

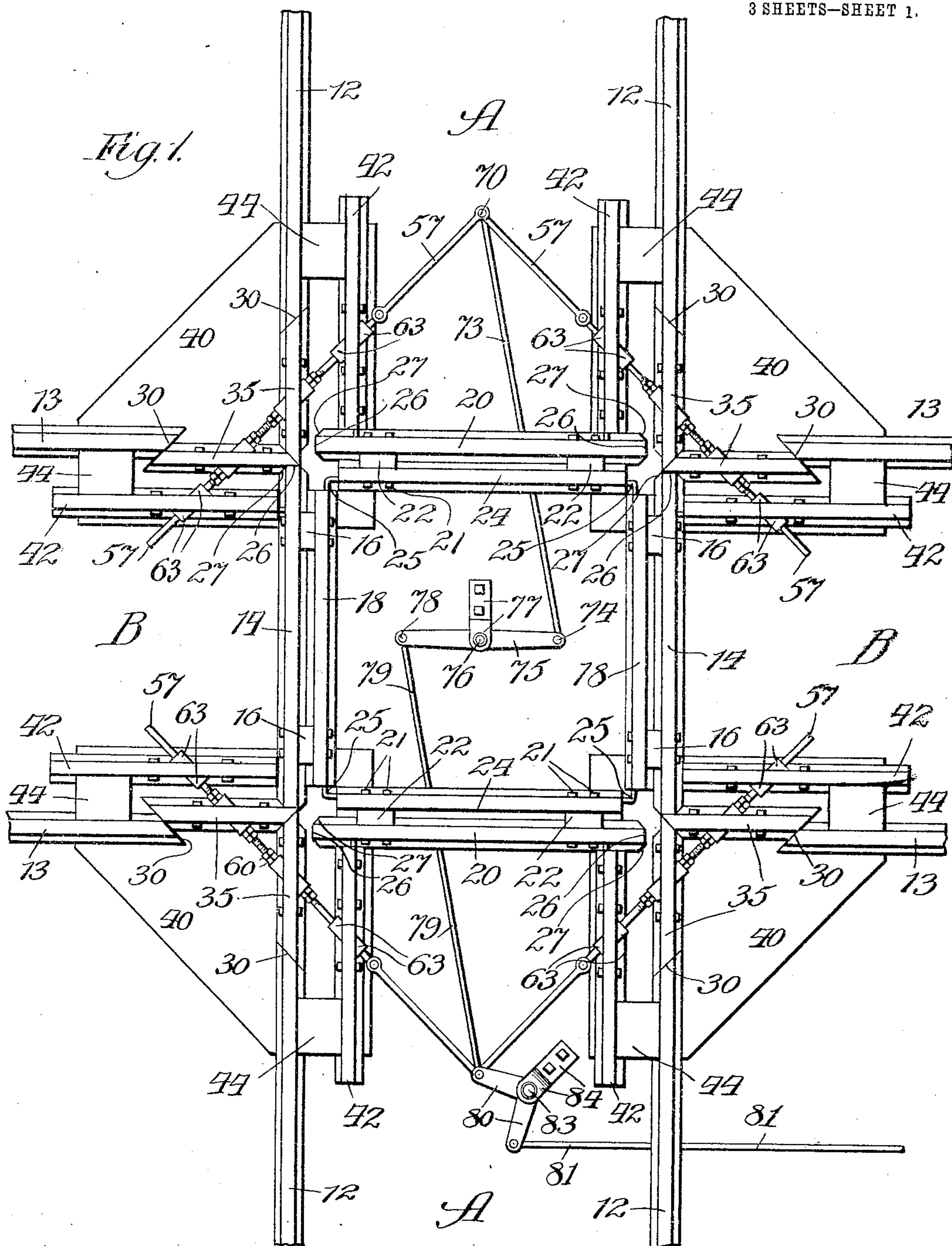
No. 779,410.

