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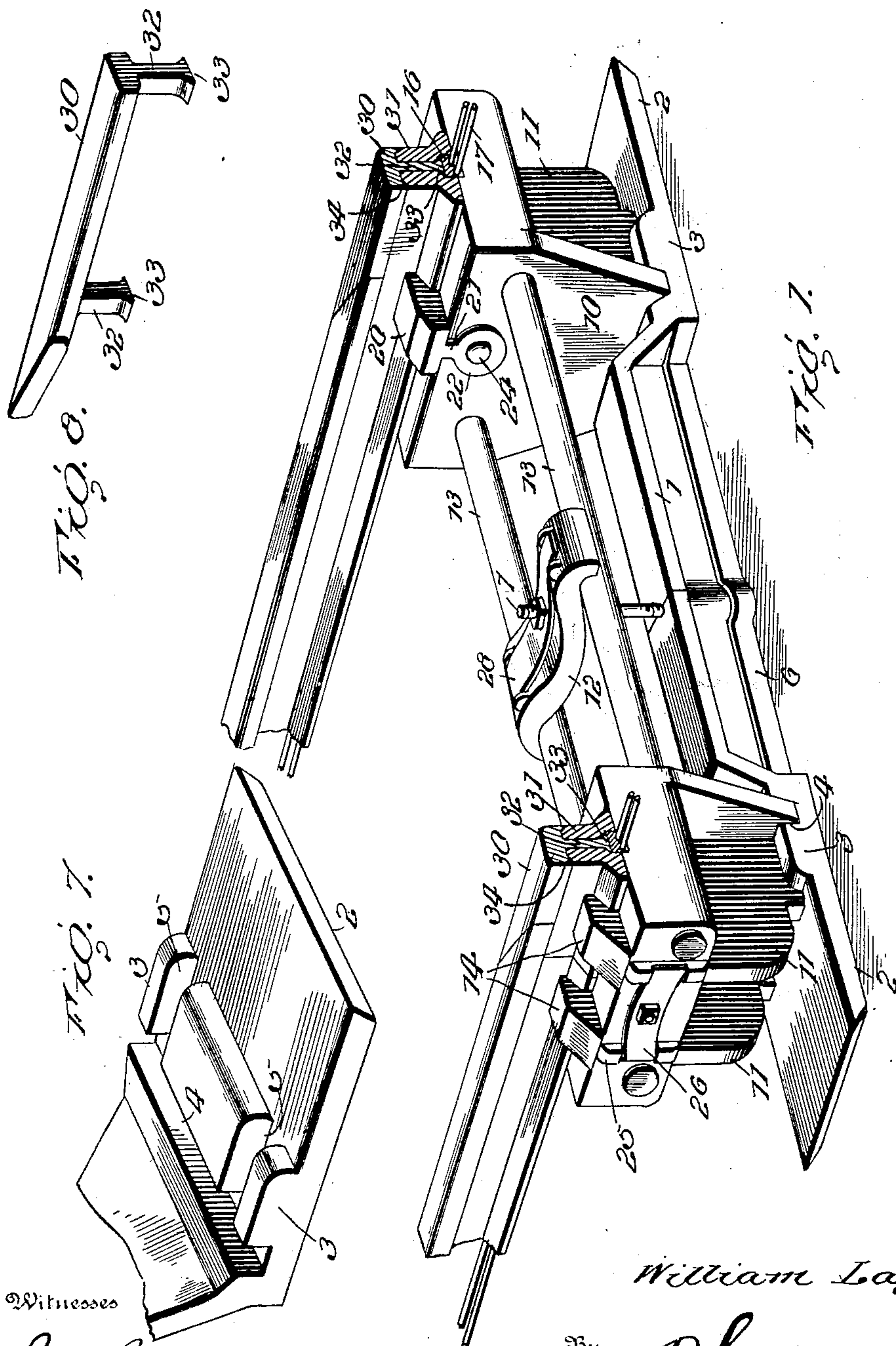
PATENTED FEB. 23, 1904.

