

J.B. Alexander

N^o 64, 185.

Patented Apr. 30, 1864.

Fig: 1.

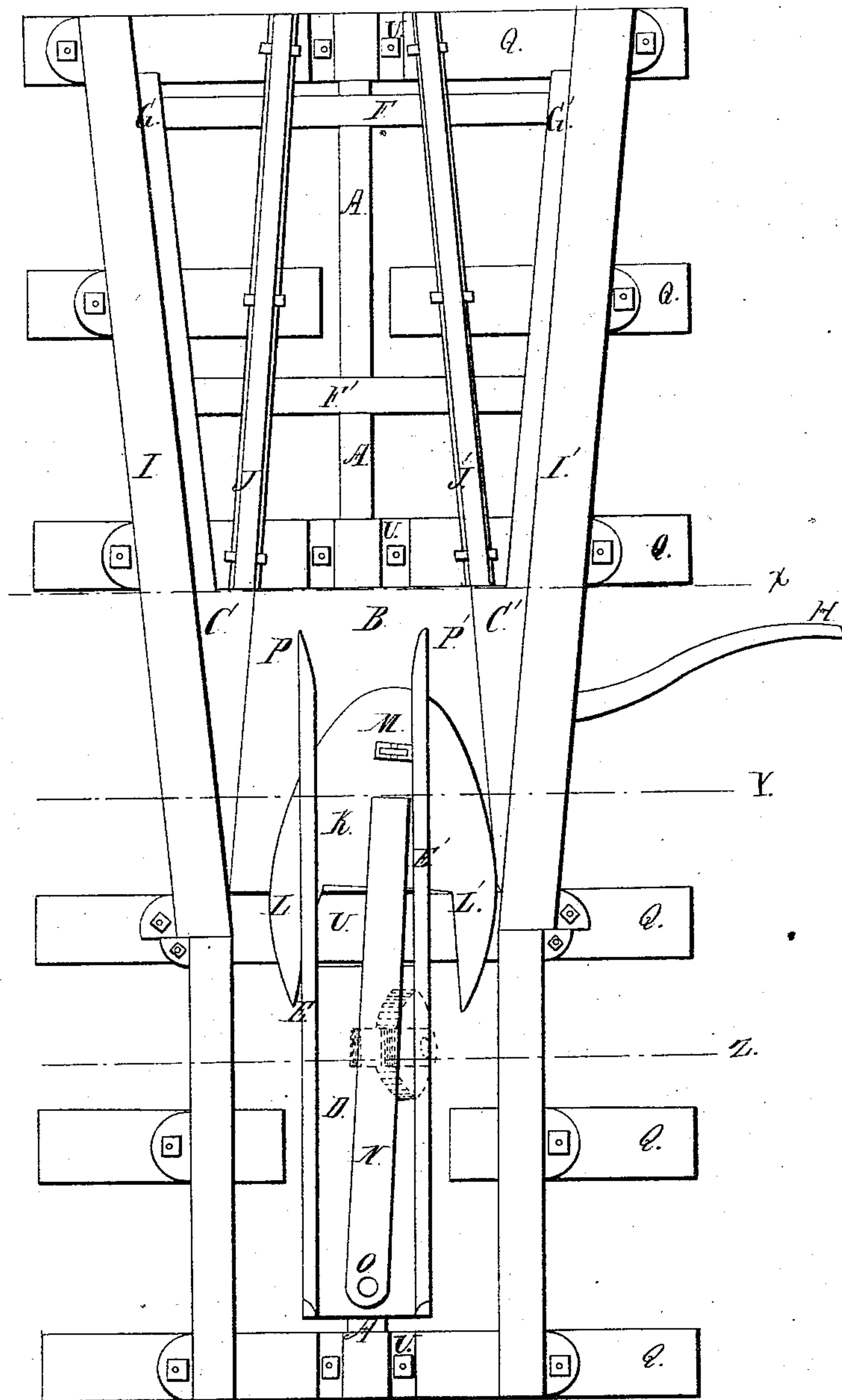


Fig: 8.



