

(No Model.)

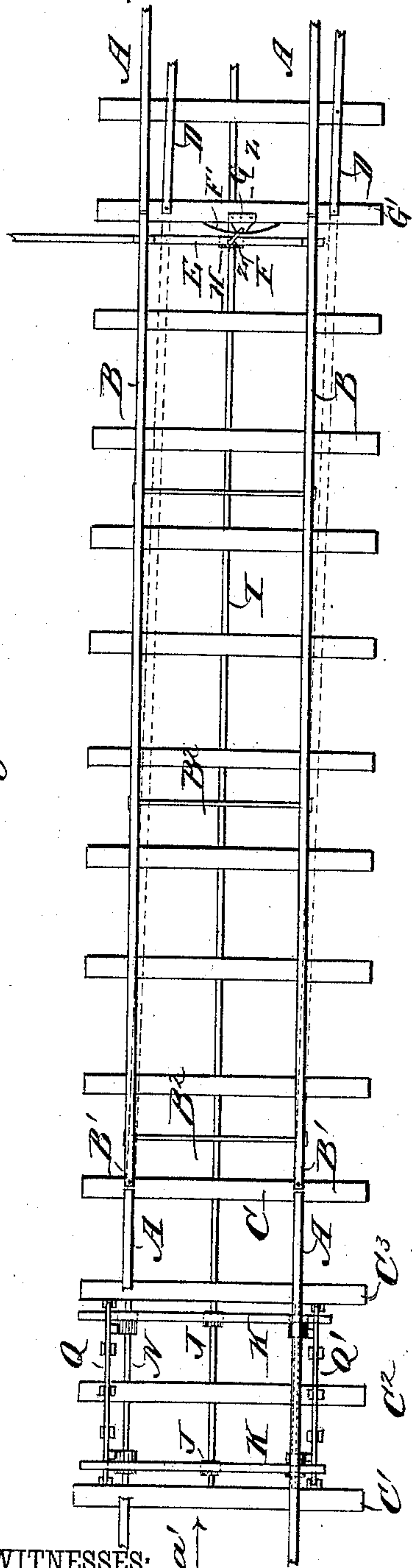
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J. HUNTER.
RAILROAD SWITCH.

No. 396,873.

Patented Jan. 29, 1889.

