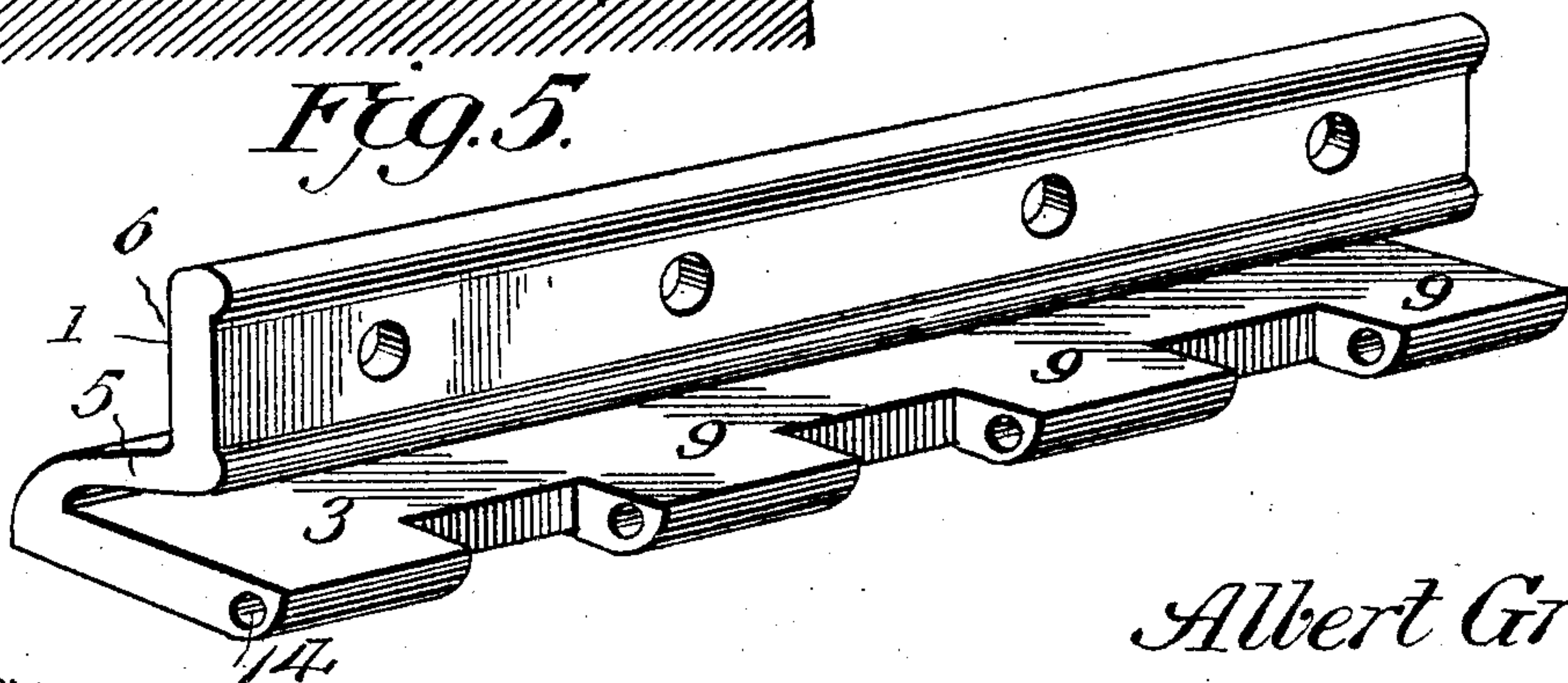
