

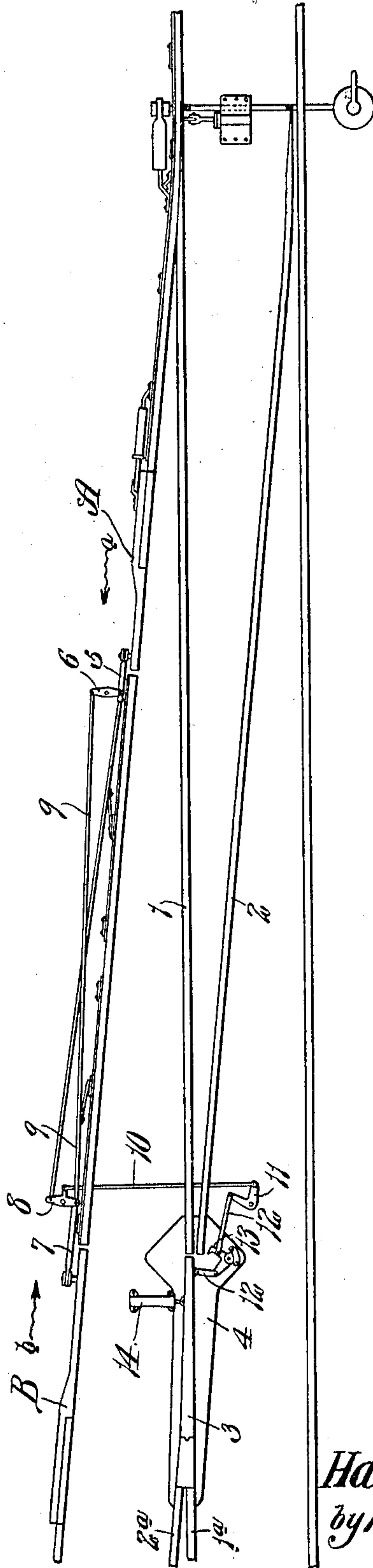
H. F. ROACH.
RAILWAY TRACK STRUCTURE.
APPLICATION FILED OCT. 15, 1908.

947,530.

Patented Jan. 25, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
George Ladson
Nells L. Church.

