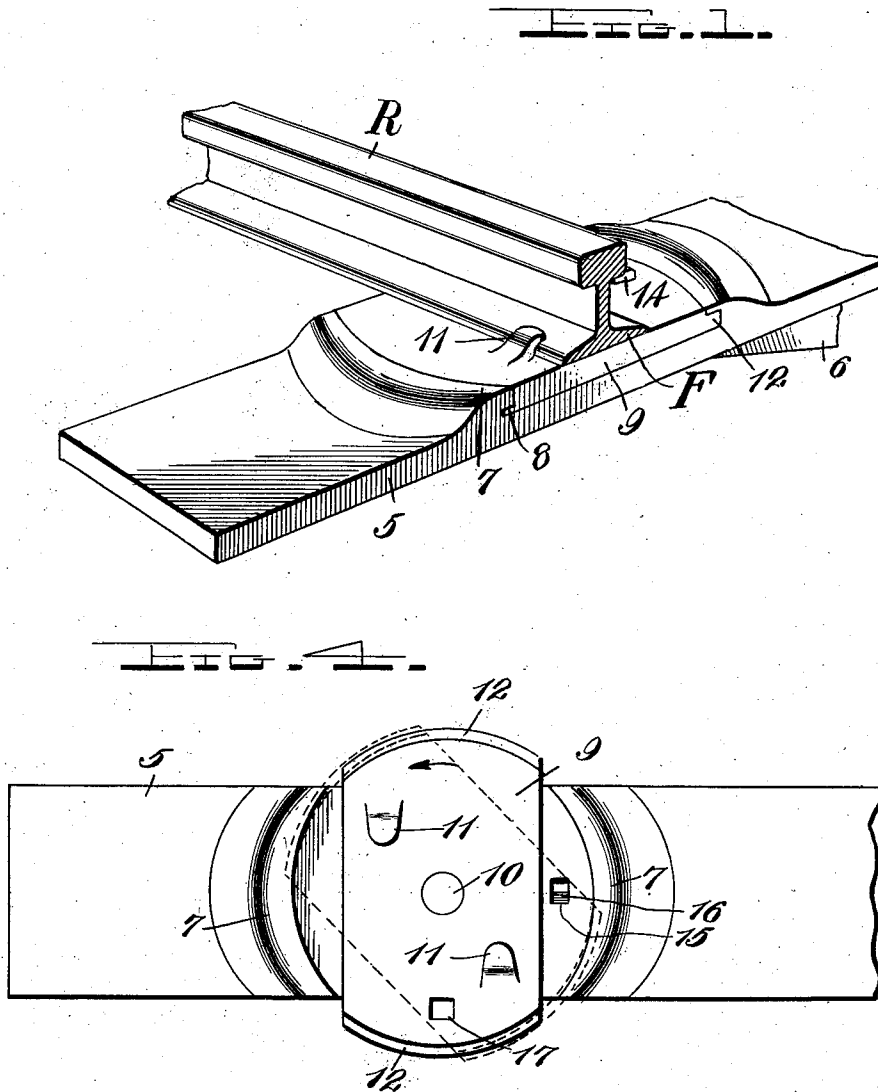


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RAIL FASTENER.  
APPLICATION FILED JULY 1, 1911.

1,027,569.

Patented May 28, 1912.

