

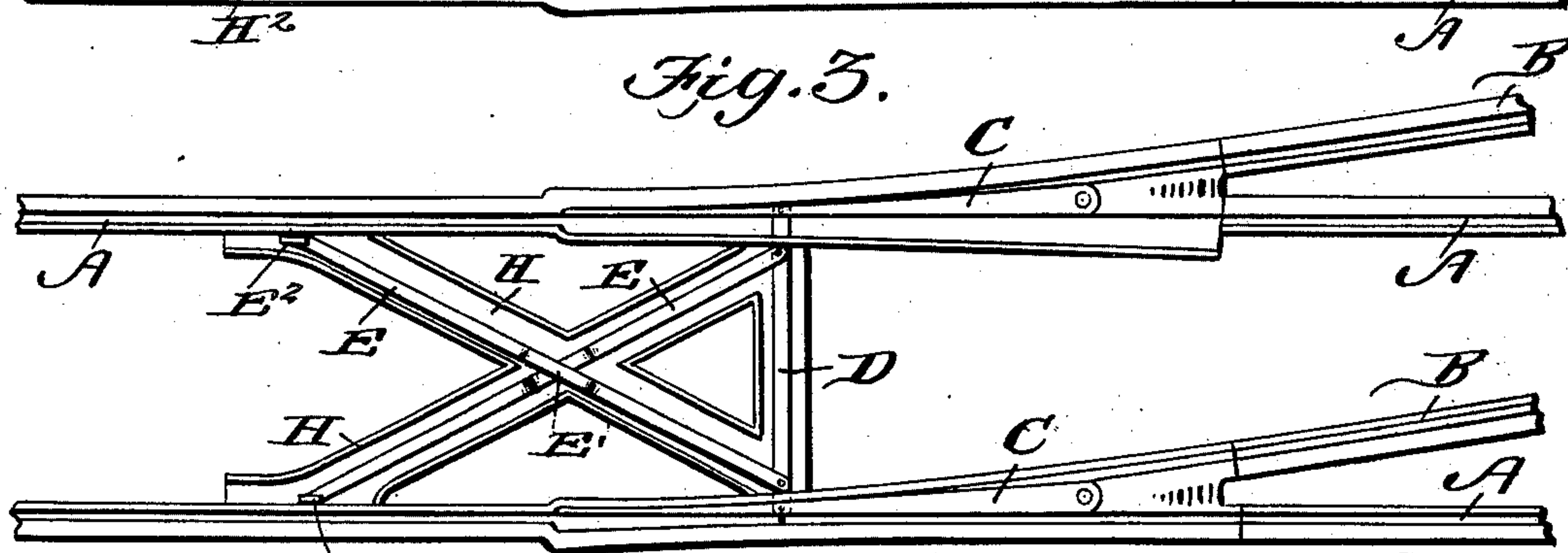
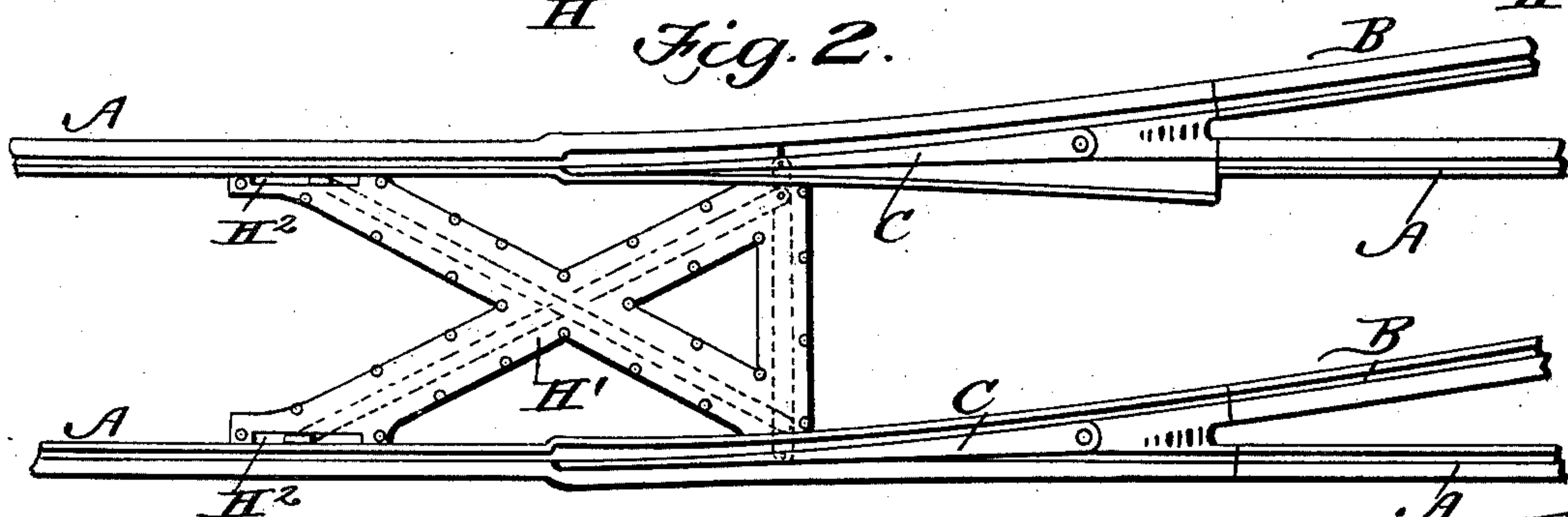
