

968,617.

Patented Aug. 30, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

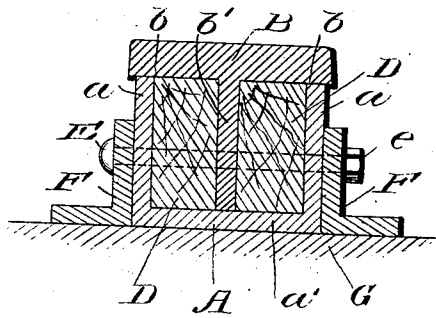


Fig. 2.

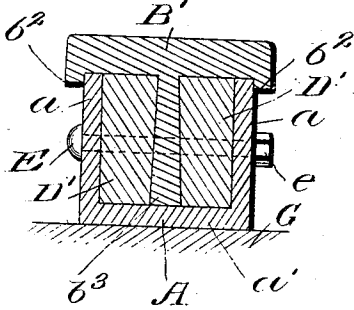


Fig. 3.

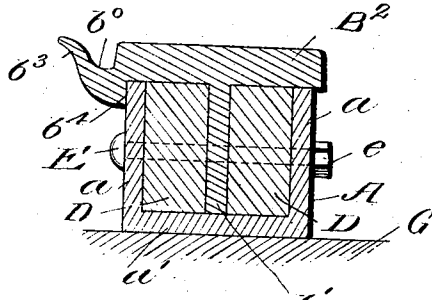


Fig. 4.

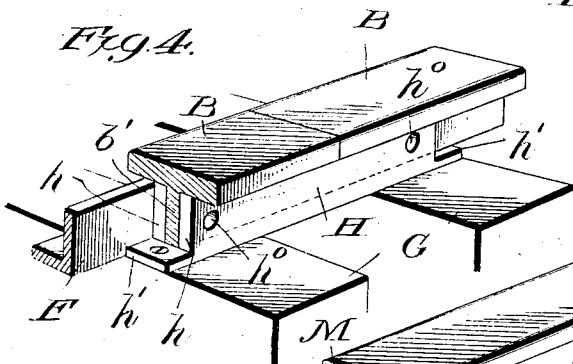


Fig. 5.

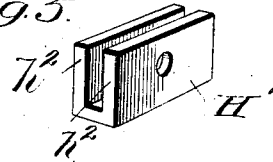
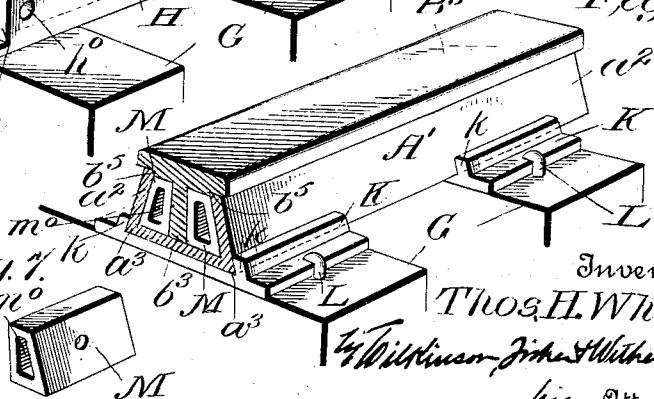


Fig. 6.



