March 7, 1933. B. E. WINKLER 1,900,146

LOCK FOR SCREW FASTENING MEMBERS

Filed June 25, 1931

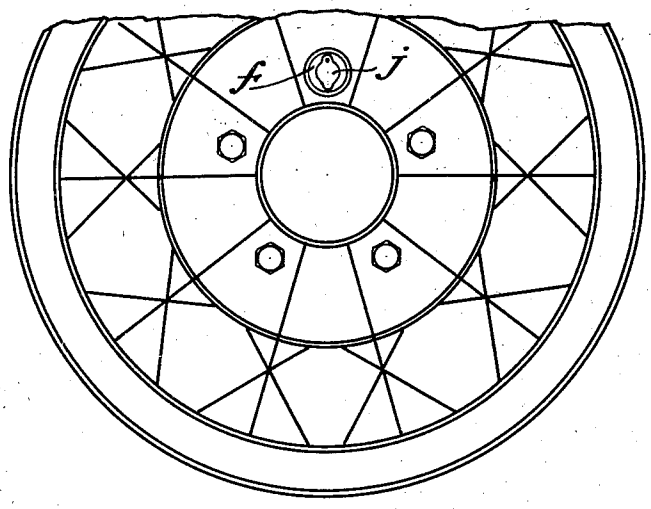


FIG. 1

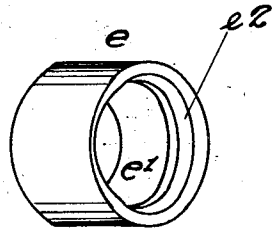


FIG. 4.

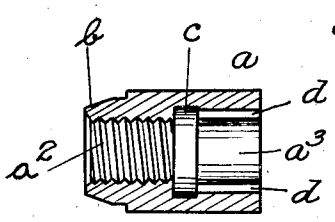


FIG. 2.

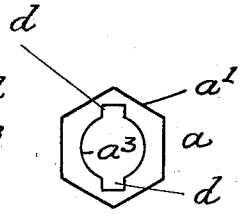


FIG. 3.

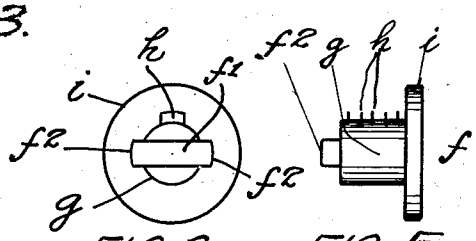


FIG. 6. FIG. 5.

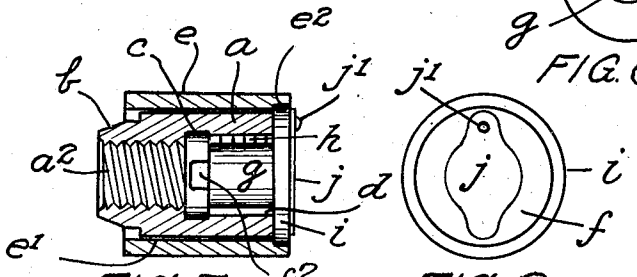


FIG. 7. FIG. 8.

INVENTOR.

B. E. Winkler

BY

ATTORNEY.

Patented Mar. 7, 1933 1,900,146

UNITED STATES PATENT OFFICE

BRUNO ERNEST WINKLER, OF DETROIT, MICHIGAN

LOCK FOR SCREW FASTENING MEMBERS

Application filed June 25, 1931. Serial No. 546,781.

The object of my invention is to provide means whereby nuts, bolts, cap-screws, or similar fastening members adapted for operation by means of a wrench or other tool may be protected against unauthorized removal, the said invention being particularly adapted for use in securing wheels upon the axles or wheel-carriers of automobiles and other vehicles.

A further object of my invention is to provide a device for the purpose above stated which is simple in construction and economical to manufacture.

With these objects in view the invention consists in the improved construction, arrangement, and combination of parts which will be hereinafter fully described, reference being had to the accompanying drawing which illustrates a preferred embodiment thereof, in which drawing—

Figure 1 illustrates the application of my said invention to an automobile wheel of ordinary construction.

Figure 2 shows a transverse section of a special nut employed in connection therewith.

Figure 3 is an end elevation of the same.