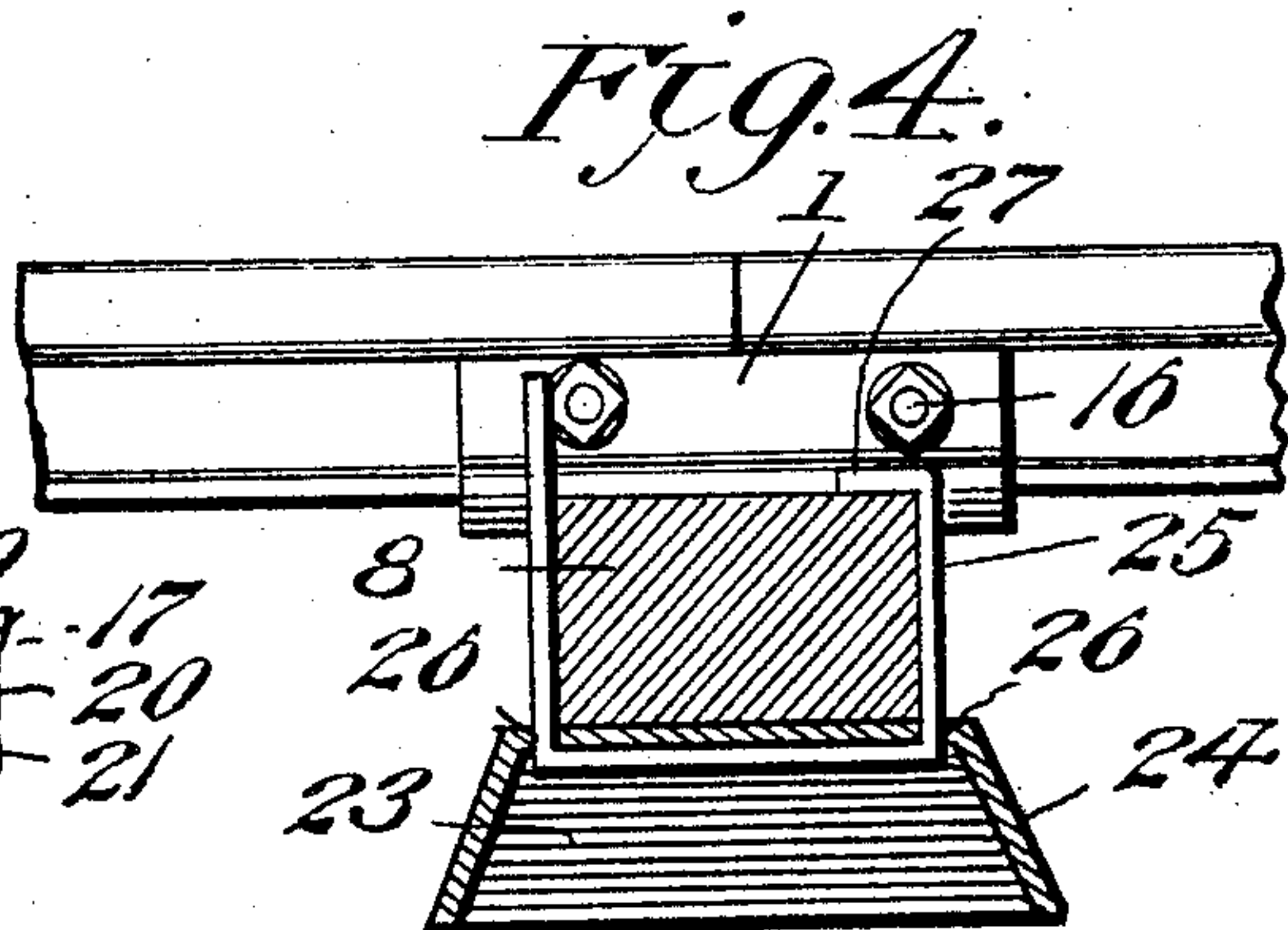
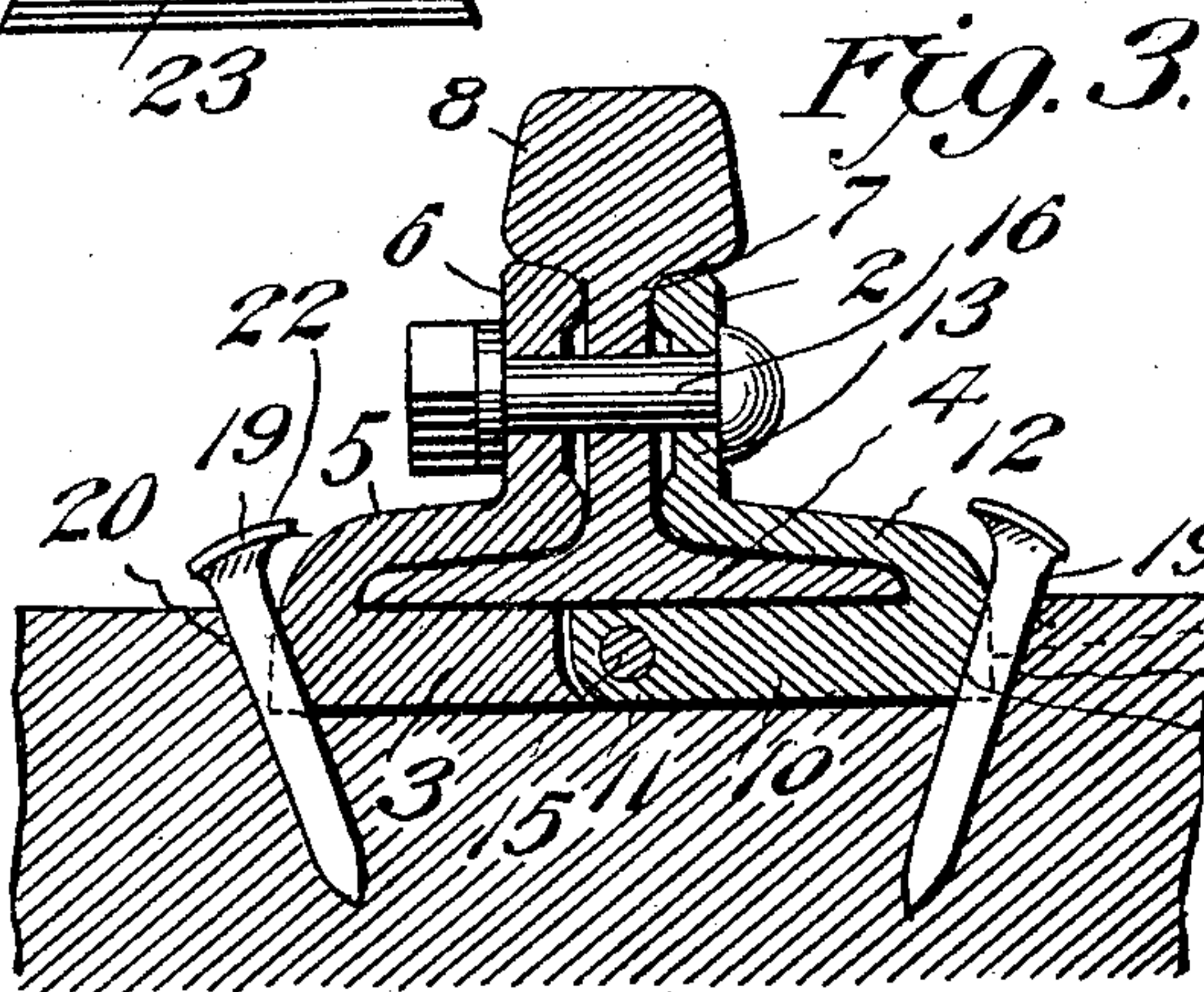
