(No Model.) 2 Sheets—Sheet 1.

W. H. STOWELL.

AUTOMATIC RAILROAD SWITCH.

No. 378,809. Patented Feb. 28, 1888.

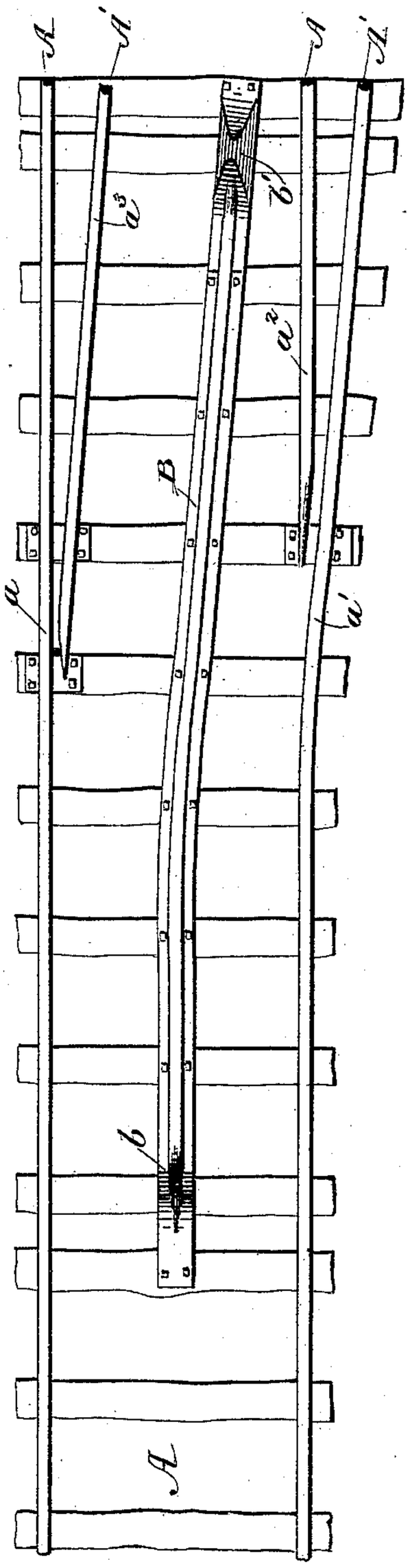

Fig. 1

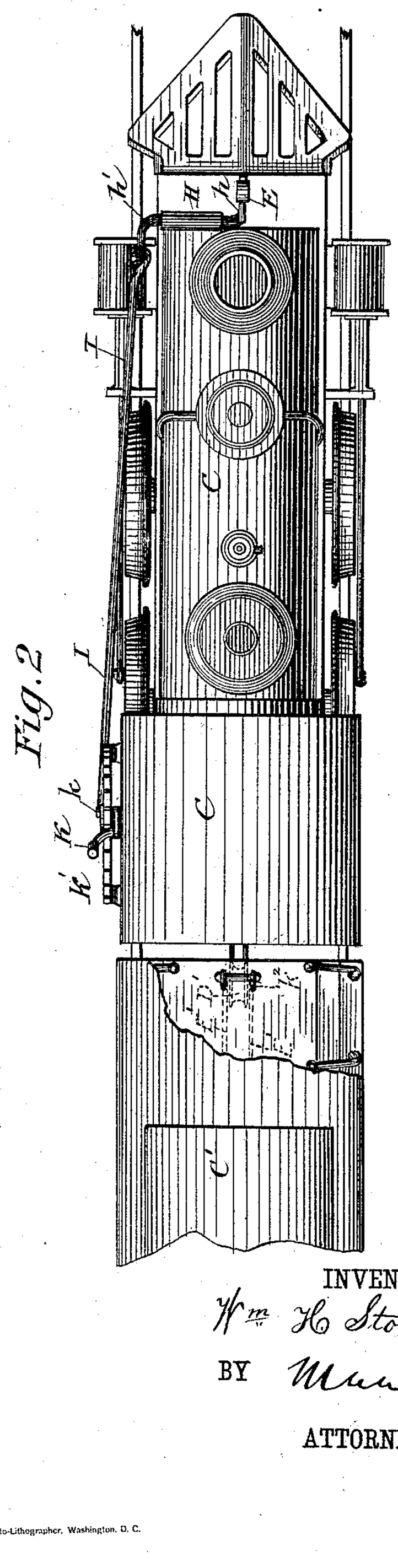

