

No. 698,410.

Patented Apr. 22, 1902.

C. F. PANNELL.
RAILWAY CROSSING.

(Application filed June 22, 1901.)

(No Model.)

4 Sheets—Sheet 1.

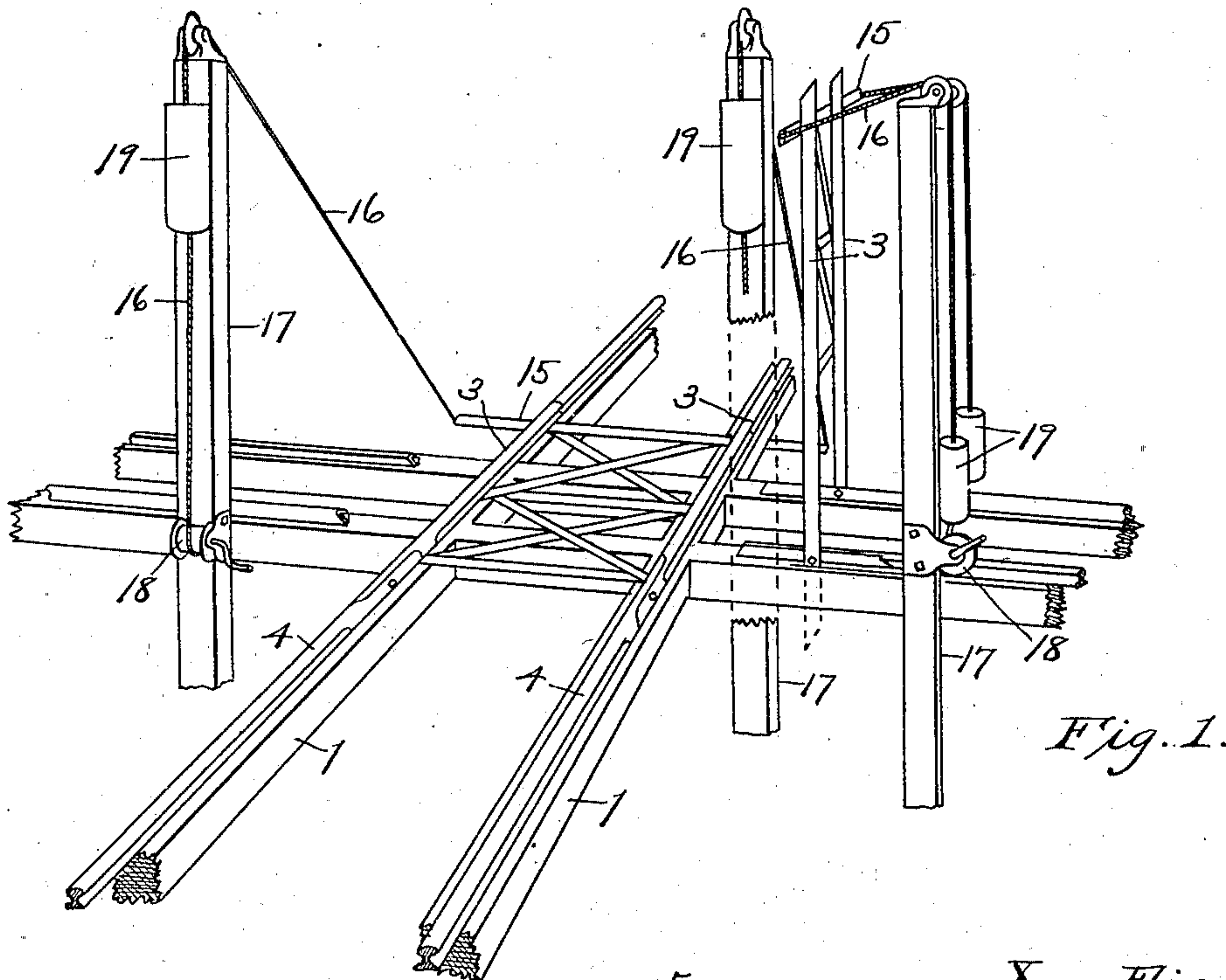


Fig. 1.

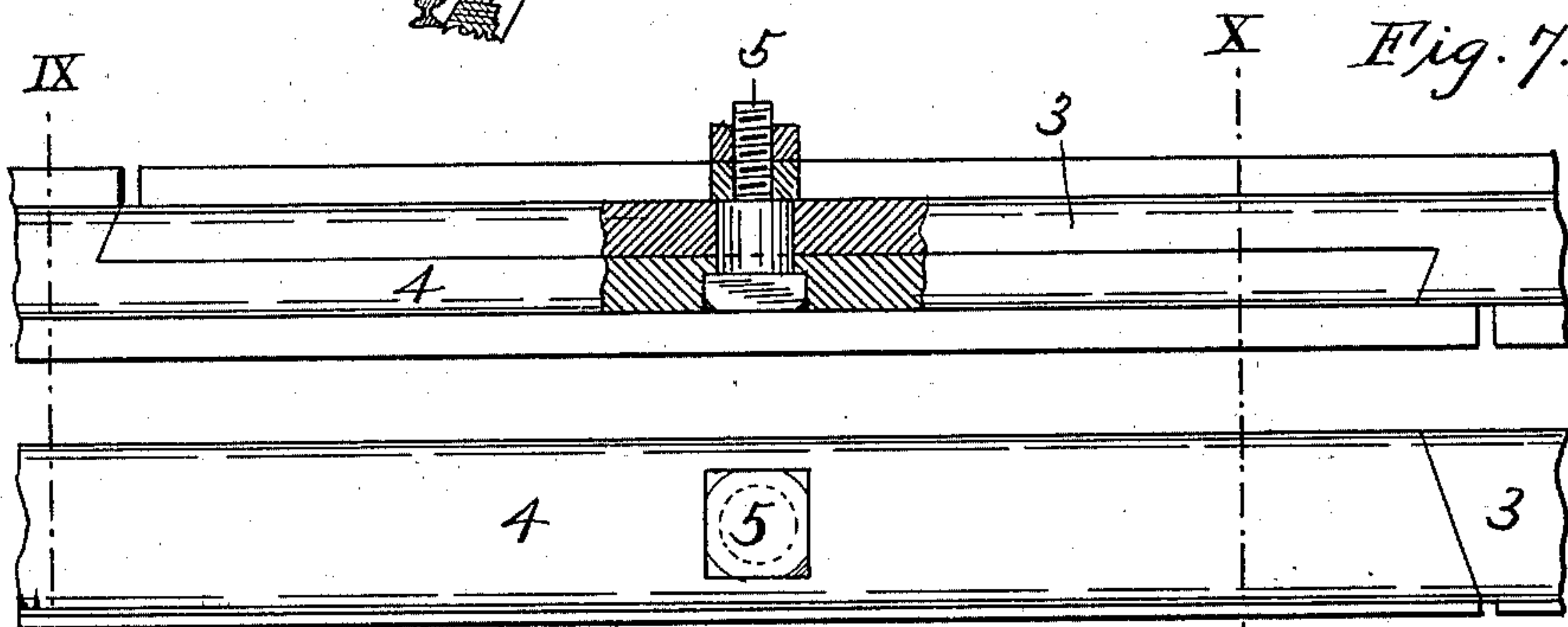


Fig. 7.