2 SHEETS—SHEET 1.



Witnesses

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Lee Sexton,

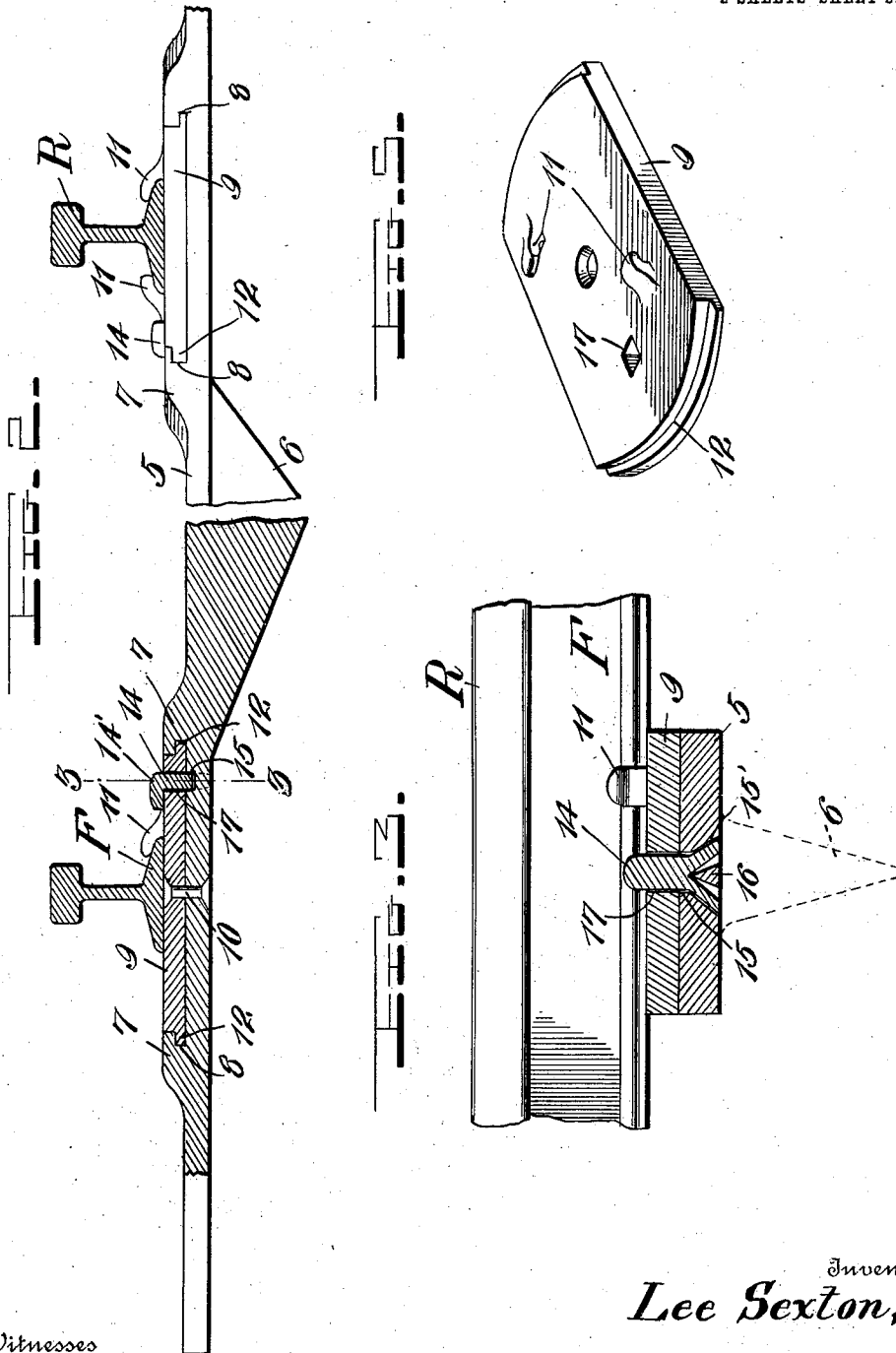
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# UNITED STATES PATENT OFFICE.

LEE SEXTON, OF ARJAY, KENTUCKY.

## RAIL-FASTENER.

1,027,569.

Specification of Letters Patent.

Patented May 28, 1912.

Application filed July 1, 1911. Serial No. 636,409.

*To all whom it may concern:*

Be it known that I, LEE SEXTON, a citizen of the United States, residing at Arjay, in the county of Bell and State of Kentucky, have invented certain new and useful Improvements in Rail-Fasteners, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to rail fasteners and has for its object to provide an extremely simple, efficient and durable device of this character which will rigidly lock the rails upon the ties and prevent spreading thereof.

A further object of the invention resides in the provision of a pivotally mounted retaining plate, and means for locking the plate upon the rail tie against movement, such locking means also automatically forcing the plate into its locking position with relation to the rail.

Still another object of the invention is to provide improved means for mounting the rail fastening members upon the ties whereby a substantially continuous unbroken surface for the tie is provided.

A still further object of the invention is to provide a retaining plate rotatably mounted upon the tie, said plate being substantially rectangular in form and having its ends eccentrically disposed, the tie having under-cut grooves thereon to receive the ends of the retaining plate and limit the rotative movement of the plate in one direction, and additional means disposed through the retaining plate and the tie to force said plate into locking engagement with the rail.

With the above and other objects in view, the invention consists of the novel features of construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a detail perspective view of a portion of a tie having my improved retaining means thereon showing the same engaged with the rail; Fig. 2 is a longitudinal section through the tie plate, one end thereof being shown in elevation; Fig. 3 is a section taken on the line 3—3 of Fig. 2; Fig. 4 is a top plan view of one end of the tie showing the retaining plate in inoperative position; and Fig. 5 is a detail perspective view of the retaining or fastening plate.

Referring in detail to the drawing 5 designates the tie plate preferably constructed

of steel and formed with a central longitudinal depending anchoring web 6 which is adapted to be firmly embedded in the track bed.

The upper surface of the tie plate adjacent each of its ends has formed thereon the transversely disposed guide flanges 7 which are provided in their opposed edges with the under-cut grooves or recesses 8. As my improved retaining or fastening means is of the same construction for each of the rails of a track, only one of the same will be referred to in the following description.

