

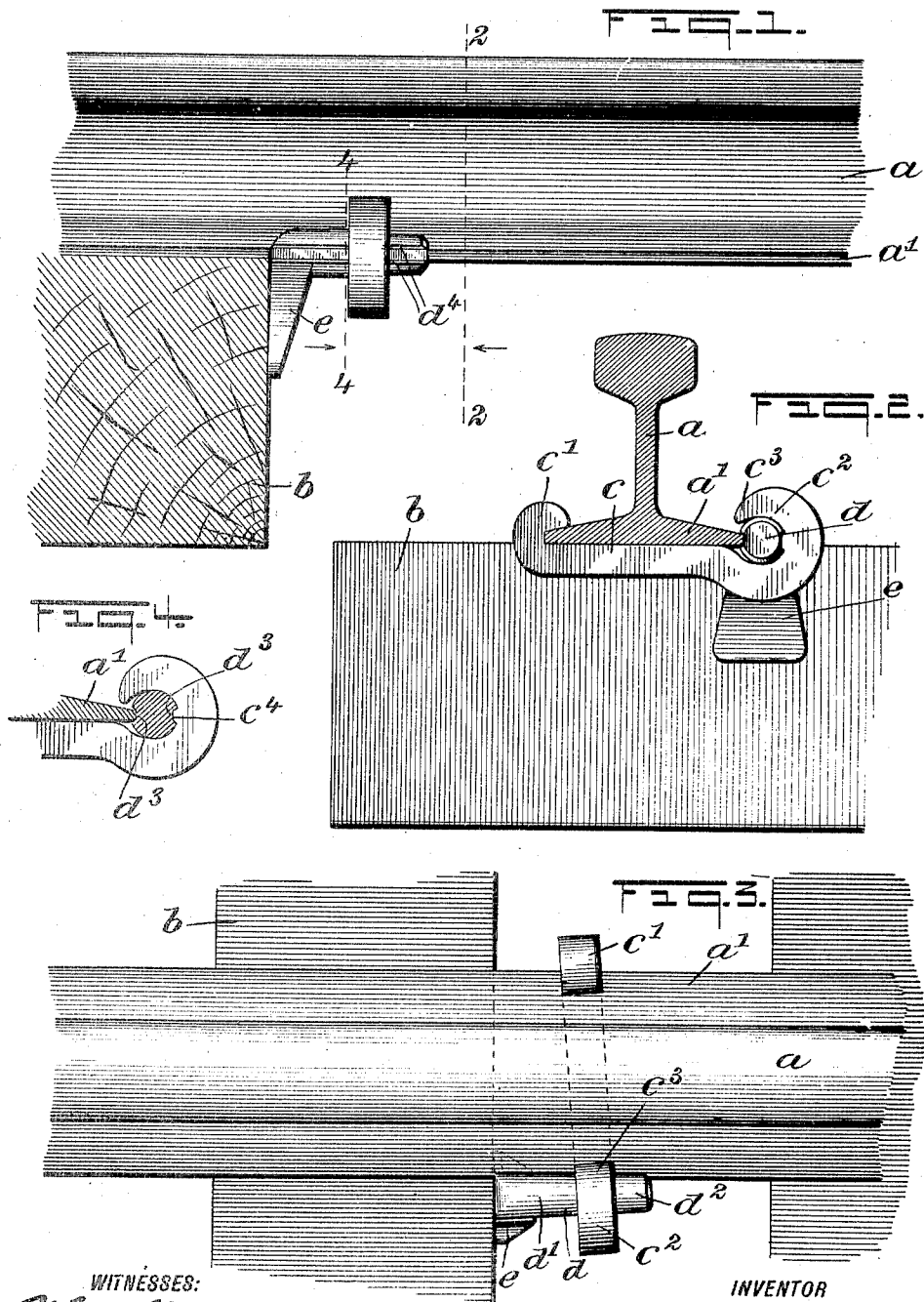
No. 816,926.

PATENTED APR. 3, 1906.

C. LIEN.
ANTICREEPER.

APPLICATION FILED DEC. 3, 1904.