W. LAY.
RAILROAD.

APPLICATION FILED JULY 23, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses

*James
Genevieve Matthews*

Inventor

William Lay

By

R. H. W. Racy, Attorneys.

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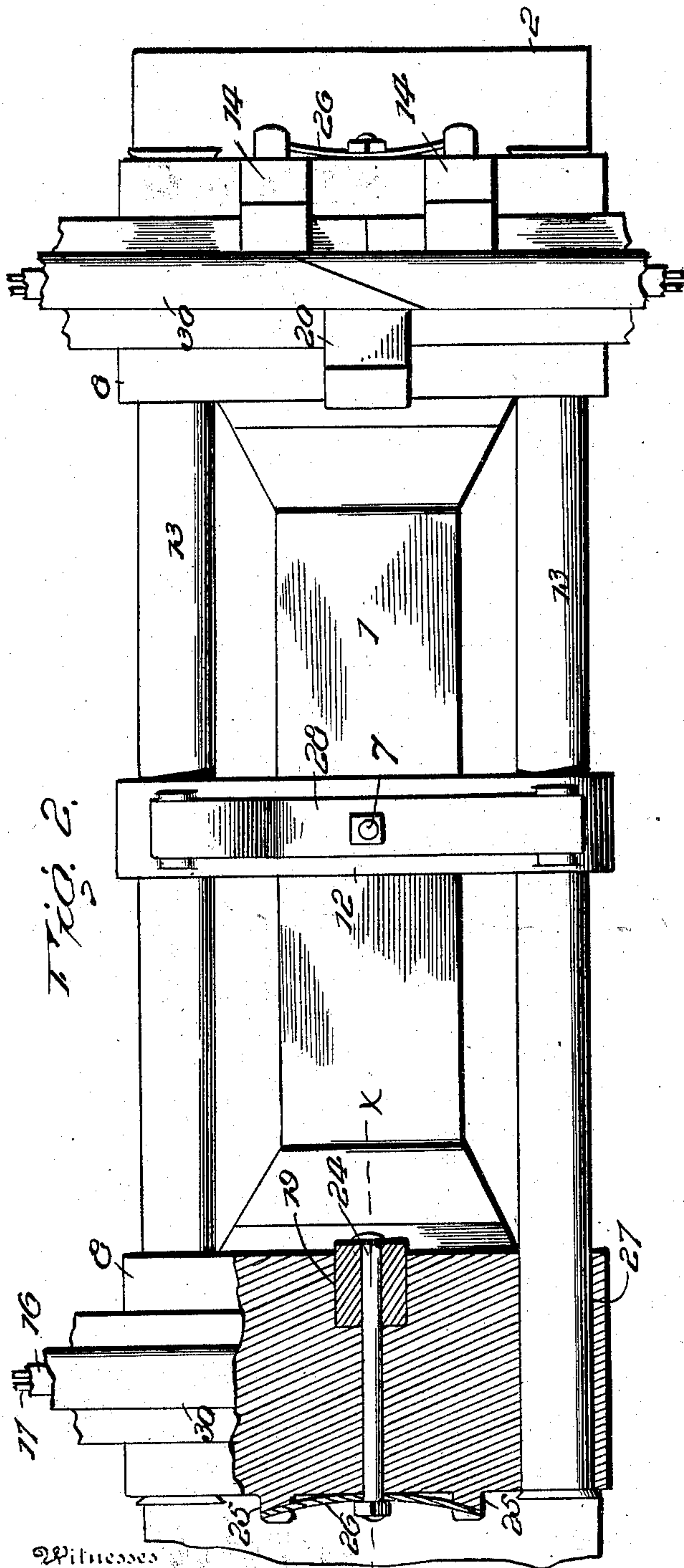
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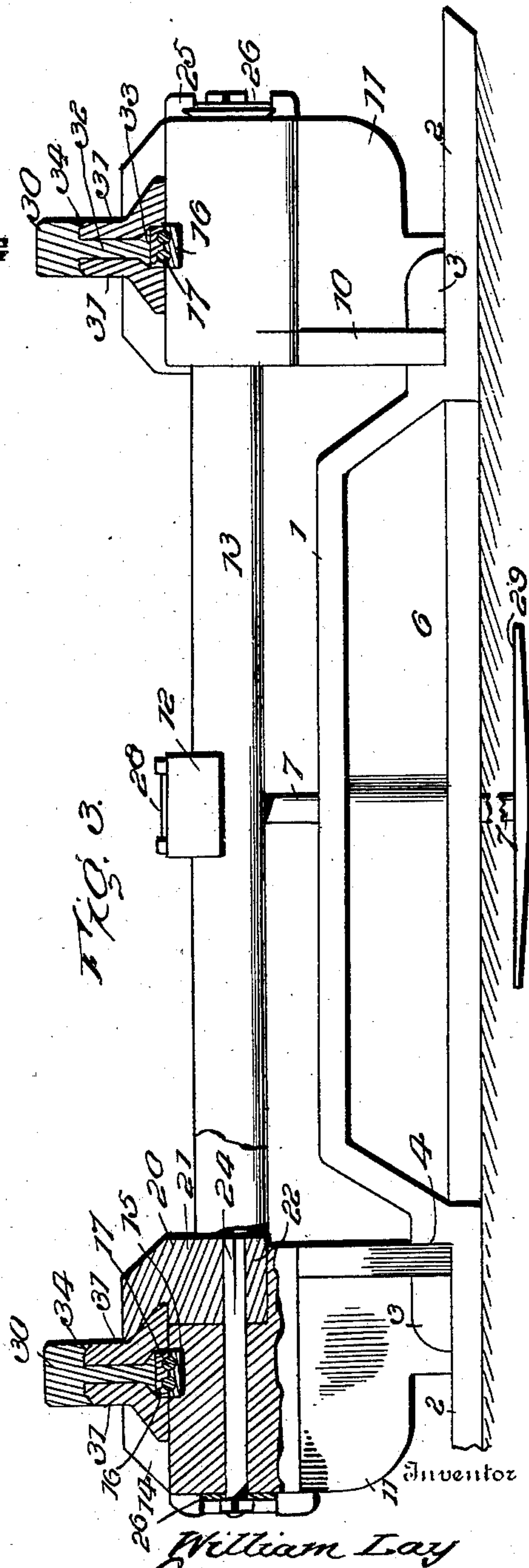
NO MODEL.