Figure 4 is a perspective view of the sleeve used for covering the facets of the nut and preventing the application of a wrench to the same.

Figure 5 is a side elevation of a lock for securing the said sleeve in position upon the nut.

Figure 6 is an end view of the same.

Figure 7 is a longitudinal section showing the complete assembly, and

Figure 8 is an end view of the same.

Like characters designate corresponding parts throughout the several views.

a is a hexagonal nut having the usual facets *a*1, adapted to be engaged by a wrench, and the internally threaded portion *a*2 adapted to be screwed upon a bolt. *b* is a frusto-conical or conoidal surface which fits within an opening of corresponding shape in the wheel, as well known in the art. The nut, as shown, extends outwards beyond the threaded portion and is provided with the internal bore *a*3 of suitable diameter to receive the barrel of a tumbler lock *f*, and intermediate of the bore *a*3 and the threaded portion is the annular groove *c* of larger diameter than the said bore. In diametrically opposed relation and co-extensive with the bore *a*3 are the slots *d*, shown more clearly in Figures 2 and 3.

e is a sleeve having a bore *e*1 adapted to fit over the corners of the nut and to rotate freely thereupon, the said sleeve being also provided with the short enlarged bore or rebate *e*2. *f* is the lock having the usual cylindrical barrel *g* and provided with tumblers *h* which extend beyond the surface of the barrel when the key is removed therefrom and which are withdrawn within the barrel when the key is inserted, as is well known in the art. Upon the outer end of the barrel *g* is the flange *i*, of such diameter as to fit loosely within the rebate *e*2 of the sleeve *e*, and upon the inner end of the barrel is the transverse member *f*1 the ends *f*2 of which project beyond the outer circumference of the barrel and are so proportioned as to be slidable longitudinally within the slots *d* in the nut and to be rotatable within the annular groove *c* in the same, as will be hereinafter explained.

The operation of my device will be now explained with particular reference to the assembly shown in Figure 7. The nut being screwed in place by the application of a wrench in the ordinary manner, the sleeve *e* is placed in position over the same. The lock *f*, having the key inserted and the tumblers *h* consequently withdrawn within the barrel *g*, is placed within the nut, the ends *f*2 of the member *f*1 passing through the slots *d* into the annular groove *c* and the flange *i* entering the rebate *e*2 of the sleeve *e*. The key then being rotated through 90 degrees and withdrawn, the tumblers *h* are urged outwards by their spring or springs and brought into engagement with one of the slots *d*, thereby preventing further rotation of the barrel. By this movement, the tumblers being located at right angles to the member *f*1, as will be seen by reference to Figure 6, the lock is held securely in place since the ends *f*2 of the said member have meantime moved around within the annular groove *c* until they are no longer coincident with the slots *d*, and with-

drawal of the lock is consequently impossible until the key is re-inserted and the operations reversed. Access of dirt or dust to the interior of the lock is prevented by the cover *j* pivoted at *j*1 and secured in the closed position by friction or other means.

It will be observed from the foregoing that I have provided a locking means which is exceedingly simple in construction and economical to manufacture, and while I have herein described a preferred embodiment of my invention as applied to an automobile wheel, it will be readily understood by those skilled in the art that the same may be modified in various ways to meet any particular or peculiar requirement and may be adapted for uses other than that above referred to without departing from the spirit of my invention. It will be also understood that while the lock as herein described has a single set of tumblers at right angles to the transverse member *f*1 I do not confine myself to this particular construction, but may use any usual commercial form of cylindrical barrel lock.

Having thus described my said invention, what I claim as new and desire to secure by Letters Patent of the United States is:

In a device of the character described, the combination, with a fixed member having screw threads, and a removable member provided with co-acting screw threads and with external tool-engaging means, of a sleeve having smooth, unbroken internal and external cylindrical surfaces and rotatable and reciprocable upon said removable member and adapted to enclose the said tool-engaging means, a recess within said removable member having an internal annular groove and a slot communicating therewith from the outside, a barrel fitting within said recess having a projection adapted to pass through said slot and to engage said annular groove, key operated retractable tumbler means upon said barrel non-coincident with said projection for engaging said slot and preventing rotation of said barrel to remove the same, and a flange on said barrel for retaining the said sleeve in place longitudinally.

In testimony whereof I affix my signature.

BRUNO ERNEST WINKLER.