

(No Model.)

E. M. BENTLEY.
ELECTRIC RAILWAY.

No. 424,845.

Patented Apr. 1, 1890.

Fig. 1,

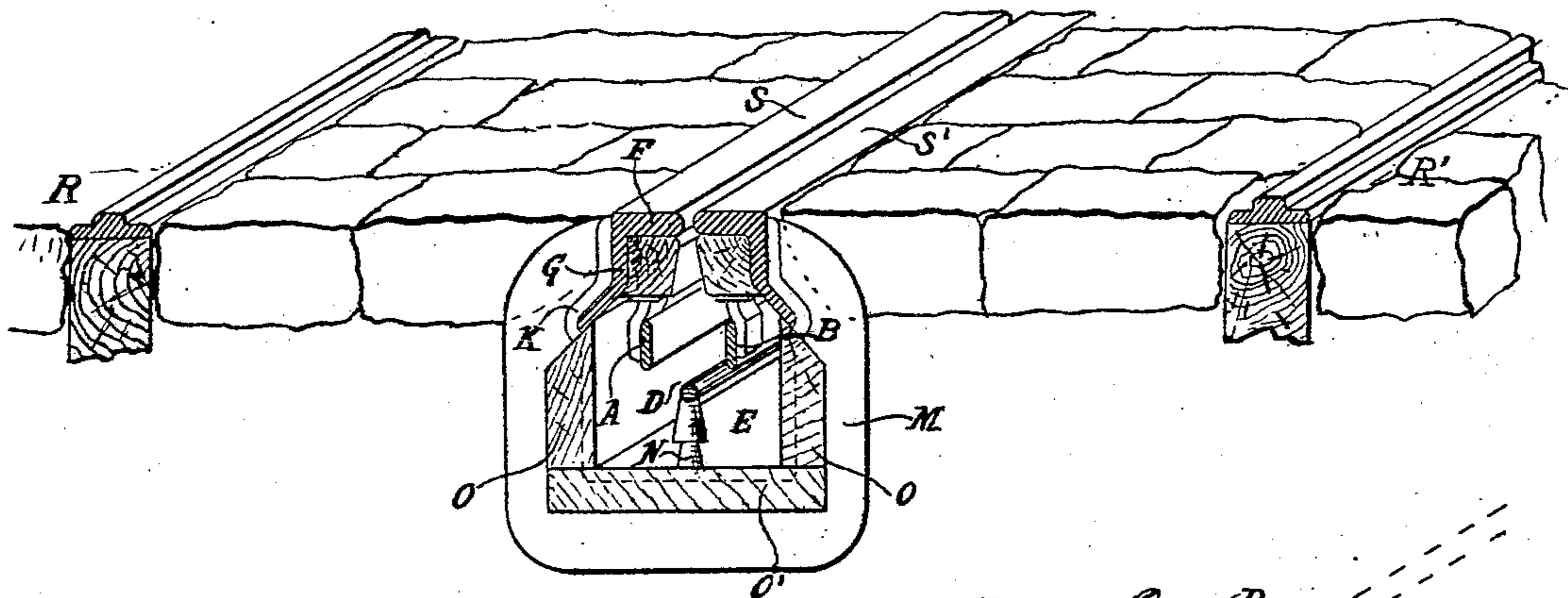


Fig. 2

