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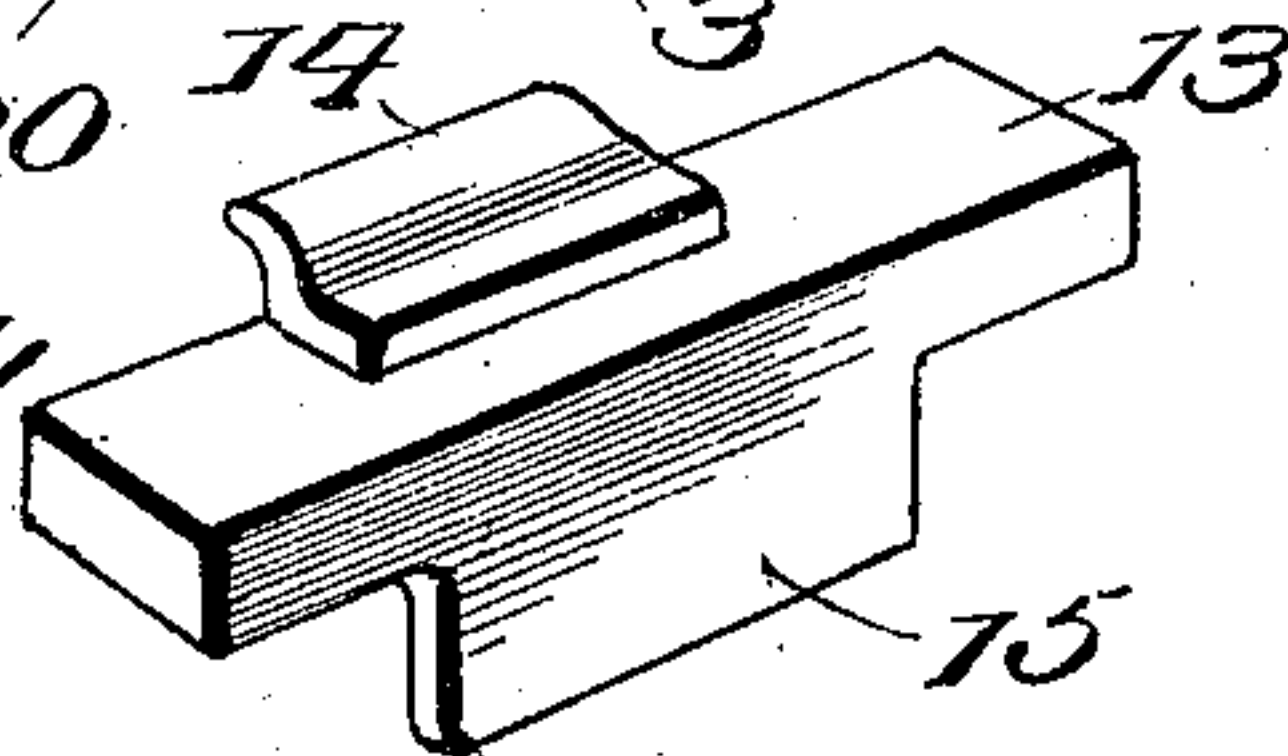
