

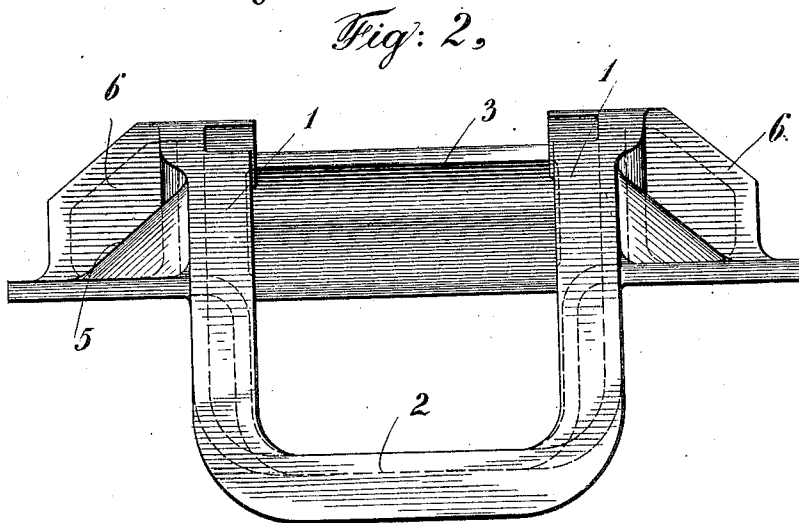
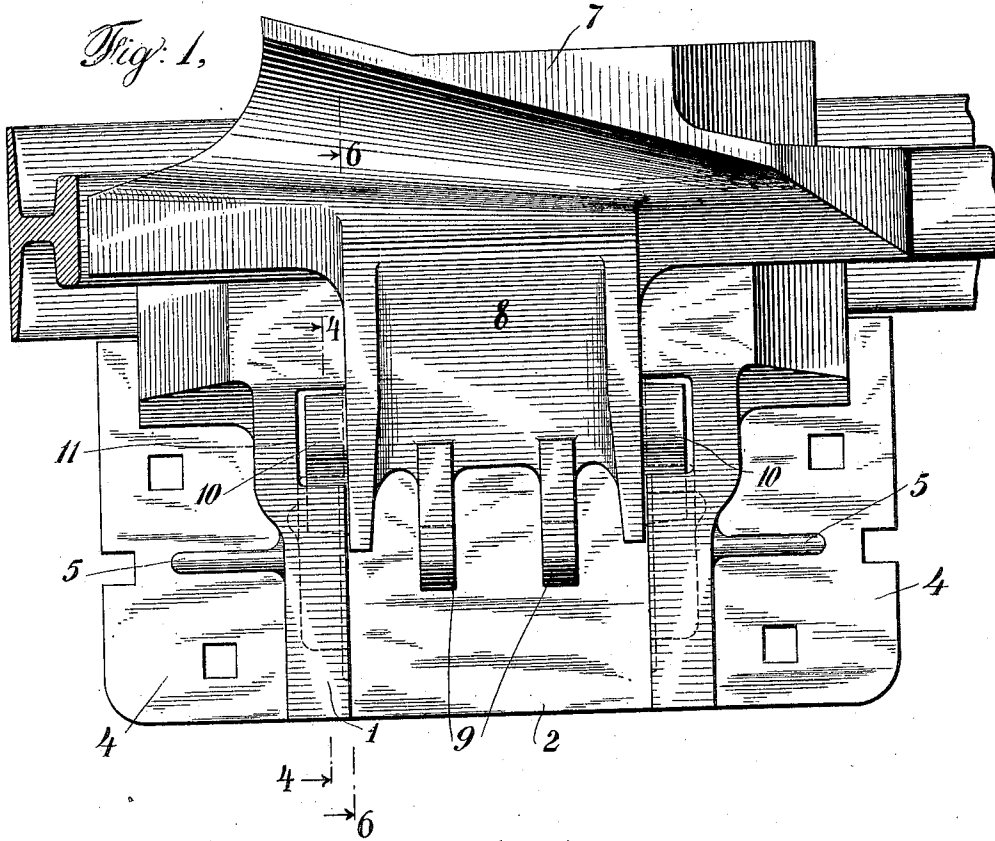
S. W. HAYES.
DERAIL.

APPLICATION FILED AUG. 14, 1909.

Patented Mar. 28, 1911.