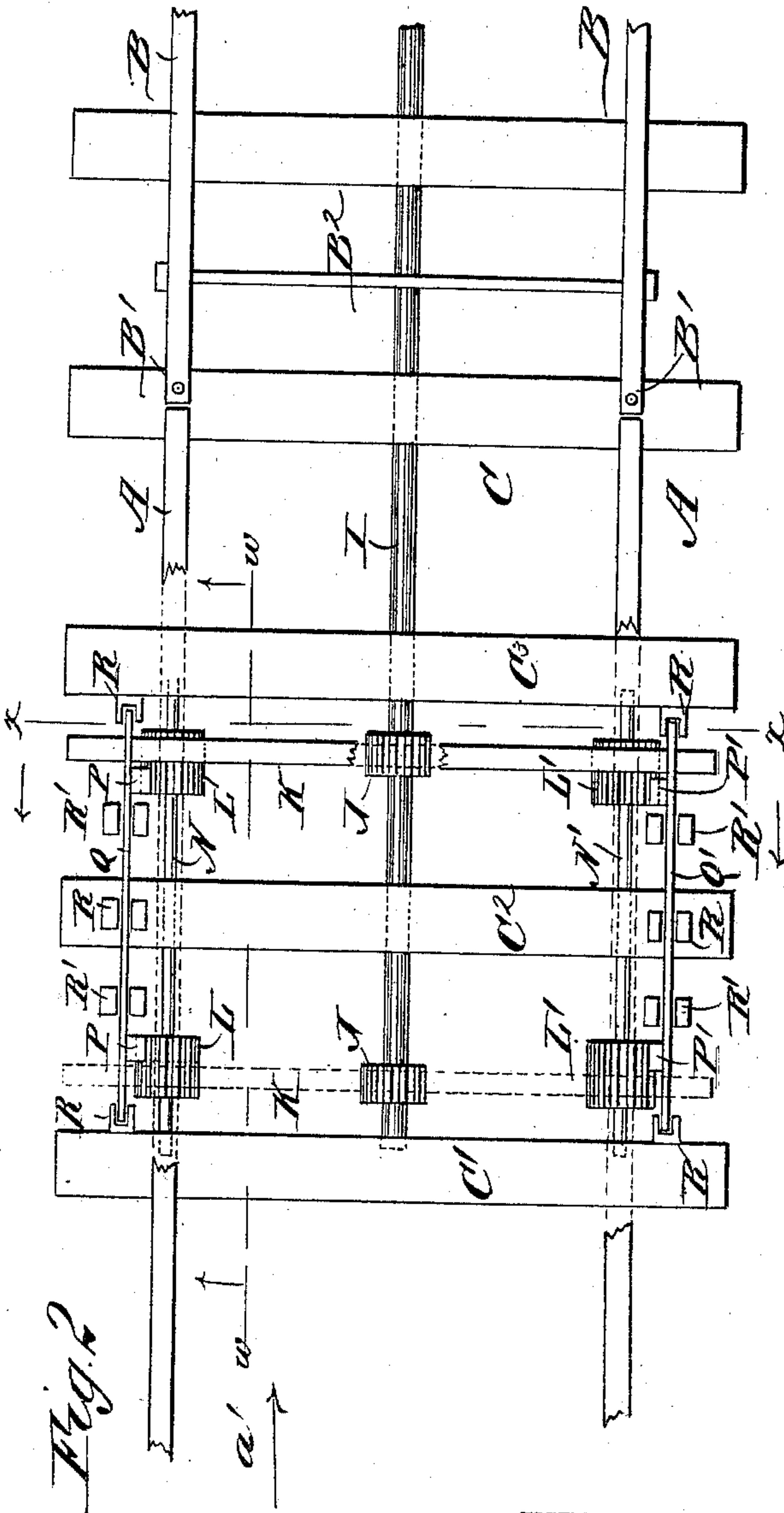
Fig. 1



WITNESSES:

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C. Sedgwick.

Fig. 2



INVENTOR:

BY

J. Hunter
Munn & Co.

ATTORNEYS.