2 SHEETS—SHEET 1.



WITNESSES:
E. B. Langley
A. W. Fay

INVENTOR
Christian Lien
BY *Mumford*
ATTORNEYS

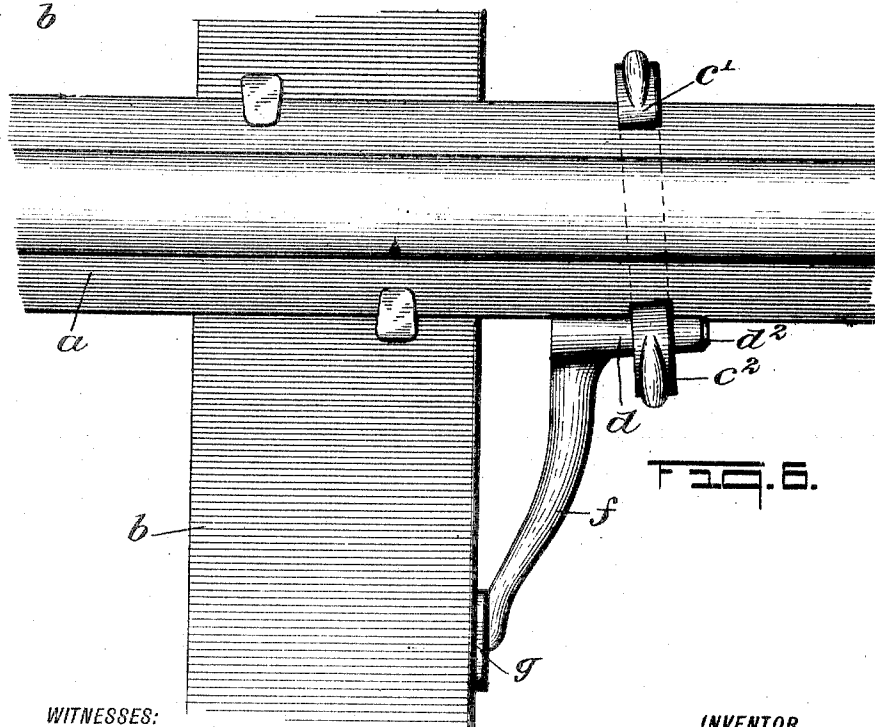
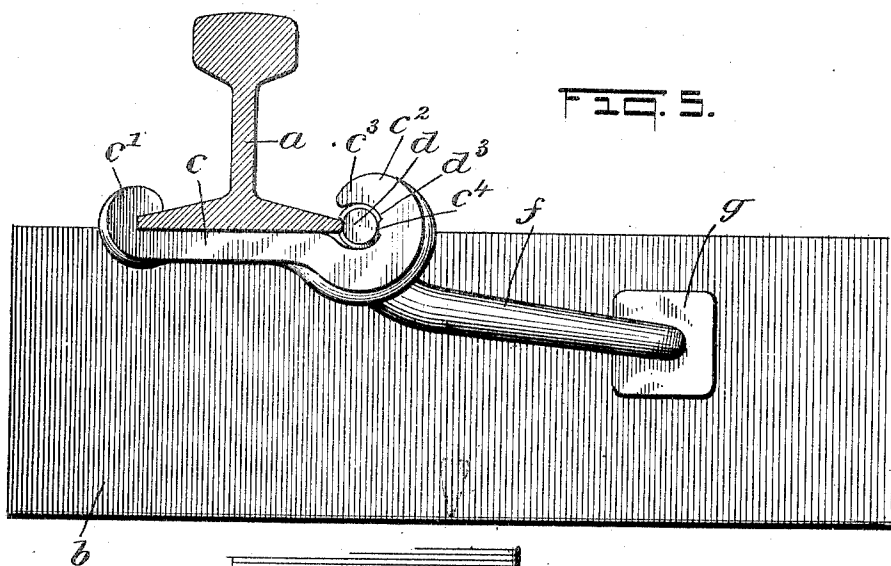
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2 SHEETS—SHEET 2.



WITNESSES:

Wm. H. Brown
Atty.

INVENTOR

Christian Lien

BY

Mumford
ATTORNEYS

UNITED STATES PATENT OFFICE.

CHRISTIAN LIEN, OF SALT LAKE CITY, UTAH.