3 SHEETS-SHEET 1.

988,190.



Witnesses:
D. P. Palumbo
H. Guertner

Stanley W. Hayes Inventor
By his Attorney
H. S. Kimball

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3 SHEETS—SHEET 2.

Fig. 5,

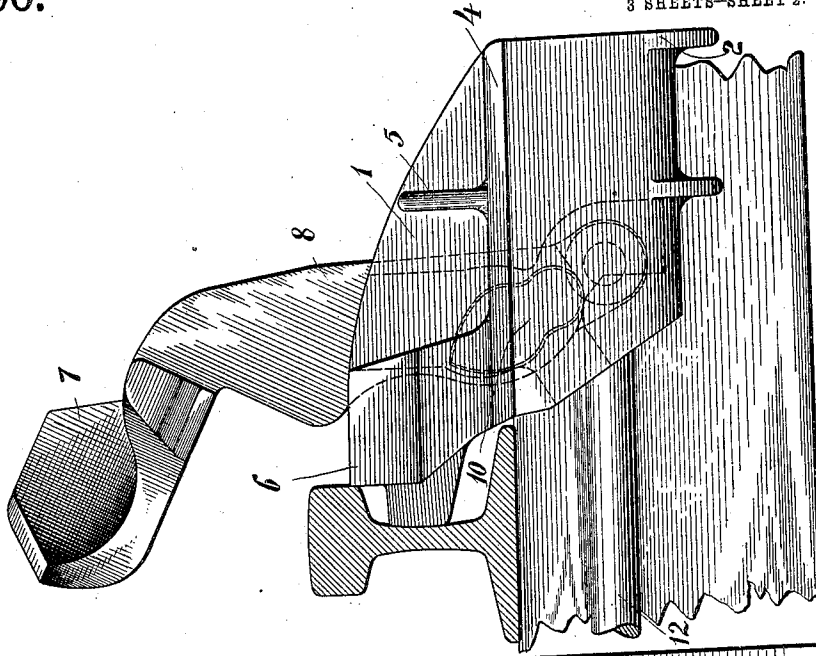


Fig. 3,

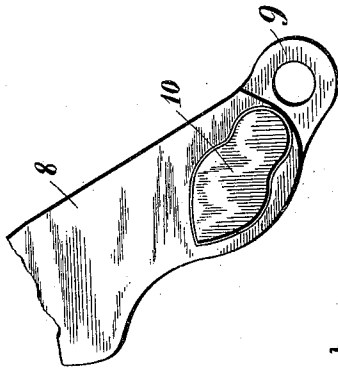
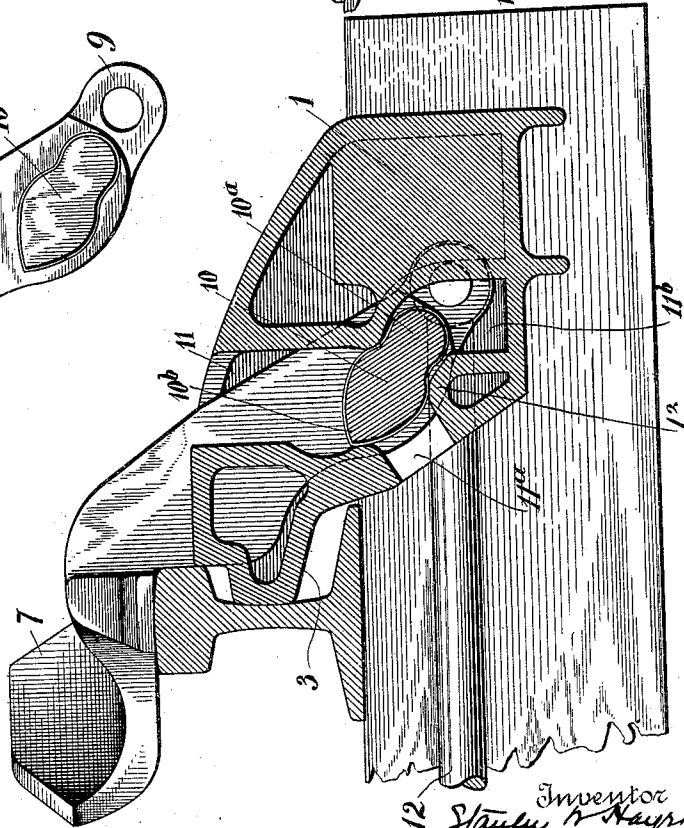


Fig. 4,



Witnesses:
J. P. P. Palmedo.
M. Gaertner.