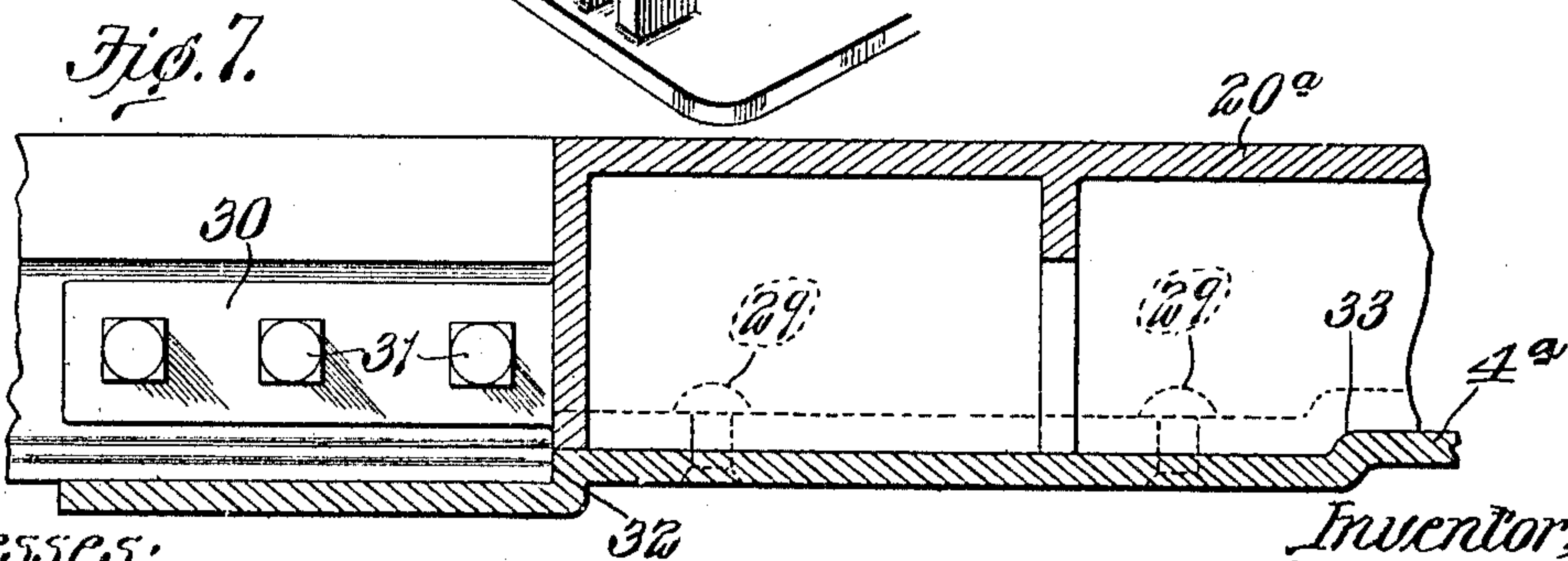
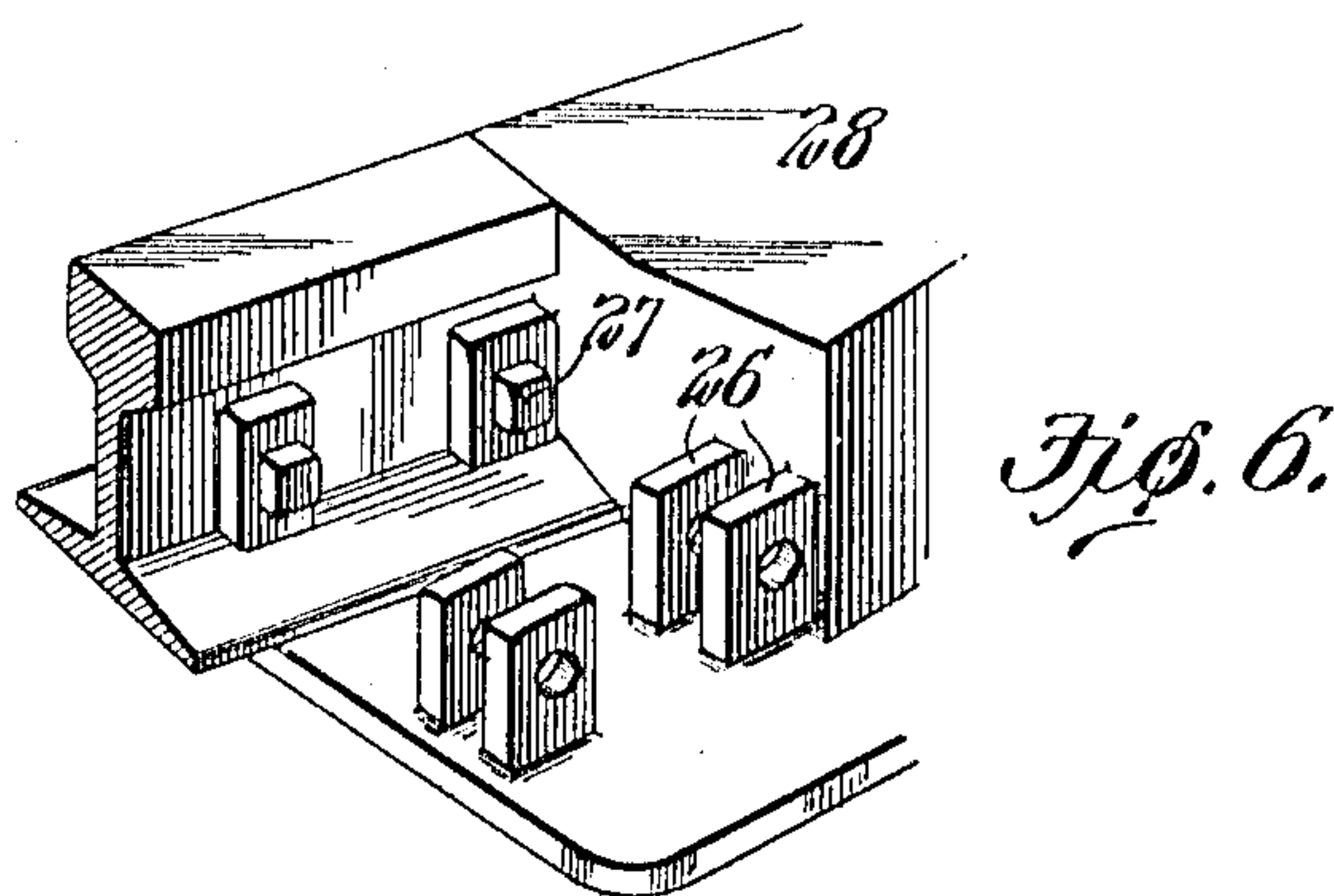
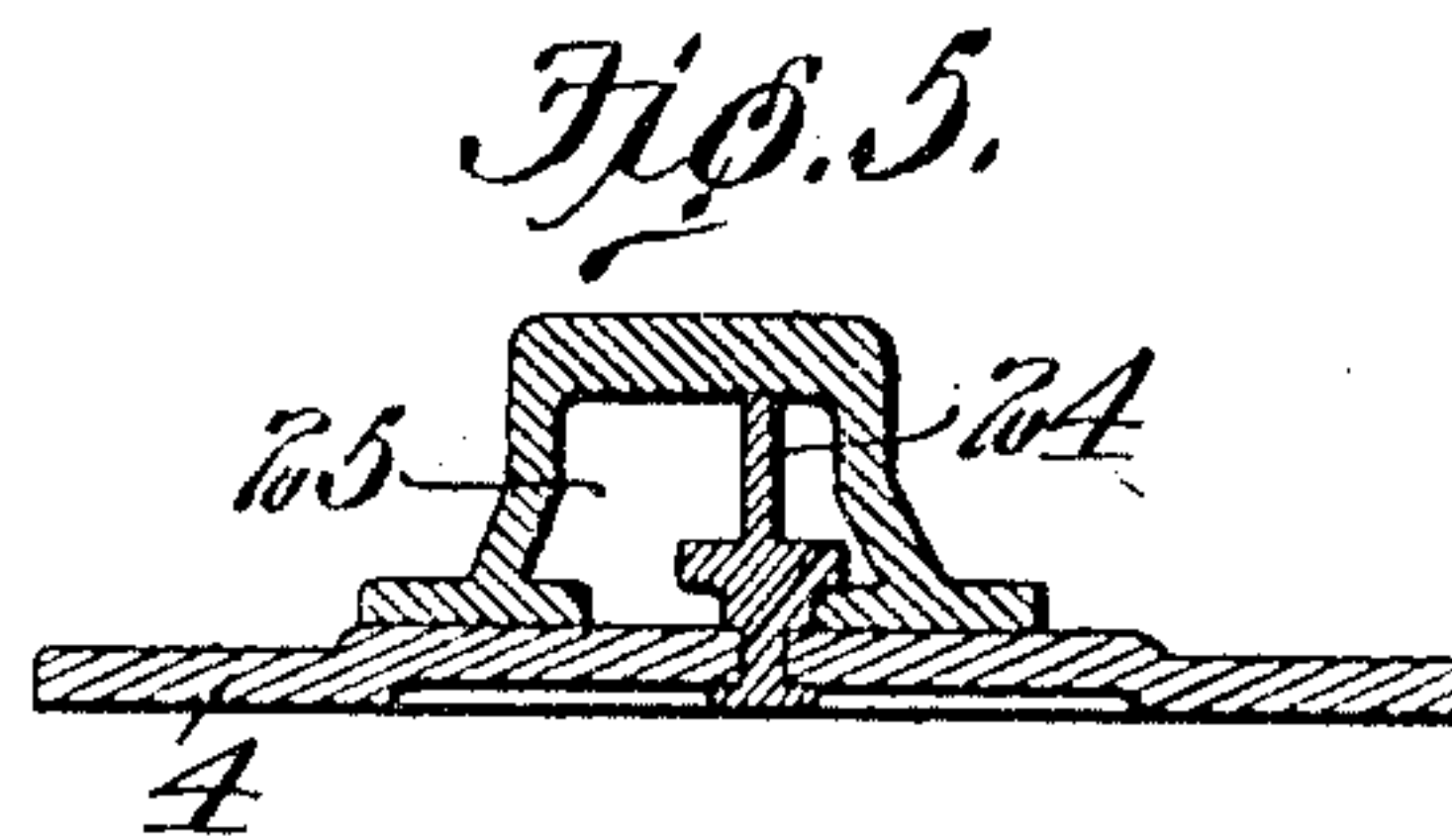
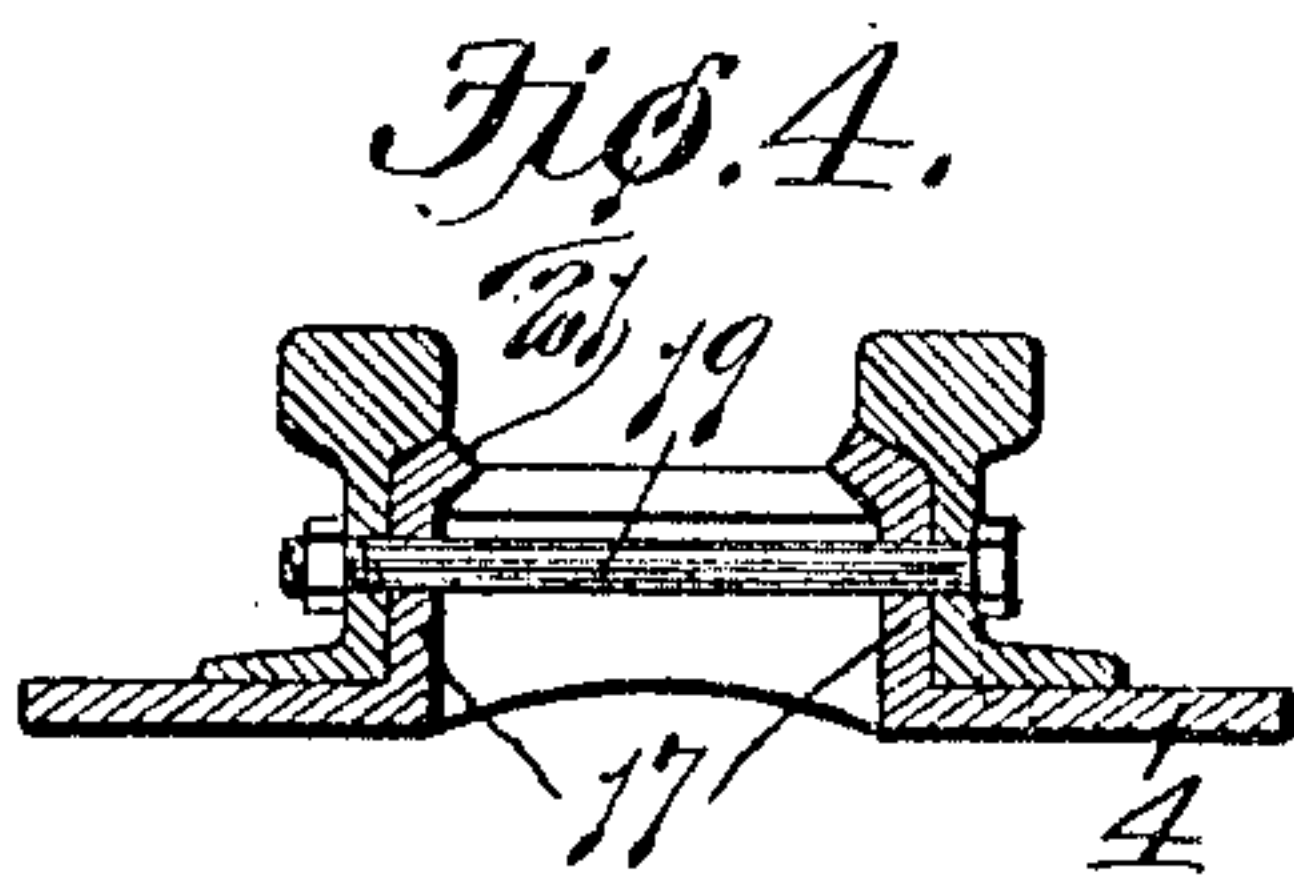
