(No Model.) 3 Sheets—Sheet 1.

C. A. HARVEY.

RAILWAY TRACK FASTENING.

No. 418,892. Patented Jan. 7, 1890.

Fig. 1.

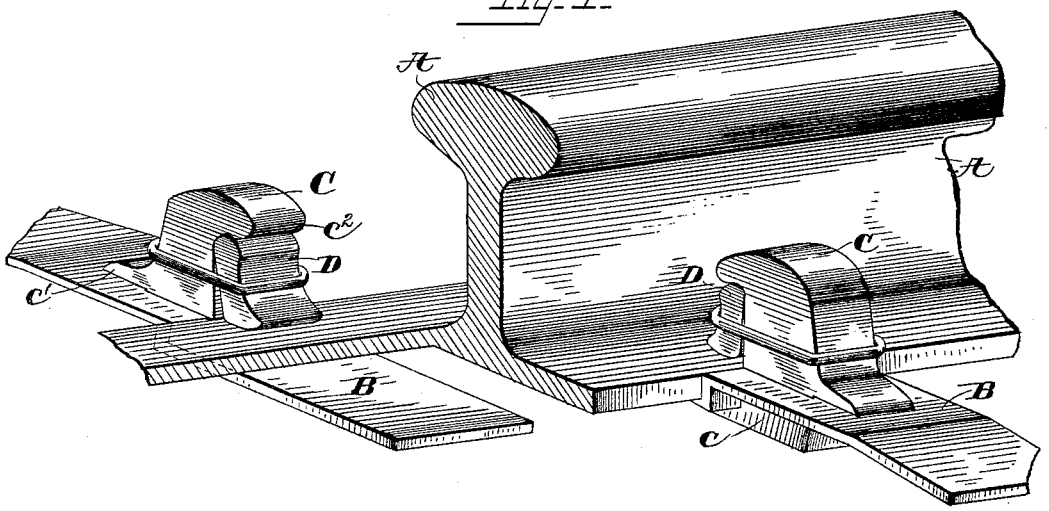


Fig. 2.

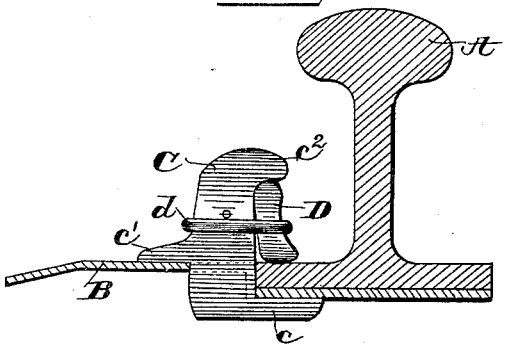


Fig. 3.

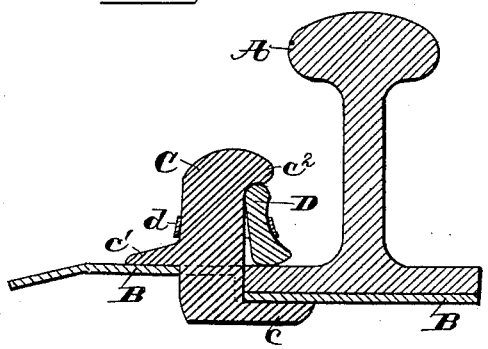
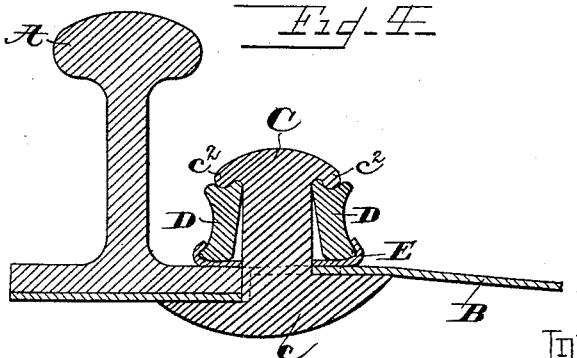


Fig. 4.



Witnesses.

G. A. Tauberschmidt.

L. B. Whitaker.

Inventor.

Charles A. Harvey

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(No Model.) 3 Sheets—Sheet 2.

C. A. HARVEY.

RAILWAY TRACK FASTENING.

No. 418,892. Patented Jan. 7, 1890.

Fig. 5.

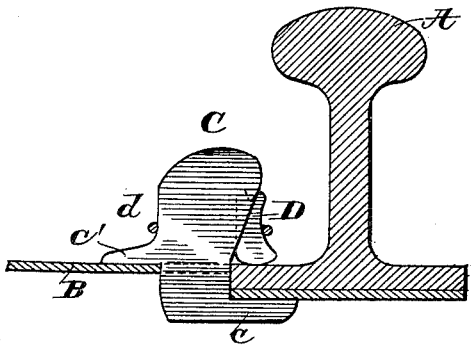


Fig. 7.