Fig. 2

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(No Model.) 2 Sheets—Sheet 2.

W. H. STOWELL.

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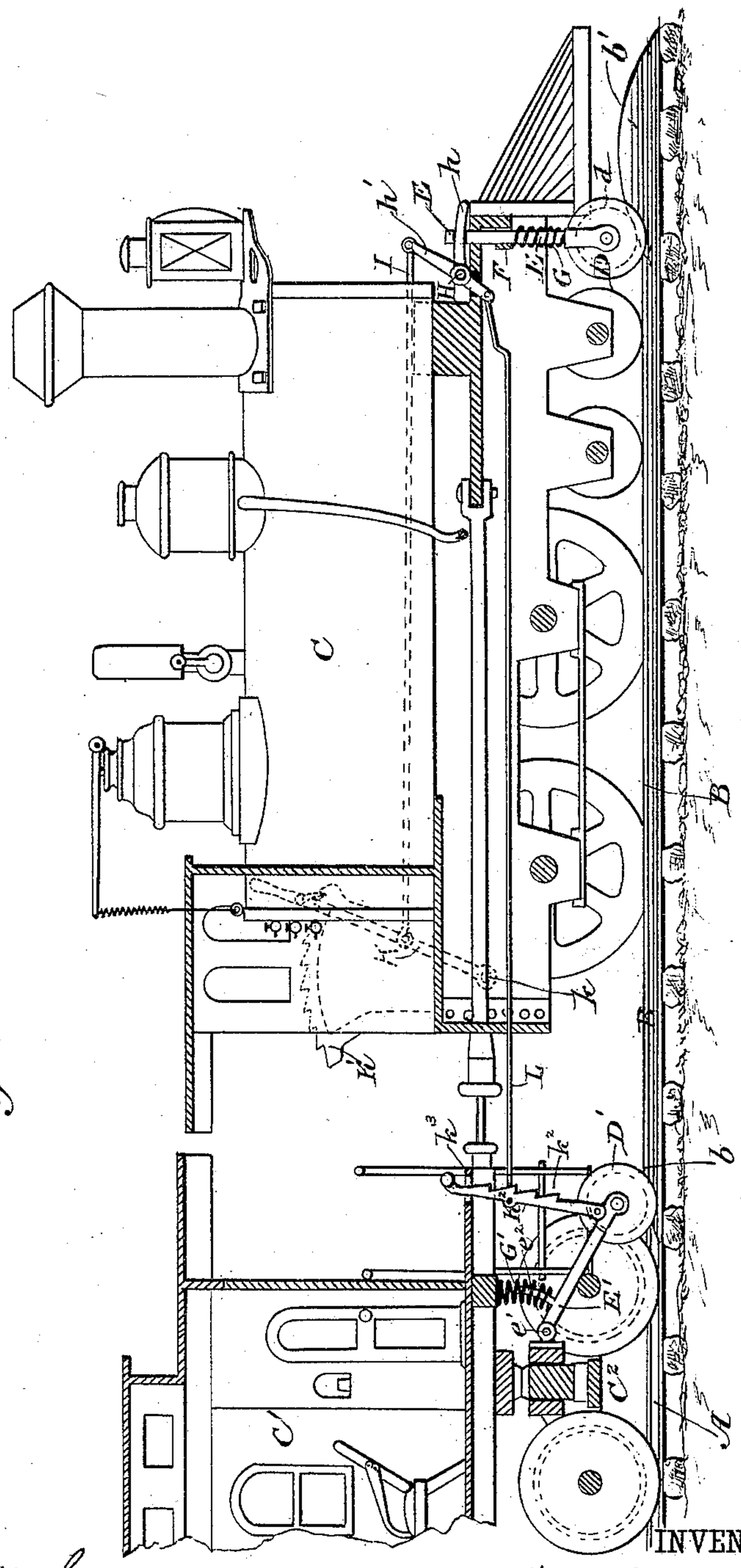
Fig. 3



