Oct. 25, 1927. 1,646,512

W. S. WESTON

ANTICREEPER FOR RAILWAY RAILS

Original Filed Aug. 28, 1924

Fig. 1

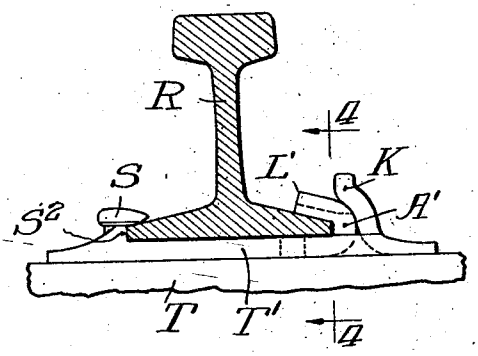


Fig. 2

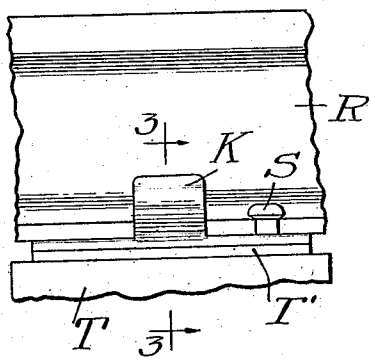


Fig. 3

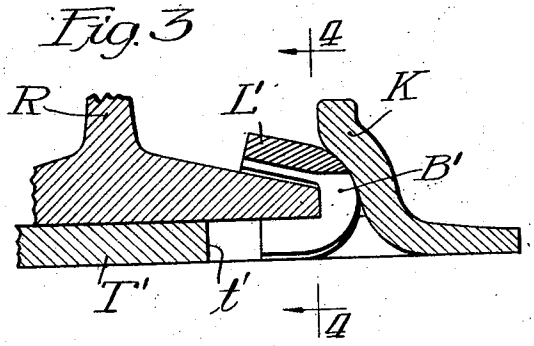


Fig. 4

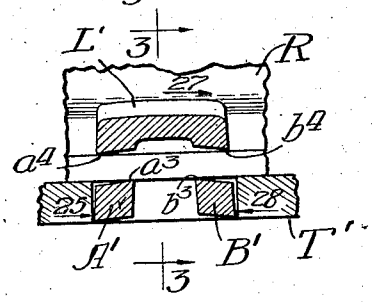
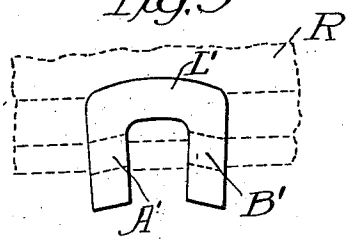


Fig. 5



Inventor:
William S. Weston
by Fisher, Towle, Claffy & Sraus
Attys.

Patented Oct. 25, 1927. 1,646,512

UNITED STATES PATENT OFFICE.

WILLIAM S. WESTON, OF DALLAS, TEXAS.

ANTICREEPER FOR RAILWAY RAILS.

Original application filed August 28, 1924, Serial No. 734,622. Patent No. 1,572,455, dated February 9, 1926. Divided and this application filed September 19, 1925. Serial No. 57,338.

The present application is a division of a copending application filed by me in the United States Patent Office, August 28, 1924, and which resulted in Patent No. 1,572,455 dated February 9, 1926.

The invention relates to rail anchors or anti-creepers. More particularly the invention relates to spring clamp anti-creepers that are adapted to be strained on installation to thereby establish a lever grip on the rail that is increased and utilized to prevent the creeping of the rail by the pressure of the anchor against the substructure whereon the rail is mounted.

The invention seeks to provide an improved rail anchor of this type which is adapted to resist creeping of the rail in either direction. A further object of the invention is to provide a simple and effective form of rail anchor or anti-creeper which, for functional operation, is adapted to be seated in a recess in a tie plate or in the rail bearing plate of a metal tie. A further object is to provide an anti-creeper having a double or multiple lever grip that is utilized to resist creeping of the rail in either direction. The invention consists in the features of improvement hereinafter set forth, illustrated in the preferred form in the accompanying drawings and more particularly pointed out in the appended claims.

In the drawings:

Fig. 1 is a view in elevation of the preferred form of the improved rail anchor applied in position on the rail and with the latter shown in cross section.

Fig. 2 is a side elevation of the parts shown in Fig. 1.

Fig. 3 is a vertical section on the lines 3—3 of Figs. 2 and 4.

