

J. C. TIFFANY.
Nut and Bolt Fastenings.

No. 146,724.

Patented Jan. 20, 1874.

Fig. 1.

Fig. 2.

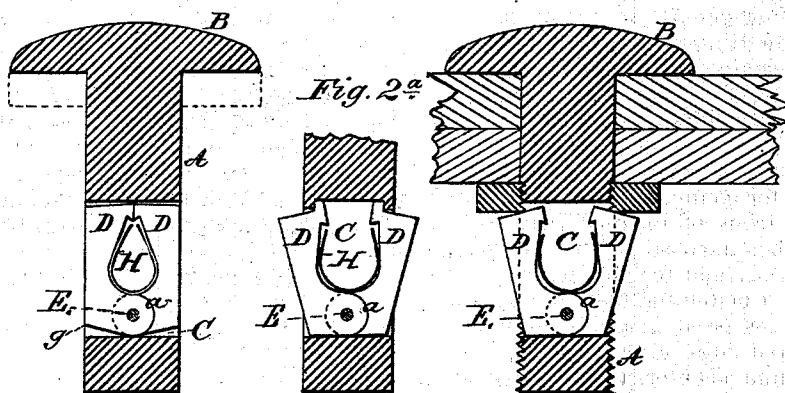


Fig. 3.

Fig. 4.

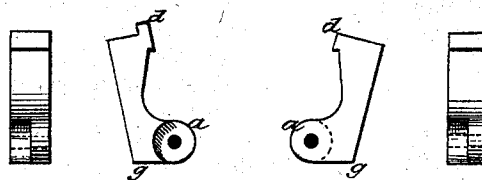
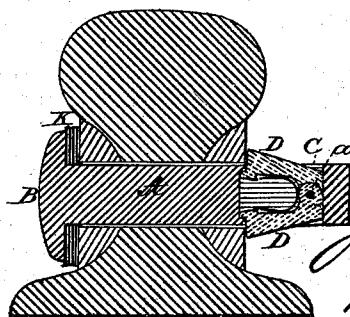


Fig. 5.



Witnesses:
W. H. Norris
Albert W. Brown.

Inventor.

Joseph C. Tiffany.
By James L. Norris
Atty.

UNITED STATES PATENT OFFICE.

JOSEPH C. TIFFANY, OF PORTSMOUTH, NEW HAMPSHIRE.

IMPROVEMENT IN NUT AND BOLT FASTENINGS.

Specification forming part of Letters Patent No. **146,724**, dated January 20, 1874; application filed December 19, 1873.

To all whom it may concern:

Be it known that I, JOSEPH CAPRON TIFFANY, of Portsmouth, in the county of Rockingham and State of New Hampshire, have invented certain new and useful Improvements in Fastening-Bolts for Fish-Plates, Bridge-Irons, &c., of which the following is a specification:

This invention relates to a simple and effective device for connecting fish-plates with railroad-rails, irons of railroad-bridges, and for various other purposes where fastening-bolts are employed; and to such end the invention consists in a fastening-bolt having the usual head, and recessed near its outer end to receive pivoted dogs or arms, which are pivoted upon a common center, and so constructed and arranged that when closed or retracted within the recess in the bolt they will permit the latter to be inserted through the opening for their reception, and as soon as that portion of the bolt which carries the dogs has passed through the opening, the dogs will be projected in an outward radial direction, through the medium of a suitable spring, so as to cause the free end of the dogs to come in contact with the external surface of the plate or plates, bar or bars, which it unites together, thus rendering the casual displacement or withdrawal of the bolt impossible.

In the drawings, Figure 1 is a vertical section of my fastening-bolt, showing the pivoted dogs retracted within the recess in the bolt. Figs. 2 and 2^a are sectional views, showing the dogs in a projected position. Figs. 3 and 4 represent in detail the pivoted dogs. Fig. 5 illustrates one of many applications or uses of my improved fastening-bolt, in such instance showing it as applied to a railroad-rail and fish-plates.

