(No Model.)

W. GOLDIE.

RAILROAD TIE PLATE.

No. 457,584. Patented Aug. 11, 1891.

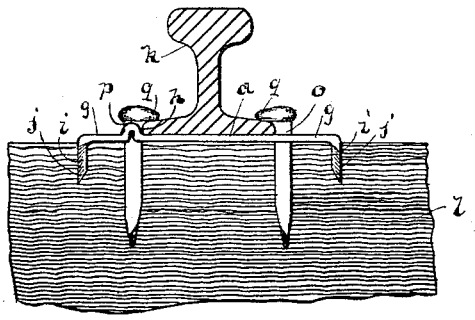
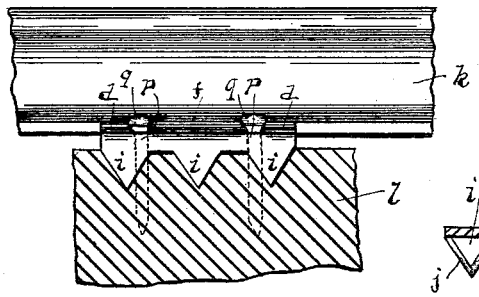


Fig. 4.

Fig. 5.



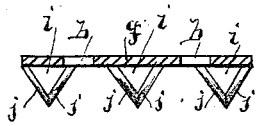


Fig. 2.

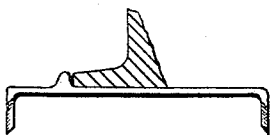


Fig. 6.

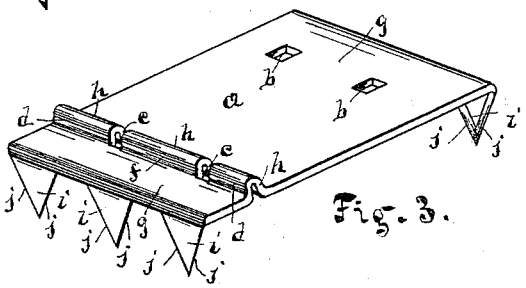
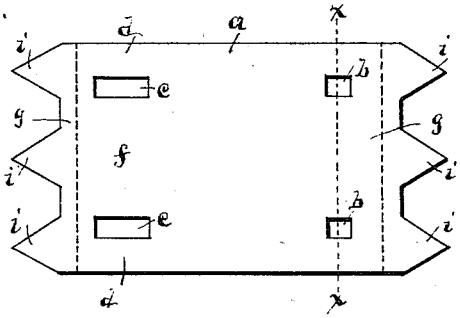


Fig. 3.

Fig. 1.



Attest:
Geo. P. Thomas.
J. M. Maxon.

Inventor:
William Goldie
By Jas. E. Thomas
Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM GOLDIE, OF WEST BAY CITY, MICHIGAN.

RAILROAD-TIE PLATE.

SPECIFICATION forming part of Letters Patent No. 457,584, dated August 11, 1891.

Application filed February 13, 1890. Serial No. 381,278. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GOLDIE, a citizen of the United States, residing at West Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Railroad-Tie Plates; and I do declare the following to be a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in railroad-tie plates, and especially pertaining to improvements on the tie-plate patented to me February 1, 1887, No. 356,760, and the rail-brace described and claimed in Letters Patent granted to me February 11, 1890, No. 421,268.

My invention consists in the form and construction of the blank for forming the tie-plate and in the form, construction, and arrangement of the tie-plate, and also in the combination of the same with a railway tie and rail, all of which will be fully described in the specification following, and will also be pointed out specifically in the claims thereof.

The chief object of my invention is to provide a reliable and durable fastening device for securing railroad-rails to the ties, which can be manufactured and applied for a small cost and expense.

Another object of the invention is to construct a light and durable tie-plate which will receive the wear and abrasion of the rails, and also be provided with great strength and power for resisting the lateral strain exerted on the rails by passing trains.

Another object is to provide a cheap and inexpensive device which will have a broad wearing-surface of metal to resist the abrasion and chafing action of the rail upon the tie and the neck portion of the spikes, and which will also bind or anchor the inner and outer spikes to each other, and also be provided with a special hold upon the wood of the tie, whereby all wear of the tie and spikes is avoided and the spikes are re-enforced in a manner to provide the greatest strength for resisting a lateral strain with a minimum of mutilation or cutting into the tie.

My invention is illustrated in the accompanying drawings, in which the same letters of reference are used for designating the same parts throughout the several views.

Figure 1 represents a face or plan view of the blank of which my improved tie-plate is preferably composed. Fig. 2 is a section of the same, taken at xx, and looking toward the right. Fig. 3 is a view in perspective of my improved tie-plate in its preferred form. Fig. 4 is a transverse vertical section of the rail and tie with my improved tie-plate in position. Fig. 5 is a side view of the same. Fig. 6 is a modified form of my improved tie-plate with the tie in transverse section.

