N. Thomjson,

Lock Nut.

NO. 99,729. Patented Feb. 8. 1870.

Fig: 1.

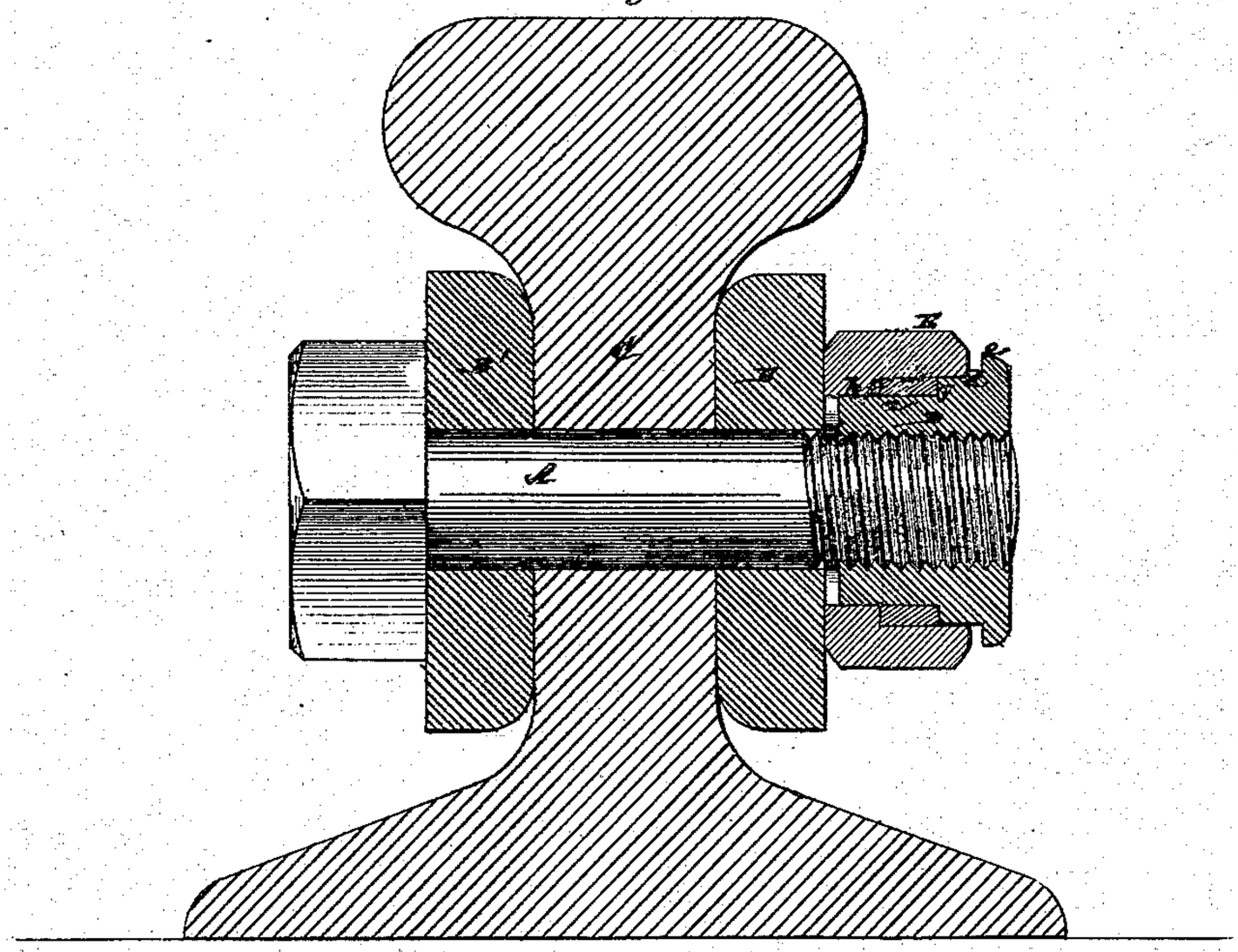


Fig: 2.