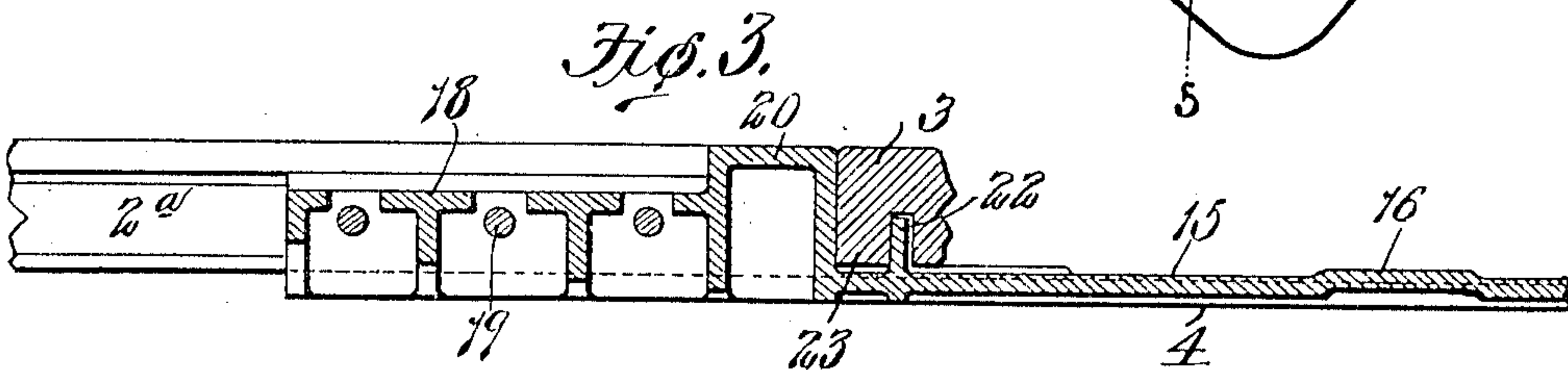
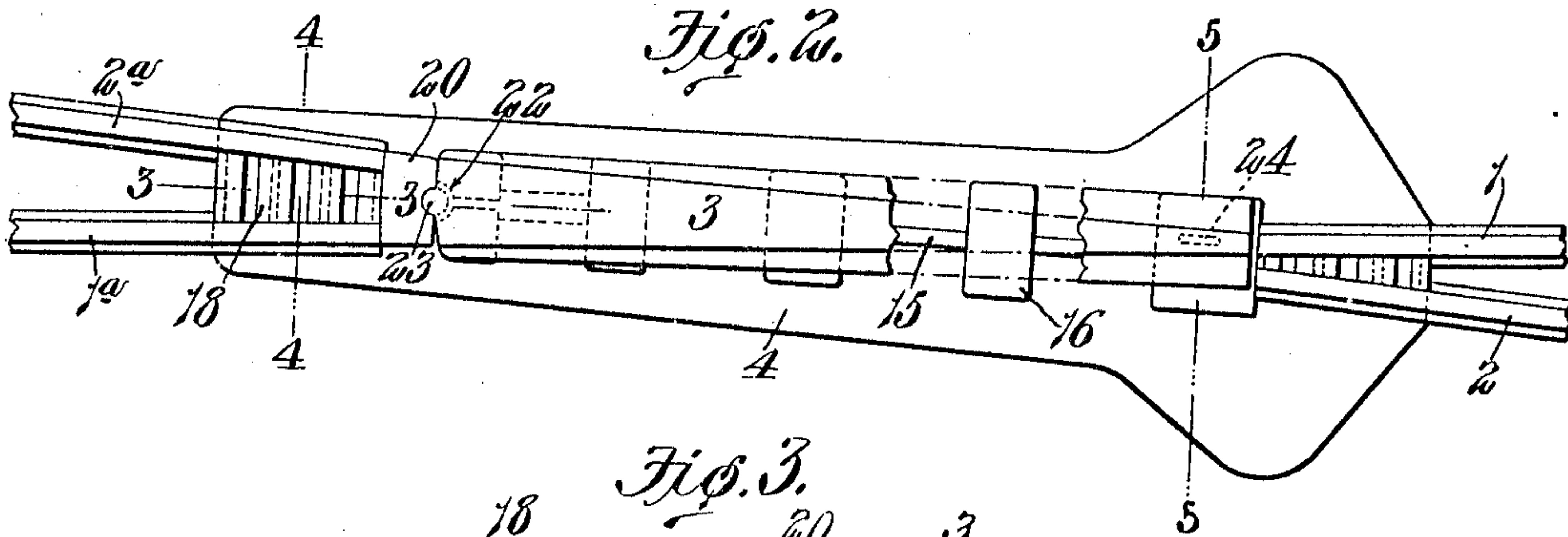
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3 SHEETS—SHEET 2.