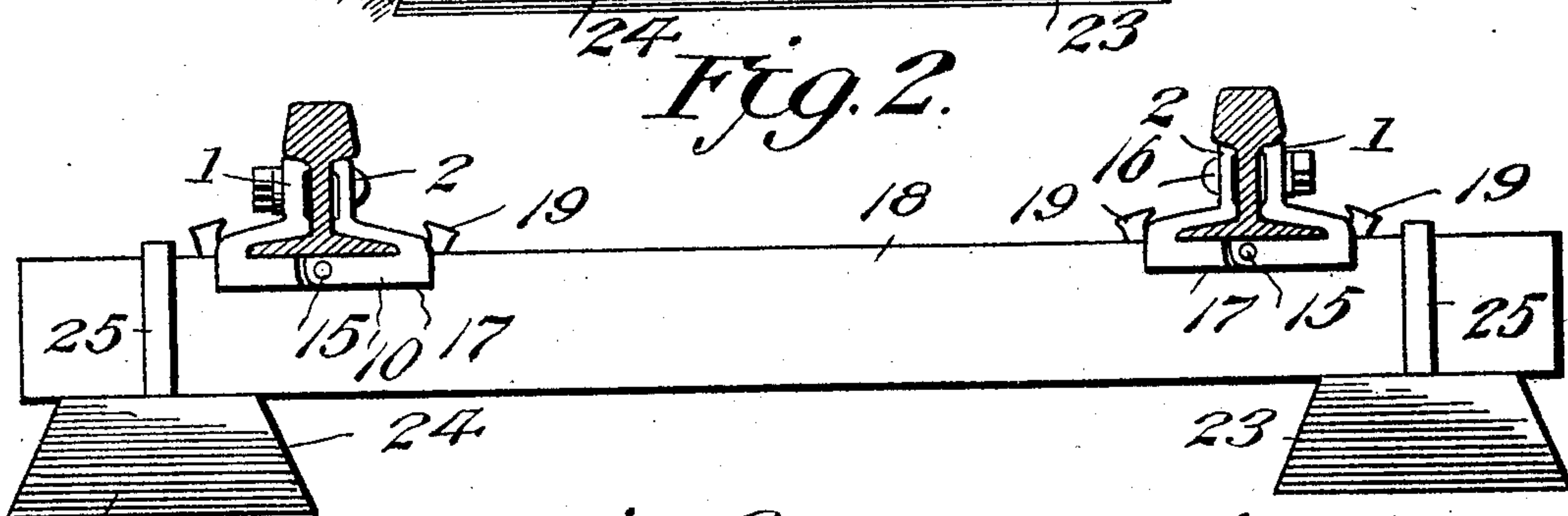