A substantially rectangular retaining plate 9 is arranged upon the tie plate 5 between the guide flanges 7, and this retaining plate is of a width equal to that of the tie plate upon which it is rotatably secured by means of the rivet 10. The upper surface of the retaining plate 9 has formed thereon at opposite ends and on opposite sides of its pivot 10, a rail engaging lug 11 which is spaced from the upper surface of the retaining plate and is adapted for engagement over the edge of the base flange F of the rail R as clearly shown in Fig. 2. The ends of the retaining plate 9 are curved in eccentric relation to the pivotal point of said plate and each of said ends has a cam-like flange 12 formed thereon and co-extensive therewith. These flanges gradually increase in thickness from one edge of the retaining plate to the other and are adapted to be received in the under-cut grooves of the guide flanges 7 formed upon the tie plate, said latter flanges also increasing in thickness from one edge of the tie plate to the other. The longitudinally increasing thickness of the flanges 12 causes a proportionate decrease in the depth of the grooves 8. It will thus be seen that when the retaining plate is rotated upon its pivot from the position shown in full lines in Fig. 4 to a position in parallel relation with the tie plate, the flanges 12 on the ends of the tie plate move into the grooves 8 provided by the guide flanges on the tie plate and the upper surfaces of the flanges 12 frictionally engage with the upper walls of said under-cut grooves, such frictional contact gradually increasing, until, when the plate is in its operative position as shown in Fig. 1 the same extends throughout the entire extent of the flanges 12 and the grooves 8. This action prevents any rattling or loosening of the

retaining plate in the movement of a train upon the rails, and also relieves the pivot 10 of strain.

In order to securely lock the retaining plate in its operative position and simultaneously force the flanges on the ends thereof into closer frictional engagement with the walls of the grooves 8 and also engage the lugs 11 firmly against the edges of the rail base, I provide a split key or spike 14 which is of the ordinary form commonly used for spiking railroad rails upon ties, but is constructed of a softer metal than the tie plate 5. This tie plate 5 is provided between the guide flanges 7 therein and at one side of the pivot 10 with a rectangular opening 15. The lower end of this opening is flared or widened as indicated at 15' in Fig. 3 and the opposite sides thereof are integrally connected by means of a rib 16 of substantially triangular-shape in cross section, the apex of said rib being upwardly disposed and substantially equal to a knife edge in keenness so as to open or spread the split portion of the spike. With the rectangular opening 15 in the tie plate, a similar opening 17 which is centrally formed in one end of the retaining plate 9 is adapted to aline. These openings receive the spike 14 which is forcibly driven into the same by means of a sledge or other suitable implement. As before stated, this spike is formed from comparatively soft metal and when the same strikes the sharpened apex of the triangular shaped rib 16 in the opening 15 of the tie plate, the spike is split longitudinally, and such split portion of the spike binds against the walls of the flared lower end of the opening 15 thereby securely locking the spike in position in said openings. The spike 14 is provided with the usual head 14' so that it may be readily withdrawn when desired. The plate 9 is moved into position upon the tie plate by hand until the flanges on the end thereof bind against the walls of the grooves or recesses 8. The retaining plate is not, however, in parallel relation to the tie plate as shown in Fig. 1 nor is the opening 17 in said plate in full register with the opening 15 in the tie plate, although the lugs 11 are in contact with the edges of the base flange of the rail. The openings 17 and 15 are sufficiently alined to permit of the insertion of the spike so that its lower end will engage upon the edge of the rib 16. As this spike is driven into position, it tends to force the retaining plate farther in the direction of the arrow in Fig. 4 to effect the closer engagement of the flanges on the ends of said plate with the walls of the under-cut grooves 8 as heretofore noted, and thus cause an absolute lock of said retaining plate upon the tie. This additional movement of the retaining plate further causes the rail base engaging lips or lugs 11 to frictionally engage

with the base flanges, and thus prevent any longitudinal creeping or lateral spreading movement of the rails.

From the above description taken in connection with the accompanying drawings, it is thought that the construction and operation of the invention will be apparent.

The device is extremely simple, may be easily and quickly fixed in its locking position in engagement with the rail and eliminates the use of bolts and the necessity of handling a large number of tools in applying the fastener. As but two primary elements are employed in the construction of the device, it will be obvious that the fastener or retainer can be produced at a very low cost owing to the fact that these elements are of extremely simple form. Moreover, the device is extremely effective and provides an absolute lock, the retaining plates being immovable under all conditions when they have once been properly assembled in locking engagement with the rail flanges. Owing to the peculiar manner of mounting these rotatable retaining plates, the pivots upon which they are arranged are relieved of all unnecessary strains so that a maximum of durability is obtained.

It will of course be obvious that the tie plate 5 can be of any desired thickness or constructed of other material than steel and that if desired the anchoring flange 6 may also be eliminated. The same is true of the retaining plates.

