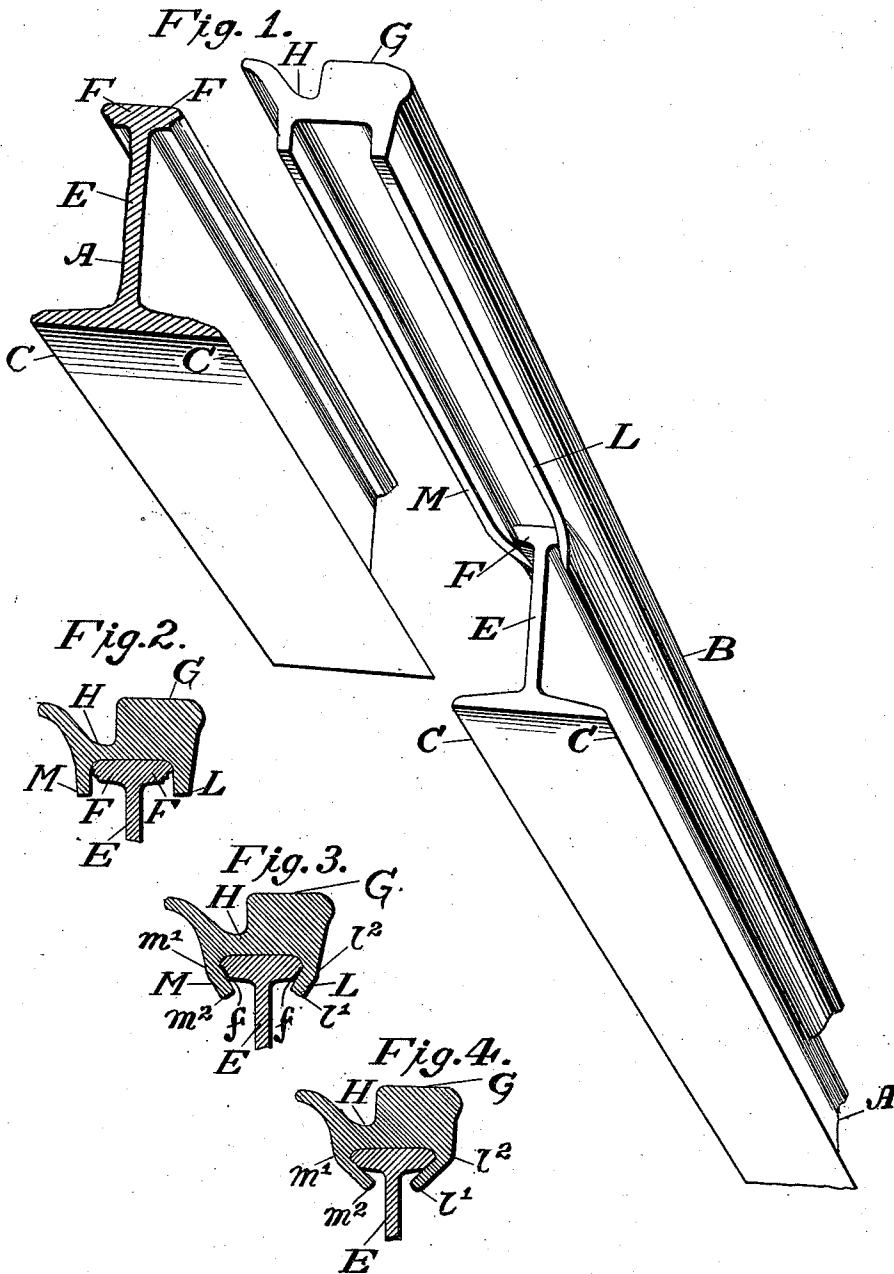


E. RHODES.
COMPOUND RAIL TRACK CONSTRUCTION.
APPLICATION FILED AUG. 28, 1912.

1,062,186.

Patented May 20, 1913.

2 SHEETS—SHEET 1.



Attest:
Edwin A. Packard
E. M. Seifert

Inventor:
by Edgar Rhodes
Alfred W. Kiddle his Atty

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Fig. 5.

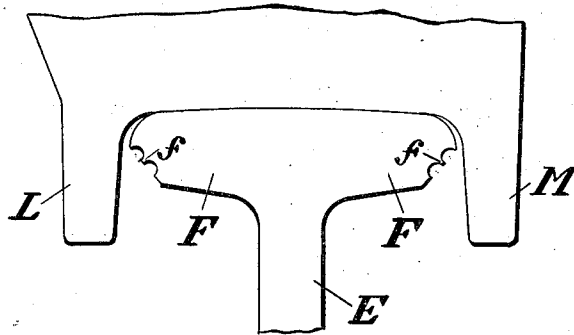


Fig. 6.

