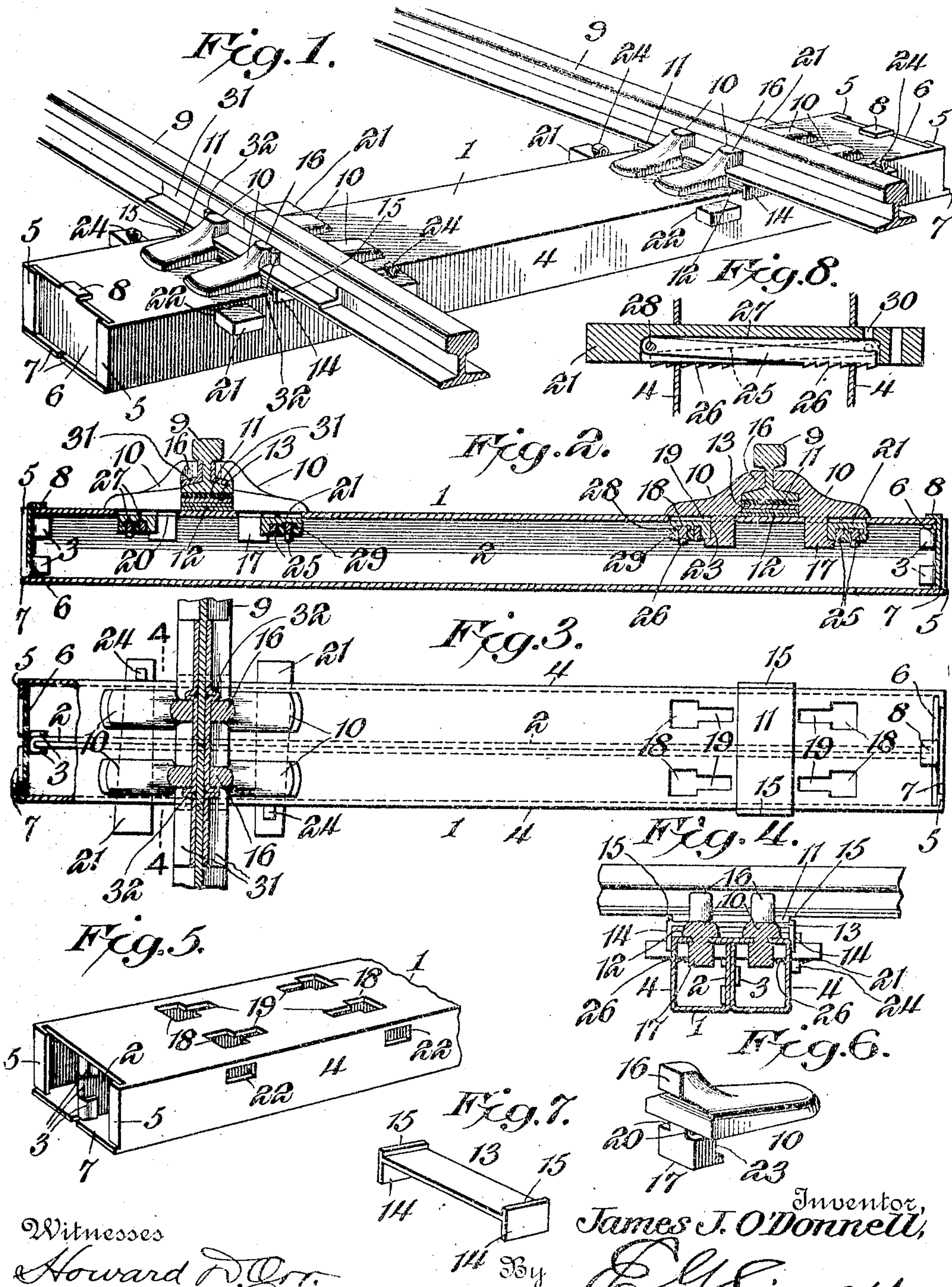


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RAILWAY TIE AND RAIL FASTENING.
APPLICATION FILED NOV. 16, 1908.

