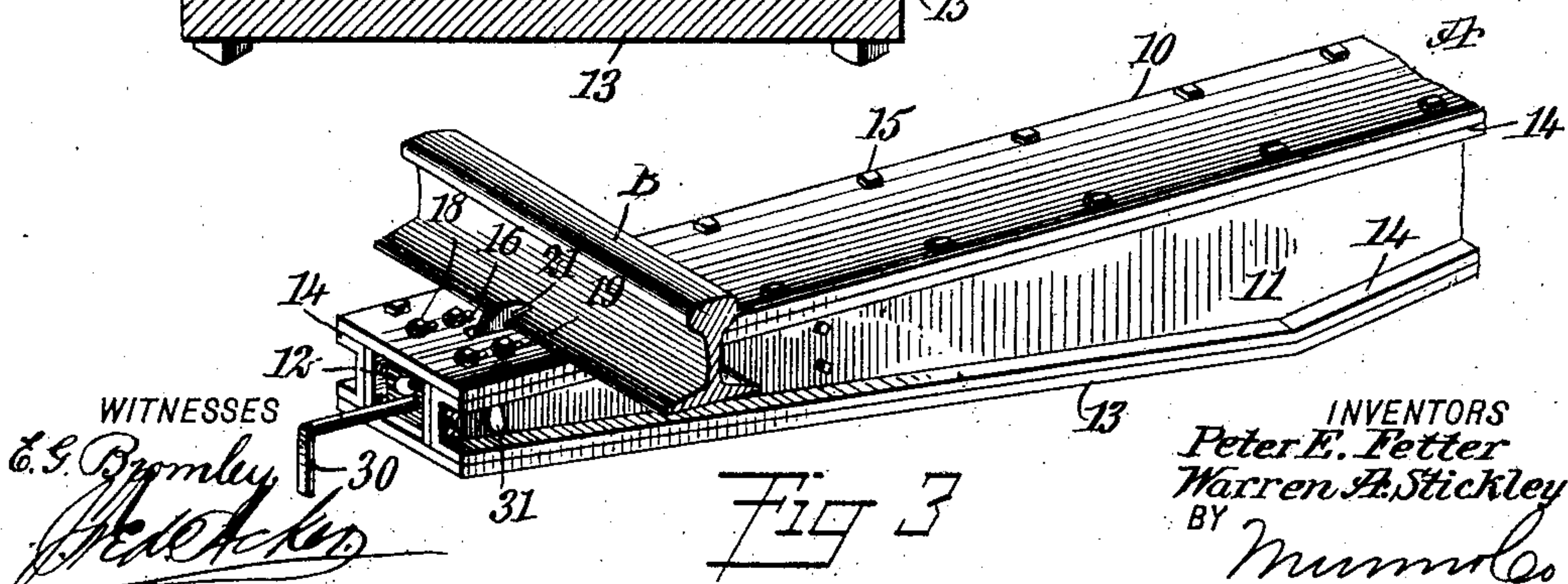