As illustrated in Fig. 1, a represents the middle portion of a blank plate of metal which is to form the tie-plate, and this portion a is flat and of a width lengthwise of the plate equal to the width of the base of the rail, which is to rest transversely thereon, and through the end portions g on the lateral side of the portion a are arranged openings b and c of a suitable form to receive the spikes for holding the rail to the tie, and the openings c are elongated in the direction of the length of the plate and the portions d and f on the lateral sides of and between the openings c are raised upwardly and doubled upon themselves, so as to form stops or shoulders h each side of and between the openings c, as shown in Fig. 3. The blank plate, which also extends beyond the openings, is provided on its edges with a series of projecting tooth-like portions i of a triangular form, and these portions i are provided on their oblique edges with knife-edges or cutters j, formed by beveling the metal from the under side so that the cutters will lie coincident with the upper surface of the portions, and these portions i are bent downwardly at their base, so that they stand at a right angle and transversely with the plate and with the cutters, then coincident with the outer sides of the portions i, as shown in Fig. 3. The plate thus completed is placed between the rail k and the tie l, with the shoulders h against the outer edge of the base-flange m of the rail, and the portions i are then forced into the tie by driving until the under side of the plate lies firmly upon the tie, the points n easily entering the wood, while the diagonal cutters sever the grain of the timber with a clean shear on

a line with the outer surfaces of the portions *i*, so that the end fiber of the wood outside will be presented to the outer surfaces of the portions in a solid and undisturbed position, while the inner bevels of the portions provide the proper compression inwardly of the displaced wood fiber. Spikes *o* and *p* are then driven through the openings *b* and *c* into the tie, with the head portions *q* of the spikes reaching over upon the base-flanges of the rail, which retain the rail to the tie in the usual way. It is understood, of course, that the lateral strain on the rails is exerted on the inner sides thereof, thus crowding the rails outwardly, and that in the common mode of fastening the neck portions of the outer spikes only receive the chafing action of the rail-flange, so that by providing the shoulders *h* upon the plate to rest against the outer edge of the rail-flange a contact-surface is provided for the rail-flange of such an area that all chafing and cutting away of the spike-neck is avoided, and the plate being held against lateral movement by the portions *i*, in addition to the usual complement of spikes, and the spikes on opposite sides of the rail being anchored to each other and bound together by the plate beneath the rail altogether form an exceedingly strong and reliable fastening for a rail at a slight expense over the devices in common use.

Of course it will be understood that while I have described my improved plate as constructed of a plate of rolled metal with the shoulders formed by raising the portions between and on the lateral sides of the elongated spike-holes and doubling the same upon themselves I might prefer to roll the plate with a rib projecting upwardly to form the shoulders *h*, as shown in Fig. 6, and in that case the spike-openings *c* would then be punched through the rib and plate without the aforesaid elongation, and the operation of the device would be the same. Therefore

The following is what I claim as my invention and desire to secure by Letters Patent:

1. A blank for a tie-plate cut from a sheet of rolled metal and consisting of the central portion *a*, provided on one side with the spike-openings *b* and on the opposite side with the spike-openings *c*, elongated lengthwise of the plate and having a series of triangular tooth-like projections extending from its end edges, substantially as and for the purpose set forth.

2. A blank for a tie-plate, consisting of a plate of rolled metal having a flat central portion *a* and the end portions *g* and provided with an upwardly-raised rib or shoulder *h* across the plate at one edge of the said portion *a* and having the spike-openings *c* through the said rib and plate and the spike-openings *b* through the portion *g* at the opposite edge of the portion *a* and having at the ends of the plate the triangular tooth-like projections *i*, for the purpose set forth, substantially as described.

3. As a new article of manufacture, a tie-plate of rolled metal and consisting of a central portion *a* and the adjoining end portions *g*, provided with the spike-openings *b* and *c*, and with the raised shoulder *h* on the lateral sides of and between the said openings *c* and having on the edges of the outer ends of the plate the downwardly-projecting portions *i*, provided on their lateral edges and coincident with their outer faces with the diagonal cutters *j*, for the purpose set forth, substantially as described.

4. The combination, with the rail and tie, of a tie-plate having the central portion *a* between the tie and rail and provided with the spike-openings *b* and *c* and with a raised shoulder *h* on the portions between and on the lateral sides of the openings *c* and against the edge of the rail-flange and having the downwardly-turned portions *i*, provided on their lateral edges with diagonal cutters and forced into the tie, and the spikes passed through the said openings and into the tie and with their head portions reaching over the rail-flanges, substantially as set forth.

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

WILLIAM GOLDIE.

Witnesses:
JAS. E. THOMAS,
J. M. MAXON.