

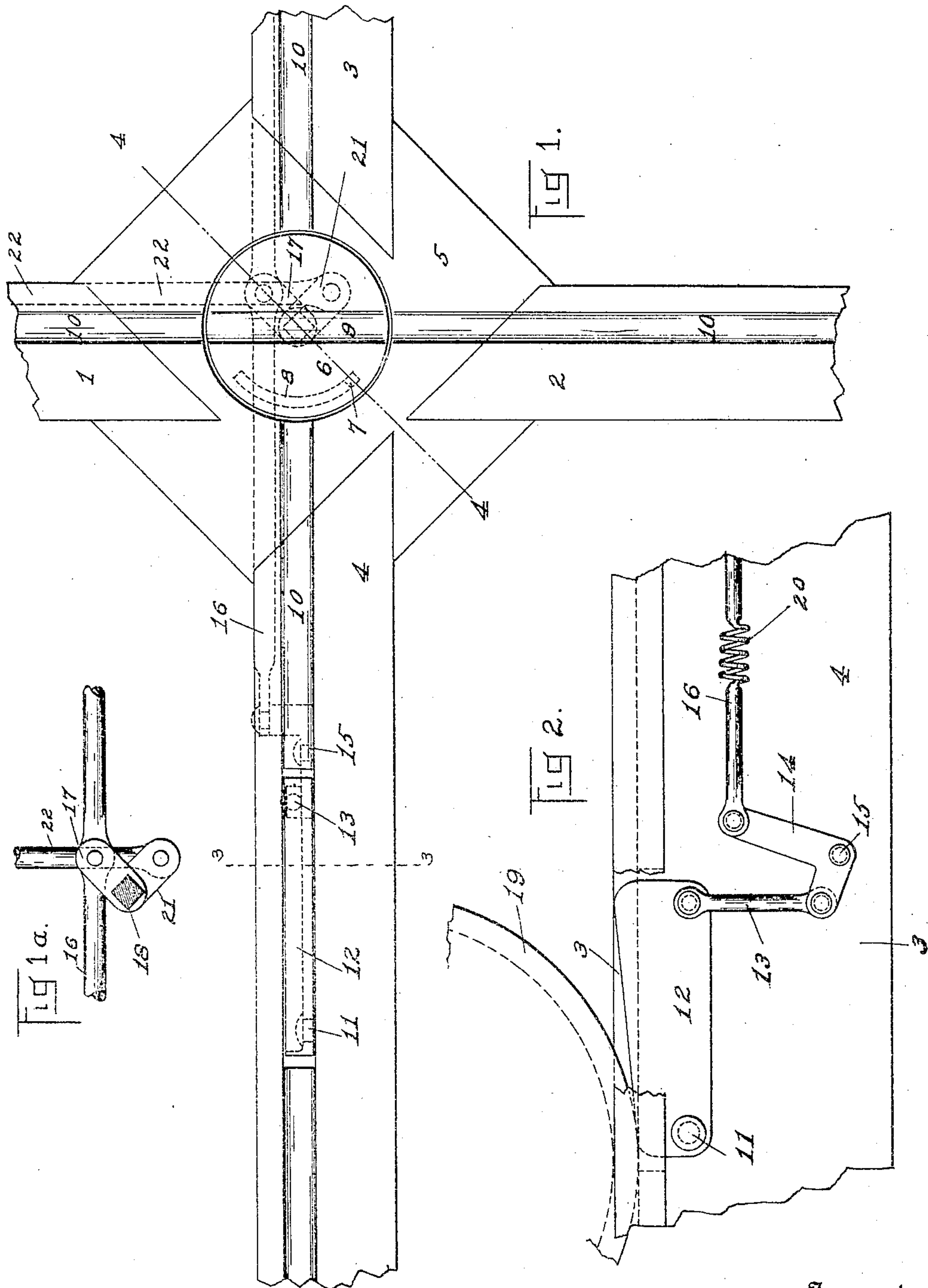
No. 778,655.

PATENTED DEC. 27, 1904.

