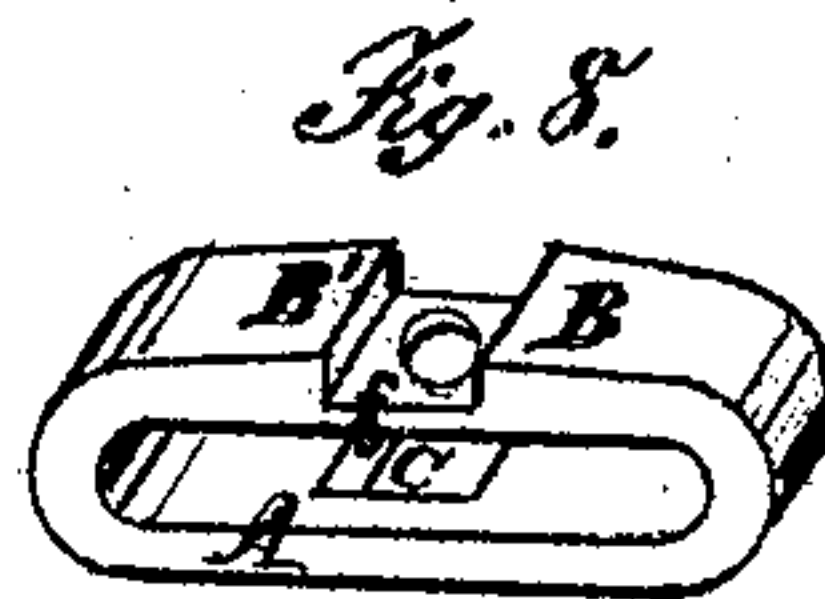
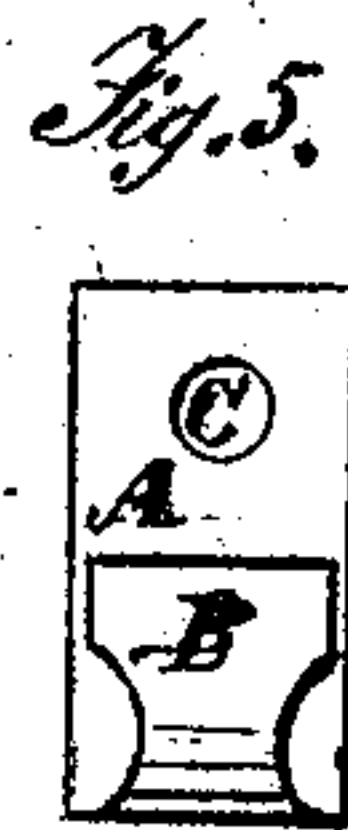
