

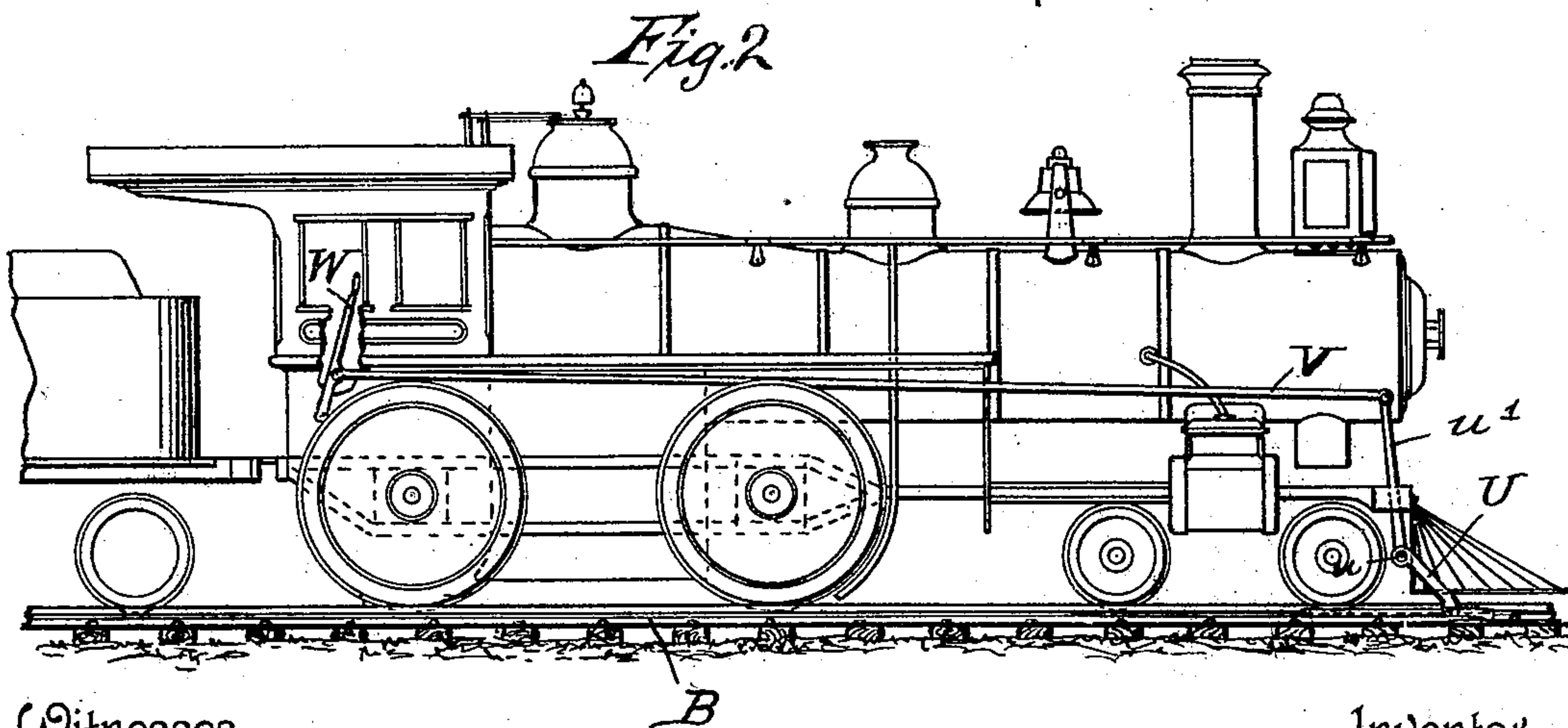
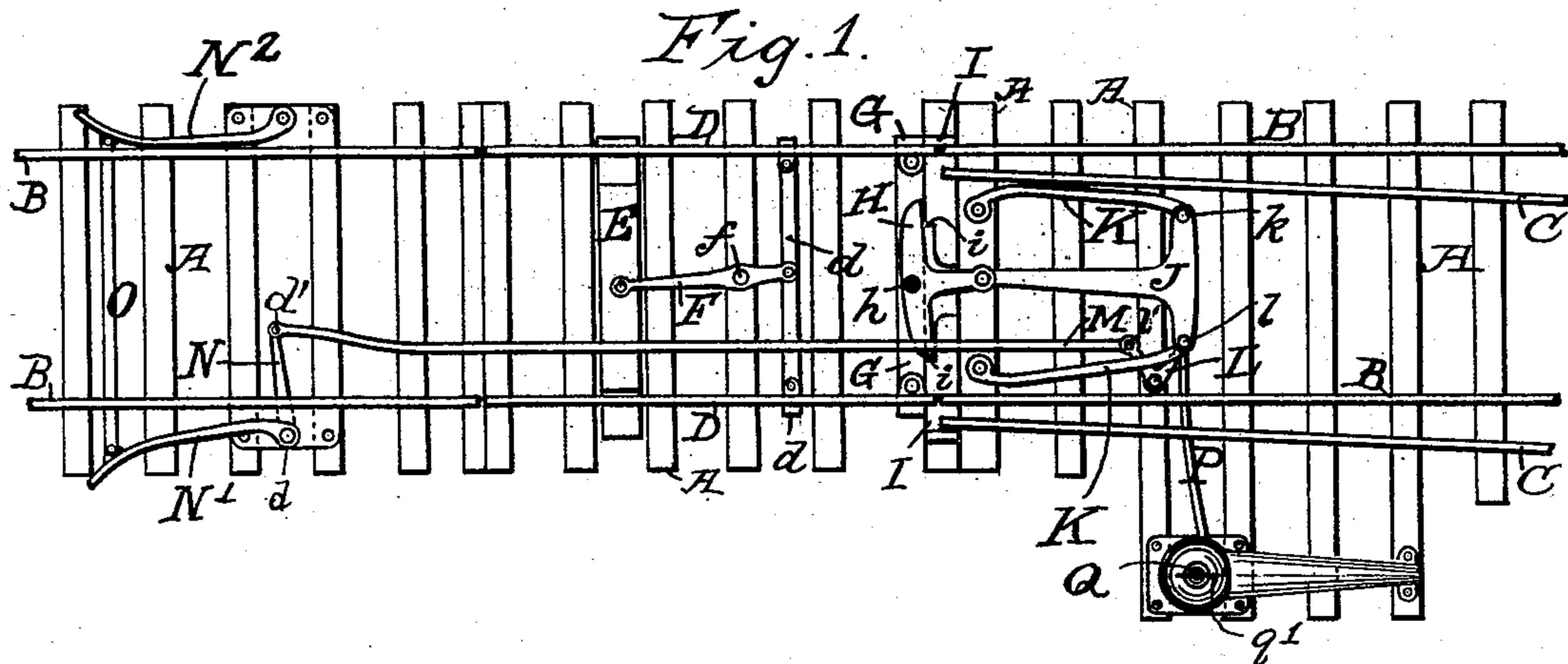
(No Model.)

