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E. M. FITZGERALD
RAIL END AND HEAD SUPPORT
Filed Dec. 1, 1924

Fig. 1

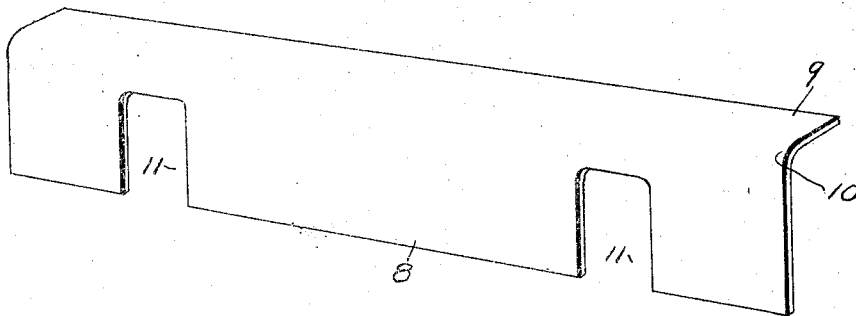


Fig. 2

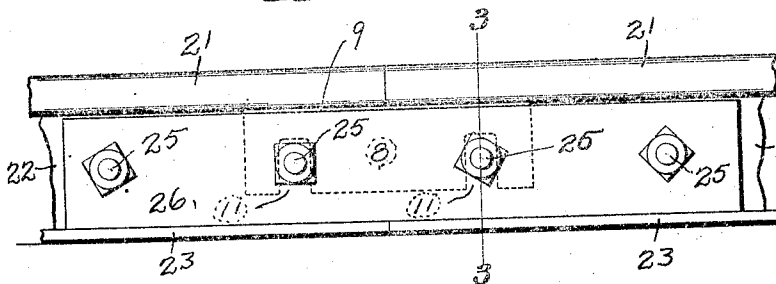


Fig. 3

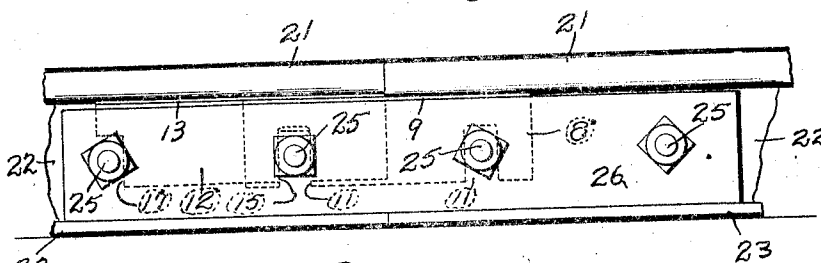
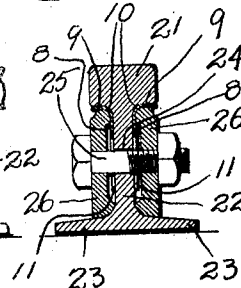


Fig. 4

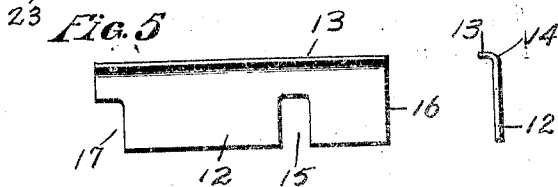
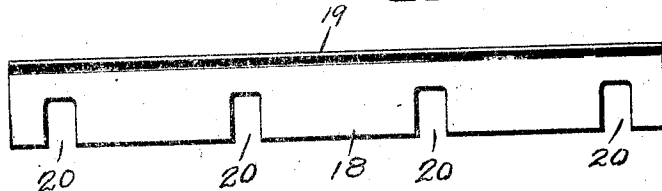


Fig. 5

Fig. 6

Fig. 7



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RAIL END AND HEAD SUPPORT.

Application filed December 1, 1924. Serial No. 753,164.

To all whom it may concern:

Be it known that I, EDWARD M. FITZGERALD, a citizen of the United States, and resident of the city of Springfield, county of Greene, and State of Missouri, have invented certain new and useful Improvements in Rail End and Head Supports, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in rail end and head supports and has for its primary object a device adapted to be inserted between the fish-plate and the web of adjacent rails, a portion of the device extending over the upper edge of the fish-plate so as to fill in the space between the upper edge of the fish-plate and the lower edge of the rail ball and thus prevent any vertical movement of the abutting ends of the rail.

A further object is to construct a device or shim which is adapted to be used for relaying rails, and which is designed to fill up that space between the lower edge of the rail ball and the top edge of the fish-plate or angle bar, and thereby prevent any vertical movement of the abutting ends of the rails and the elimination of this vertical movement removing all rattle when cars are passing over the track.

In the drawings:—

Fig. 1 is a perspective view of one of the shims employed;

Fig. 2 is a side elevation of a rail showing the shim in position and supporting the ball of the rails adjacent the abutting ends;

Fig. 3 is a vertical section taken on the line 3—3 of Fig. 2;

Fig. 4 is a side elevation of the abutting ends of two rails illustrating the manner of shimming up the balls of the rails when one of the balls is thinner than the other;

Fig. 5 is a front elevation of one of the auxiliary shims made use of;

Fig. 6 is an end view of the same; and

Fig. 7 is a modified form of shim when made the complete length of the fish-plate.

In the construction of my device I employ a shim composed of a single piece of metal and having flat portions 8 and 9 arranged at an angle to each other, the intermediate portion 10 being curved so as to fit snugly within the curve formed between the ball and web of a railroad rail. The portion 9 is provided with open or U shaped slots 11

which are designed to fit over the bolts used in securing the fish-plates to the rail.