3 SHEETS—SHEET 2.



Witnesses

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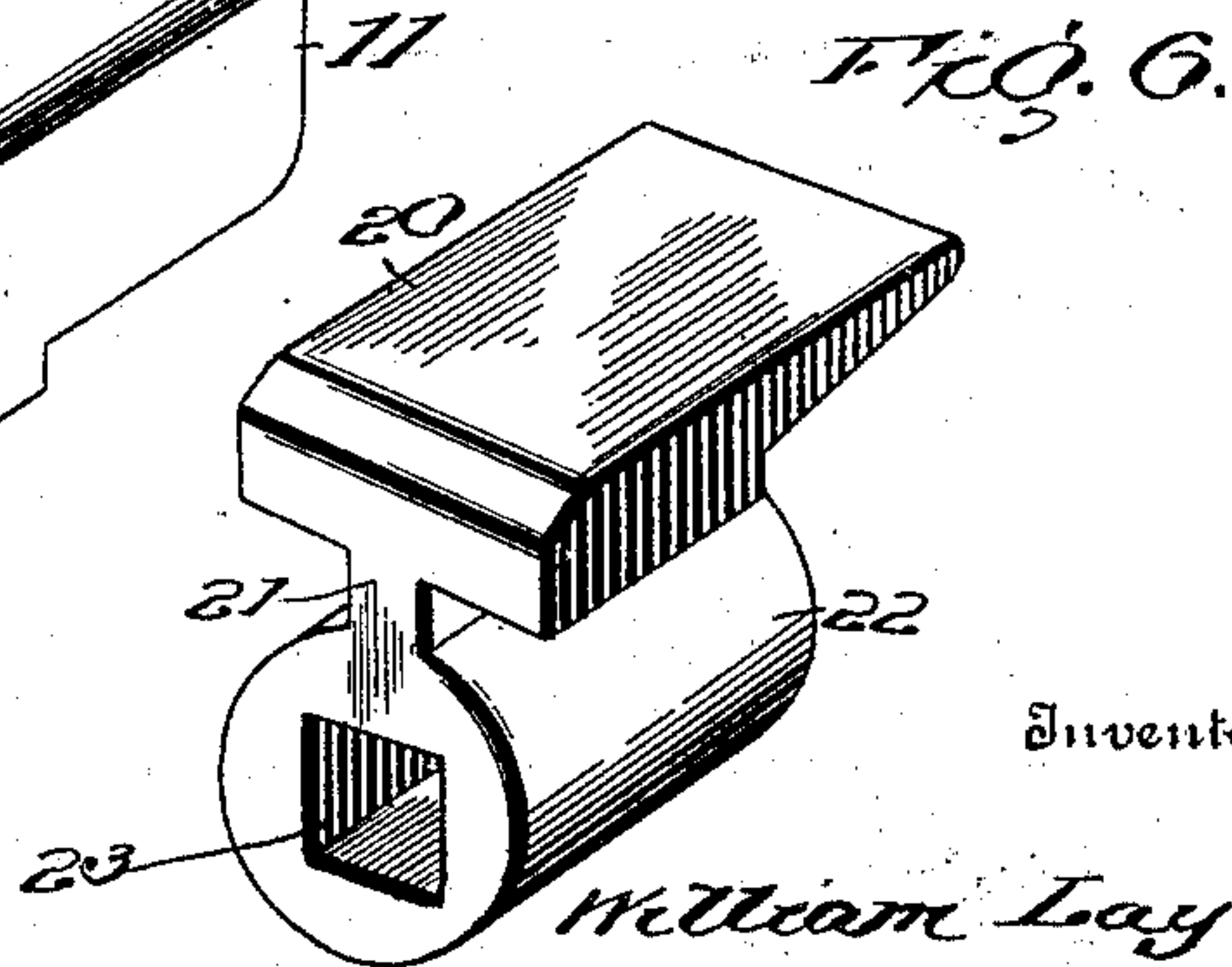
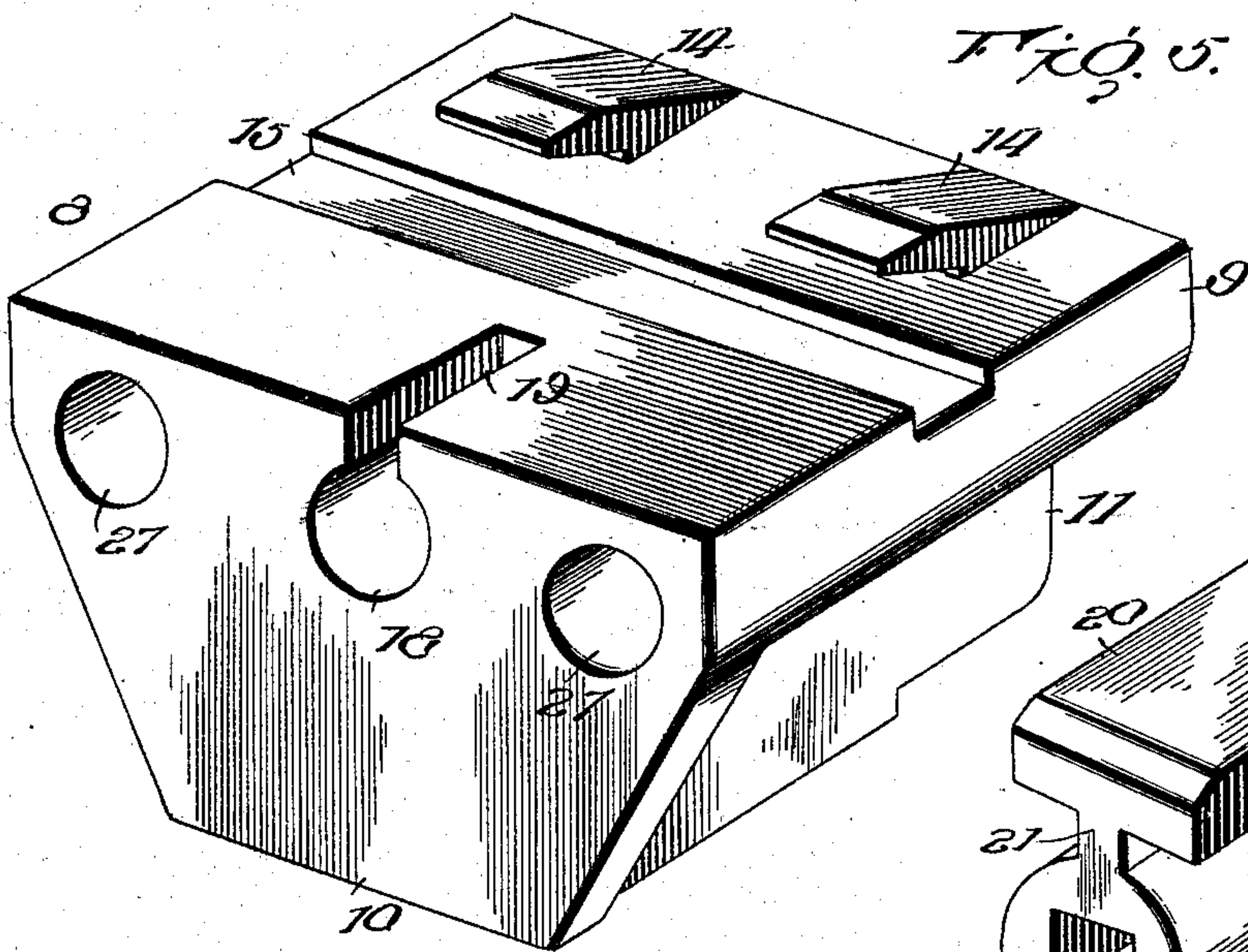
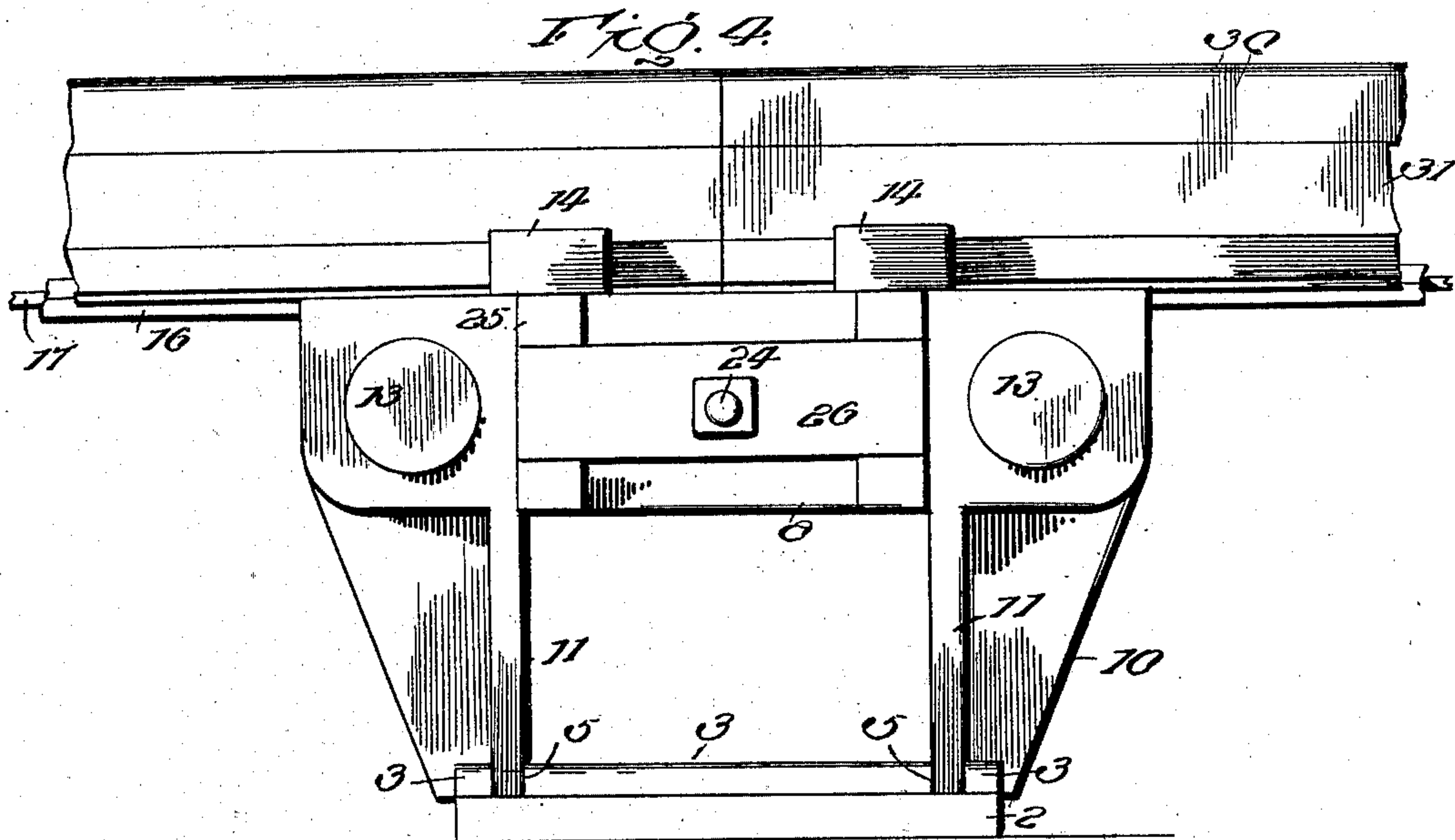
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3 SHEETS—SHEET 3.