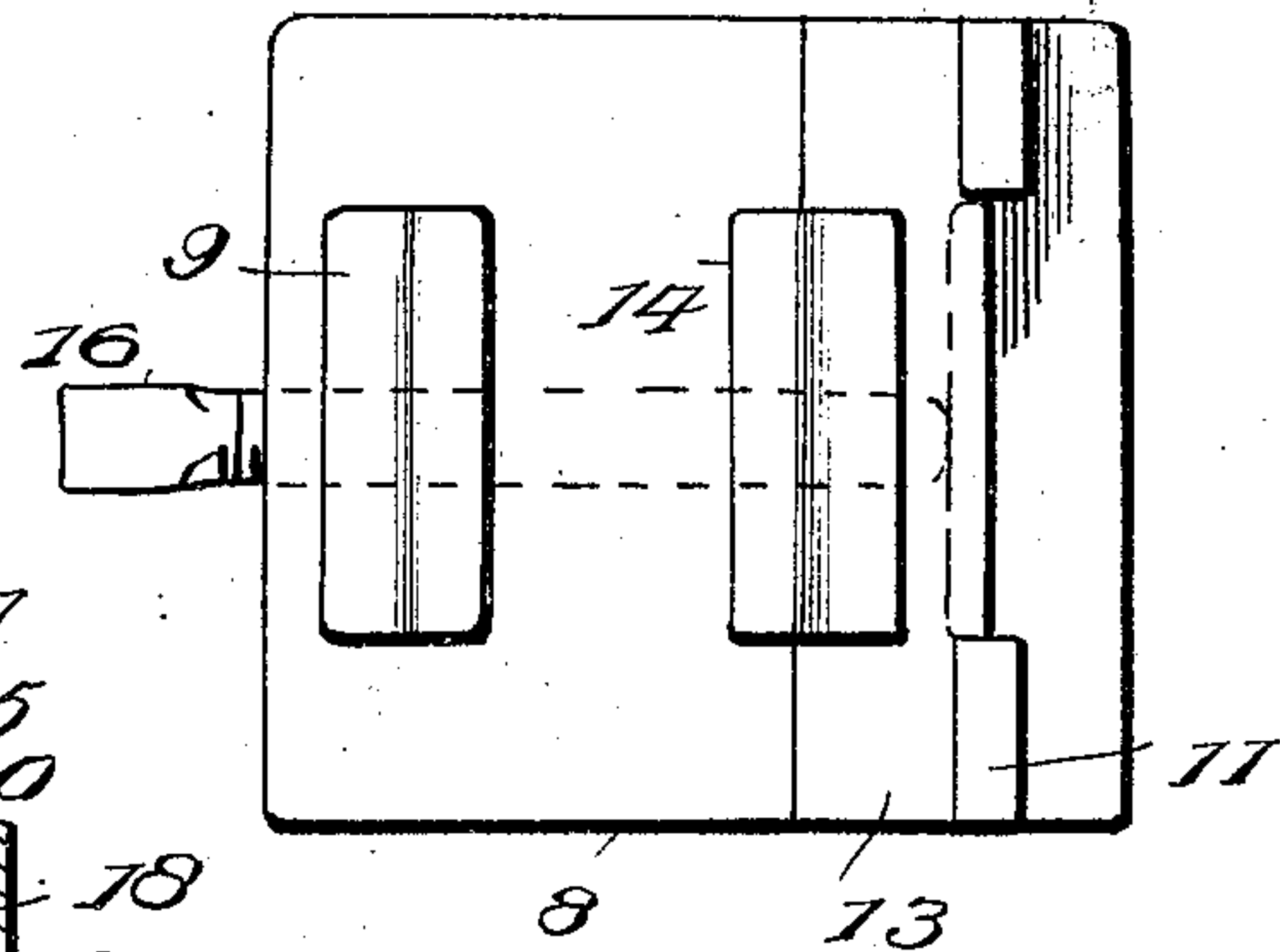
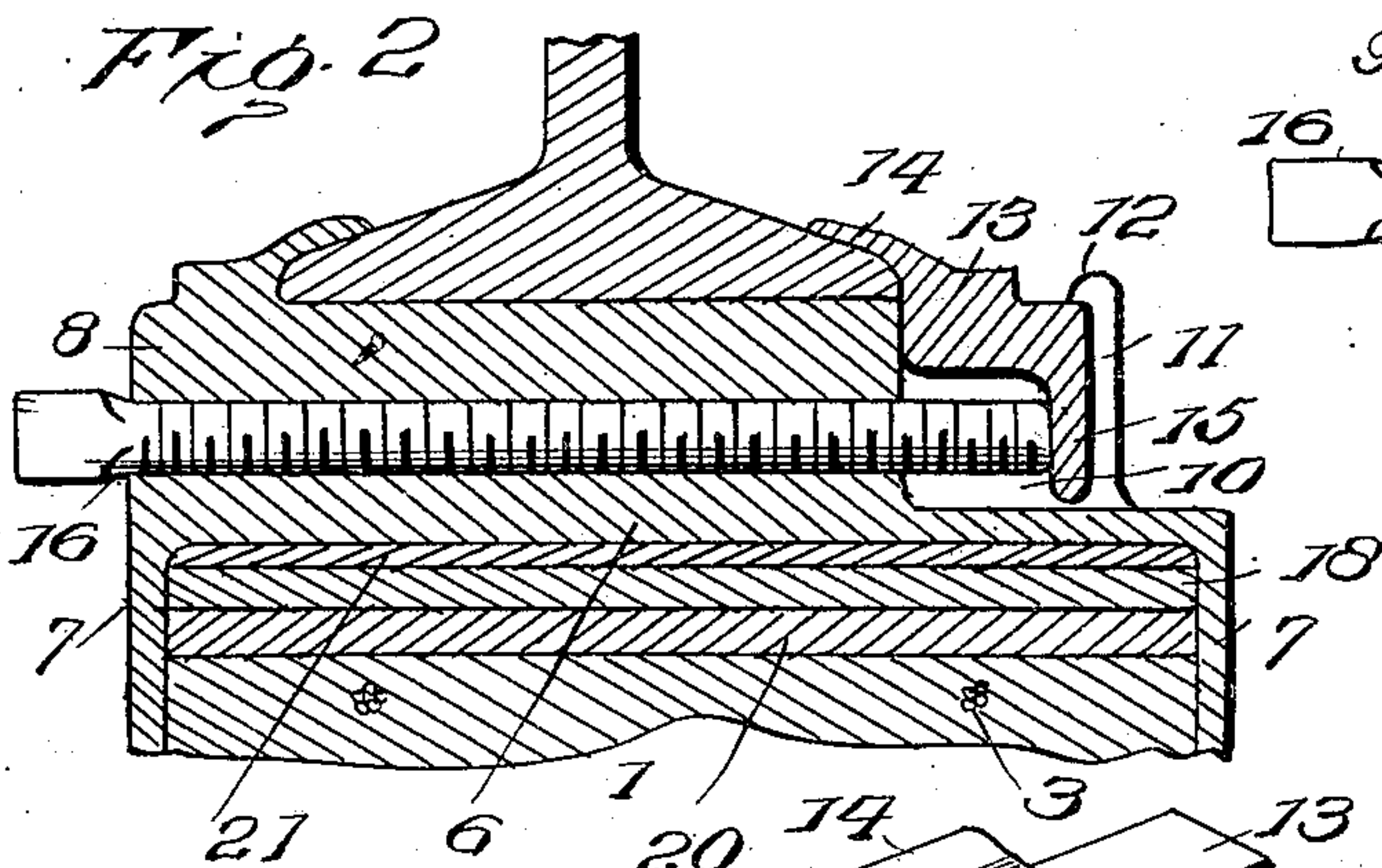
