T. MANEY.

ADJUSTABLE TIE PLATE.

APPLICATION FILED DEC. 21, 1910.

1,067,124.

Patented July 8, 1913.

Fig. 1.

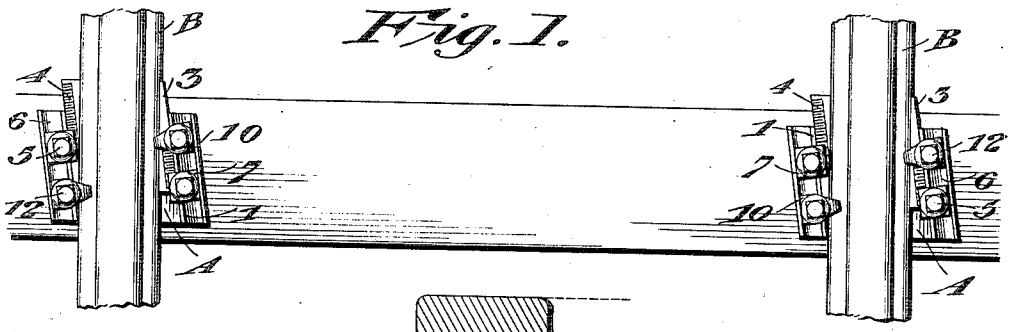


Fig. 2.

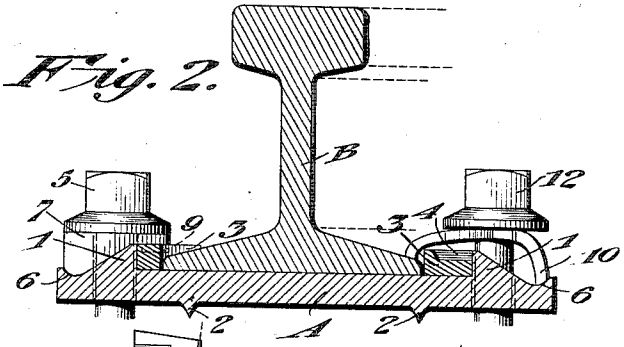


Fig. 3.

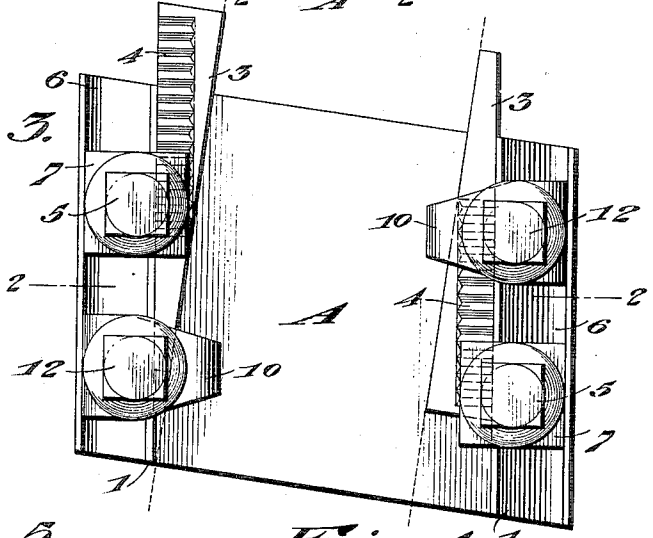


Fig. 5.

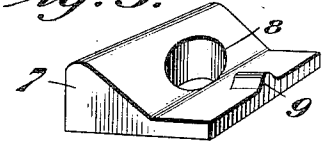
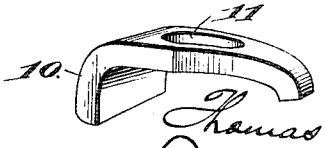


Fig. 4.



Witnesses

Lloyd W. Patch

Elsie P. White

Inventor

Thomas Maney

By Vernon E. Hodges

his Attorney

UNITED STATES PATENT OFFICE.

THOMAS MANEY, OF LOUISVILLE, KENTUCKY.

ADJUSTABLE TIE-PLATE.

1,067,124. Specification of Letters Patent. Patented July 8, 1913.

Application filed December 21, 1910. Serial No. 598,526.

To all whom it may concern:

Be it known that I, THOMAS MANEY, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Adjustable Tie-Plates, of which the following is a specification.

My invention relates to an improvement in tie plates and rail fastenings to be used in connection therewith.