Witnesses

John P. ...
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UNITED STATES PATENT OFFICE.

WILLIAM LAY, OF KEOWEE TOWNSHIP, GARFIELD COUNTY, OKLAHOMA TERRITORY.

RAILROAD.

SPECIFICATION forming part of Letters Patent No. 752,785, dated February 23, 1904.

Application filed July 23, 1903. Serial No. 166,749. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LAY, a citizen of the United States, residing in Keowee township, in the county of Garfield and Territory of Oklahoma, have invented certain new and useful Improvements in Railroads, of which the following is a specification.

This invention has relation to the general construction of railroads, whereby the same are rendered more durable, the rails prevented from spreading, and repairs adapted to be more cheaply and more quickly effected than at present made possible. Provision is also had for shifting the heads or tread portions of the rails from one side of the road-bed to the other and also to reduce the wear and tear incident to vibration to the smallest amount possible, as well as to lessen the noise incident to the movement of the trains.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of a railroad embodying the invention. Fig. 2 is a top plan view, a side portion being in horizontal section. Fig. 3 is a transverse section on the line X X of Fig. 2. Fig. 4 is a side view of the portion shown in Fig. 2. Fig. 5 is a perspective view of a rail-chair. Fig. 6 is a perspective view of a clamp-lug. Fig. 7 is a perspective view of an end portion of the cross-tie. Fig. 8 is a perspective view of a modified form of the head or tread portion of the rail.

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.

The cross-tie, as well as the cooperating parts entering into the formation of the rail-

road, is constructed of metal. In the preferable construction the cross-tie is of sectional formation, and the sections may be of equal or unequal length, as found most advantageous in the construction of the road. In the preferable formation of the cross-tie it is of arched form, the central portion 1 being of less width than the end portions 2, which are broad and flat, so as to provide firm supports for the rails. The end portions 2 of the cross-tie are provided upon their upper sides with thickened parts 3 adjacent to the offsets, and these thickened parts 3 are formed with a longitudinal groove 4 and lateral grooves 5 to form elements of positive interlocking means between the cross-tie and the rail-chairs. A reinforcement 6 is located in the space formed below the arched portion 1 and the end portions 2 of the cross-tie, and its bottom side is in the plane of the lower face of the end portions 2, so as to rest upon the road-bed and provide a firm support for the rail-sustaining means. The cross-tie and reinforcement are held together by the bolt or fastening 7 in the manner presently to be explained.