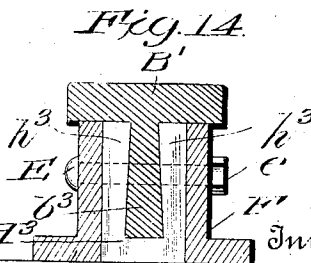
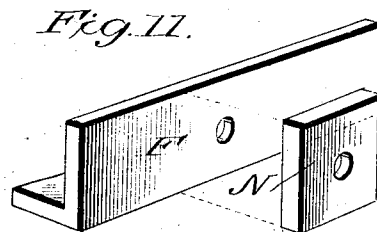
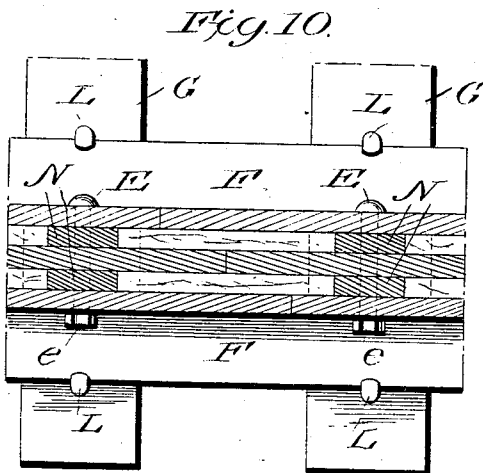
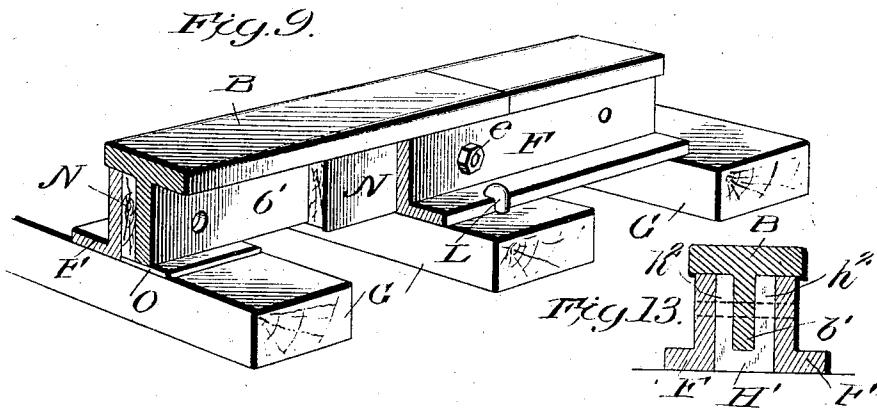
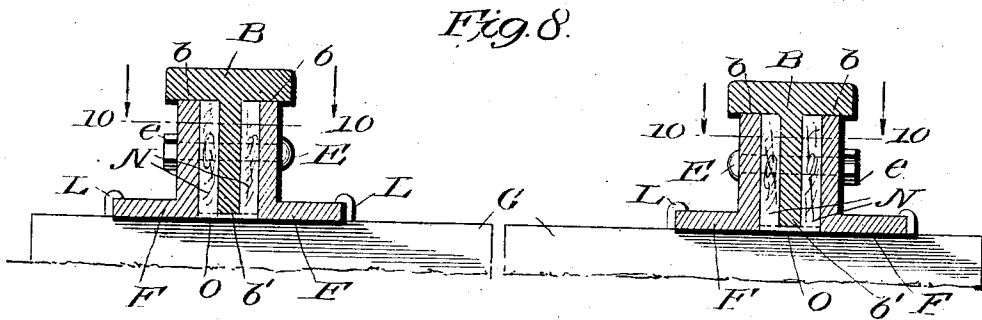
Witnesses
Geo. H. Zupke.
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Thos. H. Wheless
By *William J. Witherspoon*
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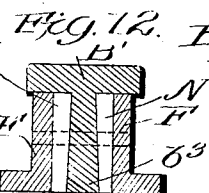
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2 SHEETS—SHEET 2.



Witnesses
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Chas. Map. Small



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UNITED STATES PATENT OFFICE.

THOMAS HENRY WHELESS, OF NEW YORK, N. Y.

COMPOUND RAIL.

968,617.

Specification of Letters Patent. Patented Aug. 30, 1910.

Application filed December 15, 1909. Serial No. 533,221.

To all whom it may concern:

Be it known that I, THOMAS HENRY WHELESS, a citizen of the United States, residing at New York city, in the county and State of New York, have invented certain new and useful Improvements in Compound Rails; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to improvements in compound rails intended to be used for heavy traffic.

According to the invention described in my application Serial No. 469,971, filed December 30, 1908, and entitled improvements in railways, I described and claimed a rail especially adapted for light traffic, in which comparatively light rolling stock and corresponding loads are used; but according to my present invention, I provide a compound rail intended to stand the strains of heavy traffic.

My invention comprises a T-rail having a central downwardly projecting web with a broad surface exposed to the tread of the wheels, and means for supporting the upper portion of the T-rail at each side of the tread and holding the same firmly in place.

My invention will be understood by reference to the accompanying drawings, in which the same parts are indicated by the same letters throughout the several views.

Figure 1 shows a cross section of one form of compound rail and the angle irons for bracing the same. Fig. 2 shows a cross section through a slightly modified form of compound rail. Fig. 3 shows a similar cross section through a rail especially adapted for street car traffic. Fig. 4 is a perspective view showing the joint of the T-rail with means for supporting the same, and illustrates the spacing device used as a joint splice bar for the web of the T-rail. Fig. 5 is a perspective view showing a modified form of spacer for use with the T-rail. Fig. 6 is a perspective view showing another form of T-rail with supports therefor, and means for securing the same to the cross ties. Fig. 7 is a perspective view showing one of the spacing blocks used in Fig. 6. Fig. 8 shows a section across two rails and illustrates another modification of the same general idea. Fig. 9 is a perspective view of the joint of

one of the rails shown in Fig. 8, parts being broken away. Fig. 10 shows a section through one of the rails of Fig. 8, along the line 10—10 of said figure and looking down. Fig. 11 shows one of the spacing blocks and angle-irons of Figs. 8 to 10, and illustrates how the same is assembled. Figs. 12, 13 and 14 show further modifications of the same general idea.