This tie plate is intended for use more particularly along the general line of unbroken track for the purpose of protecting the ties and of restoring the proper distance between the rails without the necessity of removing the tie plate from the tie. It varies from the ordinary type of tie plate now in use, in that it permits of the adjustment of the rail upon the tie plate, and thereby avoids the necessity of shifting or moving the tie plate upon the tie for adjusting the rails laterally.

The great objection to the ordinary tie plate is that the tie becomes weakened from driving the spikes into the tie, and thereby prevents the tie plate from being firmly held upon the tie. It is not generally necessary to move a rail to any great distance in a lateral direction; therefore the shifting of the ordinary tie plate would require only a slight movement longitudinally of the tie, and therefore the spikes to be driven through the tie plate very close to the holes previously formed by the spikes before the adjustment is made. This objection is overcome by my invention, as my tie plates are arranged so that wedges can be received between the base flange of the rail and the ends of the tie plate, and in this way, one wedge can be loosened and the other driven on to the tie plate, thereby forcing the rail laterally in the direction desired.

When a locomotive or train is standing upon the rails, the rails are slightly depressed or deflected from a straight line of surface immediately below the bearing of each wheel, due to the flexibility of the rail, and to the more or less elastic nature of the ground on which the track is laid. This deflection of the rail under the load results in the unweighted parts of the rail, or the parts between the wheels, taking a reflex or slightly elevated position. When the wheels are set in motion, each point in the length of the rails assumes alternately the depressed and elevated position, or in other words, an undulating or wave motion takes place under moving trains, which is commonly known as the wave motion of the rails. This is more or less pronounced, owing to the weight of rolling load, solidity of foundation, and stiffness of the rail. The range of this vertical movement is slight, but acts with irresistible force. The result is that the spikes which fasten the rails to the ties are withdrawn from the ties to the extent of this movement. Therefore if a tie plate is not used, the tie will become worn from the constant vibration of the rail, and it is to overcome this difficulty that tie plates are used. Even when tie plates are used, if the tie plates and rails are fastened directly to the tie by the same fastening means, the fastening means will be raised by the constant wave motion of the rails and the tie plates will cause the ties to become worn by the cutting of the ties by the tie plates. The whole office of a tie plate is to protect the tie from mechanical wear, and to hold the rails securely in their proper relation to each other. The tie plate when inserted and fastened securely to the tie receives the impact and grinding action of the rail, due to the wave motion of the rail, but if the rail is not independently connected so that the tie plate will be prevented from moving, the tie will be subjected to wear by the tie plate cutting into the tie.

It is therefore my object to provide a tie plate which, when fastened to the tie, will be held firmly upon the tie, and not disengaged from the tie by the wave motion of the rail, which rail is mounted upon the tie plate. The tie plate, in this instance, will receive the grinding or frictional action from the rail, but the wear of the tie plate will hardly be perceptible when compared with the wearing of the tie when the rail is mounted directly upon the tie.

The invention still further consists in certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings:—Figure 1 is a top plan view showing the invention applied to a tie, Fig. 2 is an end view of the

tie plate; Fig. 3 is a top plan view of the tie plate with the rail removed; Fig. 4 is a perspective view of the clip, and Fig. 5 is a perspective view of the locking block or lock.

A, represents the tie plate which is of rolled steel preferably, and provided with shoulders 1, 1. Ribs 2, 2, are provided on the under side of the plate which are adapted to be sunk into the tie. The plate is preferably rolled in long bars, and sheared diagonally instead of at right angles, giving it the proper angle for the wedges 3, 3, which are used in connection with the tie plate for locking the rail B upon the plate, one wedge extending in one direction and the other wedge extending in the opposite direction, so that the rail will be firmly held and permitting the rail to be adjusted laterally with respect to the tie plate. The wedges engage the edges of the base flange of the rail, and one edge of each shoulder 1. Each wedge is provided with notches or indentations 4, of about one-fourth ($\frac{1}{4}''$) inch in depth. Holes are provided through the shoulders of the tie plate through which screw-bolts 5, 5, extend. A groove 6 is formed on each shoulder and extends lengthwise of the shoulder. Received in the grooves are locking blocks or locks 7, which are provided with openings 8 through which the screw-bolts 5 pass, whereby the locking blocks will be firmly held upon the tie plate when the bolts 5 are driven into the ties. Lugs 9 are formed on the blocks 7 and are received in the indentations or notches 4 of the wedges 3 for holding the wedges from movement, and thereby preventing the wedges from moving longitudinally after having been fastened in position by the lugs. Steel clips 10 are provided with openings 11 through which screw-bolts 12 extend. The screw-bolts pass through the shoulders 1 of the tie plate and cause the flexible steel clips to be held firmly upon the shoulders of the tie plate, and upon the base flange of the rail, one edge of each clip being received in the groove 6 of the shoulders, and the other edge being received upon the base flange of the rail. The bolts 5 and 12 pass loosely through the tie plate. Therefore any upward lift of the rail is imparted to the tie and not to the plate, for the reason that the flexible clips 10 are so arranged that the upward pull of the rail with the screw spikes 12 as fulcrums forces the plate to a closer adherence to the tie, instead of raising the tie plate upon the upward movement or lift of the rail, due to the wave motion imparted to the rail by a passing train.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination with a tie plate having shoulders thereon adapted to receive a rail between the shoulders, wedges received between the shoulders and rail for locking the rail in position, and locking blocks connected to the tie plate engaging the wedges for holding them only against movement.