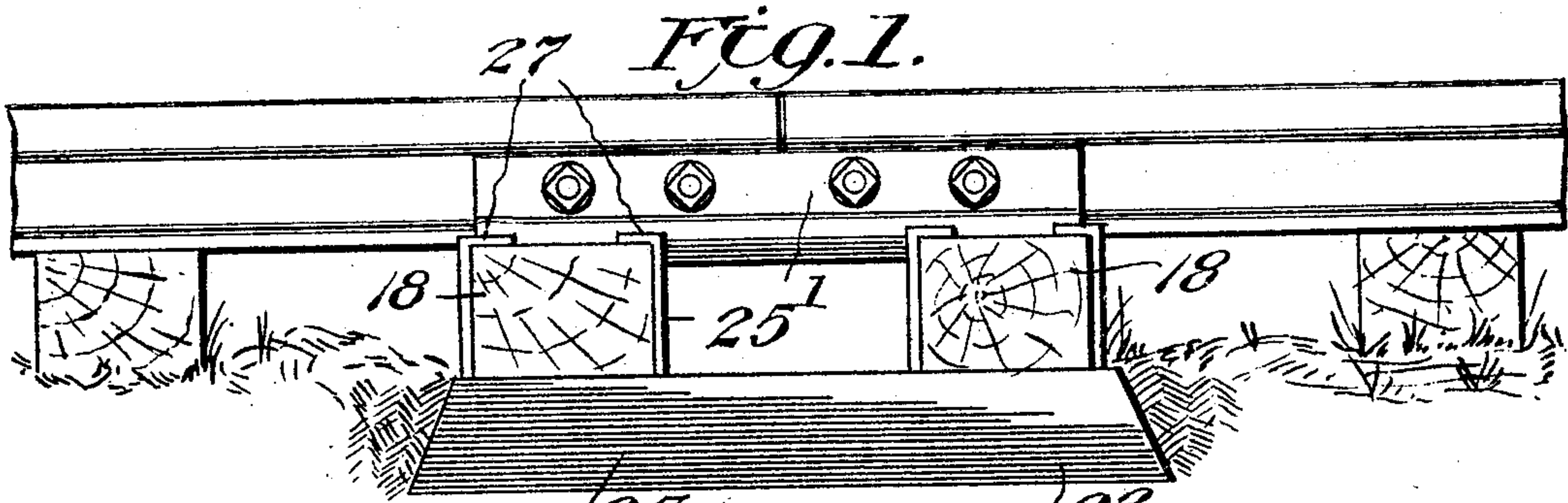