916,186.

Patented Mar. 23, 1909.



Witnesses

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JAMES JOSEPH O'DONNELL, OF PADUCAH, KENTUCKY.

RAILWAY-TIE AND RAIL-FASTENING.

No. 916,186.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES J. O'DONNELL, a citizen of the United States, residing at Paducah, in the county of McCracken and State of Kentucky, have invented a new and useful Railway-Tie and Rail-Fastening, of which the following is a specification.

The invention relates to improvements in railway ties and rail fastenings.

10 The object of the present invention is to improve the construction of railway ties and rail fastenings, and to increase the strength, durability and efficiency of the same, and to provide a simple and comparatively inexpensive metallic cross tie and rail fastening, adapted to dispense with bolts, nuts and nut locking devices, and capable of permitting the rails to expand and contract without loosening or injuring the fastening means.

20 A further object of the invention is to provide a cross tie and rail fastening of this character, adapted to permit the rails to be quickly removed and replaced and capable of affording an accurate gauge for the rails.

25 Another object of the invention is to provide a cross tie and fastening means capable of positively drawing the rails in proper position and of thereby being utilized as a means for straightening crooked rails while securing the same in position on the cross ties.

30 Furthermore, the invention has for its object to provide a hollow metallic cross tie, adapted to be tamped full of earth, or other material when it is desired to weight the cross tie or deaden sound, and equipped with means for retaining the tamped material in place.

35 Another object of the invention is to provide an efficient rail cushioning device, adapted to afford the desired elasticity and capable of enabling the metallic cross tie to be constructed as strong and rigid as necessary.

40 With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

55 In the drawing:—Figure 1 is a perspective

view of a railway tie and rail fastening, constructed in accordance with this invention. Fig. 2 is a longitudinal sectional view. Fig. 3 is a plan view, partly in section. Fig. 4 is a transverse sectional view, taken substantially on the line 4—4 of Fig. 3. Fig. 5 is a detail perspective view of one end of the cross tie, the end wall being removed. Fig. 6 is a detail perspective view of one of the rail-holding clamp. Fig. 7 is a detail view of the cushion supporting and holding device. Fig. 8 is a detail sectional view, illustrating the construction of the pivoted ratchet bars for locking the wedges in engagement with the rail-holding clamps.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

1 designates a hollow metallic cross tie, constructed of a single piece of sheet metal, such as sheet steel, or other suitable material and bent to form a hollow angular cross tie. The longitudinal edged portions 2 of the sheet metal are arranged in contact and extend upward from the longitudinal center of the bottom of the cross tie and form a central longitudinal support, which fits against the lower face of the top of the cross tie, as clearly illustrated in Fig. 4 of the drawing. The longitudinal edged portions form a doubled reinforced brace throughout the longitudinal center of the cross tie, and they are provided at their ends with lugs 3, bent around the end edges of the longitudinal portions, as clearly shown in Figs. 4 and 5 of the drawing and securing the said longitudinal edged portions together. The central longitudinal support terminates short of the ends of the cross tie, and the side walls 4 are provided with inwardly extending vertical flanges 5, spaced from the end edges of the top of the cross tie and forming opposite vertical ways for the reception of removable walls 6, which rest upon the projecting portions 7 of the bottom of the cross tie. The removable end walls 6 are held against outward displacement by the flanges 5, and the ends of the central longitudinal support resist any inward movement of the end walls, and they cooperate with the flanges 5 in slidably retaining the end walls in place. The end walls are provided at the top with inwardly extending lugs 8, overlapping the top of the cross tie and adapted to be engaged by a suitable tool for conveniently removing the end walls from the cross tie. By providing

the removable end walls cross ties may be tamped with earth, or any other suitable material, when it is desired to weight them or deaden noise, and the end walls will retain the tamped material, within the cross ties.

