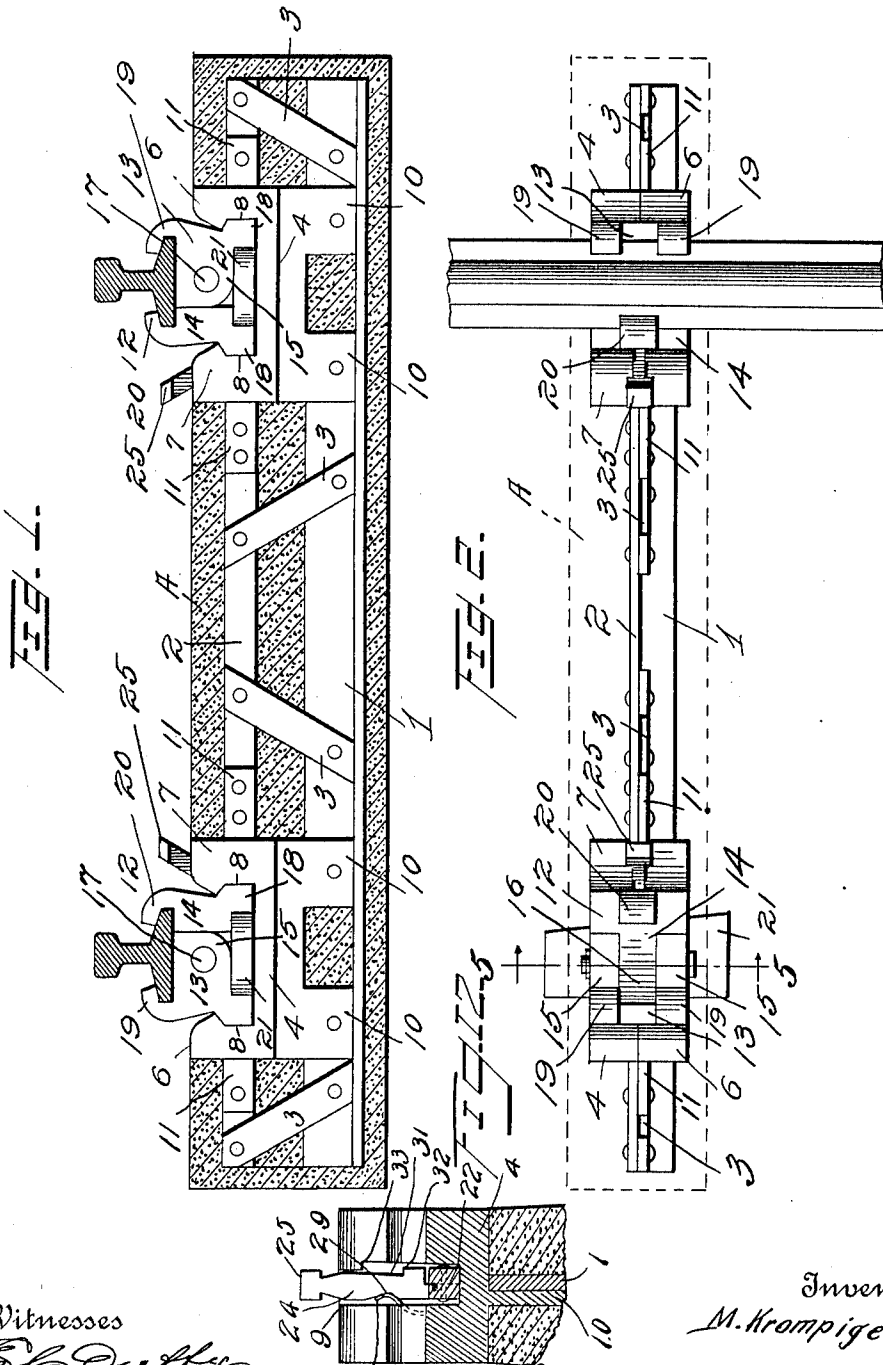


M. KROMPIGEL.
RAILWAY TIE AND RAIL FASTENING.
APPLICATION FILED AUG. 21, 1911.

1,012,370.

Patented Dec. 19, 1911.