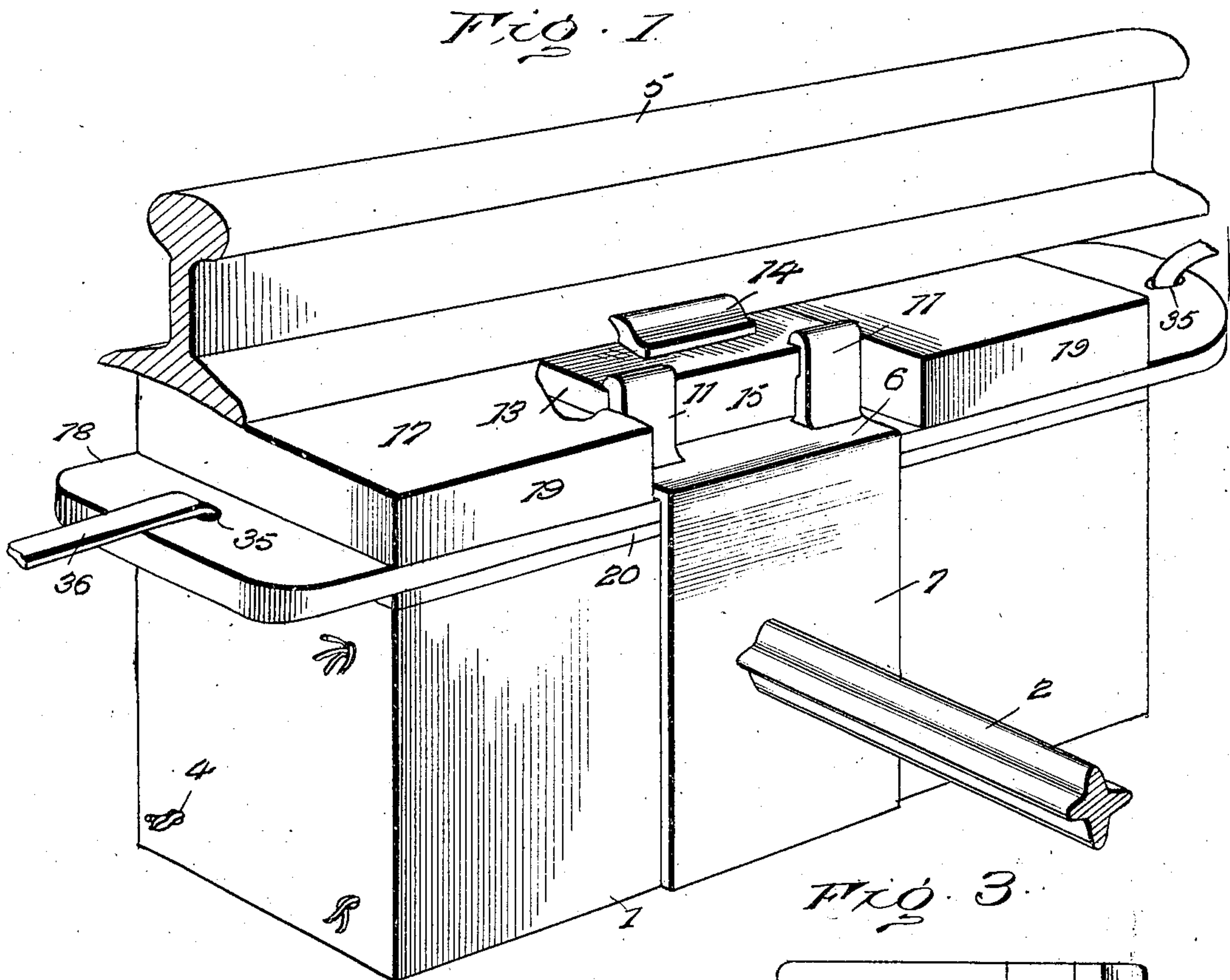
PATENTED JULY 30, 1907.