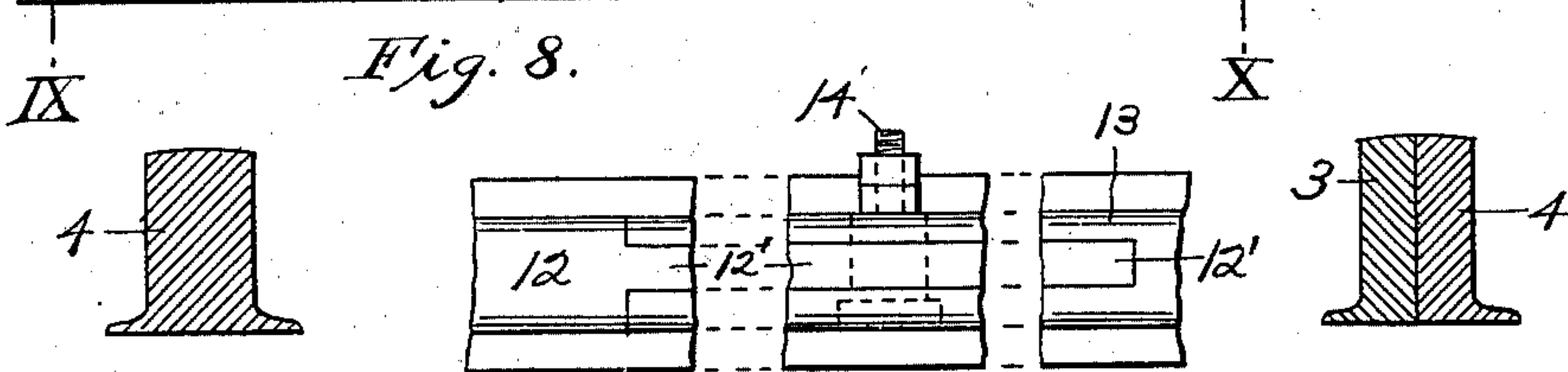


Fig. 8.

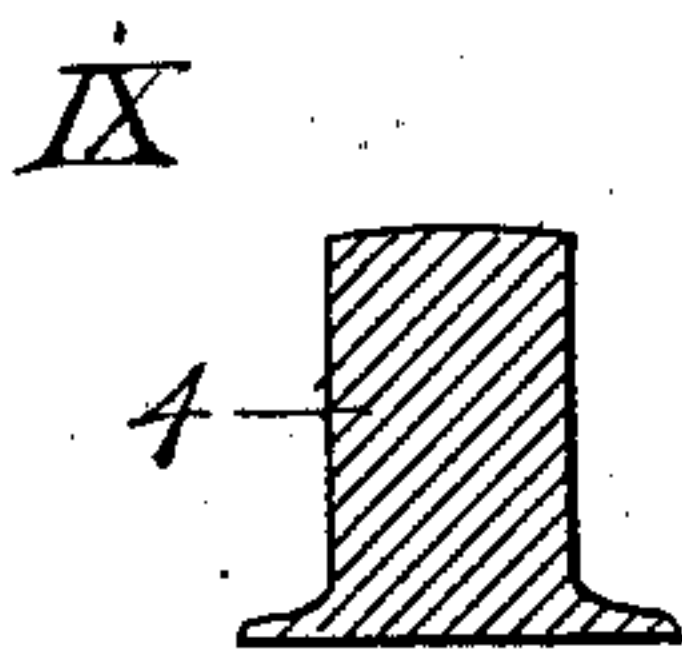


Fig. 9.

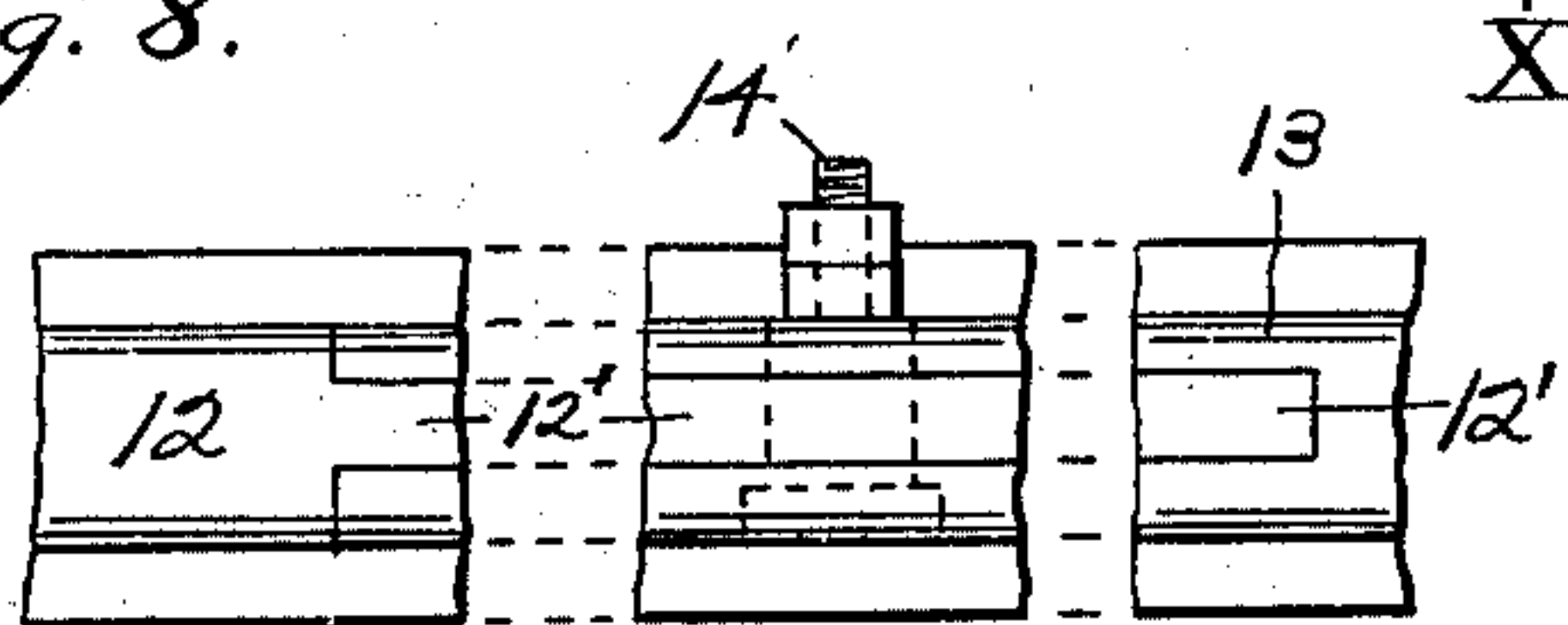


Fig. 7a.

