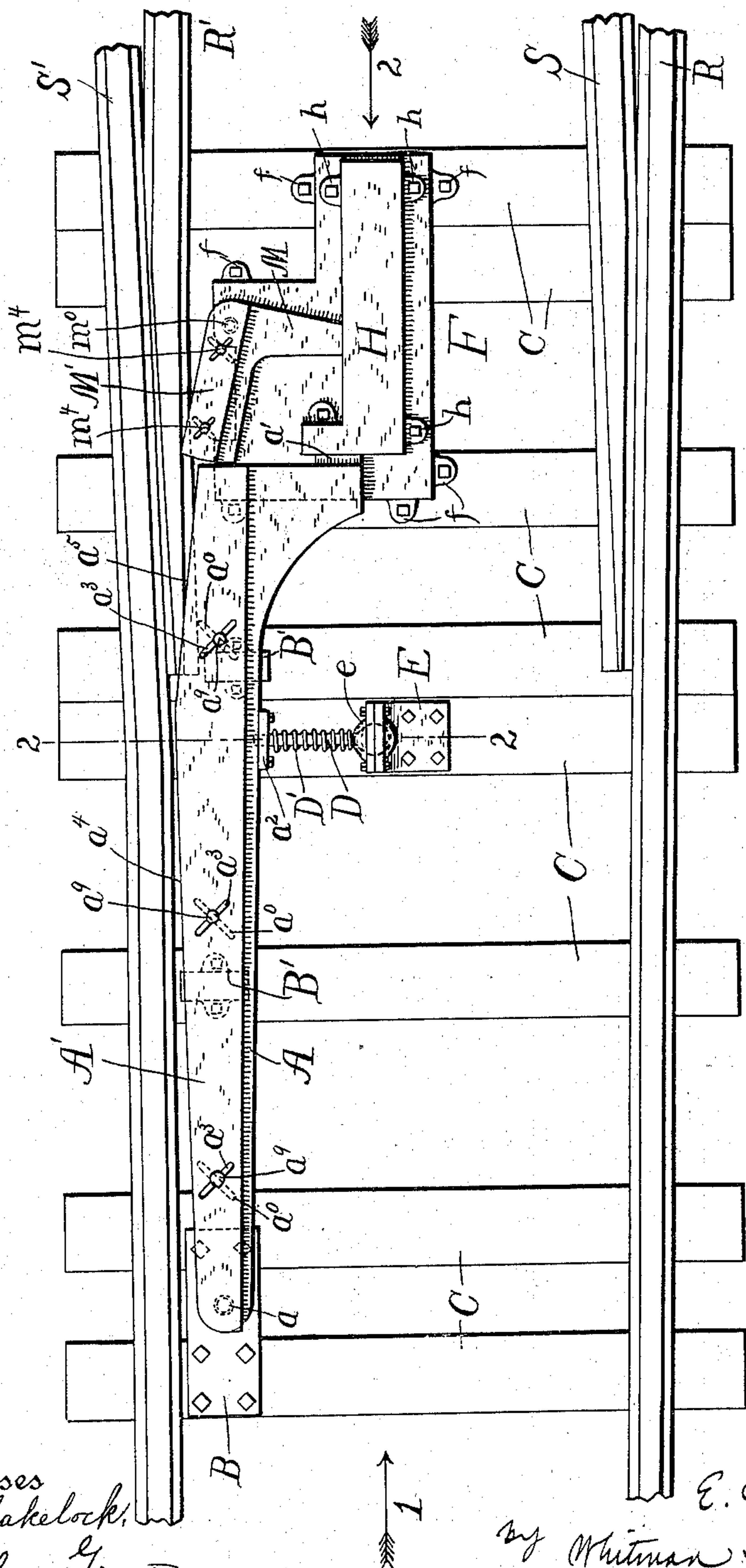


2 Sheets—Sheet 1.

No. 565,755.

Patented Aug. 11, 1896.

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E. L. KERN.
RAILROAD SWITCH.

No. 565,755.

Patented Aug. 11, 1896.

FIG. 2.