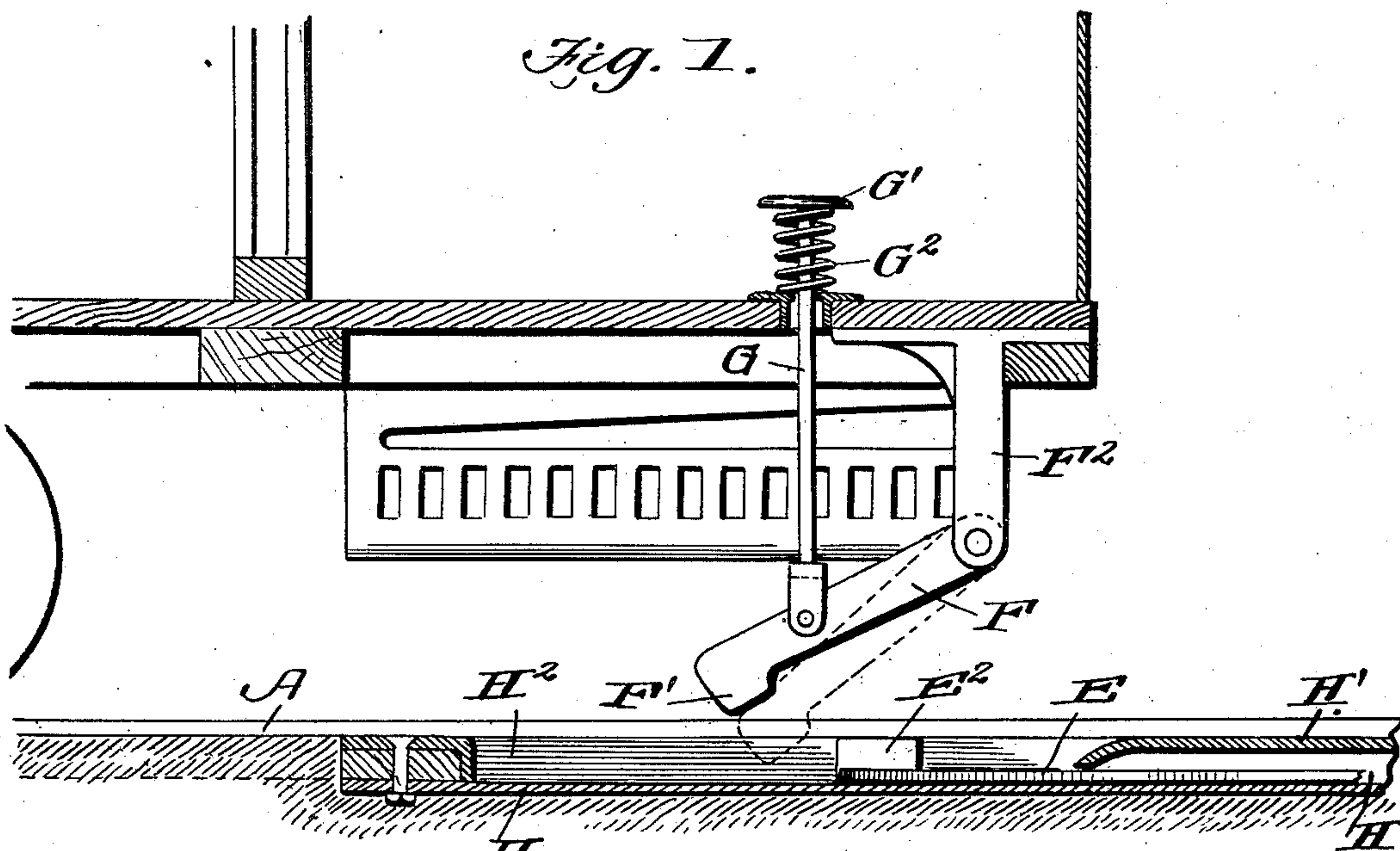
**No. 707,929.**

