No. 883,505. PATENTED MAR. 31, 1908.

E. Z. WENRICH.

NUT LOCK WASHER.

APPLICATION FILED SEPT. 24, 1906.

Fig. 1.

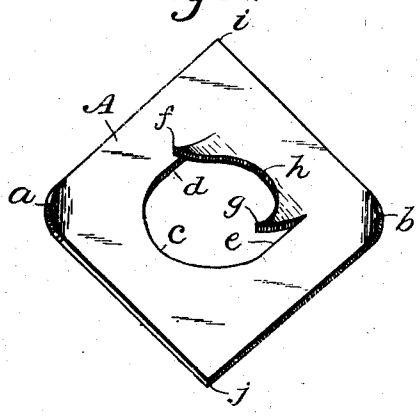


Fig. 2.

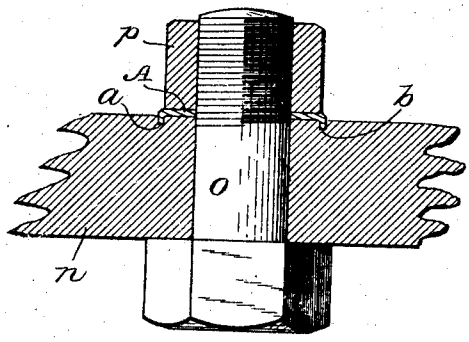


Fig. 3.

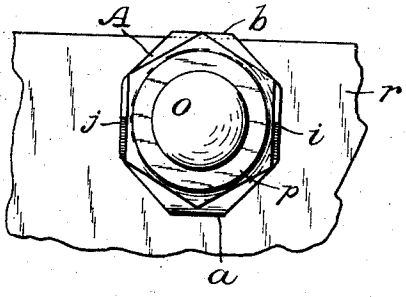


Fig. 4.

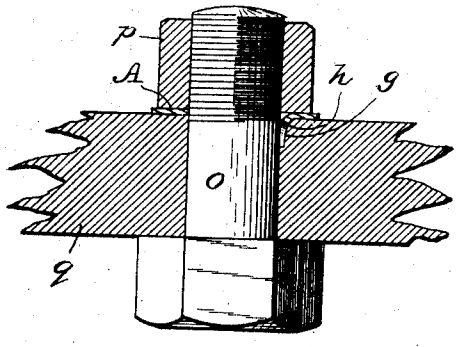


Fig. 5.

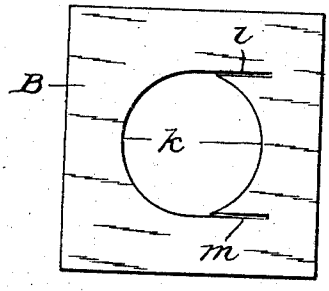
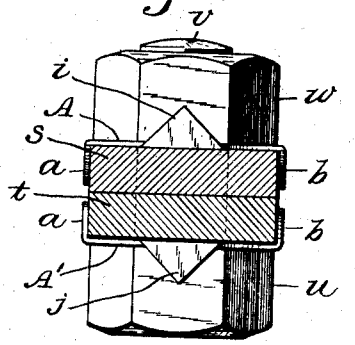


Fig. 6.



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NUT-LOCK WASHER.

No. 883,505. Specification of Letters Patent. Patented March 31, 1908.

Application filed September 24, 1906. Serial No. 335,859.

To all whom it may concern:

Be it known that I, EDWARD Z. WENRICH, a citizen of the United States, residing in Washington township, in the county of Monroe and State of Indiana, have invented new and useful Improvements in Nut-Lock Washers; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to washers that are adapted to be fastened and to lock bolt-nuts against turning, and the invention has reference particularly to washers which may be changed so as to be adaptable for use under different conditions.

The object of the invention is to provide a lock-nut washer that may be adapted for general application to lock-bolt nuts, and also to lock the bolts against turning when they happen to be loose in the articles in which they may be used; a further object being to provide a washer of this description that may be constructed or manufactured quite inexpensively.