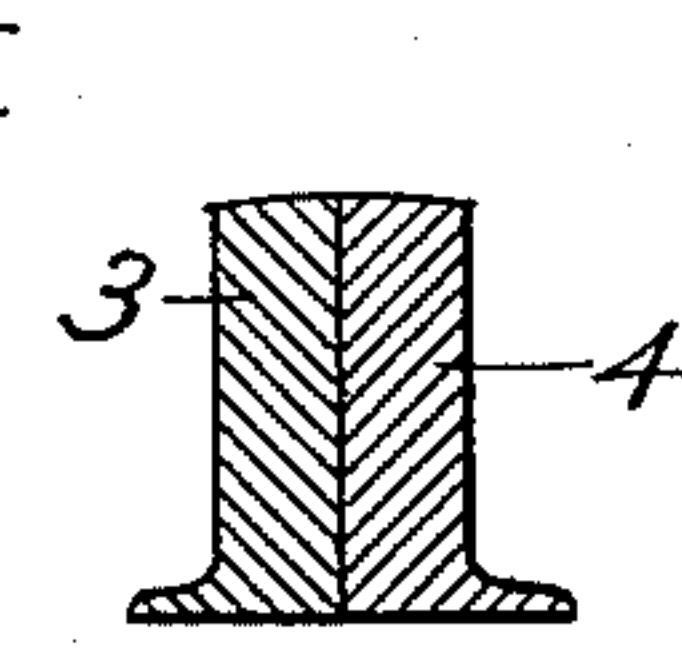


Fig. 10.

