J. A. SILVER.

RAILROAD RAIL FASTENING.

APPLICATION FILED NOV. 18, 1919. RENEWED FEB. 23, 1921.

1,386,536. Patented Aug. 2, 1921.

2 SHEETS—SHEET 1.

FIG. 1.

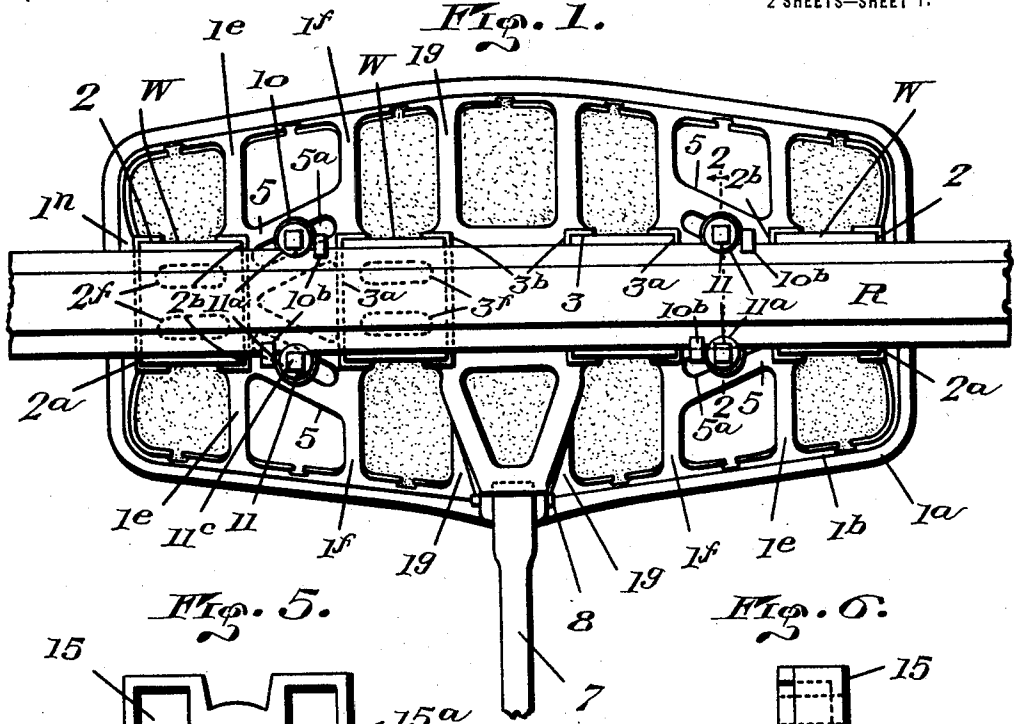


FIG. 5.

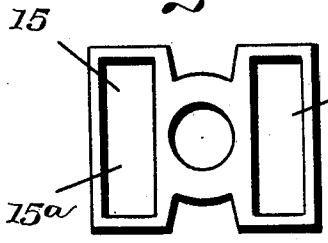


FIG. 6.

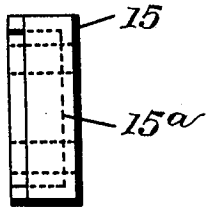
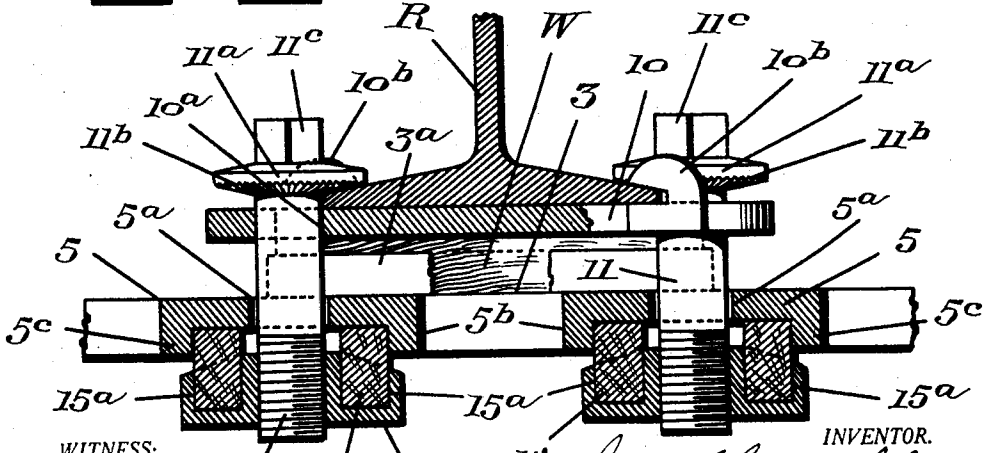