The rails 9, which are held in place by rail-holding clamps 10, are supported upon cushions consisting of upper and lower sections 11 and 12, arranged within a holder 13, constructed of a flat plate or body, provided at its ends with depending tie-engaging flanges 14 and short upwardly extending flanges 15, forming a seat for the upper section 11 of the cushion to prevent displacement of the same. The lower section of the cushion is arranged upon the cross tie and is located between the depending flanges 14, which extend below the lower cushioning section and engage the side faces of the cross tie. The upper cushioning section, which is placed between the upwardly extending flanges 15, is of a thickness greater than the latter to prevent the rail from coming in contact with the same. The lower cushioning section is preferably constructed of wood, and the upper section 11 is preferably constructed of rubber, or other elastic material. However, the cushioning sections may be made of any other suitable material, as will be readily understood. By cushioning the rails in this manner the cross tie may be constructed as strong and rigid as desired without forming too rigid a support for the rails.

The rail holding clamps 10 are provided with a body portion, arranged upon the top of the cross tie and having a flat lower face to fit against the top wall. The clamp is provided at its inner end with a jaw 16, extending over the bottom flange of the rail and adapted to engage the same or a fish plate, as clearly illustrated in Fig. 2 of the drawing, whereby the rails are securely fastened to the cross tie. The clamps are arranged in pairs and are provided with depending shanks or attaching portions 17, extending through the top of the cross tie, which is provided with openings having enlarged outer portions 18 and contracted inner portions 19. The depending attaching shanks or portions 17 are of a size to pass through the enlarged portions 18 of the openings of the cross tie, and they are provided at opposite sides with grooves 20, forming a narrow portion of a size to enter the contracted portions of the slots and adapted to receive the edges of the sheet metal of the tie at opposite sides of the slot 19, whereby the clamps are slidably interlocked with the top of the cross tie.

The clamps are movable inwardly and outwardly along the narrow longitudinally disposed contracted portions 19 of the openings to engage and release the rails, and they are securely maintained in engagement with the rails by means of transverse wedges 21, arranged horizontally and passing through op-

posite slots 22 of the side walls of the cross tie. The wedges engage transverse recesses 23 of the shanks or attaching portions of the clamps, and are thereby interlocked with the same, so that in addition to preventing outward or backward movement of the clamps, the keys also operate to hold the clamps against upward movement and assist in preventing upward movement of the rails. The track fasteners of the cross tie are spaced the proper distance apart, so that when the rails are secured in place, the track will be of the proper gage. Also as the wedges are capable of positively forcing the rails into proper position with relation to each other, the rail fastenings are adapted to be employed for straightening crooked rails.

The wedges are secured in place by suitable keys 24 and they are preferably equipped with reversely arranged pivoted ratchet bars 25, provided with ratchet teeth 26 for engaging the side walls of the cross tie at the slots or openings 22, and they operate in longitudinal grooves 27 in the lower faces of the wedges. The ratchet bars are provided at their inner ends with pivots 28, projecting laterally and arranged in opposite recesses 29 in the walls of the grooves 27. The ratchet teeth are shouldered at their inner sides, and the engagement of the ratchet bars with the cross tie retains the pivots in the bearing recesses. When the wedges are removed, the ratchet bars may be readily detached and replaced. The ratchet bar, which engages the cross tie at the larger end of the wedge, is adapted to be lifted out of engagement with the cross tie by the finger of the operator, and the wedge is provided at its other end with an opening 30, adapted to permit a tool to be introduced into it for holding the other ratchet bar out of engagement while the wedge is being driven outward. When the rails are properly secured in place upon the cross tie, it is next to impossible for the rails to become loose.

