

No. 653,604.

Patented July 10, 1900.

J. Q. ADAMS.
METALLIC CROSS TIE.
(Application filed Mar. 17, 1900.)

(No Model.)

Fig. 6.

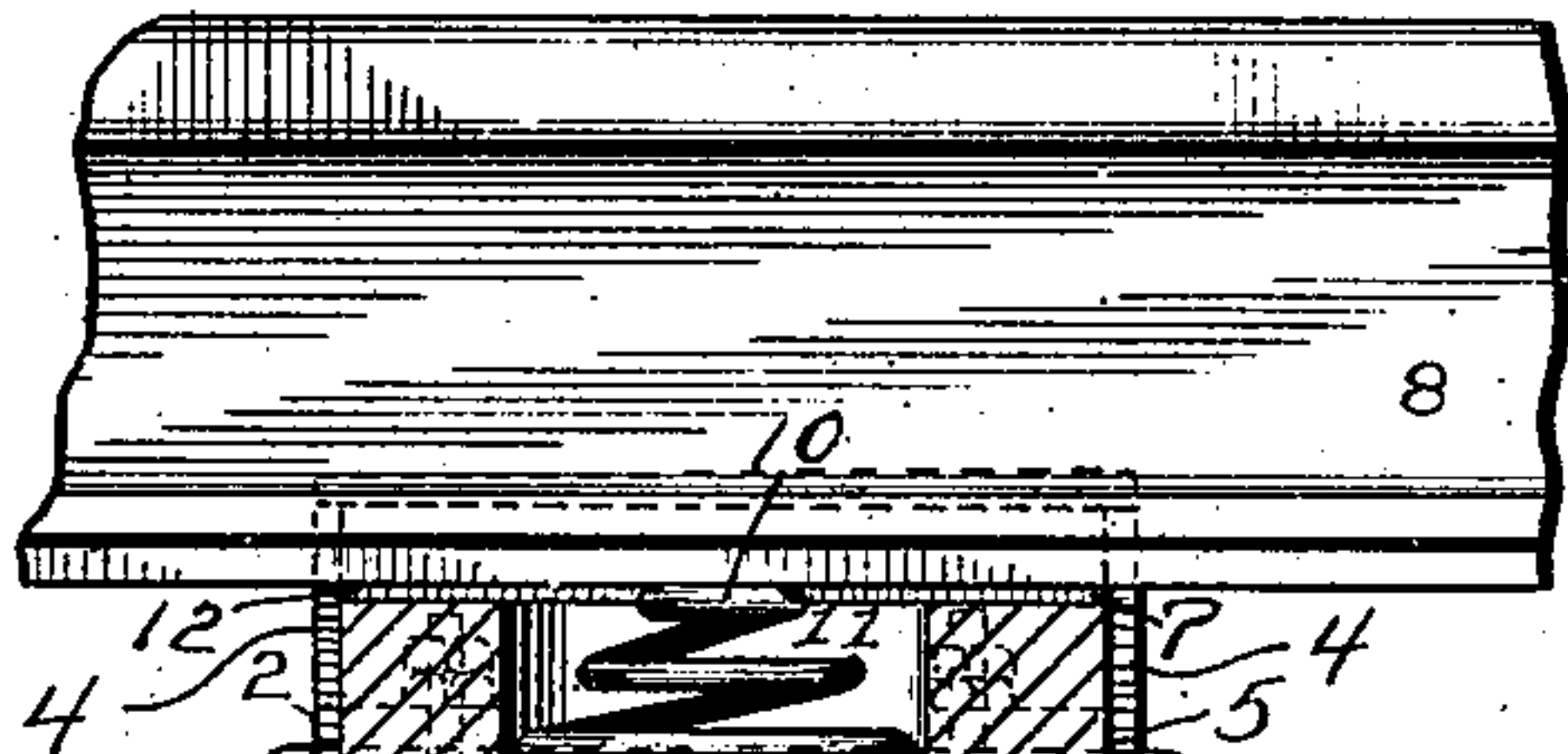
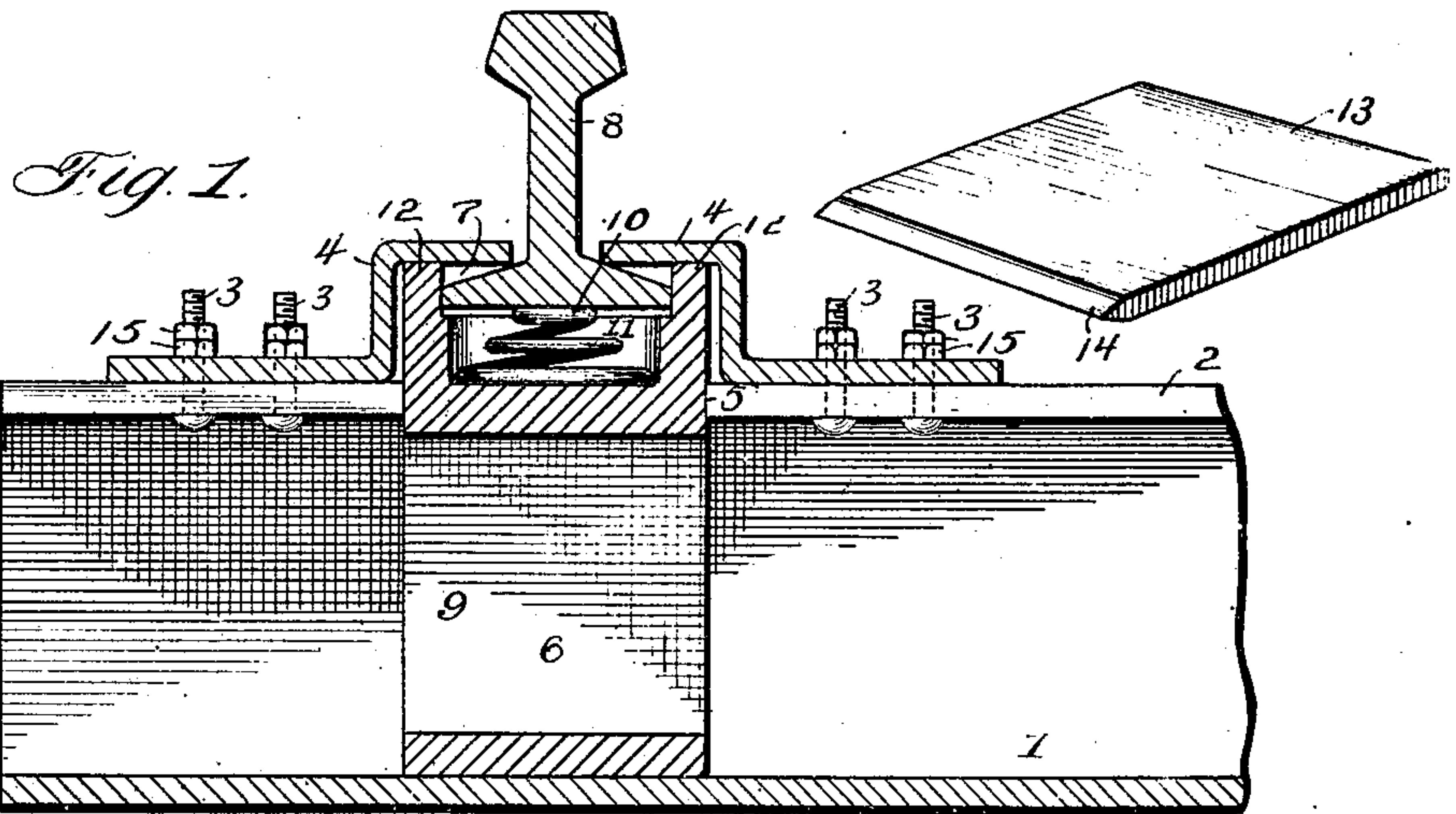


Fig. 2.