FIG. 2.



WITNESS:

Thos. W. Riley

INVENTOR.

Joseph A. Silver

BY

Alexander & Dowell

ATTORNEYS

J. A. SILVER.

RAILROAD RAIL FASTENING.

APPLICATION FILED NOV. 18, 1919. RENEWED FEB. 23, 1921.

1,386,536. Patented Aug. 2, 1921.

2 SHEETS—SHEET 2.

Fig. 3.

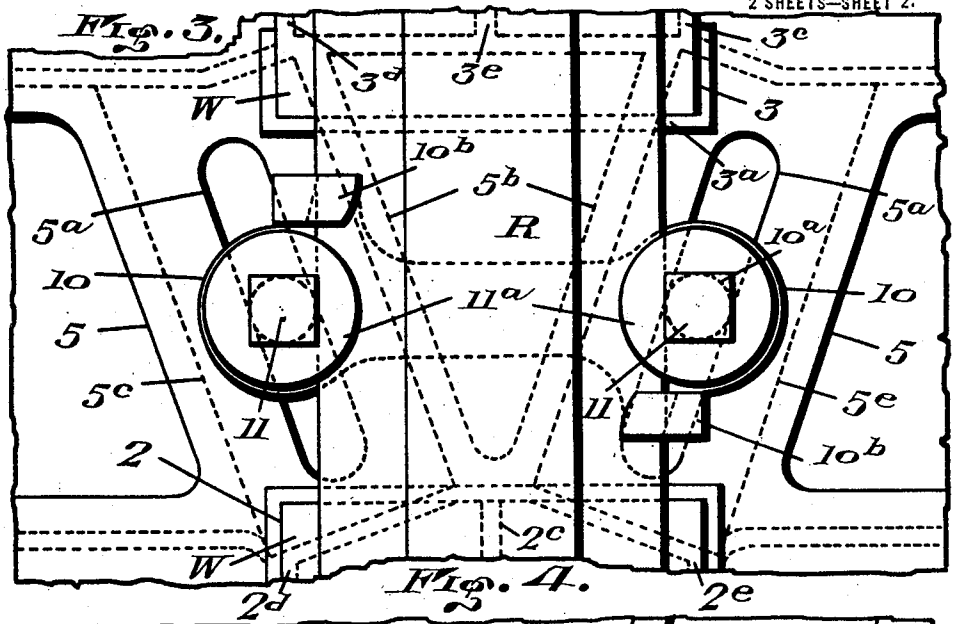


Fig. 4.

