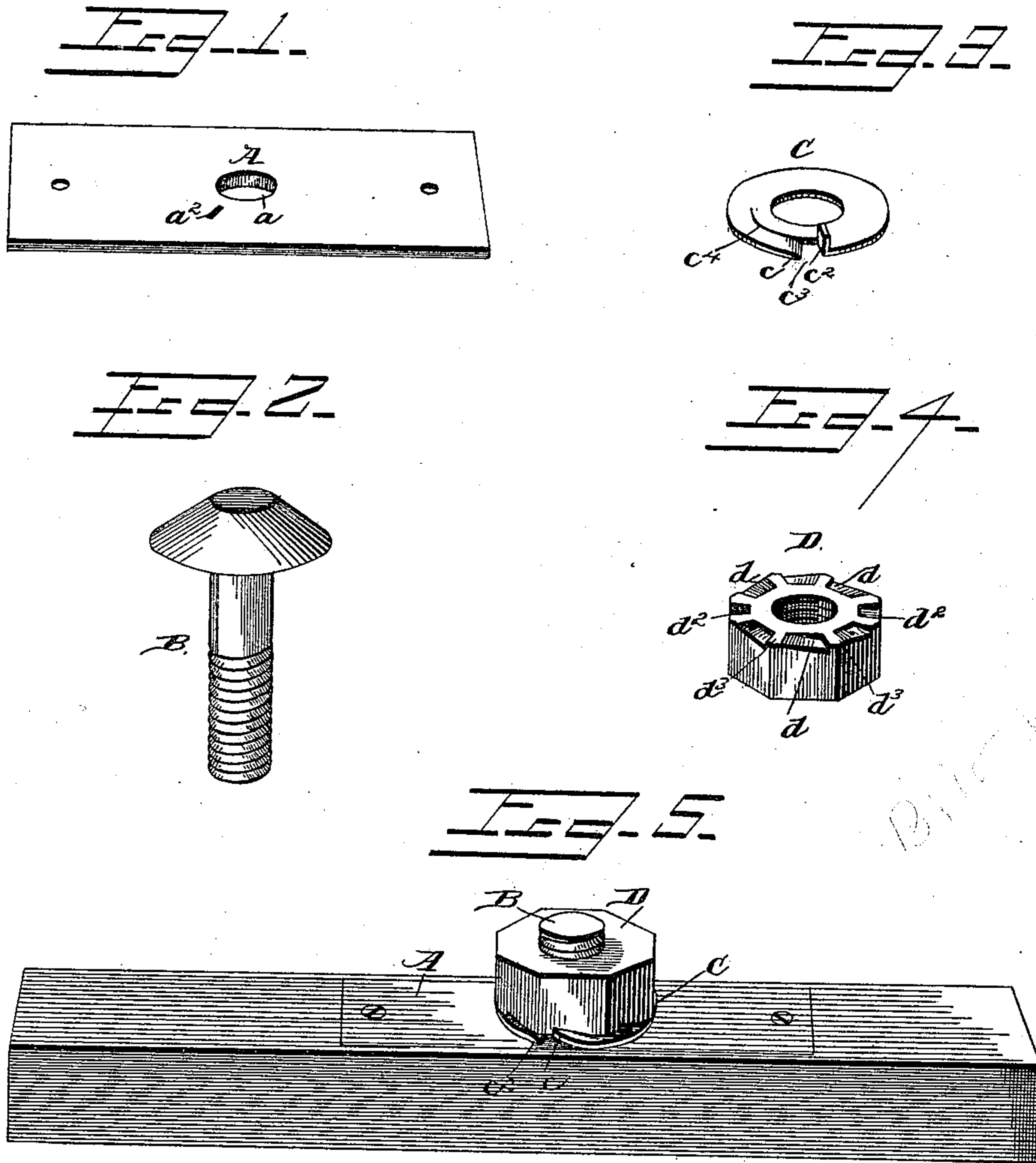


(No Model.)

S. F. STEVER.
NUT LOCK.

No. 434,005.

Patented Aug. 12, 1890.



Witnesses:

Geo. J. Thayer.
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Inventor:
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UNITED STATES PATENT OFFICE.

SOLOMON F. STEVER, OF FAIRFIELD, IOWA.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 434,005, dated August 12, 1890.

Application filed December 14, 1889. Serial No. 333,802. (No model.)

To all whom it may concern:

Be it known that I, SOLOMON F. STEVER, a citizen of the United States, residing at Fairfield, in the county of Jefferson and State of Iowa, have invented certain new and useful Improvements in Nut-Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to nut-locks.

The object is, while securing nuts for mechanical or other structures permanently in place, even when subjected to continued or sudden shocks and jars, yet to allow them readily to be removed at will, and at the same time to secure durability with simplicity of construction.

The invention consists of a ratchet nut-lock, and the details of construction will fully appear from the accompanying specification, and from the drawings, in which—

Figure 1 is a perspective view of the bed-plate; Fig. 2, a perspective view of the screw-bolt; Fig. 3, a perspective view of the peculiar washer or spring-stop inverted; Fig. 4, a perspective view of the peculiar ratchet-nut inverted, and Fig. 5 an elevation showing the parts in position.