In the modification shown in Fig. 5, flat portions 12 and 13 are employed which are connected together by means of a curved portion 14 which is constructed in the same manner as the shim shown in Fig. 1. The portion 12 is provided with an open slot 15 which is similar in shape to the slots 11 but which is so positioned that the edge 16 of the shim will extend to the end of the rail. In other words, the center of the slot 15 is the same distance from the edge 16 as the center of the first hole formed through the rail web is from the end of the rail. The other end of the shim has a cut away portion 17 which permits it to slide past the next rail bolt.

Fig. 7 shows a shim which has portions 18 and 19 and which is provided with slots 20. In this instance, however, the shim is the same length as the fish-plate and has the same number of slots therein as there are bolt openings in said fish-plate.

In applying my device I employ rails which are provided with a ball 21, a web 22, and base flanges 23. The web is provided with openings 24 through which bolts 25 pass, these bolts also passing through openings formed in the fish-plates 26. The openings in the fish-plates and in the web of the rail, of course, correspond. The lower edge of the fish-plates is designed to contact with the base flanges of the rail and also with the lower portion of the web and on each side thereof, while the upper edge of the fish plates is designed to contact with the underside of the ball 21 when laying new rails.

After the rails have been in use for a certain length of time, continuous pounding of the wheels over the joint causes the ball of the rail to wear so that in time an appreciable space is formed between the upper edge of the fish plate and the lower surface of the ball, which not only causes the meeting ends of the rail to move up and down when traffic passes thereover, but in so doing throws strain on the bolts and also on the web of the rail where the bolts pass through. As soon as this is noticed by the track-walker the fish-plates are loosened up and a shim inserted behind the fish-plate, as illustrated in Figs. 2 and 3, thus again causing the ball of the rail to be supported by the upper edge of the fish-plate and relieving

the bolts from all strain due to vertical movement of the rails. In fact, this shim will eliminate this vertical movement and again make a smooth track. Should it happen that the ball on one of the rails becomes more worn than the other, this is shimmed up additionally by using the shim shown in Fig. 5 which only extends from the rail joint along the ball which is worn most. Another shim can then be placed beneath the out-turned portion 13 of this shim and the upper edge of the fish-plate, which is clearly shown in Fig. 4.

My device is especially useful in relaying rails, that is, rails which have been in use on the main line and which are relaid for sidings, switches, and so forth, as it is almost impossible to get used rails in which the balls have all had the same amount of wear, but by inserting the shims, these tracks can be easily lined up and are practically as noiseless as a new track.

It is to be understood, of course, that the shims are made of various thicknesses and in order to cheapen the cost as much as possible, I have found it practical to make the shims out of worn out shovels and scoops and other pieces of scrap sheet metal which accumulates around repair shops, thus doing away with the expense of buying new material as the shims thus constructed serve the purpose equally as well.

I do not wish my device to be confused with the fiber fillers now placed between the fish-plates and rails for insulating the same for block signal purposes, as my device is in no sense an insulator but merely a filler to insure proper support of the ball of the rail above the upper edge of the fish-plate adjacent the joint so as to prevent vertical movement of the abutting rail ends and thereby eliminate unnecessary rattling and clatter over these joints, and by properly supporting the rails and eliminating this vertical movement the tread of the car wheels is also preserved, because if one end of the rail sags down under the pressure, the abutting end of the next rail strikes the tread of the wheel a sharp blow making a dent, this dent with constant rolling becomes a flat place which gradually grows larger and that alone is not only hard on the rolling stock but also on the track.

My purpose of making one face of the shims relatively wide and providing it with slots open at one end which permits it to pass over the bolts, is to prevent the shim

from creeping when in place. This creeping would invariably occur were it not for the fact that the shims are provided with means which engage with the bolts and which act as anti-creepers for the shims.

Having fully described my invention, what I claim is:—

1. A rail end and head support comprising a single rectangular sheet of metal of uniform thickness and having spaced apart cut away portions extending inwardly from and at right angles to one of its longitudinal edges, a relatively narrow portion of said sheet adjacent the opposite longitudinal edge being bent so as to lie at an angle to the remainder of said sheet, to the end that said sheet will lie snugly against the web and between the underside of the ball of a rail and the upper edge of a fish plate, the cut away portion permitting track bolts to pass therethrough and prevent said sheet from creeping when in use.

2. A rail end and head support formed from a single piece of sheet metal of substantially uniform width and thickness throughout, and having a wide depending portion provided with elongated laterally extending openings through which bolts for holding fish plates to the rail pass, and with a narrow substantially horizontal portion united to the depending portion by a curve corresponding to the curved surface beneath the ball of a railway rail and to the upper edge of a fish plate, said substantially horizontal portion adapted to be seated between the upper edge of the fish plate and the ball of the rail, the edge of said horizontal portion substantially in line with the outer side of the fish plate and the side of the rail ball.

3. A rail end and head support formed of a single plate of sheet metal of uniform width and thickness, said plate bent longitudinally adjacent one of its edges so as to lie snugly along the web and the underside of the ball of a rail, the portion along the web being relatively wide and provided with laterally extending elongated openings, the portion along the ball of the rail being tightly held there against by the upper edge of a fish plate whereby the wear on the underside of the rail ball and the upper edge of the fish plate is compensated for and movement of abutting rail ends prevented.

In testimony whereof, I have signed my name to this specification.

EDWARD M. FITZGERALD.