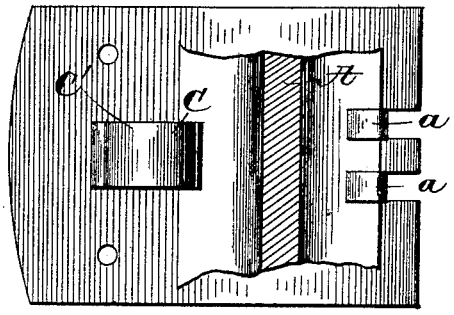


Fig. 8.

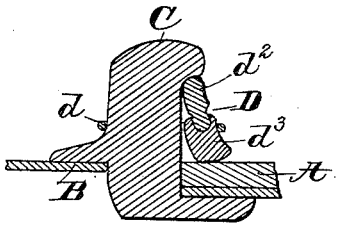
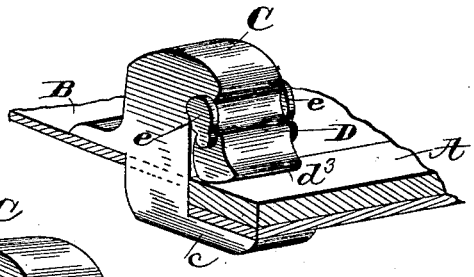


Fig. 9.



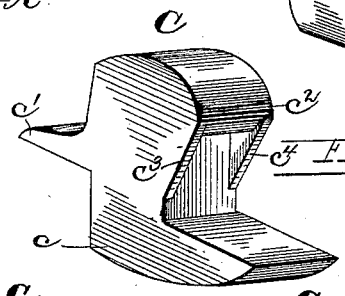


Fig. 6.

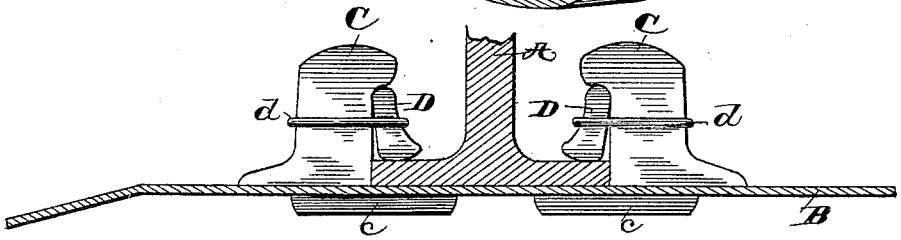


Fig. 10.

Witnesses.

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(No Model.) 3 Sheets—Sheet 3.

C. A. HARVEY.

RAILWAY TRACK FASTENING.

No. 418,892. Patented Jan. 7, 1890.

Fig. 11.

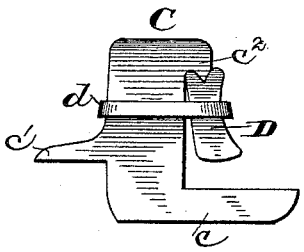


Fig. 12.

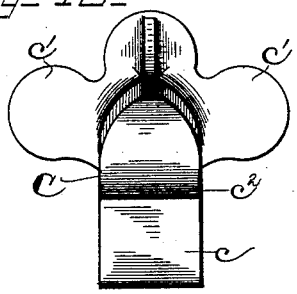


Fig. 13.

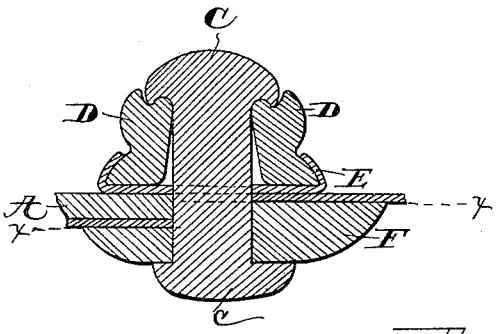


Fig. 14.

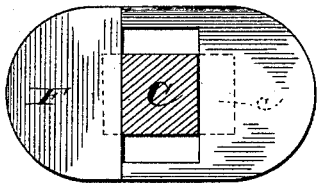


Fig. 15.

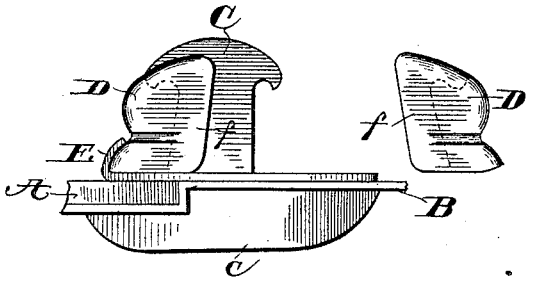
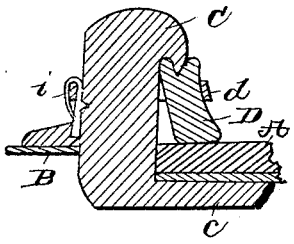


Fig. 16.