A. COTTON.

CROSS TIE CONSTRUCTION.

APPLICATION FILED MAR. 29, 1907.

2 SHEETS—SHEET 1.



Witnesses

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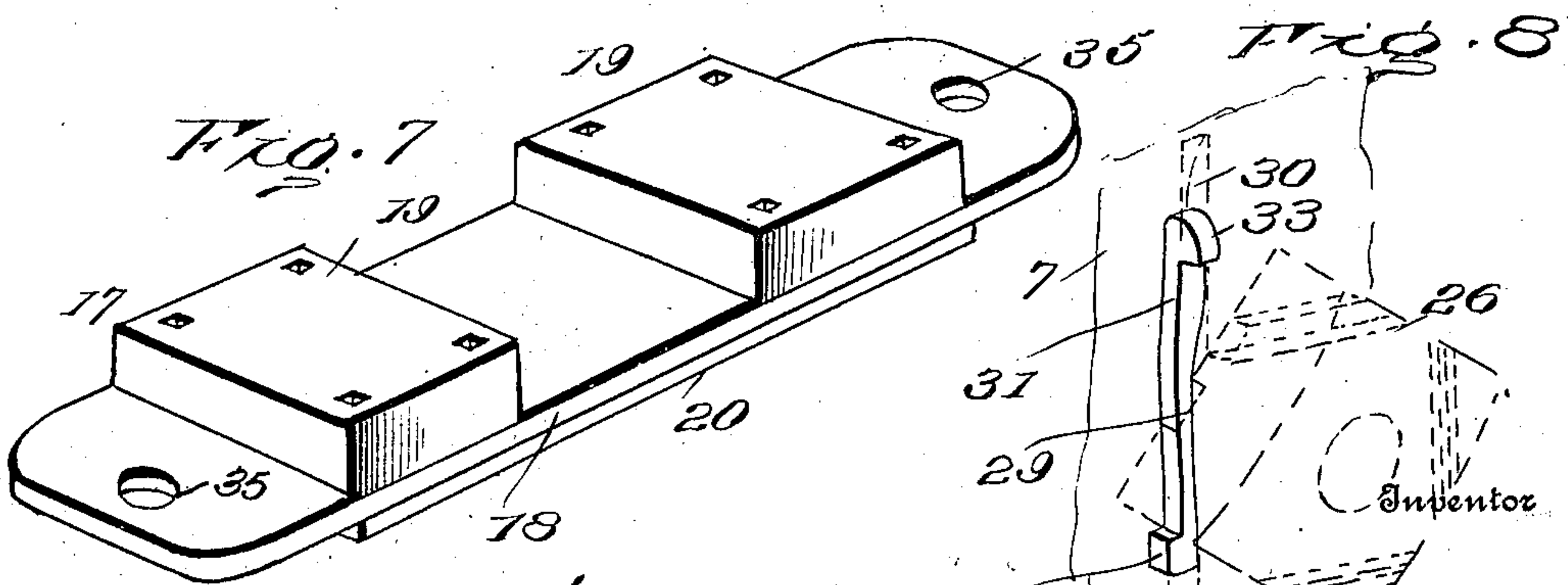
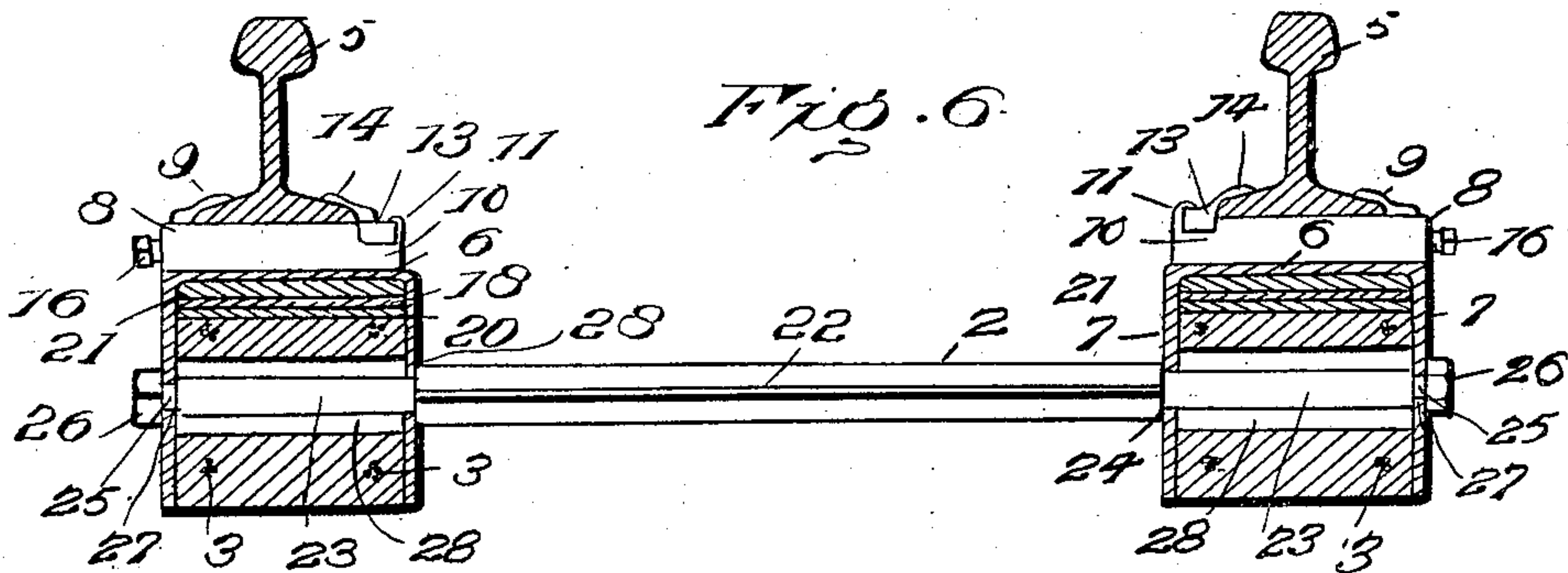
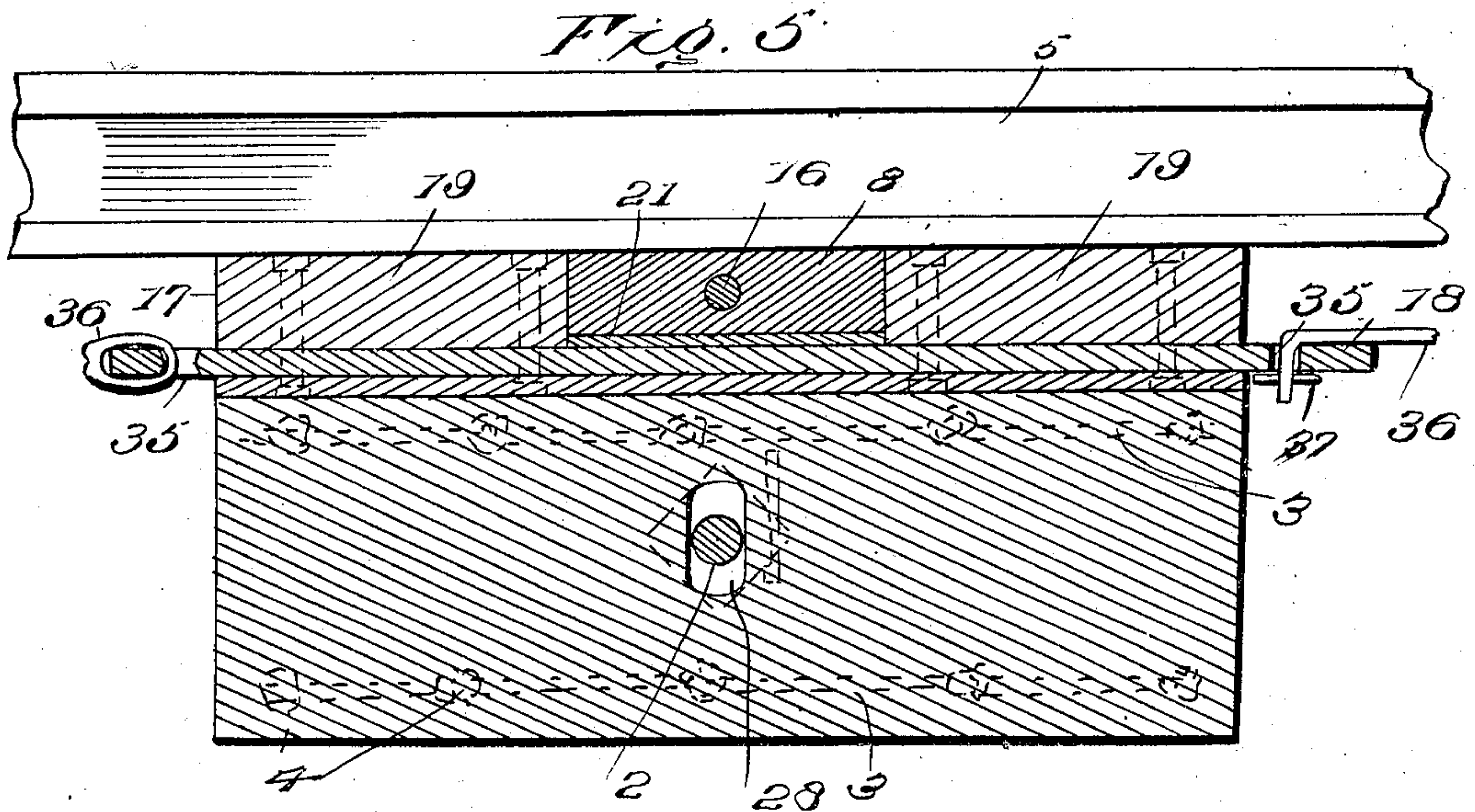
Attorneys