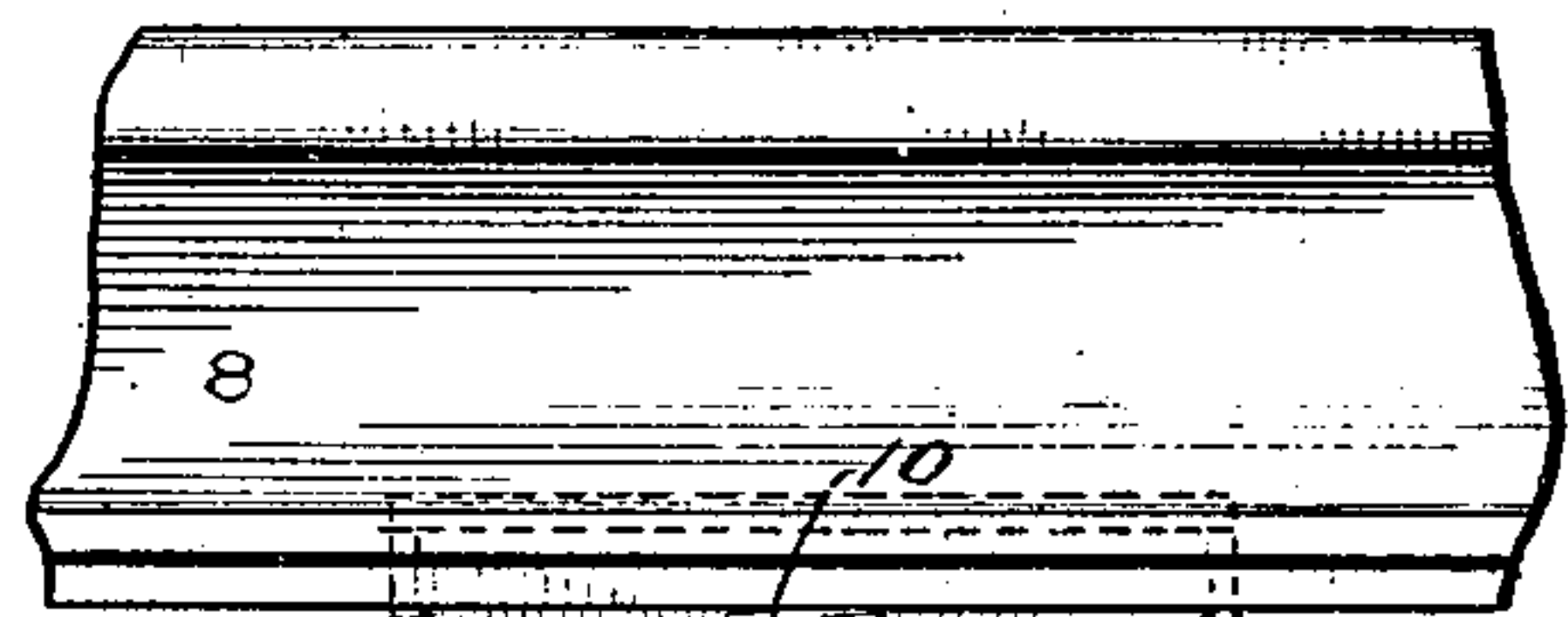


Fig. 3.