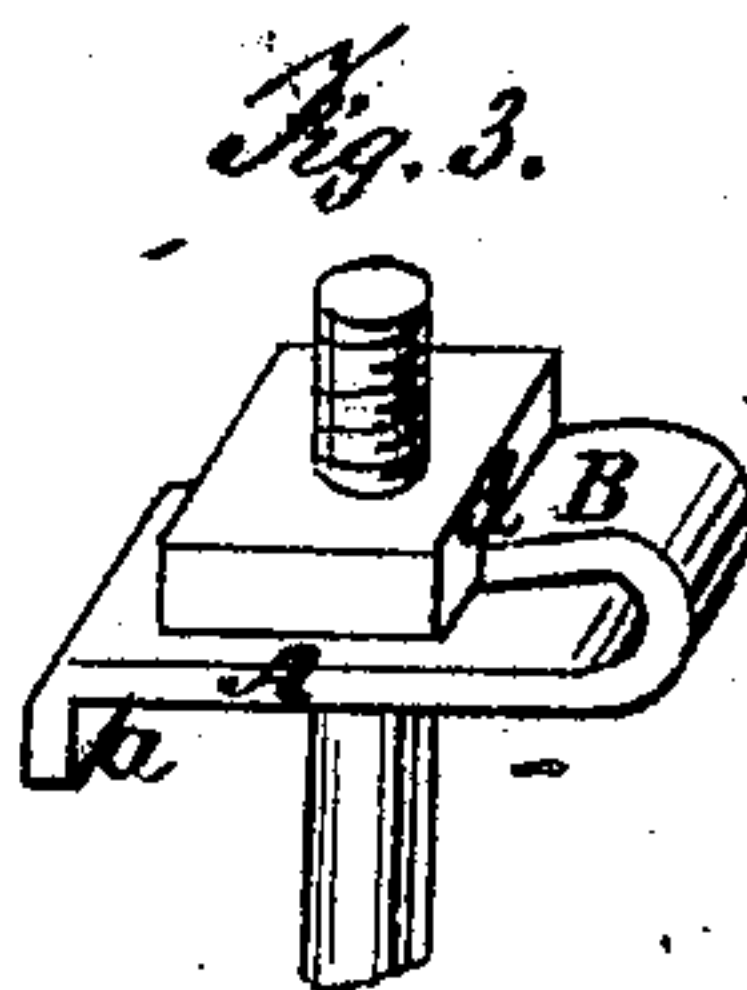