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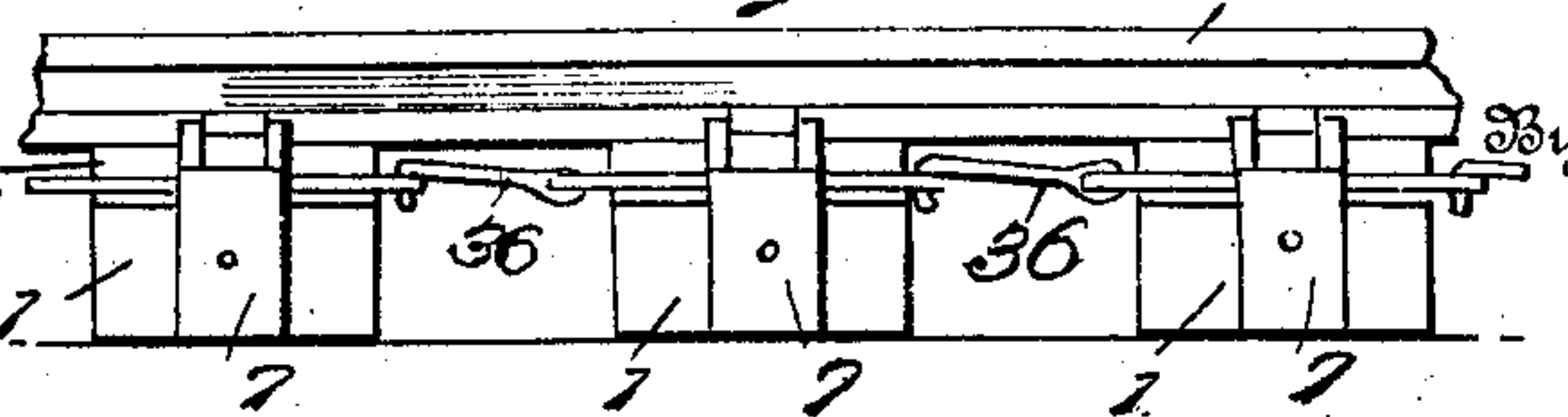
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

ALBERT COTTOM, OF CHILLICOTHE, IOWA.

CROSS-TIE CONSTRUCTION.

No. 861,269.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed March 29, 1907. Serial No. 365,359.

To all whom it may concern:

Be it known that I, ALBERT COTTOM, a citizen of the United States, residing at Chillicothe, in the county of Wapello and State of Iowa, have invented certain new and useful Improvements in Cross-Tie Constructions, of which the following is a specification.

The present invention relates to certain new and useful improvements in track construction, and more particularly to a novel form of tie and means for securing the rails thereto.

The object of the invention is to provide a simple and efficient device of this character which can be installed at a comparatively small first cost and which requires but a small amount of attention to be kept in repair and maintained in operative condition.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a perspective view illustrating the invention. Fig. 2 is a sectional view through the rail clamp. Fig. 3 is a top plan view of the same. Fig. 4 is a detail view of the locking bar. Fig. 5 is a longitudinal sectional view through the device. Fig. 6 is a transverse sectional view through a track constructed in accordance with the present invention. Fig. 7 is a detail view of the bearing device. Fig. 8 is a detail view of the nut lock employed in connection with the nuts capping the rods extending transversely across the track. Fig. 9 is a detail view showing the method of linking together the various bearing members.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In accordance with the present invention the ties are composed of spaced sections 1 extending longitudinally of the track, the said sections being located under each of the rails, and being preferably formed of concrete or some similar plastic material. If found desirable longitudinal reinforcing wires 3 may be embedded in the concrete sections, and these wires are preferably formed at intervals with enlarged portions or knots 4 which prevent any longitudinal slipping thereof.