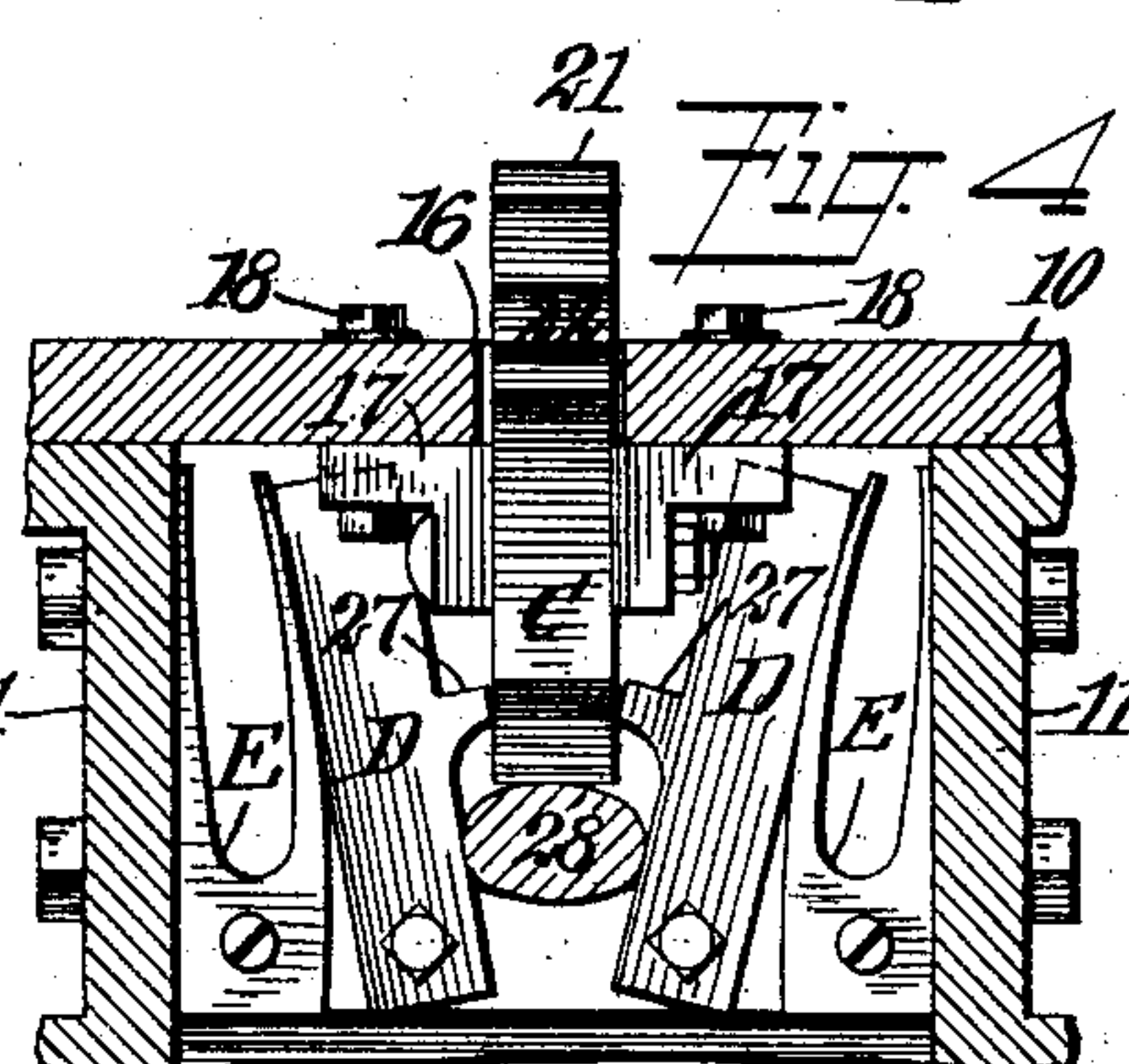
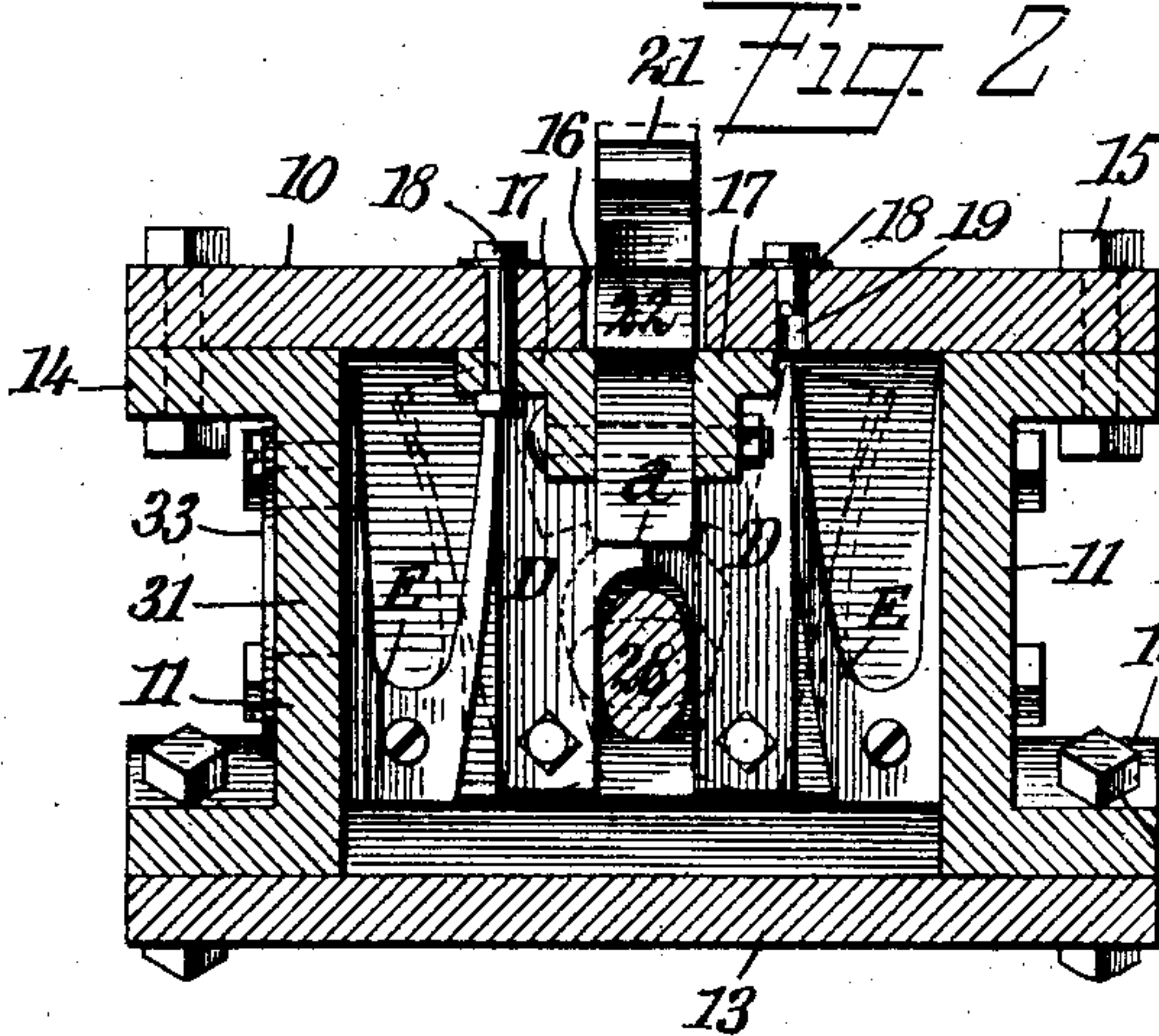