**Patented Aug. 26, 1902.**

**F. S. JONES.**  
**SWITCH OPERATING DEVICE.**

(Application filed Dec. 14, 1901.)

(No Model.)



Inventor

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# UNITED STATES PATENT OFFICE.

FRANK S. JONES, OF EXPORT, PENNSYLVANIA.

## SWITCH-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 707,929, dated August 26, 1902.

Application filed December 14, 1901. Serial No. 85,902. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK S. JONES, a citizen of the United States, residing at Export, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Switch-Operating Device, of which the following is a specification.

This invention relates generally to switch-operating devices; and the object of the invention is to provide a switch-operating device which can be operated from the car-platform while the car is in motion and approaching the switch.

Another object of the invention is to provide a switch-operating device of this character capable of use in connection with switches and cars now in common use; and another object is to provide a device which will be sure to effectively operate the switch whether the car is moving rapidly or slowly.

With these and other objects in view the invention consists in connecting the switch-points so that they will move in unison and in providing oppositely-disposed operating-rods which cross each other, are connected to the switch-points at one end, and are formed at their opposite ends for engagement with a depending shoe carried by the car and adapted to be lowered when it is desired to operate the switch.

The invention consists also in certain novel features of construction and combination hereinafter fully described, and pointed out in the claim.

In the drawings forming a part of this specification, Figure 1 is a view, partly in section and partly in elevation, illustrating the operating means carried by the car and the manner of engaging the operating-rod connected to the switch-point. Fig. 2 is a plan view of the switch-operating mechanism, the connecting and operating rods being concealed by the protecting-cover, the dotted lines indicating the position of said parts beneath the cover. Fig. 3 is a plan view, the protecting-cover being removed and the positions of the switch-points and operating-rods being reversed. Fig. 4 is a view showing the operating-rods in detail.

Referring to the drawings, A indicates the main rails, B the branch or switch rails, and C the switch-points, which are arranged, as

usual, at the juncture of the main and switch rails and which may be of the usual or any approved construction. These switch-points C are connected by means of a connecting or cross rod D, said rod being pivotally connected at its opposite ends to the said switch-points adjacent to their free ends, and connected also to the said switch-points, and preferably by means of the same bolts, are the operating-rods E, and it may therefore be said that the said operating-rods are connected to both the switch-points and the connecting or cross bar. These operating-rods extend in diagonally opposite directions, crossing each other at E', and at their free ends are bent upwardly, as shown at E<sup>2</sup>, or they may be provided with an upwardly-projecting arm or lug, said upwardly-projecting portion E<sup>2</sup> being arranged at such an angle that it will rest against the inner face of the main rail A, as most clearly shown in Figs. 2 and 3. In order to prevent the operating-rods contacting with each other where they cross, one of the said rods is bent upwardly, as shown at E<sup>3</sup>, and the other one bent downwardly, as shown at E<sup>4</sup>, thereby providing an ample clearance where they cross each other.

In order to operate the switch so as to throw the points in the desired direction, one of the operating-rods is operated by pushing upon the upturned end E<sup>2</sup>. Thus to throw the points to the right the left-hand rod is operated, it being readily understood that in pushing the upturned end E<sup>2</sup> along the rail toward the switch the pressure or force applied along the diagonal rod will force the right-hand switch-point in that direction, and inasmuch as the said switch-points are connected the left-hand switch-point will simultaneously move to the right. When it is desired to move the switch-points to the left, the right-hand operating-rod is operated, and the switch-points will then be forced to the left.

In order to operate the rods E from the car, I employ a depending leg F, carrying a shoe F' at its lower end, which shoe is adapted to contact with the upwardly-projecting end E<sup>2</sup> of the operating-rod, and it will of course be understood that two legs F are employed, one at each side of the car-platform, said legs being pivoted to the depending brackets F<sup>2</sup> and each of which is provided with a push-rod G,



which projects upwardly through the car-platform and which carries a cap-plate  $G'$ , and between the cap-plate  $G'$  and the car-platform is arranged a spiral spring  $G^2$ , the purpose of which is to normally hold the shoe  $F'$  above the rail and out of contact with the upturned end  $E^2$ . When it is desired to operate the switch from the bottom of the car, the motorman presses upon the cap-plate  $G'$ , forcing the push-rod  $G$  downwardly, which in turn pushes the leg  $F$  into such position that the shoe  $F'$  will contact with the end  $E^2$  as the car moves forwardly, and the shoe  $F'$ , coming in contact with the said end, will throw the operating-rod in the proper direction to shift the switch-points.

In order to protect the connecting and operating rods from dirt, snow, ice, and other substances, I prefer to arrange them in a trough-like casting  $H$ , which is provided with a cover  $H'$ , bolted thereon, thereby protecting the said parts both above and below and at the same time giving them ample space for operation, the ends of the cover being slotted longitudinally, as shown at  $H^2$ , to permit the upturned ends  $E^2$  to move longitudinally, and in practice said slots  $H^2$  will be made somewhat longer than the maximum movement of the ends  $E^2$  in order that the

shoe  $F'$  may drop into the said slots behind the said ends  $E^2$ , thereby insuring the positive action of the upper rod and consequently of the switch.

It will thus be seen that I provide an exceedingly cheap, simple, and efficient device for operating a switch from the car while the said car is in motion, and approaching the switch.

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

The combination with the switch-points pivotally connected by a cross-bar, of operating-rods pivotally secured to the cross-bar, and crossing each other, said rods bent away from each other at the point of crossing, the free ends of the rods provided with upwardly-projecting portions, said portions resting against the inner faces of the rails, means for contacting the upwardly-projecting portions, whereby the points are shifted, and a protecting-casing arranged about the cross-bars and the operating-rods.

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