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UNITED STATES PATENT OFFICE.

WILLIAM HENRY STOWELL, OF EUREKA, NEVADA.

AUTOMATIC RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 378,809, dated February 28, 1888.

Application filed August 20, 1887. Serial No. 247,499. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY STOWELL, of Eureka, in the county of Eureka and State of Nevada, have invented a new and useful Improvement in Railroad-Switches, of which the following is a specification.

My invention relates to means for guiding and conducting railway trains or cars from one track to another intersecting track without the employment of movable switches, which are dangerous to use and require the attention of local switchmen not employed upon the train.

To secure perfect safety and to dispense with the services of switchmen are the principal objects of my invention. This I accomplish by means of a heavy central rail curved to the deflection required and permanently secured to the cross-ties of the track, to extend for a suitable distance upon either side and beyond the point of intersection of the two tracks, and by securing a deeply-flanged wheel beneath the engine or car adapted to be raised or lowered to the level of the central rail to engage with the same, by which means the direction of the train is controlled. Means are also provided for raising the flanged guide-wheel automatically from its working position when it has passed the central track or switch-rail.

In the accompanying drawings, Figure 1 is a plan view of my improved switch. Fig. 2 is a similar view of an engine, including its cab, and a portion of the adjoining car of a train, partly broken away; and Fig. 3 is a sectional elevation of the same standing upon a track embracing my switch.

The main track A is connected to the branch or side track, A′, by a continuous outer rail, *a*, on the main track and a continuous inner rail, *a′*, curved to suit the angle of deflection of the side or branch track. The inner or meeting rail a^2 of the main track is laid in a straight line and extension of the main-track rail, and tangent to the curved rail *a′* of the side track, and terminates a short distance before it meets the rail *a′*, to permit the flange of the wheel to pass between the end of the meeting rail a^2 and the curved track-rail *a′* when the car passes from the main track to the side track. The outer or meeting rail a^3 of the side track is practically straight and joins the outer rail *a* of the main track at an angle, the end of the said rail a^3 terminating a sufficient distance from the rail *a* to allow the wheels of the car to pass by the end of the meeting rail a^3 and follow the main-track rail *a* unless it is deflected therefrom.

A heavy switch-rail, B, curved to correspond with the angle of deflection of the side track, is secured to the cross-ties to be at one end central or parallel with the main track and at the other end central or parallel with the inner rail *a′* of the side track. All of the rails are thus permanently secured to the cross-ties and road-bed and form a safe solid track, upon which cars may run with perfect safety and without danger of being derailed by a misplaced switch.

The engine C is provided at its forward end in rear of the cow-catcher with a guide-wheel, D, supported in bearings upon an arm, E, adapted to move vertically within guides F upon the frame of the engine, and held down to a level with the central rail by a spiral spring, G, coiled around the said arm. The upper end of the arm E is joined to and operated upon by the arm *h* of a rock-shaft, H, the other arm, *h′*, of which is connected by a rod, I, to a hand-lever, K, supported upon the rear of the engine, within convenient reach of the engineer, to raise the arm E and guide-wheel D, having flange *d*, above the level of the central rail when the switch mechanism is set to allow the train to keep upon the main track. When the said mechanism is set to conduct the train from the main track to the side track, the guide-wheel D is forced down by the hand-lever K and spring G to a level with the track to engage with the switch-rail B and be held by the flanges *d* of said wheel to follow the rail B. The flanges *d* of the wheel D should be sufficiently deep to securely embrace the rail B and hold the wheel D upon it. As the switch-rail B is made concentric with and parallel to the inner rail of the main and side tracks, the forward end of the engine, when guided by the wheel D and rail B, will leave the main track and be conducted to the side track.

