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A. L. SHOOK

1,869,947

SAFETY BOLT

Filed April 13, 1931

Fig. 1.

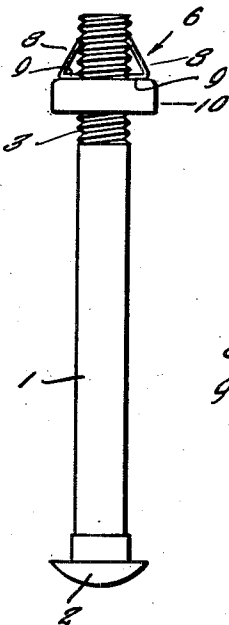


Fig. 2.

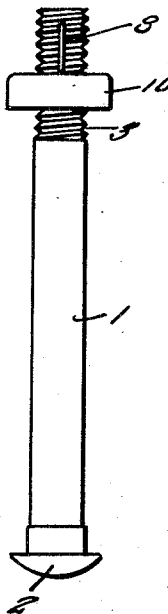


Fig. 3.

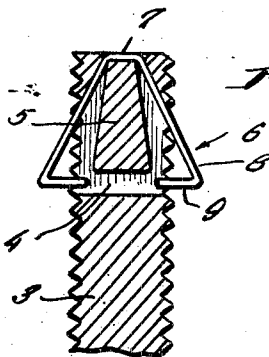
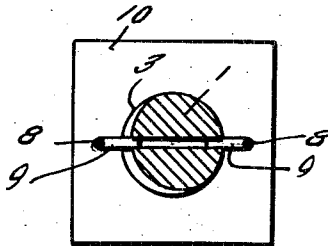


Fig. 4.

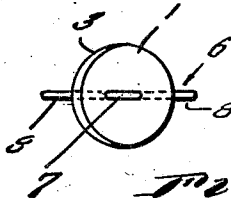


Fig. 5.

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SAFETY BOLT

Application filed April 18, 1931. Serial No. 529,322.

This invention relates to a safety bolt and has for its primary object to provide, in a manner as hereinafter set forth, a device of this character embodying the novel construction and arrangement of parts whereby the accidental loss of nuts therefrom due to vibration or other causes will be positively prevented.

Other objects of the invention are to provide a bolt of the character described which will be simple in construction, strong, durable, efficient and reliable in use and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawing wherein like characters of reference designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a view in side elevation of a bolt in accordance with this invention showing a nut thereon.

Figure 2 is a view in elevation taken at right angles to Figure 1.

Figure 3 is a view in cross section through a threaded portion of the bolt showing the locking spring.

Figure 4 is a view in longitudinal section through the bolt.

Figure 5 is a view in end elevation thereof.

Referring to the drawing in detail, it will be seen that the bolt is designated by the reference numeral 1 and has a head 2 on one end. The other end portion of the bolt 1 is threaded, as at 3.

The threaded end portion of the bolt is provided with a diametrically extending opening or passage 4 having a tapered end portion which communicates with the free end of the bolt. A tapered web 5 traverses the opening or passage 4 and has its comparatively large inner end spaced from the inner end wall of the opening or passage 4 as illustrated to advantage in Figure 4 of the drawing. The comparatively small other end of the web 5 is disposed within the restricted or tapered outer portion of the opening or passage 4 which communicates with

the free end of the bolt. This end of the web 5 is spaced slightly inwardly from the free end of the bolt.

A keeper designated generally by the reference numeral 6 is formed from a single sheet of resilient wire and includes an intermediate portion 7 which is engageable for rest on the small outer end of the web 5 within the end portion of the bolt 1. The resilient keeper 6 further includes the diverging legs or arms 8 which extend on opposite sides of the web 5 through the opening or passage 4 and projects outwardly from the threaded portion 3 of the bolt. At their free ends, the arms or legs 8 terminate in inwardly directed extensions or abutments 9 which are operable in the inner portion of the opening or passage 4 between the inner end of the web 5 and the inner end wall of said opening or passage 4. The reference numeral 10 designates a nut of conventional construction which is threaded on the bolt.

In use, the nut 10 is threaded on the bolt, the legs or arms 8 projecting from diametrically opposite sides of the bolt in spaced relation to the free end thereof and, therefore, not interfering with the operation of starting the nut thereon. As the nut is threaded on the bolt and engages the legs or arms 8, said legs or arms are pressed inwardly into the opening or passage 4 toward the opposite sides of the web 5 to permit the passage of the nut. When the nut passes the inner ends of the arms or legs 8, said arms or legs swing outwardly and the extensions 9 are engageable with the nut in a manner to prevent said nut from being backed off of the bolt accidentally, as by vibration. Of course, the arms or legs 8 may be pressed inwardly manually to permit removal of the nut. If the nut is threaded on the bolt beyond the extensions 9, conventional spaced washers may be interposed between said nut and the keeper.

It will be understood that the primary purpose of the invention is not to take the place of conventional lock washers for securing the nut in operative position but to prevent the accidental force of the nut from the bolt should said nut become loosened by vibra-

tion or from other causes. The tapered walls of the reduced outer portion of the opening or passage 4 which are engaged by the arms or legs prevent displacement of the keeper
5 from the bolt.

It is believed that the many advantages of a safety bolt constructed in accordance with this invention will be readily understood, and although the preferred embodiment of the invention is as illustrated and
10 described, it is to be understood that changes in the details of construction may be had which will fall within the scope of the invention as claimed.

15 What is claimed is:—

A bolt having a pair of oppositely arranged holes in its threaded end, said holes passing through the threaded end of the bolt and diverging from said end through the
20 sides of the bolt, said bolt having a transverse hole therein connecting the inner ends of the first mentioned holes together and the end of the bolt having a groove therein, the ends of which communicate with the outer
25 ends of the holes first mentioned and a member formed of a single piece of spring wire bent into substantially V-shape with a short bight part resting in the groove with its limbs passed through the said first men-
30 tioned holes, the ends of the limbs being bent inwardly to enter the transverse hole.

In testimony whereof I affix my signature.

ALVIN L. SHOOK.

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