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Sheet 2, 3 Sheets.

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Railroad Switch.

N^o 64, 185.

Fig. 2.

Patented Apr. 30, 1864.

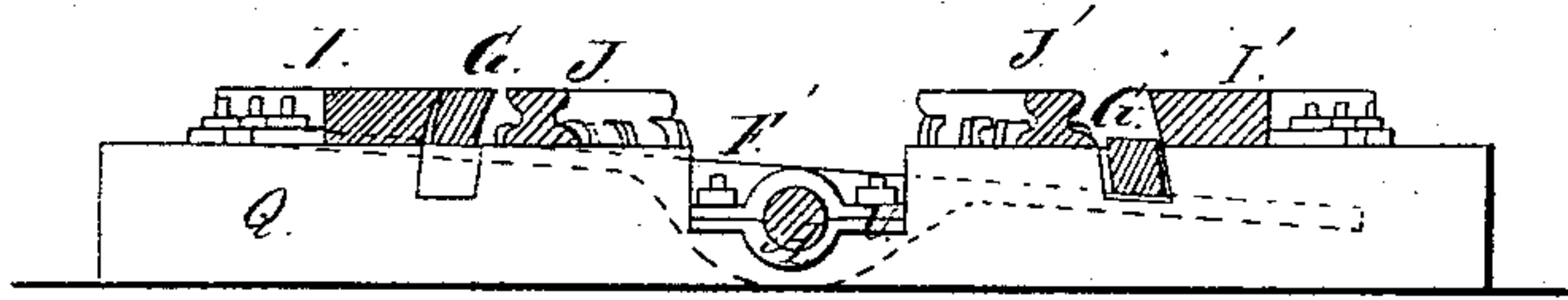


Fig. 3.

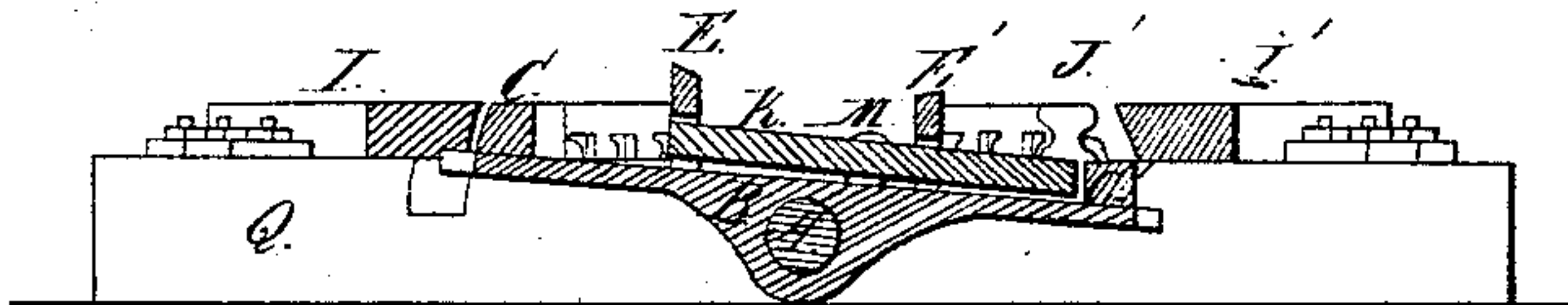


Fig. 4.