Witnesses:
George Radson.
Nell L. Church.

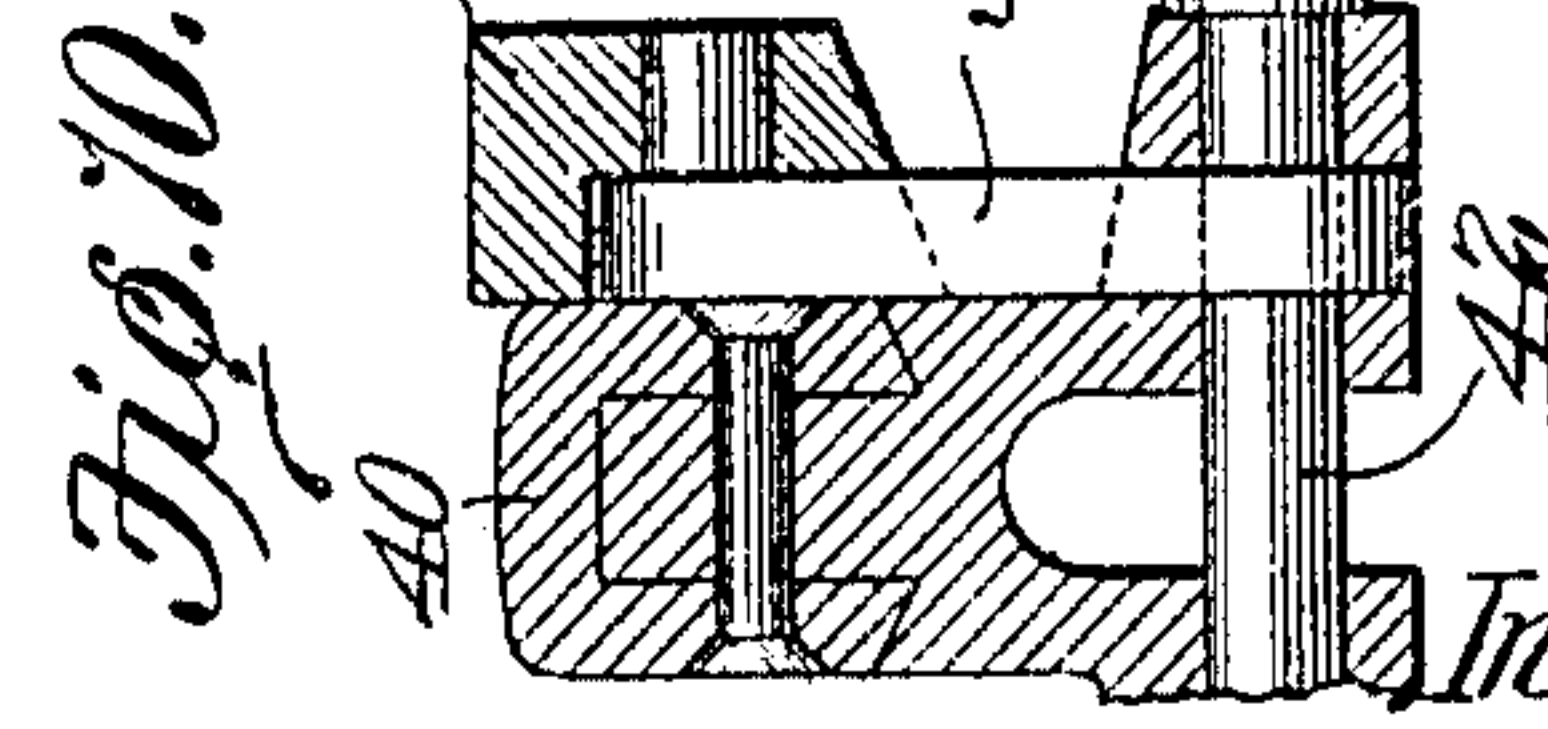
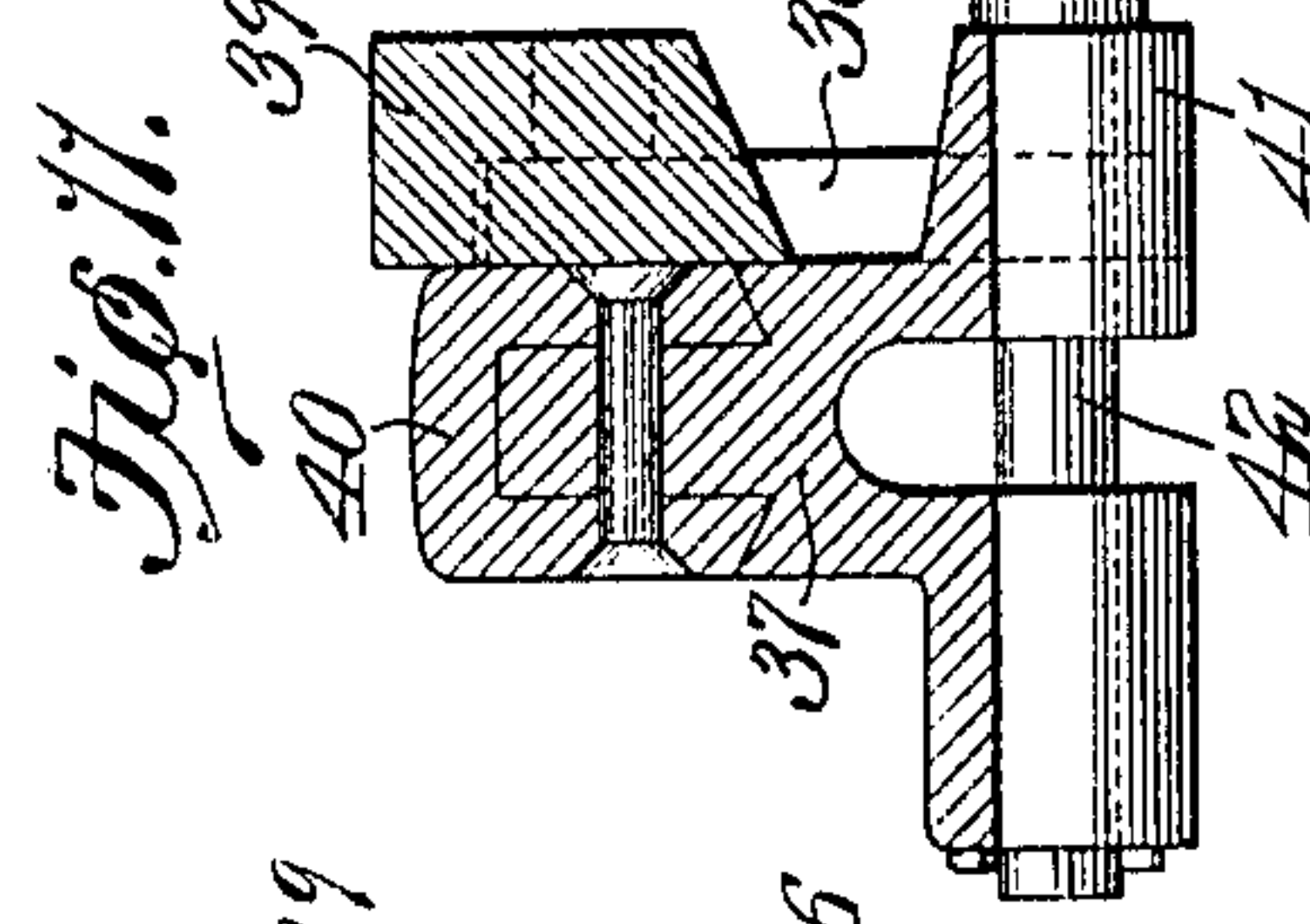
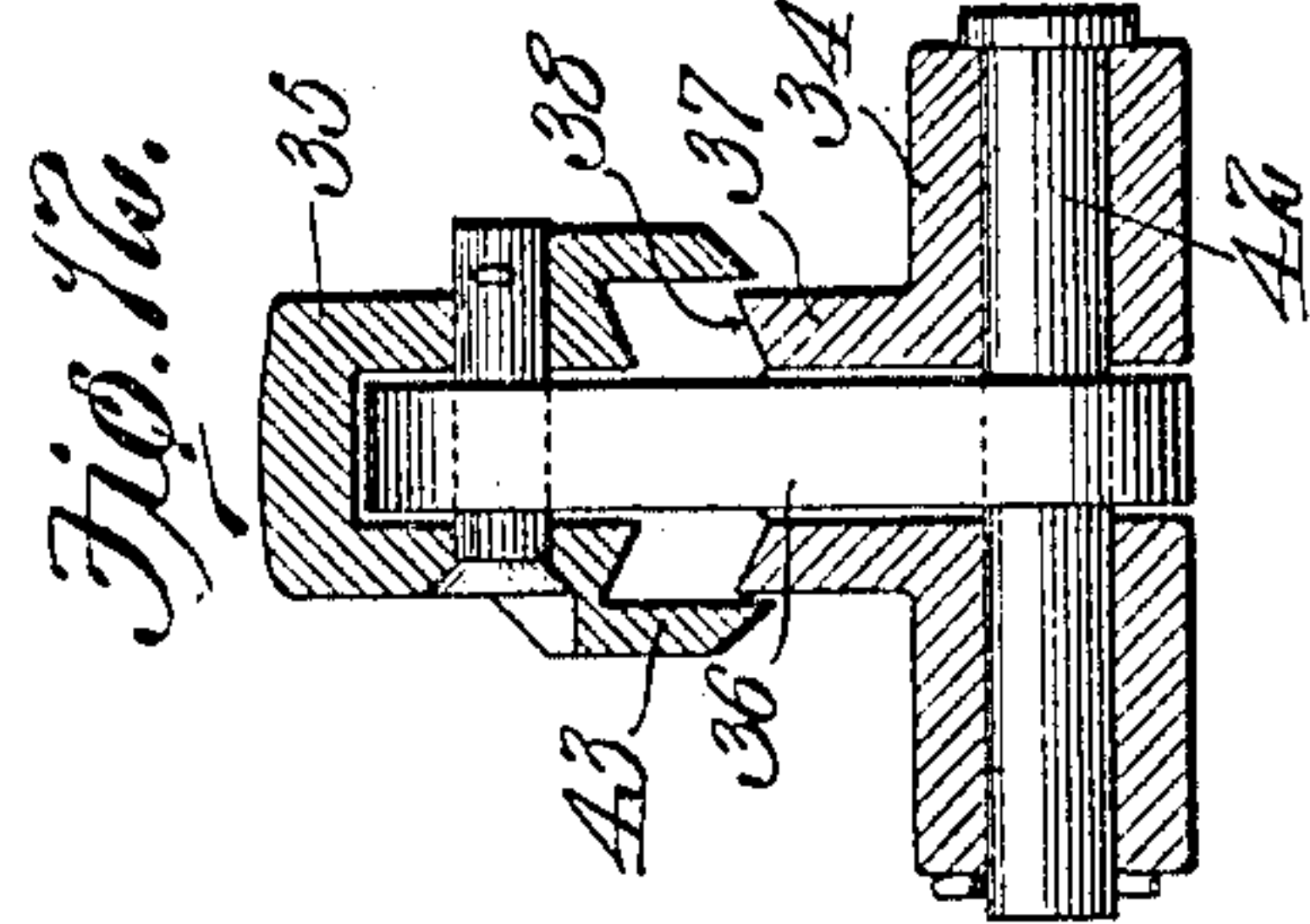
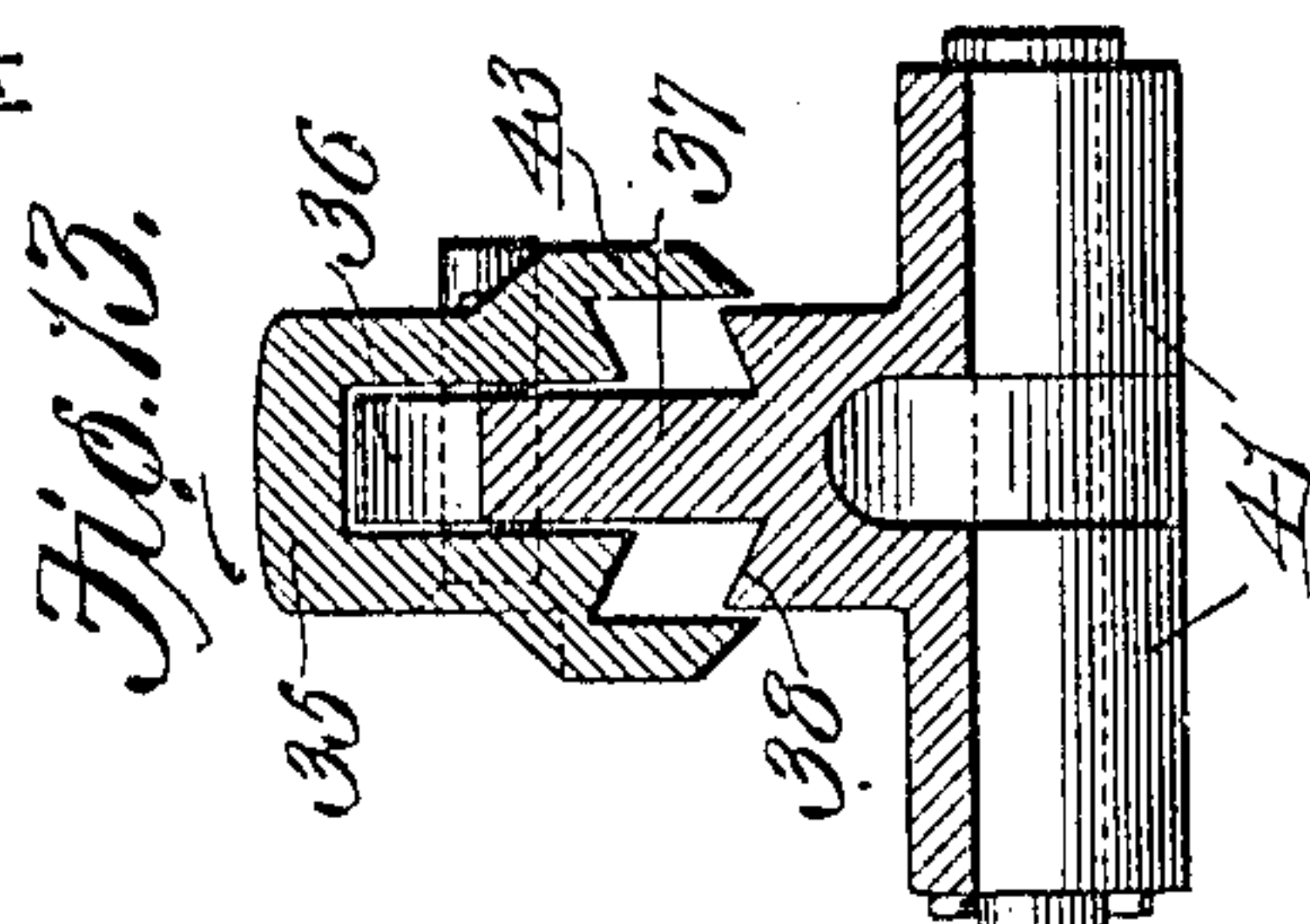