With the above-mentioned and minor objects in view, the invention consists in a lock-nut washer composed of flexible material and adapted to be altered by the user for the purposes above-mentioned; and the invention consists further in the novel parts and combinations and arrangements of parts as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a perspective view of the improved nut-lock washer; Fig. 2, a sectional view showing one of the ways in which the washer may be used; Fig. 3, a top plan view showing a fragment of wood in which is a bolt having the nut locked by the improved washer; Fig. 4, a sectional view showing another way of using the improved washer; Fig. 5, a plan view of the blank from which the washer is formed; Fig. 6, a transverse sectional view of two pieces of metal bolted together and having the improved washer connected therewith, and locking the bolt head against turning and also locking the nut of the bolt against turning.

Similar reference characters in the drawings designate corresponding elements or features throughout the several views.

A complete washer made according to the invention comprises a flexible plate A, preferably made of soft steel. When stamped out to size, the plate is square in plan, and two opposite corners are bent over approximately at right angles to the plane of the plate so as to form two pointed projections *a* and *b*, adapted to be forced into wood to hold the washer against turning about a bolt.

An opening is formed in the middle of the plate to receive a bolt, one side *c* of the opening being semi-circular, and two sides *d* and *e* being straight and tangential to the curved side, the straight sides being parallel and parallel to two sides of the plate. Two projections *f* and *g* extend from the ends of the straight sides at oblique angles to the plane of the washer plate, the outer sides or edges of the projections being straight, and the inner edges curved and intersecting at *h*, at the opposite side of the opening from the side *c*. The remaining two corners *i* and *j* are adapted to be bent up against a nut to prevent the nut from turning on the bolt, the projections *f* and *g* being adapted to lie in recesses which may be cut into either wood or metal at the side of the bolt hole to prevent the washer from turning. In some cases if desired, the projections *a* and *b* may be made use of while the projections *f* and *g* may be hammered down so as to lie flush with the face of the washer plate, while in other cases if desired to make use of the projections *f* and *g*, the projections *a* and *b* may be hammered down so as to lie in the same plane as the washer plate.

The blank from which the washer is made in its complete form, is shown in Fig. 5, B designating a rectangular plate having a circular hole *k* to receive the bolt, and *l* and *m* designating slits cut into the plate tangential to the circle of the hole to permit of the formation of the projections *f* and *g*. Either one or two of the corners of the plate may be bent over to form either or both of the projections *a* and *b*.

In practical use the washer may be employed as in Fig. 2, in which *n* designates a piece of wood in which a bolt *o* is fitted tightly and provided with a nut *p*, the washer A being interposed between the nut and the piece of wood with the projections *a* and *b* sunken into the wood.

In Fig. 3, *r* designates a piece of wood in

which the projection *a* is inserted while the projection *b* extends over one edge of the wooden piece, and the corners *i* and *j* are turned up against the nut *p* to lock it.

In Fig. 4, *q* designates a member which may be either wood or metal in which the projection *g* is inserted in a recess in the member at a side of the bolt to hold the washer against turning.

In Fig. 6 is shown two members *s* and *t* which may be two flat bars of metal, a washer A′ being interposed under the head *u* of the bolt *v*, the projections *a* and *b* extending over the sides of the member *t* and the corner *j* being turned up against the bolt head, so that the washer is prevented from turning as is also the bolt head; and a washer A is placed against the other member *s* with the projections *a* and *b* extending over the sides thereof to lock the washer, and the corner *i* is turned up against the nut *w* thereby locking the nut.

The washer may be used also in various other situations.

Having thus described the invention, what is claimed as new is—

The herein-described improved nut lock washer comprising a flat plate with a circular opening therein and with four corners, two of the corners at opposite sides of the opening being bent up and forming pointed lateral projections, the remaining two corners being flexible to be bent over for forming pointed projections, the plate having two separate parallel slits therein extending tangentially from opposite sides of the opening towards points between a corner projection and a corner that is adapted to be bent to form a projection, there being acute angled portions of the plate between the two slits adjacent thereto bent to form two projections, as shown.

In testimony whereof, I affix my signature in presence of two witnesses.

EDWARD Z. WENRICH.

Witnesses:

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