2 Sheets—Sheet 1.

J. H. QUIMBY.
AUTOMATIC RAILWAY SWITCH.

No. 506,606.

Patented Oct. 10, 1893.



Witnesses

F. S. Barry
W. B. Howe

Inventor

John H. Quimby

By

his Attorney J. B. Thurston

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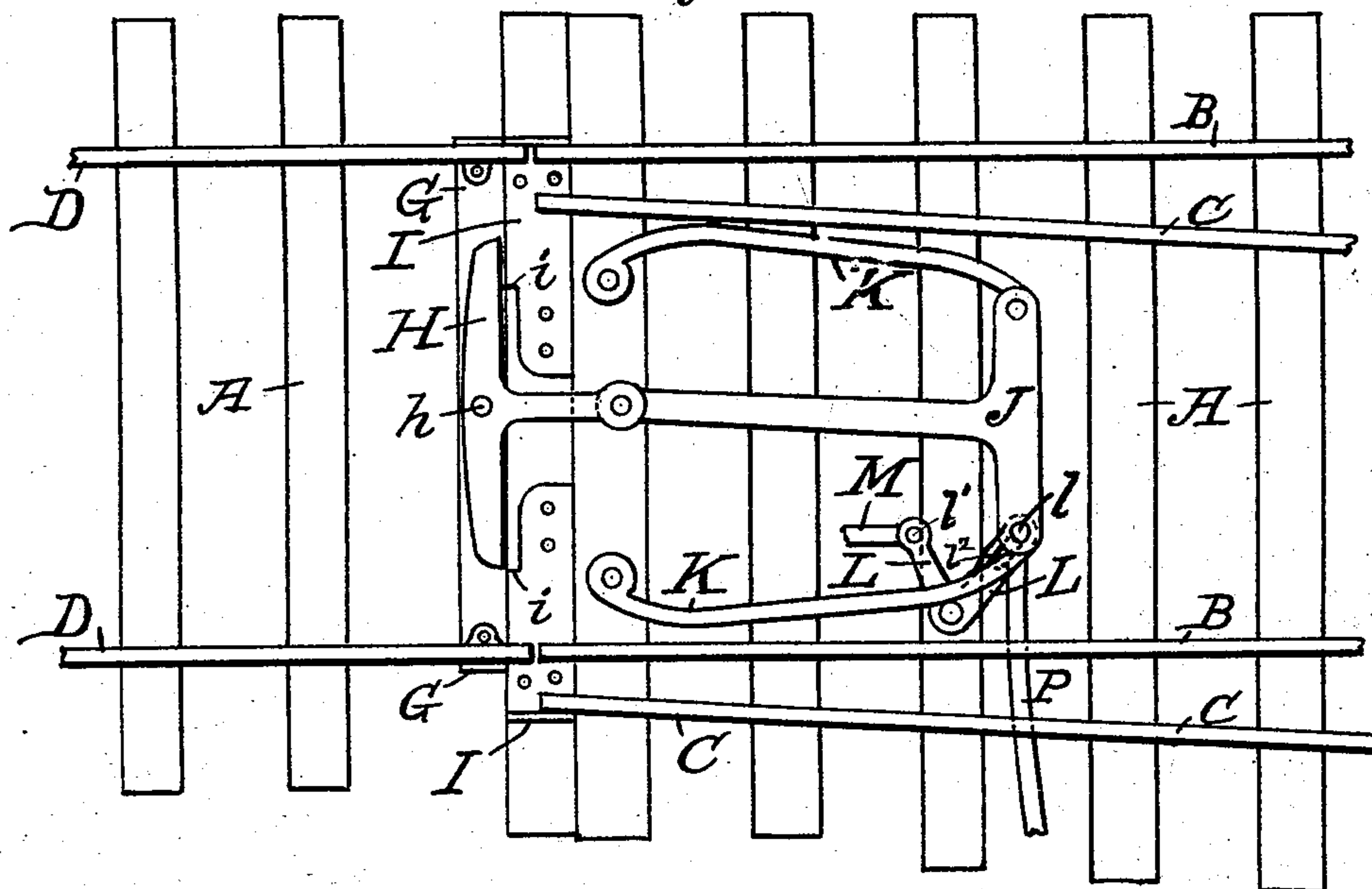
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Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN H. QUIMBY, OF CONCORD, NEW HAMPSHIRE.