Inventor
S. W. Hayes
By his Attorney
H. C. Kimball

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Fig. 6,

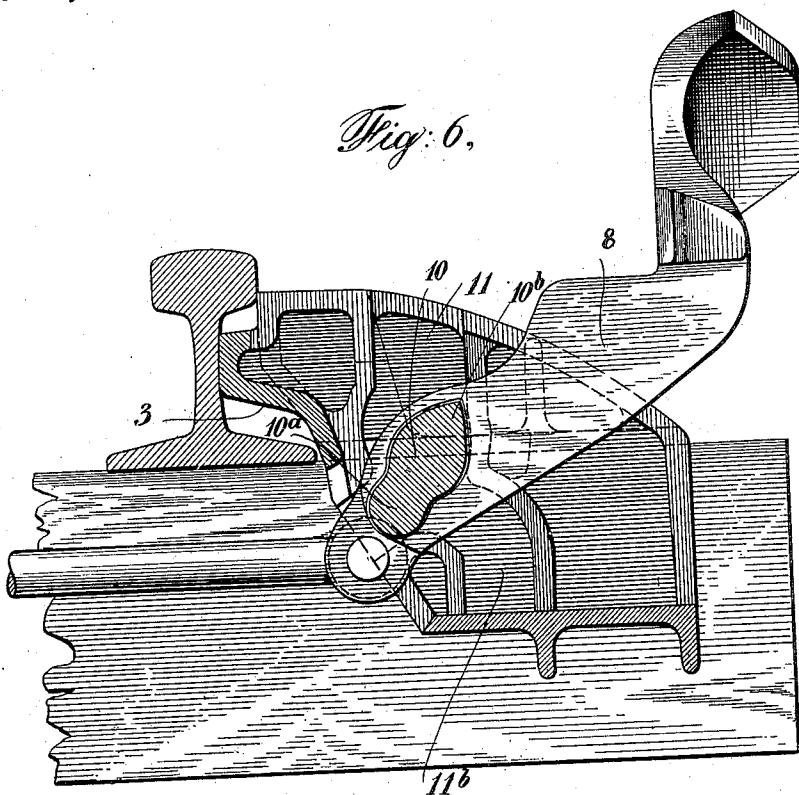
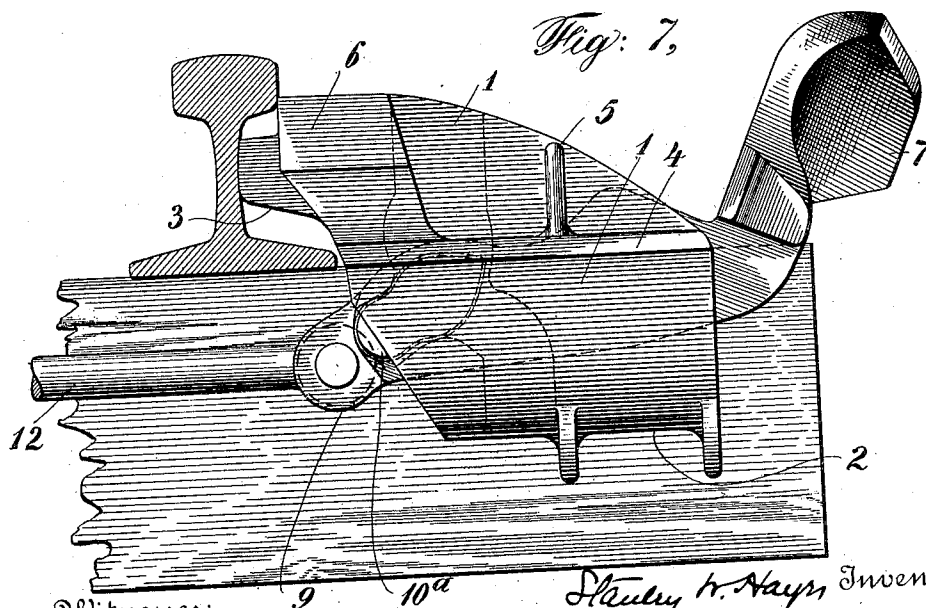


Fig. 7,



Witnesses:
D. P. Palmieri
M. Gantner

Stanley W. Hayes Inventor
 By *his Attorney*
H. E. Kimball

UNITED STATES PATENT OFFICE.