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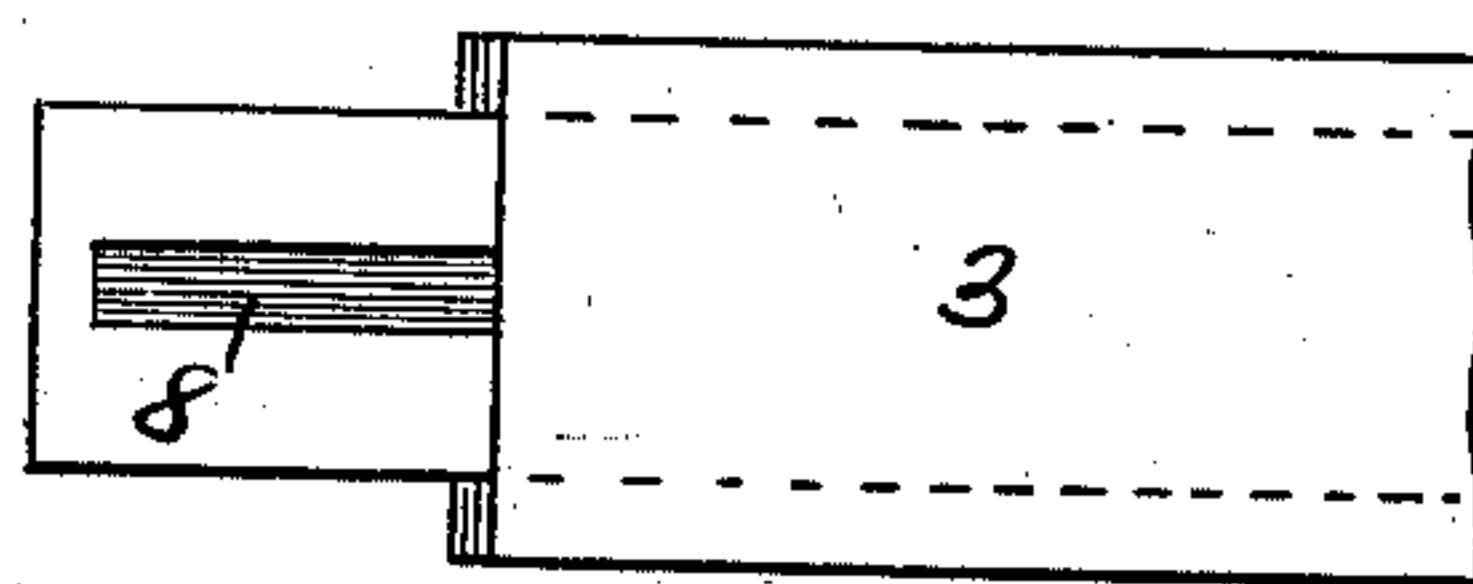
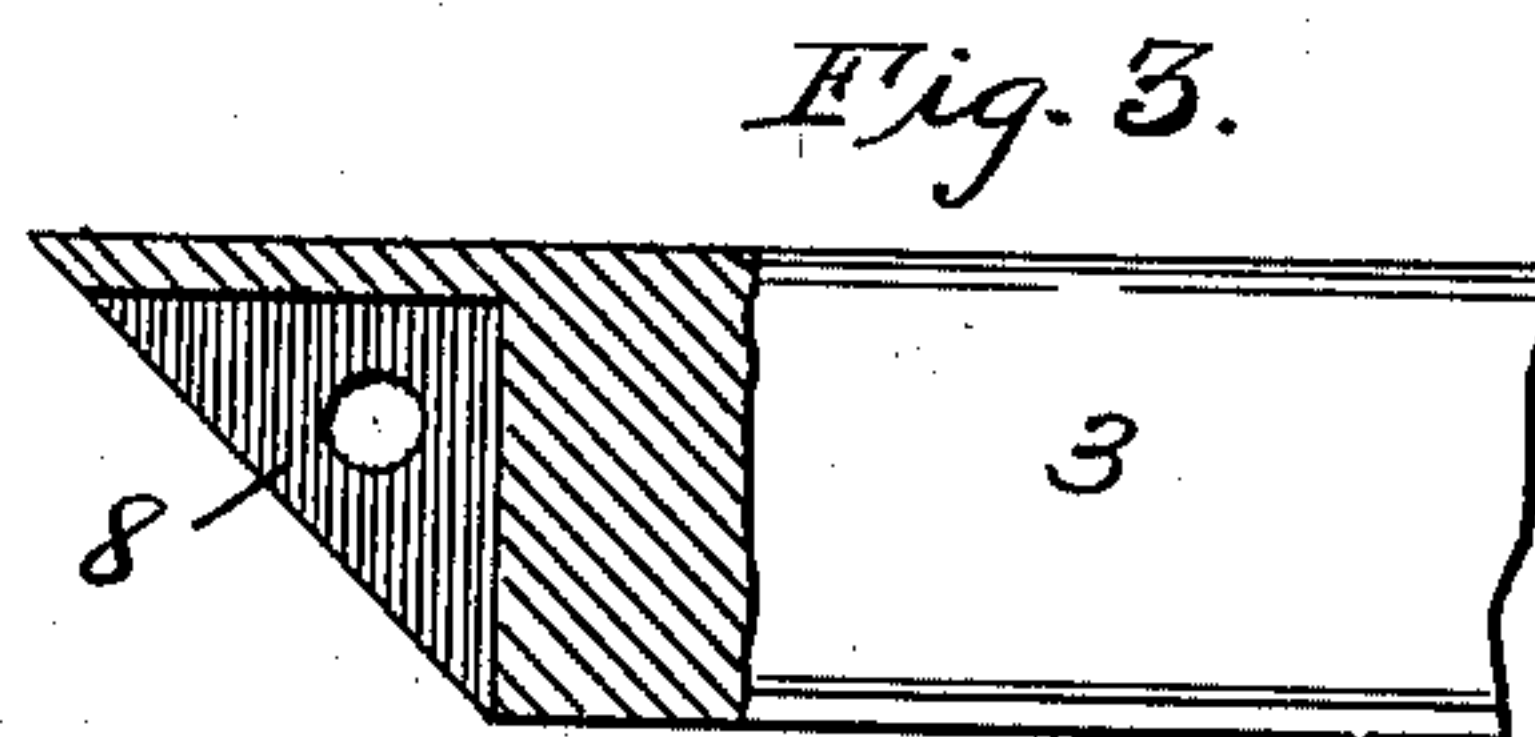
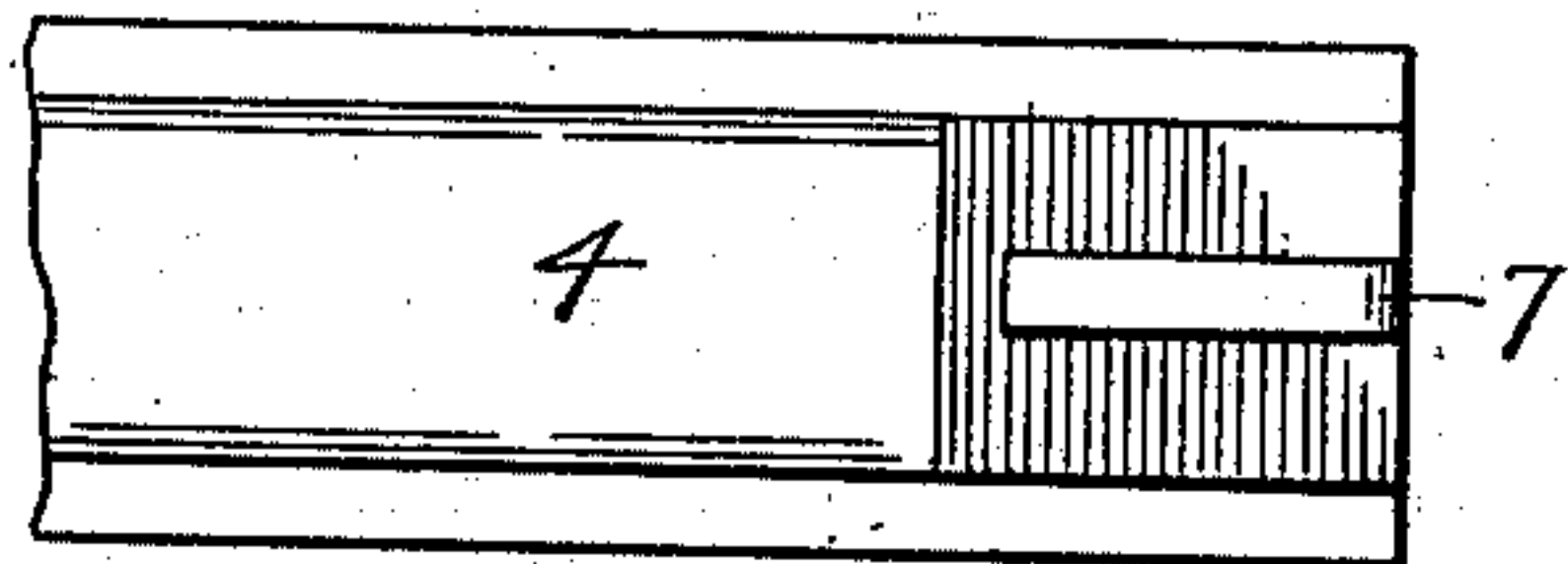
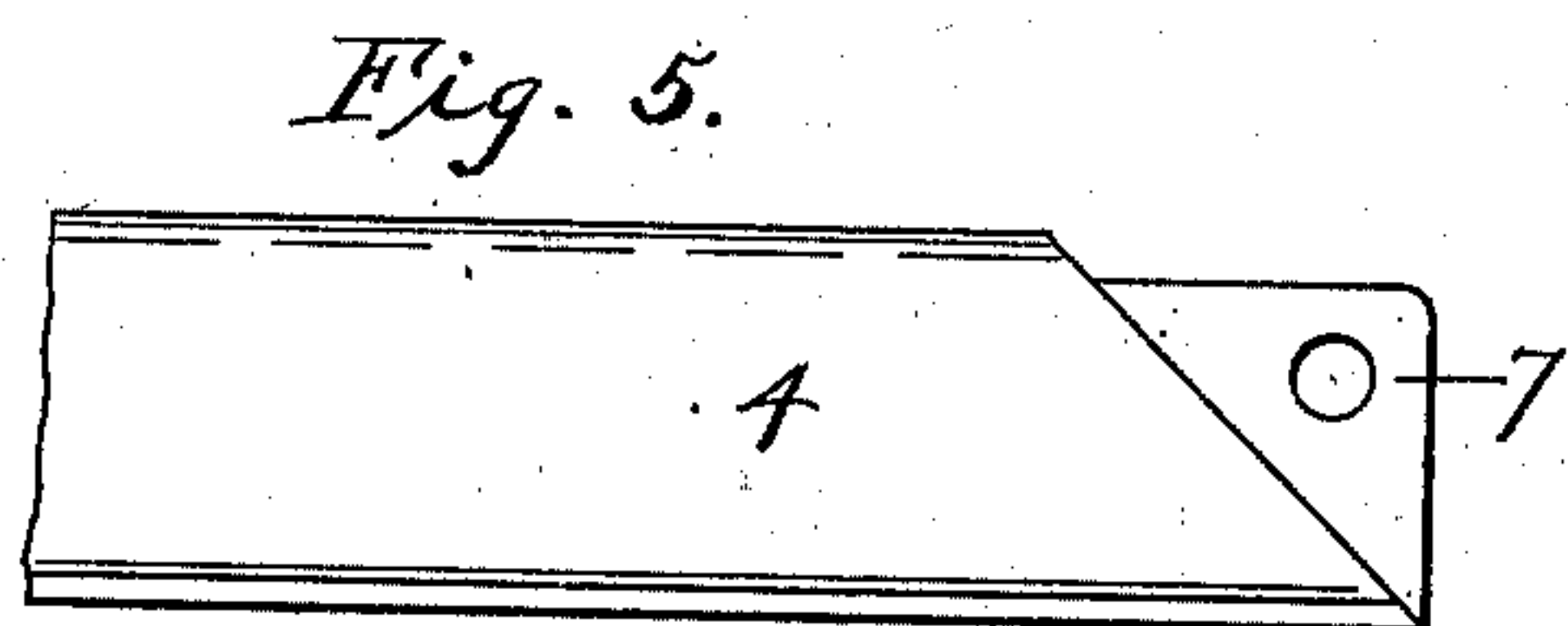
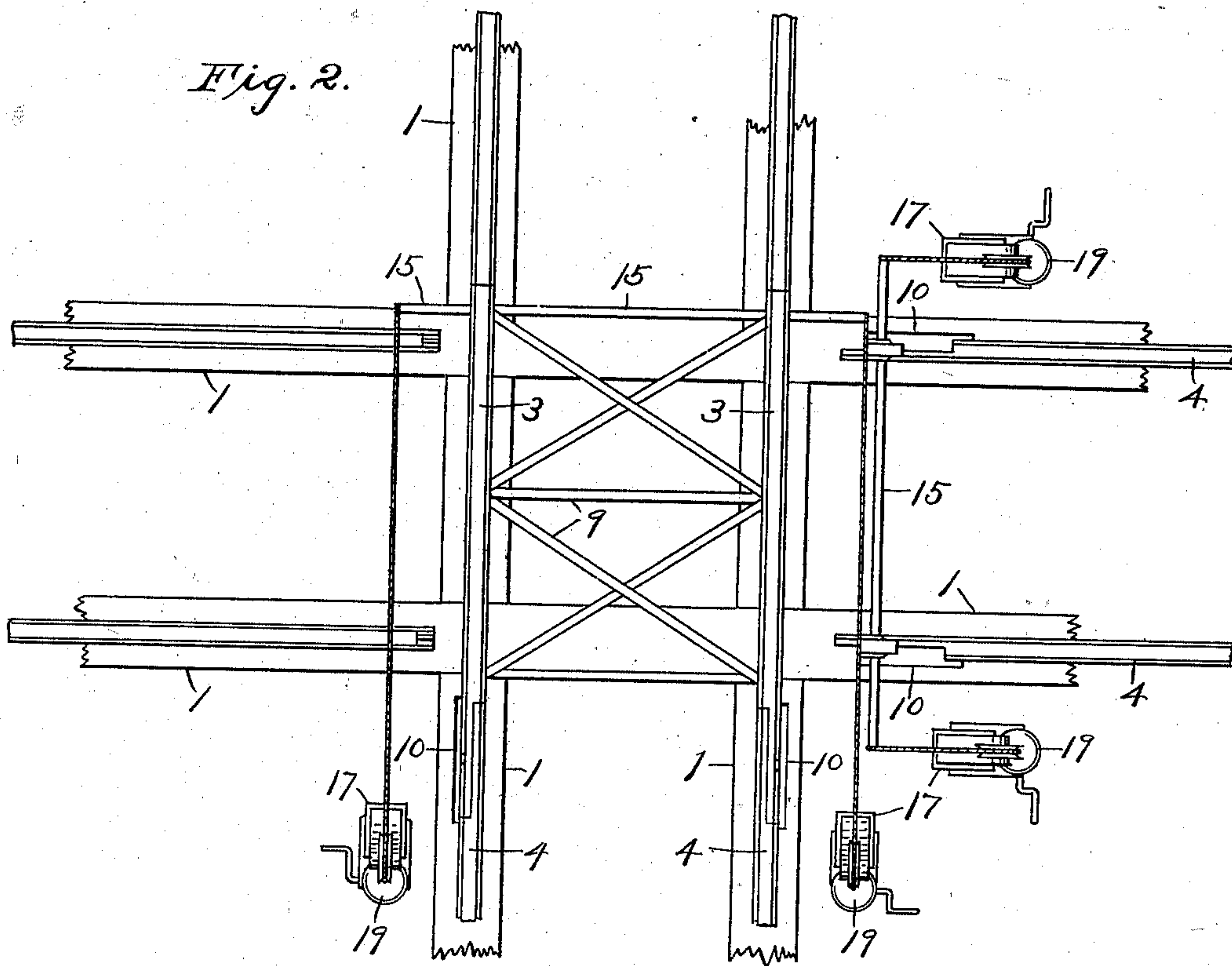