The rail-chairs 8 are of like formation and each consists of a plate 9, vertical end flange 10, and lateral flanges 11. The lower ends of the flanges 10 and 11 are adapted to enter the respective grooves 4 and 5 of the end portions of the cross-tie, so as to prevent possible lateral or longitudinal displacement of the rail-chairs and cross-tie. The weight of the rail-chairs and the rails is ordinarily sufficient to hold the chairs in proper position upon the cross-ties. However, more positive securing means are provided in the fastening 7, yoke 12, and tie-rods 13. Each rail-chair is provided with clamp-lugs 14, preferably integral therewith and arranged near the outer side of the chair. A longitudinal channel 15 is provided in the top side of the chair intermediate of its inner and outer sides and constitutes a seat in which is fitted a strip 16, of wood or like material, and in which is run electric conductors 17 for any desired purpose. This strip 17 is composed of upper and lower parts, between which the electric conductors are re-

ceived, the lower portion of the strip constituting a bed and the upper portion a cap. The strip 15 acts as a noise-deadener, as well as providing means for neutralizing vibration, whereby injury to the road-bed and rolling-stock is reduced to the smallest amount possible. An opening 18 extends inward from the inner side of each rail-chair and a lateral slot 19 is in communication with said opening. The removable clamp-lug 20 is provided with a shank 21 and sleeve 22. The shank 21 is adapted to enter a slot 19, and the sleeve 22 to pass within the opening 18. A square opening 23 extends through the sleeve 22 and receives the square or angular portion of the bolt 24, by means of which the lug 20 is drawn toward the lugs 14, so as to clamp the foot portion of the rail and secure the same to the rail-chair. Vertical ribs 25 are formed upon the outer side of the rail-chair equidistant from the opening through which the bolt 24 passes and receive the end portions of the flat spring 26, which is inwardly deflected intermediate of its ends by the nut screwed upon the outer end of the bolt 24 to draw the clamp-lugs 14 and 20 together, so as to secure the rails. The ribs 25 are notched, so as to receive the end portions of the tension-spring 26 and prevent turning thereof when screwing the nut upon the bolt 24. Lateral openings 27 are formed in each rail-chair and receive the end portions of the tie-rods 13.

The tie-rods 13 connect corresponding rail-chairs, and their end portions pass through the lateral openings 27 thereof. The projecting end portions of the tie-rods may be threaded or otherwise constructed so as to receive fastening means to prevent outward displacement of corresponding rail-chairs. The yoke 12 has its middle portion downwardly curved and its end portions upwardly curved, so as to fit over the tie-rods 13. A tension-spring 28 has its end portions seated upon the upwardly-curved end portions of the yoke and its middle portion apertured to receive the upper end of the bolt or fastening 7. An anchor-plate 29 is fitted upon the lower end of the bolt 7 and is embedded in the road-bed in such a manner as to insure a firm position of the cross-tie and adjunctive parts. The downward pressure exerted upon the yoke 12 by the tie-rods 13 is transmitted to the rail-chairs and positively holds the latter upon the end portions of the cross-tie in conjunction with the weight of the parts secured to said rail-chairs.

