded from tampering by a wrench or other tool, as the head or nut is so shaped as to prevent the use of a chisel, screw-driver or drift punch to turn the same by hammering or driving.

In Fig. 1 of the drawing, there is illustrated a portion of a spare tire A having the usual rim B and held in any customary manner in a holder C, all of which forms no part of the invention. The holder usually employs a downwardly-extending arm D reach-

ing to the lowermost point of the tire and provides, at that point, a rear abutment E for the rim of the wheel to bear against and forming a part of an enlargement F coacting with a clamping finger or plate G, which is adapted to be held by a bolt H threaded into the enlargement F, and usually having an ordinary nut applied to the outer threaded end to bind the lower end of said finger or plate in clamping relation to the outer edge of the tire rim.

The nut 1, in the present instance, has its bore threaded to fit the exposed end of the bolt H, and is provided, at its inner face, with a reduced, cylindrical extension 2, thus providing an annular channel 3 for a purpose to be explained. The outer or front end of the nut 1 has its marginal corner rounded as at 4, thus preventing any attempt to turn the nut in either direction by drifting in a well-known manner, the enlarged portion of the nut, or that having the greatest diameter, being perfectly round as well as the extended part 2.

A plurality of longitudinally-disposed grooves 5 are formed in the said enlarged portion and extend from the front rounded corner thereof to the annular channel 3 and while, in the present instance, only two of said grooves have been shown in a certain spaced relation to each other, it is to be understood that more than two of such grooves may be employed around the periphery of the nut, and that they may be equally spaced apart if desired, or such spacing may be unequal.

A guard sleeve or housing 6 preferably formed by stamping some suitable gage of sheet steel into shape, is adapted to be held by the nut 1, the said sleeve being open at its front end and having, at its rear end, an inwardly-directed flange 7 whose inner wall is adapted to fit freely over the extension 2 of the nut, the said extension being substantially equal in length to the thickness of the inturned flange of the sleeve, so that when the nut is turned up tightly against the outer face of the clamping plate or finger G, the sleeve 6 is also clamped into place in surrounding relation to the nut.

The internal diameter of the sleeve 6 is considerably greater than the outer diameter of the enlarged portion of the nut, and provides ample space for the introduction of the open, inner socket end 8 of a tubular key 9, preferably formed of metal similar to the sleeve 6, and having an internal shoulder 10 and the outer or front portion of the bore 11 of somewhat smaller diameter than the socket 8. The front marginal edge of the sleeve is preferably rounded to facilitate the introduction of the peripheral wall of the socket, whose edge is also preferably rounded for the same purpose, and the key

has its outer end formed or pressed into an exterior polygonal head 12 for the application of an ordinary wrench for a purpose to be explained.

A series of longitudinal grooves 13, 70 formed by pressing the metal inwardly, are provided at the inner, socket end of the key, such depressions forming ribs on the interior of the socket, and said ribs correspond in number and in spacing to the grooves of the nut 1. When the key is introduced into the housing 6, the same is turned until the proper relation between the said key and the nut is obtained, when the key may be forced inwardly until the inner edge of the same abuts against the inner wall of the flange 7 of the housing, whereupon a wrench may be applied to the polygonal head 12 and the nut removed from the bolt H or applied thereto, as the case may be.

In applying the improved housing, the latter may be first applied to the exposed end of the bolt H as shown in Fig. 5, when the nut 1, after being seated in the socket end of the key 9, may be applied to the end of the bolt and by the use of a wrench, the desired tension may be obtained.

From the foregoing, it will be seen that a simple, easily operated and cheaply manufactured housing for the heads of securing elements, such as bolt heads, screw heads or nuts has been provided, which will effectively prevent the surreptitious removal of nuts, from spare tire holders, or from similar places, and that by reason of the interlocking features provided on the nut and the key, the device is susceptible of great variation to provide different combinations for a large number of purchasers.

The combination of the rounded head of the securing element seated within the circular housing with a limited space between the head and the housing and of that portion of the housing which extends above the said head, prevents unauthorized manipulation of the head by any tool save the specially constructed key.

What is claimed is:—

A lock for the circular head of a securing element, comprising a tubular sleeve open at one end and having an inturned flange at the other end and of greater internal diameter than the diameter of said head, the said head having an annular channel at the inner end for the reception of said flange of the sleeve to clamp the latter in place, and that portion of the head beyond the channel being provided with a plurality of longitudinal grooves spaced apart and extending from the front face thereof to the annular channel, and a removable, tubular key having a polygonal head at one end and an open-ended socket at the other end to pass over the head within the sleeve, said socket hav-

ing inwardly directed longitudinal ribs to
fit the grooves of the head to turn the same
when a wrench is applied to the polygonal
head which projects from the open end of
the sleeve, said sleeve being extended suffi-
5 ciently beyond the head of the securing ele-
ment and cooperating with the rounded head
to prevent unauthorized manipulation of

said head by a tool other than the tubular
key.

In testimony that we claim the foregoing 10
as our own, we have hereto affixed our signa-
tures.

OLOF A. NORLUND.
FRANK OEHRLE.