Dec. 17, 1957 K. GRÖNN 2,816,715

CLAMP FOR RAILS

Filed Aug. 19, 1954

Fig. 1.

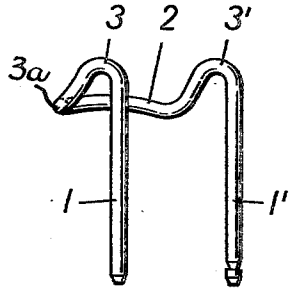


Fig. 2.

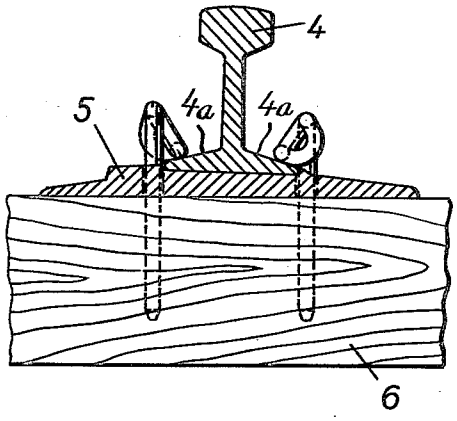


Fig. 3.

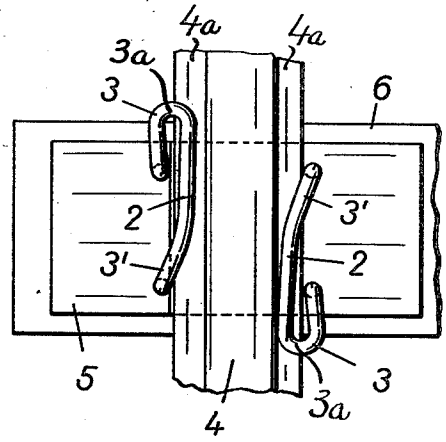
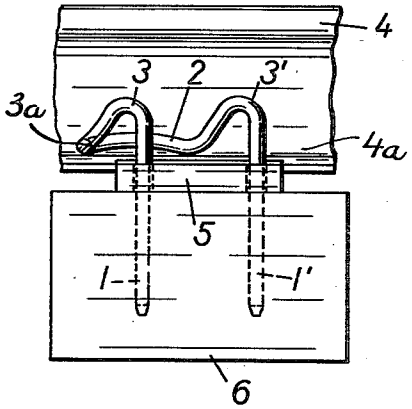


Fig. 4.



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CLAMP FOR RAILS

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2 Claims. (Cl. 238—349)

This invention relates to clamps for fastening of railway rails and similar rails to supporting members, e. g. tie plates and sleepers.

An object of the invention is to provide a clamp which, when in use, automatically blocks the rails against displacements in longitudinal direction, thus hindering the so-called wandering of the rails.

According to the invention a rail clamp of the type having two legs, which in operative position of the clamp are substantially vertical and which are interconnected by a transverse portion, is characterized by the feature that each leg is connected with said transverse portion by a resilient, upwards arcuate part, which part also extends in a lateral direction relative to the leg.

According to a further feature of the invention both of said connecting parts extend in the same lateral direction relative to the legs.

The transverse portion may be straight or may be curved upwards or downwards.

The invention will be more fully described in connection with the annexed drawing, on which:

Fig. 1 is a side view of a clamp according to the invention, and

Figs. 2, 3 and 4 represent an end view, a plan view and a side view, respectively, illustrating the use of the clamp for fastening of a rail to a tie plate and a wooden sleeper.

The clamp is provided with two parallel co-planar legs 1 and 1', respectively, interconnected by an integral transverse member 2. The transition from each of said legs to the transverse member consists of an integral transition portion 3 and 3', respectively, each extending laterally in the same general direction from its respective leg and generally longitudinally of the transverse portion 2 as indicated in Fig. 3, and acting in a resilient manner when the clamp is in function. Preferably each transition portion is of semi-circular shape, but within the frame of the invention also other convexly curved shapes differing more or less from such semi-circular shape may be used, provided such shape affords sufficient resiliency. Moreover, the portions 3 and 3' are also bent somewhat backwards, so that the transverse member 2 extends in a plane in rear of a plane extending through both legs 1 and 1'.