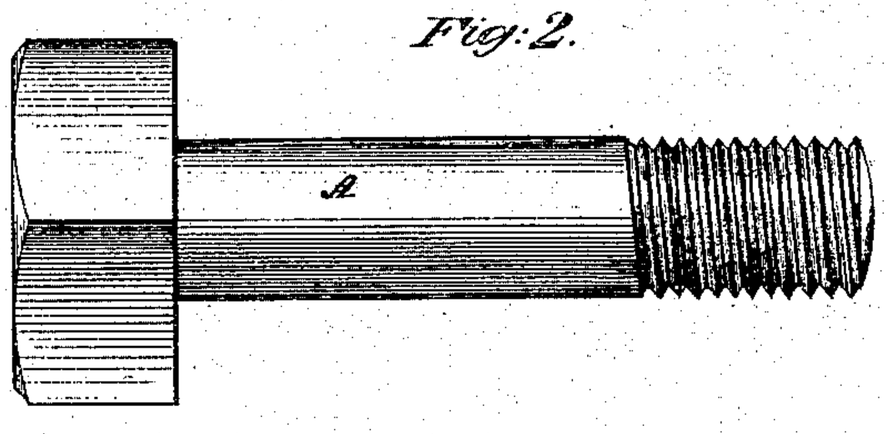


Fig: 3.

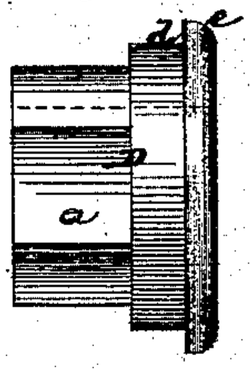


Fig: 4.

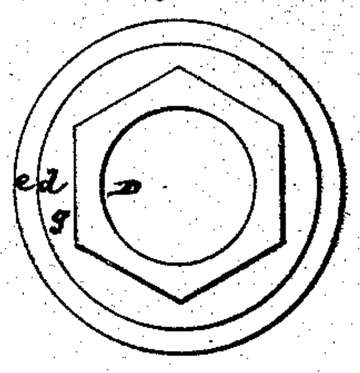


Fig: 7.

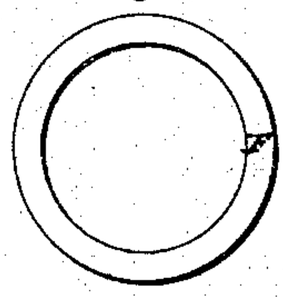


Fig: 5.

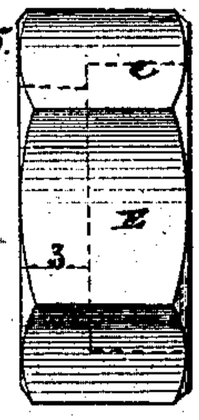
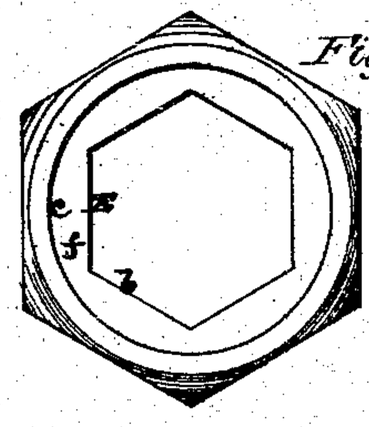


Fig: 6



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United States Patent Office.

NATHAN THOMPSON, OF BROOKLYN, NEW YORK.

Letters Patent No. 99,729, *dated February* 8, 1870.

IMPROVEMENT IN NUTS FOR SCREW-BOLTS.

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, NATHAN THOMPSON, of Brooklyn, in the county of Kings, and State of New York, have invented a new and useful Improvement in Nuts for Screw-Bolts, applicable to the fish-joints of railroad-bars and other purposes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents a transverse section, through a railroad-bar, with fishing-plates applied thereto, and secured by a bolt having my improved nut fitted to it;

Figure 2, a longitudinal view of the bolt, detached;

Figures 3 and 4, an edge and inner-face view of the interior portion of the improved nut;

Figures 5 and 6, an edge and outer-face view of the exterior portion of said nut; and

Figure 7, a face view of a spring used in the nut.