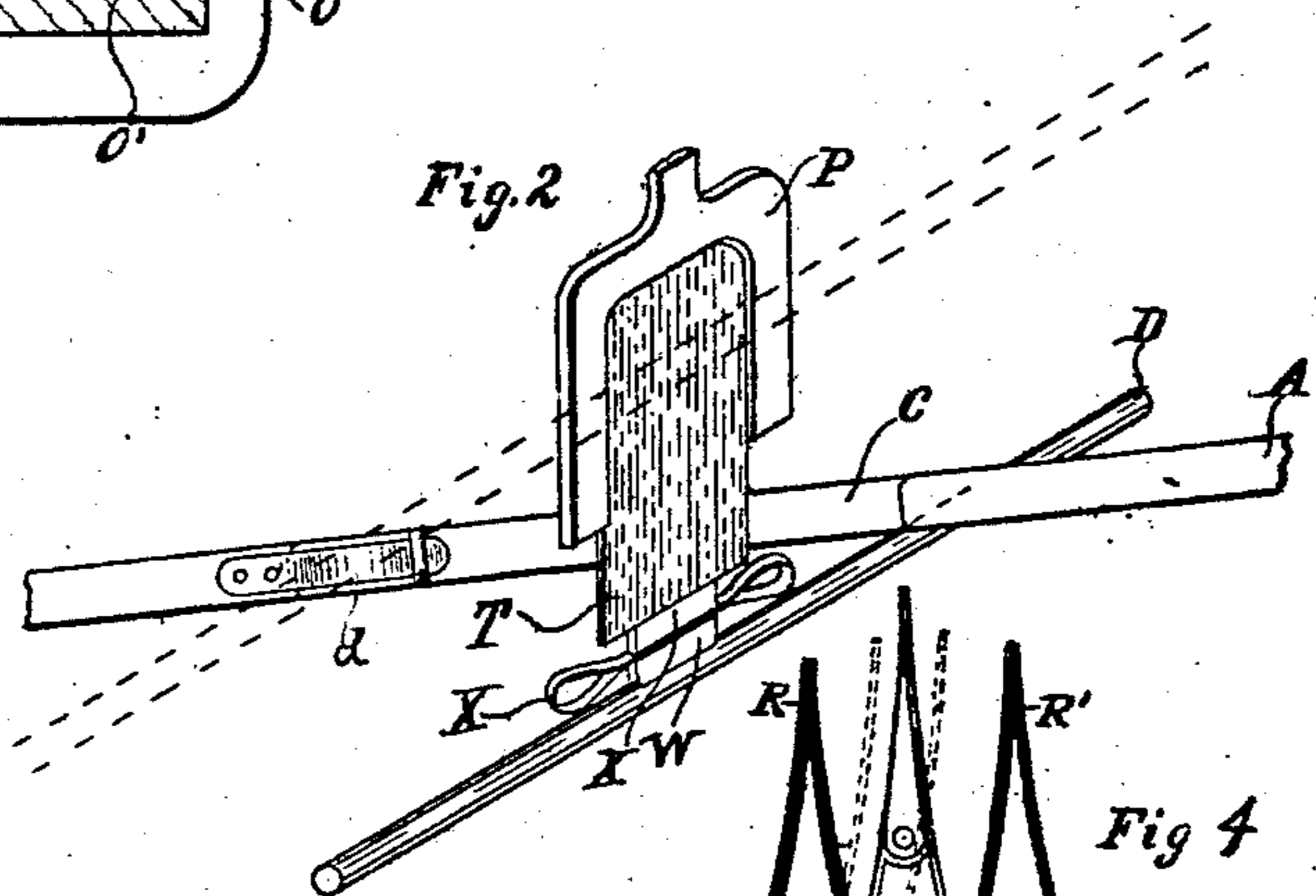


Fig. 3

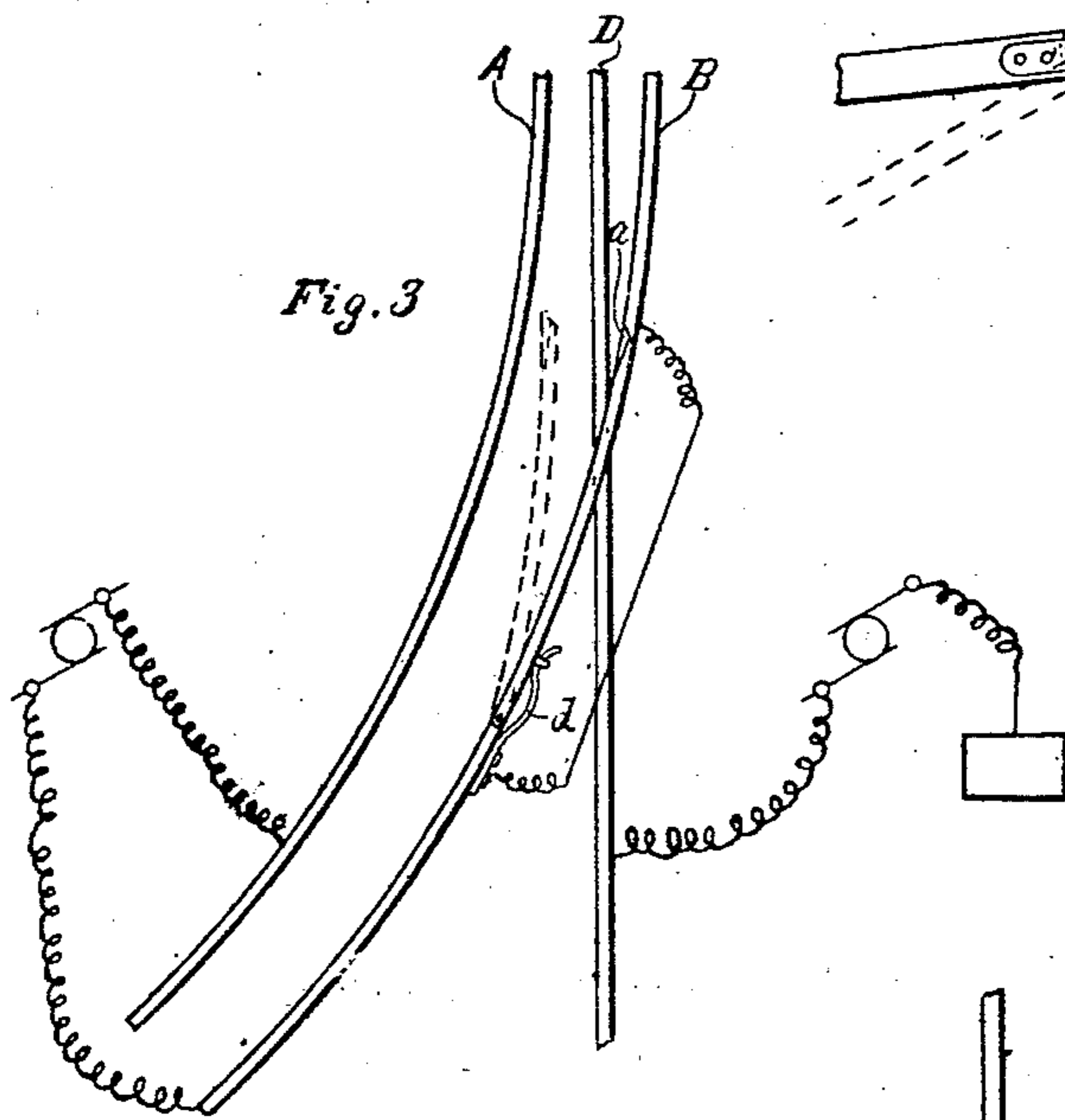


Fig. 4