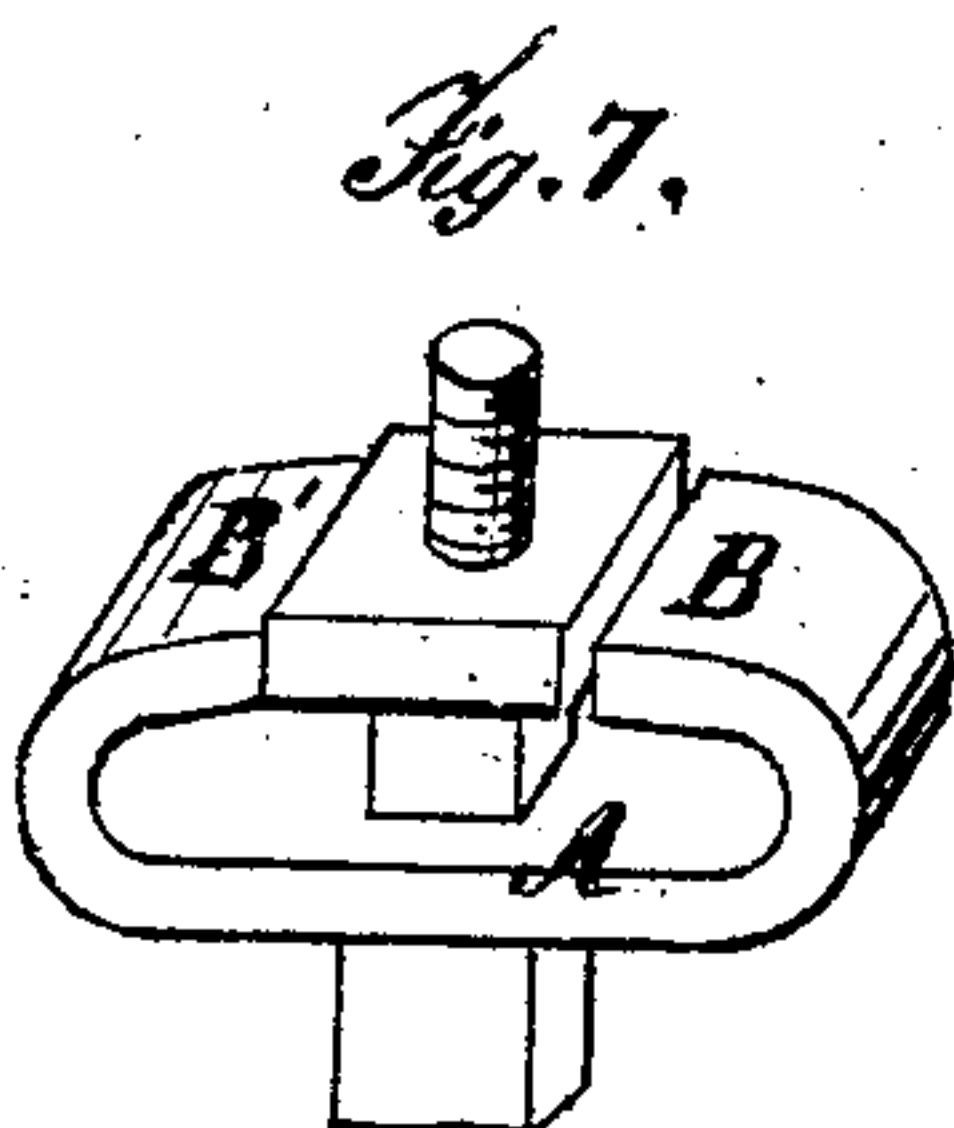
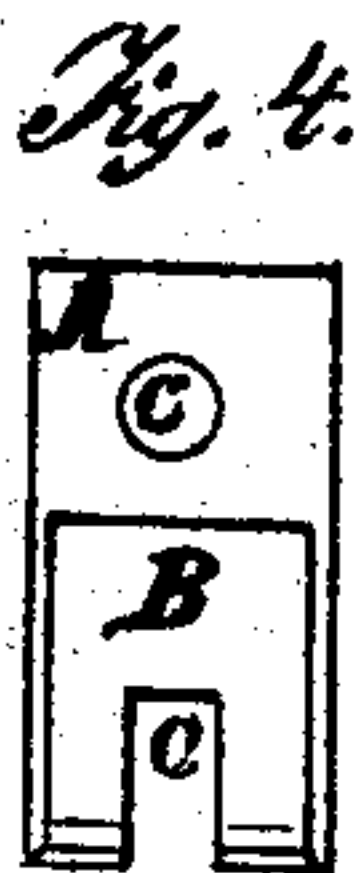