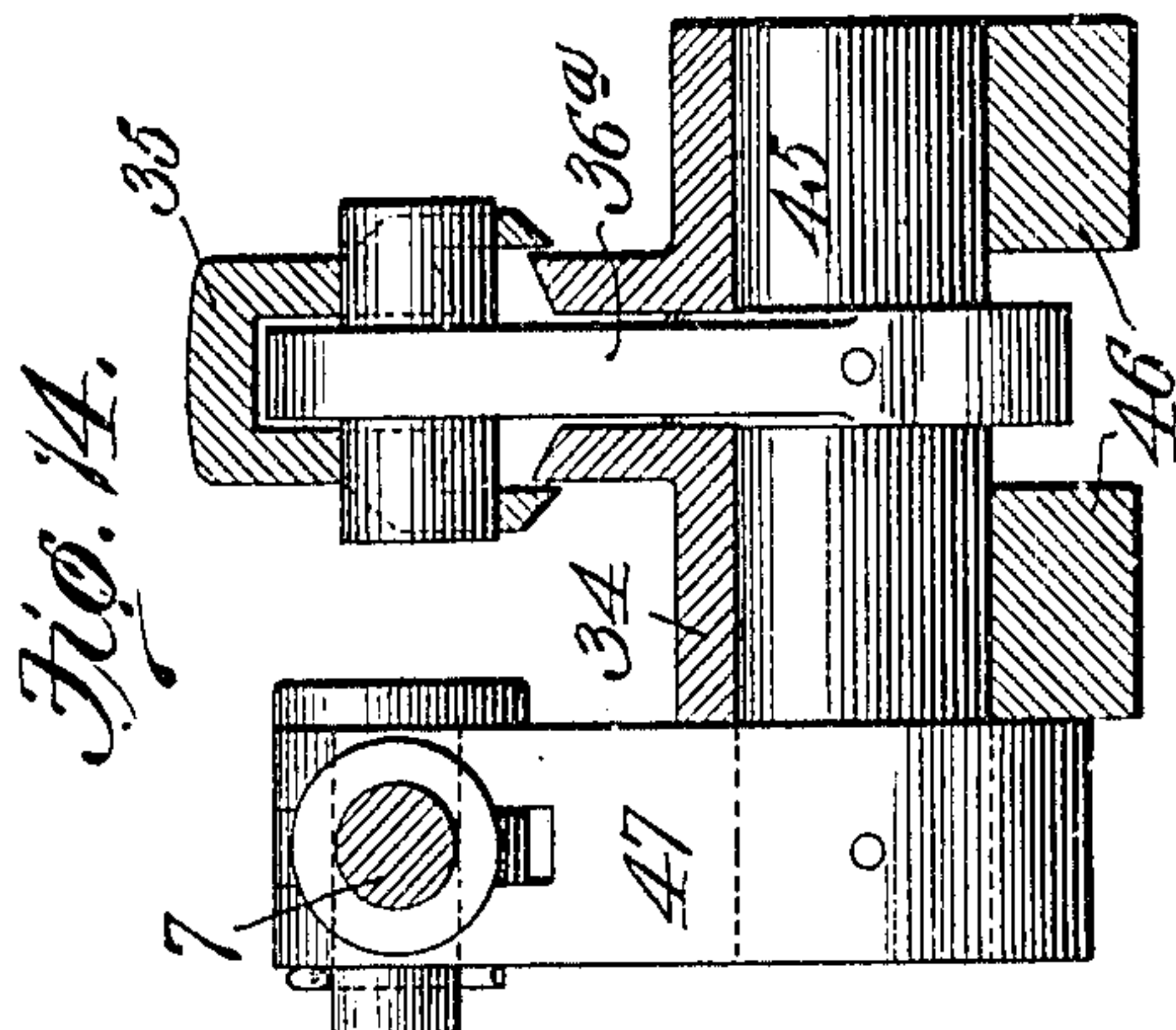
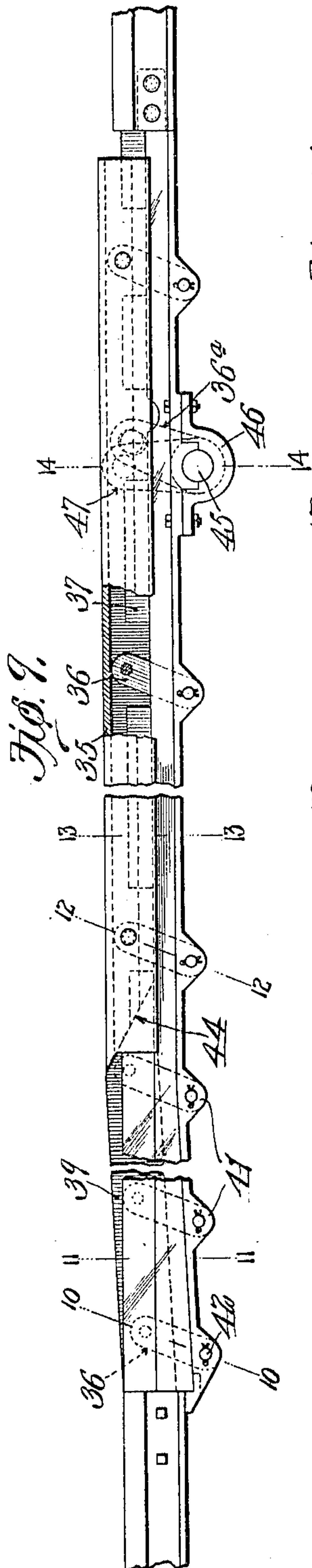
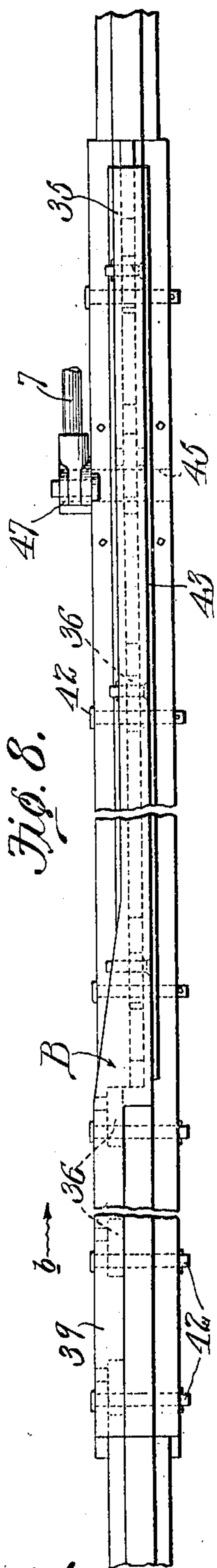
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APPLICATION FILED OCT. 15, 1908.