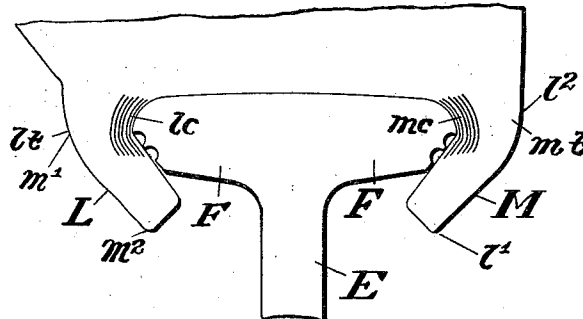
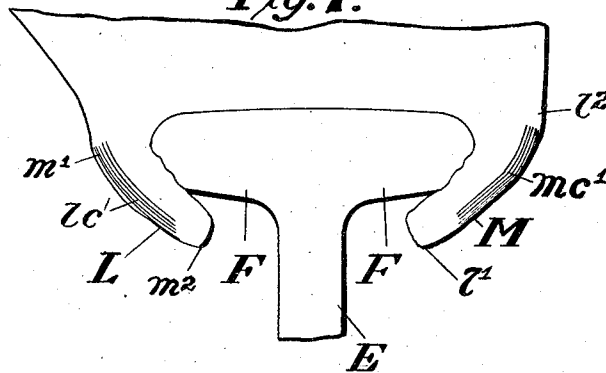


Fig. 7.



Attest:
Edmund A. Packard
E. M. Geilfus

Inventor:
by Edgar Rhodes
Alfred W. Kiddle, his Atty

UNITED STATES PATENT OFFICE.

EDGAR RHODES, OF SCHOLES, LEEDS, ENGLAND, ASSIGNOR TO CONTINUOUS RAIL COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE.

COMPOUND-RAIL TRACK CONSTRUCTION.

1,062,186.

Specification of Letters Patent.

Patented May 20, 1913.

Original application filed January 27, 1912, Serial No. 673,788. Divided and this application filed August 28, 1912. Serial No. 717,437.

To all whom it may concern:

Be it known that I, EDGAR RHODES, a subject of the King of Great Britain and Ireland, residing at The Briars, Scholes, Leeds, Yorkshire, England, have invented certain new and useful Improvements in Compound-Rail Track Construction, of which the following is a specification.

One object of the invention is to provide a track construction which comprises compound rails formed of base sections and top wearing sections mechanically secured together by bent holding lips in which there exist compression strains in the outer portion of the holding lips whereby said lips will press firmly against the sections engaged thereby. In said track construction the base rail sections are arranged end to end and the top wearing sections are supported thereupon and are arranged so that the adjacent base sections are engaged by the same top section.

Another object of the invention is to provide a track construction comprising compound rails formed of base sections and top wearing sections mechanically held together by bent lips in which there exist in the outer portion of the holding lips compression strains. The providing of the lips with compression strains in the outer portion thereof insures a firm mechanical connection between the various top and base sections and also insures an efficient permanent electrical connection between the sections.

This application is a division of a companion application, Serial No. 673,788 which was filed January 27, 1912.

As showing a specific embodiment of the invention, reference is made to the drawings forming a part hereof.

Figure 1 shows a perspective view of two parts of a base or girder rail section and a top or wearing section secured to one of the base parts, the girder section at the left being shown out of its normal position and the depending flanges on the wearing section between which the last mentioned base section is normally placed being shown in the position which they occupy prior to being bent to holding position, Fig. 2 is a transverse

section showing a wearing section in place on the top of a base section prior to the holding flanges being bent, Fig. 3 is a transverse section of the part shown in Fig. 2 after the holding flanges have been bent so as to contact with the surfaces engaged thereby, Fig. 4 is a transverse section of the parts shown in Figs. 2 and 3 after sufficient pressure has been applied to the holding lips to force the metal in the outer portion of said lips transversely and to create compression strains in said metal, Fig. 5 is a full size cross sectional view partially broken away, showing the lower portion of a top wearing section of a compound rail in place on the top portion of a base section of the rail prior to bending the holding lips, Fig. 6 is a full size cross sectional view partially broken away, showing the position of the compression strains in the lips immediately after the initial bending of the holding lips into engagement with the base section and prior to transversely elongating the lips, Fig. 7 is a full size cross sectional view partially broken away, showing the position of the permanent compression strains in the holding lips after the completion of the operation.

Like characters designate the same parts throughout the specification.