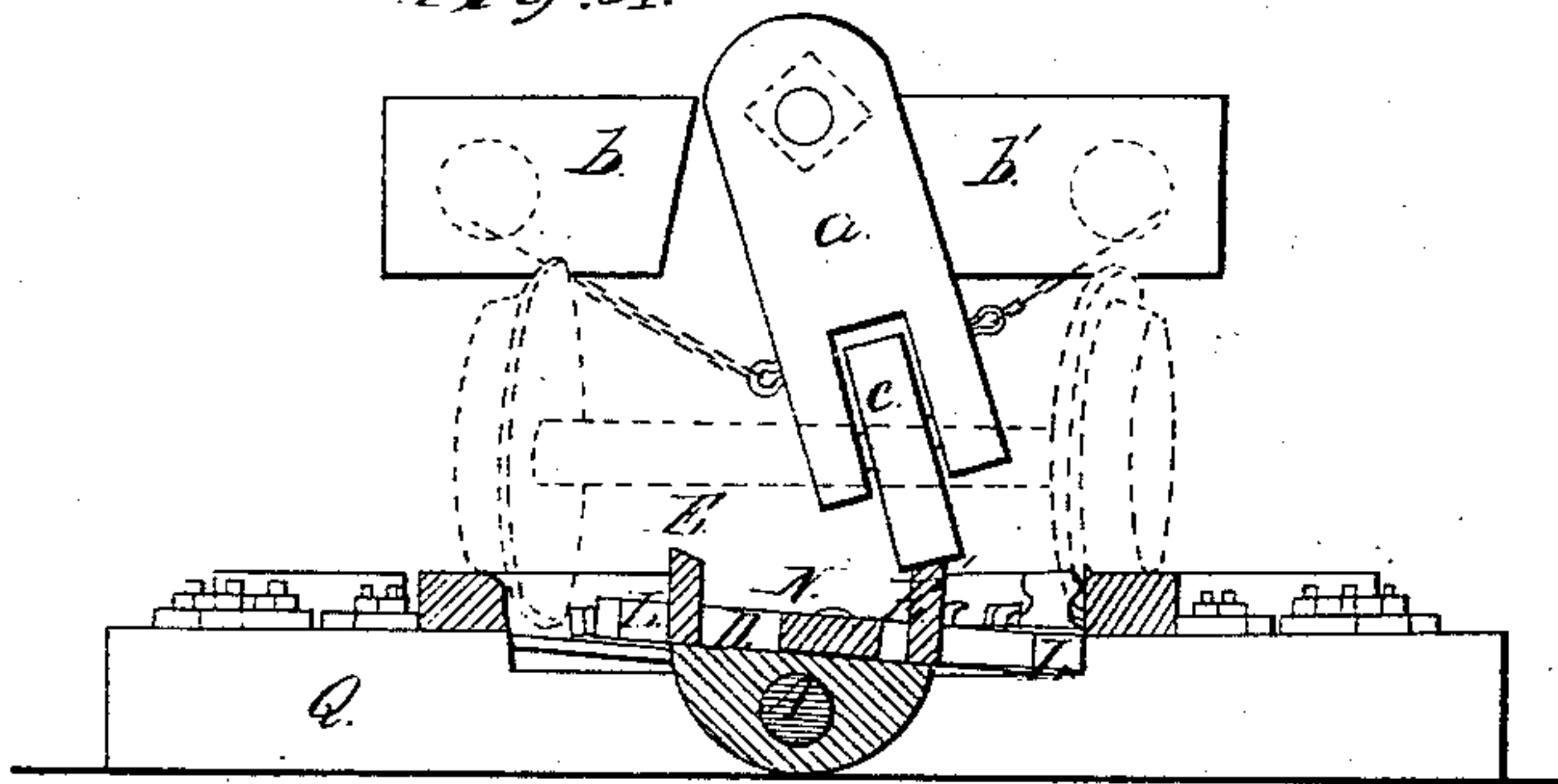


Fig. 5.