H. M. GLEASON.  
CROSSING FOR STREET RAILWAYS.

APPLICATION FILED APR. 30, 1904.

2 SHEETS—SHEET 1.



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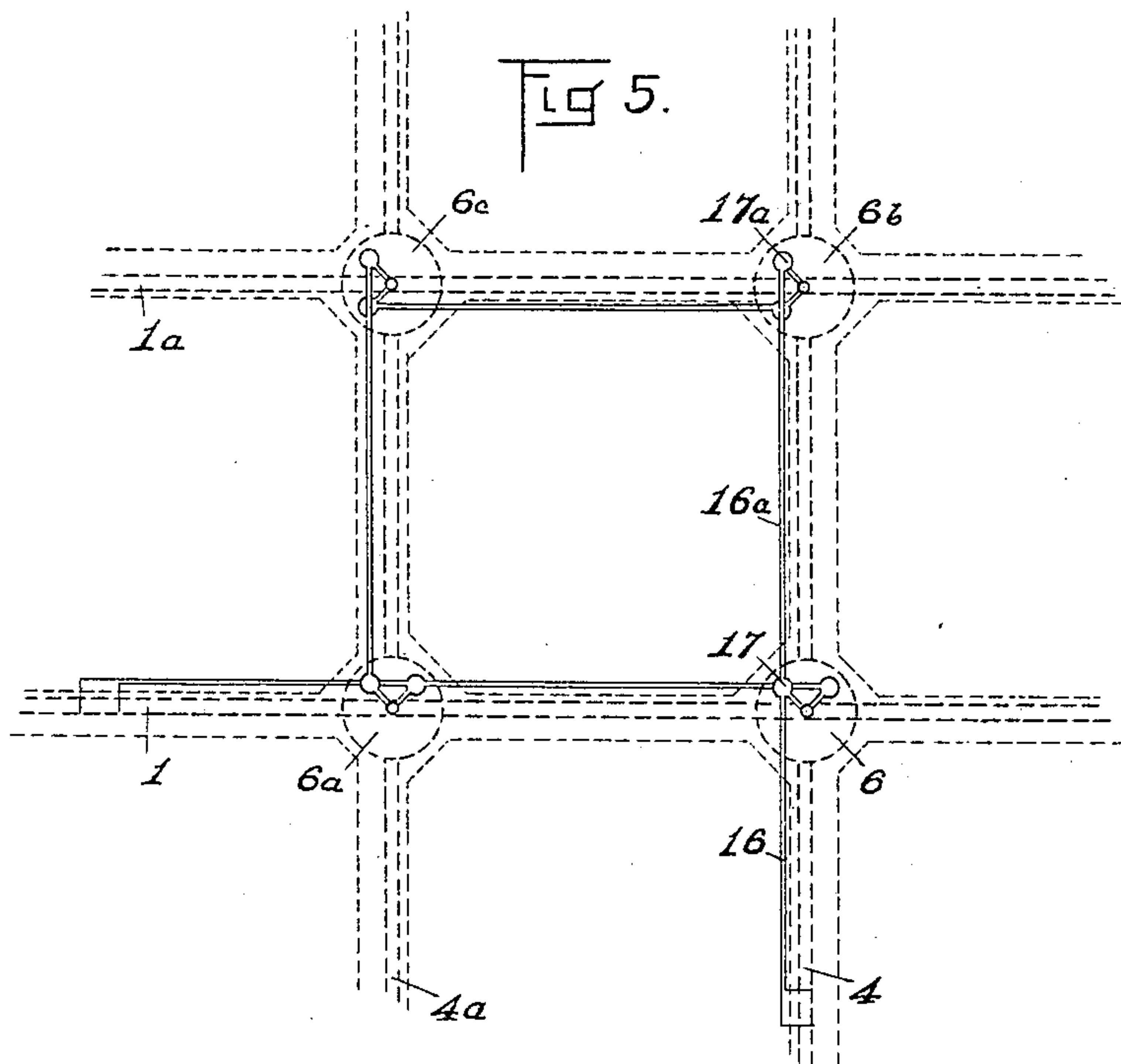
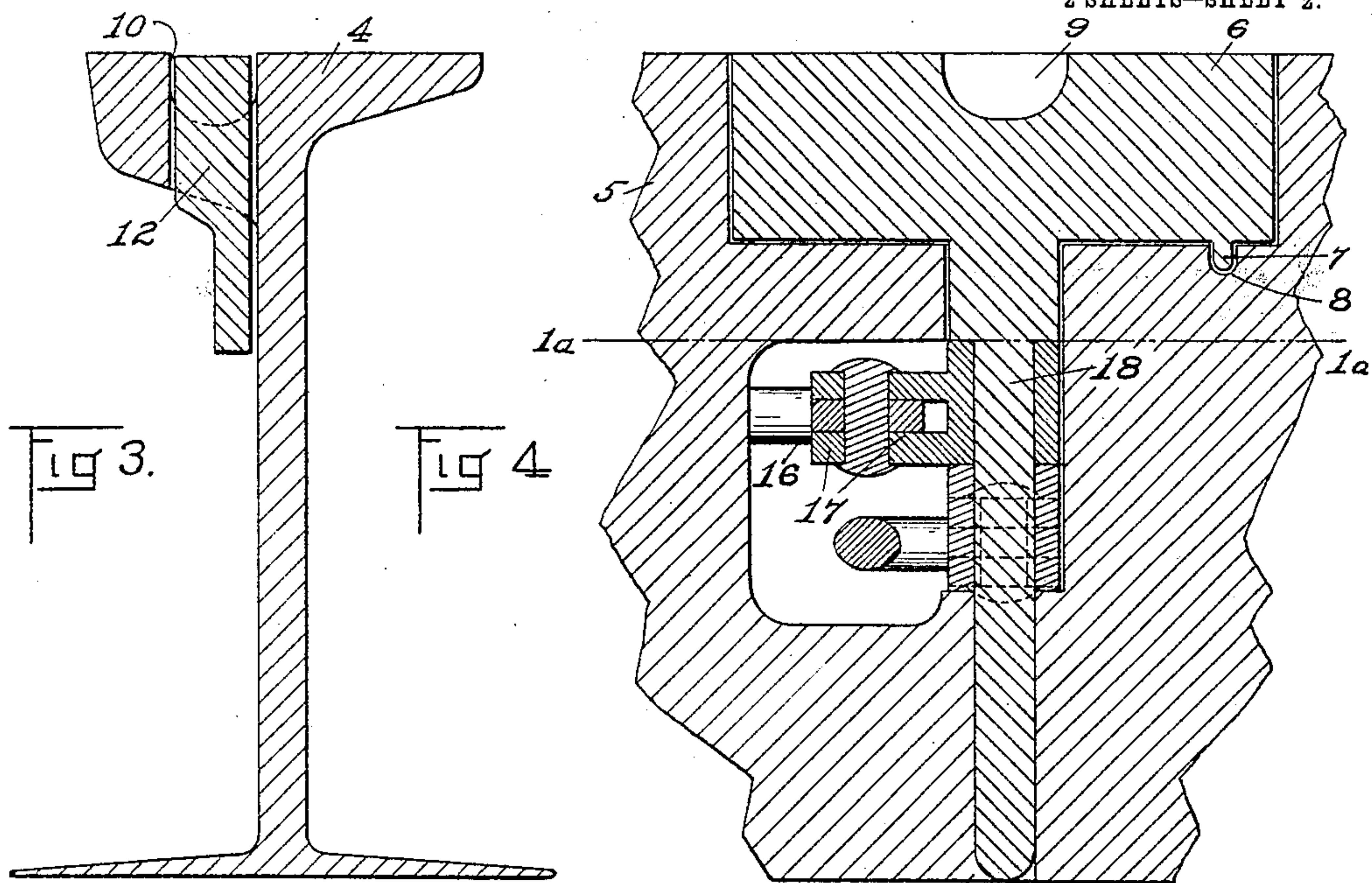
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# UNITED STATES PATENT OFFICE.

