

W. M. OSBORN.
RAILWAY TRACK.

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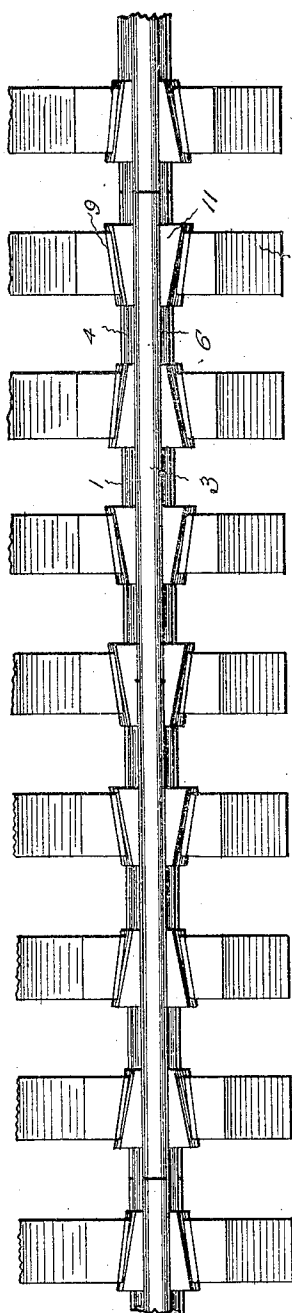


Fig. 1

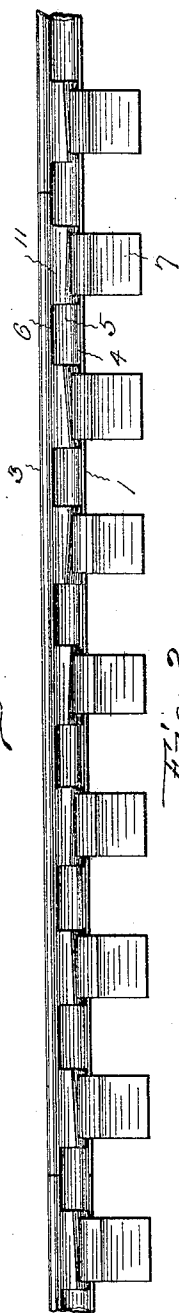


Fig. 2

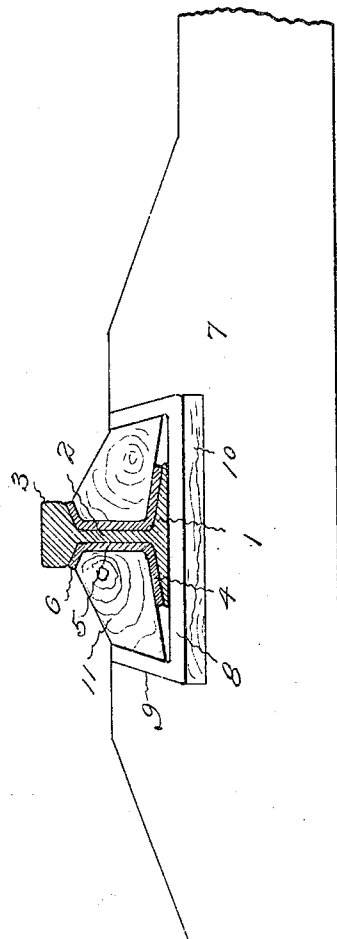


Fig. 3

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RAILWAY-TRACK.

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To all whom it may concern:

Be it known that I, WARREN M. OSBORN, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Railway-Tracks, of which the following is a specification.

This invention relates to means for securing the rails of a track in place along the road-bed of a railway, and it is more especially adapted for fastening T-rails to concrete ties without the use of fish-plates, bolts, or spikes.

The object of the invention is to provide a simple, cheap, absolutely safe securing means extending the entire length of the track, which permits the rails to be easily and quickly laid to perfect grade and exact gage, and which holds the rails so that they cannot accidentally spread, lift, turn over or creep, or be readily displaced with criminal intent. This securing means also reinforces, braces and cushions the traction rails without being subjected to tractive wear in such manner that relatively light traction rails may be utilized for sustaining the wear with the same efficiency as much heavier rails fastened in the usual way, and this has the advantage of allowing the traction rails to be renewed when worn without the necessity of discarding all of the metal which carries the load as is the case with the heavy rails of the present track.

To attain this end relatively cheap reinforcing rails rolled to fit the tops of the flanges, the sides of the webs and the underside of the balls are placed the entire length both sides of the traction rails with the joints of the traction rails and the joints of the reinforcing rails broken. The feet of the traction rails and reinforcing rails are laid in pockets which have walls that are inclined vertically and oblique longitudinally and are set in transverse openings in the upper surfaces near the ends of concrete ties. Wedges are driven firmly between the oblique inclined walls of the pockets that are backed up by the concrete, and the continuous reinforcing rails that fit the traction rails, in such manner that while cushioning the track the wedges clamp the reinforcing rails in place tightly against the traction rails and brace the rails so that they cannot spread, lift, break down or turn over.

