Oct. 9, 1945. F. W. HOLSTEIN 2,386,315

ADJUSTABLE RESILIENT RAIL FASTENING

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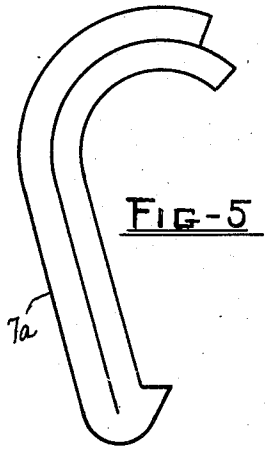


FIG-5

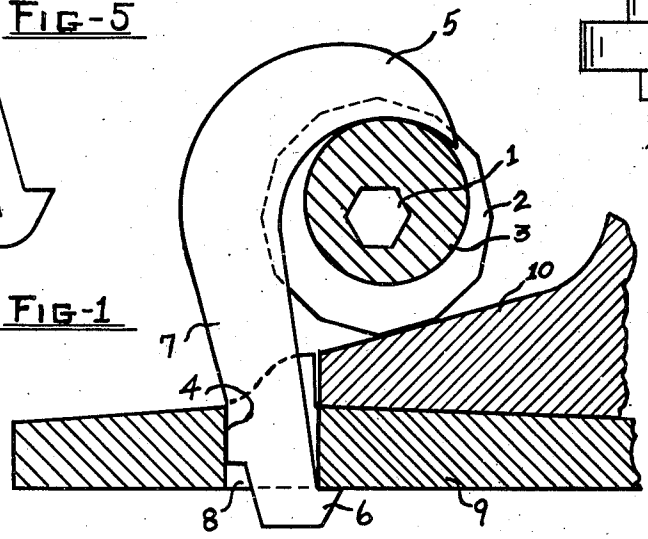


FIG-1

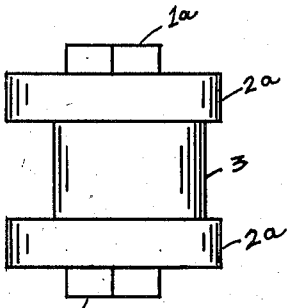


FIG-4

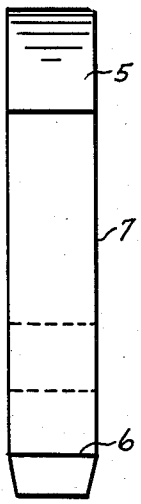


FIG-3

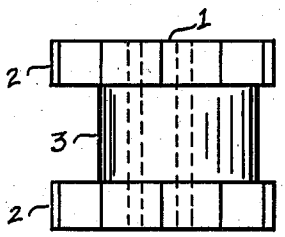


FIG-2

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ADJUSTABLE RESILIENT RAIL FASTENING

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Application August 2, 1943, Serial No. 496,997

4 Claims. (Cl. 238—349)

My invention relates to adjustable resilient rail fastenings for resisting the tendency of railroad rails to move longitudinally and is particularly devised for use in present rail structure, preferably using the present tieplate. My invention has particular reference to fastenings of such construction as to frictionally engage the base of the rail at the tieplate and to clamp the rail yieldingly to the tieplate by means of a rotatable cam member positioned on the rail base and held by an overlying resilient member preferably anchored in a spike hole adjacent the rail and hooked below said tieplate.

A particular object of my invention is to provide a simple and easily applied two-piece rail fastening of great strength adapted for application to the many different sizes of rails and of such character that the desired pressure may be applied to any rail and maintained or adjusted. A further object of my invention is to provide a rugged, long-lasting, adaptable rail fastening moderate in cost, efficient in operation and of such nature that any wear during long periods of operation may be readily taken up.

With the foregoing and other objects in view, as will be apparent to those skilled in the art as the description proceeds, my invention resides in the combination and arrangement of parts and in the details of construction described in this specification and particularly pointed out in the appended claims, it being understood that changes may be made in the particular embodiment of my invention within the scope of what is claimed without departing from the spirit of the invention. I intend no limitation other than those of the claims when fairly interpreted in the light of the full disclosure and the present state of the art.

Referring now to the drawing illustrative of an embodiment of my invention at present preferred,

Fig. 1 is a fragmentary elevational assembly view, partly in section, illustrative of a rail and tieplate support and a preferred form of adjustable rail fastener applied thereto in accordance with my invention; Fig. 2 is an edge view of the rotatable cam device of Fig. 1; Fig. 3 is a front elevational view of the resilient hook member of Fig. 1; Fig. 4 is a view similar to that of Fig. 2 of a modified form of rotatable cam device; Fig. 5 is a side view of a modified form of resilient hook member.

Similar reference characters refer to similar parts throughout the several views.