STANLEY W. HAYES, OF GENEVA, NEW YORK.

DERAIL.

988,190.

Specification of Letters Patent.

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Application filed August 14, 1909. Serial No. 512,796.

To all whom it may concern:

Be it known that I, STANLEY W. HAYES, a citizen of the United States, residing at Geneva, in the county of Ontario, State of New York, have invented certain new and useful Improvements in Derails, of which a full and true specification follows.

This invention relates to the type of derails wherein the derailing member is inverted by its movement from its active position on the rail to its inactive position at the side of the rail, and it is the object of the present invention to provide a compact organization of such type of mechanism which will be suited for instalment upon the ends of the ties, outside the track rails, as well as inside the rails, being compactly depressed or housed when in its inactive position, and it is a further object to provide such a derail with a connecting lug so related to the supporting members or parts, that in moving from one position to the other, it will describe a straight or substantially straight line, thus providing a strictly rectilinear or endwise thrust in the connecting rod that operates the derail and obviating the necessity of providing special clearance for the derail or the rod, between the ties. These and other advantages which, if not hereinafter described, will be apparent to those skilled in this art, are attained or rendered available by this invention.

In the drawings, (three sheets): Figure 1, is a top plan of the derail embodying this invention in its active position. Fig. 2, is an end view of the base of the derail. Fig. 3, is a detail side-elevation of the shank of the derailing member. Fig. 4, is a vertical longitudinal section of Fig. 1, on the line 4-4 thereof and showing the derail in its active position. Fig. 5, is a side elevation showing the derailing member in an early intermediate position in its swinging movement. Fig. 6, is a vertical section on line 6-6 of Fig. 1, showing the derailing member in a later intermediate position, and Fig. 7, is a side elevation of the derail at the extreme of its movement, in its inactive position.

The base of the derail is comprised of two upright side walls, which are joined by the rib-braced floor 2 at the bottom, and a cross-brace 3 at their upper forward portions. Lateral flanges 4 on each side wall form the support for the base; these flanges being provided with spike holes as shown, by

which they may be secured to the tops of two adjacent ties, in which position the floor may be depressed sufficiently below the rail bases to enable the device to be operated by a connecting rod which may, if desired, be located beneath the rails. The base is intended to be mounted in close proximity to the rail, and preferably with the upper forward margins of the side walls, or the cross brace 3, in contact with the web of the rail. The base of the derail further includes the reinforcing flanges 5 in the angles between the walls and supporting flanges 4, and it has also the lateral box formations marked 6 on each side, which further reinforce the side walls. These parts form rigid wheel-deflecting tables for receiving the flange of derailed wheels, which in the case of outside derails are deflected or derailed toward the derail base, instead of away from it as in the case of inside derails. The said tables are beveled or sloped on their upper surfaces, and are located close to the rail-head and as high as possible, so that they will receive the wheel flange directly from the derail block, and hence with the least shock, and guide the said flange over the supporting flange of the base so that it will fall clear of the latter. The base is made with one such table formation at each side so as to accommodate either right or left hand derail blocks.

The derailing member includes the derail block proper, marked 7; of the usual configuration, but in the case of outside derails, so shaped that the wheel flange is derailed toward the outside of the rail. The rest of the member comprises a shank portion 8, which carries the connection lugs, of which there are two in the present instance. As a matter of preference, these lugs project downwardly below the level of the base flange of the rail, so that the derail may be operated, by a connecting rod connected to the lug from either side of the track. In the drawings, the connecting rod 12, is located beneath the rails, as is frequently necessary with outside derails. Both the derailing member and the base are made of one-piece castings, and the bearing parts which provide their mutual bearing surfaces, are capable of being made integral with them, and are preferably so made and so shown in the drawings. Such bearing parts are composed of studs and sockets, and it will be understood that either part of the

derail may be provided with the studs and the other with the sockets, as desired. In the form shown, the lateral studs marked 10, are cast on the shank of the derailing member and the sockets or channels, marked 11, 11^a and 11^b, are formed on the inner sides of the side walls 1, of the base. These channels have upright portions 11, which are open at the top of the side walls, (see Figs. 4 and 6), and forward and rearward branch extensions marked 11^a and 11^b, respectively. Just above the junction of the two branches, the upright channel is slightly enlarged, and the proportions of the channels and their junction space are coördinated with the shape of the stud 10, so that the said stud may coöperate therewith in production of the desired movements of the derailing member and connecting rod.

