

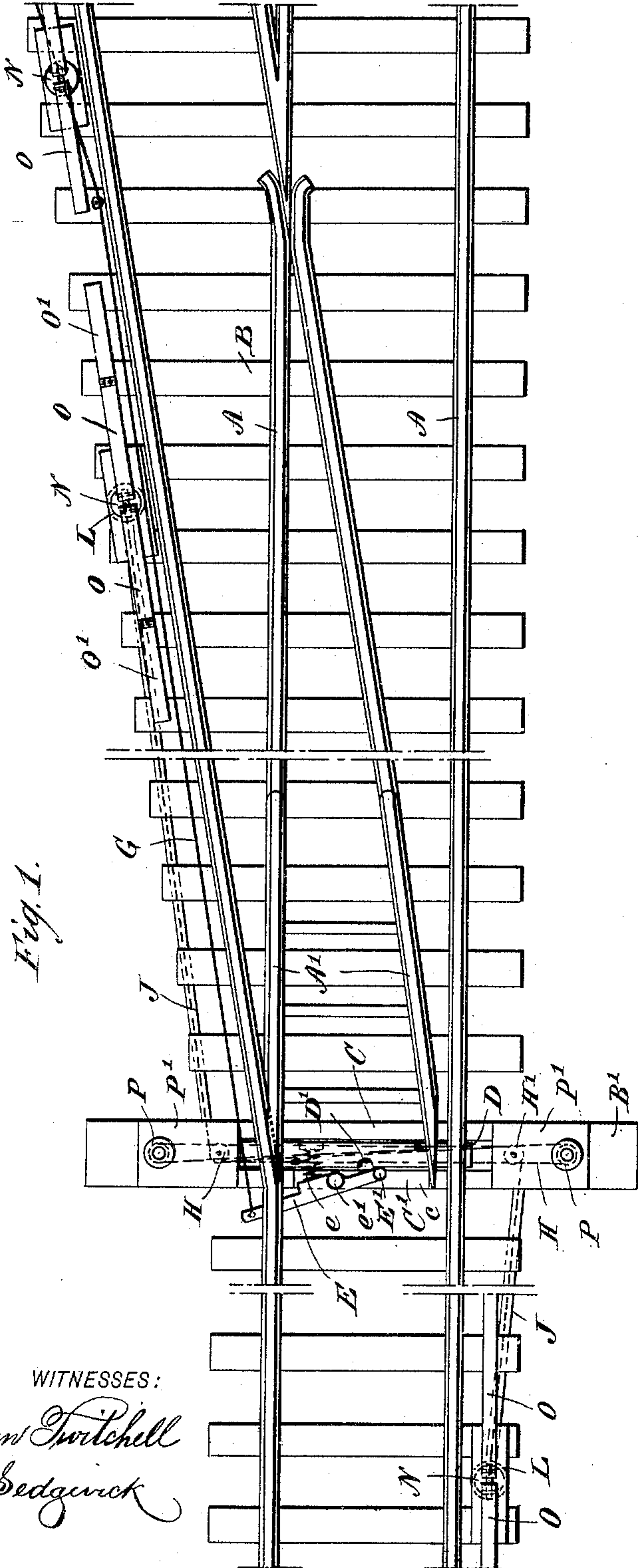
(No Model.)