Similar letters of reference indicate corresponding parts.

My invention, while applicable to screw-bolts, rods, or bars, generally, irrespective of the purpose to which the same may be applied, will be best explained, so far as regards making clear its advantages, by associating it with screw-bolts applied to securing the fish-joints of railroad-bars, and will here be described in such connection. The same, however, is applicable to any bolt-fastenings, as, for instance, those used in various parts of locomotive and other steam-engines, in which either expansion and contraction, as produced by variation of temperature or jar, as arising from the working of the parts, is apt to loosen the bite of the nut on the surface it is screwed against. To this end,

The improvement consists of a compound nut, the construction and arrangement of parts of which, relatively to each other, as hereinafter described, constitutes the subject of the invention.

In the accompanying drawing—

A represents a screw-bolt, of ordinary or any suitable construction, applied to secure the fish-plates B B′ of a railroad-bar C.

My improved nut, which is represented as fitted on the screw-end of said bolt, to effect the tightening up of the same, consists of an inner nut, D, made to fit the screw-thread of the bolt and outer-nut follower or shell E, together with an enclosed and interposed spring, F, preferably made of vulcanized India rubber.

The inner nut D is of hexagonal or other suitable shape for a portion, *a*, of its length, to secure its turning with and being turned by the outer-nut follower or shell E, which is correspondingly shaped, at *b*, to fit said inner nut, with freedom to slide or play longitudinally over it, and which outer shell is of nut or other suitable shape on its exterior, to facilitate its being turned and turning the inner nut.

The interior of the shell E, at its rear portion *c*, is preferably of cylindrical form, and the rear exterior portion *d* of the inner nut D of corresponding shape, with, it may be, a collar, *e*, at back, arranged to allow of backward play to the shell E when screwing the compound nut to its place.

The proportions, in a longitudinal direction, of the nut D and shell E are such that the latter not only encases the former, but also the spring F, which is made to bear against the inner shoulder *f* of the cylindrical recess in the shell, and against the shoulder *g* of the cylindrical portion of the inner nut.

From this description, and by reference to fig. 1 of the drawing, it will be seen that on turning the compound nut by the shell or follower E, to screw up the inner nut, the rubber ring or spring F is compressed and made to produce frictional hold or bearing of the inner face of the follower E against the fish-plate B, and the further the nut D is screwed up the tighter or closer such elastic frictional hold of the follower on said plate becomes, thereby providing alike for expansion of the bolt or jar to the fastening, without freeing the compound nut from bearing-pressure on the plate, or from getting loose on the bolt, and in this respect being much more reliable than wiring the nut, and dispensing with the usual lock-nut as used in many bolt-fastenings.

It is an important element in this compound nut that the spring F is encased and protected by the follower, and so that it is restrained from being expanded laterally without giving out useful effect on said nut.

The spring F may in some cases be made of cork, or even soft wood, or a spiral or other metallic spring may be used; but I do not confine myself to any particular material, so long as it is of a yielding or elastic character.

By the special construction of the compound nut as herein shown and described, the fit of the hexagonal or angular portion *a* of the inner nut D within the correspondingly-shaped portion *b* of the follower E not only insures the turning of the nut by the follower, but the latter prevents oil applied to the screw-thread of the bolt or its nut from passing to the rubber or spring F, to injure it.

The fit of the circular portion *d* of the nut within the like-shaped recess *c* in the follower, and application of an outside flange, head, or collar *e*, also provides for exclusion of oil and dirt from the outside, and the collar *e* gives a neat finish to the compound nut; also, the circular construction of the parts *d* and *c* allows of an annular spring, F, being used.

What is here claimed, and desired to be secured by Letters Patent, is—

The outer shell or follower E, constructed with a circular recess, *c*, and reduced hexagonal or angular inner cavity or portion *b*, in combination with the nut D, constructed as at *a* and *b*, to correspond, and formed with an outer head or collar, *e*, for operation in connection with an annular or other spring, F, substantially as shown and described.

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