The letter A designates the shank or stem of the bolt, which is turned off smooth in some instances, and is formed with a head, B, in the usual manner. Near the outer end of the bolt there is made a transverse opening or slot, C, in which are located pivoted dogs or arms D, which are capable of being retracted within the recess in the bolt, as shown in Fig. 1, and of being projected therefrom, as shown in Figs. 2 and 5. The dogs or pivoted arms are provided with a horizontally-extended portion, *a*,

the outer extremity of which is recessed or provided with a seat, so that when the dogs are relatively arranged in position a joint is formed, through which passes a fulcrum or pivot pin, E, common to both dogs, being thus eccentrically mounted on their axis, and the strength of the bolt being unimpaired by having but a single opening for the single axial pin passing through each dog. By pressing or retracting the dogs into the recess so as to cause the same to be flush with the outer surface of the bolt, as shown in Fig. 1, the same can be applied in position by passing the shank portion through the opening formed in the parts desired to be bolted together, and as soon as the free ends of the dogs are liberated, as illustrated in Fig. 5, where fish-plates are connected with a railroad-rail, they will be projected in an outward or radial direction, as in Figs. 2 and 5, to serve as stops for preventing the bolt from being casually displaced or withdrawn. In order to project the dogs in an outward direction, and to hold the same in this position when applied to the various purposes to which bolts are adapted, there is connected with the dog, or interposed between the same, a suitable spring, H, made of metal or elastic substance, so as to cause the dogs to instantly move in an outward direction after they have passed through the opening formed in the plates or bars designed to be confined between the head of the bolt and the dogs. The outward movement of the dogs will be limited by projections or lips *d*, which come in contact with and bear against the internal surface of the recess in the bolt. In order to cause the strain or pressure to which the dogs are subjected when in use to be removed from the single pivot-pin, I provide the horizontal or bent portions of the dogs with oblique bearings *g*, which, when the dogs are thrown outward, will bear upon the floor of the recess, as shown in Figs. 2 and 5, to relieve the pivot-pin from pressure or strain. A fastening-bolt of the description referred to should be combined with an elastic medium to receive and counteract the effects of jars and concussions, and to permit a slight movement of the bolt to compensate for expansion and contraction, and for this reason I apply to the neck or head portion of the bolt an elastic cushion or a spring-washer, K.

In some instances I propose to pass over the shank portion and pivoted dogs, after the bolt has been applied to its purpose, a collar or nut, so that said collar or nut will be between the front end of the dog or dogs and the surface of the bar or plate or article confined between the head of the bolt and the dogs, and such collar or nut I prefer to make screw-threaded, to engage with screw-threads formed on the end of the shank, the sides of the pivoted dogs being uncut, as in blank screw-threaded devices, so that said collar or screw-nut can be made to screw upon the shank and draw up and compress the parts between the head of the bolt and the dogs, the collar or nut passing over the dogs, when the same will be liberated and move outwardly and bear upon the rear of the nut, as illustrated in Fig. 2, thus preventing it from becoming detached or dropping from its seat.

By the arrangement of a screw collar or nut, I am enabled to provide an auxiliary for relieving the pivoted dogs of direct pressure; and, further, am enabled to couple, bind, and closely compress the parts desired to be connected together, holding them in their proper position, rendering them incapable of casual detachment.

A fastening-bolt constructed as above de-

scribed is specially adapted for securing the adjoining sections of railroad-rails, girders, and other parts of bridges, since it is impossible for such a bolt to become disengaged by jars or concussions, and therefore its advantages over an ordinary screw bolt and nut are obvious.

I am aware that dogs similar in construction to those employed by me have been mounted on separate axial pins, as a medium for supporting ox-yokes upon their cross-bars; such construction of dogs is disclaimed by me, it not being my invention.

I claim—

In combination with a headed fastening-bolt of the ordinary construction, the dogs D, having oblique bearings *g*, and eccentrically-pivoted within the recess C upon an axial pin common to both dogs, all constructed and arranged substantially as described, for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of December, 1873.

JOSEPH CAPRON TIFFANY.

Witnesses:

WM. J. PEYTON,

ALBERT H. NORRIS.