Witnesses.
G. A. Tauberschmidt,
L. R. Whitaker.

Inventor.
Charles A Harvey
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Whitaker & Wood

UNITED STATES PATENT OFFICE.

CHARLES A. HARVEY, OF WASHINGTON, DISTRICT OF COLUMBIA.

RAILWAY-TRACK FASTENING.

SPECIFICATION forming part of Letters Patent No. 418,892, dated January 7, 1890.

Application filed August 3, 1888. Renewed December 12, 1889. Serial No. 333,398. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. HARVEY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Railway-Track Fastenings; 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 invention is an improvement in track or rail fastenings for railroads, and has for its object the better securing of the rails to the ties; and it consists in a bolt of peculiar construction and a toggle-block or locking-piece used in connection therewith.

Several forms in which I have contemplated embodying my invention are illustrated in the accompanying drawings and are disclosed in the following description and claims. The means in most general use for securing the rails are wooden ties and headed spikes, attaching the rails to the ties with seats or chairs at the points of junction of the rails; but this system of securing the rails is very defective, the heavy jar and vibration of the road-bed tending to weaken the hold of the spikes in the ties and also to withdraw them from their places, so that in a short time the rails become loosened. Metal ties have been employed to a less extent; but where used the means employed for fastening the rails, consisting of bolts and nuts with and without chairs or seats, has been found in as great a degree unsatisfactory. The nuts of the securing-bolts soon become loosened by the jar and vibration caused by the passing trains.

My improved fastening is designed to avoid these objections, and is designed more particularly for use with metallic ties, though in a modified form it can be employed with wooden ties to a great advantage.

In the drawings, Figure 1 is a perspective view of a portion of a rail and parts of two adjacent metallic ties, with parts in section. Fig. 2 is a sectional view of the rail and tie, with the fastening device in elevation. Fig. 3 is a sectional view through rail, tie, and fastening. Fig. 4 is a like section of a modified form. Fig. 5 is a section of a tie and rail, with another form of fastening device in elevation. Fig. 6 is a perspective view of the bolt shown in Fig. 5. Fig. 7 is a plan view of a construction adapted for use with wooden ties. Figs. 8 and 9 are sectional and perspective views of a modification. Fig. 10 is a view showing the devices employed with a straight metallic tie. Fig. 11 is a side view of the fastening device alone. Fig. 12 is a top or plan view of a fastener of different form. Fig. 13 is a vertical section of another fastening. Fig. 14 is a horizontal section of the bolt shown in Fig. 13 on line $x\,x$ in that figure. Fig. 15 is a side elevation of another form of fastener. Fig. 16 shows a means which I have devised for securing the retaining-band.

In Figs. 1, 2, 3, 10, and 11 I have shown one of the simplest forms of fastener.

Throughout the drawings, A designates the rail, and B the tie.

C is the bolt or main portion of my fastening device, and which is in these figures provided at the lower end with the head c, which projects only on one side of the body of the bolt. The tie B is of metal, and is provided at the edge of the bottom of the rail with apertures large enough to admit the body of the bolt. The bolt can be then placed in position by inclining the bolt and inserting the outer end of the head c in the aperture and then bringing the bolt into a vertical position in a well-known way. The bolt has on the side opposite that of the head c a flange or projection c', which has a straight under surface to fit the top of the tie when the bolt is in a vertical position. On the same side as the head c the bolt is provided with a projection c^2. This projection is in these figures hollowed on its under side.

D is a toggle-block piece having a rounded top to fit the under side of projection c^2 and a curved face. This toggle-block is of such length that when a rail has been placed on the tie the toggle block will stand in an inclined position with its base upon the bottom flange of the tie and its top beneath the projection c^2.

d is the retaining device, which in this instance is a rectangularly-shaped band. This

is placed over the bolt and toggle-block, and when forced downward draws the base of the wedge toward the body of the bolt, clamping the tie and rail tightly against the head of the bolt. I place one fastener on each side of the rail on each tie, and thus secure it rigidly in place. The retaining device may be held from displacement by providing the bolt with one or more holes just above the device, as seen in Fig. 2, and placing therein nails or pins.

In Fig. 3 a retaining-band is shown formed of flat metal, with the sides bearing on the toggle-block, and the rear of the bolt inclined inwardly from the bottom to the top, so that when forced to the required position it is prevented from any upward movement.