ANTICREEPER.

No. 816,928.

Specification of Letters Patent.

Patented April 3, 1906.

Application filed December 3, 1904. Serial No. 235,328.

To all whom it may concern:

Be it known that I, CHRISTIAN LIEN, a citizen of the United States, and a resident of Salt Lake City, in the county of Salt Lake and State of Utah, have invented a new and Improved Anticreeper, of which the following is a full, clear, and exact description.

My invention relates to a device for preventing rails from creeping longitudinally.

The evils to which railroads are subjected on account of the creeping of the rails are well known, and many devices have been invented for the purpose of checking this tendency. I have discovered, however, that these devices are all wrong in principle and that it is possible not only to check the creeping, but to absolutely prevent it.

The principal object of my invention is not only to check this creeping tendency, but also to prevent it entirely.

With this and other objects in view my invention comprises a clamp to be secured to the rail and a fastening device for the clamp adapted to engage with a sleeper on the road-bed to prevent movement of the rail transverse to the sleeper.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a rail with a preferred form of the invention applied thereto, showing a sleeper or tie in section.

Fig. 2 is a sectional view on the line 2 2 of Fig. 1. Fig. 3 is a plan view of the same.

Fig. 4 is a fragmentary sectional view on the line 4 4 of Fig. 1. Fig. 5 is a view similar to Fig. 2, showing a modification; and Fig. 6 is a plan view of the construction shown in Fig. 5.

Referring to the construction represented in Figs. 1, 2, 3, and 4, *a* represents a rail, and *b* a tie on the road-bed. A clamp *c* is provided for attachment to the base *a'* of the rail. This clamp is provided with a hook *c'* near one end for the purpose of engaging with one edge of the base and with an eye *c²* near the other end for inclosing a portion of the opposite edge of the base and receiving a fastening device *d* for securing the clamp to the rail. In applying the clamp to the rail before the fastening device *d* is inserted the eye *c²* is first placed with its outer edge against the edge of the base of the rail, and

the distance from this point to the top of the hook *c'* being greater than the width of the base of the rail the clamp can then be swung upon the edge of the base of the rail as a pivot, so as to bring the hook *c'* opposite the other edge. The clamp is then forced along the base of the rail in a direction toward the tie, so that the hook will come to the position shown in the figures and the eye will clear the edge of the rail. The extreme point *c³* of the eye is preferably long enough so that if there is no means for securing the clamp to the rail it will rest on the top of the base when the hook is in the position shown.

The fastening device is provided with a top *d'* and a conical end *d²*. It is also provided with a pair of grooves *d³* on opposite sides. These grooves are designed one for the reception of the edge of the base of the rail and the other for the reception of a projection *c⁴* in the eye of the clamp. It will be seen that when the clamp is applied to the rail in the manner specified the fastening device may be driven into the eye or the clamp may be driven along the fastening device toward the main part of it. On account of the tapering portion *d²* and the construction of the grooves *d³* the parts will be securely wedged together in this manner. If it is desired to securely lock them in position, the edges of the groove on the outside of the fastening device may be flattened down by a blow with a punch or a blunt track-chisel after the device is applied and secured in the desired position. This will preferably be done at points indicated by the letter *d⁴*. It will be noticed that the clamp is shown as being placed angularly across the rail, and this is the preferable position for it, as the creeping of the rail to the left in Figs. 1 and 3 will only tend to tighten the device and make the clamping action all the more efficient.

The fastening device is provided with a tailpiece *e*, which is adapted to extend downwardly and engage with the rear face of a tie. This tailpiece preferably extends to about the center of the tie, so that the force exerted upon it by the creeping tendency of the rail will tend to push the whole tie laterally instead of to rotate it about its forward lower corner. This is an important feature, as in most devices which have heretofore been designed for checking creeping they were attached to the top of the tie or to its upper

corner and so provided for twisting the tie, as indicated, rather than for pushing it. The rotating of the tie is obviously more easily accomplished than pushing it bodily against the earth in which it is located.