A ratchet segment-rack, K′, secured to the side of the cab concentric to the pivot-pin *k* of the hand-lever K, will hold the lever back and hold the wheel D and its arm E in their raised

position out of engagement with the switch-rail B, when desired. One end of the switch-rail B is inclined at *b* to allow the wheel to pass safely upon the rail B, and the other end of said rail is formed with wedge-shaped projection *b'* upon the top of the rail, over which the guide-wheels roll in order to effect, when running upon the side track, the automatic adjustment or elevation of the guide-wheels to a position above a horizontal plane touching the top edge of the rails. The ratchet segment-rack K' will engage the lever K when the wheel D is raised by the projection *b'*, to hold the said wheel in its raised position until the lever K is disengaged from the rack.

The cars C' are each provided with guide-wheels D', supported in bearings upon arms E', pivoted at *e'* to the trucks C^2 of said cars, and a spiral spring, G', upon an upwardly-projecting arm, e^2, on the arm E', which presses between the car-frame and the arm E', serves to hold said arm E' and guide-wheel D' supported thereon down to hold the said guide-wheel to the level of the switch-rail B. A lever, K^2, secured to the arm E' to project up through the platform, is notched at k^2 to engage with a plate, k^3, upon the platform or car-frame and hold the wheel D' in its raised position.

By disengaging the notched lever from its retaining-plate the wheel D' will be held down to the level of the track by the spring G'. The wheels D D' may be raised and lowered by any well-known or preferred means without departing from my invention.

Cars with the guide-wheel attached could be used on tracks or roads in which the common switch is employed, as the said wheel would be raised enough to clear all tracks.

The cars will always be carried by the main track if the engineer should forget to drop the guide-wheel. The guide-wheels of all of the cars may be connected and operated by devices under control of the engineer, a cord or chain, L, passing under the cars and engine and connected with the rock-shaft H upon the forward end of the engine will serve the purpose, or the said guide-wheels may all be operated by air or steam in a manner similar to that employed for operating the brakes.

Where a number of tracks branch it would be necessary for one branch track to leave the main track the length of a rail behind the next succeeding side track.

The wedge-shaped projection *b'* may be placed upon the cross-tie, instead of upon the rail B, if preferred, and will operate upon the arm E to raise the guide-wheel in an effective manner.

I claim as my invention and desire to secure by Letters Patent—

1. In a switch mechanism, the track provided with a guide-rail arranged between and parallel with the main-track rails and between and parallel with the rails of the branch track, in combination with mechanism supported upon the car or engine to engage said guide-rail, which guide-rail is inclined at one end and provided with a wedge-shaped projection at its other end, substantially as set forth.

2. In a switch mechanism, the combination, with the car or engine, of the flanged guide-wheel supported beneath said car or engine, adapted to be raised or lowered thereon, and a wedge-shaped projection upon the track for raising the said guide-wheel, substantially as described.

3. The combination, with the car, of a vertically-moving arm carrying a guide-wheel adapted to run upon a guide-rail on the track, a spring operating upon said arm to hold it down to the rail, and a rock-lever for raising and locking the arm in its raised position.

4. The combination, with the car and engine of a train, of flanged guide-wheels supported upon said car and engine, to be vertically raised and lowered thereon to engage with a guide-rail upon the track, and means for supporting and connecting said guide-wheels and operating them conjointly from a single point on the train, substantially as described.

WILLIAM HENRY STOWELL.

Witnesses:

CLAY SIMMS,

WM. LEVY.