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## CROSSING FOR STREET-RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 778,655, dated December 27, 1904.

Application filed April 30, 1904. Serial No. 205,648.

*To all whom it may concern:*

Be it known that I, HENRY M. GLEASON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Crossing for Street-Railways, of which the following is a specification.

My invention relates to improvements in crossings for street-railways, my object being to provide a crossing which shall give the car-wheels an unbroken passage thereover, thereby relieving the wear and tear upon the railway-cars due to jar or shock received when the wheels pass over the transverse groove of the crossing of the present type and also to prevent the wear and tear upon the rails due to the same construction.

My invention comprises means for utilizing a single groove member operating between the abutting ends of grooved transverse rails.

My invention further comprises automatic means operated by the wheel of the approaching car for shifting said grooved member, so that the groove shall be in alinement with the grooves of the abutting rails in the direction of travel of the car.

Referring to the accompanying drawings, Figure 1 is a plan of portions of two rails, one lying in a line transverse the direction of the other, showing my improved mechanism. Fig. 1<sup>a</sup> is a detail of the mechanism connected with the grooved member on line 1<sup>a</sup> 1<sup>a</sup> of Fig. 4. Fig. 2 is an elevation of a portion of the rail, showing a pivoted cam and bell-crank and connecting-rods operated thereby, a portion of the flange being broken away to show the mechanism. Fig. 3 is a vertical cross-section on line 3 3 of Fig. 1. Fig. 4 is a vertical cross-section on line 4 4 of Fig. 1. Fig. 5 is an under view in the nature of a diagrammatic view, indicating the arrangements of bell-cranks and connecting-rods at the crossing.

Similar numerals refer to similar parts throughout the several views.

The usual construction of rails for street-railways is such that the top surface of the rail is approximately flush with the road-bed, and there is provided in said top surface a groove for receiving the flange of the car-wheels. At the crossing or intersection of said

rails the abutting ends are usually secured by a metallic casting or member, such as is shown in Fig. 1, which continues the slots between said abutting ends, so that said slots cross each other at the middle. The result of this construction is that the car-wheel passing across this member receives a jar in passing over the transverse slot. In other words, the rim or tread part of the car-wheel bumps into the transverse slot as it passes the line of each transverse rail, so that there is a distinct bump or jar given to the car for each rail crossed multiplied by the number of wheels on the side of the car.

The purpose of my invention is to provide means whereby a solid continuous tread shall be presented to the car-wheels as they pass said crossing, thereby obviating the jar referred to and the damage, both to the car and rails, which necessarily results therefrom.

In Fig. 1, 1 and 2 represent the abutting ends of rails lying in the same direction, while 3 and 4 represent the abutting ends of rails lying in the same direction, but transverse to the direction of rails 1 and 2.

5 represents the metallic casting or member securing the abutting ends of rails 1, 2, 3, and 4 in place. In the middle of casting or member 5 I provide the circular table 6, having a centrally-located stem projecting downwardly therefrom, said table 6 being seated in a recessed portion of the member 5, so that the surface of the table shall be substantially flush with the surface of member 5. This table is adapted to have a free limited rotation with respect to member 5, the slot and projection 7 and 8 being provided as a means to limit said rotative movement. Similar stop means may be provided in connection with any of the parts having operative connection with the member 6 with similar results. In the upper surface of table 6 is provided the groove 9, having approximately the same cross-section dimensions as the grooves 10 in the rails 1, 2, 3, and 4, so that when the plate member 6 is in the position shown in Fig. 1 the groove 9 will be in alinement and form a continuation of the grooves 10 of rails 1 and 2. In this position the margins of said groove 9 will consequently be flush with the surface of mem-



ber 5 and also in alinement with the margins of groove 10 in rails 1 and 2, whereby is formed a smooth and continuous tread for the car-wheel from one rail to the other. It is obvious that when member 6 is turned through an arc of ninety degrees in case the transverse rails are at right angles with each other, as shown in the drawings, the groove 9 will similarly be in alinement with grooves 10 of rails 3 and 4. It will of course be understood that where the transverse rails for an angle less than ninety degrees a correspondingly less movement will be provided for.