No. 799,557.

PATENTED SEPT. 12, 1905.

A. GRALA.
RAIL CHAIR.
APPLICATION FILED MAR. 23, 1905.



Witnesses

Geo. Dickmeyer.
Washburn Allen.

By

Inventor
Albert Grala,
Victor J. Crane
Attorney

UNITED STATES PATENT OFFICE.

ALBERT GRALA, OF HAZLETON, PENNSYLVANIA.

RAIL-CHAIR.

No. 799,557.

Specification of Letters Patent.

Patented Sept. 12, 1905.

Application filed March 23, 1905. Serial No. 251,625.

To all whom it may concern:

Be it known that I, ALBERT GRALA, a citizen of the United States, residing at Hazleton, in the county of Luzerne and State of Pennsylvania, have invented new and useful Improvements in Rail-Chairs, of which the following is a specification.

The invention relates to an improvement in rail-chairs particularly designed for supporting the meeting ends of railroad-rails.

The main object of the invention is the provision of a rail-chair made in two sections and having hinged connection below the base of the rail, said hinged connection being so arranged that the weight of the rail tends to hold the sections of the chair in closed position with relation to the rail.

Another object of the invention is the provision of means for securing the chair to the tie, said means also serving to maintain the sections of the chair in closed relation.

Another object of the invention is the provision of a tie-support of particular construction in the use of which sinking of the tie is prevented.

The preferred embodiment of the details of the invention will be described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation showing the meeting ends of railroad-rails supported by my improved chair, the tie-support being shown in place. Fig. 2 is an end elevation illustrating the invention applied to both track-rails. Fig. 3 is an enlarged transverse section through the rail, chair, and tie, illustrating particularly the connection of the chair to the tie. Fig. 4 is a side elevation illustrating my invention in use with a single tie. Fig. 5 is a perspective of the outer section of the chair.

Referring to the drawings, wherein like reference-numerals indicate like parts throughout the several views, my improved rail-chair comprises an outer section 1 and an inner section 2, the former being designed for contact with the outer side of the rail, while the latter engages the inner side of the rail.

Section 1 comprises a base-plate 3, approximately equal in length to half the width of the rail-base 4, a curved portion 5, arranged to snugly engage the upper part or

surface of the rail-base, and a vertical plate 6, arranged to bear against the outer side of the rail-web 7, being of a length to terminate when in position immediately beneath the tread portion 8 of the rail, as clearly shown in Fig. 3. The base 3 is cut out to provide a series of knuckles 9, with which the opposing section of the chair has hinged connection.

Section 2 of the chair comprises a base-plate 10 equal in dimensions to the base-plate 3 and provided with suitable knuckles 11 to fit within the cut-out portions of the base-plate 3 and register with the knuckles 9. A plate 12 projects from the base-plate 10 to overlie and snugly engage the upper surface of the inner part of the rail-base, a plate 13 projecting upwardly from the plate 12 to contact with the rail-web 7 on the inner side, terminating beneath and in contact with the rail-tread 8.

The sections described are practical duplicates of each other with the exception that I prefer to make plate 6 of section 1 of the chair of greater thickness than plate 13 of section 2, for the reason that the strain against the rail is outward and toward the plate 6, and by forming this plate thicker less danger of breakage is present. I also prefer to so construct the plate 6 that its vertical surface is in practical alinement with the vertical outer edge of the tread of the rail, while the vertical surface of plate 13 is slightly within the plane of the vertical inner edge of the tread, whereby possible interruption or contact with the flange of the wheel is avoided.

It will be noted that the knuckles 9 and 11 are formed in the same plane as the base-plates 3 and 10 of the chair-sections and that the alined openings 14, extending longitudinally through said knuckles for the reception of the hinge-pin 15, are arranged some distance in rear of the forward or free edge of the knuckles. This construction is a very material part of my invention, for the reason that when the chair-sections are spread apart at their upper ends or are in open position the free ends of the knuckles 9 and 11 will project above the plane or surface of the base-plates 3 and 10, as will be obvious, and that when the rail is within said chair the lower plane of its base will depress said projecting ends of the knuckles into the plane of said

base-plates 3 and 10, whereby the weight of the rails will operate to effectively maintain the chair-sections in closed position.

In use the chair-sections are slightly separated and the rail ends inserted longitudinally therethrough, operating, as hereinbefore described, to force the sections in closed position—that is, in contact throughout with the surface of the rails. The usual fish-bolt 16 is to be passed through the plates 6 and 13 of the sections and through the rail-web, preventing longitudinal movement of the rails.

