(No Model.)

A. C. FLETCHER.

NUT LOCK.

No. 443,911. Patented Dec. 30, 1890.

Fig. 1.

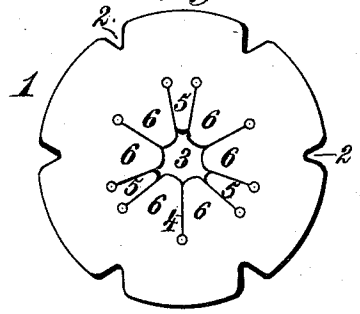


Fig. 2.



Fig. 3.

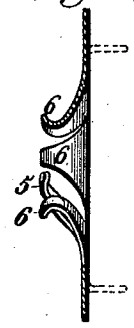


Fig. 4.

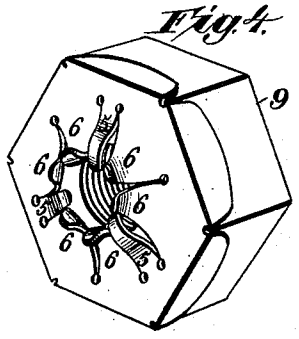
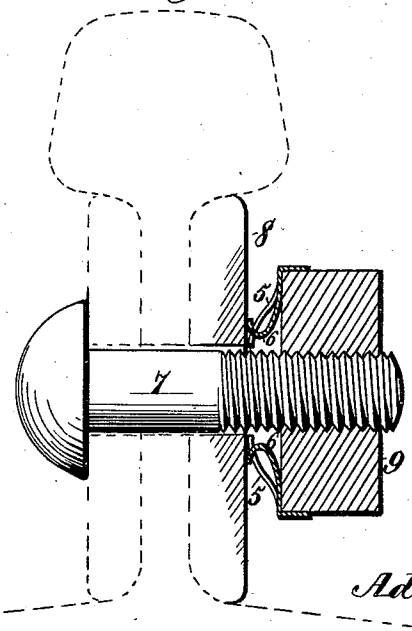


Fig. 5.



Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ADDISON C. FLETCHER, OF NEW YORK, N. Y.

NUT-LOCK.

SPECIFICATION forming part of Letters Patent No. 443,911, dated December 30, 1890.

Application filed October 10, 1890. Serial No. 367,692. (No model.)

To all whom it may concern:

Be it known that I, ADDISON C. FLETCHER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Nut-Locks, of which the following is a specification.

My invention relates to certain improvements in nut-locks, the purpose thereof being to provide a device of this character which shall have a yielding and elastic connection with the fish-plate and nut, by which the latter shall be at all times and under all circumstances held firmly in engagement with the threads of the bolt.

It is my further purpose to provide a nut-lock capable of application to any form of nut and having an intermediate resilient connection with the fish-plate or other device, in combination with a series of elastic arms or spring-contacts engaging the threads of the bolt with a force varying with the turning of the nut, said arms being so formed as to have an elastic yield at one or more points, the body of the nut-lock being of such construction that it may be applied to a nut of any shape.

It is a further purpose of my invention to provide a nut-lock which may be rapidly and cheaply manufactured, easily and quickly adjusted, operative in all cases without the necessity of employing skilled labor in its application, and having the requisite strength and durability.

To these ends my invention consists in the several novel features of construction and new combinations of parts hereinafter fully set forth, and then definitely pointed out in the claims following this specification.

To enable others skilled in the art to make and use my said invention, I will proceed to describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a view of the blank in the form in which it comes from the devices by which it is stamped out. Fig. 2 is a transverse section of Fig. 1 upon the line 2 2. Fig. 3 is an edge elevation of the completed nut-lock ready for use. Fig. 4 is a perspective view of a nut with the nut-lock applied thereto, the bolt being removed in this figure. Fig. 5 is a transverse section of the rail with the fish-plates and one of the attaching-bolts, showing the nut and the connection of the nut-lock thereto to the bolt.