In order that the grooved member 6 shall be made to assume the position necessary to bring the groove 9 into alinement with the grooves 10 of the rail upon which the car is traveling as it approaches said crossing, I provide the following mechanism: Upon the web of rail 4 is pivotally mounted at 11 the cam member 12, which projects upwardly through the slot 10 of rail 4, having its upper surface substantially flush with the upper surface of rail 4. The free end of cam member 12 is connected by the member 13 to one free end of bell-crank 14, which is pivotally mounted at 15 on the web of rail 4. The other free end of bell-crank 14 is connected by the connecting-rod 16 to the bifurcated crank member 17, which is rotatably rigid with the stem 18 of member 6. It is usually preferable to include a spring or resilient element in the mechanism connecting the cam 12 with slot member 6 to allow for lost motion. For example, a coil-spring 20 may be provided in connecting-rod 16, as shown in Fig. 2, the proportions of said various members being such that the depression of cam member 12 by the engagement therewith of the flange 19 of the car-wheel as it runs along the groove 10 of track 4 shall cause the rotation of plate 6 through such an arc as may be necessary to bring the groove 9 from the position shown in Fig. 1 into alinement with the grooves 10 of rails 3 and 4. To the stem 18 of member 6 is also secured a second crank member 21 below the crank member 17 and approximately at right angles therewith. This crank member 21 is secured by the connecting-rod 22 with a similar crank member on a corresponding stem of the rotatable grooved plate member 6<sup>a</sup>, so that the actuation of 6 in the manner above described also results in the actuation of 6<sup>a</sup>. The continuation 16<sup>a</sup> of connecting-rod 16 to a similar crank member 17<sup>a</sup> will result in a similar movement of plate member 6<sup>b</sup>. It must now be obvious to any one skilled in the art that similar crank and connecting-rod con-

nections between 6<sup>b</sup> and 6<sup>c</sup> and 6<sup>a</sup> and 6<sup>c</sup> will result in the simultaneous similar movement of all four plate members 6, 6<sup>a</sup>, 6<sup>b</sup>, and 6<sup>c</sup> upon the actuation of any one of them.

While the mechanism illustrated in Figs. 1 and 3 is adapted to actuate the plate members to accommodate the car approaching in the direction of the arrow on rails 4 and 4<sup>a</sup>, a similar cam device may be attached to rail 1 to cause the plates to be rotated to accommodate a car approaching in the direction of the arrow on rails 1 and 1<sup>a</sup>, and so on from any of the four directions toward the crossing.

What I claim is—

1. A rotatable groove member operating between the ends of abutting grooved rails, a cam journaled to the web of said rail and projecting through the groove thereof and operative mechanism connected between the cam and rotatable member for transmitting the actuation of said cam to said member.

2. A rotatable groove member operating between the ends of abutting grooved rails, a cam journaled to the web of said rail and projecting through the groove thereof and operative mechanism including a resilient element connected between the cam and rotatable member for transmitting the actuation of said cam to said member.

3. A pivoted oscillating groove member between the ends of abutting grooved transverse rails, a cam pivotally mounted on the web of one of said rails and projecting through the groove of said rail and crank and connecting-rod means for communicating movement from the cam to the oscillating member.

4. A pivoted oscillating groove member between the ends of abutting grooved transverse rails, a cam pivotally mounted on the web of one of said rails and projecting through the groove of said rail, crank and connecting-rod means for communicating movement from the cam to the oscillating member, and means for limiting the range of movement of said oscillating member.

5. A pivoted oscillating groove member between the ends of abutting grooved transverse rails, a cam pivotally mounted on the web of one of said rails and projecting through the groove of said rail, crank and connecting-rod means for communicating movement from the cam to the oscillating member, and a spring element included in said cam and connecting-rod means for permitting lost motion.

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Witnesses:

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