The clamping device employed for securing the rails to the ties 1 comprises a base plate 6 provided at opposite sides with the downwardly extending flanges 7 designed to embrace the tie. Mounted upon the upper face of the base plate 6 is the bearing block 8, which forms a support for the base of the rail. Mounted upon one side of the bearing block 8 is a rail engaging member 9 which fits over the basal flange upon one side of the rail. Spaced extensions 10 project laterally from the opposite side of the bearing block 8, the said extensions resting upon the base plate 6 and being of less

depth than the bearing block 8. At the outer end of each of these extensions 10 is located an upwardly extending flange 11, the extremity of which has a hooked formation as indicated at 12. Resting upon the extensions 10 and lying flush with the upper face of the bearing block 8 is the clamping bar 13 which is provided upon its upper face with a rail engaging member 14 similar to and cooperating with the before mentioned rail engaging member 9 to clamp the rail securely in position. Projecting downwardly from the clamping bar 13 and swinging freely between the spaced extensions 10 is a wing 15 which is engaged by the extremity of a clamping bolt 16 extending transversely through the bearing block 8.

In the operation of the clamp it will be readily apparent that the hooked extremities 12 of the upwardly extending flanges 11 engage the outer edge of the clamping bar 13 so that the latter can only be removed from position by first turning it about a longitudinal axis and then moving it laterally. It will further be apparent that by tightening the clamping bolt 16 in such a manner as to cause the extremity thereof to bear against the wing 15 the clamping bar 13 is prevented from being swung about its longitudinal axis as when being released and is drawn downwardly. This results in throwing the rail engaging member 14 into a firm engagement with the rail so that the latter is held rigidly in position.

Interposed between the tie 1 and the rail clamping device previously described is a bearing member 17 shown in detail in Fig. 7 and comprising essentially an elongated metallic plate 18 having the spaced wooden blocks 19 secured to its upper face while a wooden strip 20 somewhat shorter than the metallic plate is secured to its lower face, the said members being connected by bolts or similar fastening means. The wooden strips 20 rest upon the upper faces of the concrete tie sections 1 and have approximately the same length as the said sections 1, while the end portions of the metallic plates 18 project outwardly and are formed with the openings 35. The bearing members upon adjacent tie sections 1 are connected by means of link members 36 which engage the openings 35 in the metallic plates 18. In the present instance these link members 36 are formed at one end with an eye engaging one of the openings 35 and at the opposite end with a hook extending through the opening 35 in the adjacent bearing member, and the said hook may be locked against accidental release by means of a key or similar member 37. The base plate 6 of the clamp is designed to fit between the spaced blocks 19 which extend upwardly into engagement with the base of the rail and aid in forming a substantial bearing for the same. Fitted between the metallic base plate 6 and the metallic plate 18 of the bearing mem-

ber is a cushioning member or mat 21 which tends to decrease the noise and prevent the hammering of the concrete sections 1 as the rolling stock passes thereover. With this construction the pressure of the rails is distributed over a comparatively large area of the tie and the life of the latter is thereby very materially prolonged. Under some conditions it may be found desirable to substitute a plain wooden block let into the upper face of the concrete tie for the specific form of bearing member 17 just described.

Extending transversely across the track and connecting corresponding clamping members upon opposite sides thereof are the tie rods 2 which are preferably elongated vertically and provided upon opposite sides with the longitudinal ribs 22 as shown in the drawings. The opposite ends of the tie rods 2 are provided with the stems 23 which extend through corresponding openings in the inner flanges 7 of the clamping device and terminate in shoulders 24 engaging the said flanges 7. The extremities of these stems 23 are in turn reduced to form the threaded studs 25 which extend through openings in the outer flanges 7 and are capped by the nuts 26 which serve to clamp the outer flanges 7 securely against the shoulders 27 at the inner ends of the threaded studs 25. The stems 23 are received by openings 28 in the concrete ties 1, the said openings being enlarged and vertically elongated so that the tie members 2 have no direct bearing upon the concrete ties 1. It might also be mentioned that the openings in the outer flanges 7 of the clamping members are somewhat smaller than the openings on the inner flanges 7 and that the said inner flanges are not clamped or held tightly, but fit loosely upon the stems 23.

Any approved type of nut lock may be employed in connection with the nuts 26 in order to prevent the same from working loose, but this result is preferably accomplished by means of the construction shown in the drawings in which the corners of the nuts 26 are formed upon their inner faces with the grooves 29, one of which is designed to register at each quarter turn of the nut with a vertical groove 30 in the outer flange 7. Slidably mounted within the vertical groove 30 is a locking pin 31 designed to engage one of the grooves 29 of the nut and provided at its lower end with a nose or catch 32 which is adapted to engage the nut to prevent accidental displacement of the locking pin, and at its upper end with the outwardly extending finger-piece 33.