3 SHEETS-SHEET 1.



Witnesses

E. C. Duffy
E. C. Hunt

Inventor

M. Krompigel

by

A. B. Wilson & Co.

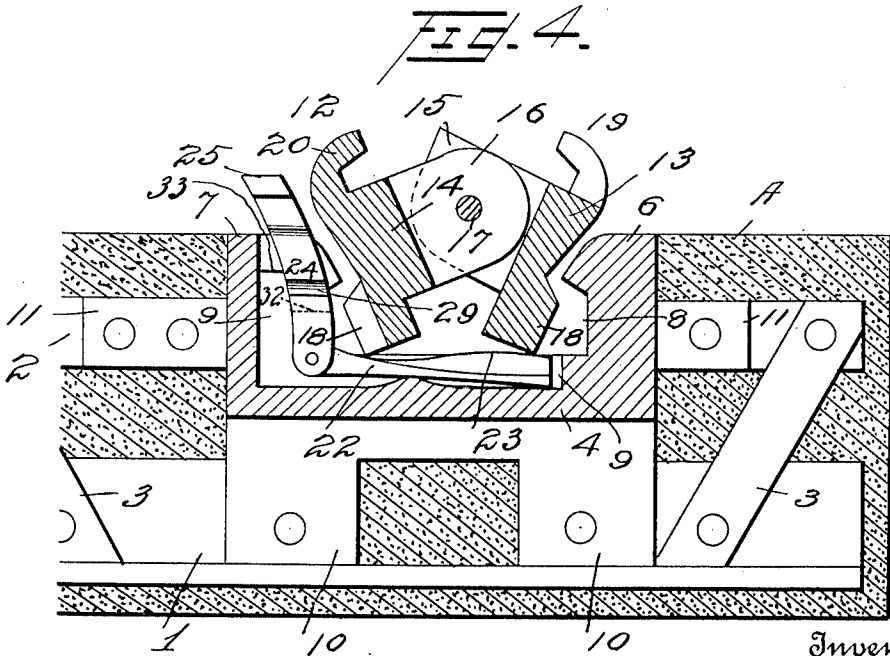
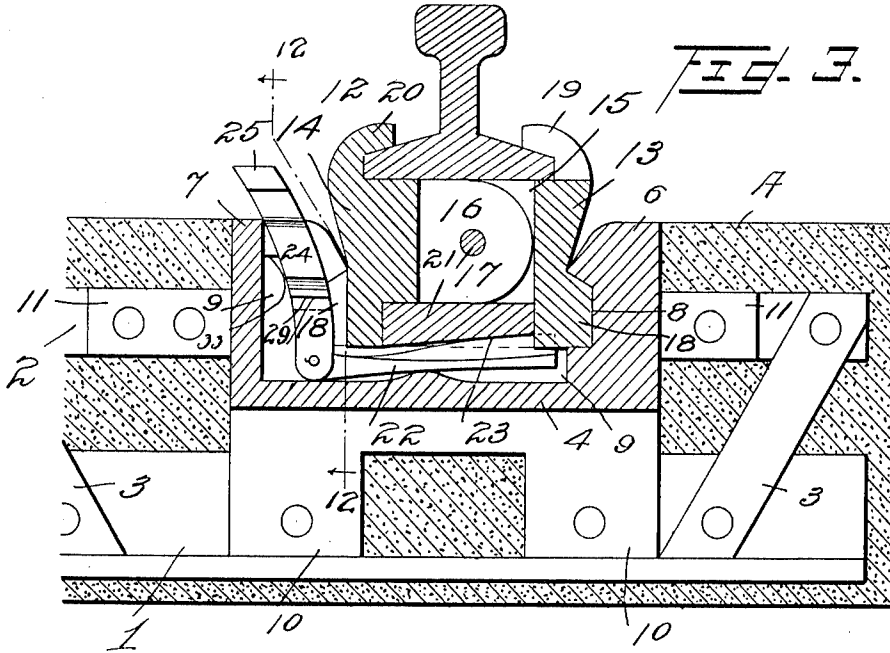
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3 SHEETS-SHEET 2.