Fig. 6.

Fig. 4.

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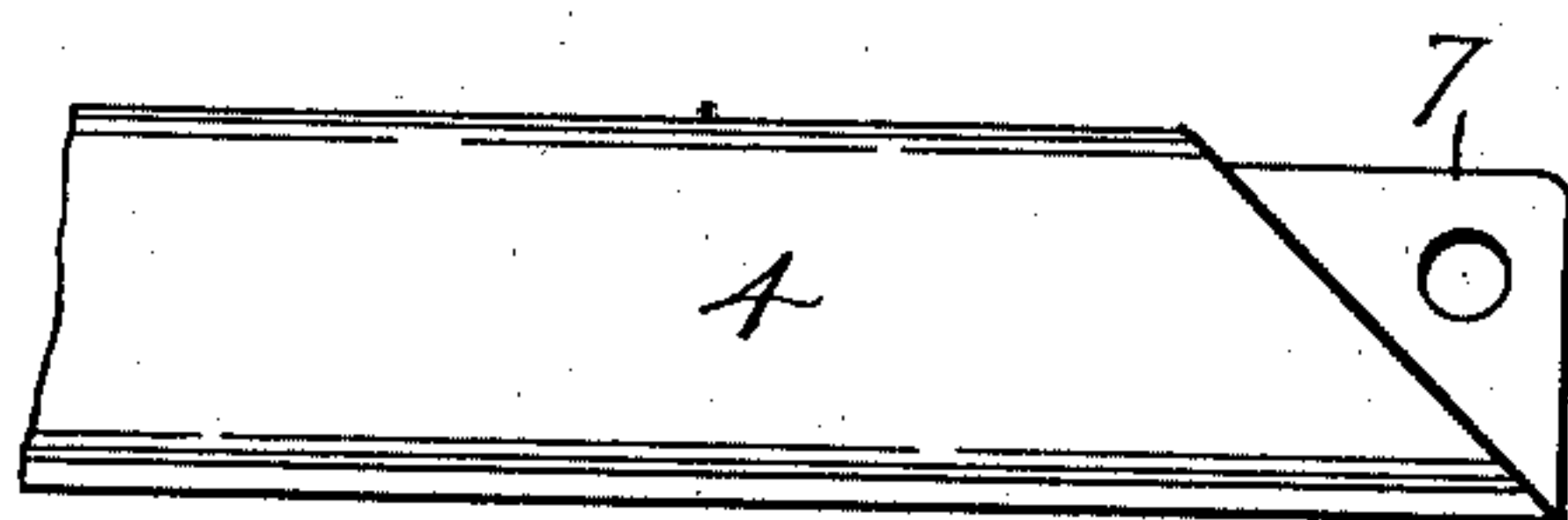
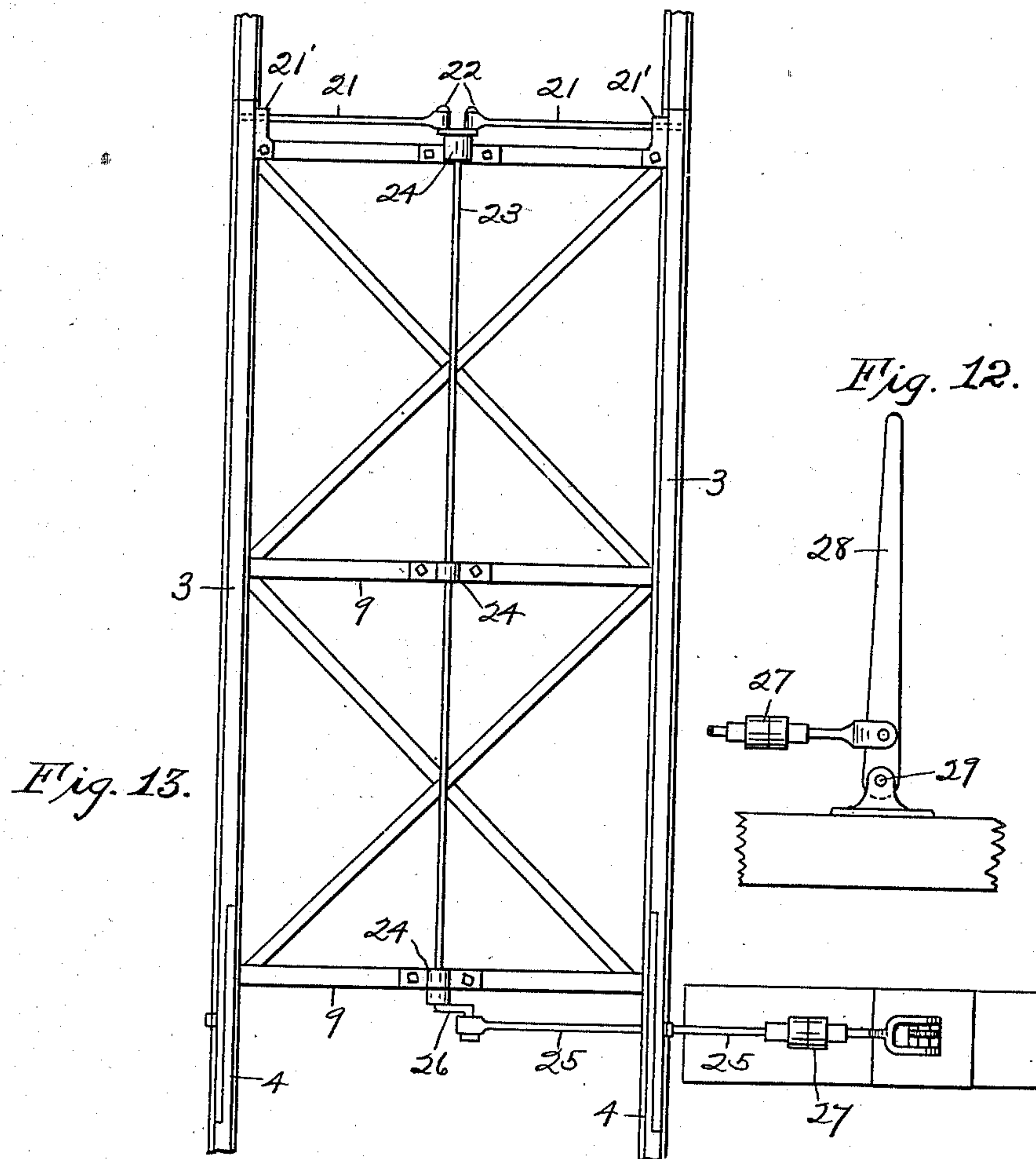