Having thus described the invention, what is claimed as new is:

1. In a device of the character described, the combination of a block, a rail engaging member carried by the block, a clamping bar mounted upon the block and designed to swing upon a longitudinal axis, a rail engaging member carried by the clamping bar, and means for moving the clamping bar to throw the rail engaging member carried thereby into engagement with the rail.

2. In a device of the character described, the combination of a block, a rail engaging member mounted upon the block, a hook member rigid with respect to the block, a clamping bar fitting against the block and engaging the hook member and designed to swing about a longitudinal axis, a rail engaging member carried by the clamping bar, and means for moving the clamping bar to throw the rail engaging member carried thereby into engagement with the rail.

3. In a device of the character described, the combina-

tion of a block, a rail engaging member mounted upon the block, a clamping bar fitting against the block and designed to swing about a longitudinal axis, a rail engaging member carried by the clamping bar, a wing projecting laterally from the clamping bar, and a bolt engaging the wing to move the clamping bar and throw the rail engaging member into engagement with the rail.

4. In a device of the character described, the combination of a block, a rail engaging member mounted upon the block, spaced extensions projecting from the block and terminating in upwardly extending flanges, a clamping bar resting upon the extensions and fitting between the said flanges and the bearing block, a rail engaging member carried by the clamping bar, and means for rotating the clamping bar about a longitudinal axis to throw the said rail engaging member into engagement with the rail.

5. In a device of the character described, the combination of a bearing block, a rail engaging member mounted upon the bearing block, spaced extensions projecting from the bearing block, upwardly extending flanges projecting from said extensions and terminating in hook members, a clamping bar resting upon the spaced extensions, one edge of the clamping bar being engaged by the hooked extremities of the upwardly extending flanges, a rail engaging member carried by the clamping bar, and means for rotating the clamping bar about a longitudinal axis to throw the said rail engaging member into engagement with the rail.

6. In a device of the character described, the combination of a bearing block, a rail engaging member mounted upon the bearing block, a pair of spaced extensions projecting from the bearing block, upwardly extending flanges projecting from the extensions and terminating in hook members, a clamping bar resting upon the extensions and engaging the hook members, a rail engaging member carried by the clamping bar, a laterally extended wing projecting from the clamping bar and fitting loosely between the extensions, and a bolt passing through the bearing block and engaging the wing to throw the rail engaging member carried by the clamping bar into engagement with the rail.

7. In a railway track construction, the combination of longitudinally extending ties, base plates resting upon the ties, rail clamping means carried by the base plates, flanges projecting from the base plates and embracing the ties, and transversely disposed tie rods connecting the flanges of the base plates upon opposite sides of the track.

8. In a railway track construction, the combination of longitudinally extending ties having vertically elongated transverse openings therein, rail clamping means resting upon the ties and provided with flanges embracing the same, and transverse tie rods connecting the flanges of the rail clamping means upon opposite sides of the track and extending laterally through the before mentioned vertically elongated openings in the ties.

9. In a railway track construction, the combination of longitudinally extending ties, clamping means resting upon the ties and provided with flanges embracing the same, said flanges having openings therein and one of said flanges having a groove adjacent the opening, and a transverse tie rod passing through the openings in the flanges and capped by a nut, said nut having grooves in the corners thereof designed to register with the before mentioned groove in the flange, and a locking pin fitting in the registering grooves to prevent the nut from working loose.

10. In a device of the character described, the combination of a tie, a bearing member supported by the tie and formed with a pair of spaced blocks, and a rail clamping member fitted between the spaced blocks.

11. In a device of the character described, the combination of a tie, a bearing member supported by the tie and formed with a pair of spaced blocks, and a rail clamping member fitting between the spaced blocks and resting upon the bearing member, the said rail clamping member being formed with flanges embracing both the tie and the bearing member.

12. In a device of the character described, the combination of a tie, a bearing member resting upon the tie and formed with a pair of spaced blocks, a base plate fitting between the spaced blocks and provided with flanges embrac-

ing both the tie and the bearing member, a rail clamping means mounted upon the base plate, and a cushioning block interposed between the base plate and the bearing member.

13. In a device of the character described, the combination of a tie, a bearing member resting upon the tie and comprising a metallic plate having a wooden strip secured to its lower face and having a pair of spaced blocks mounted upon its upper face, and a rail clamping device received upon the bearing member and fitting between the said spaced blocks.

14. In a device of the character described, the combination of a tie comprising a series of spaced sections located under a rail, bearing members resting upon the tie sec-

tions, link members connecting the bearing members, and rail engaging means carried by the bearing members.

15. In a device of the character described, the combination of a tie, spaced bearing members supported by the tie, link members connecting the spaced bearing members, and rail engaging means carried by the bearing members.

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

ALBERT COTTOM. [L. S.]

Witnesses:

ED NYE,

SILAS WARREN.