Fig. 4 is a vertical section on the lines 4—4 of Figs. 1 and 3, and

Fig. 5 is a side elevation of the improved rail anchor or clip illustrating its manufactured form.

As shown in the drawings, the improved anti-creeper is more particularly designed for use in connection with a tie plate T′ interposed between the rail R and tie T. The tie plate may be of any usual or suitable construction and, as usual, is provided with openings for receiving spikes S by which the rail and tie plate are secured to the tie. The tie plate is also provided, as usual, with a shoulder S^2 for engaging one edge of the rail base and beneath the opposite edge of the rail base it is provided with a rectangular opening or hole t' for receiving the lower portion of the anchor or anti-creeper clip. Preferably also, the tie plate is provided with an upturned projection or hook K which bears upon and holds the anti-creeper clip against lateral displacement and which hook is held in contact with the anti-creeper by the shoulder S^2 on the opposite side of the plate and which, as stated, engages the opposite rail base flange. With the rail well spiked down to the plate and tie, the hook K could be omitted and the outer edge of the hole or opening t' could be depended upon to hold the clip to its operative position on the rail. It is also noted that the rail seating plate of a metal tie or other metal substructure, could be provided with a similar properly located and proportioned hole or recess for receiving the lower portion of the anti-creeper clip, thereby holding it in position on the rail base and also affording abutments on opposite sides of the clip against one or the other of which the clip takes a bearing in functional operation.

In the preferred form shown, the anti-creeper clip is made in the shape of two flange embracing jaws A′ and B′ that are integrally connected through their top members by a bar or plate L′, the latter, in the manufactured shape of the clip prior to installation, being curved upwardly so as to draw the bottom members of the jaws toward each other making a continuous rail-receiving space through the jaws less than the thickness of the rail flange as indicated by the dotted outline in Fig. 5. The top and bottom members of each jaw, considered by itself, are spaced apart to permit it being mounted without material internal strain on the thickest flange with which the device is designed to be used. Because of this large rail seating space or clearance through each jaw, the connection between the members of each jaw can be and is made as rigid and unyielding as possible, so that, in functional operation, the reaction force can be transmitted through the connection between the jaw members with a minimum of distortion of the jaw itself. On the other hand, the connection between the jaws is made as yielding and resilient as possible to permit the mounting of the clip upon the rail base.

At installation, the resilient bar or plate L′ is so flattened or strained as to rotate the jaws in opposite directions away from each other and bring the flange-receiving spaces of the two jaws more nearly in line, thereby permitting the ready mounting of the device in operative position, as shown in Figs. 3 and 4. The recoil of the plate or bar L′ tends to rotate the jaws back to their initial relation (shown in Fig. 5) and thereby establishes a double lever grip on the rail base, jaw A′ and its bearings a^3 and a^4 providing a lever grip in one direction and jaw B′ and its bearings b^3 and b^4 providing a lever grip in the other direction, the full lever grip thus established and maintained being utilized in functional operation as hereinafter set forth.

In the manufactured shape of the anti-creeper shown in Fig. 5, the flange-receiving spaces of the jaws are so relatively inclined that, as stated, the continuous rail-receiving space is less than the thickness of the rail flange. Hence, when the anti-creeper device is placed in engagement with the rail flange, it must be forced or driven into final position, as shown in Figs. 3 and 4, for example by hammer blows applied thereto in a horizontal and slightly downward direction toward the rail. The effect on the manufactured shape is that the jaws A′ and B′ are rotated in opposite directions away from one another simultaneously with a flattening or straining of the connecting plate or bar L′ between the jaws. When used with a tie plate having a hook K, the location and the installation of the anti-creeper clip is necessarily made before that of the plate. It is noted that since the flange space of each jaw is made large enough for the thickest flange of any rail on which it is to be used, this space will be larger than required by the flange of normal thickness as indicated in Fig. 4, and, the jaws A′ and B′ would be loose on the flange but for the strain developed in the connecting bar L′ which tends to rotate them back to their manufactured relation. The grip of the device on the rail, therefore, is necessarily, as stated, that of a lever grip with bearings a^3 and a^4 paired in jaw A′ and bearings b^3 and b^4 paired in jaw B′.