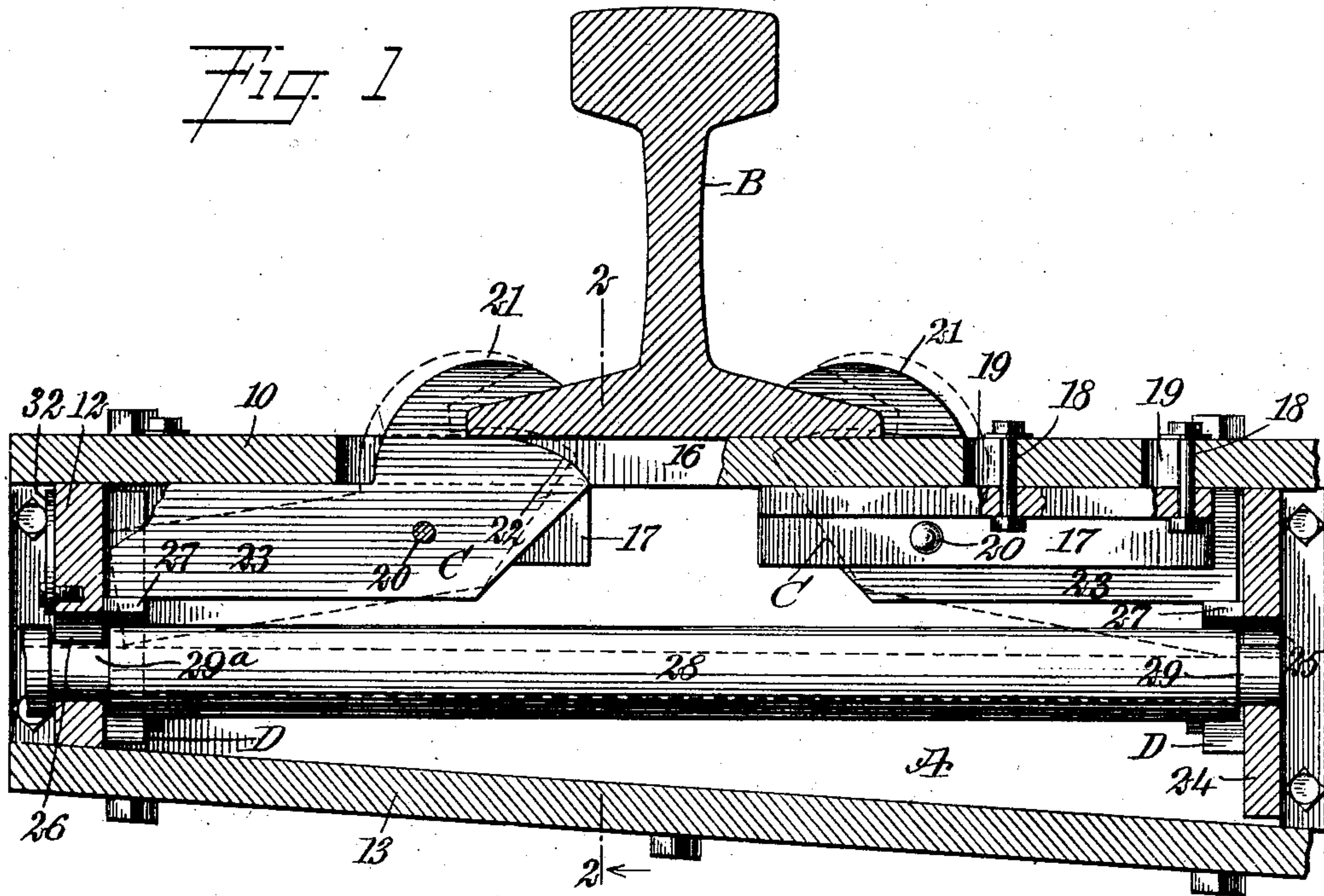