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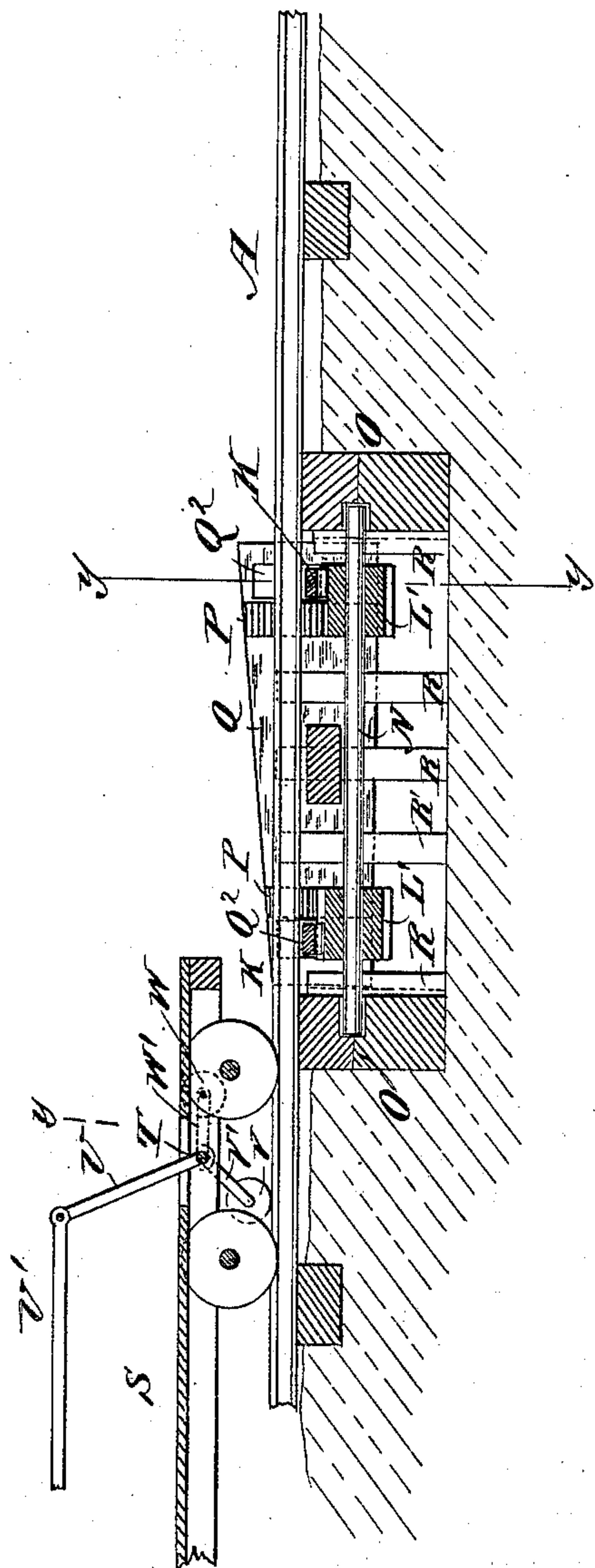
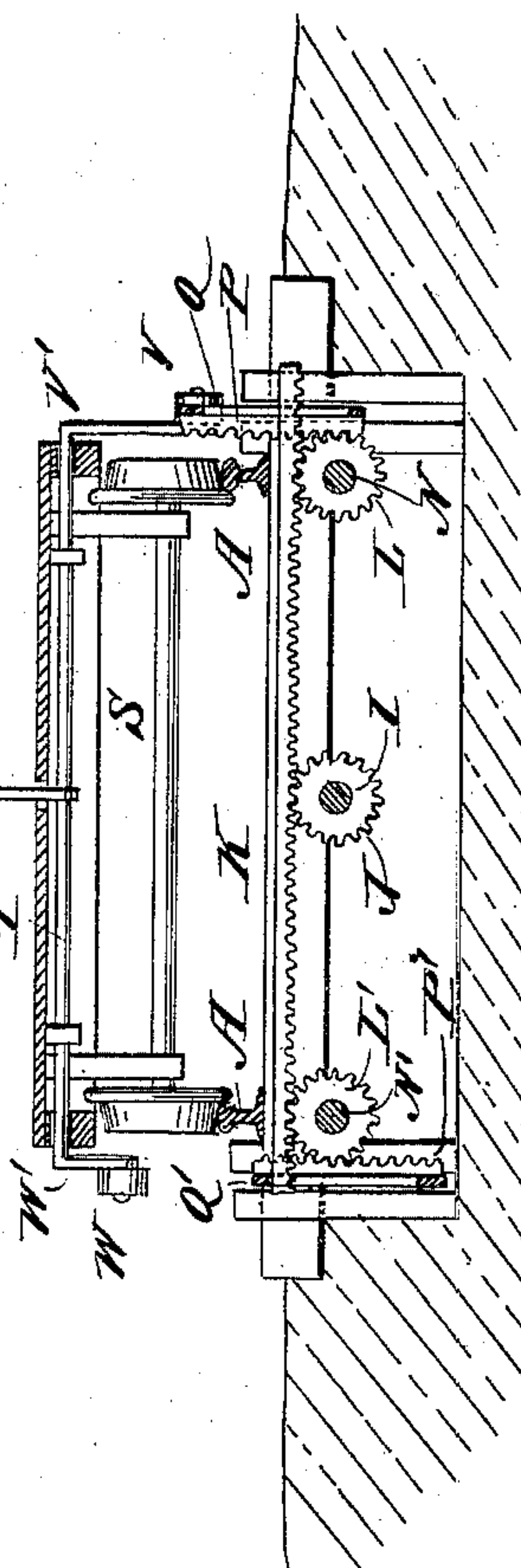


Fig. 4



WITNESSES:

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J. Hunter
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ATTORNEYS.