The base sections are indicated by A and the top or wearing sections by B. The base sections may be of any well known type and comprise the supporting flanges C, C, the web E and the flange portions F, F located at the top of the web. The top or wearing section preferably comprises a tread portion G, a groove portion H to receive the flange of a car wheel and depending flanges or lips L, M which are bent and forced against the base section with sufficient pressure to form an efficient electrical contact or connection between the top section and the base section.

In Figs. 2 and 5 the depending flanges L, M are shown in the positions which they occupy after the top section has left the rolling mill. From an inspection of said figures it will be apparent that the flanges are spaced a sufficient distance apart to permit them to be slipped past the ends of the flanges F of the base section so that the wear-

ing section may be seated upon the base section.

In Figs. 3 and 6 it will be seen that the flanges L, M have been bent substantially into engagement with the edges f, f , of the flanges F, F. In the position shown in Figs. 2 and 5 there are no substantial strains in the holding lips, as they are in the condition which they were when they left the rolling mill. Previous to the termination of the operation of bending the lips from the position shown in Figs. 2 and 5 to the position shown in Figs. 3 and 6, compression strains were created in the metal at the upper inner portion of the lips and tension strains in the metal at the outer portion of the lips at the points marked mt and lt . These compression strains are indicated in Fig. 6 by the series of lines mc and lc . From a comparison of Figs. 3 and 4 and also Figs. 6 and 7, it will be noted that the metal between the points m' and m^2 and l' and l^2 has been extended in a direction transverse to the direction in which the rail extends and that the thickness of these depending lips has been decreased. This elongation of the metal transverse to the direction in which the rail extends and the reducing of the thickness of the metal in the flange so as to change the cross sectional shape thereof is effected by sufficient pressure applied to the outside portion of the flanges to create compression strains (which extend in a direction transverse to that in which the rail extends) in the outer portion of the flanges whereby the inner portions of the lips will be forced firmly and permanently against the edges f, f of the flange portions of the base section. This transversely elongating by pressure is effected while the holding lip is in contact with the section engaged thereby and the compression strains thus created in the outer portion of the holding lips are indicated by the lines mc' and lc' . The percentage of transverse elongation of the metal in the outer portion of the lips is greater than is the percentage of transverse elongation of the metal in the inner portion of the lips.

When assembled in position in the track, the joints between the base sections of the rail and the wearing sections of the rail are staggered relative to each other so that a wearing section will both mechanically and electrically connect the base sections. This is possible when the wearing sections are attached to the base sections in the method herein described due to the fact that the compression strains in the outer portions of the lips are sufficient to maintain the lips in firm contact with the members engaged by the inner portion thereof so that the lips can serve as efficient and permanent electrical connecting means between the wearing por-

tions and the girder portions. By this construction the separate electrical connecting bonds or means such as copper connectors which are commonly used, may be entirely eliminated if desired.

It is obvious that various forms and modification may be made without departing from the spirit and scope of the invention as set forth in the appending claims.

I claim as my invention:

1. A railroad track including in combination therein base girder rail sections arranged end to end and top wearing sections supported thereupon, the adjacent base sections being engaged by the same top section which top sections are the primary electrical conducting means between said base sections, the wearing sections and the base sections being held in assembled position by bent holding lips which have been materially reduced in thickness while the top sections were in place on the base sections.
2. A railroad track including in combination therein base or girder rail sections arranged end to end and top wearing sections thereupon arranged end to end, the joints between the base sections and the joints between the wearing sections being staggered relative to each other, said top sections and base sections being mechanically held in place and electrically connected by bent lips on one of the sections engaging the other section, the lips when in final position being materially reduced in thickness and having the outer portions transversely extended whereby the inner portion of the lip members are forced into firm contact with the portions of the sections engaged thereby.
3. A railroad track including in combination therein base rail sections arranged end to end and top wearing sections supported thereupon, the adjacent base sections being engaged by the same top section, each of the top sections being the electrical conducting means between the base sections engaged thereby, the wearing sections and the base sections being held in assembled position by bent-holding lips which have been materially reduced in thickness after the sections have been assembled.
4. The combination in a railroad track of adjacent rail base sections arranged end to end and a top wearing section supported thereupon and engaging said base sections, the top section and base sections being held in position by bent holding lips which are materially reduced in thickness when the top section is placed on the base sections.
5. A railroad track construction having a tread or wearing section and a base section together constituting a compound rail, which sections are held together by bent holding lips that have been materially re-

duced in thickness and also elongated transversely of the rail.

6. A railroad track construction having tread and base sections of compound rails, which sections are held together by bent holding lips that have been materially reduced in thickness and elongated transversely of the rail, in a manner so that com-

pression strains exist in the outer portion of the lips.

This specification signed and witnessed this 23rd day of August, A. D. 1912.

EDGAR RHODES.

Signed in the presence of—

N. C. FETTERS,

C. W. LEGIULLON.

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