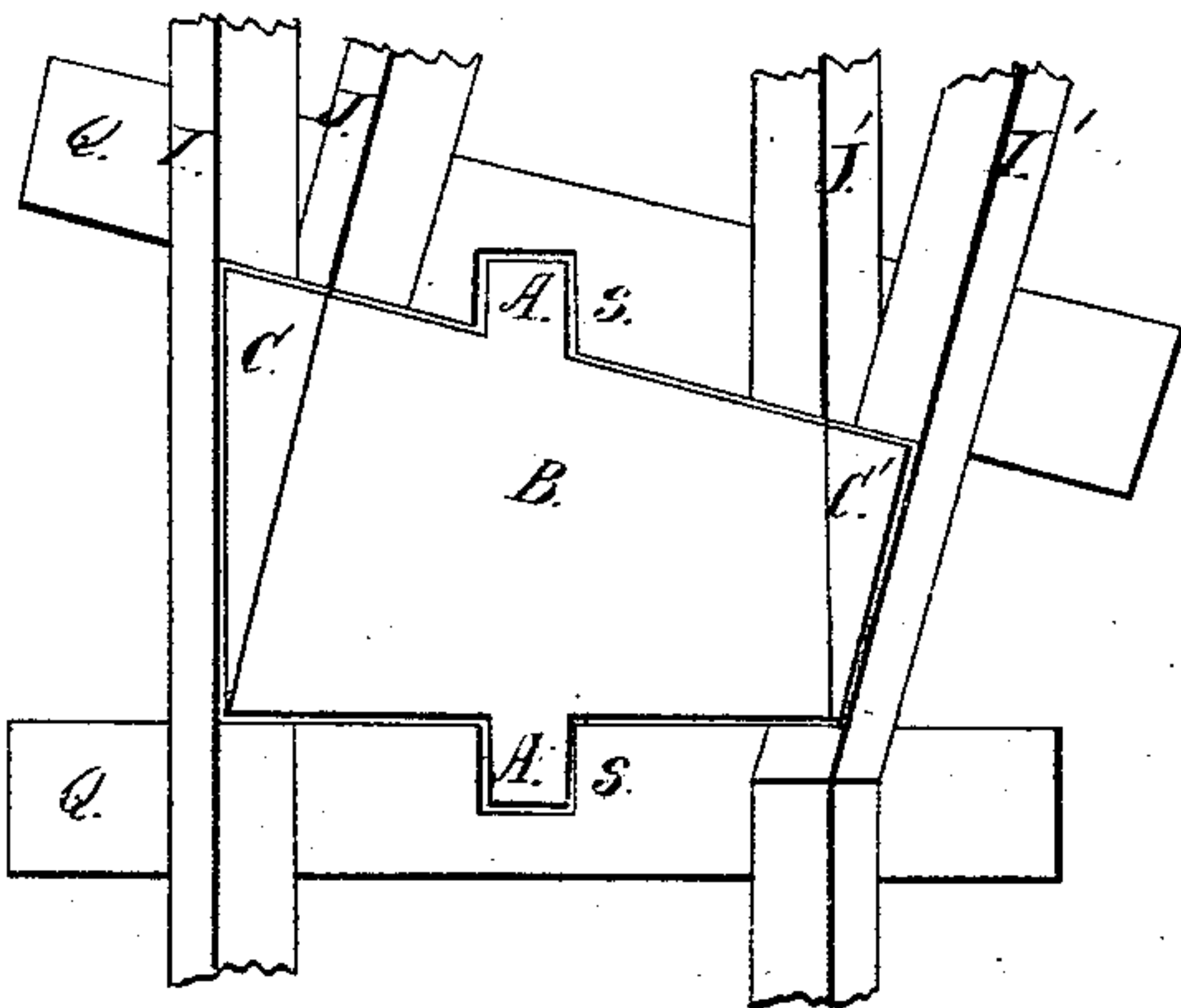