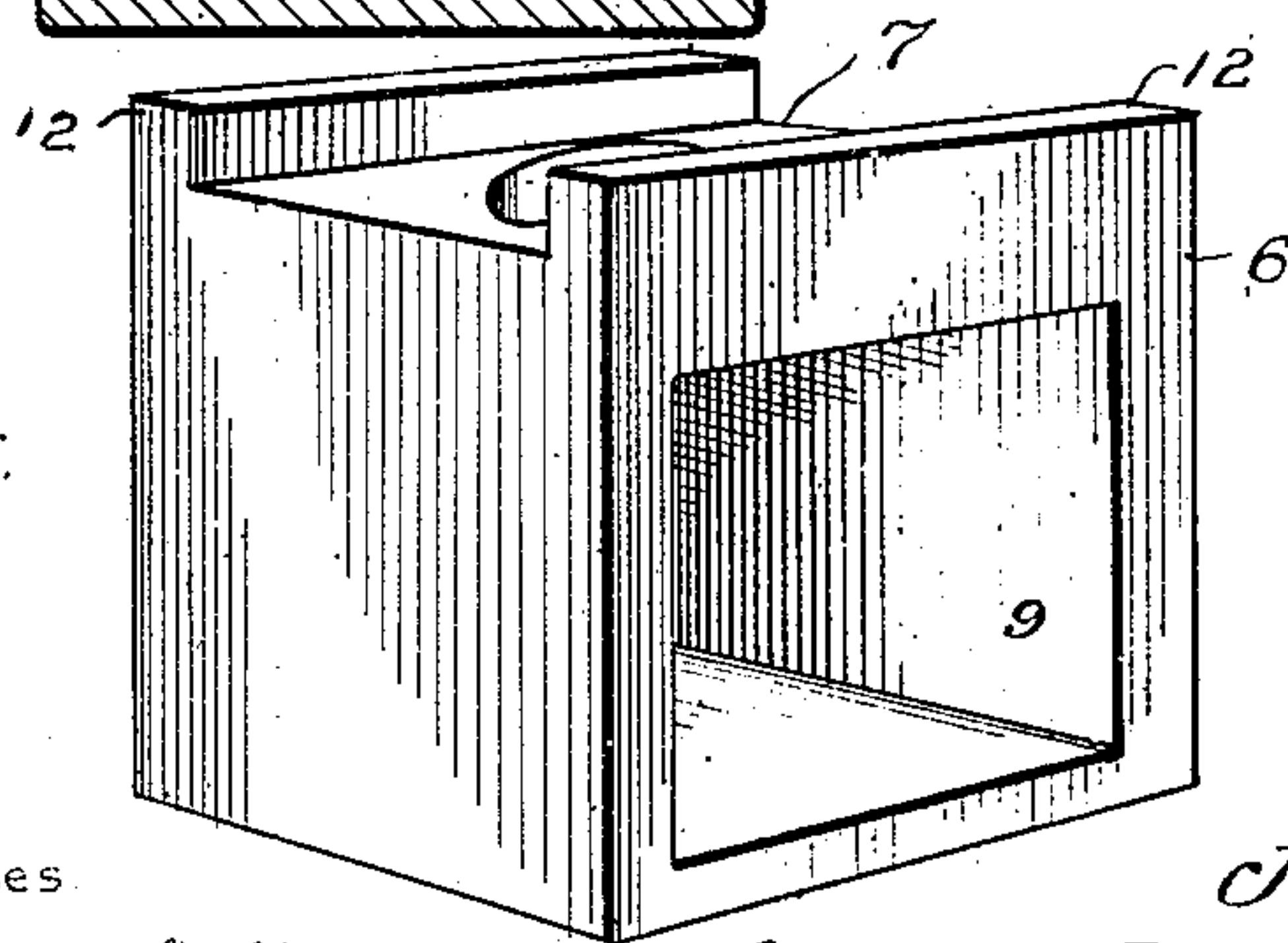


Fig. 4.