947,530.

Patented Jan. 25, 1910.

3 SHEETS—SHEET 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

HARRY F. ROACH, OF ST. LOUIS, MISSOURI, ASSIGNOR TO CONTINUOUS RAIL & SAFETY SWITCH CO., OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

RAILWAY-TRACK STRUCTURE.

947,530.

Specification of Letters Patent.

Patented Jan. 25, 1910.

Original application filed April 25, 1908, Serial No. 429,247. Divided and this application filed October 15, 1908. Serial No. 457,933.

To all whom it may concern:

Be it known that I, HARRY F. ROACH, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Railway-Track Structures, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to railway track structures, and particularly to that type which comprises a movable tongue arranged at the intersection of two tracks to form a continuous rail, the present application being a divisional of the application which resulted in my U. S. Patent No. 904,278, dated November 17, 1908.

This present application relates to the construction of the base plate on which the movable tongue is mounted, and also to the construction of the wheel-operated members that are employed for actuating the movable tongue.

One object of my invention is to provide a base plate that is strong and rigid and which is so constructed that the track rails connected thereto cannot creep relatively to the base plate.

Another object of my invention is to provide a wheel-operated member of novel construction.

Figure 1 is a diagrammatic view of a railway track structure provided with a base plate and wheel-operated members constructed in accordance with my invention; Fig. 2 is a top plan view of the base plate and the movable tongue that is mounted thereon; Fig. 3 is a vertical sectional view taken on approximately the line 3—3 of Fig. 2; Fig. 4 is a cross sectional view taken on approximately the line 4—4 of Fig. 2; Fig. 5 is a cross sectional view taken on approximately the line 5—5 of Fig. 2; Fig. 6 is a perspective view illustrating a modified form of my invention; Fig. 7 is a vertical sectional view illustrating still another form of my invention; Fig. 8 is an enlarged top plan view of one of my improved wheel-operated members; Fig. 9 is a side elevational view partly broken away of said wheel-operated member; Fig. 10 is

a cross sectional view taken on the line 10—10 of Fig. 9; Fig. 11 is a cross sectional view taken on the line 11—11 of Fig. 9; Fig. 12 is a cross sectional view taken on the line 12—12 of Fig. 9; Fig. 13 is a cross sectional view taken on the line 13—13 of Fig. 9; and Fig. 14 is a cross sectional view taken on the line 14—14 of Fig. 9.