3 Sheets—Sheet 1.

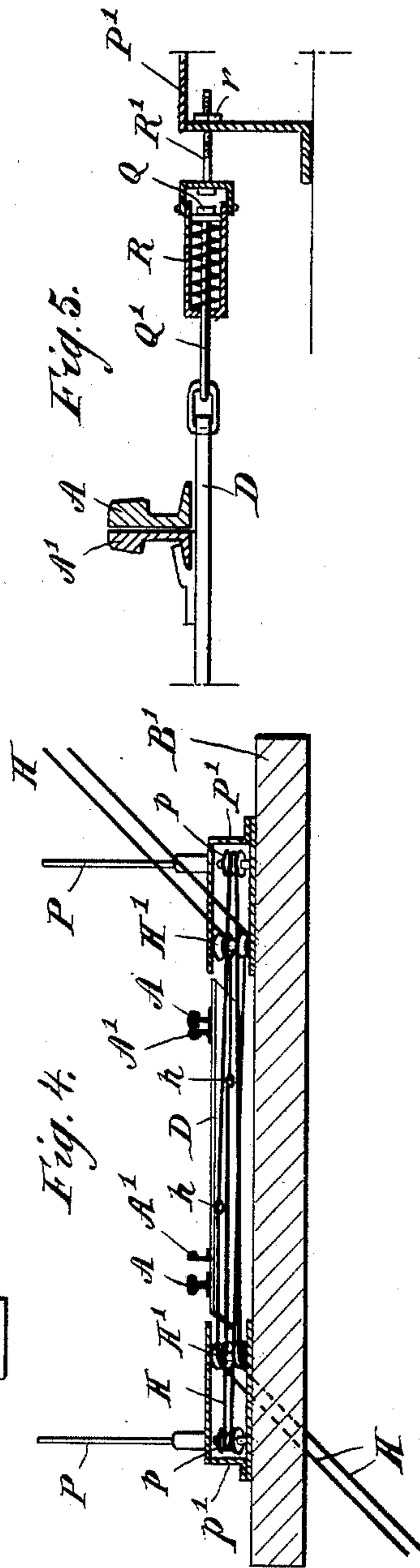
C. E. NOWLIN.
RAILROAD SWITCH.

No. 468,256.

Patented Feb. 2, 1892.



WITNESSES:
Donn Twitchell
W. Sedgwick



INVENTOR:
C. E. Nowlin
BY *Munn & Co.*
ATTORNEYS

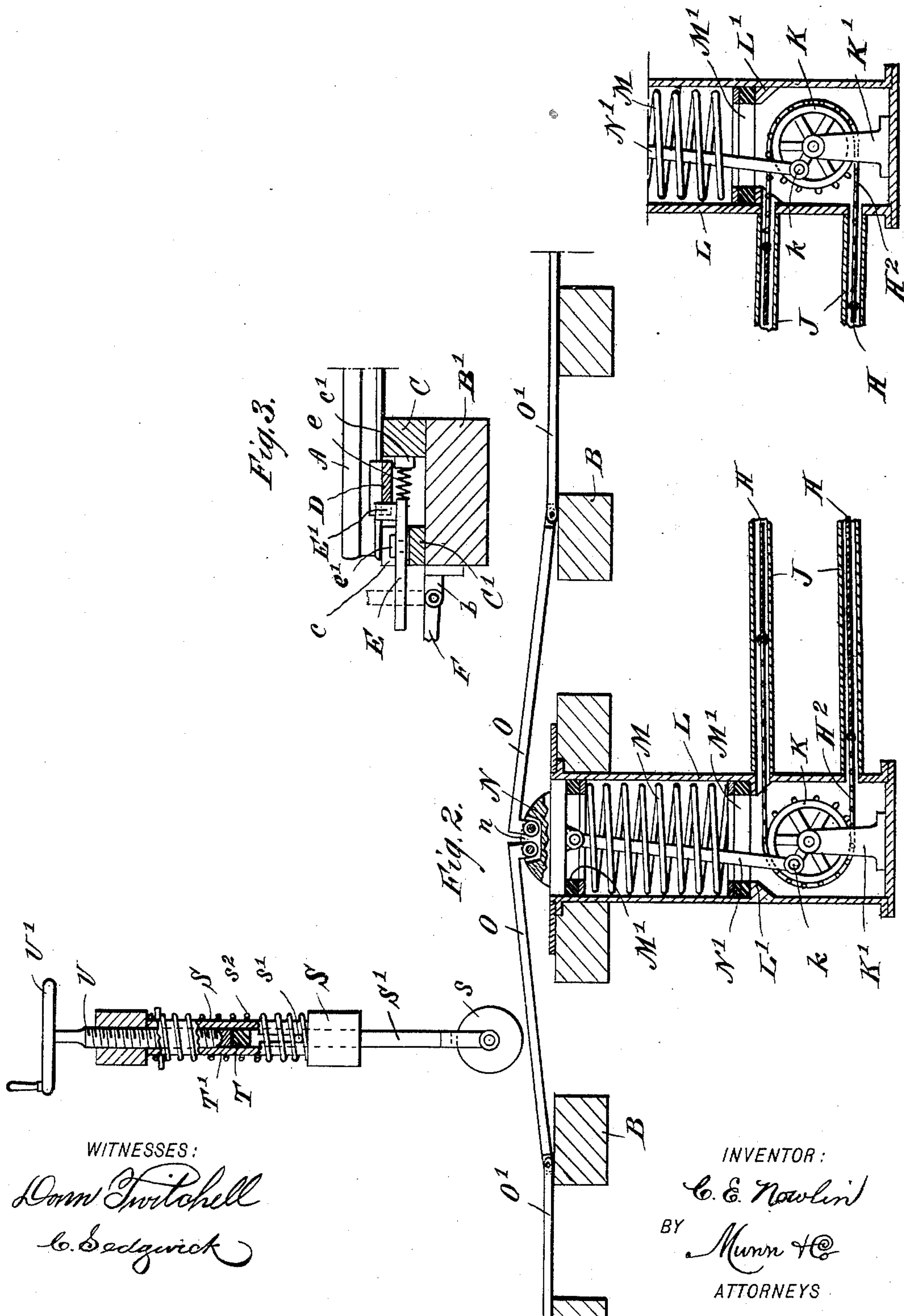
(No Model.)