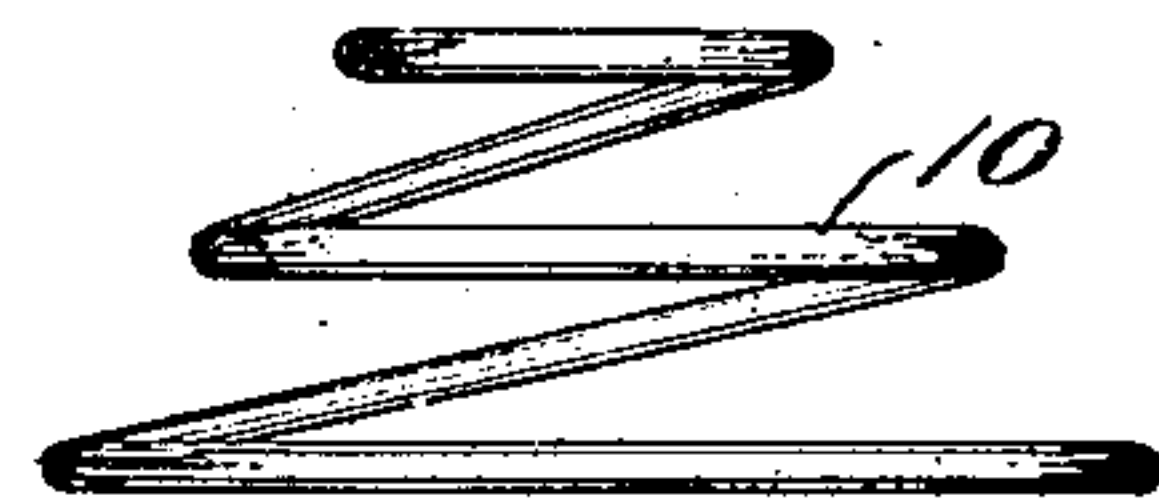


Fig. 5.

Witnesses
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UNITED STATES PATENT OFFICE.

JOHN Q. ADAMS, OF MANCHESTER, VERMONT.

METALLIC CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 653,604, dated July 10, 1900.

Application filed March 17, 1900. Serial No. 9,093. (No model.)

To all whom it may concern:

Be it known that I, JOHN Q. ADAMS, a citizen of the United States, residing at Manchester, in the county of Bennington and State of Vermont, have invented a new and useful Metallic Cross-Tie, of which the following is a specification.

The invention relates to improvements in metallic cross-ties.

One object of the present invention is to improve the construction of metallic cross-ties and to provide a simple and comparatively-inexpensive one which will be strong and durable and which will possess the elasticity or cushioning effect of a wooden cross-tie.

A further object of the invention is to provide a cross-tie of this character which in event of a portion of a track sagging will enable the rails to be leveled up in the same manner as the leveling of rails on wooden cross-ties by inserting thin pieces of wood beneath the rails.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a longitudinal sectional view of one end of a metallic cross-tie constructed in accordance with this invention. Fig. 2 is a transverse sectional view of the same. Fig. 3 is a similar view, the rail being slightly elevated by means of a piece interposed between the bottom of the chair and the bottom of the cross-tie. Fig. 4 is a detail perspective view of the chair. Fig. 5 is a detail view of the spring. Fig. 6 is a detail perspective view of one of the tapered pieces for raising the rails.

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

1 designates a metallic cross-tie preferably constructed of a single sheet of steel and bent into cross-sectionally-rectangular form, with the longitudinal edges 2 of the material at the center of the top, whereby the bolts 3 of rail-clamps 4 may be advantageously employed for retaining the tie in proper shape and to prevent it from spreading or separating at the longitudinal edges. The bolts 3, as clearly indicated in Figs. 1, 2, and 3, are located at opposite sides of the center of the

cross-tie, and the rail-clamps span the adjacent portions of the longitudinal edges 2 and bind the same together.

The metallic cross-tie is provided adjacent to each end with a rectangular top opening 5, through which projects a rail-chair 6, seated upon the bottom of the metallic cross-tie and provided at its top with a recess 7, receiving a rail 8 of the ordinary construction. The rail-chair 6, which is approximately rectangular, is preferably provided with an opening 9 to permit water to flow readily through the cross-tie from one end of the same to the other end thereof; but it may be constructed in any other suitable manner. The recess 7, which receives the rail 8, is formed by parallel side flanges 12, located at opposite sides of the rail, which is normally supported above the bottom of the recess 7 by a spring 10, as illustrated in Fig. 1 of the drawings, whereby the rail is cushioned. The rail is adapted to be depressed, and the spring imparts to the cross-tie the elasticity of an ordinary wooden tie. The cushioning-spring, which is conical, may be constructed of any size and strength, and it is adapted to be compressed without its coils contacting with one another, and the block or chair is provided at the bottom of the recess with a circular socket 11, receiving the coiled spring, as clearly shown in Fig. 1 of the accompanying drawings.