PATENTED JAN. 10, 1905.

A. CAMPBELL.
CONTINUOUS RAIL RAILWAY CROSSING.

APPLICATION FILED AUG. 22, 1904.

3 SHEETS—SHEET 1.



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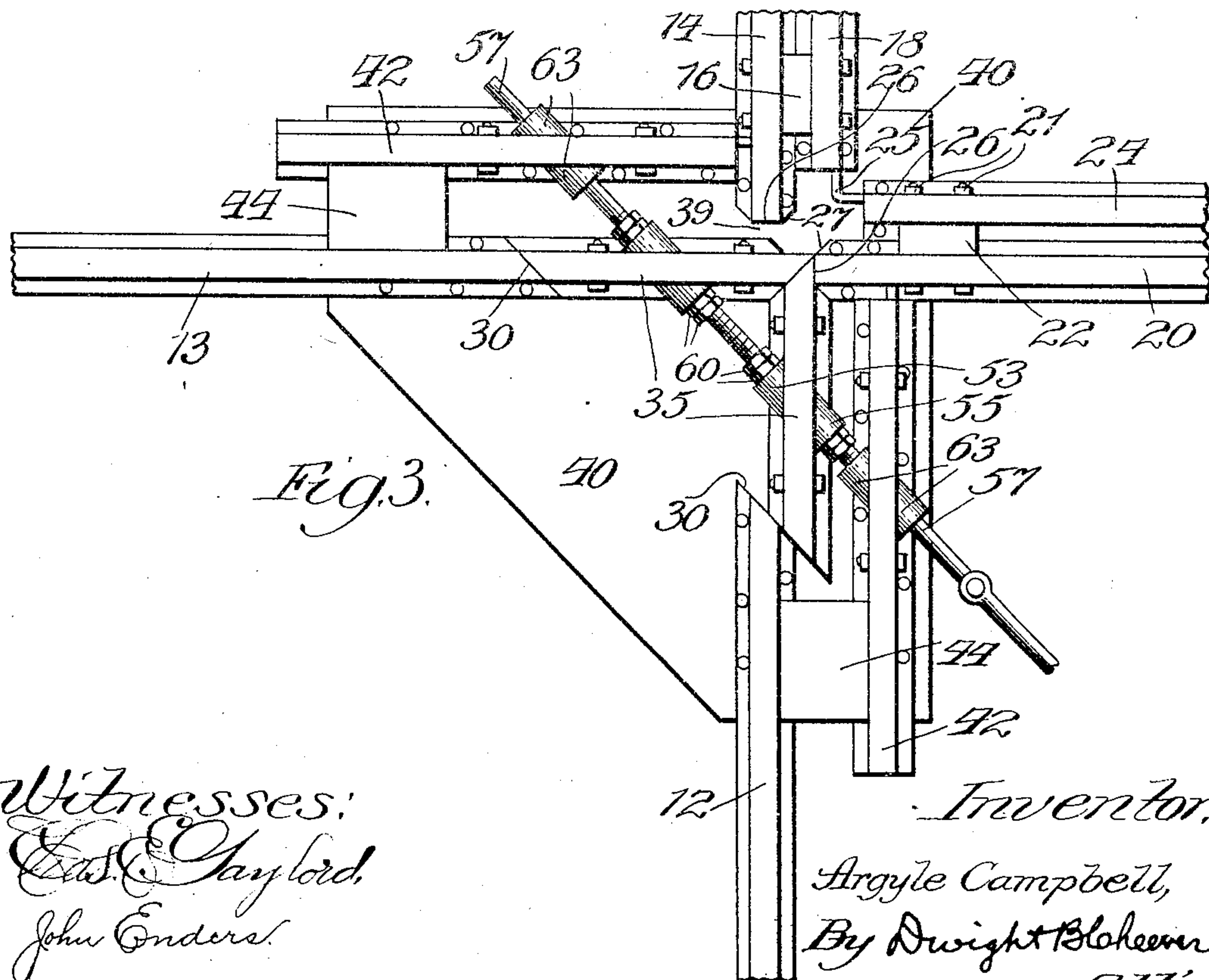
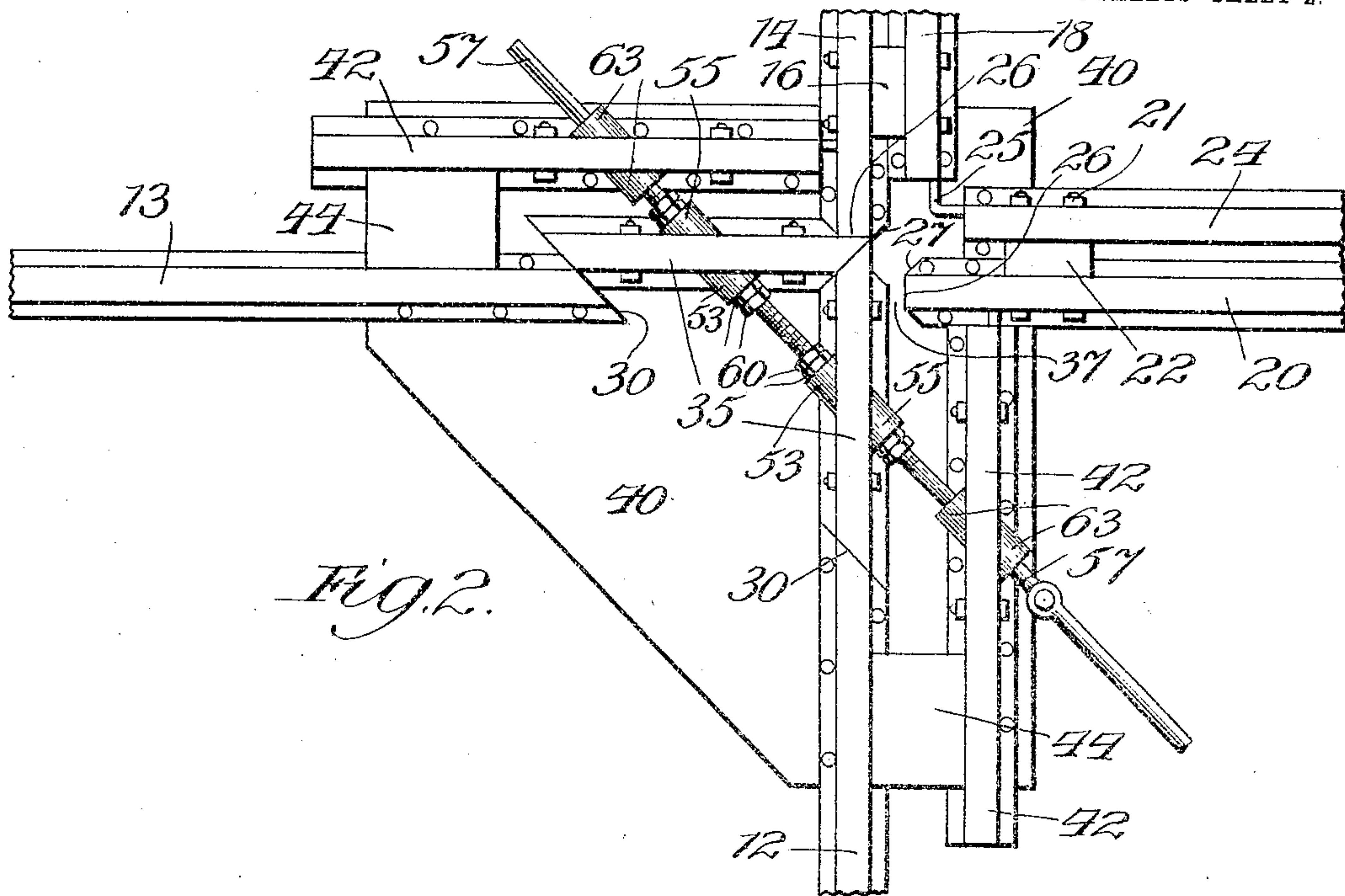
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