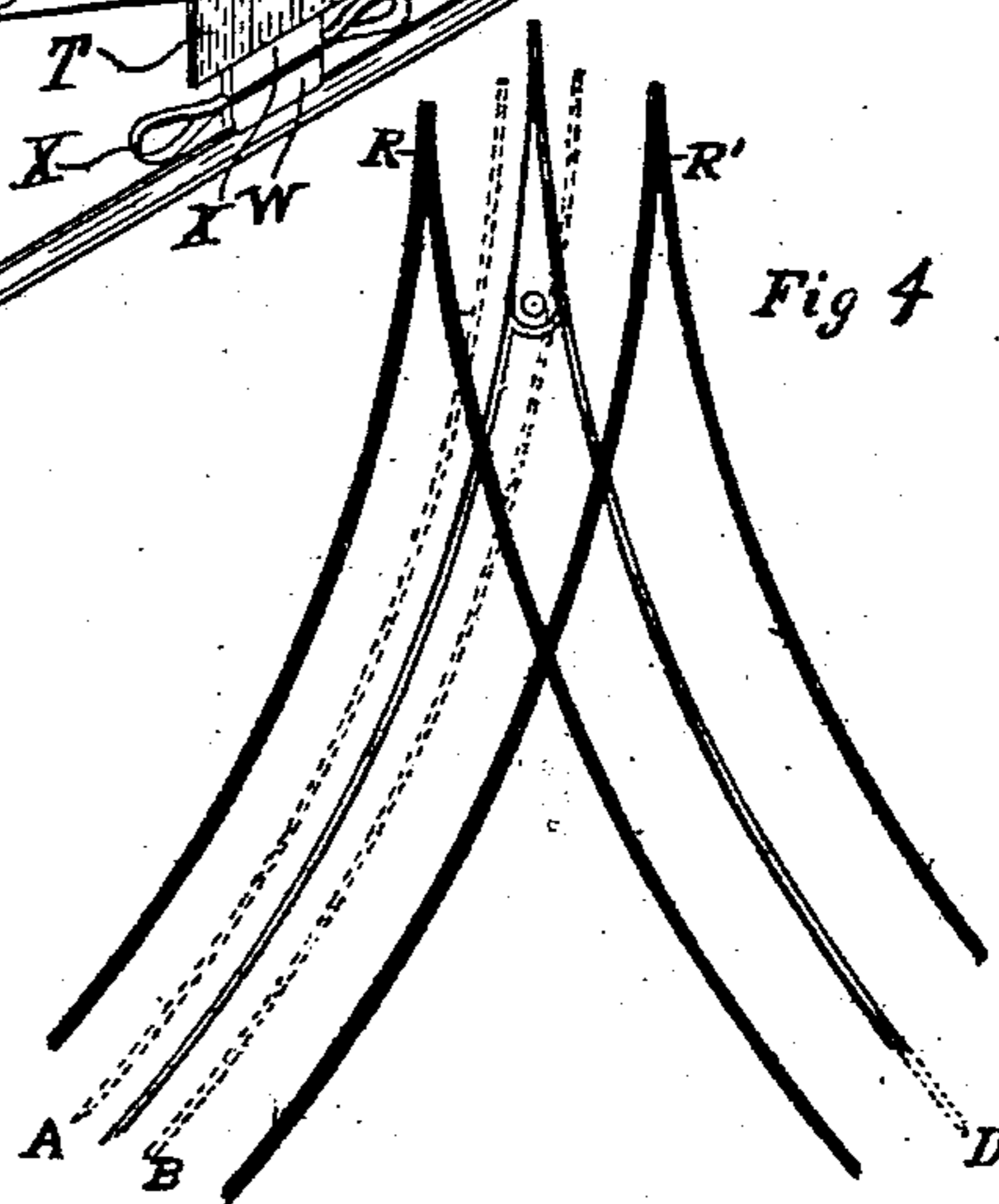
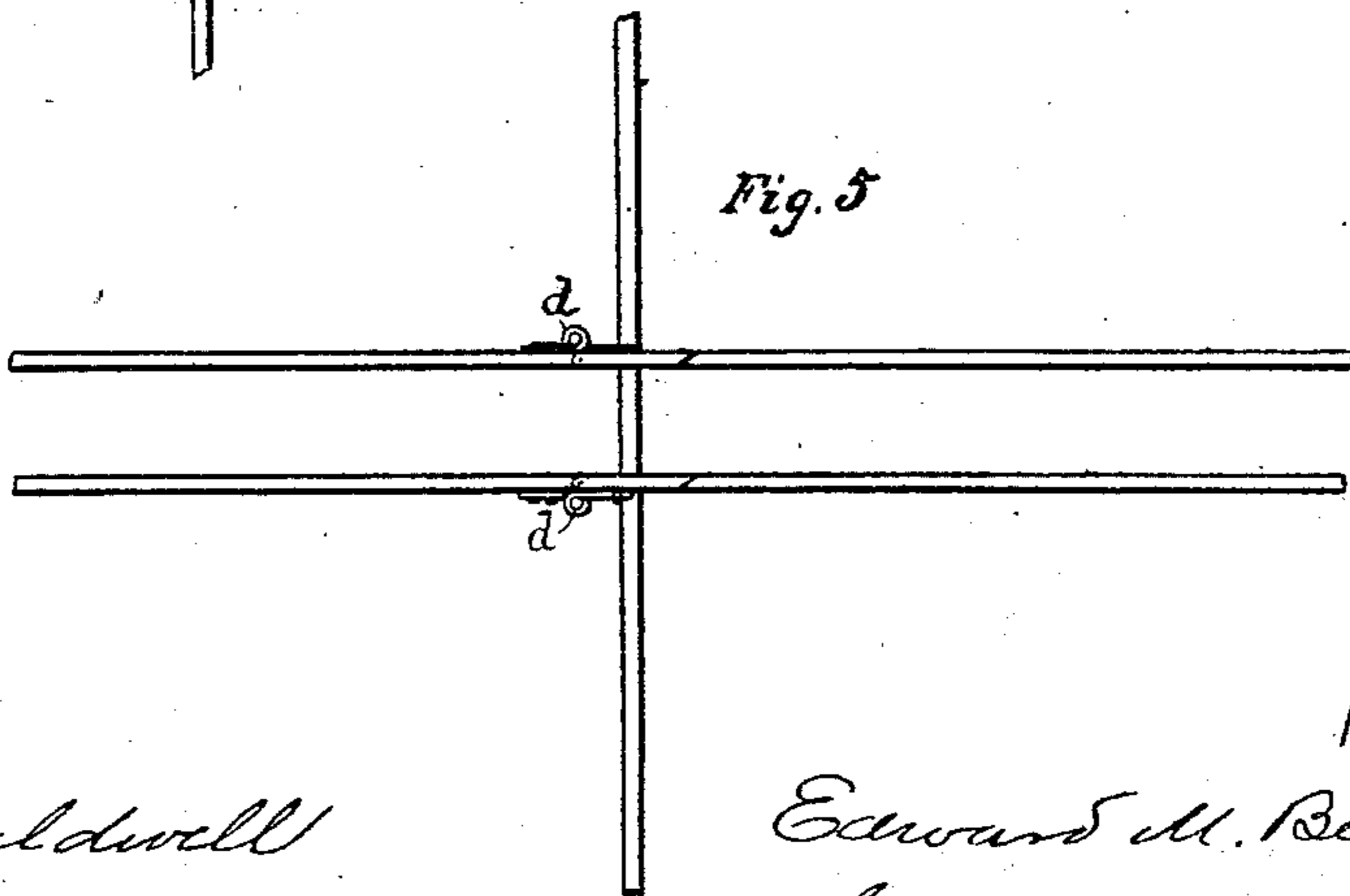