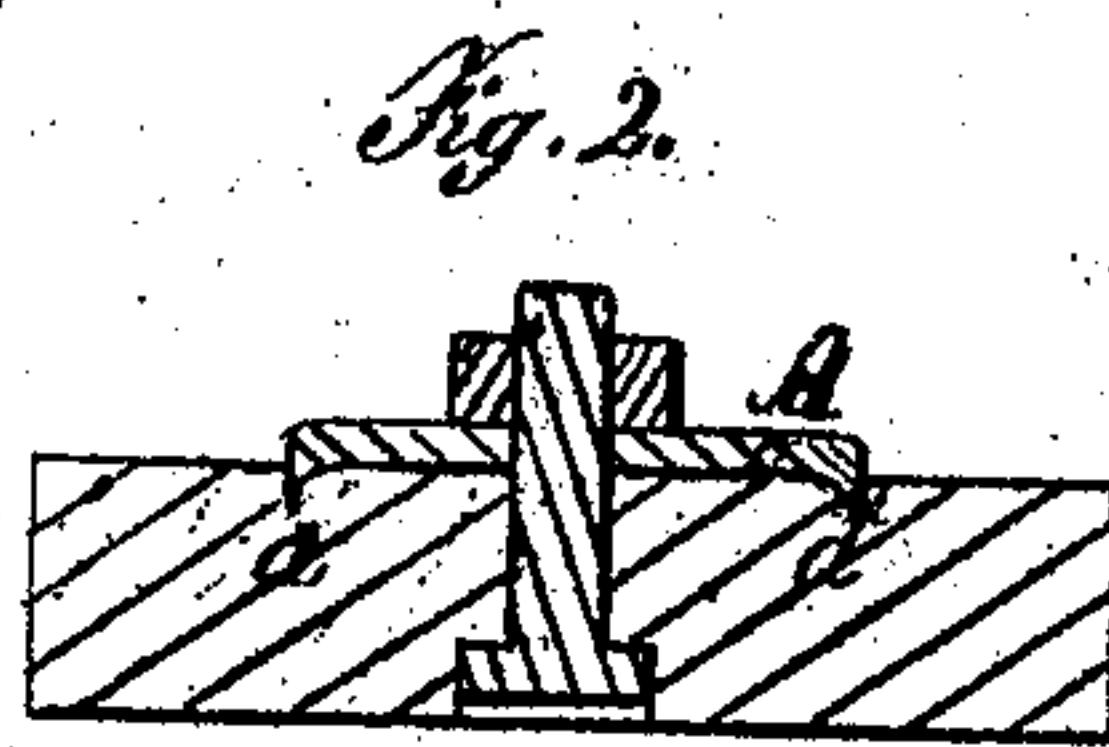