The chairs are arranged to seat in recesses 17, formed in the ordinary ties 18, wedge-keys 19 being driven into said ties adjacent the side edges of the chairs to prevent their longitudinal movement. By preference the keys or spikes seat in recesses 20 in the side walls of the recesses 17 and in aligned recesses 21, formed in the respective side edges of the chair-sections. The walls of the recesses 20 and 21 are inclined from the vertical to permit inclination of the spike in driving, and said spike is formed with an overhanging head 22 to bear upon the upper surface of the respective chair-sections, whereby to prevent accidental separation of the sections and at the same time bind the chairs in the tie-recesses 17.

To guard against sinking of the ties, I provide supports 23, comprising box-like structures open at bottom and having inclined walls 24. These supports are secured to the ends of the ties by tie-rods 25, preferably each comprising a single length of material passed through openings 26 in the closed top of the support, with the ends projected vertically in contact with each side of the tie and terminally bent down upon the upper surface thereof, as at 27.

By virtue of the open-bottom formation of these supports the tie will sink into the earth until the support is filled, when further sinking will be prevented and the ties solidly supported.

If desired, the supports may extend transversely of the ties, with their ends projecting beyond the side edges of the ties, in which position they will serve as anchors for the ties and may be embedded in the usual cement filling or rock ballast for the road-bed.

By preference the chairs are of a length to rest upon two adjacent ties, and the tie-supports are each secured to the ends of two ties, though I contemplate the use of a chair and tie-support adapted for connection with a single tie, such as illustrated in Fig. 4.

The construction provides a rail-chair wherein the weight of the rails operates to maintain the chair-sections in closed position, thus rendering the chair effective should the

additional fastening means provided, as bolts 16, become inoperative.

The tie-support is thoroughly effective to prevent sinking of the tie and is adapted for ready connection to and disconnection from the tie. If desired to remove the chairs from the ties, it is only necessary to loosen the wedge-spikes 19 from their seats and slightly withdraw them to disengage the overhanging heads 22 from the chairs, when the chairs may be readily lifted from their tie-recesses without further removal of the spikes. This result is directly due to the inclination of the notches 20 and 21, by virtue of which the heads of the spikes on a slight withdrawal of the latter move into a plane beyond the plane of the rail-chair, as will be obvious.

Various changes may be effected in the above-described construction without materially altering the nature thereof, and I wish it understood that I consider all such as within the spirit and scope of my invention.

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

1. A rail-chair comprising two sections hinged together, the hinge-joint being in a plane with the base of the sections, in combination with a tie formed with a recess to wholly receive the chair and prevent opening of the sections.

2. A rail-chair comprising two sections, each section being provided with projecting knuckles in a plane with the base-plate of the sections, the free ends of the knuckles projecting above the plane of said base-plates when the sections are separated to open the chair, in combination with a tie formed with a recess to wholly receive the chair and prevent opening of the sections.

3. In combination with a rail-tie formed with a transverse recess, of a rail-chair comprising hinged sections adapted to seat in said recess, and spikes engaging recesses formed in the wall of the tie-recess and in the rail-chair, said spikes having heads to bear against the rail-chair sections.

4. In combination with a railroad-tie formed with a transverse recess, of a rail-chair comprising hinged sections adapted to seat in said recess, the edge of the chair and the wall of the tie-recess being formed with notches, and spikes to register with said notches and to be driven into the tie, said spikes being formed with projecting heads to contact with the surface of the rail-chair sections.

5. In combination with a railroad-tie, of a support therefor comprising a box-like structure arranged transversely of the tie, means for movably securing said support to the tie, said support being open at the bottom and

closed at the top, the walls of the support inclining inwardly and upwardly from the vertical.

5 6. The combination with a railroad-tie, and a support therefor comprising a box-like structure open at the bottom and having inclined side and end walls, tie-rods passing through the top wall of said structure and projecting above said structure, the terminals

of said tie-rods being bent to engage the upper surface of the tie.

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

ALBERT GRALA.

Witnesses:

DAVID W. GOULD,
JOHN L. FLETCHER.