Fig. 14.

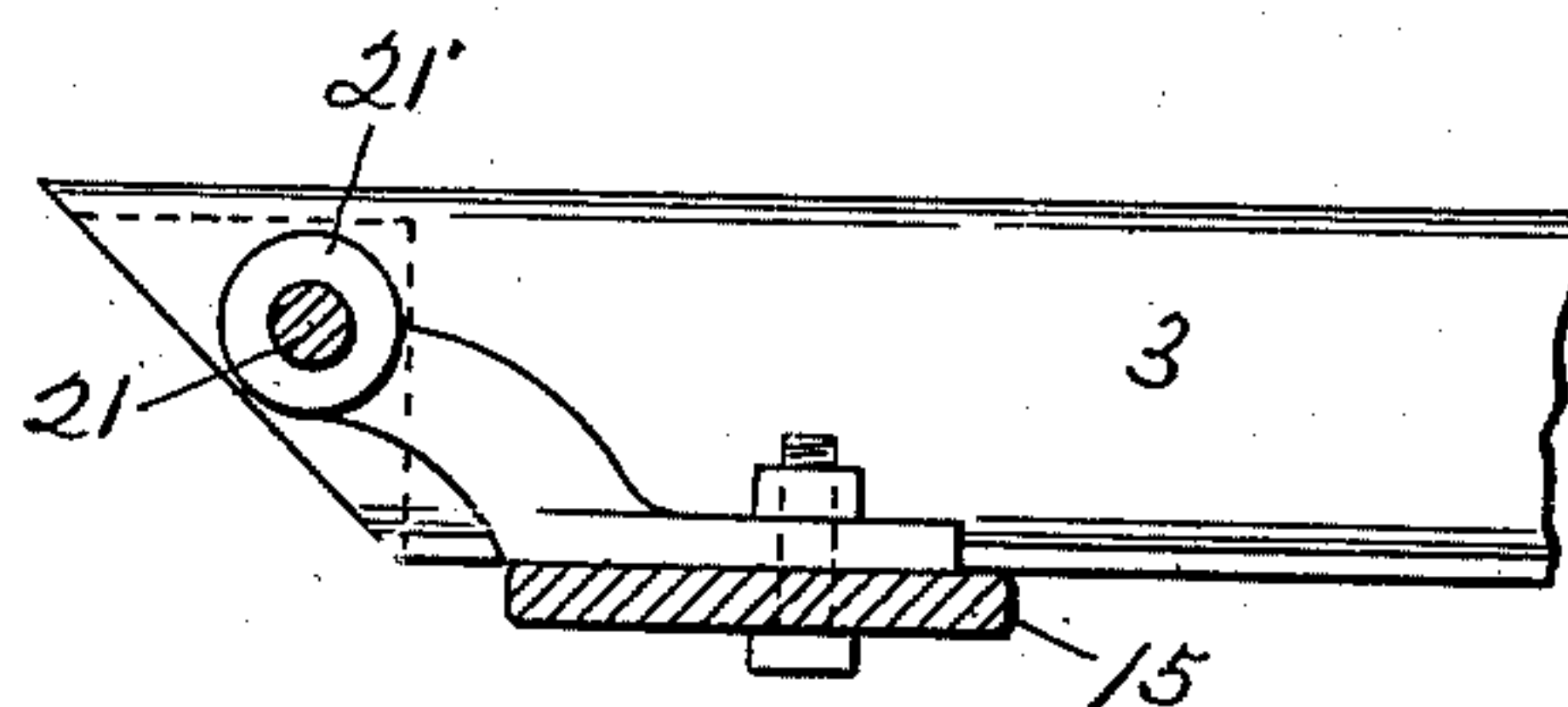


Fig. 11.