Fig. 5



WITNESSES

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ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 424,845, dated April 1, 1890.

Application filed July 30, 1887. Serial No. 245,760. (No model.)

To all whom it may concern:

Be it known that I, EDWARD M. BENTLEY, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Electric Railways, of which the following is a specification.

My invention relates to electric railways; and it consists in means for permitting two distinct systems of railway to be operated over the same track and road-bed.

It consists, also, in certain features of construction of the conduit in which the supply-conductors pertaining to the two systems are inclosed.

In the accompanying drawings, Figure 1 is a transverse section of road-bed and conduit. Figs. 2 and 3 show the method of conductor crossing. Fig. 4 shows a single conduit branched into two, and Fig. 5 shows a conductor crossing at right angles.

In Fig. 1, E represents a slotted conduit beneath the surface of a road-bed, R and R' being the track-rails. This conduit is composed of the slot-steels S S', connected at intervals by yokes M, while the bottom and lower sides of the conduit are composed of the planks O and O'.

The slot-steel S, which forms part of my invention, is formed of the horizontal flange F, the vertical web G, and the web K at an angle to G. This form gives the requisite strength with the maximum width in the upper part of the conduit. In this conduit the conductors A and B, which are of opposite polarity, are suspended from the wooden lining of the slot-steels upon opposite sides of the slot, respectively. The electrical connection between these conductors and the electrically-propelled vehicle on the track is maintained by the device shown in patent to W. H. Knight, No. 338,175, dated March 16, 1886. This device is well known and requires no further description here. Between conductors A and B is a third conductor D, supported at intervals from the bottom of the conduit on wooden insulators N. This third conductor is at a lower height in the conduit than A and B, and is connected to a distinct generator and a distinct system from them, as is shown in Fig. 3. A contact device adapted to conductor D is shown in Fig. 2. It is longer than the

one used for A and B, in order to reach D, which is farther from the vehicle than the other conductors. It consists of metallic frame P, hung from the vehicle and carrying an insulating-panel F, in which is inclosed a conducting-plate V. A contact-shoe W is hung from plate V by springs X, and is forced by the springs into contact with D. A brush such as is shown in my Patent No. 343,884, dated June 15, 1886, may be employed instead of the device shown.