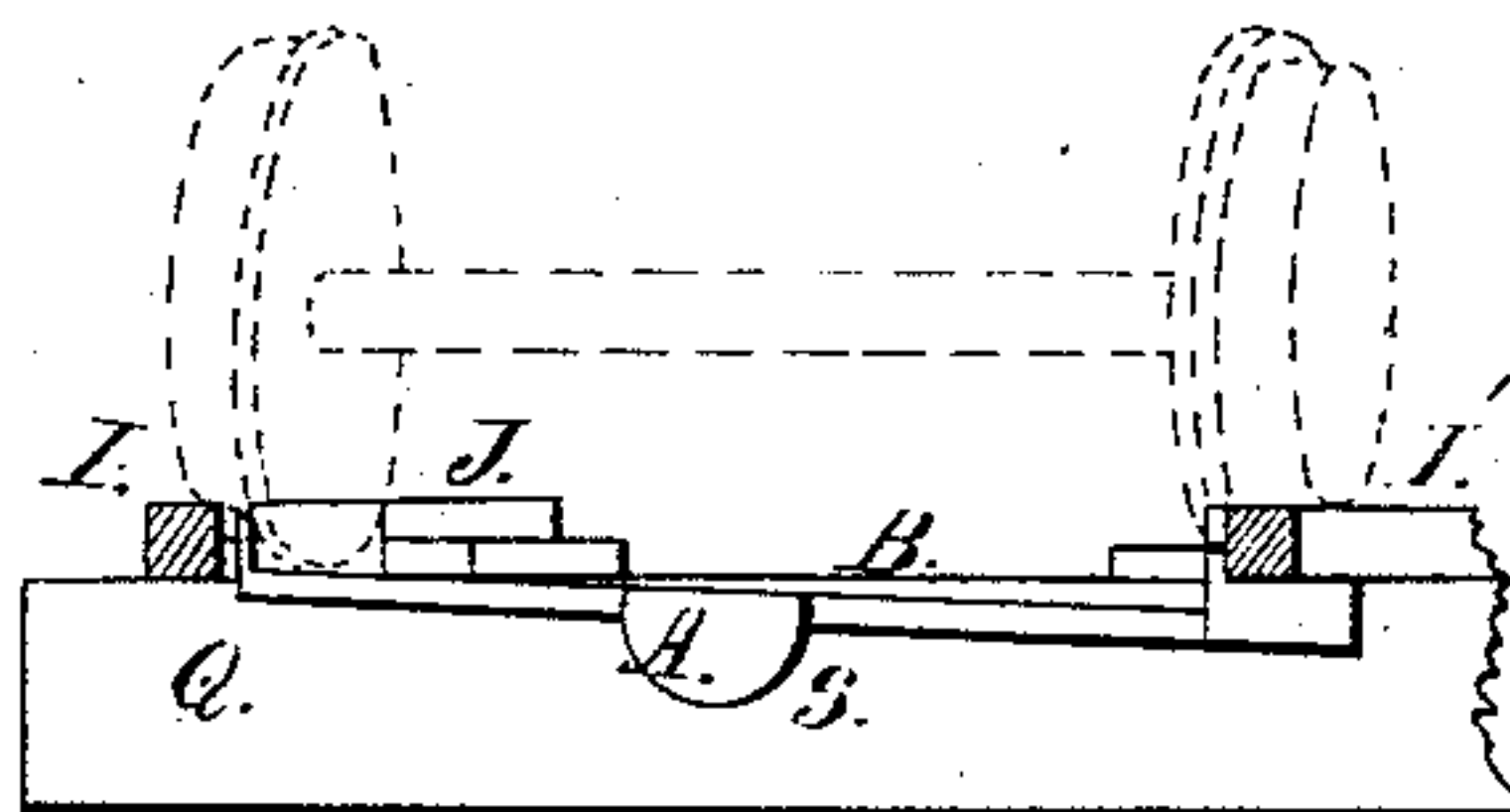