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Fig 5

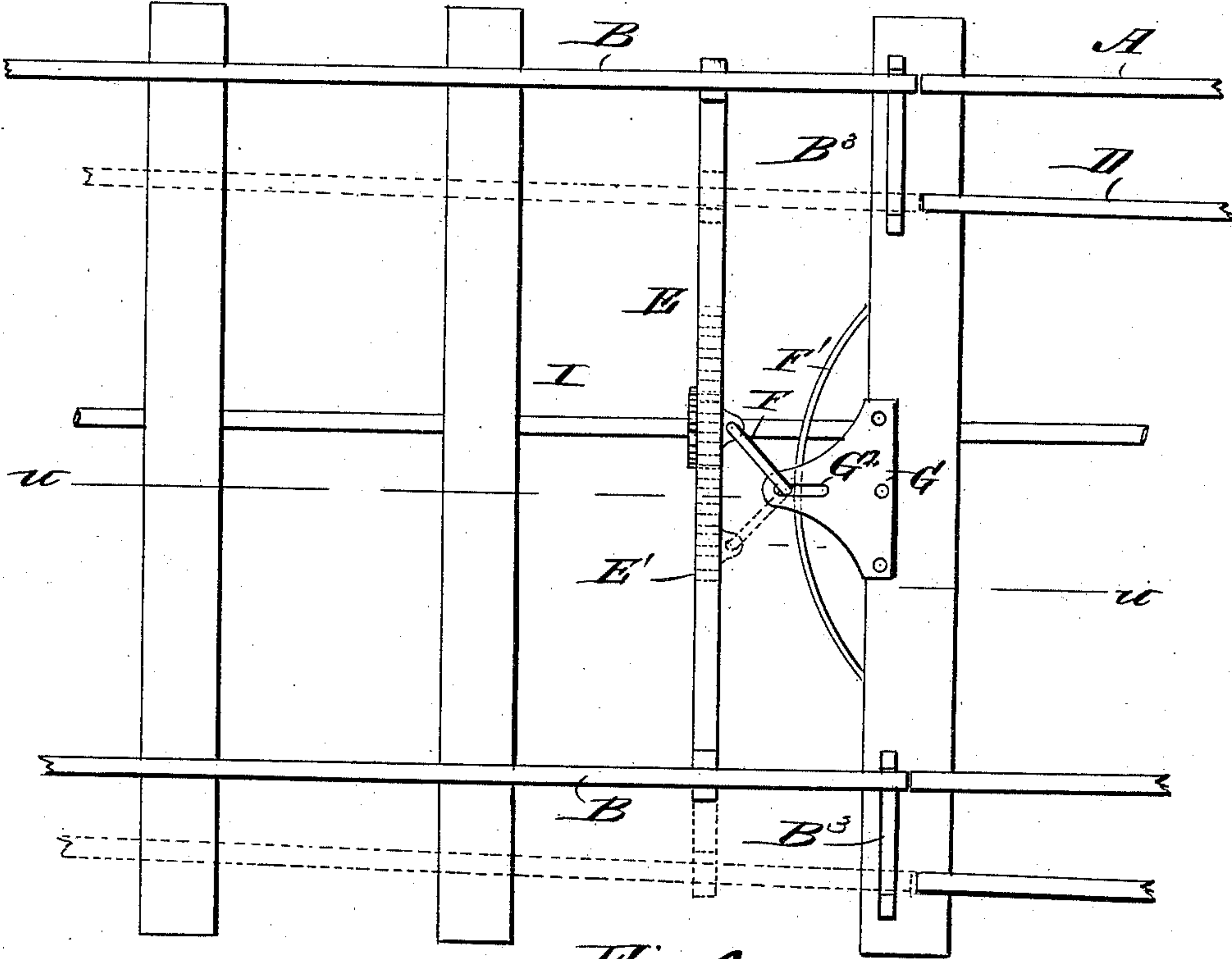


Fig. 6

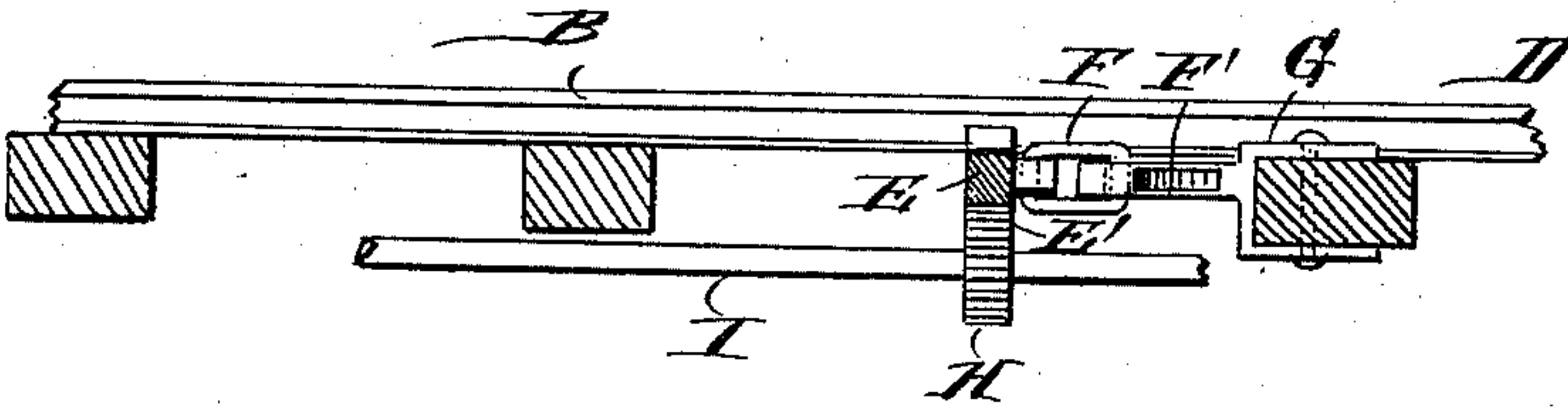
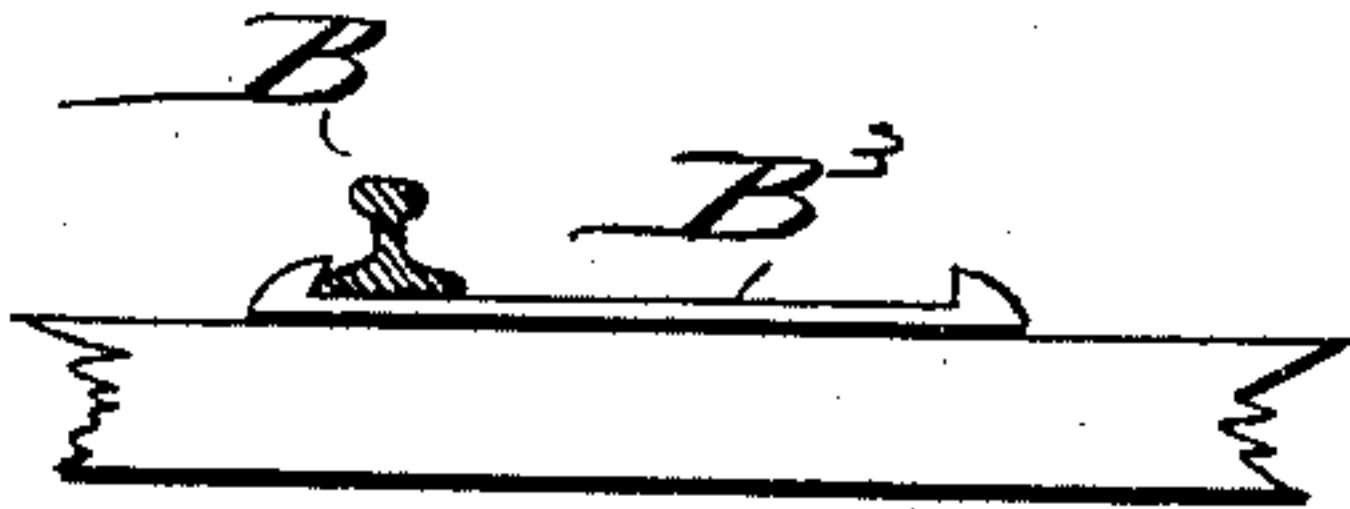


Fig. 2



WITNESSES:

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INVENTOR:

INVENTOR
J. Hunter
BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN HUNTER, OF MAPLE BAY, MINNESOTA.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 396,873, dated January 29, 1889.

Application filed March 7, 1888. Serial No. 266,412. (No model.)

To all whom it may concern:

Be it known that I, JOHN HUNTER, of Maple Bay, in the county of Polk and State of Minnesota, have invented a new and Improved Railroad-Switch, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved railroad-switch, which is very simple and durable in construction, and is automatically operated by the engineer from the cab of the locomotive.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improvement. Fig. 2 is an enlarged plan view of part of the same with parts broken out. Fig. 3 is a longitudinal sectional elevation of the same on the line *u u* of Fig. 2. Fig. 4 is a transverse sectional elevation of the same on the line *y y* of Fig. 3, and Fig. 5 is an enlarged plan view of the free end of the switch-rail and connection. Fig. 6 is a sectional side elevation of the same on the lines *u u* of Fig. 5. Fig. 7 is a detail view of the saddle for the switch-rails.