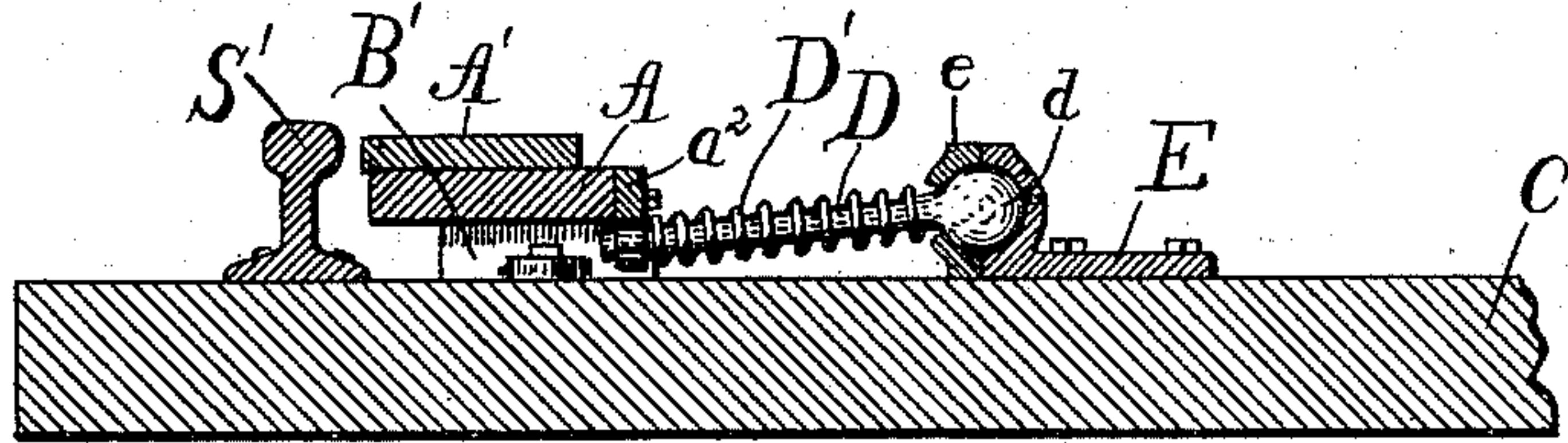


FIG. 3.

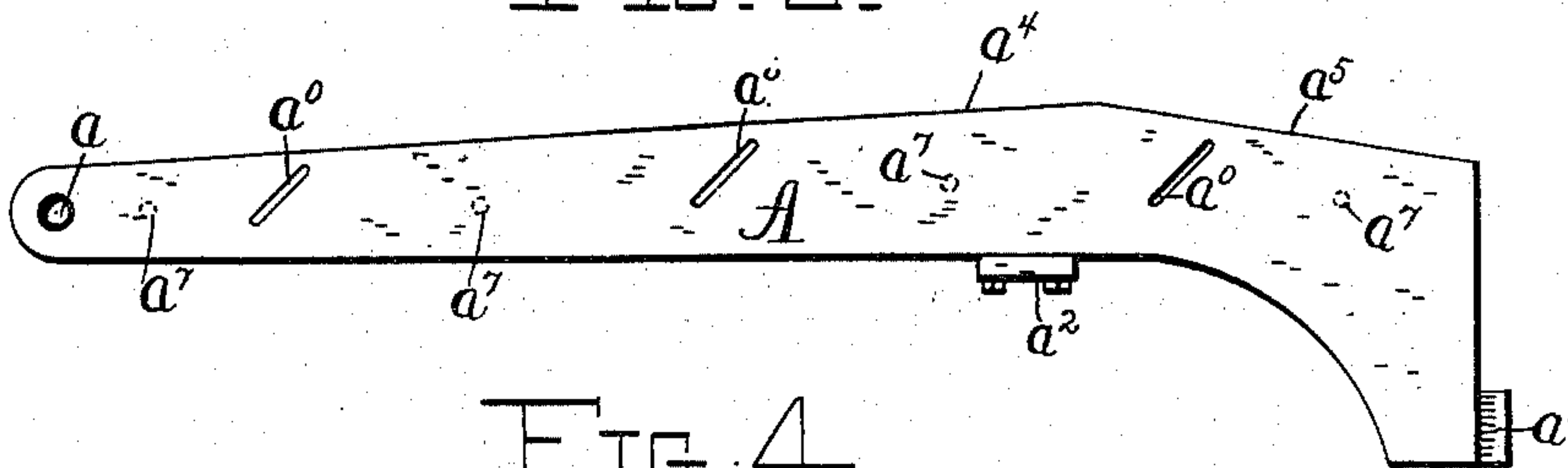


FIG. 4.