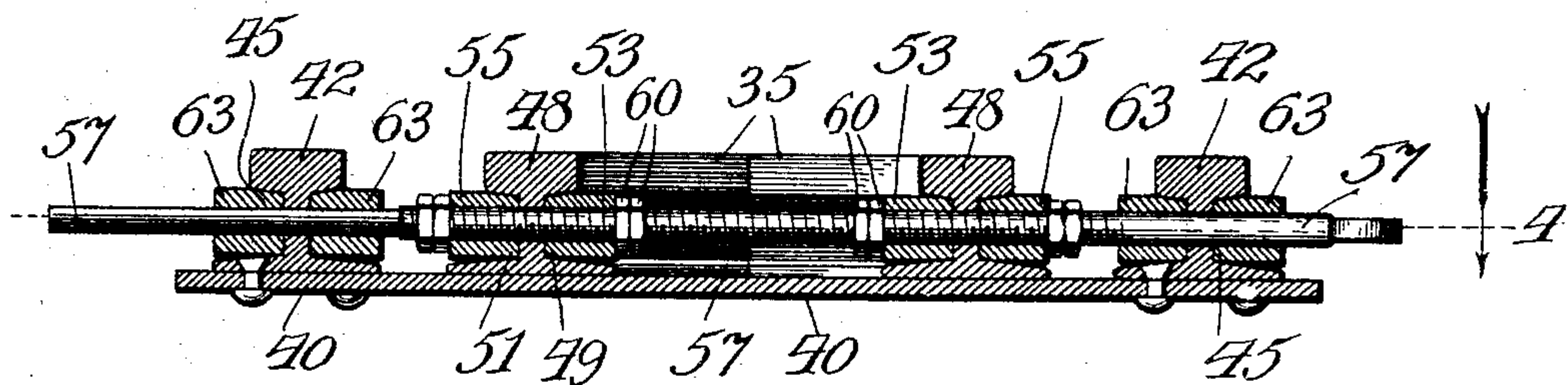
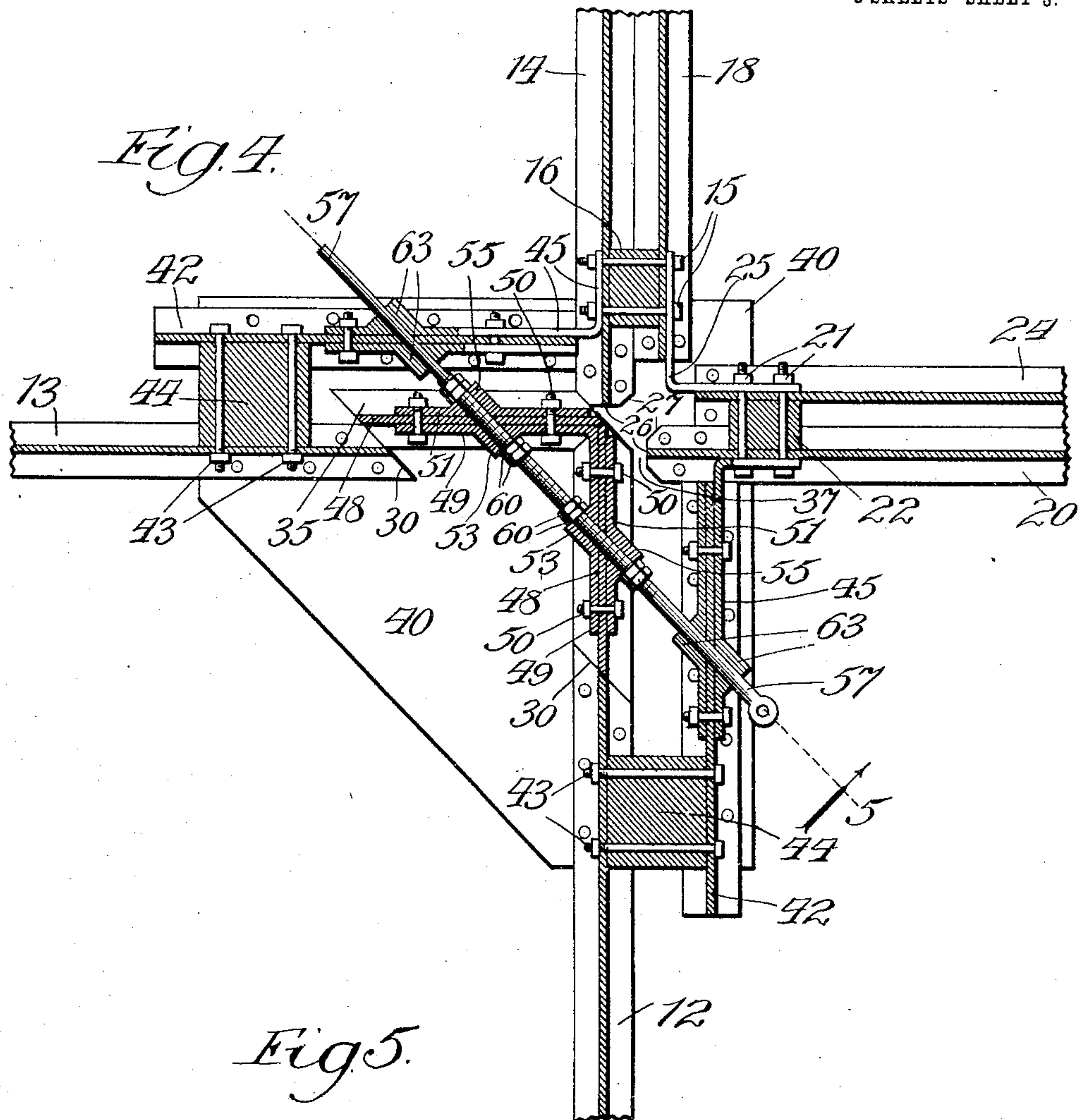
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3 SHEETS—SHEET 3.