The rails are of sectional formation and comprise a head or tread portion 30 and side members 31, the several parts being secured together in any convenient way, preferably by means of the clamp-lugs 14 and 20. The head or tread portion 30 is formed with a web 32, terminating in a foot 33, mounted upon the strip 15. The upper sides of the foot 33

are beveled. Tapering flanges 34 are pendant from the lower corners of the head or tread portion 30, and the upper outer corners of the side members 31 are correspondingly beveled, so as to underlap the flanges 34, whereby they are prevented from outward displacement at their upper edges. The lower edge portion of each side member 31 is outwardly inclined, so as to clear the foot 33, and is of sufficient extent to enable the rail to obtain a firm purchase upon the rail-chair at each side of the strip 15 and the foot of the web 32. It is to be observed that the rail is received upon the head or tread portion and chiefly upon a side portion thereof. Hence when the part 30 becomes worn upon one side it may be shifted from one side of the road-bed to the other or may be turned end for end, so as to bring the opposite side portion into position to receive the rail. This result may be easily effected by loosening the bolts 24 and moving the clamp-lug 20, so as to release the rail. In order that the head of the rail may present a continuous bearing-surface for the wheels of the rolling-stock, the meeting ends are mated by a scarf-joint, as shown most clearly at the right hand of Fig. 2. To provide a substantial structure, the component parts of the rail are arranged so as to break joint. While it is preferred to have the web portion 32 continuous, yet within the purview of the invention the same may be cut away at intervals, as indicated most clearly in Fig. 8, the parts formed by the cut-away portions appearing as projections. This construction is much cheaper to manufacture and will be preferred in some instances, although not desirable on roads subjected to heavy haulage and draft.

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

1. In railroad construction, the combination of a cross-tie, rail-chairs seated upon the end portions of the cross-tie, interlocking means between the rail-chairs and cross-tie, a tie connecting the rail-chairs, a fastening between said tie and the cross-tie, and a spring cooperating with said fastening, substantially as specified.

2. In railroad construction, the combination of a cross-tie, rail-chairs seated upon the end portions of the cross-tie, interlocking means between the rail-chairs and cross-tie, tie-rods connecting the rail-chairs, a yoke having its end portions fitted upon the tie-rods, and a fastening connecting the yoke with the cross-tie, substantially as described.

3. In railroad construction, the combination of a cross-tie, rail-chairs seated upon the end portions of the cross-tie, interlocking means between the rail-chairs and cross-tie, tie-rods connecting the rail-chairs, a yoke having its end portions fitted upon the tie-rods, a flat spring having its end portions seated upon the end portions of the yoke, and a fastening con-

necting said spring to the cross-tie, substantially as set forth.

4. In railroad construction, the combination of a cross-tie having longitudinal and transverse grooves formed in the upper side of its end portions, rail-chairs having longitudinal and transverse flanges seated in the respective longitudinal and transverse grooves of the cross-tie, a tie connecting the rail-chairs, and securing means between said tie and the cross-tie, substantially as described.

5. In railroad construction, the combination of a cross-tie of approximately arch form, rail-chairs fitted upon the end portions of the cross-tie, a tie connecting the rail-chairs, a reinforcement filling the space between the intermediate and end portions of the cross-tie, and means connecting said tie, the cross-tie and the reinforcement, substantially as set forth.

6. In railroad construction, the combination of a cross-tie of approximately arch form and having the inner parts of the end portions thickened and formed with longitudinal and lateral grooves, rail-chairs seated upon the end portions of the cross-tie and comprising longitudinal and lateral flanges to enter the corresponding longitudinal and lateral grooves

of the cross-tie, a tie connecting the rail-chairs, and connecting means between the said tie and cross-tie, substantially as set forth.

7. In railroad construction, the combination of a rail-chair having a longitudinal channel, a strip fitted in said channel, the head or tread portion of the rail being mounted upon the said strip, side members embracing the web of the said head and the strip, and means for securing the parts of the rail and said strip one another and to the rail-chairs, substantially as set forth.

8. In combination, a rail-chair provided with a clamp-lug and with an intercommunicating opening and slot, a movable clamp-lug having a shank and sleeve portion to fit the said slot and opening of the rail-chair, and a clamp-bolt for drawing the clamp-lugs together to secure the rails to the rail-chair, substantially as set forth.

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

WILLIAM LAY. [L. s.]

Witnesses:

J. C. MILLIKEN,
JOHN C. MOON.