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RAILWAY TIE AND RAIL FASTENER.
APPLICATION FILED JAN. 21, 1908.

919,334.

Patented Apr. 27, 1909.



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PETER E. FETTER AND WARREN AMBROSE STICKLEY, OF KENMARE, NORTH DAKOTA.

RAILWAY-TIE AND RAIL-FASTENER.

No. 919,334.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed January 21, 1908. Serial No. 412,034.

To all whom it may concern:

Be it known that we, PETER E. FETTER and WARREN A. STICKLEY, both citizens of the United States, and residents of Kenmare, in the county of Ward and State of North Dakota, have invented a new and useful Improvement in Railway-Ties and Rail-Fasteners, of which the following is a full, clear, and exact description.

Our invention relates to metal railway ties and rail fasteners adapted thereto.

The purpose of the invention is to overcome every weak and objectionable point common to wooden ties, and to obtain durability and safety, and to render it possible to lay rails with ease, accuracy, and rapidity.

A further purpose of the invention is to practically provide a construction of tie that will prevent shifting in the road bed, and to provide a smoothness of track that will lessen resistance, thereby saving property, and also to provide a rail lock that will hold the rails more firmly than spikes, and at the same time admit of the necessary expansion and contraction of the rails.

Another purpose of the invention is to provide a rail lock that is readily applied and which can be conveniently released from a rail when occasion demands, and to so construct the lock that a portion thereof will support the rail in such manner that the more weight the rail is subjected to, the tighter the fastening device will clamp the rail.

The invention consists in the novel construction and combination of the several parts as will be hereinafter fully set forth and pointed out in the claims.

Figure 1 is a longitudinal section through one end portion of the improved tie, illustrating the rail lock in sectional side elevation; Fig. 2 is a transverse section taken practically on the line 2—2 of Fig. 1, illustrating the clamps of the lock held fast to the rail; Fig. 3 is a perspective view drawn upon a reduced scale, of one end and the central portion of the improved tie, illustrating a rail held thereon by the improved lock; and Fig. 4 is a section similar to that shown in Fig. 2, but illustrating the parts of the rail lock in position to release the rail.

The tie A is constructed entirely of metal and consists of a flat top plate 10, flat side plates 11, flat end plates 12, and a bottom plate 13 that inclines downward from the

end to the central portion of the tie, whereby the tie is widest or deepest at its central portion, and gradually diminishes in depth in direction of its ends. A tie so constructed is buried deepest in the ground at a point centrally between its ends and will secure such a hold as to prevent the shifting in the road bed, and furthermore by increasing the depth of the tie at the center, the tie is strengthened at its weakest point, namely, centrally between the rails.