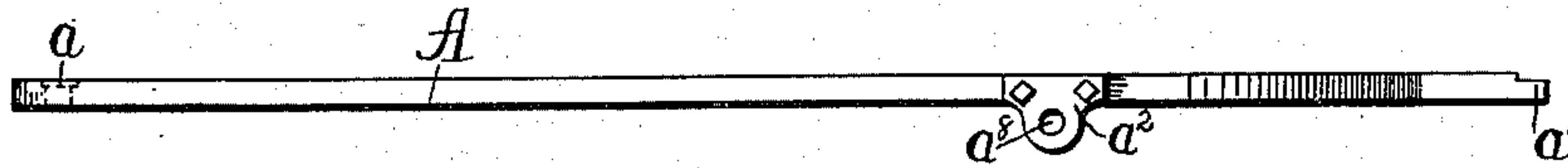


FIG. 5.

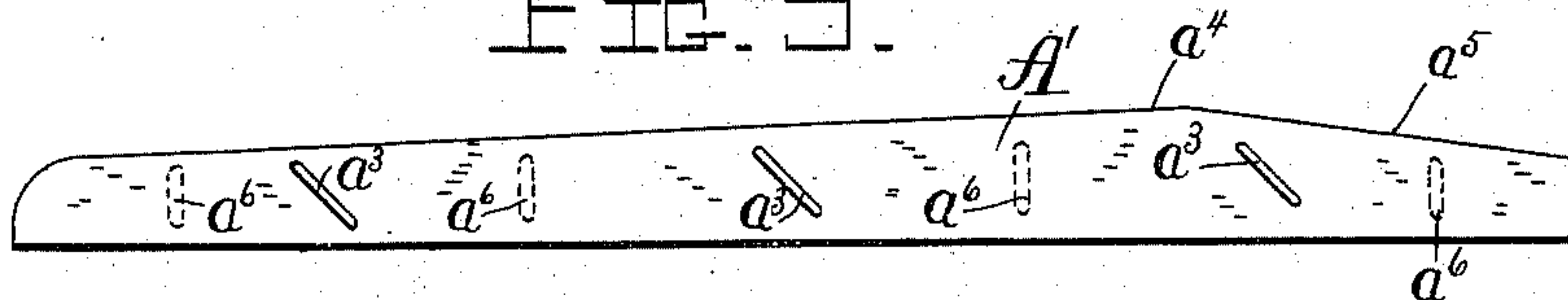
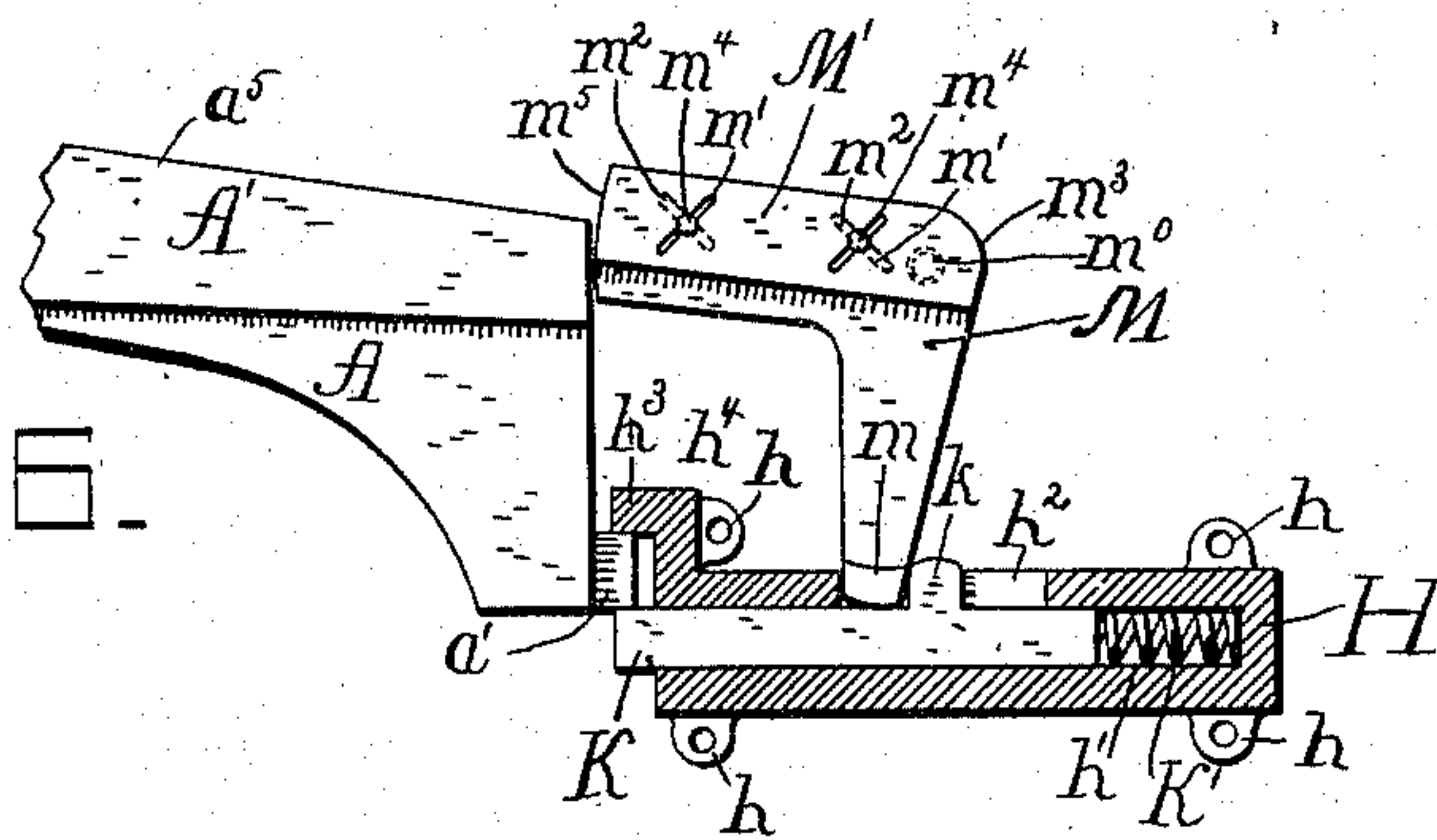