Fig. 7.



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United States Patent Office.

JOSEPH B. ALEXANDER, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO HIMSELF
AND WILLIAM H. FREAR, OF SAME PLACE.

Letters Patent No. 64,185, dated April 30, 1867.

IMPROVED RAILROAD SWITCH.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOSEPH BELL ALEXANDER, of the city and county of Washington, and District of Columbia, have invented certain new and useful improvements in Automatic Railroad Switches, to be used on roads travelled by steam locomotives and those travelled by cars drawn by horses, and that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a plan view of the switch, with the necessary accompanying railroad track.

Figure 2 represents a transverse section through the same at letter X.

Figure 3 represents a transverse section of the same at letter Y.

Figure 4 represents a transverse section of the same at letter Z.

Figure 5 represents, in perspective, a plan view of the switch as modified from fig. 1.

Figure 6 represents a plan view of the same as modified for horse-cars or street railroads.

Figure 7 represents a transverse sectional view of fig. 6.

Figure 8 represents a side view of the depressing-rails E or E', as seen in figs. 1 and 5.

Similar letters of reference where they occur in the several figures denote like parts in all cases.

My invention consists in providing railroads at the junction of any diverging track with an oscillating switch, composed of a single piece or more of iron, so fashioned and combined as to open one track and close the other track alternately, as required, by being caused to rock or oscillate upon a fulcrum lying longitudinally with its centre.

This switch may be operated by hand, by bearing down or lifting either side of it by a suitable lever or levers attached, or it may be operated by steam cars by means of a shifting-roller or wheel, so attached to the head of a locomotive engine and shifted by the hand of the engineer as to roll over the entire length of an inclined projection rising from the bed-plate of the switch, one on the right and the other on the left of the centre piece or fulcrum, thus pressing down one side and elevating the other; or it may be operated by cars drawn by horses simply by the horses making traction to the right or left, as required, in which case the flange of one wheel of the car will press down and pass over and along the top surface of one switch-rail, while the flange of the other wheel will be pressed away and guided by the other switch-rail, which at that moment is elevated, thus causing the car or cars to take the track upon which the traction is made.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

In a line forming about the exact centre between the outside rails I and I', fig. 1, of two diverging tracks, at their junction, I let into the faces of the several cross-ties Q Q Q Q, iron journal-boxes, as seen at U U U U, some before and some beyond the point of junction of the two tracks. In these journal-boxes I lay a shaft of iron of sufficient length, diameter, and strength, as seen at A A A A. Upon or near upon the middle of this shaft I firmly attach, by means of clamps, rivets, screws, keys, or otherwise, a broad, flat plate or bed of iron, B, about the surface square of the road gauge, or, in other words, of a sufficient length and breadth and of sufficient thickness to sustain the greatest weight which would be passed over it. I attach in the same manner to the same shaft A A A A another plate or plane of iron, D, about one-half the width of the plate B. I attach also firmly to the shaft A A A A one or more cross-pieces of iron, F and F'. Upon each extreme of the wings of the bed-plate B I attach firmly by rivets, screws, or otherwise, a switch-rail, of iron, formed in a wedge shape vertically at one end, and in a wedge shape horizontally at the other end, (see C and G, and C' and G'.) These switch-rails, when one or the other is elevated, must agree in thickness with the neighboring rails I and J or I' and J', as far as the length of the bed-plate B; thence thinning away to the points G or G', and thus forming inclined planes to be played upon by the flanges of the car-wheels which may pass over them. The switch-rails C and G, and C' and G' may be bevelled on their outer sides so as to play freely against a square main rail, or the main rails may be bevelled on their inner sides, as seen at I and I', figs. 3 and 4, to accommodate the circular line which the wings of the switch describe when moved. If the shaft of this switch is properly inserted into the cross-ties Q Q Q Q by the journal-boxes, as seen at U U U U, fig. 1, or the notches, as

seen at S S S S, fig. 5, it may be operated by the hand-lever H attached to the bed-plate B, and passing out under the main rail I' by raising or depressing it. If depressed, the switch-rail C' and G' sinks, opening the passage between the main rails I' and J'; consequently the switch-rail C and G rises and closes the passage between the main rails I and J. Thus the right-hand track will be open for the passage of the train. If the lever H be raised the reverse will be the result; C G will sink, and C' G' will rise, thus opening the left-hand track by the simple oscillation of the whole body of the switch. In this state the switch will oscillate immediately when touched by the flanges of the car-wheels in favor of the direction of the traction, as with horse-cars, which will go to the right or left as the horses go. A modification of this switch for street railroads may be seen in figs. 6 and 7. As cars propelled by steam make straightforward traction, it is necessary to have what I shall term a keeper, which consists of an anchor-shaped cam, of iron, K, the leg N of which is attached to the plate D at O by a socket-joint, screw-bolt, or otherwise, so as to form a strong and perfect joint with an easy play. The wings L and L' being sufficiently thick and high when elevated to form a plane with the surfaces of the switch-rails C G and C' G', and of the main rails I and I', and so shaped that the one which is elevated will be pushed away by the flange of a passing car-wheel, thus casting the other, as seen at L', under the flange of the opposite car-wheel, which rolling upon it holds down that side of the switch, causing the car to take the direction of the open track by the elevation of the switch-rail C G. That this anchor-shaped cam K (which I make in its widest part across the wings about two inches narrower than the space between the switch-rails) may move quick and freely of its own weight when the switch is turned before reached by the flanges of the car-wheels, I place in a slot formed in it at M a strong friction-roller of iron, which keeps its under surface from contact with the bed-plate B, upon which it rolls, thus causing said keeper to fly-like a shuttle instantly and always to the lower side with each oscillation of the switch.