Referring to Fig. 1 which illustrates my improved base plate and wheel-operated member arranged in operative position in a railway track structure, 1 and 2 designate the inside rails of a main line and siding, respectively, and 1^a and 2^a designate rails that form continuations of the rails 1 and 2, respectively. A movable tongue 3 is arranged between the terminals of said co-operating track rails to form a continuous inside rail for the main line or siding, said tongue being adapted to move laterally to bring its free end into alinement with either of the rails 1 or 2. The tongue 3 is mounted on a base plate 4 to which the terminals of the track rails 1 and 2 and 1^a and 2^a are connected, and a pair of wheel-operated members A and B are operatively connected to said tongue for imparting movement thereto. Each of said wheel-operated members comprises a stationary base and a movable element arranged in longitudinal alinement with the outside rail of the siding and adapted to be depressed and moved longitudinally when it is engaged by the wheel of a car traveling on the siding, the movable element of the wheel-operated member A being so mounted that it always moves longitudinally in the direction indicated by the arrow *a* in Fig. 1, and the movable element of the wheel-operated member B being so mounted that it always moves longitudinally in the direction indicated by the arrow *b* in Fig. 1. The movable elements of said wheel-operated members are connected together in such a manner that when the movable element of one member is depressed and moved longitudinally the movable element of the other member will be depressed and moved longitudinally simultaneously, the movable element of the wheel-operated member A being connected by a link 5 to a lever 6, and the movable element of the wheel-operated member B being connected by a link 7 to a T-shaped lever 8. The op-

posite ends of the levers 6 and 8 are connected together by means of rods 9, and the laterally projecting arm of the T-shaped lever 8 is connected by means of a link 10 to a bell crank lever 11 that is connected to the movable tongue 3 by means of a pair of links 12 and a bell crank lever 13. The wheel-operated members A and B operate to move the tongue 3 into alinement with the inside rail 2 of the siding, and said tongue is moved in the opposite direction by any suitable means, such, for example, as the spring arranged inside of a housing 14.

While I have herein illustrated my improved base plate and wheel-operated members as forming part of a track structure in which the movable tongue is arranged at the intersection of the inside rails of a main line and siding, and the wheel-operated members as forming part of the outside rail of the siding, I do not wish it to be understood that my invention is limited to this combination of elements as my present invention relates to the construction of the base plate and wheel-operated members, it being immaterial how said devices are employed in a railway track structure.

Referring to Fig. 2 which illustrates one form of my improved base plate, 4 designates a base plate that preferably consists of a casting or drop forging, and 15 designates a strengthening rib that extends longitudinally of the base plate. A number of ribs 16 extend transversely of the base plate to form a flat supporting surface on which the movable tongue 3 slides, said transversely extending ribs being preferably higher than the longitudinal rib 15. The ends of the track rails 1, 2, 1^a and 2^a, rest upon the base plate 4, and the webs of said rails are connected to devices which are preferably formed integral with the base plate, one end of the base plate being provided with a device to which the rails 1 and 2 are connected and the other end of the base plate being provided with a device to which the rails 1^a and 2^a are connected.

In the construction shown in Figs. 2, 3 and 4, each of said devices consists of a pair of vertically disposed webs 17 formed integral with the base plate and arranged between the two track rails with which they cooperate. Preferably, the pair of webs 17 at each end of the base plate are reinforced and strengthened by means of transversely extending T-shaped ribs 18 arranged between same and integrally connected thereto, the webs of the track rails lying against the outside faces of said webs 17 and being secured thereto by bolts or other suitable fastening devices 19 that pass transversely through the webs of the rails and the webs 17 on the base plate, as shown in Fig. 4. The free end of the movable tongue 3 operates directly with the terminals of the

rails 1 and 2, and the pivoted end of said tongue can cooperate directly with the terminals of the rails 1^a and 2^a or a wheel tread member 20 carried by the base plate, said wheel tread member preferably being hollow and formed integral with the base plate, as shown in Fig. 3. Each of the vertical webs 17 on the base plate can either terminate a short distance from the end of the base plate or extend clear to the end of the base plate, and the upper edges of said webs are preferably flanged laterally, as shown in Fig. 4, to form seats 21 for the heads of the track rails that are secured to said webs, portions of the base flanges of said rails being sheared off, as shown in Fig. 4, so as to permit the vertical webs of the rails to lie close to the webs 17 on the base plate. By shearing off portions of the base flanges of the rails I produce shoulders which engage the ends of the integral rail-attaching devices 17 on the base plate and thus prevent the rails from creeping longitudinally of the base plate, the wheel tread member 20 on the base plate also acting as an additional means to prevent creepage of the rails 1^a and 2^a which butt against said wheel tread member. The base plate is provided with an upwardly projecting semi-circular flange 22 that forms part of the socket for receiving the pivot pin 23 on the movable tongue, and said base plate is also provided with one or more stops 24 that project into a chamber 25 on the underneath side of the movable tongue 3, as shown in Fig. 5, to limit the lateral movement of said tongue, said stop also being provided with laterally projecting flanges that cooperate with flanges on the tongue to prevent said tongue from moving upwardly from the base plate. The stop 24 can either be formed integral with the base plate or it can consist of a separate piece having a depending portion that passes through the base plate and is upset so as to retain said stop in position, as shown clearly in Fig. 5.

Instead of providing each end of the base plate with a rail-attaching device consisting of a pair of webs 17 arranged between the webs of the track rails, I can provide each end of the base plate with a plurality of pairs of upwardly projecting lugs 26 that pass through slots in the bases of the rails and embrace the vertical webs thereof, the rails being secured to said lugs by fastening devices 27 that pass transversely through same.

In the construction shown in Fig. 6, two pairs of lugs 26 are provided for each rail, and as said lugs pass upwardly through slots in the bases of the rails, it will be impossible for the rails to creep longitudinally of the base plate or move laterally thereof. The opposite ends of the movable tongue 3 can cooperate directly with the terminals of

the rails or the base plate can be provided with wheel tread members 28 against which the ends of the rails abut, as shown in Fig. 6.

In the form of my invention illustrated in Fig. 7 the base plate 4^a is provided with a detachable wheel tread member 20^a which preferably consists of a hollow casting or drop forging, said wheel tread member being provided with laterally projecting flanges through which fastening devices 29 pass, as shown in dotted lines in Fig. 7, to connect it to the base plate. Said wheel tread member is provided with integral wings 30 to which the vertical webs of the rails are connected by fastening devices 31, and the base plate is provided with a vertical shoulder or face 32 against which the ends of the rails abut to prevent longitudinal creepage. I also prefer to provide the base plate with a second shoulder 33 that co-operates with a shoulder on the wheel tread member 20^a to reduce the shearing strains on the fastening devices that secure said member to the base plate.

I have not herein specifically claimed the constructions shown in Figs. 6 and 7 of the drawings for I intend to cover these modifications of my invention in separate applications.