Between the rails *A A* of the main track are placed the switch-rails *B B*, each of which is pivoted at one end at *B'* to the railroad-tie *C*, and the free ends of said rails *B B* are adapted to engage the rails *D D* of the side track. The switch-rails *B B* are connected with each other by suitable stays, *B²*, so as to insure a uniform movement of the said switch-rails when moving from the main-track rails *A* to the side rails, *D*. The free ends of the switch-rails *B B* are held to slide on suitable saddles, *B³*, (shown in Figs. 5 and 7,) and serving to limit the movement of the switch-rails.

On the switch-rails *B*, near their free ends, is secured a transverse rod, *E*, adapted to be connected at one end with a switch-block of any approved construction. In the middle of the rod *E*, between the switch-rails *B B*, is pivotally connected a link, *F*, held to slide with its other end in a longitudinal slot, *G²*,

formed on a keeper, *G*, secured on the railroad-tie *G'*. Said link *F* swings with the side-wise movement of the rod *E* when the switch-rails *B B* are changed from the main rails *A* to the side rails, *D*. A spring, *F'*, presses against the inner end of the link *F*, so as to hold the said link *F* in a locked position, and when the switch-rails *B B* are shifted from one side to the other then the link *F*, dividing one-half of the stroke, compresses the spring *F'*, which then assists the movement of the switch-rails during the last half-stroke in the same manner as it resisted the movement of the switch-rails in the first half-stroke. The link *F* thus changes the direction of the pressure of the spring *F'* and transmits the pressure through the rod *E* to the movable switch-rails, thereby holding the latter in place.

On the under side of the rod *E* and in the middle between the rails *B B* is formed a rack, *E'*, in which meshes a gear-wheel, *H*, secured to a shaft, *I*, mounted to rotate in suitable bearings secured to the under sides of the railroad-ties.

The shaft *I* extends a suitable distance beyond the pivotal ends *B'* of the rails *B*, and is provided with the gear-wheels *J J*, in the top of which mesh the racks *K K*, extending transversely of the railroad-track in line with the railroad-ties. Each of the racks *K* meshes near its outer ends into the gear-wheels *L' L'*, secured to the shafts *N N'*, respectively, mounted in suitable bearings, *O*, located below the ties of the railroad-track. The gear-wheels *L L* and *L' L'* are sufficiently wide to permit the vertical racks *P P* and *P' P'* to engage parts of them, as shown in Fig. 2. The said racks *P P* and *P' P'* extend vertically, and are secured to the plates *Q* and *Q'*, respectively, mounted to slide in suitable bearings, *R*, secured to the railroad-ties *C'*, *C²*, and *C³*. Additional bearings and guides *R'* may be placed between the bearings *R* and driven into the ground or otherwise supported. The plates *Q* and *Q'* extend on the outside of the main-track rails *A A*, and are slightly inclined at their upper edges, extending with the raised parts toward the switch-rails *B*. The plates *Q* and *Q'* are provided with slots *Q²*, through which pass the outer ends of the racks *K K*.

The plates Q and Q' are so arranged in relation to each other that when one is in its uppermost position the other is down, and vice versa.

5 Near the front end of the car or locomotive S, adapted to travel over the railroad-switch, is secured a transverse shaft, T, provided with an arm, U, connected by a link, U', with the cab of the locomotive, so that the engineer can
10 turn the said shaft T. On the ends of the latter are secured the arms V' and W', carrying, respectively, the rollers V and W, adapted to operate on the inclined top edges of the plates Q and Q'. The arms V' and W' are so ar-
15 ranged in relation to each other that when one wheel is in its uppermost position the other wheel is down in its lowest position, and vice versa; but both wheels may be raised to be out of contact with either plate. The shaft I
20 is also extended in an opposite direction and connected with a device, as above described, so that the switch-rails are operated on by a train coming in either direction.