The adjacent ends of the two rails are engaged by opposite fish plates 31, provided in their vertical portions with ribs 32, preferably formed by crimping the fish plates, or grooving the metal at the inner faces of the fish plates and located at the outer sides of the engaging portions or jaws of the clamps, as clearly illustrated in Figs. 1 and 3 of the drawing, whereby the fish plates and the rails are securely clamped on the cross tie without the use of bolts and nuts and nut locking devices. This manner of forming a rail joint also obviates the necessity of perforating the fish plates and the rails. Instead, however, of grooving the vertical web-engaging portions of the fish plates to form exterior projecting ribs or flanges, the latter may be cast, or otherwise formed.

integral with the fish plates and various other forms of integral stops may be employed for engaging the rail holding clamps.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A metallic cross tie consisting of a sheet of metal folded to form a hollow angular tie, the longitudinal edge portions being fitted together and extended upward from the bottom of the tie to form a central longitudinal support for the top of the same, said central support being terminated short of the ends of the cross tie and the latter being provided at the side walls with opposite ways, and removable end walls arranged in the ways.

2. A metallic cross tie consisting of a sheet of metal folded to form a hollow angular tie, the longitudinal edge portions being fitted together and extended upward from the bottom of the tie to form a central longitudinal support for the top of the same, said central support being terminated short of the ends of the cross tie and the latter being provided at opposite sides with inwardly extending vertical flanges cooperating with the ends of the central support to form ways, and removable end walls supported upon the bottom of the cross tie and arranged in the said ways, the end walls being held against outward movement by the vertical flanges and against inward movement by the central support.

3. A cross tie provided with rail cushioning means including upper and lower cushioning sections, and a holder composed of a body portion interposed between the said sections and provided with terminal means for engaging the same and the cross tie, said means being extended upward and downward and located entirely beneath the rail.

4. A cross tie provided with rail cushioning means including a support extending across the tie and provided with upwardly and downwardly extending terminal flanges located entirely beneath the rail, the downwardly extending flanges engaging the sides of the cross tie, and upper and lower cushioning sections located above and below the holder and arranged between the terminal flanges thereof.

5. A cross tie provided with cushioning means including a metallic holder consisting of a flat body portion and terminal flanges extending upwardly and downwardly from the body portion and located entirely beneath the rail, the downwardly extending flanges being arranged to engage the sides of the cross tie, a lower wooden section interposed between the body portion of the holder and the cross tie and arranged between the downwardly extending flanges, and an upper

elastic cushioning section arranged between the upwardly extending flanges and being of a thickness in excess of the height of the upwardly extending flanges.

6. The combination of a hollow cross tie, rail-holding clamps slidably interlocked with the top of the cross tie, and transversely disposed locking members piercing the cross tie and engaging the clamps to hold the same against outward movement and also interlocked with the clamps for holding the same against upward movement.

7. The combination of a hollow cross tie, opposite rail-holding clamps having depending shanks slidably interlocked with the top of the cross tie and provided with recesses, transverse wedges piercing the side walls of the cross tie and fitting in the recesses of the shanks of the clamps, and opposite pivoted ratchet bars carried by the wedges and engaging the side walls of the cross tie.

8. The combination of a hollow cross tie, opposite rail-holding clamps having depending shanks slidably interlocked with the top of the cross tie and provided with recesses, transverse wedges piercing the side walls of the cross tie and fitting in the recesses of the shanks of the clamps, and opposite pivoted ratchet bars carried by the wedges and engaging the side walls of the cross tie, each of the wedges being provided at its smaller end with an opening located at the adjacent engaging portion of the ratchet bar for enabling the same to be held out of engagement by the tool.

9. The combination of a cross tie, rail-holding clamps, and fish plates provided with integral projections extending beyond the outer faces of the fish plates and engaging the clamps for holding the fish plates against longitudinal movement.

10. The combination of a cross tie, rail-holding clamps, and fish plates provided with exterior vertical ribs projecting beyond the outer faces of the fish plates and fitted against the clamps, whereby the fish plates are held against longitudinal movement.

11. The combination with a cross tie, and rail-holding clamps, of fish plates provided with exterior ribs formed by grooving the fish plates at the inner faces thereof and projecting beyond the outer faces of the fish plates, said ribs being arranged to engage the clamps for holding the fish plates against longitudinal movement.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES JOSEPH O'DONNELL.

Witnesses:

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J. R. GREGAN.