As indicated in Fig. 4, the transverse portion 2 is disposed substantially normal to the legs 1, 1' and below the upper ends of the legs. Also, the transition portion 3' is connected directly to one end of the transverse portion 2 and to the leg 1' while the other transition portion 3 is connected to the opposite end of the transverse portion 2 by a reverse bend 3*a* and to the other leg 1, the latter leg being located intermediate the ends of the transverse portion 2. The advantage of this arrangement is that should the rail 4 as viewed from Fig. 3 tend to creep longitudinally in the downward direction of the paper, the clamp on the left side of the rail and more particularly the transition portions 3, 3' and the transverse member 2, because of the inherent resiliency of the clamp material, will be caused to swing in a clockwise direction about axes represented by the legs 1, 1' thus causing the transverse member 2 to creep upwardly along the slope of the upper face 4*a* of the rail flange, thus increasing the frictional contact between the clamp and the rail flange and thereby counteracting and blocking the tendency of the rail to creep longitudinally in that direction. Should the rail tend to creep in the opposite direction, the companion clamp at the right said of the rail will function in a similar manner since the convexly curved transition portions of the clamps on opposides of the rail extend in opposite directions with respect to the longitudinal axis of the rail.

The transverse member 2 may be straight or may be arcuated upwards or downwards. The legs of the clamp may simply have a somewhat pointed end, as shown at the left hand leg 1 on Fig. 1, or may be provided with one or more circumferential depressions, as shown at the right hand leg 1' on Fig. 1. The clamp is preferably formed from an integral piece of steel of circular cross-section.

For fastening of a rail two similar clamps are used, which are placed in the manner illustrated by Figs. 2–4, showing the fastening of a rail 4 to a tie plate 5 and a sleeper 6. The tie plate is provided with holes situated closely at the sides of the tie plate and having a diameter which just allows passage of the clamp legs. The clamp legs are driven through said holes of the tie plate into the sleeper 6, so that the transverse portion 2 abuts resiliently against the top face 4*a* of the flange of the rail base.

As will be known, the wheels of railway waggons are not provided with differential couplings. For this reason, at curves of the rails forces occur which may cause wandering of the rails. Such wandering also is caused by other effects, e. g. expansion of the rails by temperature variations, forces occurring due to braking and starting and passage of the waggon wheels over adjacent rail ends. By use of clamps according to the invention such wandering of the rails is effectively prevented.

Due to the fact that the legs of the clamp have been driven through holes in the tie plate which have a diameter that just allows passage of a clamp leg, the forces tending to bend the clamp outwards are mostly neutralized already in the tie plate. It would be a disadvantage if the sleeper proper had to take up such forces. In this connection it should also be noted that in operation the legs of the clamp will be situated sidewards of the kernel part of the sleeper, not being driven through said kernel part, as is often the case when clamp spikes and the like are used for the fastening of a rail to a sleeper.

The shape of the new clamp is such that the clamp is self-blocking, and since clamps are used placed in either direction at opposite sides of the rail (Fig. 3) such self-blocking actions will operate in both longitudinal directions of the rail. Tests have shown that when dilation forces start to operate, such blocking forces also at once start to operate. Said tests also did show, that the blocking action of the new clamp, preventing wandering of the rails, is 3–4 times more efficient than that obtained by means of clamps hitherto used.

I claim:

1. A resilient clamp for fastening a rail of the type which includes base flanges extending respectively in opposite directions from the web portion of said rail, each of said base flanges having an upwardly and inwardly sloping top face, said clamp comprising a pair of co-planar legs interconnected by a transverse portion, said transverse portion being disposed substantially normal to said legs and below the upper ends of said legs and laterally offset from the plane containing said legs, said transverse portion being connected at its opposite ends to said legs through convexly curved transition portions extending in substan-

tially the same direction from their respective legs and generally longitudinally of said transverse portion, one of said transition portions being connected directly to one end of said transverse portion and to one leg and the other transition portion being connected to the opposite end of said transverse portion by a reverse bend and to the other leg, said other leg being located intermediate the ends of said transverse portion.

2. A rail and clamp assembly comprising a pair of clamps each as defined in claim 1 disposed on opposite sides of the web portion of said rail and with their respective transverse portions frictionally engaging the top face of the corresponding base flange, the convexly curved

transition portions of one of said clamps extending in one direction with respect to the longitudinal axis of said rail, and the convexly curved transition portions of the opposite clamp extending in the opposite direction with respect to the longitudinal axis of said rail.

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