2. The combination with a tie plate and rail, of shoulders on the tie plate, wedges received between the shoulders and rail for holding the rail at any position upon the tie plate, and means engaging the tie plate and rail whereby, upon any vertical movement of the rail, the tie plate will be forced into closer contact with the tie.

3. The combination with a tie-plate and rail and means for rigidly fastening the tie-plate to a tie, of resilient means for connecting the rail and tie-plate, the ends of said means resting solely upon said parts, and fastening devices extending approximately centrally through said means and into the tie whereby to compress the means and maintain the vertical relationship between rail and tie.

4. The combination with a tie plate having shoulders thereon adapted to receive a rail therebetween, of wedges received between the shoulders and rail for locking the rail in position, said wedges having notches formed therein, and locking blocks connected to the tie plate having lugs engaging the wedges for holding them against movement, said locking blocks engaging and holding only the wedges against movement.

5. The combination with a tie plate and rail, of shoulders on the tie plate, wedges received between the shoulders and rail for holding the rail in position upon the tie plate, resilient clips engaging the tie plate and rail, and a bolt passing through the clip and tie plate for holding the clip in position upon the rail and tie plate, said bolt acting as a fulcrum upon any vertical movement of the rail for causing the tie plate to receive a downward pressure.

6. The combination with a tie plate, of a convexly oval spring clip, one end of which is adapted to bear on the tie plate and the other solely on the rail base, the clip having an opening through the center, and a bolt extending through said opening and plate beneath the head of which the center of the clip bears resiliently.

7. The combination with a rail, tie, and tie-plate, of an elastic or resilient clip of arched or convex form, one end adapted to engage the tie-plate and the other the base of a rail, and a screw which passes through the clip and tie-plate into the tie so that the contact of the clip with the head of the screw is always at the center or axis of the screw, the clip being designed and adapted to maintain the proper vertical relationship between the rail and tie.

8. The combination with a tie, tie-plate, and rail, of an elastic or resilient clip of

convex form making contact at one end with the rail and at the other end with the tie plate, and a screw passing through the clip and tie-plate into the tie, the head of the screw adapted to engage the clip at or approximately at the center or axis of the screw.

9. The combination with a tie, tie-plate, and rail, the tie plate having a shoulder thereon, and a wedge inserted and held between the shoulder and the adjacent edge of the rail base, of a convex or arch shaped resilient clip independent of the wedge and resting at one end on the base of the rail and at the other end on the tie-plate, and a screw passing through the clip and tie-plate into the tie and adapted to compress the clip at a point more or less midway between its ends whereby to simultaneously insure a constant pressure of the rail upon the tie plate, and the tie plate upon the tie.

10. The combination with a tie, tie-plate, and rail, of a clip and a screw extending through the clip and tie plate into the tie, said clip convex in form and resilient, and resting at one end on the rail and at the other end on the tie-plate, the clip by reason of its convexity maintaining the strain at the center or axis of the screw.

11. The combination with a rail, tie-plate, and tie, of a resilient clip of convex form resting on one end on the tie-plate and at the other on the rail, and a screw extending through the clip and tie-plate into the tie, said clip by reason of its convexity and resiliency automatically compensating for wear or settlement of the tie plate, and always maintaining the proper close contact of the parts.

12. The combination with a tie-plate and a rail, of means for rigidly fastening the tie-plate to a tie, a bolt or screw extending through the plate into the tie, and a convexly oval clip inserted between the tie-plate, rail-base, and head of the bolt or screw, the arched center thereof bearing yieldingly upward against the head of the bolt or screw.

In testimony whereof I affix my signature, in the presence of two witnesses.

THOMAS MANEY.

Witnesses:
J. B. READ,
J. WOLBERT.