In functional operation, if the rail tends to move towards the left, as viewed in Fig. 4, the lower member of jaw A′ comes in contact with the side of the hole in the plate so that the tie reaction force is delivered to it by the plate T′ in the direction indicated by the arrow 25, and tends to rotate this jaw counter-clockwise and so increase the bite or pressure upon the rail flange of the bearings a^3 and a^4 which serve as fulcrums of a lever grip. When the reaction force is great enough to cause these bearings of jaw A′ to move or bite still deeper into the rust and scale, it will be transmitted to the jaw B′ through the bar or member L′ in the direction indicated by the arrow 27 and tend to rotate that jaw in the opposite direction, or clockwise, a tendency which it already has because of the internal strain in the longitudinal member L′, and thus utilizing a second lever grip in a vertical plane with bearings b^3 and b^4 serving as fulcrums. A double lever grip operating in a vertical plane on one base flange is thus provided and the reaction force distributed and delivered to the rail through four effective bearings. It is noted that the tendency in functional operation is to restore the clip to its manufactured shape and the principal strains of installation are relieved rather than increased. The result is that up to the point where the manufactured shape may be fully restored, the internal strains of installation will take up and hold the bite of the bearings.

It is to be especially noted that if the rail 10 is to move toward the right bringing the bottom member of jaw B′ in contact with the edge of the hole in the plate on that side, the tie reaction force will be delivered to it in the direction indicated by the arrow 28. For movement in this direction, a double lever grip is eventually utilized with the grip of the jaw B′ coming into effect first. The anchor is thus operative in either direction, it being noted that the reaction force in either direction tends to rotate the jaws in opposite direction, but each jaw in the same direction and also the same direction in which the reaction of the resilient plate or bar L′ tends to rotate each jaw.

The primary reason that the device is effective against creeping in either direction is found in the fact that means are provided for the cramped or canted position of each jaw providing an effective lever grip which is not reversed with a reversal in the movement of the rail, but, on the contrary, as stated, the reaction force upon the creeping of the rail in either direction tends to rotate or cant the jaw in the same direction and increase the lever grip thereof which is initially established by the straining of the plate or bar L′ upon the installation of the device. Since each jaw is thus effective upon the creeping of the rail in opposite directions, one jaw alone will properly act to prevent creeping of the rail in either direction, even though the other jaw may not properly grip the rail base flange.

The improved anchor is of simple form and can be readily made of a resilient metal such as spring steel. The top and bottom members of the jaws A′ and B′ are preferably made relatively short compared with the width of the rail base, as shown. As already specified, the connections between the top and bottom members of the jaws which extend around the edge of the rail

base flange are made as heavy and unyielding as possible so that the strain of installation will be effectively stored in the more resilient connection L′ between the jaws.

The improvement provides a spring-clamp anti-creeper that will establish and maintain a lever grip upon the rail base, and, in the preferred form, a multiple lever grip upon one rail base flange, which is utilized in functional operation to resist the creeping of the rail in either direction. It further provides a simple and inexpensive form of anti-creeper with a non-reversible lever grip on one rail base flange adapted to cooperate with the sides of an opening in a tie plate or other like part of the sub-structure to effectively resist the creeping of the rail in opposite directions.

The attention is called to the fact that the term "jaw" throughout the specification and claims has been used to designate an element having opposite integrally connected members adapted to embrace the rail base, or in the preferred form shown, one of the rail base flanges.

Obviously, changes may be made in the details set forth without departure from the scope of the appended claims.

I claim as my invention:

1. A rail anchor comprising a flange-embracing clamp and adapted to be strained on installation in a manner tending to rotate the same and thereby establish and maintain a lever grip upon one of the rail base flanges and a rail seating plate having means for holding the clamp in position on the rail base flange and also having abutments on opposite sides of the clamp and cooperating therewith to resist creeping of the rail in either direction.

2. A rail anchor comprising a flange-embracing clamp and adapted to be strained on installation in a manner tending to rotate the same and thereby establish and maintain a lever grip on one of the rail base flanges, a rail seating plate having shoulders for engaging the opposite rail flange and the clamp respectively to hold the latter against lateral displacement, and said plate having a recess for receiving the lower portion of the clamp and forming abutments cooperative therewith to resist the creeping of the rail in either direction.

3. A rail anchor having a flange-embracing jaw and adapted to be strained on installation to thereby establish a lever grip of the jaw on one of the rail base flanges, and a rail seating plate having a recess receiving the lower portion of the anchor and cooperating therewith in operation to increase the bite of the lever grip thus established upon the creeping of the rail in either direction.

4. A rail anchor comprising a flange-embracing jaw and a part adapted to be strained on installation to thereby tend to rock the jaw and establish a lever grip thereof on one of the rail base flanges, and a rail seating plate having a recess receiving the lower portion of the anchor and forming shoulders co-operative therewith to increase the bite of the lever grip upon the creeping of the jaw of the rail in either direction.