The plate A may be of iron or any other suitable material, and is preferably rectangular in form and provided at or near its center with a perforation a for the passage of the bolt, and extraneous to the perforation a with a countersink, well, or depression a^2 .

The bolt is marked B, and may be of ordinary material and construction.

The washer, which is marked C, besides serving as a washer, is so constructed that one of its parts c serves as a spring-stop, while another c^2 serves as a heel or foot to prevent the washer from turning. The washer is constructed of a flat piece of metal centrally perforated for the passage of the bolt, and it has a substantially radial incision or a cut c^3 to about one-half the width of the piece between its circumference and the central perforation, and then a curved cut or incision c^4 , substantially parallel with the edge of the perforation to a suitable distance—say three or four times the length (more or less) of the radial cut—and extending slightly across this at one side

and to a greater distance at the other. The long strip formed by the curved cut is slightly turned up at the end, has the resiliency or elasticity of a spring, and forms the spring-stop c . The short strip on the opposite side of the radial cut is turned down entire and forms the heel or foot c^2 , which when inserted into the depression a^2 of the plate A prevents the washer from turning.

The nut is marked D, and exteriorly may be of any suitable number of sides and on its top may be smooth or rough. It is perforated centrally and screw-threaded for the reception of the end of the bolt. Upon its bottom it is of peculiar construction, as follows: Slanting and parallel indentions d , of substantially uniform depth, are cut from the exterior half-way to the edge of the perforation, forming teeth d^2 and leaving an even annulus d^3 , which forms a smooth bearing-surface against the washer. There are as many teeth or ratchet-notches extending from the outer edge half-way across as there are sides to the nut, and the shoulder of each notch or each tooth proper extends from its adjacent angle of a side of the nut as far as the length of the part of the washer turned down for the foot—that is to say, it is of the length of the width of the radial incision left in the washer when the short strip is turned down to form the foot. By this construction as the nut turns the foot can never jump out, since, as shown in Fig. 5, the foot will be held by the front of a tooth when the spring jumps into a notch. When the nut and washer are in position and the nut is locked, as the spring-stop will be up in a notch between the teeth, the spring will never be compressed, and so, even in long use, the spring will not lose its life or elasticity.

It is obvious that the plate A may be dispensed with, and that the washer C, constructed as described, may be placed directly upon the object to be secured, it being only necessary to provide it with a suitable depression for the heel or foot of the washer.

With the parts shown, in order to apply my invention the plate A, if necessary, is first secured upon the object to which another is to be attached, or which is to be attached to another. The parts to be fastened are to be suitably perforated and the bolt B passed

through with its screw end coming out through the plate. The washer C is then slipped over the end of the bolt with the heel or foot down, and this is inserted into the depression in the plate. The nut D, with its notched surface downward, is then run upon the bolt, and as it comes in contact with the washer its notches engage with the spring portion *c* thereof, and while it may be screwed down upon the washer with the utmost possible ease the spring *c* will prevent it from turning back, and the readiness of adjustment is greatly facilitated by the fact that that part of the nut which really forms the bearing-surface against the washer is smooth, and is not, as heretofore, jagged, and the smooth bearing-surface being the smooth ring and the teeth, which are in the same plane with the surface of the ring and extended, as described.

As the surface of the teeth of my ratchet is in the same plane or level with the face of the annulus, an absolutely-uniform pressure from the entire inner face of the nut is secured radially upon the whole surface. It will be observed, furthermore, that I have three positive locks—one where the end of the spring *c* engages with the tooth of the ratchet, in which the edge of the spring *c* acts as a pawl, one where the advancing tooth is held by the beginning or rise of the spring, and one where the washer is held firmly in its base by the tooth which is just advancing beyond the spring *c*, resting immediately over it and bearing firmly to drive it into and hold it in position.

In order to be able to unscrew the nut, the spring portion of the washer must be depressed to relieve it from engagement with the ratchet-teeth. This may be accomplished in any suitable manner, and I am not limited to any particular means of effecting this; but I prefer to use for this purpose the peculiar

wrench forming the subject-matter of another application of mine filed of even date herewith.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The washer having a radial cut part way across it from without inward and a circular cut extending a short distance to one side of the radial cut and a greater distance to the other, and having a foot and a spring portion, the circular cut to a short distance beyond the radial cut at one side, allowing the turning down of one part for the foot, and the circular cut to a greater distance beyond the radial cut at the other side, allowing the turning up of the other part for the spring portion, substantially as described.

2. The combination of the ratchet-nut having the ratchet-teeth cut only partly across from without inward, leaving a smooth annulus within, and the face of the teeth being in the same plane with the surface of the annulus, a screw-bolt, and a washer to be on the bolt next to the nut, the washer having the radial and circular cuts described, giving the even bearing-surface for the annulus of the nut, and the foot and the spring portion, all substantially as and for the purpose described.

3. The combination, with the even-surfaced plate A, having the depression or well *a*, of a bolt B, the washer C, having the described cuts, the foot and the spring, and the nut D, having the surface of the annulus and that of the teeth in one plane, all as set forth.

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

SOLOMON F. STEVER.

Witnesses:

R. G. DYRENFORTH,
ERWIN S. TWYFORD.