That this switch may be at the command of the engineer on the train, and operated by the locomotive engine, I attach firmly to the wings of the plate D two iron rails E and E', slightly and gradually rising higher as they approach the bed-plate B, on reaching which they continue horizontal, passing loosely over the keeper K, which plays freely under them, and then bending slightly outward from each other have their ends attached firmly on the bed-plate B at P and P'. To operate this arrangement with ease and certainty I attach firmly and centrally by a strong bolt or otherwise to the fore part of the fore track of the locomotive engine a swinging arm of wood or iron, which may be drawn to the right or left by chains, rods, levers, or any other suitable device. In a slot in the lower end of this arm, as seen at a, fig. 4, I place a solid iron wheel or roller, c, which will play upon either the depressing rail E or upon E' when drawn either to the right or left by the engineer, who controls it by levers convenient to the hand inside of the cab of the engine or engineer's stand. The arm being drawn right or left to the braces b or b', the roller c cannot fail to play upon the whole length of either the rail E or the rail E', thus setting the switch for either the right or left-hand tracks, as the case may be. At the same moment the keeper K flies over and receives the flanges of the car-wheels upon its lowered wing, thus firmly locking the switch. By referring to fig. 5 a plan view, in perspective, of the same switch as above described, but more simple and stronger in construction, will be seen, and that plan of construction which I should most prefer. In this modification nearly the whole body of the switch, perhaps all, might be made in one piece of casting, or all that part embraced in the letters A A A A B D F and F' might be made of one piece, and the switch-rails C G and C' G', and the depressing-rails E and E' might be added after if required to be of wrought iron. In this modification I make the shaft A A A A flat on the top surface and either round or V-shaped on the lower side, with correspondingly shaped notches cut into the cross-ties, as seen at S S S S S, as bearings for the shaft, instead of the iron journal-boxes, as seen at U U U U, fig. 1. The notches should be a little wider at the top than the width of the shaft, so as to allow sufficient room for free oscillation.

It will be perceived by examination that this is a perfect safety switch, it being impossible to so arrange it as to throw a train or car from the track. The train must go to the right or left as the engineer throws the switch, and if he should neglect to use his roller for that purpose the train would take that track which happened to be open at that moment. All trains coming into the main track from either right or left set the switch by the flanges of their car-wheels rolling on and depressing either the sloping rail G C or the sloping rail G' C', whichever road the train happened to be upon. In case the switch should be purposely obstructed so as to prevent its oscillation, the trains coming into the main track will ride over the elevated switch-rail and pass on free from danger or accident. Should a train arrive at an obstructed switch, so that the roller on the engine should fail to change the switch, the roller will ride over and the train will only take a different track from that intended, but will pass on safely.

What I claim as new, and as of my invention, is—

The construction and arrangement of the switch-rails C G and C' G', with the arms or the wings of a plate of iron or wood turning on a central fulcrum in such a manner as to oscillate and open one track while it closes the other, as described and for the purpose set forth.

I also claim the anchor-shaped cam K, with the wings L and L', and the friction-roller M, as described and for the purpose set forth.

I also claim, in combination with the above, the depressing-rails E and E' so constructed and arranged as to be operated upon by the shifting-roller or wheel c attached to the locomotive engine as described and for the purpose set forth.

J. B. ALEXANDER.

Witnesses:

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C. OURAND.