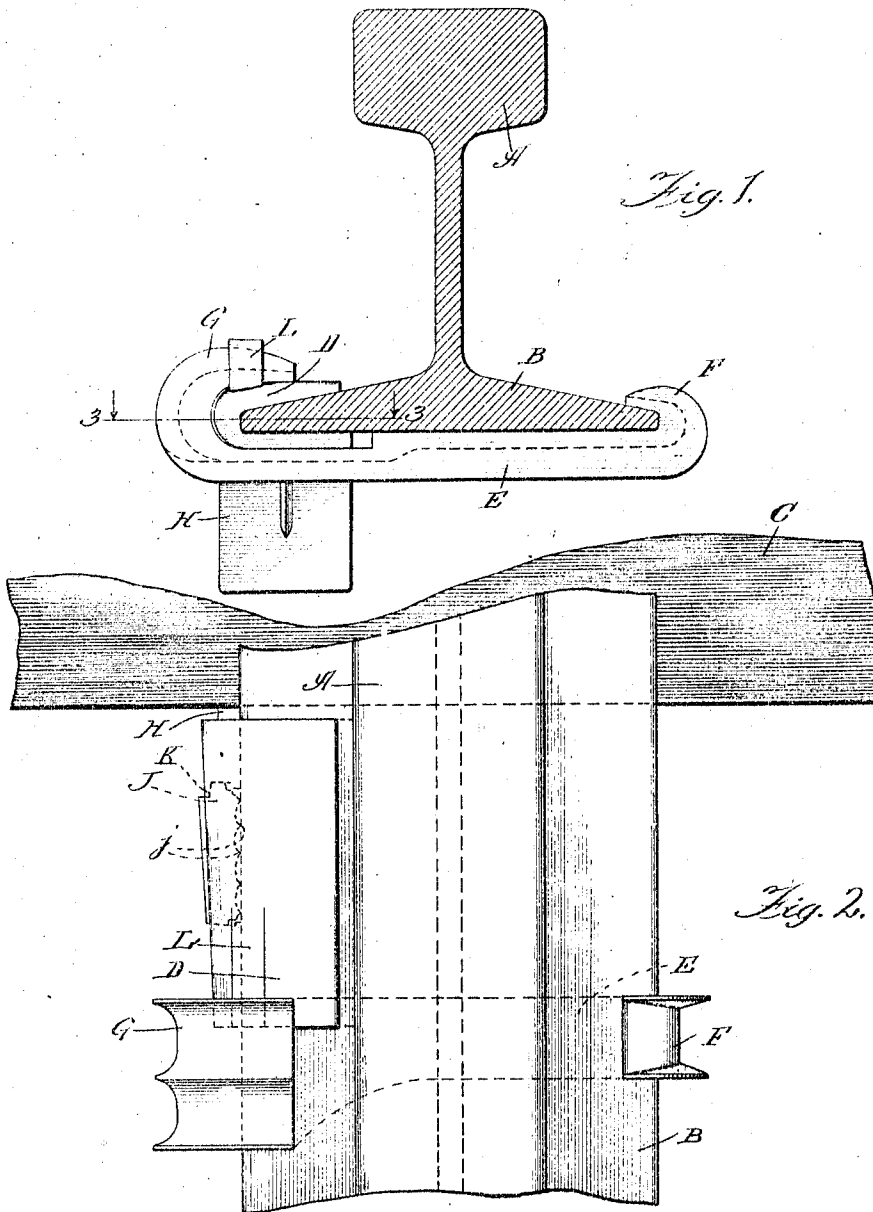


H. H. SPONENBURG.
 ANTICREEPER.
 APPLICATION FILED OCT. 20, 1910

1,004,600.

Patented Oct. 3, 1911.