One great advantage of this form of clamp is that it is interchangeable from one side of the track to the other, and no rights and lefts have to be designed. When it is desired, however, to secure an additional leverage, the tailpieces are put on the inside of the rail that creeps the most and on the outside of the oppositerail. A further increase in leverage can be obtained by providing the device with an extending arm *f*, (indicated in the modification shown in Fig. 5 and 6,) which is in turn provided with a flat piece *g*, adapted to engage the tie at any desired point. This construction would have to be made in right and left hand designs if the flat piece *g* were located at any other point than on a line level with the center of the fastening device proper, *d*. As it would be preferable to locate this some distance below the fastening device, right and left hand members could be constructed. The clamp proper, however, would be interchangeable, as before.

It will be readily understood that these devices may be applied to rails in many ways. The creeping evil is more pronounced in tracks in which the joints are broken, and consequently especial attention has to be given to this form of track. The tendency in this case is to twist the joint-ties diagonally of the track, as the angle-bars are anchored to one end only, and consequently it is desirable to apply clamps to the rail opposite the slot-spiked joint, so that both rails will work upon the same tie and tend to push it bodily forward instead of to twist it; but it will be readily understood that they may be applied in any desired manner, and the particular difficulties presenting themselves will be solved in different ways, according to the state of affairs presented. In some cases the clamps may be applied to the inside of one rail and the outside of the other where one rail creeps more than the other, as is usually the case; but these matters will come within the scope of the skill of those concerned in the maintenance of the way.

It will be apparent that an anticreeping device constructed upon the principle set forth above whether in the forms shown or in any other forms will present many points of utility. Its simplicity of construction is an important feature. It consists of only two parts which can be made of any of the materials which are commonly employed for similar purposes, it being understood that the design would be varied according to the material employed. It has no bolts or screws to work loose or break and the necessity for right and left hand pieces is done away with,

which simplifies every process of handling from the manufacture to the application to the rails. By making the wedge-fastening device any required amount longer than is necessary for use on one size of rail and proportionately increasing its width laterally and giving the eye of the clamp a wider range of adjustment the same device may be applied to rails differing in width from a quarter to a half an inch. This is an important advantage, as tracks are commonly relaid with heavier and wider rails. The device can be applied to either side of a rail by one man in a few seconds by the aid of an ordinary spike-maul, and, if desired, can be permanently keyed and secured from working loose by slightly rolling in the edges of the outside groove, as stated above. After this it needs no further attention; but, if desired, it can be as quickly removed by striking it with a hammer and can be readily replaced upon any other rail or any other part of the same rail. It will not be injured by the derailment of a train when the wheels follow the rail closely. The compact and strong form in which it is built makes it little liable to be weakened on account of accident or corrosion. Being applied by means of a wedge, it has an unyielding grip on the rail from the time it is put on without relying on the forward pressure of the rail to keep it tight; but this forward pressure caused by the creeping tendency of the rail tends to increase the adhesion. It cannot twist on the rail on account of the way in which pressure is applied to the tie and on account of the fitting of the longitudinal groove on the wedge over the edge of the base of the rail. It cannot drop away from close contact with the bottom of the rail nor can it jar loose if on account of contraction or expansion it temporarily relaxes its hold. For the same reason it is noiseless and needs no attention after once being applied. It is self-fastening, self-locking, and does not in any way interfere with ordinary track repairs. Its gripping action is in direct line from one edge of the base to the other and not from the web of the rail to the edge of the base and on account of the large contact-surface in the groove it cannot cut the edge of the base, and thereby weaken it.

In order to apply the device, it is not necessary to weaken the ties or to use any tools, as is the result when such a device is spiked or bolted to the tie. If the proper number of fasteners is put on and ballast filled in between the ties, as usual, the device will permanently stop the creeping of rails, thereby greatly reducing the cost of maintenance and increasing the safety. Blocks of wood may be used between the ties when it is desired to economize on the number of anticreepers in order to anchor to more ties without using one on each side for each additional tie.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An anticreeping device for railroads, comprising a bar adapted to engage the base of a rail and having a passage, and a key adapted to enter said passage and engage the rail and the tie of the road-bed.

2. A rail-clamping device, comprising a bar adapted to engage one edge of a rail-base and having a hook-shaped eye adapted to clear the other edge of the base, and a key adapted to pass into said eye and engage the rail, said key having a tailpiece for engaging a tie.