FIG. 6.



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ETHELBERT L. KERN, OF DENVER, COLORADO.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 565,755, dated August 11, 1896.

Application filed December 23, 1895. Serial No. 573,174. (No model.)

To all whom it may concern:

Be it known that I, ETHELBERT L. KERN, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Railroad-Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in railway-switches, and especially in that form of switch intended for use on Y's in the track where it is intended that trains coming in one direction shall always follow the main track, while trains coming from the opposite direction shall be switched off onto a siding.

The said invention will be understood by reference to the accompanying drawings, in which the same parts are indicated by the same letters throughout the several views.

Figure 1 is a plan view of a Y in a railroad, showing the switch adapted to permit trains to follow the main track or to travel from the siding to a main track in the direction of the arrow 2, but to be switched off to the siding when coming from the direction indicated by the arrow 1. Fig. 2 is an enlarged detail view representing a section along the line 2 2 of Fig. 1 and looking to the right. Fig. 3 is a plan view of one of the pivoted switch-arms. Fig. 4 is a side elevation of the device shown in Fig. 3 and looking toward the top of the sheet of drawings. Fig. 5 is a plan view of a detachable wear-plate adjustably connected to the top of the switch-arm; and Fig. 6 is a plan view, partly in section, of the locking and releasing mechanism whereby the said switch-arm is locked or released.

A represents a pivoted switch-arm, which is pivoted, as at a , on the bed-plate B, and travels over the plates B', fast to the sleepers C. This switch-arm A is provided with a locking-lug a' and with diagonal slots a^0 . The outer edge of this switch-arm is in the shape of a double inclined plane, as shown at a^4 and a^5 .