2 SHEETS—SHEET 1.



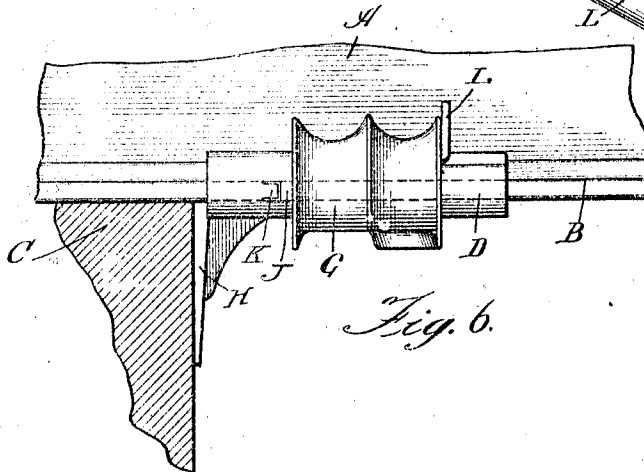
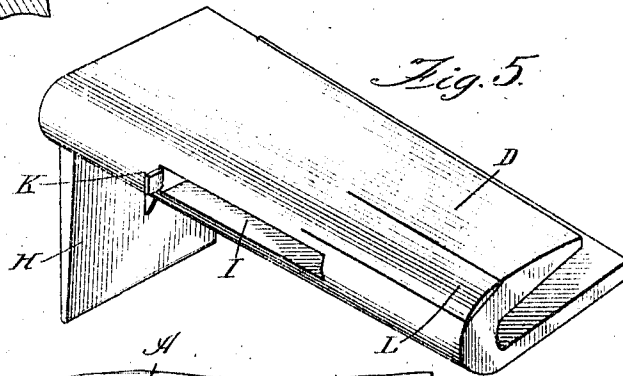
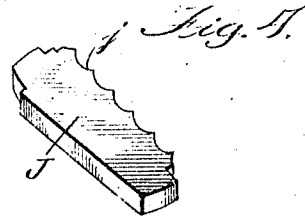
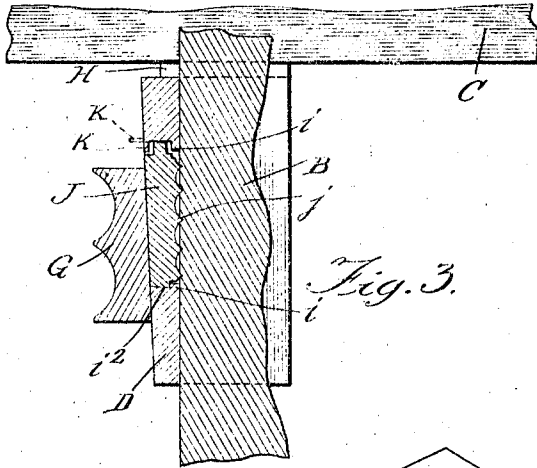
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 2 SHEETS-SHEET 2



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UNITED STATES PATENT OFFICE.

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. ANTICREEPER.

1,004,600.

Specification of Letters Patent.

Patented Oct. 3, 1911.

Application filed October 20, 1910. Serial No. 588,153.

To all whom it may concern:

Be it known that I, HIRAM H. SPONENBURG, a citizen of the United States, residing at Gurnee, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Anticreepers, of which the following is a specification.

My invention relates to devices for preventing the longitudinal creep of railway rails, such devices being sometimes called anti-creepers, rail stays, or rail anchors; and the invention has for its primary object to provide an anti-creeper of novel and improved construction in which one or more of the rail gripping jaws is provided with a hard metal insert adapted to bite into the rail.

A further object of the invention is to provide an arrangement in which the hard metal insert is separately movable with respect to the jaw, or other rail gripping element with which it is associated, and is independently forced into contact with the rail; whereby the bite of the hard metal piece may be utilized to its fullest extent without lessening the frictional grip of the other part or parts of the jaw.

A further object of the invention is to provide certain new and improved forms, constructions and arrangements in devices of this character which will be hereinafter described and claimed.

The invention is illustrated in the preferred embodiment in the accompanying drawings, wherein—

Figure 1 is a side view of the device in elevation, the rail to which it is applied being shown in section; Fig. 2 is a plan view of the parts shown in Fig. 1, but in an initial and not their operative position; Fig. 3 is a fragmentary sectional plan taken on line 3—3 of Fig. 1; Fig. 4 is a view in perspective of the hard metal insert; Fig. 5 is a view in perspective of the malleable iron jaw, and Fig. 6 is an end elevation of the device, the tie being shown in section viewed from the left hand side of Figs. 1 and 2.

Like characters of reference indicate like parts in the several figures of the drawings. Referring to the drawings, A designates a railroad rail of ordinary form, the base of which is designated B.

C is one of the ties on which the rail is supported.