3. In an anticreeping device for rails, the combination of a clamp having means for engaging one edge of the base of a rail and an eye, and a key adapted to enter the eye and provided with grooves, one for engaging the opposite edge of the base, said eye being provided with a projection for engaging the other of said grooves and preventing the key from turning.

4. In an anticreeping device for rails, the combination of a clamp having means for engaging one edge of the base of a rail and an eye, and a key adapted to enter the eye and engage the other edge of the base, the eye being provided with means for preventing the key from turning, said key being tapered at one end and provided with a tailpiece at the other, projecting from the key at an angle thereto and adapted to engage a tie.

5. In an anticreeping device for rails, the combination of a clamp having a hook for engaging one edge of the base of a rail and an eye adapted to inclose a portion of the opposite edge of the rail-base, the distance between the extreme inner surface of the eye and the end of said hook being greater than the width of the base of the rail, and a key adapted to enter the eye and engaging the edge of the base of the rail located therein.

6. A rail-clamp having a hook at one end for engaging with one edge of the base of a rail, and an eye at the other end adapted to inclose a portion of the opposite edge of the rail-base, the distance between the extreme inner surface of the eye and the end of the hook being greater than the width of the base of the rail.

7. A rail-clamp having a hook adapted to engage one edge of the base of a rail and a hook-shaped eye at the other end adapted to inclose a portion of the opposite edge of the base, and a portion between the hook and the eye adapted to engage the bottom of the rail, said eye being provided with a space for the reception of a fastening-key and with a projection for preventing the key from turning, the distance between the inner surface of said hook and the end of said eye being less than the width of the base of the rail.

8. An anti-rail-creeper comprising a plate arranged to extend substantially parallel with the side of the tie, means for clamping the plate to the rail, and an abutment at one side of the longitudinal axis of the rail arranged to space the plate apart from the tie; substantially as described.

9. An anti-rail-creeper having a clip portion with a key arranged to abut against the tie and secure the device in place on the rail; substantially as described.

10. An anti-rail-creeper having opposite clip portions, and a key having an abutment portion arranged to contact with the tie; substantially as described.

11. An anticreeping device having opposite clip portions arranged to be spaced apart from the tie, and a key arranged to be driven into one clip portion and having an abutment arranged to fit against the tie between the tie and the clip portions; substantially as described.

12. An anticreeping device having clip portions at opposite ends, one clip portion being arranged to fit on the rail-base and the other being enlarged to receive a key, in combination with a key having an abutment portion arranged to fit against the side of the tie; substantially as described.

13. An anticreeping device, consisting of a plate having integral clips bent upwardly on opposite sides therefrom, and a key arranged to drive between one clip and the rail-base, said key having a tie-abutting portion; substantially as described.

14. An anti-rail-creeper having a clip portion and a key at one side of the center line of the rail and arranged to secure the device in place and abut against the tie; substantially as described.

15. An anti-rail-creeper having opposite clip portions, and a key arranged to fit between one clip portion and the rail-base and abut against the tie; substantially as described.

16. A device for preventing the creeping of rails comprising a looped clamp capable of being slipped from below over the flange of a rail, and wedging means abutting against a stationary part of the railway and bearing against a vertical side of the flange of said rail and against the inner side of a loop of said clamp.

17. In a device for preventing the creeping of rails, the combination of a looped clamp capable of being slipped from below over the flange of a rail, and a wedge abutting against a stationary part of the railway and bearing with one bearing-surface against a vertical side of the flange of the rail and with another bearing-surface against the bearing-face of a loop of said clamp.

18. In a device for preventing the creeping of rails, the combination of a rail, with a

clamp capable of being slipped from below over the flange of the rail secured to its sleepers, and wedging means abutting against a stationary part of the railway and placed between a vertical side of the flange of the rail and the inner side of a loop of said clamp.

19. The combination with the flange of a rail, and a stationary part of the railway, of a clamp capable of being slipped over said flange from below, and wedging means abutting against said stationary part of the rail-

way and working between a vertical side of said rail-flange and the inner side of a loop of said clamp.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTIAN LIEN.

Witnesses:

F. D. WOLF,

W. H. HATTEROTH.