

No. 779,706.

PATENTED JAN. 10, 1905.

C. A. GILCHRIST.  
COMBINED RAILWAY RAIL AND CHAIR.

APPLICATION FILED JULY 15, 1904.

2 SHEETS—SHEET 1.

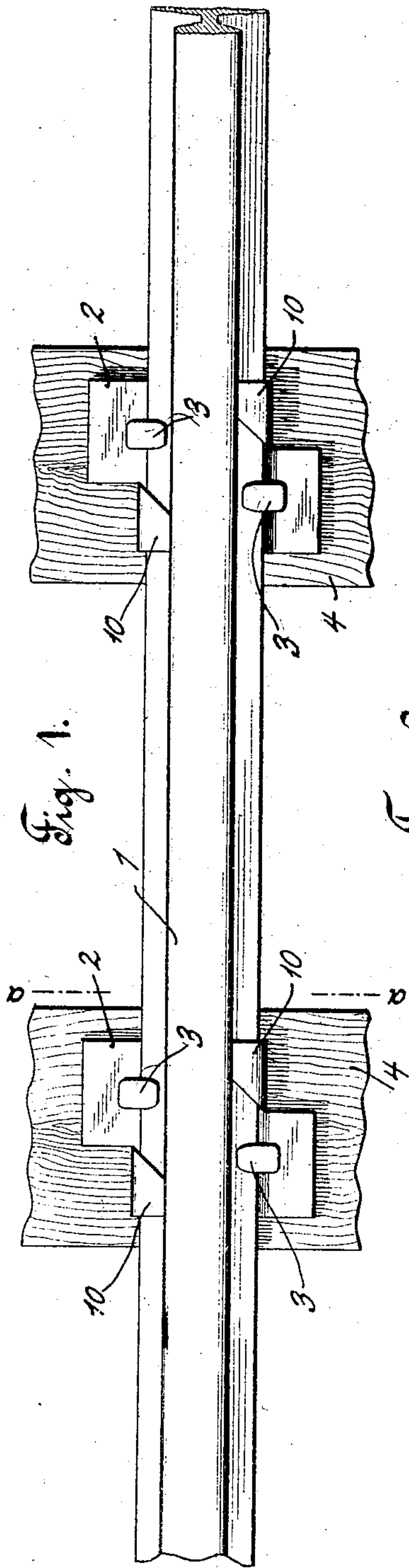
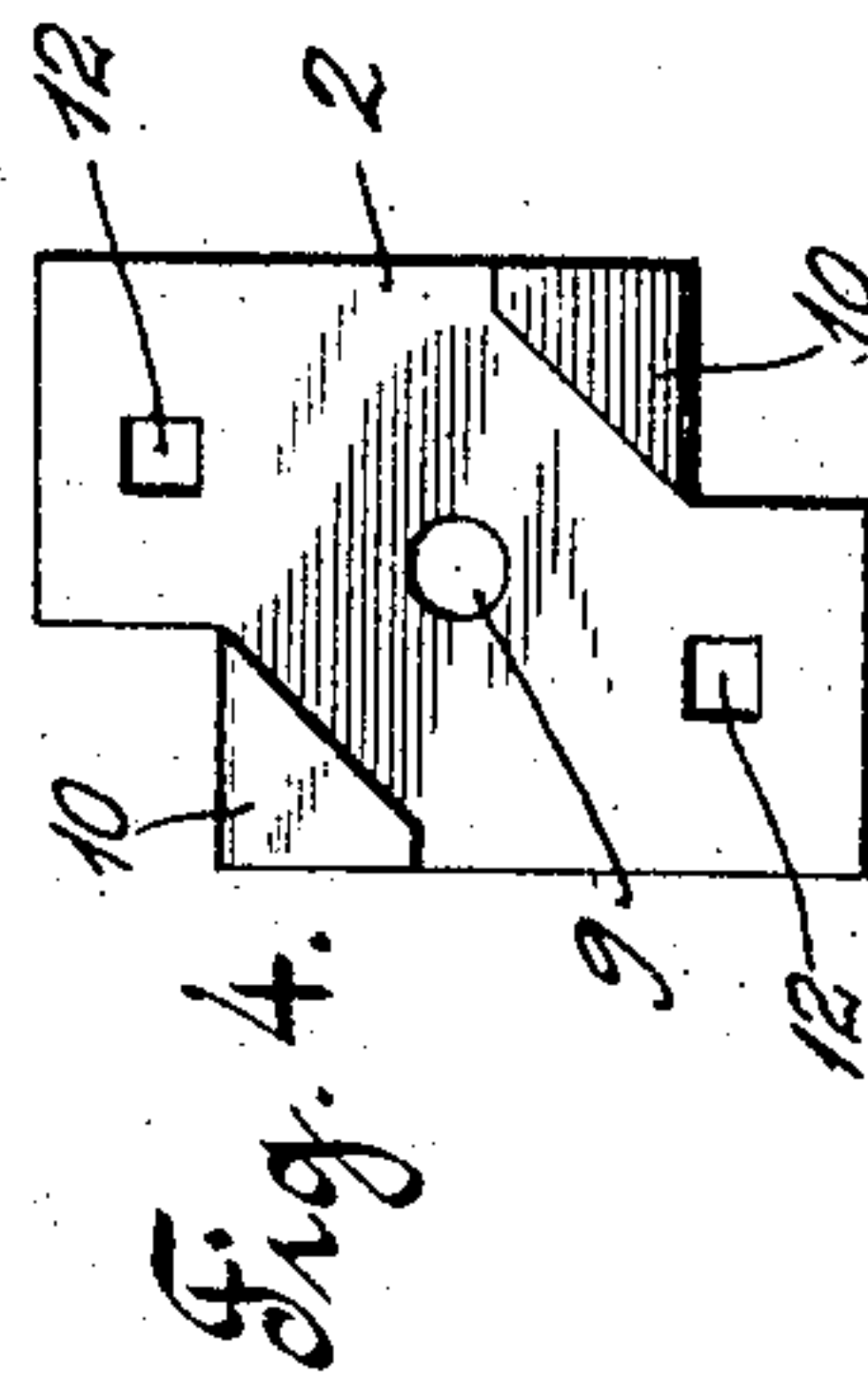
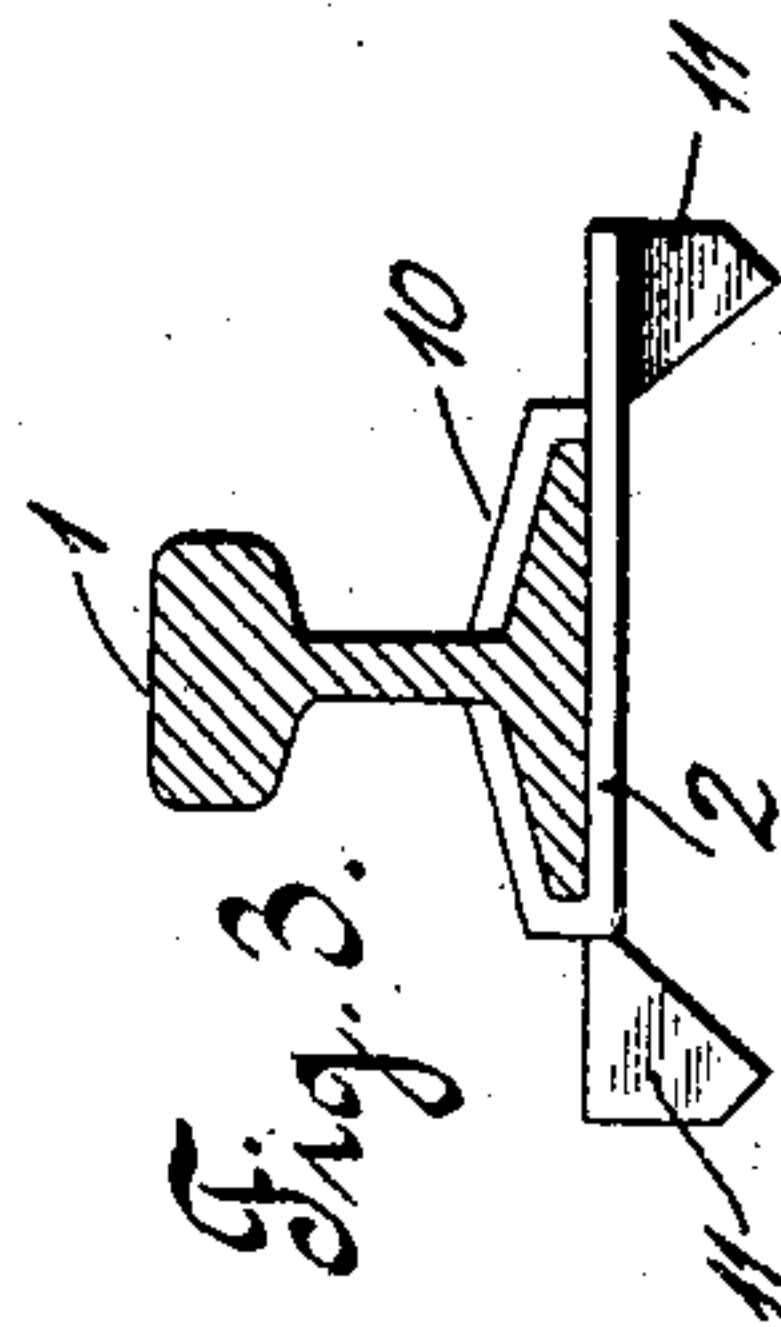
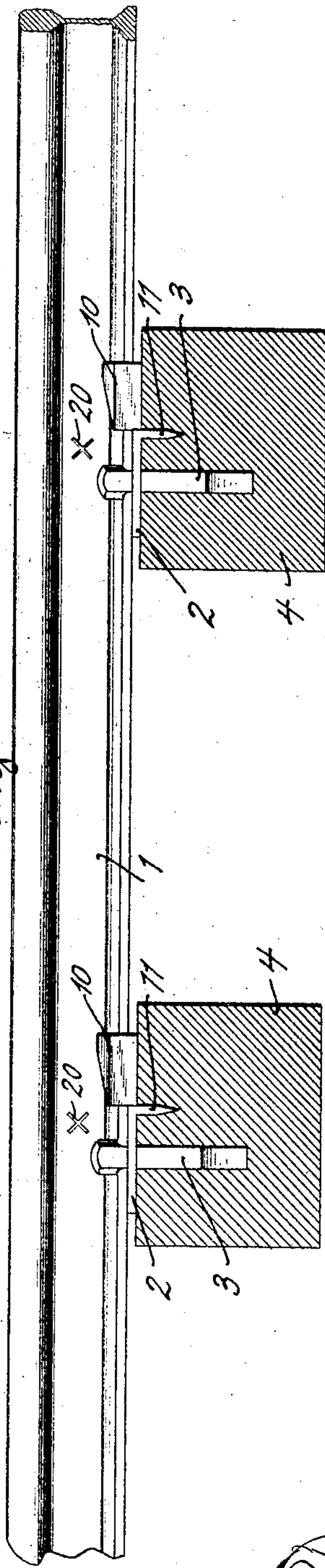