AUTOMATIC RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 506,606, dated October 10, 1893.

Application filed March 6, 1893. Serial No. 464,644. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. QUIMBY, a citizen of the United States, residing at Concord, in the county of Merrimac and State of New Hampshire, have invented certain new and useful Improvements in Automatic Railway-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.

This invention relates to that class of switches which are arranged to be operated automatically by the wheel flanges, or by a lever attached to a locomotive controlled by the engineer and the prime object of the invention is to provide a switch which may be easily moved, and not easily misplaced.

The invention will be fully set forth in the following specification and claims and clearly illustrated in the accompanying drawings forming a part of same, of which—

Figure 1, is a general plan view showing a portion of the main line of track and a branch track with my improved switch operating levers in position. Fig. 2, represents a locomotive provided with means for operating my improved switch, and Fig. 3 is an enlarged plan view of a portion of the main line and side track, and that portion of my improved automatic switch operating mechanism for safely carrying a train from the side track to the main line.

Similar reference letters denote corresponding parts.

A represents ties or sleepers, B, the rails of the main track, and C, those of the side track.

D, are the rails of the switch section which may be counterweighted at E, said weight being supported by a lever F, pivoted at *f*, to a tie, or sleeper A, its opposite end being pivoted as shown to a tie bar *d*. A tie bar G, secured to the movable end of said section D, is provided with a rocker arm H, made in the form of a T, and pivoted thereon at *h*. The longest portion of said rocker arm is adapted to engage with shoulders *i*, formed in plates I, secured as shown to the adjacent tie or sleeper A.—The construction and arrangement of this arm H, and its connections are such that both ends of the arm H, and the plates I, cannot be engaged at once, (which

will be hereinafter clearly explained) but one end serves to lock the switch section with the main track while the other locks it with the siding. Connected with the locking arm H, is a T-shaped link or bar J, to which one end of each of the wheel flange actuated levers K, is pivoted at *k* and *l* respectively the opposite end of said levers K, being pivoted to a sleeper A, as shown. These arms or levers, H, J, and K, constitute the necessary mechanism required for moving the switch D, for the safe passage of trains approaching the switch from the side at which said levers are shown in the drawings. I will now proceed to describe the mechanism whereby the passage of trains approaching from the opposite side of said switch is provided for, also the mechanism for operating the same by hand.

The T shaped bar J, is pivoted at *l* to one end of a knee lever L, which is provided with a slot *l*², said lever being mounted upon a sleeper A, and the other arm of said knee lever is connected by pivot *l'*, to a bar M passing beyond the switch section D, and attached by a pivot *d'*, to one end of a knee lever N, mounted outside of the track B, the outside arm N' of said lever being connected under the track to the lever N², at the opposite side of track by the bar O, which bar is of proper length to cause one of said levers (N' N²) to lie close alongside of a rail while the other one will slant away from the opposite rail as seen in the drawings.