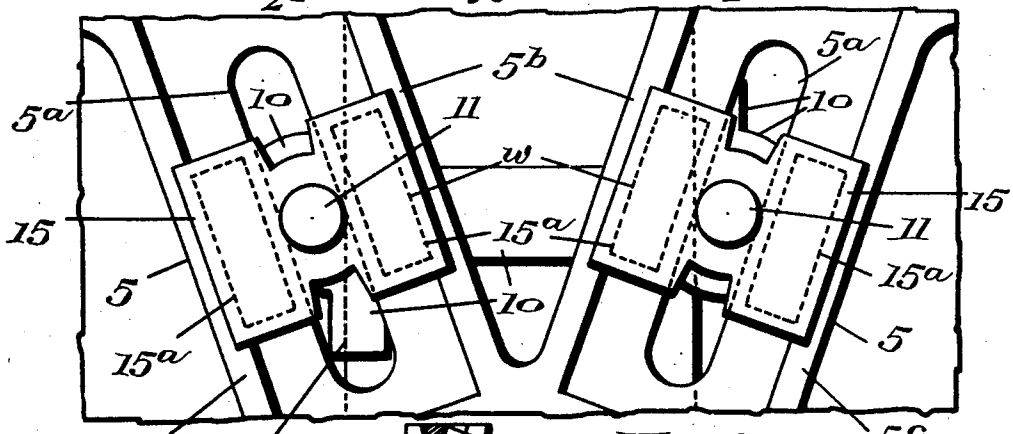


Fig. 7.

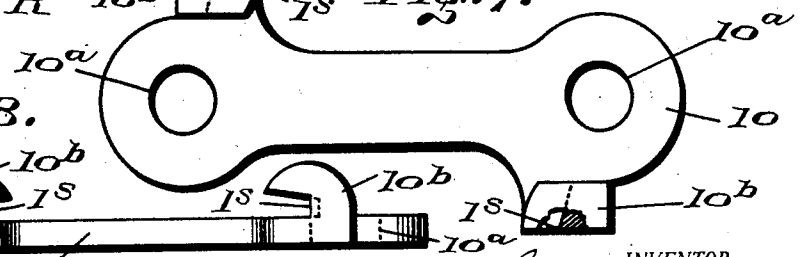


Fig. 8.

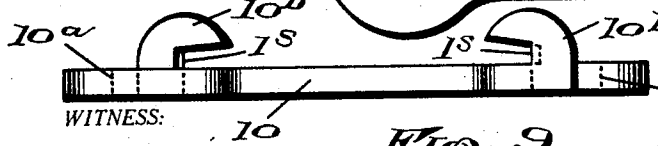
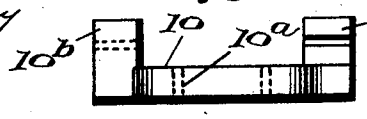


Fig. 9.



INVENTOR.

Joseph A. Silver

BY

Alexander Gavell

ATTORNEYS

Thos. W. Riley

UNITED STATES PATENT OFFICE.

JOSEPH A. SILVER, OF NEW YORK, N. Y.

RAILROAD-RAIL FASTENING.

1,386,536. Specification of Letters Patent. **Patented Aug. 2, 1921.**

Original application filed August 5, 1919, Serial No. 315,471. Divided and this application filed November 18, 1919, Serial No. 338,830. Renewed February 23, 1921. Serial No. 447,225.

To all whom it may concern:

Be it known that I, JOSEPH A. SILVER, a citizen of the United States, residing at New York, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Railroad-Rail Fastenings; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention relates to means for fastening railroad rails to ties, sleepers, and the like, and for preventing creeping of the rails. The present application is a division of my application for railroad ties, filed August 5th, 1919, Serial No. 315,471, wherein a preferred form of sleeper or tie is shown, but the present invention is not limited to any particular form of sleeper or tie *per se*.

The principal objects of the invention are (1) to provide novel means for fastening the rails to the sleepers, ties, girders, etc., whereon they may be mounted: (2) to provide novel means for preventing creeping of the rails in such fastenings: (3) to provide novel rail fastening bolts: (4) to provide novel means for insulating the rail from its support; (5) to provide novel yokes for holding the rails: (6) to provide novel nuts for clamping the bolts.

The invention and the several subordinate novel features thereof will be hereinafter described, and embodiments thereof are illustrated in the accompanying drawings. I will describe the invention in detail as illustrated in the said drawings, and then summarize in the claims the essentials of the invention, and the novel elements, constructions, and combinations of parts for all of which protection is desired.