Figure 1 of the accompanying drawings shows a plan of one side of a short section of

track illustrating the manner of securing the rails according to this invention. Fig. 2 shows a side elevation of the same. Fig. 3 shows on larger scale a cross section of a T-rail supported, reinforced, braced and fastened by means of this invention.

The traction rail illustrated has the usual wide flanged foot 1, web 2 and head or ball 3. On both sides of the traction rails are the reinforcing rails which have out-turned feet 4, vertical webs 5 and out-turned heads 6. These reinforcing rails extend the entire length of the track on both sides of the traction rails which they are shaped to closely fit. In laying the track the reinforcing rails are located so that their joints are intermediate the joints of the traction rails.

The upper surfaces near the ends of the concrete ties 7 which are shown are provided with transverse openings and set in these are metallic pockets which have a flat base 8 and vertically inclined, longitudinally oblique side walls 9. The openings in these pockets are thus wider at one end than the other and narrower at the top than at the bottom. It is desirable to place a wooden block 10 beneath the base of each pocket for the purpose of providing a cushion which will absorb some of the vibration incident to the passage of a train along the track.

The ties are located on the road-bed the desired distance apart and the traction rails are laid in the pockets. After the reinforcing rails are placed in position on both sides of the traction rails, with the joints broken as mentioned, wedges 11, desirably made of creosoted wood, are driven into the pockets, first one and then the other so as to properly aline and gage the rails. The pockets may be arranged so that the wedges can be all driven to place in the same direction as the line of possible creep of the rail in the particular section of track, if the tendency to creep is in one direction only, or the pockets may be arranged so that the wedges may be driven to place in alternate directions, where the possible creep is first in one direction or in the other. That is, the pockets are so arranged and the wedges are driven to place in such manner that all rail creeping or traffic conditions will tend to cause them to tighten rather than loosen. However, when arranged alternately should any of the wedges loosen owing to the conditions of service, other wedges subject to the same conditions would tend to hold tighter and

thus securely clamp the reinforcing rails to the traction rails.

This method of securing rails makes practical the employment of concrete ties and it allows relatively light traction rails to be used with the same effect as much heavier traction rails. For instance, an 80-pound traction rail and 35-pound reinforcing rails, making a total of 150 pounds of metal per yard could be used with the same efficiency, and would sustain the same load as a 150-pound solid rail of the common type. This is possible because the reinforcing rails extend the entire length of the traction rails on each side and support the ball upon which the load comes and which is subjected to the wear of service, and these reinforcing rails are braced on every tie by the tightly clamping wedges which are driven into the metal pockets that are backed up by the walls of the openings in the faces of the concrete ties. The light traction rail and the two reinforcing rails are much cheaper to manufacture than a single heavy rail of the same weight. With this construction it is unnecessary to drill any holes through the rails or provide any joint bolts or fastening spikes, thus saving this expense in manufacture and laying, and also eliminating holes. one of the causes of broken rails. Not only can these rails be manufactured cheaper and is there economy in laying, but there is the further advantage in that as all the wear comes upon the ball of the rail and is just the same whether the rail is heavy or light, when the ball of a rail laid according to this invention becomes worn the rail can be discarded with less waste and renewed at less cost than if it were much heavier. As the reinforcing rails are not subjected to any wear they can be used indefinitely. This rail being lighter and being reinforced by plate rails and braced by the wedges, although quite as strong, it has more spring and consequently there is less hammer and jar and reduced liability of breaking the rail or smashing down the tie, than when a single heavy rail is used. If the creep on a section of track is liable to occur in one di-

rection, the wedges are driven home in that direction so that the tendency to creep will cause the wedges to tighten. If on another section the liability of creep is in the opposite direction, the wedges can be driven in oppositely. Should there be no particular direction of creep, it is desirable to place the wedges alternately so that any factor which would tend to loosen one would tighten the adjacent wedge. As there are many wedges holding each rail and as the top of the pocket at the small end is only wide enough to receive the foot of the rail, should any wedge become loosened the rail cannot possibly tip over.

The invention claimed is:

1. A railway track consisting of the combination of cross ties with pockets that are wider at one end than at the other and narrower at the top than at the bottom in the upper faces of the ties, traction rails having balls, webs and base flanges laid in said pockets in the ties, reinforcing rails fitting under the balls against the sides of the webs and on top of the flanges and extending on both sides of the traction rails the entire length of the track, and wedge blocks driven into the pockets on both sides and clamping the reinforcing rails against the traction rails.
2. A railway track consisting of the combination of concrete cross ties with metal pockets that are wider at one end than at the other and narrower at the top than at the bottom set in the upper faces of the ties, traction rails having balls, webs and base flanges laid in said pockets, reinforcing rails fitting under the balls against the sides of the webs and on top of the flanges and extending on both sides of the traction rails the entire length of the track, and wedge blocks driven into the pockets on both sides and clamping the reinforcing rails against the traction rails.

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Witnesses:

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