It will be readily understood by those familiar with the various types of anti-creepers which have heretofore been devised, that the improvements constituting my invention might be utilized in connection with a number of different structures. For the purpose of illustration, and because the devices and arrangements in question are considered of particular value as improvements in this connection, I have chosen a structure in its general characteristics like the anti-creeper disclosed in the patent to Leighty No. 809,193, patented January 2, 1906. The device of this patent consists of a wedge-shaped jaw which is secured or clamped to the rail base by means of a strap or bar having a hook at each end. In operation the wedge shaped jaw bears against a tie so that the creep of the rail causes a tightening action between the jaw and the strap or bar which increases the lateral grip of the device on the rail base.

In the device shown herein a tapered or wedge shaped jaw D is provided, adapted to surround one edge of the rail base B, and this jaw is secured to the rail base by means of a bar or strap E having at one end the hook or jaw F engaging with the rail base, and at the other, the hook or jaw G which surrounds the tapered jaw D. The jaw D is provided with a depending flange H constituting a tie abutment. While the device is shown as constructed so as to simply bear against a tie, it is obvious that it might be permanently anchored or secured to the tie, or that instead of being abutted against or secured to a tie, it might be in like manner engaged with any other stationary, or relatively stationary, portion of the road bed.

Jaw D is formed at its rounded edge with a horizontal perforation or slot I adapted to receive the preferably tapered hard metal insert piece J formed on its edge engaging the rail base with the teeth *j*. Preferably the insert piece and the slot or perforation in the jaw are so conformed that the former may be secured in the latter before the anti-creeper is assembled on the rail. This is to prevent the relatively small insert piece from being lost. For example, the perforation in the jaw is preferably so formed that two lugs or projections *i, i'* at the inner side of the jaw, hold the insert piece J in position at this side. The back edge of the jaw is

formed with a lug K which, when the jaw is cast, projects out from the back of the jaw but can be hammered over into the opening, that is, to the full line position of Fig. 3, after the insert piece has been put in place. The other end of the perforation I is preferably undercut as indicated at 22.

It will be observed that while the insert part is so secured in the perforation I that it cannot fall out, it still has some capacity for movement. It will also be observed that when the teeth *j* bear against the edge of the rail base (see Fig. 3) the opposite edge projects a trifle beyond the curved back surface of jaw D. By this arrangement, when the strap E is driven onto the jaw D (both when the device is first applied to the rail and afterward when the grip of the device is tightened by the tendency of the rail to creep) its jaw or hook G is forced up the tapered jaw D, driving said jaw D into a closer frictional contact with the rail base, and at the same time said hook or jaw G is brought to bear upon the hard metal insert piece J which, as stated, is tapered a trifle and projects a trifle beyond the outer edge of the jaw, and forces said insert piece transversely against the edge of the rail base causing its teeth *j* to bite into and be embedded in the softer metal of the rail. It will be understood that the jaw D will be made of malleable iron or other relatively soft and tough metal (and the strap E may be made of the same metal) while the insert piece J will be composed of hard steel or iron. This loose arrangement of the hard metal element in the jaw B, in the first place, makes it possible to produce an effective bite of the hard metal element which is not altogether dependent on an exact fit of the jaw on the rail base. If, for example, the jaw is made a little too wide or too narrow, or in other respects does not exactly conform to the shape of the rail base, the capacity of the insert element for movement makes an effective grip a possibility. In the second place, with this arrangement it is possible to obtain an engagement upon the rail base of both the hard metal element and the malleable iron jaw in which it is mounted. When a hard metal insert is fixed in the jaw it is obvious that the adjacent parts of the jaw are kept out of effective contact with the rail. With the insert piece independently movable, and supposing it to be designed, as shown, so that it projects from the back of the jaw D an amount equal to the capacity it has for embedding itself in the edge of the rail base, the driving of the strap onto jaw D will first force jaw D against the edge of the rail base and then force the insert to bite into the rail. The above will be apparent from comparison of Figs. 2 and 3. The drawings show an adjustment of the parts which brings the inner surfaces of the jaw

D and of hook F into contact with the edge faces of the rail base. It would be possible, by tapering the openings in jaw D and hook F, to obtain a greater wedging action between the jaw and hook and the rail base, in which case some little space would intervene between the edge faces of the rail base and the opposite inner surfaces of the jaw and hook. In this arrangement the movable mounting of the insert piece J would have utility since, instead of being held out of contact with the edge of the rail, it could be made to move inwardly sufficiently to make an engagement.