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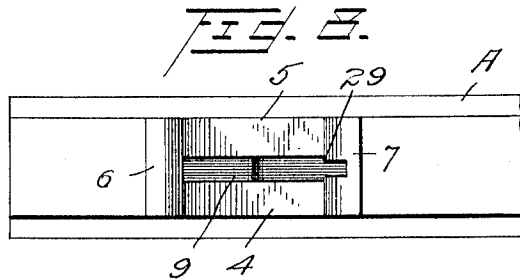
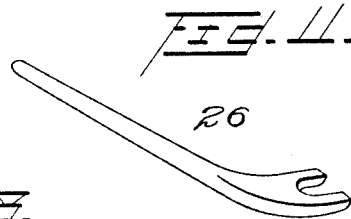
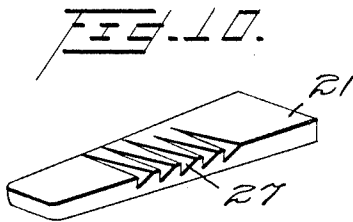
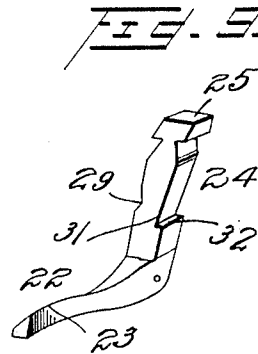
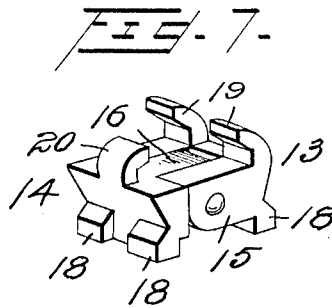
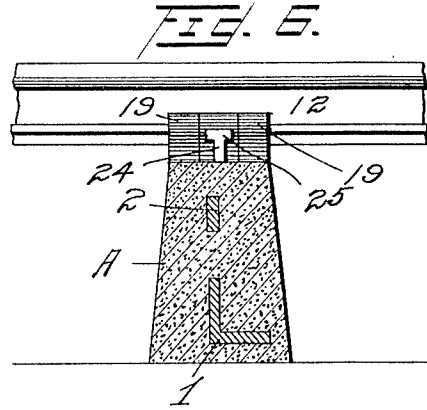
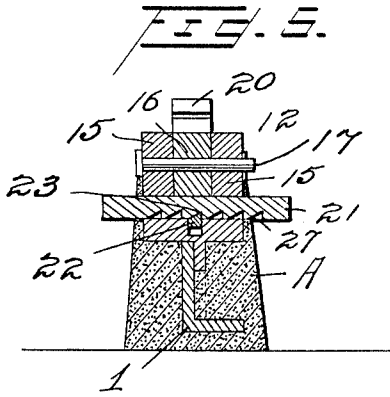
Inventor
M. Krompigel
by *A. B. Wilson & Co*
Attorneys

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3 SHEETS—SHEET 3.



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C. C. Duffy
C. C. Hunt

Inventor
M. Krompigel
by *A. B. Wilson & Co*
Attorneys

UNITED STATES PATENT OFFICE.

MATTHISS KROMPIGEL, OF BRIER HILL, PENNSYLVANIA.

RAILWAY-TIE AND RAIL-FASTENING.

1,012,370.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed August 21, 1911. Serial No. 645,139.

To all whom it may concern:

Be it known that I, MATTHISS KROMPIGEL, a citizen of the United States, residing at Brier Hill, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Ties and Rail-Fastenings; and I do 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.

This invention relates to improvements in combined concrete railway ties and rail fastenings.

One object of the invention is to provide a concrete railway tie having an improved construction and arrangement of metal reinforcement whereby a strong, durable and practically indestructible tie is provided.

Another object is to provide a railway tie of this character having combined therewith an improved construction and arrangement of rail fastening devices whereby the railway rails are securely held in place, said devices being adapted to be released to permit the removal of any of the rail sections without disturbing the tie or outer sections of the rails.

With these and other objects in view, the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings:—Figure 1 is a vertical sectional view of my improved tie and rail fastening showing the rails engaged therewith, the latter being in section; Fig. 2 is a top plan view thereof with one of the rails removed; Fig. 3 is an enlarged side view in section of one end of the reinforcing frame of the tie and the rail fastening devices; Fig. 4 is a similar view showing the manner in which the fastening devices are released to permit the removal of the rail; Fig. 5 is a cross sectional view through the entire tie on the line 5—5 of Fig. 2; Fig. 6 is a similar view through the center of the tie; Fig. 7 is a detail perspective view of one of the rail gripping members of the fastening removed from its seat; Fig. 8 is a plan view of one end of the tie and the seat for the rail gripping members; Fig. 9 is a detail perspective view of the locking pawl for the key of the rail gripping members; Fig. 10 is an

inverted perspective view of the key for locking the rail gripping members in operative engagement with the rail; Fig. 11 is a detail perspective view of the tool preferably employed for actuating the pawl for the locking key of the rail gripping members. Fig. 12 is an enlarged cross sectional view through the tie and rail fastening device on the line 12—12 of Fig. 3 showing the construction and arrangement of the pawl actuating lever and the spring for holding the same and the locking pawl in their adjusted position.