3 Sheets—Sheet 2.

C. E. NOWLIN.
RAILROAD SWITCH.

No. 468,256.

Patented Feb. 2, 1892.



WITNESSES:

Donn Twitchell
C. Sedgwick

INVENTOR:

C. E. Nowlin
BY *Munn & Co*
ATTORNEYS

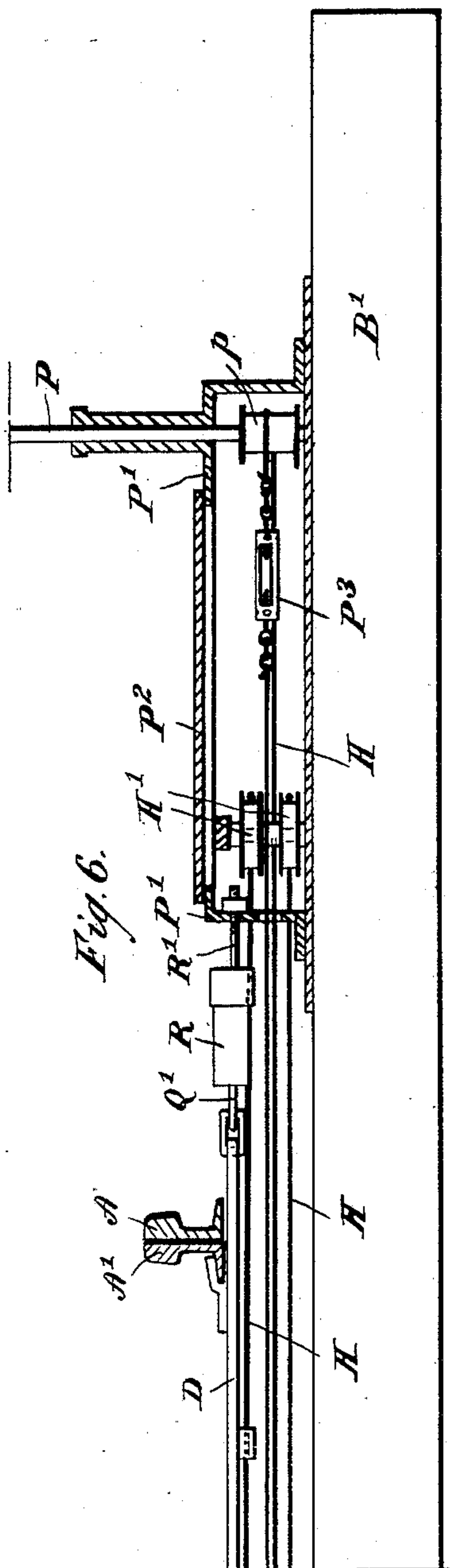
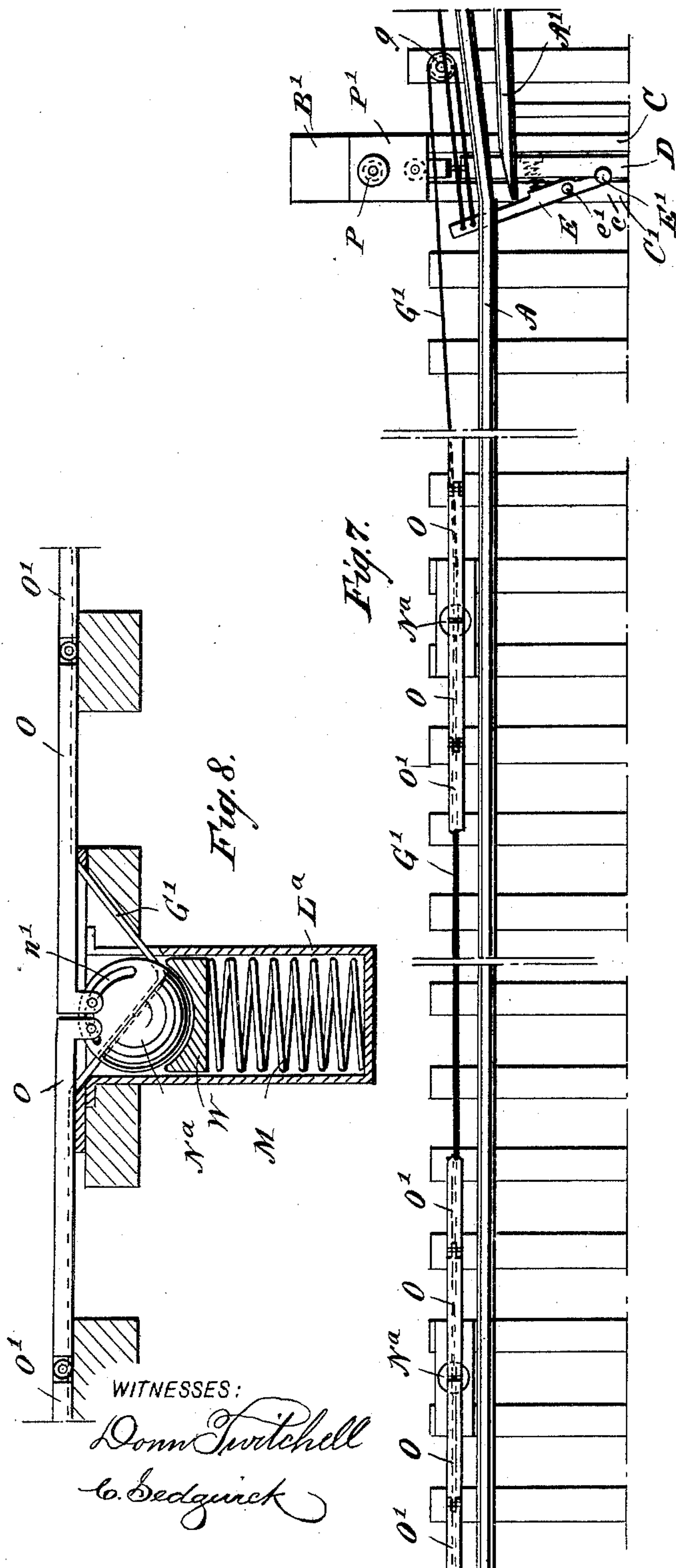
(No Model.)