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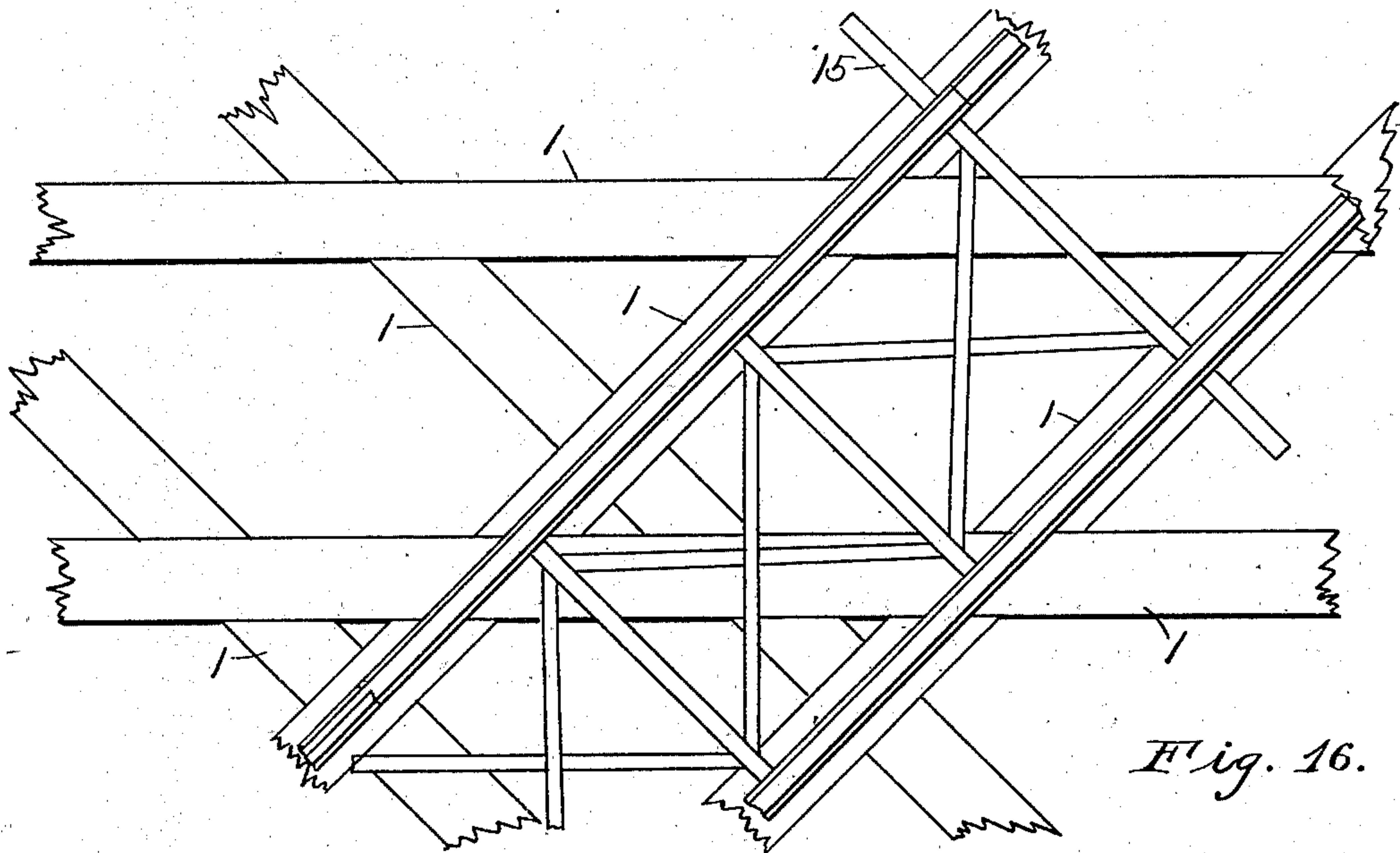
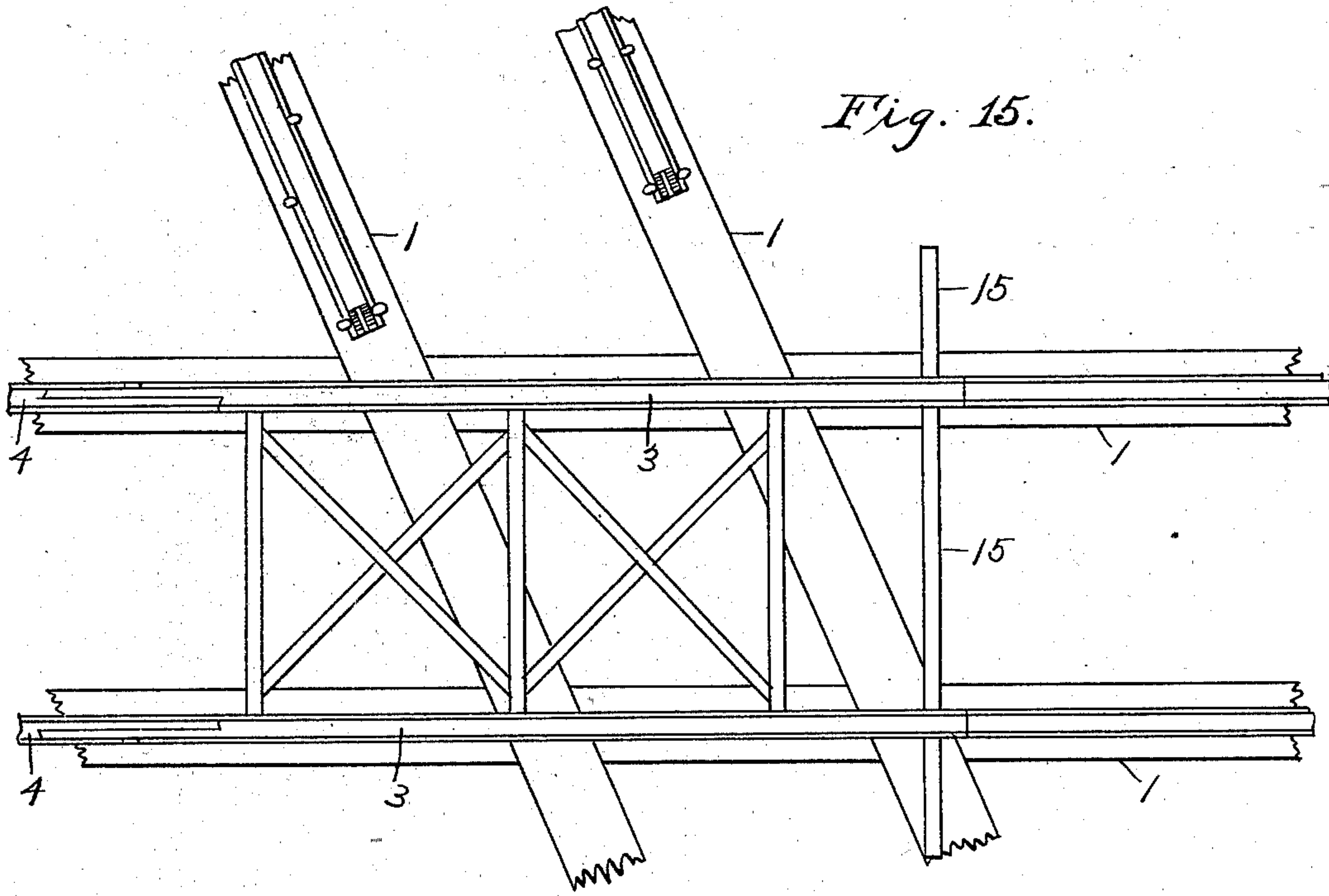
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UNITED STATES PATENT OFFICE.

CHARLES FREDERICK PANNELL, OF ST. LOUIS, MISSOURI, ASSIGNOR TO
FREDERICK PANNELL, OF COLUMBIA, MISSOURI.

RAILWAY-CROSSING.

SPECIFICATION forming part of Letters Patent No. 698,410, dated April 22, 1902.

Application filed June 22, 1901. Serial No. 65,574. (No model.)

To all whom it may concern:

Be it known that I, CHARLES FREDERICK PANNELL, a citizen of the United States, and a resident of St. Louis, in the State of Missouri, have invented new and useful Improvements in Railway-Crossings, of which the following is a specification.

My invention relates to railway-crossings; and the object of my invention is to produce a smooth solid crossing over which trains on either track may pass without the usual pounding caused by the notches cut for the car-wheel flanges in ordinary crossings.

The advantages of my improved crossing are, first, economy due to the decreased wear and tear of the rolling-stock, and, second, the increased comfort of the passengers.

I attain the above-named objects by providing a movable section in each track at the crossing with means for lifting either section out of the way of a train on the other track, so that either of the tracks may be made practically continuous for the passage of a train.