The rail is held down upon the chair and the latter is held against the bottom of the cross-tie by the rail-clamps, which are provided with L-shaped engaging portions located at opposite sides of the upper portion of the chair and extending inward over the same. The horizontal arms of the L-shaped engaging portions of the clamps engage the upper edges of the side flanges 12 of the chair and extend inward to the rail, overhanging and engaging the bottom flanges thereof.

When a portion of the track sinks or sags incident to the freezing of the ground or from any other cause, the rails are adapted to be leveled up by means of approximately-rectangular pieces 13, of wood or any other suitable material, interposed between the bottom of the cross-tie and the lower face of the rail-chair, and, as illustrated in Fig. 6 of the accompanying drawings, the wooden piece 13 is provided with a beveled edge 14

to facilitate its introduction beneath the rail-chair. To accommodate this elevation of the rail-chair, the bolts, which are arranged in pairs, are elongated, as clearly shown in Fig. 1, and the nuts 15 are adapted to be loosened to permit the rail-clamps to engage the chair and the rail when the same have been elevated by the piece 13.

It will be seen that the cross-tie is simple and comparatively inexpensive in construction, that while it is practically indestructible it cushions the rail and affords as much elasticity as a wooden cross-tie, and that it enables rails to be leveled up with the same facility as when the same are mounted upon wooden cross-ties.

What is claimed is—

1. A device of the class described comprising a cross-tie, a chair supported by the cross-tie and extending above the same and provided at opposite sides with upwardly-extending flanges forming a rail-receiving recess, said chair being provided at the bottom of the recess with a socket, a cushion arranged within the socket and adapted to bear against the bottom of the rail, and rail-clamps engaging the chair and extending inward over the recess and adapted to engage the rail, substantially as described.

2. A device of the class described comprising a cross-tie constructed of a single sheet of metal and having the longitudinal edges thereof at the top, and rail-clamps spanning the edges of the metal of the cross-tie and connecting the same, whereby the cross-tie is retained in shape, substantially as described.

3. A device of the class described comprising a cross-tie constructed of a single sheet of metal and having the longitudinal edges thereof at the top, rail-clamps spanning the longitudinal edges, and fastening devices passing through the rail-clamps and through the top of the cross-tie and located at opposite sides of the said longitudinal edges, substantially as and for the purpose described.

4. A device of the class described comprising a hollow cross-tie composed of a bottom, sides and a top provided with an opening, a vertically-adjustable rail-chair supported upon the bottom of the cross-tie and extending upward through the opening to receive a rail, and means for elevating the chair independently of the cross-tie to level a rail, substantially as described.

5. A device of the class described comprising a hollow cross-tie composed of a bottom, sides and a top with an opening, a rail-chair extending through the said opening and supported upon the bottom of the cross-tie and capable of vertical adjustment to project it to a greater or less extent above the said cross-tie, and a piece 13 interposed between the bottom of the cross-tie and the bottom of the chair and adapted to raise the latter independently of the cross-tie to level a rail, substantially as described.

6. A device of the class described comprising a hollow cross-tie composed of a bottom, sides, and a top with an opening, a rail-chair supported upon the bottom of the cross-tie and extending upward through the opening of the top, rail-clamps located at opposite sides of the chair and extending over the same and adapted to engage the rail, and elongated fastening devices securing the rail-clamps to the cross-tie, and adapted to be adjusted to permit the rail-chair to be raised, substantially as described.

7. A device of the class described comprising a hollow cross-tie composed of a bottom, sides, and a top with an opening, a chair supported upon the bottom of the cross-tie and extending upward through the opening of the top thereof and arranged to receive a rail, and clamps secured to the top of the cross-tie and engaging the chair and extending inward over the same to engage the rail at opposite sides thereof, substantially as described.

8. A device of the class described comprising a hollow cross-tie provided at the top with an opening, a rail-chair arranged upon the bottom of the cross-tie and extending upward through the opening of the top thereof, and provided within the cross-tie with an opening to permit the passage of water through the said cross-tie, means for adjusting the rail-chair independently of the cross-tie, and clamps mounted upon the top of the cross-tie and engaging the chair, substantially as described.

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

JOHN Q. ADAMS.

Witnesses:

S. K. BURBANK,
ELLA A. SMITH.