In the said drawings, the reference-numeral 1 designates the blank for the nut-lock, formed from sheet metal of suitable thickness, and having preferably a circular shape, although this is not essential. This blank is ordinarily stamped out by suitable mechanism, and is provided at equal intervals upon its edge with nicks or short slots 2, cut in or substantially in the radial lines of the plate or blank. In the center of the latter, or thereabout, is formed an opening 3, from the circumference of which extend cuts or slots 4, terminating at points between the central opening and the periphery of the plate. By these cuts the middle portion of said plate is divided into segmental or angular portions 5 and 6, the former being of comparatively narrow width, while the latter are of considerably greater dimension. As shown in the drawings, I employ three of the narrower portions 5 and double that number of the broader portions 6; but this proportion may be varied should circumstances render such a change desirable. The free ends of these segmental pieces are so formed as to approximate to the outline of the central opening 3, said ends being slightly rounded off to remove their sharp angles, as shown in Fig. 1. The blank being thus formed, the narrower segmental pieces 5, which are, like the broader portions 6, formed of elastic metal, are bent inward and away from the inner face of the nut-lock plate, the conformation being such that their free extremities point toward the axis of the said plate, while the body of the piece thus deflected is so formed as to assume a gentle reverse curve, for a reason presently to be shown. The broader segmental portions 6 are also bent or deflected inward; but their free ends are bent until they point in the direction of the exterior edge of the nut-lock plate or away from the axis thereof.

The proportions of the parts are such that when the construction described is effected the ends of the parts 5 will, upon the insertion of the bolt, lie close to the threads thereof or actually engage the same, while the outwardly-curved ends of the broader parts 6

will be entirely free from contact with the bolt, as clearly shown in Fig. 5.

The manner of using the nut-lock is as follows: The bolt 7 being inserted in its aperture, as shown in Fig. 5, the nut-lock plate, having the construction described, is slipped upon the threaded end of the bolt until the extremities of the parts 5, which barely touch the screw-threads and do not necessarily have any contact with the same, rest against the outer face of the fish-plate 8. The nut 9 is then turned upon the bolt and against the outer face of the nut-lock plate. As the pressure of the nut is exerted thereon, the extremities of the pieces 5 will approach the axis of the bolt and be gradually forced into the threads of the screw, upon which they will bite with a force proportioned to the degree of pressure imposed by the nut. At the same time this engagement will be an elastic one, since the spring of the segmental pieces 5 at both points of the reverse curve will enable it to yield and will preserve its engagement with the threads of the bolt. The curved ends of the elastic pieces 6 will, on the contrary, rest against the fish-plate, and by reason of their formation, while yielding to the pressure of the nut and holding it firmly against the threads of the bolt, they will exert a draft upon the nut-lock plate toward the axis of the bolt and in direct opposition to the radially-outward thrust of the pieces 5, thus offsetting the latter. When the nut is turned up to the proper point, the peripheral portions of the plate are bent over upon the edges of the nut, as shown in Fig. 4.

What I claim is—

1. A nut-lock consisting of a metallic plate having a bolt-opening surrounded by a series of lateral elastic pieces, all extending in a direction toward the axis of the bolt-opening and some having their free ends curved toward and the others having their free ends curved from the axis of the bolt-opening, substantially as and for the purposes described.

2. A nut-lock consisting of a metallic plate having an opening adapted to receive the bolt, the body of said plate being divided by substantially radial slots or cuts into a series of elastic segmental pieces of different breadth and length, the narrower and shorter portions being bent into a gentle reverse curve with their extremities pointing toward the axis of the bolt, and the broader and longer pieces being likewise bent in the same direction and their extremities curved outward or away from the axis of the bolt, substantially as described.

3. A nut-lock consisting of a substantially circular metallic plate notched or slotted at equal intervals upon its edge and provided with an opening adapted to receive the bolt, and from which substantially radial slots are cut toward the periphery, dividing the body of said plate into a series of segmental pieces bent inward toward the fish-plate with a reverse curve and having their ends pointing toward the axis of the bolt, and broader segmental pieces bent inward, but having their extremities curved outward away from the axis of the bolt, the former series having their ends impinging normally upon the screw-threads of the bolt, while the latter are removed therefrom, and the two series exerting an outward thrust and an inward draft upon the plate, respectively, substantially as described.

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

ADDISON C. FLETCHER.

Witnesses:
JAMES L. NORRIS,
JAMES A. RUTHERFORD.