3 Sheets—Sheet 3.

C. E. NOWLIN.
RAILROAD SWITCH.

No. 468,256.

Patented Feb. 2, 1892.



INVENTOR:

C. E. Nowlen

BY

Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

CLIFFORD E. NOWLIN, OF BATTLE CREEK, MICHIGAN.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 468,256, dated February 2, 1892.

Application filed February 24, 1891. Serial No. 382,626. (No model.)

To all whom it may concern:

Be it known that I, CLIFFORD E. NOWLIN, of Battle Creek, in the county of Calhoun and State of Michigan, have invented a new and
5 Improved Railroad-Switch, of which the following is a full, clear, and exact description.

My invention relates to an improvement in switches for railroads; and the object of my invention is to produce a durable and efficient switch, which will not easily get out of order, and which may be conveniently operated from an engine or car, to facilitate the switching of trains and to allow them to make a siding with quickness and dispatch and
15 perfect safety.

To this end my invention consists in a switch and mechanism for operating the same, which mechanism will be hereinafter fully described, and then pointed out in the
20 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.

25 Figure 1 is a broken plan view of a main-line track and siding provided with the switch embodying my invention. Fig. 2 is an enlarged broken sectional view, showing in detail the mechanism for operating the
30 switch. Fig. 3 is an enlarged detail sectional view of the switch-supports and the locking-lever for the switch. Fig. 4 is a detail sectional view of the switch, showing the connection of the switch-plate and the cable for
35 operating it. Fig. 5 is an enlarged detail sectional view of a device for holding the switch closed. Fig. 6 is an enlarged detail view, partly in section, of the spring connection for holding the switch closed, the cable-adjust-
40 ing device, and the box inclosing the latter. Fig. 7 is a broken plan view showing a modified means of operating the locking-lever, and Fig. 8 is an enlarged sectional view of the cylinder and spring-casting connected
45 with the locking-lever.

The track-rails A are laid on sleepers B in the usual manner, and the main portion of the switch is laid on a long sleeper B', which is placed a little lower than the rest of the
50 sleepers, the sleeper B' having on its upper side the parallel bars C and C', which sup-

port the main rails, and between which moves longitudinally the switch-plate D, which carries the switch-rails A'.

The bar C' is recessed on its upper side, as shown at c, to provide room for the locking-lever E, which is pivoted in the recess, as shown at e', and the short end of which extends inward beneath the switch-plate D, and is provided on the upper side with a stud E',
55 which is adapted to fit in a niche D' of the switch-plate and hold the switch open when in use. The outer end of the locking-lever is normally pressed outward by a spring e, one end of which is secured to a boss c' on the bar
60 C, and the opposite end of which presses against the locking-lever.

A hand-lever F is pivoted to a lug b immediately beneath the locking-lever E, and by raising the hand-lever it will engage the outer
70 end of the locking-lever and release the same from the switch-plate.

The switch is normally held closed by a device which will be hereinafter described, and the free end of the locking-lever is connected
75 by a cable G with a vertically-movable casting N, so that when a train passes from the main line onto a siding the casting may be depressed in a manner hereinafter described, so as to release the locking-lever and allow
80 the switch to spring back into closed position. The switch-plate D is operated by the cables H, which are secured thereto and which extend over double loose pulleys H', arranged at each end of the switch-plate, and from
85 thence extend through underground pipes J, which are laid parallel with the railroad-track, the said cables being secured at the ends to chains H², which extend over sprocket-wheels K, the sprocket-wheels being mount-
90 ed in suitable supports K', which are arranged in the bottom of the cylinders L, the cylinders extending upward at either side of the track and terminating between two sleepers B. It will thus be seen that the cables and
95 the chains connected therewith form an endless cable, and the cable extends parallel with the track in both directions from a switch, so that by turning the wheel K first in one direction and then in the other the cable will
100 be moved and the switch-plate and switch-rails correspondingly moved.