Fig. 2.



Witnesses  
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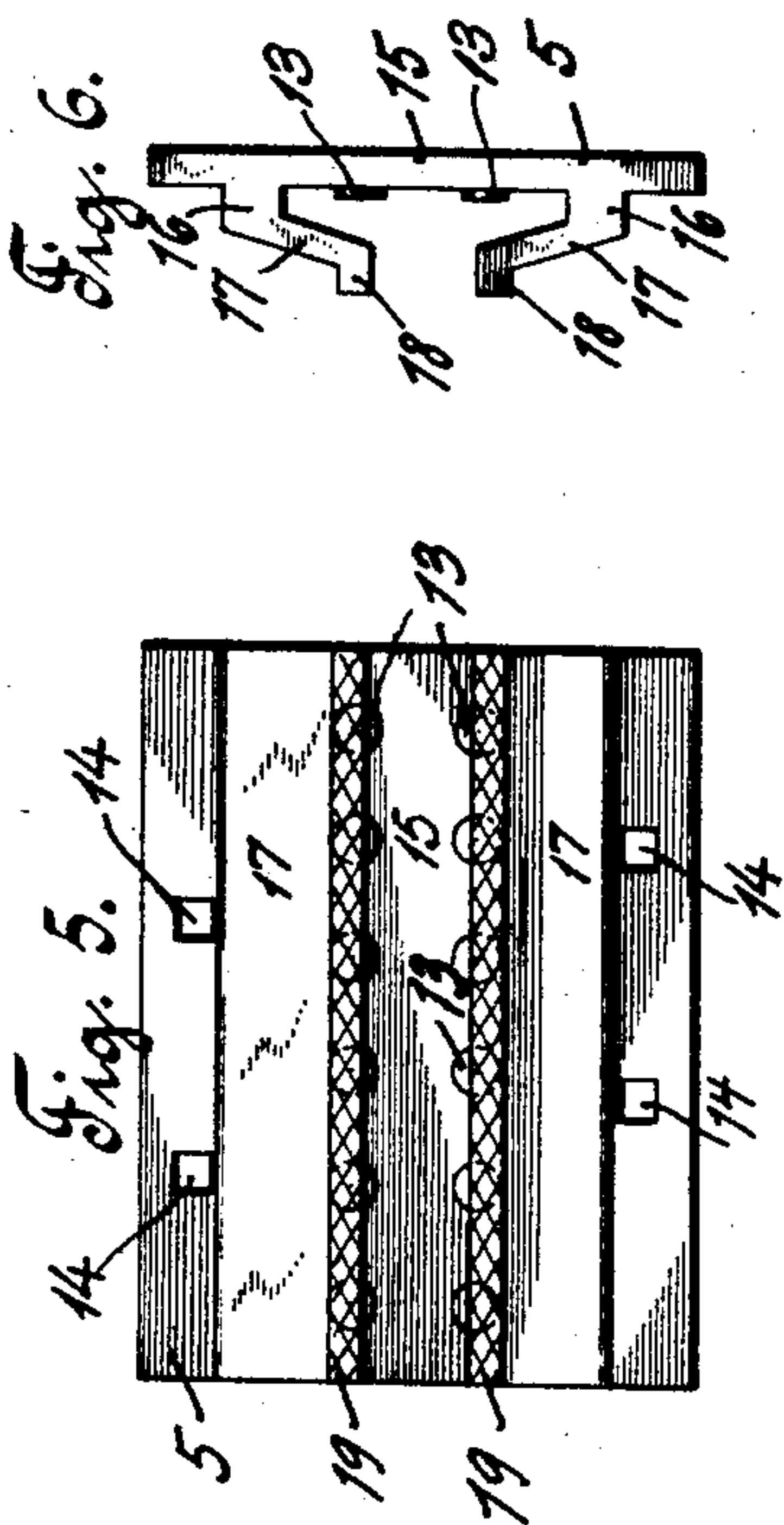