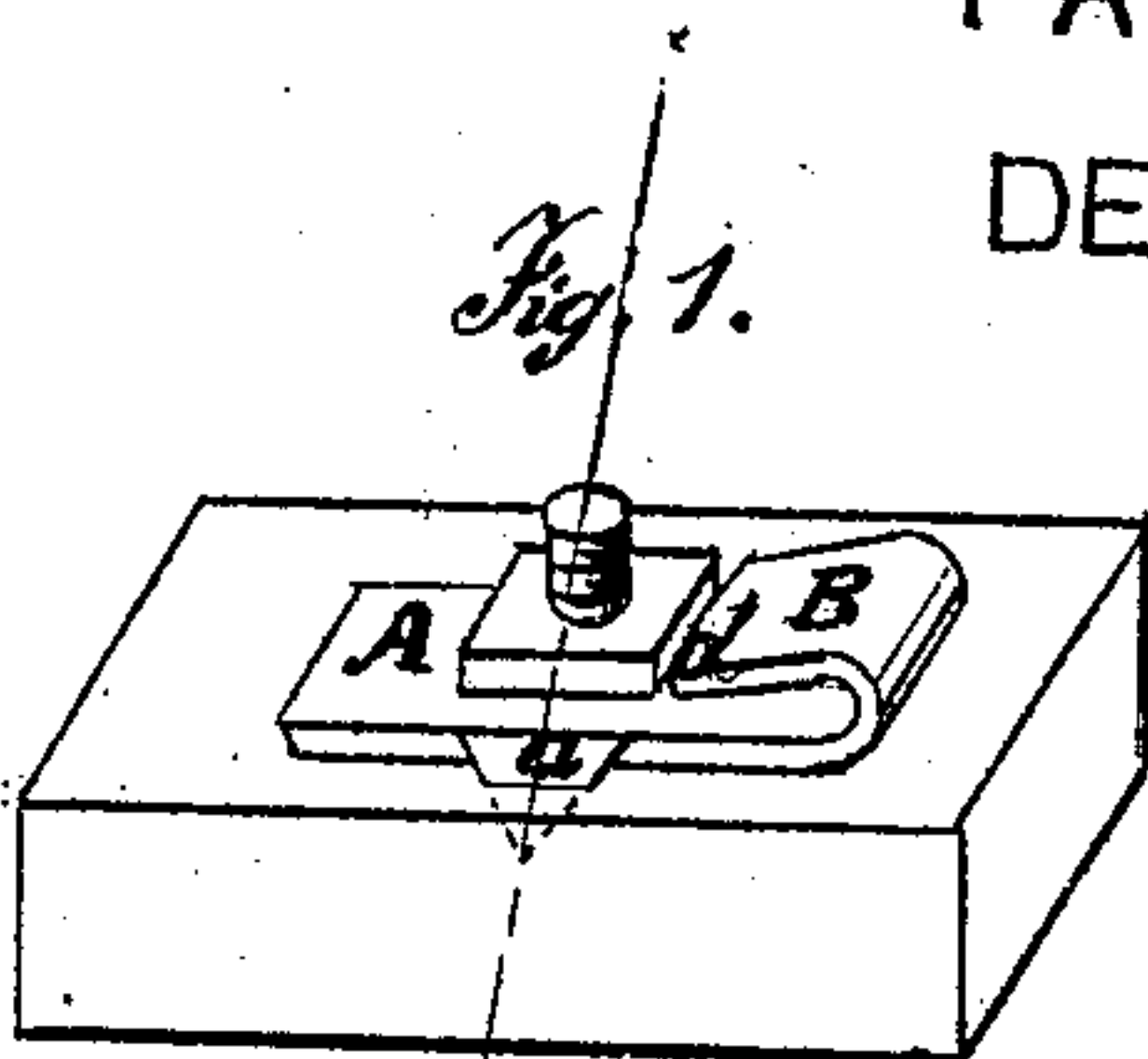
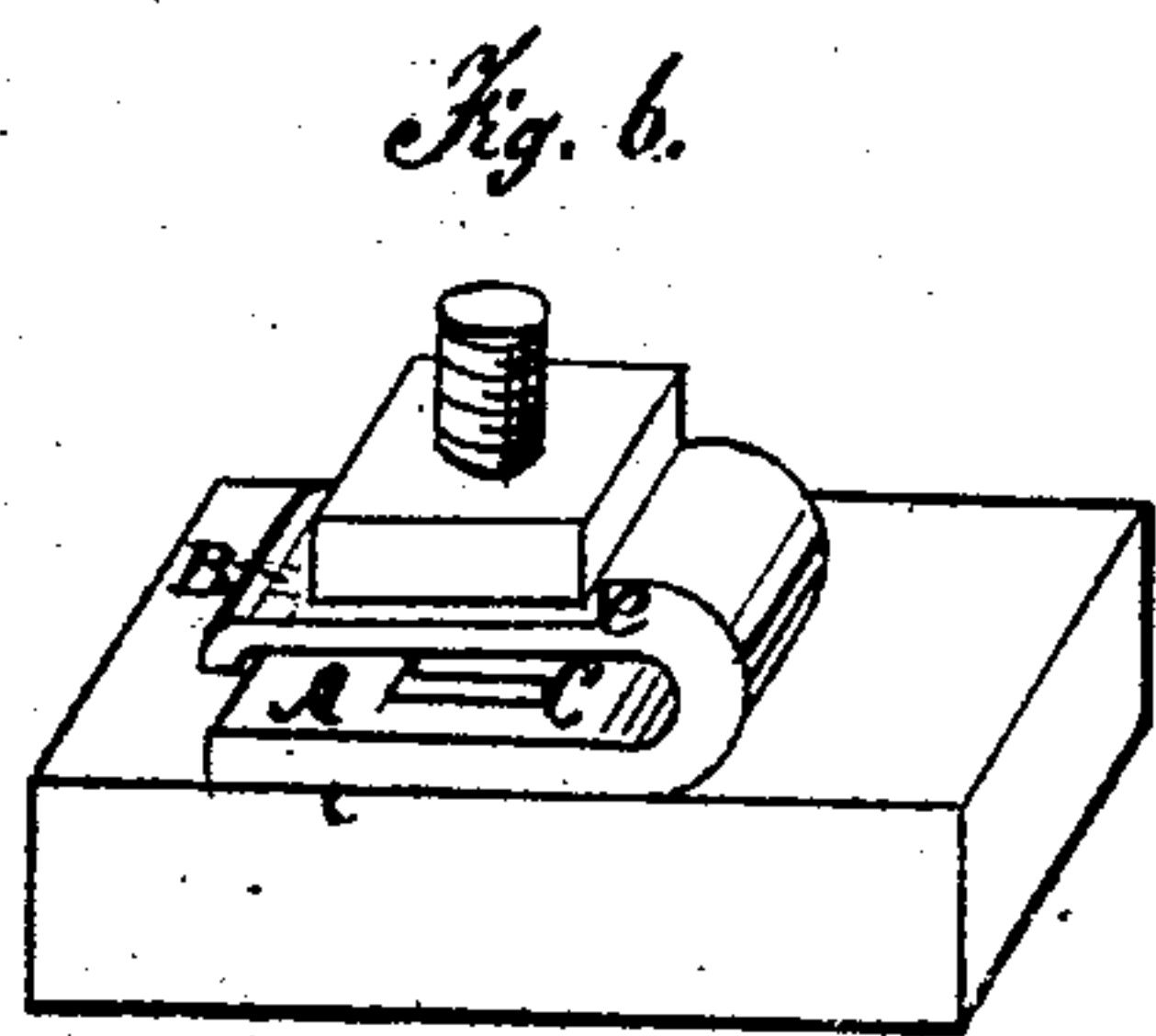