The cylinders L are provided with ribs or brackets L' above the wheels K. The bracket of each cylinder supports a spiral spring M, which has a collar M' at each end, the upper collar being held normally about flush with the top of the cylinder, and mounted on the upper collar is an oval casting N, which is connected by means of a depending pitman N' with a crank k on the wheel K, so that when the casting N is raised or lowered the wheel K and the cables connected therewith will be moved.

The casting N has pivotally attached to it near the center the side rails O, the opposite ends of which are hinged to the rails O', which rails extend parallel with the track-rails A, and are supported on the sleepers B. The adjacent ends of the rails O have lugs on the under side, which are secured in a slot n in the top of the casting N, and the opposite ends of the said rails are provided with a lug which extends into a corresponding recess in the ends of the rails O', so that the top surface of the side rails will be perfectly smooth. The spring M is strong enough so that it normally holds the higher parts of the side rails O at a point about level with the track-rails A, and when the rails and casting N are depressed the springs will force them back to their normal position when the pressure is removed after the locking-lever is released. A spring-pressed casting N, as described, may be arranged at a convenient point adjacent to a siding and connected with the cable G for operating the locking-lever, as described above, and the cable may be attached directly to the casting or it may be passed through it and secured to a sleeper.

The cables H, which operate the switch, are also extended around pulleys p on the lower ends of the lamp-posts P, which lamp-posts carry the ordinary signal-lamps and are held to turn in a casing P', the casing being arranged at each end of the switch-plates, so as to cover the pulleys p and H'. It will thus be seen that when a switch is operated in the night the lamp will be turned to indicate whether it is opened or closed, in the usual manner, and the posts may be provided with the ordinary day-signals as well.

The casing P' is made of strong metal, is closed by a cover P², which is kept securely locked, and within the casing is a turn-buckle P³, which is mounted on screw-rods connected with the cable, and it will thus be seen that the railroad employes who have the key to the casing can open it, and by turning the turn-buckle can take up the slack of the cable or may entirely disconnect the switch, so that it may be tested to see that it is in good working order; but it will be impossible for the switch to be tampered with by those not having a key.

The switch is normally held closed by the following mechanism: A spring-pressed plunger Q is inclosed in a cylinder R, and the piston-rod Q' of the plunger is made to extend

inward through one end of the cylinder and is connected to the switch-plate D, the opposite end of the cylinder being secured to a bolt R', which extends through a wall of the casing P', and the bolt is provided with a nut r, so that by adjusting the nut the spring may be given any desired tension and it will serve to hold the switch closed, leaving the main track open.

The following mechanism is employed for depressing the side rails O and operating the switch: A sleeve S is secured upon a locomotive at a point adjacent to the cab, or, if desired, it may be secured to a car, and mounted in the lower end of the sleeve is a shaft S', which extends downward and aligns with the side rails O, the said shaft having at its lower end a wheel s, which is adapted to contact with the side rails. The shaft is guided by a pin s', which extends through a longitudinal slot in the sleeve S, and the shaft is normally held upward by means of a spiral spring s², which is coiled around the sleeve, one end being secured to the sleeve and the other to the shaft.

Above the shaft is a rubber washer T, which is adapted to prevent excessive shock, and above the washer is a cup-shaped socket T', which receives the lower end of a screw U, which screw is mounted in the upper end of the sleeve and is provided with a hand-wheel U', by means of which it is raised or lowered, and it will thus be seen that by turning the wheel in a desired direction the contact-wheel s may be made to strike the side rails O, depress the casting N, and operate the switch. Should the cables become disconnected, the switch may be operated by an ordinary hand-lever.