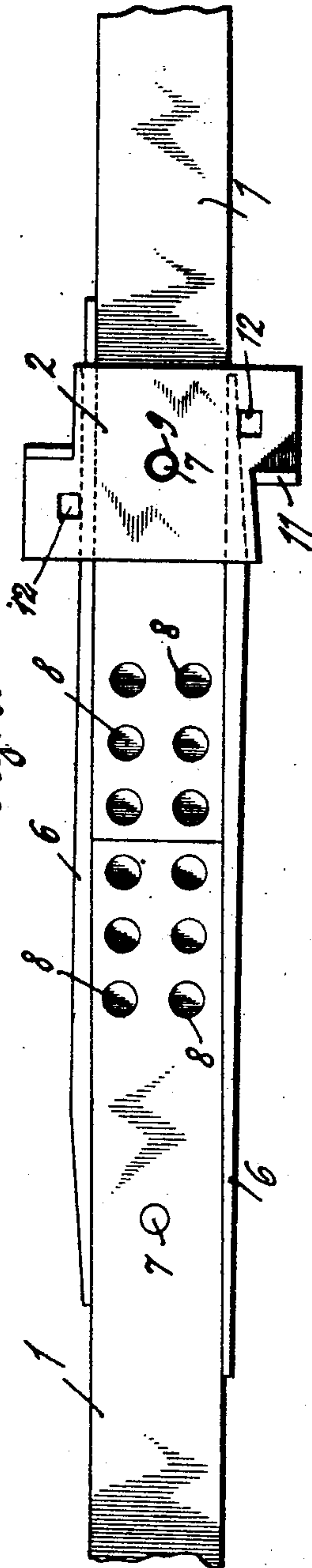
Fig. 7.



Fig. 8.



Fig. 9.



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# UNITED STATES PATENT OFFICE.

CHARLES A. GILCHRIST, OF RIDGEWOOD, NEW JERSEY.

## COMBINED RAILWAY-RAIL AND CHAIR.

SPECIFICATION forming part of Letters Patent No. 779,706, dated January 10, 1905.

Application filed July 15, 1904. Serial No. 216,736.

*To all whom it may concern:*

Be it known that I, CHARLES A. GILCHRIST, a citizen of the United States, and a resident of the village of Ridgewood, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in a Combined Railway-Rail and Chair, of which the following is a specification, reference being had to the accompanying drawings.

The invention has for its object the formation of a union between railway-rails and the chairs which are supported and secured to the ties in such manner as to hold the rails and preserve the alinement more effectively than by the means heretofore in use; and the improvement consists in the peculiar structure of the chairs and parts of the rails and in their combination, as hereinafter more fully described and claimed.

In the drawings, Figure 1 is a plan view of part of a railway-rail and of two ties, along with the chairs spiked and secured thereto. Fig. 2 is a side view of the same, showing the ties cut to expose the spikes and prongs or teeth which secure the chairs to the ties. Fig. 3 is a cross-section of the rail, taken on the line *aa* of Fig. 1, and an end view of the chair in position for being secured to the ties; and Fig. 4 is a plan view of one of the chairs shown in the preceding figures. Fig. 5 is a plan view of a chair which may be used in making the joint at the ends of the rails, and Fig. 6 is an end view of the same. Figs. 7 and 8 are respectively side and end views of an angle-bar wedge that may be used with the chair shown by Figs. 5 and 6, and Fig. 9 is a bottom plan view of the meeting end parts of two rails and of the wedges and one of the smaller chairs.