I will now fully describe my invention with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of a crossing constructed in accordance with my invention, one of the posts being broken out to expose other parts. Fig. 2 is a plan view of the same, one track being connected, the other broken. Figs. 3 and 4 are enlarged detail views of the free end of one of the movable rails. Figs. 5 and 6 are enlarged detail views of the end of one of the fixed rails engaged by the movable rail. Fig. 7 is a partly-sectional broken-away plan view of one of the pivotal rail-joints. Fig. 7^a is a broken-away plan view of a modification of one of the pivotal rail-joints. Fig. 8 is a broken-away elevation of the inner face of the fixed rail—i. e., the face traversed by the car-wheel flanges. Fig. 9 is a transverse section taken on line IX IX of Fig. 8. Fig. 10 is a transverse section taken on line XX of Fig. 8. Fig. 11 is an enlarged detail view of the end of one of the movable rails, the locking-bolt, and track-brace in section. Fig. 12 is a broken-away elevation of the bolt-operating lever shown in Fig. 13. Fig. 13 is a plan view of

a locking device for holding the movable rails in engagement with the fixed rails. Fig. 14 is an enlarged detail view of the end of one of the fixed rails. Fig. 15 is a plan view of an oblique crossing of two tracks, one track being connected, omitting the raising and lowering apparatus. Fig. 16 is a plan view of an oblique crossing of three tracks, one track being connected, omitting the raising and lowering apparatus.

As shown in Figs. 1 and 2, the tracks at and near the crossing are laid on stringers 1 instead of on the usual ties or sleepers. The pairs of rails may be connected by any desired number of tie-bolts for additional strength. The stringers 1 are secured to masonry or other road-bed in any suitable manner. The portion of each track which crosses the other track is made movable in the following manner: In each track two movable rails 3 3 are secured pivotally at one end of each to the fixed rails 4 4, preferably as shown in Fig. 7, from which it will be seen that each rail 3 3 and 4 4 is split longitudinally and vertically; and each movable rail 3 3 is connected to one of the fixed rails 4 by a hinge-bolt 5. Said bolt is shouldered, as shown, to prevent the nuts from binding on the rails and causing friction between them, and the head of the bolt is sunk into rail 4 flush with its inner face, so that the flanges of the car-wheels cannot strike it. The web of each rail 3 3 4 4 adjacent to the pivot-joint described is of the same thickness as the head of the rail for greater strength, the shape being shown in Figs. 9 and 10. The end of each movable rail 3 3 opposite from their pivoted ends is formed as shown in Figs. 3 and 4, Fig. 3 being a side view partly in section, and Fig. 4 a bottom view. A triangular recess 8 is formed in the end of rail 3, and this recess is adapted to fit over a triangular rib 7, formed at the adjacent end of the corresponding fixed rail 4. Fig. 6 is a top view of the rail end shown in Fig. 5. Thus when the movable rails 3 3 are lowered upon the stringers 1 the recesses 8 drop over the ribs 7, and the movable rails 3 are thus prevented from lateral movement. Said movable rails are preferably connected by braces 9. Slots 10 are cut in the stringers 1 beneath the pivoted ends of the

movable rails 3 3 to permit the descent of said ends when said rails are raised to vertical position, as described hereinafter.

The hinge-joints may be constructed in a variety of ways, one modification being shown in Fig. 7^a.

12 designates one of the movable rails, and 13 the fixed rail, or vice versa. Rail 13 is slotted out to receive a narrow extension 12' of the other rail, and a pivot pin or bolt 14 extends through both.

One means for raising and lowering the movable track-sections is shown herein; but the means is immaterial, and a great variety of devices might be employed for this purpose. In Figs. 1 and 2 a cross-bar 15 with extended ends is secured to the free end of each pair of movable rails 3 3. Cables 16 16, connected to said cross-bars 15, extend over pulleys on posts 17 and are connected to windlasses 18. Counterbalance-weights 19 are secured to the cables 16, as shown, and each pair of said weights will nearly balance the weight of the movable rails, to which they are connected. Said rails are raised by operating the windlasses 18, which are provided with the usual ratchets for preventing backward rotation of the drums, and when either track is to be lowered the ratchet-dogs are released and the track descends by its excess of weight over the weights 19.

When the movable rails 3 3 are in lowered position, some device may be found necessary for holding down the free ends of said rails when a train passes over them, although the weight of the rails will probably hold them down in alinement with the fixed rails. One device for locking the movable rails in lowered position and releasing them again is shown in Fig. 13. The ribs 7 on the fixed rails 4 4 and the adjacent ends of the movable rails 3 3 are perforated to receive locking-bolts 21 21, which, when moved apart pass through the ends of both pairs of rails, and thereby lock them together until the train has passed. The inner ends of the bolts 21 are connected to a double crank 22 on the end of a rock-shaft 23, mounted in bearings 24, secured to the track-braces. The outer end of each bolt 21 is guided by a sleeve-bracket 21', secured to the track-brace, as shown in Fig. 11. In line with the pivotal points of the rails 3 3 a connecting-rod 25 is placed for rocking shaft 23, said rod being connected to a crank 26 on said shaft and to swivel-joint 27, one member of which is forked and connected loosely to a hand-lever 28, fulcrumed at 29. Moving the lever 28 either locks or withdraws the bolts 21, and the loose connection to the lever 28 and the swivel-joint 27 provides for the raising of the rails 3 3. A universal joint may be employed instead of the joint 27, if preferred.

In operating the crossing the watchman

lowers the movable rail-section in whichever track the first train approaches on and locks said section down with the lever 28 until the train has passed.

Some railroad-crossings are equipped with a gate or gates placed across one or both of the tracks. These gates are kept closed and locked, so that no train may pass the crossing without demolishing the gate or stopping. The rule is that the train must stop while the brakeman or engineer unlocks and opens the gate to permit his train to cross the other track. The movable track-sections in my invention serve the same purpose as these gates. Whichever track-section is up acts as a gate across its own track, and the movable section of the other track may also be kept raised as a gate across its own track, neither section to be lowered until a train comes to a full stop in approaching the crossing.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a railway-crossing, a movable track-section pivotally secured at one of its ends to the fixed portion of the track, recesses in the free ends of the movable rails, corresponding projections on the ends of the fixed rails adjacent to the recessed ends of said movable rails, said projections and said recessed ends having transverse openings therein which register with one another, when said projections are covered by said recesses, and a locking device for holding said movable rails in engagement with said fixed rails, comprising a pair of reciprocatory bolts mounted in alinement with said transverse openings in the rails, a rock-shaft, cranks thereon, connected to said bolts, and means for turning said rock-shaft; substantially as described.

2. In a railway-crossing, a movable track-section pivotally secured at one end thereof to the fixed portion of the track, a cross-bar secured to the free end of said movable section, a pair of posts at the sides of the track adjacent to the pivotal connections of said movable section, a pulley secured to the top of each post, a windlass mounted on each post, a pair of cables passing over said pulleys respectively, each cable having one of its ends secured to said cross-bar and its opposite end secured to one of said windlasses, and weights attached to said respective cables for balancing the weight of said movable track-section, whereby said movable section may be raised by operating the windlasses and when raised will form a gate across the track containing said movable section, substantially as described.

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

CHARLES FREDERICK PANNELL.

Witnesses:

H. E. ROGERS,
F. A. BURGESS.