In said drawings:

Figure 1 is a plan view of part of a sleeper, such as shown in by aforesaid application, showing a rail secured thereto by the novel fastening devices.

Fig. 2 is an enlarged cross sectional view on the line 2—2, Fig. 1.

Fig. 3 is a top plan view of Fig. 2.

Fig. 4 is a bottom plan view of Fig. 2.

Figs. 5 and 6 are respectively top and side views of one of the nuts detached.

Figs. 7, 8 and 9 are respectively top, side, and end views of one of the yokes detached.

As set forth in my aforesaid application each rail supporting-member or sleeper is preferably made of malleable iron and has an elongated oval base flange 1^a extending entirely around it; the inner edge of this base flange being preferably upturned as at 1^b. Above and extending across this base are transverse arched ribs 1^e, 1^f, 1^g, at each side of the center of the sleeper, the ends of each rib being merged into opposite side portions of the base flange 1^b as shown in Fig. 1.

At each end of the sleeper and disposed on the longitudinal axial line thereof, is a seat 2, which is slightly wider than a rail, and is supported by and formed as an integral part of the end wall 1^n of the sleeper and the adjacent transverse rib 1^e. The seat 2 is provided with upwardly projecting flanges 2^a, 2^b, and with downwardly projecting flanges 2^c, 2^d, 2^e, to strengthen it; and it may have openings 2^f between the said flanges to lighten it.

At opposite sides of the transverse central line of the sleeper are second seats 3 in axial alinement with the seats 2. Each seat 3 is formed integral with and supported by the arched ribs 1^f, 1^g, and preferably has upstanding flanges 3^a, 3^b and depending strengthening flanges 3^c, 3^e, 3^d, as indicated in the drawings. Seats 3 may also have openings 3^f corresponding to openings 2^f.

Each sleeper shown has four longitudinally alined seats 2, 3; 3, 2 on its top.

Intermediate each pair of adjacent seats 2 and 3, at each end of the sleeper are oppositely inclined parts 5 formed integrally with and supported by the adjacent ribs 1^e and 1^f; and provided with slots 5^a for the passage of rail securing bolts, hereinafter referred to. The parts 5 may be strengthened by depending flanges 5^b and 5^c as indicated in Fig. 2. The slots 5^a in adjacent parts 5 converge toward seat 2 and diverge toward seat 3, to enable rails having bases of different widths to be seated upon the seats 2 and 3 and secured by bolts passing through the slots 5^a.

In order to deaden noise and insulate the metal of the rails from the metal of the sleepers blocks W of wood or insulating

material are placed on the seats 2 and 3, and the rails R are supported on such blocks.

Beneath each rail and between and above the parts 5 is a rail holding yoke 10 (see Figs. 2, 7–9) provided with clamping and anti-creeping lugs 10^b adapted to be engaged with opposite sides of the base of the rail R and with openings 10^a for the passage of bolts 11. The inner faces of the outer walls of these lugs 10^b are beveled, as indicated at 1^s in Fig. 7, so that when the yoke is turned across and engaged with the base of the rail the said beveled faces will bite or tend to bite into the edge of the rail base and (when the yoke is fastened) effectively prevent creeping or longitudinal slip of the rail in either direction.

The yoke 10 can be readily engaged with a rail by first placing it under and diagonally of the rail and then turning it so that the lugs 10^b engage the flange of the rail, as shown, and when so engaged the yoke can be slid under and along the rail until the openings 10^a register with said slots.

Then novel fastening bolts 11 are passed through the openings 10^a in the yoke and the slots 5^a in the parts 5 and engaged with nuts 15 placed beneath members 5.

Each bolt 11 preferably has a squared upper end 11^c for engagement of a wrench whereby it can be turned, and below this squared end has a collar 11^a which is preferably tapered and slightly serrated or undulated on its under side as at 11^b (see Fig. 2). When the bolts are tightened the under sides of their collars bite the upper surface of the base of the rail and prevent creeping of the rails longitudinally, and bind the rails securely in position.