In the drawings, 1 1 represent the rails; 2 2, the intermediate or smaller chairs; 3 3, the spikes; 4 4, the ties; 5, the large joint-chair, and 6 the angle-bar wedge. The parts thus designated possess certain features which will be described as entering into and forming the combined structure which constitutes the subject-matter of the present improvement.

As shown, the bottoms of the rails 1 1 are provided with buttons, studs, or protuber-

ances 7 opposite the center of each tie, it being assumed the ties are properly spaced when laid, and near each end of these rails a series of holes or recesses 8 8 are made in the bottom to be used in the formation of the joint. The smaller or intermediate chairs 2 2 are each provided with a center hole 9, larger than the stud 7 and adapted to receive the same. The diagonally opposite corners 10 10 of these chairs are turned over, so as to envelop or partially embrace the base of the rail, and they also have downwardly-projecting diagonally-disposed prongs 11 11 adjacent to the overturned corners 10 10, and such prongs may be driven into the ties in addition to the spikes 3 3, which pass through the holes 12 12, thus securing the chairs rigidly to the ties. The corners 10 are so shaped as to permit the chair to slip over the bottom or base of the rail when turned obliquely to its sides, and in that position the hole 9 slips over the stud 7, which forms a pivot or center around which to swing the chair crosswise of the rail, and this movement brings the overturned corners 10 into a position to inclose or embrace the base of the rail, as shown in Figs. 1 to 3. These same rails are shown in Fig. 9 as having two rows of holes 8 8, corresponding in position to a series of studs or protuberances 13 13, projecting up from the bottom of the large chair 5, to be used at the joint, as shown in Figs. 5 and 6. The chair 5 is also provided with spike-holes 14, such as would be needed for a supported joint, though not for one that is suspended, and it has a bottom 15, sides 16, overturned wings 17, and flanges 18, preferably roughened, as shown at 19. These chairs loosely receive the ends of the rails and permit the studs 13 to enter the holes 8 on the bottom of the rails, after which an angle-bar wedge 6 is driven into place on each side of the rail, either with or without their ends entering the smaller near-by chairs. The special form of wedges and chair and manner of making the joint at the ends of the rails being made the subject of another application filed July 15, 1904, Serial No. 216,737, the same are only shown and referred to in this connection, as they are of utility and important on the broader lines of



this invention as respects the union of the chairs and rails by studs and recesses at or near the ends of the same.

The enlargement of the recesses beyond the size of the protuberances or projections which pass into them should be such as to permit expansion and contraction without permitting a crowding of one rail against another. This tendency is greatest on steep grades, where it is promoted by gravity and augmented by the action of the car-wheels, and the ordinary spikes or fastenings permit the rails to creep without disturbing the ties; but this cannot take place when the chairs and rails are united by the protuberances and the recesses, the chairs being secured to the ties. If metallic ties are used, the rail may be united with such ties without the intervention of the chairs, the recesses and protuberances being made in the rails and the metallic ties. It will be obvious that either the rails or the chairs or ties, in some cases the equivalent of the chairs, may have only studs or only recesses for the studs of the other or they may be diversified, as shown, or in any other manner. The rails may have stars or marks for indicating the center of the protuberances or recesses and facilitate the proper placing of the chairs in position.

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

1. A railway-rail and chair combined, one of said elements being provided with protu-

berances on the bottom and the other with larger recesses for receiving the same, the chair being adapted to permit of bringing the said protuberances and recesses into union with each other substantially as described.

2. A railway-rail combined with chairs secured to ties, said rail and chairs being provided on the bottom with protuberances and recesses for receiving the same, the chairs being adapted to permit the union of said protuberances and recesses, substantially as described.

3. A railway-rail combined with chairs under the rail and on the ties, said elements being provided with single protuberances and single recesses on the bottom for uniting with each other, the chairs having overturned diagonal corners adapted to admit of an oblique placement and a crosswise turn, substantially as described.

4. A railway-rail combined with chairs and ties, said chairs having overturned diagonal corners and downwardly-turned diagonally-disposed prongs adjacent to said overturned corners, whereby an oblique placement and crosswise turn of the chairs with respect to the rails may be given and said prongs afterward forced into the ties, substantially as described.

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Witnesses:

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