The stud has a rounded heel portion 10^a, and an ogive-tapered toe portion 10^b, and may be appropriately designated as a rotary cam-bearing. The toe portion 10^b, is adapted to ride up and down in the upright channel as the heel portion is shifted from the forward to the rearward branch, which change of position is effected by the swinging of the derailing member from its inactive to its active position, either by hand or by operation through the connecting rod 12. If operated by the rod, the actuation of the latter in the appropriate direction, forces the heel of the stud upon the upward slope of the apex 13, and the curved side of the toe portion against the adjacent curved wall of the channel 11, and by reason of such curvature, the stud rides up the apex, the meanwhile turning itself and the derail member toward an upright position. Continued movement of the rod forces the heel of the stud over the apex, whereupon it slides down into the opposite branch channel, with the opposite curved side of the toe portion resting on its corresponding side of the upright channel. Reverse operation of the rod produces the corresponding movement of the derailing member in the reverse direction, inasmuch as the cam-stud 10 and its cam-slots or channels are symmetrically formed. By virtue of the camming action of the stud in its three-way channel, the pivotal axis of the derailing member is elevated as the latter swings over the same, and by an amount sufficient to cause the eye of the connection lug to move in a rectilinear path, and to maintain the connecting rod 12 in a fixed level so that the pull or thrust therein is, at all times, in a line coaxial with its length throughout the entire stroke, and so that it is least likely to be obstructed in its movement by the ballast of the road-bed.

In the assemblage of the parts formed as above described, the studs 10 are inserted into the open upright channels when the derailing member is about in a mid-position,

and passed downwardly into the junction space of the two branch channels, whereupon by virtue of the construction, a rotary movement in either direction revolves it sufficiently out of alinement with the upright channel to prohibit its removal. The connecting rod 12 being thereupon pinned to one of the lugs 9, the derailing member becomes confined against removal even though the stud be brought again to its mid-position, in which it was introduced into the base. This last described feature of my invention has general application to pivot derails, inasmuch as the interlocking features of the studs and channels may be employed without employing the bearing surfaces coördinated for producing rectilinear movement of the connecting rod.

I claim the following:

1. In a derail, a derailing member provided with means for attachment to an operating connection and mounted to swing through a vertical arc toward and from the rail and having a rotary cam-bearing on said base operating to produce rectilinear motion in said attachment means.

2. In a derail, a derailing member mounted to swing in a vertical arc and having a connection lug at its extremity extending below the rail base in combination with means for guiding said lug in a rectilinear path.

3. In a derail, a base a derailing member mounted to swing in a vertical arc and over its axis of pivotal support on said base and having a connection lug extending below the level of the rail-base, in combination with a cam surface on said member and a corresponding surface on the said base, said surfaces being organized to provide rectilinear motion in said connection lug during the swinging movement of said derailing member.

4. In a derail, a base having side-walls respectively provided with two-branch channels, and a derailing member having bearing studs supported in said channels, the organization of said studs and channels being such that the studs move upwardly out of the rear branches and downwardly into the forward branches as the said member moves from the rail.

5. A derail, comprising a derailing member and a base, one of said parts having upright channels with forward and rearward branches at the extremities thereof, and the other having bearing studs adapted for alternate engagement with said forward and rearward branches.

6. A derail, comprising a base and a rotary derailing member, one of said parts having bearing studs and the other having channels into which said studs are passed in assembling the parts, the said studs and channels being shaped to interlock by the

rotation of said derailing member to either extreme position.

5 7. In a derail, a pivotally mounted derailing member adapted to swing over its pivotal axis in moving from active to inactive position and a supporting base for said member, the parts forming the bearing surfaces between said base and member being respectively integral therewith.

10 8. In a derail, a derailing member a supporting base therefor adapted for instal-

ment on the derailing side of the rail, and provided with spike-flanges and said base having a wheel-deflecting table adjacent the rail-head for protecting the spike-flange. 15

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

STANLEY W. HAYES.

Witnesses:

H. F. NESTER,

M. M. HAMILTON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