The nuts 15 are preferably provided on their upper sides with sockets 15^a for the reception of blocks *w* of wood or insulating material, which are preferably set edgewise and project out of sockets 15^a and above the top surfaces of the nuts, and engage the under sides of the parts 5, as shown in Fig. 2. When the bolts 11 are tightened blocks *w* keep the nuts insulated from the metal parts 5.

When the parts are properly positioned, the bolt collars 11^a engage the base of the rail R, and when the bolts are screwed tightly into the nuts 15 the rail is securely held; while the blocks W and *w* and the clearance between the metal bolts 11 and the parts 5, effectually insulate the rails from the metal sleeper or support.

The sleepers shown are arranged longitudinally of the track rails; and after they are properly positioned insulating blocks W are placed on the seats 2 and 3; then the rails R are positioned on such blocks; then yokes 10 are slipped under the rails and over the parts 5 and properly positioned. Then bolts 11 are slipped through the yokes and engaged with nuts 15, positioned beneath parts 5, and screwed down until the heads 11^a of the bolts engage the rail and firmly lock the same, as indicated in Fig. 2.

The divergence of the slots 5^a enables rails of different widths to be readily secured to the sleeper by the same fastening devices.

With these novel rail fastenings tie plates, such as have been heretofore used with wood ties, are dispensed with. The yokes 10 also take the place of the present so-called "anti-creepers" and securely hold the rails against "creeping." This creeping is also prevented by the collars of the bolts, as above mentioned.

While I have illustrated and described the invention as used to fasten rails to the novel ties as set forth in my aforesaid application, the invention is not restricted to use with the particular sleeper shown and the fastenings can be readily adapted and used to attach the rails to other forms of metal sleepers; bridge-girders; steel girders, wooden ties, etc., provided suitable provision is made therein for the engagement of the bolts.

The invention also is not restricted to the employment of divergent slots, as these are useful principally in adapting the device for ready engagement with rails having bases of different widths. It is obvious that the invention as a whole, and the various subordinate features thereof are capable of separate or combined use within the scope of the invention as set forth in the following claims.

What I claim is:

1. The combination with a rail support having slots; rail securing bolts passing through said slots; nuts engaging the bolts, and a yoke underlying the rail and having perforations for the passage of the bolts and preventing relative displacement of the bolts.

2. The combination with a rail support; an anti-creeping yoke engaging the rail flanges; bolts engaging the rail and passing through the yoke and said support, and nuts engaging the bolts.

3. The combination with a rail support having slots; an anti-creeping yoke engaging the rail flanges; bolts passing through the yoke and said slots, and nuts beneath the slots engaging the bolts.

4. The combination with a rail support having slots; a yoke engaging the rail flanges, bolts passing through the yoke and said slots, and nuts engaging the bolts; said bolts holding the yoke in place and having collars engaging the rail flanges and binding the rails to the sleeper when the bolts are tightened.

5. The combination with a rail support; bolts engaging the rail and passing through the support; and nuts beneath the support engaging the bolts; said nuts having sockets in their upper sides, and blocks inserted in the sockets and spacing the nuts from metallic contact with the support.

6. In combination with a rail support; bolts passing through the support having collars on their upper ends engaging the rail flanges and binding the rails to the support when the bolts are tightened; nuts engaging the bolts having sockets, and blocks inserted in the sockets and spacing the nuts from metallic contact with the support.

7. A nut for the purpose specified having sockets in its upper side for the reception of spacing blocks. substantially as described.

8. In combination with a rail support; bolts passing through the support having collars engaging the rail flanges and binding the rail to the support when the bolts are tightened; nuts engaging the bolts having sockets; and blocks inserted in the sockets and spacing the nuts from metallic contact with the support.

9. The combination with a rail support having slots; a yoke having lips engaging the rail base flange and perforated for the passage of bolts, bolts passing through the yoke and said slots, said bolts having collars on their upper ends engaging the rail flanges and binding the rails to the support when the bolts are tightened and also holding the yoke in place; nuts beneath the slots engaging the bolts, said nuts having sockets in their upper sides; and blocks inserted in the sockets and spacing the nuts from metallic contact with the slotted portions of the sleeper.