# E.A. Ellsworth. Comb<sup>d</sup> Nut Lock and Washer.

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PATENTED  
DEC 3 1867



Witnesses:

Deborah K. Ellsworth  
L. Hill

Inventor:

E. A. Ellsworth.

# United States Patent Office.

EDWARD A. ELLSWORTH, OF WASHINGTON, DISTRICT OF COLUMBIA.

*Letters Patent No. 71,722, dated December 8, 1867.*

## NUT-LOCK AND WASHER.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, EDWARD A. ELLSWORTH, of the city and county of Washington, and District of Columbia, have invented a new and useful Improved Combined Nut-Lock and Washer; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a perspective view of my improved nut-lock and washer, showing it applied to a section of a bar of metal or wooden block.

Figure 2 is a transverse vertical section of the same, taken in the line *x x*, fig. 1.

Figure 3 is a perspective view, showing the nut and washer applied to a bolt, and having its end turned down, for the purpose of securing it to the block or bar.

Figures 4 and 5 are top plan views of the nut-lock and washer removed from the bolt, showing means for raising the spring end above the nut, whereby the latter is permitted to turn on the bolt.

Figures 6, 7, and 8, are modifications of my invention, showing a slight change in the construction and application.

This invention relates to a combined nut-lock and washer, having for its object the more perfect securing of nuts upon bolts; and it consists in forming from a single piece of metal, a flat plate, with one or more of its ends or sides turned up, to form a spring-filling upon one or more edges of the nut; and in the combination of downward projections, one or more, with the nut-lock and washer, for the purpose of securing it in position upon the object to which it is applied, as will be hereinafter more fully shown and described.

In the drawings, A represents the body or washer, and B the lock or spring, formed in one piece, by first cutting or stamping the same from a bar or sheet of iron or steel or other proper metal, and then turning the end back upon itself, to form the spring. The latter is possessed of a certain amount of elasticity, so that when lifted up or raised by any proper means, to admit of the nut being turned in either direction, it will, when released, assume its former position. *a* are flanges or downward projections formed upon the body of the washer, upon one or more of its sides, and may be single points or flanges extending the entire length of the body, or provided with serrated edges. C is the hole in the body of the washer for the passage of the bolt, and may be made round or square, or of any other proper form. When the square hole is used, or any hole of unequal diameter, the shape of the bolt near the screw-thread must be made to conform to such shape. In this case the downward projections upon the washer need not be used, as the unequal diameters of the bolt and hole prevent the washer from turning upon the bolt. In practice, however, I prefer to make the hole round, and to use the downward projections upon the washer.

When it is desired to lock the nut securely in position, the washer is placed over the end of the bolt, with its downward projections entering slight cavities, one or more, previously made in the article to which it is to be secured, or the flanges may be placed over one or more of its sides or edges, as in cases where the washer is applied to a wagon-axle, spring, or other narrow strip of metal or wood. The nut being placed over the bolt, and screwed down until it touches the free end or spring B of the lock, the latter is raised, by any suitable means, to admit of the nut being set securely down upon the washer, when the spring B is released, and its end rests against the edge of the nut below its upper surface, as shown at *d* in figs. 1 and 3 of the drawings. The power applied to the nut to turn it, must now press against the lock B in a longitudinal direction, or nearly so, and therefore cannot operate to compress or force the spring to yield in either direction. It will thus be seen that a complete and unyielding nut-lock is obtained. For convenience in raising the end B, to allow of the nut being turned, I provide a slot, *e*, as shown in fig. 4, through which a small rod of iron may be introduced, or a small piece is cut out from each side of the spring B, as shown in fig. 5, for the purpose of grasping it more securely with a pair of tongs or other instrument. But I do not confine myself to any particular configuration of the spring or washer.

Fig. 6 shows a modification of my invention, in which the spring or lock, B, is extended over the washer A, and provided also with a hole for the passage of the bolt. The upper surface of the spring or lock is cut away



to form a shoulder, as seen at *c*, which fits against the lower edge of the nut, to prevent its turning. The body A and lock B are compressed when it is desired to turn the nut, so that the latter shall clear the shoulder *c*.

Figs. 7 and 8 are modifications of fig. 1, showing, in the former case, both ends, B and B', turned up, and in the latter case, such ends are connected by a thin piece, *f*, upon which the nut rests when in position.

It will be seen that by the application of a spring, or by making the turned-up end of the washer elastic, the same may be applied to the ends of bolts occupying a downward position, as in case of bridges, where the nut is secured upon the bolts from the under side of the timbers, and in all machinery where the nut is applied to the bolt from the under side.

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

1. The spring-nut lock B, and washer A, constructed in one piece, substantially as described, for the purpose specified.
2. One or more points or downward projections or flanges, *a*, in combination with the spring-nut lock and washer, substantially as described, for the purpose specified.

E. A. ELLSWORTH.

Witnesses:

NATHAN K. ELLSWORTH,  
L. HILL.