Both of the wheel-operated members A and B are of the same construction so that I will describe only the member B which is illustrated clearly in Figs. 8 to 14, inclusive. Said wheel-operated member comprises a base 34 arranged in longitudinal alinement with the outside rail of the siding, and a movable element 35 carried by links 36 that are pivotally connected to said base. The base has a vertical web 37 provided on its opposite sides with shoulders 38 that form bearing faces for the movable element 35 when it is depressed, said movable element having an inverted channel-shaped tread portion that embraces the reduced portion of the web 37 and a shank 39 that is arranged at one side of said web 37, as shown in Figs. 10 and 11. An inverted channel-shaped tread device 40 which is preferably formed from some hard material, such, for example, as manganese steel, is permanently connected to the vertical web 37 of the base adjacent the shank 39 of the movable element so as to form a continuation of the tread of the rail and the tread portion of the movable element 35, but, if desired, the vertical web of the base can be provided with an integral tread portion at this point. The base 34 is provided on its underneath side with thickened portions 41 that form bearings for pins 42 which pivotally connect the links 36 to the base, and the links that are connected to the shank 39 of the movable element are arranged at one side of the vertical web of the base, as shown in Figs. 10 and 11, the base being provided with

slots through which said links extend. The links 36 which are connected to the inverted channel-shaped tread portion 35 of the movable element extend through slots in the vertical web of the base and the upper ends of said links are arranged inside of said inverted channel-shaped portion, as shown in Fig. 12, the reduced portion of the vertical web 37 of the base being cut away, as shown in Fig. 9, so as to permit said links to swing on their fulcrums and thus permit the movable element to move longitudinally of the base. I also prefer to provide the inverted channel-shaped tread portion of the movable element with depending flanges 43 that telescope over the wide portion of the vertical web 37 of the base, as shown in Figs. 12 and 13 so as to prevent dirt, ice or any other foreign matter from collecting on the bearing surfaces 38 on which the movable element rests when in its depressed position.

As shown in dotted lines in Fig. 9, the vertical web of the base is provided with an inclined bearing face 44 on which a co-operating inclined bearing face on the movable element rests when said movable element is in its normal elevated position. One of the links 36^a which supports the movable element, is rigidly connected to a rock shaft 45 that is journaled in a bearing 46 connected to the underneath side of the base, as shown in Figs. 9 and 14, and the link 7, which forms part of the connection between the movable element of the wheel-operated member B and the movable tongue, is fastened to an arm 47 on the rock shaft 45. A wheel that travels over the outside rail of the siding in the direction indicated by the arrow *b* in Figs. 1 and 8, will ride onto the shank 39 of the movable element and thus depress it and move it longitudinally in the direction of said arrow, thereby rocking the arm 47 and actuating the links and levers which cause the movable tongue 3 to move into alinement with the inside rail of the siding, the movable element being returned to its normal, elevated position when the movable tongue moves back into alinement with the inside rail of the main line.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A railway track structure, comprising a base plate, a movable tongue mounted on said base plate, devices arranged adjacent the opposite ends of the base plate and integrally connected thereto, track rails connected to said devices, and means independent of the fastening devices which secure the track rails to said devices for preventing longitudinal creepage of said rails in either direction; substantially as described.

2. A railway track structure, comprising a base plate, a movable tongue mounted on

said base plate, a pair of track rails resting on each end of the base plate, devices connected to the base plate and arranged between the rails of each pair, fastening devices passing through said devices and the webs of the rails for retaining the rails in position, and means independent of said fastening devices for preventing longitudinal creepage of the rails in either direction; substantially as described.

3. A railway track structure, comprising a base plate, a movable tongue mounted on said base plate, track rails resting on said base plate and cooperating with said tongue, integral devices on the base plate to which said rails are connected, and cooperating shoulders on said rails and devices to prevent longitudinal creepage of the rails in either direction; substantially as described.

4. A railway track structure, comprising a base plate, a movable tongue mounted on said base plate, a pair of rails cooperating with each end of said tongue and having their end portions resting on the base plate, devices formed integral with the base plate and arranged between the vertical webs of each pair of rails, and fastening devices for securing said rails to said devices, the base flanges of said rails being so formed that they cooperate with the integral devices on the base plate to prevent longitudinal creepage of the rails in either direction; substantially as described.

5. A railway track structure, comprising a base plate, a movable tongue mounted on said base plate, track rails resting on the base plate and cooperating with said tongue, integral devices on the base plate to which the webs of said rails are connected, and shoulders on the flanges of said rails that cooperate with said devices to prevent longitudinal creepage of the rails in either direction; substantially as described.

6. A railway track structure provided with a movable tongue and a base plate on which said tongue is slidingly mounted, said base plate being provided with a longitudinally extending strengthening rib, and a plurality of transversely extending strengthening ribs; substantially as described.

7. A railway track structure provided with a base plate having a longitudinally extending rib and a plurality of transversely extending ribs that project above said longitudinally extending rib, and a movable tongue slidingly mounted on said transversely extending ribs; substantially as described.

8. A railway track structure provided with a base plate having vertically disposed webs, integral ribs extending transversely between said webs, and rails mounted on said base plate and having portions of their bases removed so that their vertical webs

can contact with the webs on the base plate; substantially as described.

9. A railway switch track structure provided with a base plate which has an integral tread portion and vertically disposed webs having their upper edges flanged laterally, rails mounted on said base plate and having portions of their bases removed so that their vertical webs can contact with the webs on the base plate and their heads rest upon the lateral flanges on the webs of the base plate, the ends of said rails abutting against said tread portion; substantially as described.

10. A railway track structure provided with a base plate having an integral upwardly projecting semi-circular-shaped flange that forms part of a socket, and a movable tongue slidingly mounted on said base plate and provided with a pivot pin that projects into said socket; substantially as described.

11. A railway track structure provided with a base plate having pairs of integral vertically disposed webs adjacent its opposite ends, rails connected to said webs, and a pivotally mounted tongue arranged on said base plate and cooperating with the terminals of two of said rails; substantially as described.

12. In a railway track structure, a wheel-operated member comprising a base provided with a vertically disposed web, the upper portion of said web being reduced to form shoulders on the opposite sides thereof, a movable element having an inverted channel-shaped tread portion which embraces the reduced portion of said web and rests on said shoulders when it is depressed, and a movable device adapted to be actuated by said movable element; substantially as described.

13. In a railway track structure, a wheel-operated member comprising a base provided with a vertically disposed web, a tread member permanently connected to a portion of said web, a movable element having an approximately inverted channel-shaped tread portion that embraces said web to form a continuation of the tread member thereon, an integral shank on said movable element arranged adjacent the tread member on the web of the base, and a movable device adapted to be actuated by said movable element; substantially as described.

14. In a railway track structure, a wheel-operated member comprising a base having a vertically disposed web provided on its opposite sides with shoulders, a movable element having an approximately inverted channel-shaped tread portion that embraces said web, depending flanges on said tread portion which telescope over the web of said base and prevent dirt and ice from accumulating on the shoulders on said web, and

a movable device adapted to be actuated by said movable element; substantially as described.

15. In a railway track structure, a wheel-
5 operated member comprising a base provided with a vertically disposed web, bearings on the underneath side of the base, pins extending transversely through said bearings, a movable element having a tread portion which embraces the web on said base,
10 links pivotally connected at their upper ends to said movable element and pivotally connected at their lower ends to the pins on the underneath side of the base, and a movable
15 device adapted to be actuated by said movable element; substantially as described.

16. In a railway track structure, a wheel-operated member comprising a base arranged

in longitudinal alinement with a track rail and provided with a vertically disposed 20 web, a wheel tread portion on said web, a movable element having an approximately inverted channel-shaped tread portion that embraces said web, links pivotally connected at their upper ends to said movable element 25 and arranged in slots in the vertical web of the base, and a movable device adapted to be actuated by said movable element; substantially as described.

In testimony whereof I hereunto affix my 30 signature in the presence of two witnesses, this thirteenth day of October 1908.

HARRY F. ROACH.

Witnesses:

WELLS L. CHURCH,
GEORGE BAKEWELL.