Theoretically it might be possible to make so exact a fit between jaw D and the rail base that there would be wedging contact between the top of the jaw and the top of the rail base, and straight clamping contact between the inner surface of the jaw and the edge face of the rail: that is, to have the edge of the rail meet the inner surface of the jaw when a maximum wedging action has been reached. In practice, however, it is not possible to make devices of this sort so that they will have any such accurate fit. If the grip is between the jaw and the flat surfaces of the rail base there will be some clearance at the edge. If the edge is engaged there will be little or no frictional engagement between the flat surfaces. With the jaw provided with a movable insert piece, as shown, the bite of the insert is in either case made effective, and also the frictional grip of the jaw on the rail.

It will be observed that the jaw or hook G has considerable width and that the upper surface of the bar E is flat. Preferably the jaw D is tapered longitudinally as well as transversely, that is, is thinner on vertical lines at the end remote from the tie than at the other end. These constructions serve to develop considerable friction between the hook G and jaw D and between the strap and the lower surface of the rail base, thus tending to keep the parts in their operative position. Preferably the parts of the device will be driven in place by a sledge hammer. The jaw D will be first driven tight on the rail base and afterward the strap member E driven as far as may be up the wedge constituted by the jaw. The end of the strap provided with the hook F stands away from the tie so that if the rail has any tendency to creep such tendency will be self checked by the twisting action of the device. While this is a preferred feature of the anti-creeper here shown, it is perhaps not essential in view of the fact that the design and arrangement of the parts is such as to give by itself a very close and effective grip of the device on the rail. As another preferred, though not essential feature of the device, as I apprehend it, a portion of jaw D is slit so as to form a strip L which

can be bent up back of the jaw G when the parts have been driven into their operative position.

From the foregoing it will be readily understood that while the improvement of my invention is perhaps particularly valuable as an improvement upon the sort of anti-creeper shown, it might, nevertheless, be employed in connection with anti-creeper devices which are structurally different. I therefore do not limit myself to the particulars of construction, design and arrangement shown except so far as the same are made limitations on certain of the claims herein.

I do not claim in this application broadly the provision of one of the members of a device of this sort with a part adapted to be bent, after the parts are in operative position, to prevent loosening of the grip of the device on the rail, this idea being disclosed and broadly claimed in my pending application filed October 20, 1910 Serial No. 588,150; the arrangement for obtaining this result in the present application (the provision of jaw D with the slit part L) being a particular embodiment of the idea disclosed in the application above mentioned and being herein claimed as such.

I claim:

1. A device of the character described, comprising in combination a rail gripping element formed with a perforation, a hard metal piece adapted to be movably secured in said perforation, and means for binding said element to said rail so as to cause said hard metal piece to bite the rail; said device being provided with means adapted to engage a stationary portion of the road bed.

2. A device of the character described comprising in combination a rail gripping element formed with a horizontal perforation, a hard metal piece adapted to be secured in said perforation, and means for binding said element on the rail so as to cause said hard metal piece to bite the edge of the rail; said device being provided with means adapted to engage a stationary portion of the road bed.

3. A device of the character described, comprising in combination a rail gripping element formed with a perforation, a hard metal piece adapted to be received in said perforation, means for movably securing said hard metal piece in said perforation, and means for binding said element on the rail so as to cause said hard metal piece to bite into the rail; said device being provided with means adapted to engage a stationary portion of the road bed.

4. A device of the character described comprising in combination a jaw adapted to surround one edge of the rail base and formed with a perforation, a hard metal piece adapted to be movably held in said

perforation, means for clamping said jaw to the rail base, and means on the jaw constituting a tie abutment.

5. A device of the character described comprising in combination a jaw adapted to surround one edge of the rail base and formed with a horizontal perforation and tie abutment, a hard metal piece adapted to be received in said perforation, and means for clamping said jaw to the rail base and forcing said hard metal piece against the edge of the rail base.

6. A device of the character described comprising in combination a rail gripping element, a hard metal rail biting element movably associated therewith, and means for causing said elements to be forced into engagement with the same side of the rail; said device being provided with means adapted to engage a stationary portion of the road bed.