The operation is as follows: In the position
25 shown in Fig. 1 the switch-rails B make the main track A continuous; but when the switch-rails are in the position shown in dotted lines in the said figure they connect with the side rails, D. The plate Q is then in its
30 uppermost position and the other plate, Q', is in its lowermost position. Now, when a train arrives in the direction of the arrow a' and the engineer desires to go on the main track A A, he throws the shaft T into the position
35 shown in Fig. 3, so that the roller V is in its lowermost position and engages the top inclined edge of the raised plate Q, the other plate, Q', being in its lowermost position, as above described. When the front end of the
40 locomotive passes over the rails A, near the plates Q and Q', the roller V, now on the top edge of the plate Q, depresses the latter, whereby the racks P engage the gear-wheels L and impart a rotary motion to the latter and
45 to the shaft N, so that the racks K K are moved sidewise, thereby rotating the gear-wheels J J, secured to the shaft I. As the latter is then also rotated, it imparts by means of its gear-wheel H at the opposite
50 end a sidewise sliding motion to the rod E, whereby the rails B B are swung on their pivots B', so as to disconnect them at their free ends from the side rails, D D, and connect them with the ends of the main-track
55 rails A A. The sidewise motion of the rails B is limited by the saddles B³, above described. It will be seen that by the sidewise sliding motion of the racks K K the gear-wheels I' I' are rotated and impart an up-
60 ward sliding motion to the racks P' B', thereby raising the plate Q'. When the next following train arrives in the direction of the arrow a', and the engineer desires to go on the side-track rails D D, he operates the link
65 U' and arm U in such a manner that the shaft T throws the roller W down, and the other roller

consequently rises. When the forward part of the locomotive travels over the rails A, near the plates Q and Q', the roller W en-
70 engages the raised plate Q' and depresses the latter, whereby rotary motion is imparted to the shaft I in an opposite direction from that which it had before, so that the rod E is moved to the right and the switch-rails B are discon-
75 nected from the main rails A and again connected with the ends of the side rails, D D'. The second train thus passes from the main line to the side track.

It will be seen that the engineer in the cab of the locomotive is enabled to operate the
80 switch without stopping his locomotive and without outside help.

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

1. In a railroad-switch, the combination, with the switch-rails pivoted at one end and having a rack connecting their free ends, of a longitudinally-extending rock-shaft having
90 a gear engaging said rack, inclined vertically-movable plates mounted outside of the main rails and connected with said operating-shaft for rocking it in opposite directions, a link pivotally connected with the said rack, a fixed
95 bracket having a slot receiving said link and a spring bearing against the front end of said link.

2. In a railroad-switch, the combination, with two plates having inclined top edges and arranged to slide vertically in opposite di-
100 rections, of vertical racks formed on the said plates, gear-wheels meshing into the said vertical racks, and horizontal transverse racks meshing into the said gear-wheels, so that when one plate is depressed the other rises,
105 substantially as shown and described.

3. In a railroad-switch, the combination, with two plates having inclined top edges and adapted to slide vertically in opposite direc-
110 tions, of vertical racks formed on the said plates, gear-wheels meshing into the said vertical racks, horizontal transverse racks meshing into the said gear-wheels, a second set of gear-wheels meshing into the said horizontal
115 racks, and a shaft carrying the said second set of gear-wheels and connected with the free ends of the pivoted switch-rails, substantially as shown and described.

4. In a railroad-switch, the combination, with two plates having inclined top edges and
120 adapted to slide vertically in opposite directions, being operated from the cab of the locomotive, of vertical racks formed on the said plates, gear-wheels meshing into the said vertical racks, horizontal transverse racks mesh-
125 ing into the said gear-wheels, and a second set of gear-wheels meshing into the said horizontal racks, a shaft carrying the second set of gear-wheels and also provided at its oppo-
130 site end with a gear-wheel, a rod having a rack meshing into the gear-wheel at the end of the said shaft, and pivoted switch-rails carrying

at their free ends said rod having a rack, substantially as shown and described.

5 In a railroad-switch, the combination, with pivoted switch-rails, of a rod secured to the free end of the said pivoted switch-rails, a link connected with the said rod, a keeper in which the said link is pivoted, and a spring

for holding the said link in position, substantially as shown and described.

JNO. HUNTER.

Witnesses:

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H. M. PIERCE.