The members of the tie are provided with flanges 14 and opposing flanges are secured together by bolts 15, rivets, or their equivalents. Adjacent each end of the tie, about centrally between its sides, longitudinal slots 16 are produced, and these slots 16 are longer than the width of the base of the rails B, and the rails B in crossing the ties, also cross the said slots, usually about centrally between their ends.

In connection with each slot 16, two sets of supporting bars 17 are employed. These bars are angular in cross section, and are located in engagement with the under face of the top plate 10 of the tie, as is illustrated in Figs. 2 and 3. A set of supporting bars is located at each end portion of each slot 16, and the opposing side faces of the bars of a set are in vertical alinement with the side walls of the slots 16 to which they belong, and a suitable space is made to intervene between the opposing end portions of the said supporting bars. These supporting bars 17 are adjustably connected with the said top plate 10 of the tie, which is accomplished by passing bolts 18 in suitable numbers through the horizontal members of the supporting bars and up through slots 19 made longitudinally in the top of the tie A, as is shown in Figs. 1 and 2, the bolts being provided with suitable nuts at their upper ends.

A clamp C is pivoted between the opposing faces of each set of supporting bars 17 adjacent their inner ends, by means of suitable pins 20, as is illustrated in Fig. 1. Each clamp is provided at its upper portion with a claw member 21, and these claw members are adapted to engage with the upper faces of the flanges of a rail, as is clearly shown in Fig. 1. Therefore the adjustment of the supporting bars for said clamps is very effective, since such adjustment enables the clamps to be brought nearer together or carried farther apart as conditions may require.

Furthermore, in the construction of the clamp C, a shoulder 22 is formed beneath the claw 21 of the clamp, and the said shoulders are preferably more or less convexed, as is shown in Fig. 1. When a flange of a rail is engaged by a claw of a clamp C, the shoulder 22 of the clamp is in supporting engagement with the under faces of the base of the rail, as is also shown in Fig. 1. Hence the rails rest upon the said shoulders 22 of the clamp, so that the more weight the rail is subjected to, the more firmly will the clamp be held in engagement with the rail.

Each clamp C is provided with a tail member 23, the tail members of opposing clamps extending in opposite directions. These tail members are at right angles to the body portions of the clamps and may be of any desired length. The tail member of an outer clamp extends practically to an end plate of the tie, while the inner end of the inner clamp of a set is carried quite close to a partition 24 suitably supported in the tie A parallel with the end thereof, as is illustrated in Fig. 1. The partition 24 is provided with a preferably circular central opening 25 therein, and the end plate 12 of the tie is provided with a corresponding opening 26, as is also illustrated in Fig. 1.

Upon the inner face of the end plate 12 at each side of the opening therein, and upon what may be termed the outer face of the partition 24, at each side of its opening, parallel and vertically disposed locking arms D are located, and these arms are pivoted at their lower ends respectively to the end plate 12 of the tie and the partition 24. The said locking arms D are provided at their inner or opposing vertical edges with horizontal lugs 27, and the lugs of opposing locking arms are in engagement with each other, when the locking arms are in their vertical position, thus providing a seat *d*, upon which seat the inner ends of the tail members 23 of the clamps rest when the said clamps are in locking engagement with a rail. The upper faces of the lugs 27 are straight, but usually their under edges are more or less concaved, thus it will be observed that when the locking arms are in normal position, a space is provided above the seat *d* for the reception of the tail portion of the clamp, and that an opening is likewise provided between the arms below the said lugs.

Springs E of suitable construction are made to bear against the outer vertical edges of the locking arms D, so as to normally keep said arms in their vertical supporting position. The springs shown in the drawings are substantially U-shaped, one of the springs bearing against the outer edge of the locking arms, the other member bearing against the inner face of the wall of the tie, as is shown in Figs. 2 and 4. The normal position of the parts described is clearly

shown in Fig. 2. The locking arms D are separated in the following manner: A shaft 28, oval in cross section, is provided, and the said shaft has a trunnion 29 at its inner end to enter the opening 25 in the partition 24, and is provided with a reduced cylindrical portion 29^a that enters the opening 26 in the end plate 12 of the tie, and the oval portion of the shaft 28 passes through the space below the seat *d* formed by the lugs 27 of the locking arms, and the shaft 28 is provided with a handle 30 at its outer end. By turning the shaft so that its widest portion will engage with the opposing edges of the locking arms, the said locking arms are spread apart, as is shown in Fig. 4, separating the lugs 27, and permitting the tail members of the clamps to drop down between the said lugs 27, and thus carry the claws 21 of the clamps out of engagement with the rail, permitting the rail to be readily removed, and this same position of the locking arms is obtained when a rail is to be placed in position on a tie. After the rail is in position the tail members of the clamps are forced upward and then the shaft 28 is turned so as to carry it from engagement with the locking arms, permitting them to close, whereupon the tail portions of the clamps again seat themselves and lock the rails fast.