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CONTINUOUS-RAIL RAILWAY-CROSSING.

SPECIFICATION forming part of Letters Patent No. 779,410, dated January 10, 1905.

Application filed August 22, 1904. Serial No. 221,649.

To all whom it may concern:

Be it known that I, ARGYLE CAMPBELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Continuous-Rail Railway-Crossing, of which the following is a specification in its best form now known to me, reference being had to the accompanying drawings, in which similar characters indicate the same parts throughout the several views.

In a railroad-crossing as usually heretofore built there is a break in each rail of each track at the point of intersection with the rails of the opposite track, and when a car-wheel of a train passes along one rail there is no support for the wheel at such points of intersection with the opposite track, with the result that the unpleasant crossing clicking sound with which all are familiar is produced. When the crossing has been used for some time, undue wear occurs at this point, due to the pounding produced by the wheel in passing over the break, with the result that this sound is accentuated and a jarring sensation is communicated to the car and its contents, thereby perhaps injuring the latter, if freight, and certainly annoying human passengers.

My invention relates to mechanism for such railroad-crossings; and the object of my invention is to provide means for making the rail of the crossing on which the train is passing to all intents and purposes continuous at the time of such train passage, thereby doing away with these difficulties.

My invention partially consists in the application to such a crossing of a movable member which can be moved to two different positions, in one position rendering one rail continuous and in the other position rendering the second or intersecting rail continuous, while the opposite rail in each case is open.

My invention further consists in such mechanism which can be easily and cheaply made, installed, and maintained, which will be efficient in operation, and not readily liable to get out of order.