My improved railway tie comprises a concrete body portion A which may be of any suitable shape but which, preferably has its side walls inclined from the bottom to the top of the tie. In the concrete body of the tie is embedded a metal reinforcing frame comprising an angle iron base bar or member 1 which is approximately the length of the tie. Arranged above and spaced a suitable distance from the base bar 1 is a top bar 2, said top bar being formed in a plurality of sections which are firmly secured to the base bar 1 by a series of inclined or diagonally arranged bracing and supporting bars 3, said bars being arranged and secured to the top bar and base bar as shown.

Arranged in suitable positions adjacent to the outer ends of the base bar 1 are chairs or seats 4 adapted to receive the rail gripping member hereinafter described. The seats 4 comprise base plates 5 having on their ends upwardly projecting lugs 6 and 7 in the inner sides of which adjacent to the base plates are formed longitudinally disposed notches or recesses 8. The inner sides of the upper portion of the lugs 6 and 7 above the notches 8 are preferably beveled or inclined as shown. In the base plate 5 and inner side of the lug 7 of the seats are formed longitudinally disposed recesses 9 the purpose of which will be hereinafter described. The seats 4 are arranged on the base bar 1 between the sections of the top bar 2 and are fastened to the base bar by bolts or rivets which are inserted through fastening lugs 10 formed on the lower side of the base plates of the seats and through the adjacent portions of the base bar as shown. The ends of the seats are secured to the adjacent ends of the sections of the top bar by bolts or rivets which are engaged with lugs 11 formed on the outer sides of the lugs 6 and 7 and through the

adjacent portions of the top bar as shown. By thus attaching the seats or chairs the same will be firmly secured in position on the tie to receive and support the sections of the rails.

In order to firmly and detachably secure the sections of the rail to the chairs or seats 4 of the ties, I provide rail gripping devices 12 comprising inner and outer hingedly connected members 13 and 14. The member 13 is provided on its inner side with pairs of apertured lugs 15 between which is engaged a similar lug 16 formed on the inner side of the member 14 said lugs being pivotally connected together by a pin or bolt 17 whereby the members are hingedly connected to permit the same to be engaged with and disengaged from the base flange of the rail. On the outer side of the lower end of the members 13 and 14 are formed fastening lugs 18 which are adapted to engage the notches 8 in the inner sides of the lugs 6 and 7 when the members are in operative position. On the upper ends of the outer member 13 of the gripping devices are formed a pair of hook shaped flange engaging lugs 19 which are adapted to engage and grip the outer edge of the base flange of the rail when the latter is engaged with the gripping devices. On the upper end of the inner member 14 of the gripping devices is formed a hook shaped lug 20 which is adapted to co-act with the lugs 19 and to grip the inner edge of the base flange of the rail thereby securely fastening the latter to the seat or chair of the tie.

In order to lock the members 13 and 14 into operative engagement with the rails and with the seats or chairs 4, I provide wedge shaped keys 21 which are adapted to be inserted beneath the members 13 and 14 of the gripping devices and between the lugs formed on the lower ends of said members whereby said lower ends are forced apart and the lugs thereon into engagement with the notches 8. In thus forcing the lower ends of the members apart the hook shaped rail gripping lugs on the upper ends of said members will be forced in operative engagement with the edges of the base flange of the rail thereby firmly securing the latter to the tie.

In order to prevent the casual disengagement of the wedge shaped key from the lower ends of the gripping members, I provide a key fastening or locking mechanism comprising a pawl 22 having its upper surface beveled to form a tooth 23. The pawl 22 is adapted to engage the horizontal recess 9 in the base plate 5 on the seat and said pawl is provided with a notched outer end which is pivotally connected to the correspondingly notched lower end of a pawl operating lever 24 which projects upwardly in

the portion of the recess 9 formed in the lug 7. The upper end of the lever 24 projects a short distance above the upper end of the lug 7 and is provided with a head 25. With the headed projecting upper end of the lever 24 is adapted to be engaged an operating bar 26 or other suitable tool whereby said lever is actuated to rock the pawl 22 in the recess 9 and thereby project and retract the tooth 23 of the pawl into and out of engagement with ratchet teeth 27 formed on the lower side of the key 21 whereby the latter is secured in position for holding the rail gripping members in locked or operative engagement with the flange of the rail.

The lever 24 has formed in one side a notch or recess 29 the inner wall of which is formed at an angle as shown and with said angular wall of the notch or recess is engaged a small bowed spring 30 arranged in the adjacent side of the vertical portion of the recess 9 in the lug 7 of the seats, said spring exerting a frictional pressure upon the lever whereby the latter and the pawl 22 will be held in their adjusted position. On the opposite side of the lever 24 is also formed a notch or recess 31 which extends below the lower end of the recess 29 on the opposite side of the lever and the lower end of said notch 31 forms a stop shoulder 32 which, when the lever is drawn upwardly by the operating bar 26 will engage stop shoulders 33 formed in the upper ends of the vertical portions of the recesses 9 in the lugs 7 of the chair thereby limiting the upward movement of the lever when the latter is retracted to disengage the teeth of the pawl from the teeth of the key 21.