The shaft 28 is removable and is only used when rails are to be laid, or to be removed. The handle 30 is utilized for forcing up or down the tail members of a clamp, being at such time introduced into the tie through an opening 31 in its side, normally closed by a suitable cover 33, and a cover 32 is likewise provided for the opening 26 in the end plate 12 of the tie.

Having thus described our invention, we claim as new and desire to secure by Letters Patent,—

1. A hollow metal railway tie having a flat top and a bottom that inclines downward from the ends to the central portion of the tie.

2. A metal railway tie formed of a flat top plate flat side plates, flat end plates, and a bottom plate that inclines downward and inward from its ends, the plates being bolted together.

3. The combination with a metal railway tie, of clamps for the flanges of a rail, pivoted in the tie and each provided with a rail engaging member and a tail member, separable locking supports for the tail members within the tie, and means for separating the said supports to admit of the release of the clamps.

4. The combination with a hollow railway tie, of clamps adapted for engagement with the rail, pivoted in said tie, each clamp being provided with a claw member for engagement with the upper surface of the rail flange, and a shoulder for engagement with the under face of said flange, means within

the tie for holding the clamps in locking position, and a device for releasing the clamps from their locking position.

5 5. The combination with a hollow, metal railway tie having a longitudinal slot in its upper surface across which a rail is adapted to be laid, and adjustable supports within the tie at each side of each end of said slot, of clamps pivoted in said supports, each clamp
10 being provided with a claw member adapted to extend through the slot and engage the upper face of a rail flange, and a shoulder beneath the claw adapted for bearing against the under face of the said flange, means
15 within the tie for holding the clamps in locking position, and a releasing device for said means.

6. The combination with a hollow, metal railway tie having a longitudinal slot in its
20 upper surface across which a rail is adapted to be laid, and adjustable supports within the tie at each side of each end portion of said slot, of clamps pivoted in said supports, each clamp being provided with a claw member adapted to extend through the slot and
25 engage the upper face of a rail flange, and a shoulder beneath the claw adapted to bear against the under surface of the rail flange, said clamps being also provided with oppositely extending tail members within the tie,
30 opposing locking arms for the tail member of each clamp, the said locking arms having opposing and normally engaging lugs adapted as bearings for the said tail members of the clamps, tension devices acting to keep
35 the lugs of the locking arms in contact, and a device for simultaneously separating the locking arms to admit of the downward movement of the tail members of the clamps
40 and the release of the clamps from a rail.

7. The combination with a hollow railway tie, of clamps pivoted in the tie and adapted

to engage with their inner ends the flanges of a rail, locking members mounted in the tie for engaging the clamps to lock them in position, and means for disengaging the locking members from the clamps.

8. The combination with a hollow railway tie, of clamps pivoted in the tie and adapted to engage the flanges of a rail with their inner ends, and pivoted members mounted in the tie and adapted to swing in and out of the paths of the outer ends of the clamps.

9. The combination with a hollow metal railway tie, of a clamp pivoted in the tie and having a claw for engaging the flange of a rail and a tail member, and pivoted and spring pressed means for forming a seat for the tail member of the clamp to hold it in position.

10. The combination with a hollow metal railway tie, of a clamp pivoted in the tie and having a claw for engaging the flange of a rail and a tail member, and pivoted and spring pressed locking arms having opposing lugs forming a seat for the tail member of the clamp to hold it in position.

11. The combination with a hollow metal railway tie, of a clamp pivoted in the tie and having a claw for engaging the flange of a rail and a tail member, pivoted and spring pressed locking arms having opposing lugs forming a seat for the tail member of the clamp to hold it in position, and a rocking oval shaped member between the said locking arms for separating them.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

PETER E. FETTER.

WARREN AMBROSE STICKLEY.

Witnesses:

O. ERICKSON,

H. E. PECK.