It also consists in many details of construc-

tion, which will be hereinafter more fully described and claimed.

In the drawings, Figure 1 is a general plan view illustrating the mechanism of my invention in its preferred form, the track A being continuous for the passage of a train. Figs. 2 and 3 are detail plan views of a single intersection of two intersecting rails, showing the movable mechanism for rendering each rail alternately continuous when the movable parts are in two different positions. Fig. 4 is a sectional plan view taken through the webs of the rails of Fig. 2, showing the webs of the rails and details of connection of the parts which render my device operatable. Fig. 5 is a sectional detail view on line 5 of Fig. 4.

Referring again to the drawings, we see in Fig. 1 four stock-rails 12 connected at their outer ends beyond the figure to the main track, to be hereinafter referred to as track A, intersecting the opposite road at this crossing. Similarly we see four stock-rails 13 connected beyond the figure to the main track-rails of the other track, to be hereinafter referred to as track B, intersecting track A in the crossing shown. In line with the stock-rails 12 of track A are two connecting-rails 14 of the usual type, having connected to them, by means of bolts 15 and blocks 16 and 17, the guard-rails 18. Similarly in line with stock-rails 13 and between the rails of track A are the usual connecting-rails 20, having connected to them by bolts 21 and blocks 22 the usual guard-rails 24.

The combined portion of each track between the rails of the opposite track is technically called a "diamond" and will for convenience be so referred to.

The ends of the guard-rails 18 and 24, heretofore referred to, are connected together and rigidly secured in position by means of angle-plates 25, secured to each by the bolts 15 and 21, as shown, thereby securing the parts of the diamond together. The ends of the heads and webs of each of these connecting-rails are cut off in a straight line 26, parallel to the central line of the adjacent track—as, for instance, the end of the connecting-rail 26 is cut

parallel to the central line of the rails of track A. The lower flanges of these connecting-rails are cut away in the angular lines 27, bisecting the angle of the crossing. The ends of the stock-rails 12 and 13 do not come up to the connecting-rails, as in ordinary crossings, but are cut off about a foot or two from each connecting-rail in the angular lines 30, parallel to line 27, heretofore referred to, bisecting the angle of the crossing.

Movably fitting against these angular lines 30 and the angular line 27, heretofore described, are movable angular members 35, made of two pieces of rail, as shown, each of these pieces of rail being so proportioned that when moved so that its central line is in line with the rail of the track to which it belongs it fits into and fills the space in that rail between the connecting-rail and the stock-rail, as shown. The connecting-rails, the stock-rails, and these angular members 35 are so arranged and proportioned with reference to each other that when the angular member 35 is in one position—as, for instance, that of Fig. 2—it makes the rails 12 14 of track A continuous, there being a space 37 between the angular member 35 and the connecting-rail 24, through which the wheel-flange of a car-wheel may pass, and the parts are also so arranged and proportioned that when the angular member 35 has been moved along the line 30, heretofore described, to the position of Fig. 3 the other rail portion of this angular member 35 makes the track composed of stock-rail 13 and connecting-rail 20 continuous, there being a space 39 between these rails and the connecting-rail 14 for the passage of a car-wheel flange. By moving this angular member 35 backward and forward between these two positions the main track-rail of the tracks A and B is made successively continuous, so that the wheel of a car in passing along the track thus made temporarily continuous has a smooth straight continuous track for the wheel to pass over without any jolting of the load or unusual sound. Under these movable members 35 and the rails heretofore described is placed a plate 40, preferably of steel, on which the movable member 35 is adapted to slide backward and forward. In addition to the parts mentioned there are supplemental guard-rails 42, secured by bolts 43, passing through blocks 44 and the first stock-rails. The end of each of such guard-rails is connected to the opposite angular connecting-rail by the plates 45 and the bolts 15 or 21, as the case may be, heretofore described. These supplemental guard-rails 42 provide a protection for the movable members 35, so that external obstructions cannot readily block their movement, and the blocks 44 act as foot-guards, preventing workmen and others getting their feet in between the rails and guard-rails. I provide my crossing, as shown in Fig. 1, with four such equipments of movable

members 35 and move them simultaneously by mechanism which I will now describe.

