W. H. SEMON.

NUT LOCK.

APPLICATION FILED MAR. 6, 1911.

1,040,788. Patented Oct. 8, 1912.

Fig. 1

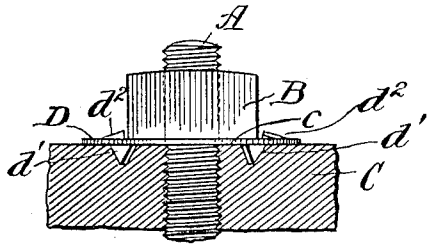

Fig. 1a

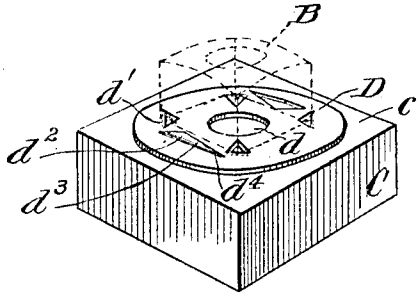

Fig. 2

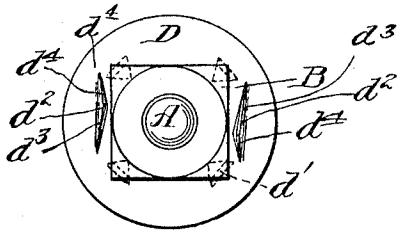

Fig. 3

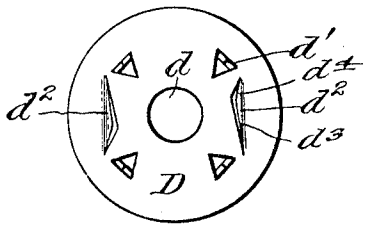

Fig. 4.

Witnesses.

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NUT-LOCK.

1,040,788. Specification of Letters Patent. Patented Oct. 8, 1912.

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To all whom it may concern:

Be it known that I, WILLIAM H. SEMON, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Nut-Locks, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to nut locks, its object being to provide a device of this character which will be simple and cheap in construction, effective in its operation, and which may be readily and quickly applied.

The invention consists of means hereinafter fully described and particularly set forth in the claim.

The annexed drawing and the following description set forth in detail certain means embodying my invention, the disclosed means, however, constituting but one of various mechanical forms in which the principle of the invention may be applied.

In said annexed drawing: Figure 1 is a side elevation of a bolt and nut and locking device embodying my invention, together with a fragmentary section of the base in which the bolt is mounted. Fig. 1ª is a perspective view of the locking device, showing the nut in dotted lines. Fig. 2 is a top plan of a nut, bolt and locking device embodying my invention. Fig. 3 is a bottom plan of the locking device. Fig. 4 is a side elevation of the locking device.

As illustrated, the bolt A and nut B are of the ordinary usual construction.

Interposed between the bottom surface of the nut B and the opposing surface of the base C, to which it is to be fastened is the locking device D. This device consists of a disk of thin sheet metal provided with a central circular aperture d, Fig. 3, through which the bolt passes. Projecting from the lower surface of the disk are triangular spikes d' which are preferably punched out of the sheet metal, as shown, or formed in any other desired manner. When the locking device is designed to be applied to a bed of wood, I prefer to provide four of these spikes. When the device is designed to be applied to metal, a lesser number may be provided, and a corresponding number of depressions formed in the metal for receiving same. In the case of a wooden base, the spikes are driven into same by ordinary pressure or with a hammer, so as to render the locking device fixed with relation to such base. When a metal base is used, a depression may be formed either by casting same in the metal during the course of its manufacture, or by means of an ordinary center punch, in which latter case the depression may be formed at any time prior to the application of the locking device.

Projecting from the upper surface of the disk are the projections d^2, two of which are shown in the device illustrated, formed by cutting the metal along two lines at obtuse angles to each other, one line being longer than the other, as shown, whereby these projections are caused to incline upwardly from the surface of the disk, as shown in Fig. 4. These projections, therefore, have two upwardly inclined edges d^3 and d^4. The edge d^3 is so located that its inclination is upwardly in the direction of the rotation of the nut when it is tightened, and therefore in the case illustrated, the thread being shown as a right handed one, is upwardly in the direction from left to right. This edge d^3 is furthermore placed a distance from the center of the disk slightly greater than the perpendicular distance from the center of the nut to one of its sides. The sheet metal from which the disk is made is such that the projections will spring back into their normal position when pressed backwardly and thereby caused to yield.

Assuming that the locking device D is fixed in place on the bed, when the nut is screwed down on the bolt, its lower surface will in the course of its rotation finally strike the uppermost portions of the projections d^2, the latter, as a result of their above described peculiar formation, presenting an inclined surface to such engagement. A continuation of the rotation of the nut effects a continued alternate engagement and release of the projections, the latter always springing back into their normal upwardly projecting position after being released. This rotation of the nut is continued until it engages the upper surface of the locking device, and its sides are substantially parallel with the edges d^3 and the projections. In this position it will be seen that these projections lie laterally of the nut and do not engage the bottom surface thereof. As a result thereof, both edges incline upwardly, the one in the direction of tighten-

ing rotation of the nut, and the other in the opposite direction, the latter, however, presenting a much more acute angle to the sides of the nut than the other, on account of its shorter character. A tendency on the part of the nut to turn in the opposite direction to become loosened will effect the engagement of the edges with the angularly related sides of the nut, and hence be effectually resisted. A sufficient amount of pressure manually exerted on the nut in a direction of rotation in which the nut is unscrewed will effect the depression of the projections, and allow the nut to be unscrewed. The amount of force necessary to effect this result, however, will vary with the degree of inclination of the edge d^4, as will be readily understood.

In practice, I prefer to place the spikes d' in a position such that they will be directly beneath the nut B in its final tightening and locked position, as shown in Fig. 2 in dotted lines.

In the form of device illustrated, the construction is arranged to accommodate a square nut, and two projections d^2 are provided which are located diametrically opposite each other. The more projections there are, however, the more securely will the nut be held in place. In the case of a hexagonal nut, it will be understood, of course, that the projections will be placed diametrically opposite each other, as in the case illustrated, and that if more than two projections are provided, the projections will be placed at angles distant from each other sixty degrees.

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

The combination of a bolt; a bed in which said bolt is seated; a nut for said bolt; and a locking device for said nut interposed between it and said bed, and fixed relative to the latter, said locking device being provided with two or more oppositely disposed projections upwardly inclined in both directions of rotation of the nut, located laterally and adapted to engage opposite sides of the nut.

Signed by me, this 4th day of March, 1911.

W. H. SEMON.

Attested by—
WINIFRED WALTZ,
CURT B. MUELLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."