Adjustably connected to the top of the switch-arm A is a wire plate A', which is provided with inclined slots a^3 , through which

slots and the slots a^0 of the switch-arm pass the bolts a^9 , whereby the said plate a' is adjustably connected to the switch-arm A. By having these slots a^3 and a^0 cross each other at approximately right angles the relative position of the wear-plate to the switch-arm may be readily and rapidly adjusted, and any pressure brought to bear on the outer edge of the wear-plate will tend to press the bolts at an angle to the slot and so increase the holding effect of the said bolts. Instead of having these slots at approximately right angles, as shown, the bolts a^9 may pass through bolt-holes a^7 , as shown in dotted lines in Fig. 3, and pass through elongated slots a^6 , as shown in dotted lines in Fig. 5, whereby the required degree of adjustment may be given to the said wear-plates. The function of these wear-plates is to take up the wear of the wheels of the cars passing the Y and to allow the requisite adjustment to the switch-arms or the means for operating the same. These switch-arms A are provided with a guide lug or plate a^2 , perforated as at a^8 , to admit the passage therethrough of the bar D, which bar has a ball-head d pivoted in the socket-plate E and held in place by the collar e . Between this collar and the plate a^2 is a coil-spring D', which normally tends to press the switch-arm A outward.

F represents a bed-plate, secured to the sleepers C by means of the lug f with bolts therethrough, and on this bed-plate F the free end of the pivoted switch-arm A travels, while there is also mounted thereon the latch K, mounted in the latch-case H and the bell-crank lever M. This latch-case H is provided with lugs or ears h , bolted down to the bed-plate F, and is provided with a longitudinal chamber h' to receive the latch K and the operating-spring K', and with an opening h^2 to receive the lug k of the latch, as also with the recess h^4 to receive the locking-lug a' of the switch-arm A, and with a projection h^3 , adapted to limit the outward travel of said locking-lugs a' , the inward travel being normally limited by the latch K, as shown in Fig. 6.

The bell-crank lever M is pivoted at m^0 and has its inner arm projecting into the slot h^2 (see Fig. 6) and bearing against the lug k on the latch K. The outer arm of this bell-

crank lever M terminates in a face m^5 , which passes freely in front of the end of the switch-arm A, while the said portion of the bell-crank lever is provided with a wear-plate M', having inclined slots m' above similar inclined slots m^2 in the bell-crank lever. These slots m' and m^2 are approximately at right angles to each other, and the bolts m^4 , passing through these slots, render possible an extremely nice adjustment of the wear-plate M' relative to the bell-crank lever M. Instead of having these slots crossing each other, as shown, bolt-holes, such as a^7 , (see Fig. 3,) and elongated slots, such as a^6 , (see Fig. 5,) may be adopted to give the required degree of adjustment to the wear-plate, if desired.

Both the bell-crank lever M and the wear-plate M' are rounded, as shown at m^3 .

R and R' represent the main rails of the track, and S and S' represent the siding, all being fixed rails.

It will be seen from an inspection of Fig. 1 that a train coming in the direction of the arrow 1 will be deflected by the wear-plate A' onto the siding, and that the wear-plate A' and the switch-arm A, supporting the same, will be locked in position by means of the locking-lug a' and the latch K, as shown in Figs. 1 and 6. Thus it will be seen that a train coming from the direction of the arrow 1 will always pass onto the siding. Should, however, the train be coming in the direction of the arrow 2, whether coming from the siding or from the main line, it will always continue on the main line without being derailed, no matter how the switch may be set. Thus suppose the train be coming from the siding in the direction of the arrow 2. It will be obvious from an inspection of Fig. 1 that the said train will continue on, passing from the siding to the main track without being derailed. Again, suppose the train be coming along the main track R and R' in the direction of the arrow 2. The wheels of the locomotive, or of the rear car if the train be moving backward, will strike the outer arm of the bell-crank lever M, swinging the same about the pivot m^0 and forcing the latch K back against the action of the spring K'. This will release the locking-lug a' of the switch-arm A and the wheels of the train will strike the inclined face a^5 of the switch-arm or wear-plate A', as occasion may be, forcing the said switch-arm back against the action of the spring D' and allowing the flanges of the wheels to pass between the said wear-plate or switch-arm and the rail S', thus insuring the safe continuance of the train on the main track.