Referring to the construction of the rail portion of the movable member 35, as shown in detail in Fig. 4, we see that the rail-webs 48 of the angular rails are bound together by an angle-iron 49 and bolts 50 and that on the opposite sides of the rail-webs and under the heads of these bolts 50 are plates 51. On the inside of these angles 49 are cast diagonal lugs 53, and on the outside of the plates 51 are cast corresponding diagonal lugs 55. Through these lugs 53 and 55 of each movable member passes a diagonal rod 57 in a direction parallel to the lines 30, heretofore described, and this rod is secured to the movable member 35 by the nuts and check-nuts 60, as shown, so that the rod 57 is rigidly secured to the movable member. This rod 57 extends beyond each side of the movable member 35 and is adapted to slide backward and forward in lugs 63, cast upon the plates and supporting and reinforcing the supplemental guard-rails 42, heretofore described. By moving this rod 57 diagonally backward and forward through the lug 63 the movable member 35 is moved from the position shown in Fig. 2 to the position shown in Fig. 3 and back again.

As shown in Fig. 1, the four movable members 35 of the crossing are equipped with these rods 57, those from the two movable members on one side of one track, as track B, being joined together on a common pivot 70 in the middle of the opposite track, as track A, and these movable members on the opposite side of the first track, as B, being joined together in a common pivot, as 71, in the middle of the opposite track, as track A, on the opposite side of the first track, as B, from the pivot 70. Pivoted at 70 to these two rods 57, just described, is a connecting-rod 73, having its opposite end pivoted at 74 to an equal-lengthed arm-lever 75, located at the intersection of tracks A and B. This lever 75 is, as shown, pivoted at 76 (its middle) to a standard or other suitable support 77. Pivoted at 78 on the opposite end of the lever 75 is one end of another connecting-rod 79, having its opposite end connected to the pivot 71, heretofore described, from which it will be seen that any motion communicated to the pivot 71—as, for instance, a motion along track A—will be communicated, through the rods 79, lever 75, and rods 73, to the pivot 70 and move it in the opposite direction an equal amount. Connected to the pivot 71, heretofore described, is one end of a bell-crank arm 80, having its opposite arm connected by a rod 81 to a switch, which may be located adjacent to the track or in a distant interlocking tower. This bell-crank 80 is pivoted at 83 to a suitable standard 84, mounted on a suitable foundation in the track A.

In the operation of the device assume that

it is set in the position shown in Fig. 1 for the passage of a train along track A, the position of the movable member 35 in the lower left-hand corner of Fig. 1 being shown in detail in Fig. 2. The operator now operates the switch, moving the rod 81 to the right in Fig. 1. The motion being communicated through the bell-crank 80 moves the pivot 71 along track A away from the crossing or vertically downward in Fig. 1. This motion is, as heretofore described, communicated, through the rods 79 and 73 and the lever 75, to pivot 70 and moves it also along track A away from the crossing or upward in Fig. 1. This operator moves the movable member 35 in the lower left-hand corner of Fig. 1 from the position shown in Fig. 2 to the position shown in Fig. 3, and the other three movable members 35 are given corresponding motion. When this movement is completed, track B will, as shown in Fig. 3, be continuous while track A is open. When now the operator desires to have the train pass along track A, he reverses the motion of the switch, and thus moves all the parts in the opposite direction from those just described or returns the movable member 35 from the position shown in Fig. 3 to the position shown in Fig. 2 and Fig. 1 and moves the other movable members accordingly, and track A is again continuous, while track B is closed.