7. A device of the character described comprising in combination a rail gripping element adapted to frictionally engage with a portion of the rail base, a rail biting element adapted to bite the edge of the rail and movably associated with said gripping element, and means for causing both of said elements to be forced into engagement with the same side of the rail; said device being provided with means adapted to engage a stationary portion of the road bed.

8. A device of the character described, comprising in combination a rail gripping element, means for causing the same to be forced into frictional engagement with the rail, said element and means being conformed and arranged so that the creep of the rail tightens the grip of said element on the rail, and a rail biting element movably associated with said gripping element which is adapted to be independently forced into the same side of the rail.

9. A device of the character described, comprising in combination a rail gripping element adapted to surround and engage an edge of the rail base, a rail biting element movably associated therewith and adapted to bite into the edge of the rail base, and means for causing said elements to be forced into engagement with the same side of the rail; said device being provided with means adapted to engage with a stationary portion of the road bed.

10. A device of the character described, comprising in combination a wedge-shaped rail gripping element, a hard metal rail biting element movably associated therewith, and means for causing said elements to be forced into engagement with the rail; said device being adapted to bear against a tie.

11. A device of the character described, comprising in combination a wedge-shaped rail gripping element, a hard metal rail bit-

ing element movably associated therewith, and means for causing said elements to be forced into engagement with the rail, comprising a rigid strap having a hook at one end which surrounds said elements and a hook at the other end which surrounds the opposite edge of the rail base; and a tie abutment formed on said rail gripping element.

10 12. A device of the character described, comprising in combination a jaw having a slot therein, a hard metal piece which is movable in said slot, and means for forcing said jaw into engagement with the rail which independently forces said hard metal piece against the rail; said device being provided with means adapted to engage with a stationary portion of the road bed.

13. A device of the character described, comprising in combination a tapered jaw formed with a slot and with a tie abutment, a hard metal piece movably secured in said slot, and means for forcing said jaw into engagement with the rail which independently forces said hard metal piece against the rail.

14. A device of the character described, comprising in combination a tapered jaw formed with a slot and with a tie abutment, a hard metal piece movably mounted in said slot, and a strap provided at one end with a hook which surrounds said jaw and bears against said hard metal piece, and at the other end with a hook which surrounds the opposite edge of the rail base.

15. A device of the character described, comprising in combination a tapered jaw formed with a tie abutment and with a slot, a tapered hard metal piece movable in said slot and projecting therefrom, and means which binds said jaw to the rail and forces said hard metal piece against the rail.

16. A device of the character described comprising in combination a jaw adapted to engage with a portion of the rail base, a hard metal biting element movably mounted in said jaw and adapted to engage with the rail base at the same side as the jaw, and means adapted to force said biting element into said jaw; said device being adapted to engage a stationary portion of the road bed.

17. A device of the character described comprising in combination a wedge-shaped hard metal biting element adapted to bear

against the rail base, means adapted to engage with and force said hard metal element into the rail, and means adapted to engage with a stationary portion of the road bed.

18. A device of the character described comprising in combination a hard metal biting element and means constituting a strap, surrounding the rail base, adapted to engage with said hard metal element and force it independently into the rail; said element and said means formed so as to have a wedging engagement; and means adapted to engage with a stationary portion of the road bed.

19. A device of the character described comprising in combination a wedge-shaped hard metal biting element adapted to bite into the edge of the rail base, a strap provided at one end with a hook which movably engages said element and forces it into the rail base, and at the other with means engaging the opposite edge of the rail base; and means adapted to engage with a stationary portion of the road bed.

20. In a rail stay, rail clamping means comprising a jaw, a wedge adapted to be driven into the jaw so as to engage with the rail base, and a hard metal element which is movably sustained in said wedge, and is adapted to be forced into contact with the rail base; said stay being provided with means for giving it a relatively fixed position with respect to the road bed.

21. In a rail stay, rail clamping means comprising a jaw, a wedge adapted to be driven into the jaw and to come into contact with said rail base, and a hard metal wedge-shaped element movable with respect to said first mentioned wedge and adapted to be forced into contact with said rail base; said stay being provided with means for giving it a relatively fixed position with respect to the road bed.

22. In a rail stay, rail clamping means comprising a jaw, a wedge adapted to be driven into said jaw, and formed with a slot, and a hard metal element secured in said slot; said stay being provided with means for giving it a relatively fixed position with respect to the road bed.

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