A further and very important result of my invention resides in the fact that there are practically no abruptly projecting parts upon the upper surface of the tie plate on which snow and ice can find lodgment, thus obviating the liability of breakage of any of the essential parts through expansion caused by the formation of ice thereon.

While I have shown and described the preferred construction and arrangement of the various elements, it will be understood that the device is susceptible of considerable modification without departing from the essential feature or sacrificing any of the advantages thereof.

Having thus described the invention what is claimed is:—

1. The combination with a tie plate and a member to be secured thereon, of a substantially rectangular retaining plate pivotally mounted intermediate of its ends upon the tie plate, said member being seated on the retaining plate, said plate having means formed upon its surface for engagement with said member, the ends of said retaining plate being eccentrically disposed with relation to its pivot, and means arranged upon the tie plate to frictionally engage the ends of the retaining plate to maintain the same in its effective position.

2. The combination with a tie plate and a

member to be secured thereon, of a substantially rectangular retaining plate pivotally mounted intermediate of its ends upon the tie plate, said retaining plate having means  
5 formed thereon for engagement with said member, means arranged on the tie plate to be engaged by said retaining plate whereby the same is frictionally held against pivotal movement, and additional means for positively locking said retaining plate upon the  
10 tie plate and causing a further frictional engagement of the retaining plate with the means on said tie plate.

3. The combination with a tie plate and  
15 a rail to be secured thereon, of a retaining plate pivotally mounted on the tie plate and having rail engaging means, means arranged on the tie plate for frictionally holding the retaining plate in its effective position, and  
20 additional means extending through the retaining plate and the tie plate to cause a further frictional locking action between the retaining plate and the holding means on the tie plate.

4. The combination with a tie plate and a rail to be secured thereon, of a retaining plate movably upon the tie plate and having rail engaging means, means arranged upon the tie plate to hold the retaining plate  
30 against movement when the latter is in its effective position, and additional means for positively locking the retaining plate upon the tie plate and causing a further frictional engagement of the retaining plate with the  
35 holding means on the tie plate.

5. The combination with a tie plate and a rail to be secured thereon, of a retaining plate pivotally mounted on the tie plate, means arranged on the tie plate to engage  
40 said retaining plate and hold the same against pivotal movement, said tie plate and retaining plate having openings therein adapted to aline when the retaining plate is in its effective position, means for insertion  
45 through said openings to positively lock the retaining plate upon the tie plate, and additional means arranged in the opening in the tie plate acting upon said locking means to prevent its withdrawal.

6. The combination with a tie plate and a rail to be secured thereon, of a substantially rectangular retaining plate pivotally mounted upon said tie plate, said tie plate being provided with flanges upon its upper surface forming under-cut grooves, said retaining plate having a flange on each of its ends to engage in said grooves, the co-engaging flanges on the tie plate and the retaining plate gradually increasing longitudinally in  
60 thickness and in reverse directions whereby said flanges frictionally engage the walls of the grooves to maintain the retaining plate in its effective position.

7. The combination with a tie plate and a rail to be secured thereon, of a substantially rectangular retaining plate pivotally mounted intermediate of its ends upon the tie plate, the ends of said retaining plate being eccentrically disposed with relation to the pivot thereof, each end of said plate having  
70 a flange formed thereon, said tie plate being also provided with flanges for frictional engagement with the flanges of the retaining plate to maintain said plate in its effective position.

8. The combination with a tie plate and a rail to be secured thereon, of a retaining plate pivotally mounted upon the tie plate and having means for engagement with the rail, means arranged upon the tie plate for frictional engagement by the retaining plate in the effective position of the latter, and means for positively locking the retaining plate against pivotal movement and effecting a closer frictional engagement between  
85 said plate and the means on the tie plate.

9. The combination with a tie plate, of a substantially rectangular retaining plate pivotally mounted intermediate of its ends upon the tie plate, said retaining plate having means for engagement with a rail arranged thereon, said tie plate and the retaining plate having openings formed therein which are alined in the effective position of said retaining plate, a spike adapted to be inserted through said openings to positively lock the retaining plate against pivotal movement, and means arranged within the opening in the tie plate to longitudinally split said spike.

10. The combination with a tie plate, of a rail retaining plate movably mounted on the tie plate, means arranged on the tie plate at opposite sides of the retaining plate for frictional engagement therewith when  
105 said plate is in its effective position, said tie plate and the retaining plate each having an opening therein, the opening in the tie plate being flared at one end, a soft split metal key adapted to be inserted into said openings to lock the retaining plate against movement and force the same into closer frictional engagement with the means on said tie plate, and means arranged in the opening of said tie plate to spread the split portion of the  
110 key into engagement with the walls of said opening at its flared end.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

LEE SEXTON.

Witnesses:

GAINS WHITFIELD,  
WM. MOORE.