Turning first to Fig. 1 of the drawing, 10 designates a base portion of a railroad rail and 9 a tieplate normally interposed between the base of a rail and the top surface of a cross tie and supporting the rail. In tieplate 9 is the usual spike opening 8, though any suitable size or shape of opening may be used. A resilient hook member 7 which may be solid (Fig. 1) or laminated (Fig. 5), is positioned in the tieplate opening 8 and is provided with a hook 6 to engage the underside of the tieplate 9, also with an arcuately formed hook 5 at the top to project over the railbase and may have a back bearing 4 to rest against the wall of the tieplate opening 8.

A rotatable cam device, preferably a steel forging, is interposed between hook 5 of the resilient member 7 and the rail base 10, a bearing of hook 5 being on an eccentrically disposed central portion 3 of the rotatable cam device, which may be provided with polygonal end portions 2, 2, which rest on the rail base 10. A socket or hole 1, in this instance hexagonal, may be provided in the rotatable cam device to facilitate rotation thereof by means of a bent bar wrench or a wrench may be applied to the polygonal end portions 2, 2, the flat sides providing a grip or, as shown in Fig. 4, square end lugs 1*a*, 1*a*, may be provided to facilitate rotation by means of a wrench.

The central portion 3 of the rotatable cam member may be of somewhat less diameter than the end portions 2, 2, sufficient to provide a retaining groove or recess between the end portions which are themselves spaced apart sufficiently (Figs. 2 and 4) so that this groove is adapted for the reception of hook 5 of resilient member 7 or 7*a*.

When the rotatable cam member is placed on the rail base with the central portion 3 in low position, the lower end of the resilient member 7 inserted in the tieplate opening 8 and hooked below the tieplate and hook 5 dropped in the groove, the cam member is held in position and may be rotated, preferably counterclockwise as viewed in Fig. 1. This will raise the central portion 3 against the inside of hook 5 and place a strain on resilient member 7, resulting in a pressure against the rail base 10, forcing the rail and tieplate together as well as providing a firm but yielding grip of the cam on the top surface of the rail base. Further rotation of the cam causes further pressure as desired.

Applicant points out that though the end portions of the cam device may be cylindrical, as shown at 2*a*, 2*a*, in Fig. 4, the use of a polygonal form provides a series of flat bearing spots or steps. When the cam is left in final position

with a flat side against the rail base, as shown in Fig. 1, the resilient pressure of the overlying hook 5 on the cam prevents the latter from rotating and thus loosening itself through vibration.

Moreover, if through wear over a long period of time, there is any loss of pressure, the cam may be readily tightened by further rotation. Also, by reason of the wide range or throw of the cam, the variations in tieplate and rail thicknesses are no bar to the universal use of this form of fastener. Additionally, as there are no bolts to stretch or threads to become distorted, this fastener may be used over and over again as new rail is laid or changes made in rail location, such slight wear as may be experienced between the parts of the fastener being readily compensated for by additional rotation of the cam.

What I claim is:

1. In combination with a rail and the usual rail support including a tie and a tieplate fastened to the tie and provided with the usual spike opening adjacent an edge of the rail base, a rail fastener comprising a resilient member of rail spike width positioned in said spike opening and at its lower end hooked beneath said support and at its upper end hooked over said rail base, and a rotatable one-piece cam device positioned on said rail base between the upper hooked end of said resilient member and the upper surface of said rail base and interlocked with said hooked upper end of said resilient member to prevent longitudinal movement of said cam device, and means to facilitate rotation of said cam device to put said resilient member under tension and yieldingly press said rail and rail support together.

2. In an assemblage of the class described comprising a rail and a tieplate supporting said rail, a resilient member engaging the underside of said tieplate and overlying the base of said rail and a rotatable cam device positioned on said rail base between said resilient member and the upper surface of said rail base adapted when rotated to tense said resilient member and yieldingly hold said rail down on said tieplate.

3. In an assemblage of the character described comprising a rail provided with the usual rail base having a sloping upper face and a support therefor including a tie and a tieplate provided with the usual spike opening therethrough, a resilient member of rail spike width anchored in said spike opening and provided with a shank extending upwards materially above the sloping upper face of the rail base terminating with a hook overlying said sloping upper face and spaced therefrom and means to tense the shank of said resilient member comprising a one-piece rotatable member positioned between said overlying hook and said sloping upper face of the rail base, said rotatable member supported by and frictionally engaging said sloping upper face and having an eccentric portion engaging said hook and interlocking therewith so that when said rotatable member is rotated on said sloping upper face said resilient member is forced away from said rail and the shank thereof is tensed.

4. A rail fastener for yieldingly clamping a rail to its support comprising a resilient member hooked beneath the rail support and having a portion extending over the rail base and spaced therefrom and a rotatable cam device between said portion and the rail base adapted when rotated to tense the shank of said resilient member and yieldingly press the rail down on its support.

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