By constructing and arranging the rail fastening devices of the tie as herein shown and described it will be seen that the section of the rail may be quickly and securely fastened to the tie and may be readily released to permit the removal of any of the rail sections when desired without disturbing the tie or any other sections of the rail.

The chairs when arranged on the reinforcing frame of the tie as herein described will have their upper surfaces flush with the top of the tie and their ends flush with the adjacent sides of the tie as shown.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

Having thus described my invention, what I claim is:

1. A concrete railway tie having a rein-

forcing frame comprising a base bar, a top bar arranged above said base bar, a series of diagonally arranged braces to connect said top and base bars, rail chairs secured to said base and top bars of the frame, rail gripping members arranged in said chairs and adapted to grip the base flanges of the rails whereby the latter are secured in the chairs, and means to lock said gripping members in operative engagement with the chairs and with the rails.

2. A concrete railway tie having a reinforcing frame comprising an angle iron base bar, a top bar formed in a plurality of sections, braces to operatively connect said bars together to form the frame, rail chairs secured to said base and top bars of the frame, rail gripping members arranged in said chairs, means to lock said gripping members in operative engagement with the rails and with the chairs, and means to fasten said locking mechanism.

3. A concrete railway tie having a reinforcing frame comprising a base bar, a top bar arranged above said base bar, braces to connect said bars together to form the frame, rail chairs secured to said bars of the frame, said chairs comprising base plates having formed on their ends upwardly extending lugs, said lugs being provided on their inner sides with notches, chair attaching lugs formed on the base plate and end lugs of the chair whereby the latter is secured to the top and base bars of the reinforcing frame, hingedly connected rail gripping members having on their lower ends lugs adapted to engage the notches in the end lugs of the chairs, rail gripping lugs formed on the upper ends of said members and adapted to be engaged with the base flange of the rail whereby the latter is secured to the chair, a key adapted to be engaged between the lower ends of the rail gripping members whereby said ends are locked in engagement with the ends of the chair and with the base flange of the rail and means to lock said key in operative engagement with said members.

4. A concrete railway tie having a combined reinforcing frame and rail fastening comprising an angle iron base bar, a top bar arranged above and spaced a suitable distance from said base bar, braces to operatively connect said bars together to form the frame, rail chairs secured to said bars, said chairs each comprising a base plate, upwardly projecting lugs formed on the ends of said base plate, said base plate and one of

said lugs having formed therein a recess and said lugs having in their inner sides transverse notches, rail gripping members hingedly connected together and arranged in said chairs, laterally projecting lugs formed on the lower ends of said members and adapted to engage the notches in the end lugs of the chairs, hook shaped rail engaging lugs formed on the upper ends of said members and adapted to be engaged with the base flange of the rails whereby the latter are secured to said chairs and reinforcing frame, a wedge shaped key adapted to be inserted between the lugs on the lower ends of said rail gripping members whereby the latter are held in operative engagement with the chairs, ratchet teeth formed on said key, a locking pawl arranged in the recess of the base plate of the chairs, a pawl operating lever arranged in the recess of the end lug of the chair, and means whereby said lever is actuated to bring said pawl into and out of engagement with the teeth of said key.

5. A concrete railway tie having a combined reinforcing frame and rail fastening, rail chairs arranged in the ends of said frame, rail gripping members hingedly connected together and arranged in said chairs, a wedge shaped key adapted to be engaged with said gripping members whereby the latter are held in operative engagement with the flanges of the rail and the latter thus secured in said chairs, ratchet teeth formed on said key, a locking pawl arranged in the lower portion of said chairs and adapted to be engaged with said teeth, a pawl operating lever pivotally connected to said pawl, said lever having on one side an angular spring engaging surface and in its opposite side a stop notch, a spring arranged in the adjacent portion of said chairs and adapted to frictionally engage the angular surfaces of said lever whereby the latter and the pawl operated thereby are held in their adjusted positions, a head formed on the outer end of said lever and an operating bar adapted to be engaged with said headed end of the lever whereby the latter is actuated to retract the pawl out of engagement with the teeth on said wedge.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MATTHISS KROMPIGEL.

Witnesses:

ANDREW DULIK,
H. F. DETWILER.