10. The combination with a sleeper having rail seats and divergent bolt slots; rail securing bolts passing through said slots; nuts engaging the bolts, and means to prevent relative displacement of the bolts.

11. The combination with a sleeper having rail seats and divergent slots intermediate the seats; bolts passing through the said slots, a yoke engaging the bolts, and nuts beneath the slots engaging the bolts.

12. The combination with a sleeper having rail seats and divergent bolt slots; a yoke engaging the rail flanges, bolts passing through the yoke and said slots, and nuts engaging the bolts.

13. The combination with a sleeper having rail seats and divergent bolt slots; a yoke engaging the rail flanges, bolts passing through the yoke and said slots, and nuts beneath the slots engaging the bolts.

14. The combination with a sleeper having rail seats and divergent bolt slots; a yoke engaging the rail flanges, bolts passing through the yoke and said slots, and nuts engaging the bolts; said bolts holding the yoke in place and having collars engaging the rail flanges and binding the rails to the sleeper when the bolts are tightened.

15. The combination with a sleeper having rail seats and divergent slots intermediate the seats, a yoke engaging the rail flanges, bolts passing through the yoke and said slots, and nuts beneath the slots engaging the bolts, said bolts having collars engaging the rail flanges and binding the rails to the sleeper when the bolts are tightened, the bolts holding the yoke in place.

16. The combination with a sleeper having rail seats and divergent slots intermediate the seats, a yoke intermediate the seats having lips engaging the rail flanges and perforated for the passage of bolts, bolts passing through the yoke and said slots; nuts beneath the slots engaging the bolts, said nuts below having sockets in their upper sides, and blocks inserted in the sockets and spacing the nuts from metallic contact with the slotted portions of the sleeper.

17. The combination with a sleeper having rail seats and divergent slots intermediate the seats, bolts passing through said slots having collars on their upper ends engaging the rail flanges and binding the rails to the sleeper when the bolts are tightened, and nuts beneath the slots engaging the bolts.

18. In combination with a sleeper having a rail seat and slots, bolts passing through the slots having collars engaging the rail flanges and binding the rails to the sleeper when the bolts are tightened, and nuts below the seats engaging the bolts.

19. In combination with a sleeper having a rail seat and slots, bolts passing through the slots having collars on their upper end engaging the rail flanges and binding the rails to the sleeper when the bolts are tightened; nuts engaging the bolts having sockets, and blocks inserted in the sockets and spacing the nuts from metallic contact with the sleeper.

20. The combination with a sleeper having rail seats and divergent slots intermediate the seats, bolts passing through said slots having collars on their upper ends engaging the rail flanges and binding the rails to the sleeper when the bolts are tightened, and nuts beneath the slots engaging the bolts, said nuts having sockets in their upper sides, and blocks inserted in the sockets and spacing the nuts from metallic contact with the slotted portions of the sleeper.

21. In combination with a sleeper having a rail seat, bolts passing through the sleeper having collars engaging the rail flanges and binding the rails to the sleeper when the bolts are tightened; nuts engaging the bolts having sockets: and blocks inserted in the sockets and spacing the nuts from metallic contact with the sleeper.

22. The combination with a sleeper hav-

ing rail seats and divergent slots intermediate the seats, a yoke intermediate the seats having lips engaging the rail flanges and perforated for the passage of bolts, bolts passing through the yoke and said slots, said bolts having collars on their upper ends engaging the rail flanges and binding the rails to the sleeper when the bolts are tightened and also holding the yoke in place; nuts beneath the slots engaging the bolts, said nuts having sockets in their upper sides; and blocks inserted in the sockets and spacing the nuts from metallic contact with the slotted portions of the sleeper.

In testimony that I claim the foregoing as my own, I affix my signature.

JOSEPH A. SILVER.