With a switch as above described, it is necessary that some means be provided for locking it in either position after it has been thrown in one direction or the other, and which will not let it stop part way between the two positions after having been started. I have shown one form of mechanism for doing this which consists of a switch stand that is located outside of the track, and in which Q represents the target shaft which may be provided with the ordinary target *q'*, and is connected with the track by means of the rod P.

In going toward the switch section from the side indicated in the drawings at the right, the wheel flanges will set the switch section D whether the train is approaching on the main line or the siding,—for instance;—in Figs. 1 and 3 the switch section D, is set for

the main track, but should a train be approaching on the siding, C, its wheel flanges would crowd in between the rail and that lever K nearest the siding, which instantly moves it away from the rail as will be hereinafter more fully described, sets the switch for the siding, and when thus set, a train approaching the switch, on the main line, will in like manner throw the switch again in line with the main track by reason of its wheel flanges bearing against that lever K, located nearest the rails of the main line. For trains approaching from the opposite direction the switch is not automatic in action; for this purpose arms U, are mounted upon both sides of a locomotive, at some convenient point forward of the trucks (as seen in Fig. 2) upon a shaft *u*, which shaft is also provided with a lever *w'*, having a connecting rod V, extending thence to the hand lever W, located in the locomotive cab, where it is always under the control of the engineer, who, when finding the switch set wrong, has only to throw the lever W, forward, as in Fig. 2, to operate the arm or lever U, which will be thereby lowered so as to pass between the outside of either rail and its lever N' or N², which sets the switch as desired.

When the switch has been thrown in either direction, one of the rails will rest against a shoulder or the upturned end of the bar I, while the other rail will be moved away from a similar construction at its end of the bar, and the switch would therefore have no brace or support to keep it from moving in that direction by the swaying motion of the train which would permit the ends of the switch rails to move out of alignment with the other rails and thus derail the train. To avoid this the end of the rocker arm H that is nearest to the rail that is thus moved in out of engagement with its brace is caused to engage with the shoulder *i* on the bar I, and any lateral movement of the switch rails in that direction by the movement of the train would be prevented by the engagement of the end of the bar with the shoulder, and any movement in the opposite direction would be prevented by the engagement of the other rail with the shouldered end of the bar I. By connecting the rocker arm and the lever J with a joint, the arm can be moved to lock the rails with a less movement of the farther end of the link J than would be required if they were connected together rigidly or were formed of one piece, as will be clearly evident from an inspection of the drawings. As above described, when the flange of a wheel leaving the switch for the main track, or if it be approaching an open switch on the main track, will engage with one of the levers K and crowd it away from the rail to which it is adjacent this will cause the link J and the other

lever K to move over in the same direction, which movement of the three levers with the pivotal points of the levers K, K, on the tie A as centers will cause the end of the link J that is connected with the rocker arm H to move far enough to cause the end of the arm to engage with the shoulder *i* on the bar I to lock the switch rail and hold the parts firmly in position while the train passes over them. When the rocker arm is moved in either direction, the end that is out of engagement with the shoulder *i* will be forced against the side of the bar I during the first part of the movement of the levers K, K, and the link J which will cause the opposite end of the arm to be thrown out of engagement with the shoulder *i*, which will permit the rocker arm, and with it the tie bar G, to slide longitudinally of the bar I, during the remainder of the movement of the levers, until the first mentioned end of the arm will slip in behind the shoulder *i* at that end. But the end of the arm will not slip in behind the shoulder until after the switch rails have been brought into proper alignment with the other rails which will permit of the train passing over in safety.

While the automatic movement of the switch would be effected by extending the link J, so as to connect at *h*, with the tie-bar G, dispensing with the locking bar H, I prefer the construction shown.

Having described my improvements, what I claim is—

1. In a mechanism for automatically moving a railway switch by the action of the wheel flange of a car, the combination with the main track, the siding and switch section, of the levers K—K, and lever J and a connection between the levers K K and the main track.

2. The combination with the main track, siding, and switch section, of the levers K—K, link J and arm H, and the plates I, having shoulders *i*, all substantially for the purpose set forth.

3. The combination with the main track, siding and switch, of the arm H, connecting the link J with the switch section, the plates I, having shoulders *i*, for engaging said arm H, the said link J, the levers K—K, knee lever L, rod M, levers N N' N², and the bar O.

4. The combination with the main track, siding, and switch section, of the link J levers K, K, knee lever L, the bar M, and its connections, and a connection between the levers K K and the main track.

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

JOHN H. QUIMBY.

Witnesses:

J. B. THURSTON,
CARRIE E. EVANS.