5. A rail anchor comprising a flange embracing jaw and a part adapted to be strained on installation to thereby establish a lever grip of the jaw on one of the rail base flanges, and a rail seating plate having abutments holding the jaw in position on the rail base and co-operating therewith in operation to increase the bite of its lever grip upon the creeping of the rail in either direction.

6. A rail anchor having a plurality of bearings arranged to engage the top and bottom surfaces of one of the rail base flanges and form the fulcrums of a multiple lever grip thereon, said anchor being at least in part of resilient construction and adapted to be strained on installation to establish and maintain the effective contact of the said bearings on the rail base flange, and a rail seating plate having a recess in which the lower portion of the anchor is confined for functional operation.

7. A rail anchor comprising a clip formed of a plurality of substantially rigid jaws having vertical plane lever grips on the same base flange of the rail and a relatively yielding connection between the jaws adapted to be strained on installation and thereby establish and maintain the lever grip of each of said jaws on the rail flange, the lower portion of said anchor being adapted to abut against the sub-structure and thereby increase the bite of its lever grips upon the creeping of the rail in either direction.

8. An anti-creeper for railway rails comprising a plurality of jaws adapted to embrace one base flange and having relatively unyielding connections between their top and bottom members and relatively yielding resilient connection or connections between the top members of the jaws adapted to be strained on installation to establish and maintain vertical plane lever grips of the jaws on the rail flange and a rail seating plate having a recess for receiving the lower portions of said jaws and co-operative therewith to increase the pressure of the lever grips thereof upon the creeping of the rail in either direction.

9. An anti-creeper for railway rails having bearings on the top and bottom surfaces of one of the rail base flanges and acting as the fulcrums of a multiple lever grip on the base flange, the anti-creeper having a resilient spring construction whereby the effective contact of said bearings is maintained after installation and in subsequent func-

tional operation, the lower portion of said anti-creeper being adapted to abut against the sub-structure and cooperate therewith to increase the bite of its multiple lever grip upon the creeping of the rail in either direction.

10. A rail anchor comprising two jaws both arranged to embrace the same base flange and having relatively rigid connections between their top and bottom members and a relatively yielding resilient connection between the top members of the jaws holding the same in spaced relation and adapted to be strained on installation to thereby rotate said jaws in opposite directions to establish and maintain vertical plane lever grips on the base flange, and a rail seating plate having means for holding the anchor against lateral displacement and having a recess receiving the bottom members of the jaws and forming abutments therefore whereby the bite of each of the said lever grips is increased upon the creeping of the rail in either direction.

11. A rail anchor comprising a plurality of relatively rigid jaws with relatively yielding resilient connections between the separate jaws, said connection or connections being adapted to be strained on installation to establish and maintain a lever grip of each of said jaws upon the rail base and said anchor having portions adapted to abut against the sub-structure and increase the pressure of the lever grip of each jaw upon the creeping of the rail in either direction.

12. A spring-clamp anti-creeper for railway rails adapted to be strained on installation to establish and maintain a multiple lever grip upon the rail base and having portions adapted to abut against the sub-structure and increase the pressure of the multiple lever grip upon the creeping of the rail in either direction.

13. A spring-clamp rail anchor comprising two flange-embracing jaws having relatively short upper and lower members and a resilient connection between the upper jaw members that is strained on installation and tends to rotate the jaws in opposite directions to establish and maintain a lever grip of each jaw upon the same rail base flange, and a rail seating plate having shoulders against which the lower jaw members abut to increase the bite of the said lever grips upon the creeping of the rail in either direction.

14. An anticreeper for railway rails adapted to be strained on installation to establish and maintain a lever grip on the rail base and having separate portions adapted to abut against the substructure and increase the pressure of the lever grip thus established upon the creeping of the rail in either direction.

15. A spring-clamp anticreeper for railway rails having bearings arranged to engage the upper and lower faces respectively of the rail base flanges, the anticreeper being adapted to be strained on installation to establish and maintain a lever grip of said bearings upon the rail base flange, and the anticreeper having separate portions integral respectively with the upper and lower bearings thereof and adapted to abut against the substructure and increase the pressure of the lever grip thus established upon the creeping of the rail in either direction.

16. A spring-clamp rail anchor comprising two comparatively rigid flange-embracing jaws and each adapted to have a lever grip on the same rail base flange and an integral connection between the top members of said jaws maintaining the latter in spaced relation longitudinally of the rail, and a rail seating plate having a recess for receiving the lower members of said jaws and forming abutments for holding the anchor in position upon the rail base flange and cooperating therewith to resist the creeping of the rail.

WILLIAM S. WESTON.