For convenience I have illustrated in the drawings a crossing in which the two intersecting tracks are at right angles to each other; but the device is just as adaptable to tracks which cross each other at other angles, it only being necessary to see that the lines 27, on which the connecting-rails of the movable member 35 are cut, bisect the angle of the crossing and that lines 30, on which the movable member 35 and the stock-rails are cut, are parallel to these lines 27, this condition being necessary to allow the movable member 35 to be moved to the two positions and maintain a continuous track in both positions.

I do not wish to be understood as limiting myself to the exact details of construction here shown and described, for these may be varied within reasonable limits without departing from the principles of my invention.

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

1. In mechanism of the class described the combination of two main track-rails one belonging to each of two roads crossing each other, said rails each being cut away at the intersection of the crossing, and an angular member adjacent to said cut-away portion of the main rail composed of two rail portions rigidly meeting each other at the same angle as the crossing, movable to each of two positions; each portion of said angular member being so proportioned and movably fitted into

the open space of the rail to which it belongs 65 that when said angular member is in one of said positions it closes the opening in one rail and renders it continuous while the other rail is open, and that when said angular member is moved to the second position the other rail 70 portion of the angular member closes the open space in the second rail thereby rendering it continuous while the first rail is open.

2. In mechanism of the class described the combination of two main track-rails, one belonging to each of two roads crossing each other, said rails each being completely cut away at the intersection of the crossing and an angular member adjacent to said cut-away portion of the main rail composed of two rail 80 portions rigidly meeting each other at the same angle as the crossing, movable to each of two positions; each portion of said angular member being so proportioned and movably fitted into the open space of the rail to 85 which it belongs that when said angular member is in one of said positions it closes the opening in one rail and renders it continuous while the other rail is open and that when said angular member is moved to the second 90 position the other rail portion of the angular member closes the open space in the second rail thereby rendering it continuous while the first rail is open.

3. In mechanism of the class described in combination with the stock-rails and connecting-rails of one track, the stock-rails and connecting-rails of an intersecting track, all placed as shown and described; a plate beneath the crossing and a movable member 35 mounted 100 thereon slidably fitted to the stock-rails in the line 30 and slidably fitted to connecting-rails in the lines 26 and 27 adapted to be moved backward and forward to two different positions; in one position making the rail 12 14 105 continuous and in the other position making the rail 13 20 continuous as described while in each position the opposite rail is open as described.

4. In mechanism of the class described the combination of two pairs of rails each forming a railroad-track the two tracks intersecting each other in a diamond there being portions of each rail outside the diamond and adjacent thereto cut away, movable members located 115 adjacent to such cut-away portions of the rails adapted to be simultaneously moved to two different positions; in one position rendering the rails of one track continuous and in the other position rendering the rails of the opposite track continuous, and means for so moving said movable members. 120

5. In mechanism of the class described the combination of two pairs of rails each forming a railroad-track, the two tracks intersecting 125 each other in a diamond there being portions of each rail outside the diamond and adjacent thereto completely cut away, movable mem-

bers located adjacent to such cut-away portions of the rails composed of the cut-away portions of the track rigidly joined together at the angle of the crossing, adapted to be
5 simultaneously moved to two different positions; in one position rendering the rails of one track continuous and in the other position rendering the rails of the opposite track continuous, and means for so moving said movable
10 members.

6. In mechanism of the class described, the combination of two pairs of rails each forming a railroad-track the two tracks intersecting each other in a diamond there being portions
15 of each rail outside the diamond and adjacent thereto cut away, movable rail members located adjacent to such cut-away portions of

the rails adapted to be simultaneously moved to two different positions; in one position rendering the rails of one track continuous 20 and in the other position rendering the rails of the opposite track continuous, movable diagonal rods outside the diamond each secured to the movable members at one corner of the diamond, and actuating mechanism connected to each of said rods adapted when operated to move said movable members to the proper positions for rendering the tracks of the crossing successively continuous as described.

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