Referring now to Fig. 1, A represents a trough practically made of rolled metal, having the vertical sides *a* supporting the sides *b* of the tread of the T-rail B having the web *b'*, which web projects downwardly and rests on the bottom *a'* of said trough A, which bottom *a'* rests on the cross ties G. Spacing blocks or strips D of wood, metal, or other suitable material, are placed in the trough between the web *b'* and the trough sides *a*, and the parts are connected together and to the angle-irons F by the bolt E, having the nut *e*.

The construction shown in Fig. 2 differs from that shown in Fig. 1 in that the T-rail B' has holding shoulders *b²* adapted to engage the sides *a* of the trough A, and the web *b³* of the T-rail B' is wedge-shaped, flaring outward toward its bottom, which bottom rests on the bottom *a'* of the trough A. In this case, the blocks D' are cut away on the inner sides to fit snugly against the sides of the web *b³*.

The form of device shown in Fig. 3 differs from that shown in Fig. 1 in that the head of the T-rail B² is provided with the groove *b⁰* at one side to engage the flange of the car wheel with a curved flange *b²* and with a holding shoulder *b⁴*.

In the form of device shown in Fig. 4, a spacing chair H, or splice bar, is provided, primarily intended to support the rail joint, and having vertical sides *h* engaging under the flange of the rail B, and the flanged ends *h'* of said chair are secured to the cross ties G. Further support to the flange of the rail is provided by the angle-irons F. Instead of the chair H shown in Fig. 4, a U-shaped bent plate H' may be provided, as shown in Fig. 5, which extends only across the top of a single cross tie and supports the bottom of the web of the rail.

In the form of device shown in Fig. 6, the rail B³ is provided with an expanding web *b³* similar to that already described with reference to Fig. 2, but the flanges of the rail are provided with shoulders *b⁵* to en-

gage the sides a^2 of the trough A' . These sides a^2 of said trough are inclined inward toward the top, and in the space between the web of the rail and the sides of the trough
 5 spacing blocks M are fitted, which may be conveniently made of metal cored out as at m^0 . The lower corners of the trough A' are held snugly between the inclined sides h of the chair K , which thus grip the corners
 10 of said trough and prevent the same from being lifted upward. These chairs K and blocks M may be elongated if desired, to support the joint of the rail or to span the space between the cross ties. These chairs
 15 K may be secured to the cross ties G in any convenient way, as by means of the spikes L . In the construction shown in Figs. 8 to 10, instead of having a trough with a closed bottom, as shown in Figs. 1 to 3, two angle-
 20 irons F are used, fastened to the cross ties G as by the spikes L , and between said angle-irons and the web b' of the T-rail B spacing blocks N are provided. Beneath the bottom of the web b' , a plate o is provided,
 25 which is placed above or secured to the cross ties G to prevent the web of the T-rail from cutting into the cross tie. One of these spacing blocks or strips N and one of the angle-irons O are shown in detail in Fig. 11.
 30 In the form of device shown in Fig. 12, a T-rail B' has its expanding web b^3 resting flat on top of the cross tie G . Similar spacing blocks or strips N to those already described are used.
 35 In the form of device shown in Fig. 13, a spacing block H' , similar to that shown in detail in Fig. 5, is used, the sides h^2 of which engage the web b' of the rail B . The angle-irons F support the sides of the head of the rail, as already described. This spacing
 40 block or yoke may be used for securing the T-rail joint.

Fig. 14 shows a structure similar to Fig. 13, except that the web b^3 of the rail B' is tapered outward and downward and engages in the corresponding sides h^3 of the spacing block or yoke H^3 , which is otherwise similar to that shown in Fig. 5. This spacing block or yoke may be elongated
 50 when used at a joint of the T-rail.

In all the forms of the device just described, it will be noted that there is a T-rail having a broad top furnishing great
 55 tractivity and a downwardly projecting web, with supports for the sides of the top of the rail and spacing devices between said supports and said web, of variable thickness corresponding to the width of the T-rail, which spacing devices also assist in
 60 supporting the head of the rail against downward pressure. It will be noted that the only part of any of the structures shown that is subjected to wear is the upper portion of the T-rail, and that sections of this
 65 T-rail may be removed and other sections

supplied when said T-rail becomes worn out or injured in any way. Thus instead of renewing the entire rail, as is commonly done in the present practice where standard T-rails are used, it will be only necessary to
 70 remove that part of the compound rail which is subjected to wear, and the other parts may be maintained in use for an indefinite period.