In Fig. 4 I have shown a construction of fastener differing somewhat from that just described. In this form the bolt C is provided with a head much greater in size and extending on all sides of the bolt. In this construction the bolt is inserted from the under side of the tie. The bolt is also provided with two projections c^2 c^2, and two toggle-blocks D are employed therewith. The upper ends of these toggle-blocks are provided with a groove to fit the rounded lip of the projection c^2 c^2. A piece of malleable metal E is placed between the toggle-blocks and the tie and rail-flange. This plate is provided with an aperture large enough to pass over the upper end of the bolt C. The toggle-blocks D are then placed in position and forced inward and the ends of the plate E turned upward, as shown in the drawings, securing the toggle-blocks from outward movement. It will be thus seen that the plate E forms the retaining device in this construction.

In Figs. 5 and 6 the construction is the same as that shown in the first three figures, except that the bolt is provided at each side with flanges c^3 and c^4, extending to the outer end of the projection c^2. The upper end of the toggle-block D is placed within these flanges, the latter serving as guides to prevent the lateral movement of the toggle-block.

In Fig. 7 is shown a form of fastening device adapted for use with a wooden tie. In this construction the head of the bolt is formed into a flat plate C′, which may be bolted or otherwise secured to the tie. In this construction the head or plate C′ may extend entirely beneath the rail and be provided with clips a a, like an ordinary chair or seat, or two fasteners may be employed, one on each side of the rail.

In Figs. 8 and 9 the toggle-blocks are composed of two pieces d^2 and d^3, and the upper portion d^2 is provided with guiding or retaining flanges e e. In the operation of securing a rail by this fastening the upper end of the wedges are placed in position and the base portions placed close to the body of the bolt, with the central portion bowed outward. The fastener d is then placed over the bolt and forced downward to the position shown in Fig. 8.

In most of the figures the fastener is shown in connection with a tie provided with an offset to form a rail-seat; but in Fig. 10 two fasteners are shown applied to a straight tie, but little change in the construction being required to adapt them to this use.

While in most of the figures the bolt and flange c' have been represented as having a square form, they may be made of any other forms desired.

In Fig. 12 is shown a bolt having its sides curved backward to the center of the bolt, and the flange c' is made to extend outward on each side.

In Figs. 13 and 14 I have shown a modification of the construction shown in Fig. 4. In this case the head of the bolt C is made much smaller than in the other figures, and a washer F is employed to give it the requisite size. This washer is provided with an opening having its greatest length transversely of the same, and the head c of the bolt is made to pass easily through it. The parts are brought together for operation by placing the washer beneath the tie, then passing the bolt through the tie and washer and giving it a greater turn, when the head c will assume the position shown in Fig. 14, when the toggle-blocks D are put in position and fastened, as heretofore described. Also, in Fig. 15 the construction is the same as in Fig. 4, with the exception that the toggle-blocks D are provided on each side with flanges f f, which extend over the sides of the bolt and substantially inclose the same.

In Fig. 16 I have illustrated another method of securing the retaining device or band d in position. The rear of the bolt C is provided with a notch or recess, and a thin wedge i, having a projection to fit, is placed against the bolt, with a projection engaging the recess in the bolt. The retaining device is then forced down over the bolt and wedge and the wedge bent outward and downward over the device d, securing it from all upward movement.

The mode of using the toggle-block for a tightening device is apparent from the drawings. The upper portion of the block is made to engage the hollowed-out or recessed portion of the bolt, and the base of the block is then forced inwardly toward the body of the bolt until the material to be held in place is firmly secured, when the toggle-block is retained in position, as hereinbefore described.

What I claim, and desire to secure by Letters Patent, is—

1. In an attaching device for railroad-rails, the combination, with a bolt having a head and projection on the same side as the head, the said bolt being provided with a recessed or hollowed-out portion between the outer extremities of the projection and the body of the bolt, of a toggle-block the upper side of

which is adapted to engage said recessed portion and to clamp materials against the head, and a device for retaining the base of the toggle-block in position, substantially as described.

2. In an attaching device for railroad-rails, the combination, with a bolt having a head and projection on the same side as the head, the said bolt being provided with a recessed portion between the outer extremity of the projection and the body of the bolt, of a toggle-block the upper portion of which is adapted to engage said recessed portion and to clamp materials against the head, the said toggle-block and bolt being, one of them, provided with flanges to prevent lateral displacement, and a device for retaining the base of the wedge in position, substantially as described.

3. In an attaching device for railroad-rails, the combination, with a bolt having a head and projection, as described, of a toggle-block and piece of metal capable of being bent for a retaining device for said wedge, substantially as described.

4. In an attaching device for railroad-rails, the combination, with the bolt provided with a head and projections on opposite sides, of two toggle-blocks engaging the projections of said bolt and provided with flanges extending on each side of the bolt and a malleable sheet of metal, substantially as described.

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

CHARLES A. HARVEY.

Witnesses:
L. B. WHITAKER,
W. R. MACK.