Whenever the two systems branch apart, it will be necessary for the conductor A or B, according to the direction of the curve, to cross over above conductor D, and I provide for this by making a break in the upper conductor at the point of crossing, which is bridged normally by a movable section C, which permits the contact device pertaining to the lower conductor to pass through, the bridge-section being pivoted and forced aside by the contact device. This bridge-section is held in its normal condition by a spring d, and an electrical connection around the bridge is provided, as shown in Fig. 3. The insulating-panel T is of such a length that it strikes the bridge-section and prevents any electrical connection being made between the two systems or between either system and the ground in passing through the break.

To prevent the bridge touching the opposite conductor and making a short circuit when it is swung on its pivot, it is tipped with insulating material, as shown at a. The same arrangement of bridging-section in the first or nearest conductor may be employed where the crossing is a rectangular one, as is shown in Fig. 5.

In Fig. 4 is shown a plan of the branching slotted conduit, the track being, of course, correspondingly branched.

In using the term "branching conduit" I simply mean that there are two diverging limbs, one of which may be a straight continuation of the unbranched conduit or both may curve away from it.

I claim—

1. In an electric railway, a common-slotted inclosure and supply-conductors belonging to distinct railway systems housed therein, the conductor of one system being supported from the wall and of the second system from

the bottom of said conduit, substantially as described.

2. The combination of two electrical conductors belonging to distinct railway systems, a common slotted inclosure therefor, and contact devices adapted to each conductor, the conductors being supported in the conduit at different heights and the upper one broken for the passage of the contact device belonging to the lower one.

3. The combination of two electrical conductors belonging to distinct railway systems, a common slotted inclosure therefor in which the conductors are supported at different heights, and contact devices adapted to each, the upper conductor being broken to permit the passage of the contact device belonging to the lower one and provided with a bridge normally closing the said break, but adapted to be automatically opened by the said contact device.

4. The combination, in an electric railway, of two intersecting conductors at different heights, with an automatically-operated bridging-section in one conductor to permit the passage of the contact device of the other conductor, and an electrical connection around the said bridging-section.

5. The combination, with conductor A, of the automatically-movable section C, forming part of the electric circuit and adapted to be operated by an approaching vehicle.

6. The combination, in an electric railway, of intersecting conductors, one of which is provided with an automatically-movable bridging-section, with a spring for holding said bridging-section in its normal position, and an electrical connection around the bridging-section, substantially as described.

7. The combination, in an electric railway, of intersecting conductors and a pivoted automatically-moving section included in and

forming part of the circuit of one of said conductors, with the spring for holding said section in its normal position, but allowing it to be moved aside by a traveling contact device as set forth.

8. The combination, with a common roadway upon which travel vehicles belonging to distinct systems of road, of the conductors A and B, parallel therewith and connected to one system, and the conductor D, connected to a distinct system, but parallel with A and B.

9. The combination, with conduit E, of the conductors A and B therein, connected to one system, and the conductor D, connected to a distinct system and inclosed by the same conduit.

10. The combination, in an electric railway of a slotted conduit, two conductors therein of opposite polarity upon opposite sides of the slot, a third conductor between the other two and a contact device extending into the conduit to the said third conductor.

11. The combination, in an electric railway of a common conduit, two conductors therein connected to distinct systems, and a branch in the conduit, the two conductors following the two branches, respectively, and crossing each other at the branching-point.

12. The combination, in an electric railway of a roadway, an insulated supply-conductor parallel therewith, a second conductor beside the first, parallel therewith, but connected to a distinct system, a branch in the roadway curving off on the side of the first conductor and a curve in the second conductor parallel with said branch and crossing the first conductor.

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Witnesses:

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