When one side or edge of a section of my improved T-rail becomes worn from use the
 75 ends may be reversed, the section of T-rail being swung laterally through 180° , presenting the unworn side to the conditions for flange wear, thus materially decreasing
 80 the cost for renewal.

Since the weight of similar solids increases as the cube of any given dimension, it will be obvious that to materially increase the width of the tread of the present standard T-rail, a great increase in its weight
 85 will be required; but with my improved compound rail, the effective width of the head may be increased by merely adding a small amount of metal to the width of the head itself, leaving the other parts of the
 90 rail substantially unchanged.

It will be noted that all the metal parts of the herein described apparatus may be very readily rolled and bent or pressed into
 95 shape, if desired.

All of the parts should be preferably of rolled iron or steel, except the chairs, which may be either pressed metal or cast, if desired.
 100

I do not mean to limit my invention to the precise construction and arrangement of parts herein described and shown, as various modifications might be made which could be used without departing from the
 105 spirit of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States is:

1. A compound rail comprising a T rail with broad top and downwardly projecting web, supports for the outer portions of said top, and rigid spacing devices interposed between said supports and said web, substantially as described.
 115

2. A compound rail comprising a T rail with broad top and downwardly projecting tapered web, supports for the outer portions of said top, and rigid spacing devices interposed between said supports and said web, substantially as described.
 120

3. A compound rail comprising a trough having upwardly projecting sides, a T rail having its head resting on the top of the sides of said trough and having its web projecting down into said trough, and rigid spacing devices mounted between said web and the sides of said trough, substantially as described.
 125

4. A compound rail comprising a trough
 130

having upwardly projecting sides inclined slightly inward, a T rail having its head resting on the top of the sides of said trough and having its web projecting down into said trough, spacing devices mounted between the sides of said trough and said web, and a chair having inclined sides gripping the corners of said trough, substantially as described.

5 10 5. A compound rail comprising a T rail with broad top and downwardly projecting web, supports for the outer portions of said top, and hollow and rigid spacing devices interposed between said supports and said web, substantially as described.

15 6. A compound rail comprising a T rail with broad top and downwardly projecting tapered web, supports for the outer portions of said top, and hollow and rigid spacing devices interposed between said supports and said web, substantially as described.

20 7. A compound rail comprising a trough having upwardly projecting sides, a T rail having its head resting on the top of the sides of said trough and having its web projecting down into said trough, and hollow and rigid spacing devices mounted between said web and the sides of said trough, substantially as described.

25 30 8. A compound rail comprising a trough having upwardly projecting sides inclined slightly inward, a T rail having its head resting on the top of the sides of said trough and having its web projecting down into said trough, hollow and rigid spacing devices mounted between the sides of said trough and said web, and a chair having inclined sides gripping the corners of said trough, substantially as described.

35 40 9. A compound rail comprising a T rail with broad top, a curved grooved flange and downwardly projecting web, supports for the outer portions of said top, and spacing devices interposed between said supports and said web, substantially as described.

10. A compound rail comprising a T rail with broad top, a curved grooved flange and downwardly projecting tapered web, supports for the outer portions of said top, and spacing devices interposed between said supports and said web, substantially as described. 50

11. A compound rail comprising a trough having upwardly projecting sides, a T rail provided with a curved grooved flange and having its head resting on the top of the sides of said trough and having its web projecting down into said trough, and spacing devices mounted between said web and the sides of said trough, substantially as described. 60

12. A compound rail comprising a T rail with a broad top and downwardly projecting web, supports for the outer portions of said top, and U-shaped rigid spacing devices interposed between said supports and said web, substantially as described. 65

13. A compound rail comprising a T rail with a broad top, a curved grooved flange and downwardly projecting web, supports for the outer portions of said top, spacing devices interposed between said supports and said web, and bolts passing through said supports, said spacing devices and said web, substantially as described. 75

14. A compound rail comprising a T rail with a broad top and downwardly projecting tapered web supports for the outer portions of said top, spacing devices interposed between said supports and said web, and bolts passing through said spacing devices, said supports and said web, substantially as described. 80

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

THOMAS HENRY WHELESS.

Witnesses:

MOSES ELY,
CHARLES FULLER.