Thus it will be seen that a train coming from one direction will be switched onto the siding and a train coming from the other direction will pass onto or continue on the main line without any attention from the switchman, the operation of the switch being automatic.

While I have shown wear-plates A', with

means for adjusting the same, these are not absolutely necessary, as the switch-arms A may be made of steel or other tough material capable of standing the wear incident to the passage of a great many trains, and if the said switch-arms do wear they may be replaced by others when necessary. In ordinary practice, however, especially where there are many trains passing, it will be preferable to have adjustable steel wear-plates to take up the wear of the various wheels.

It will be seen by an inspection of Fig. 6 that the locking-lugs a' will pass in front of and hold the latch K back until the pressure on the switch-arm A or wear-plate A', due to the flanges of the passing wheels, is removed, when the spring D' will force the switch-arm A outward again, allowing the locking-lug a' to pass clear of the end of the latch K, when the spring K' will force said latch K forward again, locking the switch-arm A, the parts then being in the position shown in Fig. 6.

It will be obvious that various modifications in the herein-described apparatus might be made which could be used without departing from the spirit of my invention.

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

1. The combination with the fixed main and siding rails, of a pivoted switch-arm, a spring normally pressing the same outward, a stop limiting the outward travel of said switch-arm and means for locking the switch-arm against the pressure of wheels coming from one direction, and for releasing the same by means of the pressure of wheels coming from the opposite direction, substantially as described.

2. The combination with the fixed main and siding rails, of a pivoted switch-arm, a ball-headed bar passing through a guide in said switch-arm, a socket-plate holding the ball-head of said bar, a spring interposed between said socket-plate and said switch-arm and normally tending to press said switch-arm outward, a stop limiting the outward travel of said switch-arm, and means for locking the said switch-arm against the pressure of wheels coming from one direction, and for releasing the same by means of the pressure of wheels coming from the opposite direction, substantially as described.

3. The combination with the fixed main and siding rails of a pivoted switch-arm having inclined slots therein, a wear-plate mounted over said switch-arm and having inclined slots crossing the slots in said switch-arm, bolts passing through both of said slots and holding said wear-plate on said switch-arm, and means for locking the said switch-arm against the pressure of wheels coming from one direction, and for releasing the same by means of the pressure of wheels coming from the opposite direction, substantially as described.

4. In an apparatus of the character described, the combination with a switch-arm

having inclined slots therein, of a wear-plate mounted over said switch-arms and having inclined slots crossing the slots in said switch-arm, with bolts passing through both of said slots and holding said wear-plates on said switch-arm, substantially as described.

5. The combination with the fixed main and siding rails of a pivoted switch-arm, a spring normally pressing the same outward, a stop limiting the outward travel of said switch-arm, a spring-operated latch adapted to lock said switch-arm in position, and a bell-crank lever adapted to be struck by the wheels of an approaching train and to withdraw said latch and release said switch-arm, substantially as described.

6. The combination with the fixed main and siding rails of a pivoted switch-arm, a ball-headed bar passing through a guide in said switch-arm, a socket-plate holding the ball-head of said bar, a spring interposed between said socket-plate and said switch-arm and normally tending to press said switch-arm outward, a stop limiting the outward travel of said switch-arm, a spring-operated latch adapted to limit the inward travel of said

switch-arm, and a bell-crank lever adapted to be struck by the wheels of an approaching train, and to withdraw said latch and release said switch-arm, substantially as described. 30

7. The combination with the fixed main and siding rails of a pivoted switch-arm, a spring normally pressing the same outward, a stop limiting the outward travel of said switch-arm, a spring-operated latch adapted to limit the inward travel of said switch-arm, a bell-crank lever having one arm adapted to engage said latch, and having the other arm provided with inclined slots, a wear-plate having slots crossing the inclined slots in said bell-crank lever, and bolts adjustably connecting said wear-plate with said bell-crank lever, the said wear-plate being adapted to be struck by the wheels of passing trains, substantially as and for the purposes described. 45

In testimony whereof I affix my signature in presence of two witnesses.

ETHELBERT L. KERN.

Witnesses:

HENRY SCHUMACHER,
JAMES H. THOMAS.