In Figs. 7 and 8 I have shown modified means for operating the locking-lever. As shown in these figures, cylinders L^a are sunk at intervals along the track, and in each cylinder is a spring M, like that already described, which has at the top a block W, which is concaved on the upper side, and upon which rests a casting N^a, having a curved slot n' in the upper part, in which slot slide pins which are secured to the lugs on the under side of the rails O. The spring M normally holds the rails elevated, so that they will come within range of the contact-wheels s. The castings N^a are connected with the locking-lever by a cable G', which extends through the castings and through a groove in the under sides of the rails O and O', and after the cable leaves the rails it may be covered by planks to protect it. The locking-lever is connected with two of the spring-castings on each side of the switch and on the siding, one of the castings being arranged within a few car-lengths of the switch and the other farther away, as illustrated in Fig. 7, and one will be sure to operate, and if a switch should be accidentally left open it may be closed by a train coming along the main track by simply depressing the wheel s, so that it will contact with

one of the side rails, and the casting will thus be depressed and will tilt the locking-lever and unlock the switch, so that the spring R will close it. The cable on one side of the switch may be given the necessary direction by passing it around a guide-pulley *g*, as in Fig. 7.

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

1. A switch comprising a movable switch-plate adapted to support the switch-rails, cables secured to the switch-plate and extending parallel with the track, said cables passing over suitable guide-pulleys and sprocket-wheels, spring-pressed castings mounted above the sprocket-wheels and connected with the sprocket-wheels by a pitman and crank, side rails arranged parallel with the track-rails and pivoted to the castings, and means for depressing the side rails from a train, substantially as described.

2. The combination, with the movable switch-plate, of spring-pressed castings placed adjacent to the track, sprocket-wheels mounted beneath the castings and connected therewith by a crank and pitman, side rails pivoted to the castings and arranged parallel with the track-rails, and cables extending over the sprocket-wheels and through tubes to connect with the switch-plate, substantially as described.

3. In a switch, the combination, with the movable switch-plate and the locking-lever adapted to engage the same, of a spring-pressed casting placed adjacent to the track, side rails pivoted to the casting and arranged parallel with the track-rails, and a cable connecting the casting with the free end of the locking-lever, substantially as described.

4. In a switch, the combination, with the movable switch-plate having a niche in one edge and the spring-pressed locking-lever pivoted adjacent to the switch-plate and having one end provided with a stud to engage the niche in the switch-plate, of a spring-pressed casting placed adjacent to the track-rail, side rails extending parallel with the track-rails and pivoted to the casting, a ca-

ble connecting the casting with the outer end of the locking-lever, and means for depressing the side rails from a train, substantially as described.

5. In a switch, the combination, with the switch-plate, the spring-pressed plunger connected therewith, and the cylinder inclosing the plunger, of a locked box adjacent to the cylinder, and an adjustable rod having one end secured to the cylinder and the opposite end secured within the box, substantially as described.

6. In a switch of the character described, the combination, with the switch-operating cables having a turn-buckle thereon, of a locked box inclosing the turn-buckle, substantially as described.

7. The combination, with the main and switch rails and the sliding plate connecting the free ends of the switch-rails to open and close the switch, of signal-posts at opposite sides of the track adjacent to the switch and having pulleys at their lower ends and train-operated cables extending along the track at both sides of the switch connected with the said switch-plate, said cables extending respectively beyond the opposite ends of the switch-plate around the signal-post pulleys, substantially as set forth.

8. In a switch of the character described, the combination, with the vertically-movable side rails, of a sleeve adapted to be secured to a locomotive or car, a spring-pressed shaft mounted in the sleeve and having at its lower end a wheel to contact with the side rail, and a screw mechanism for adjusting the shaft and wheel, substantially as described.

9. In a switch of the character described, the depressing mechanism comprising the sleeve adapted to be secured to a locomotive, a spring-pressed shaft mounted in the sleeve and carrying a contact-wheel, a cushion for the shaft, and a screw mechanism for adjusting the shaft, substantially as described.

CLIFFORD E. NOWLIN.

Witnesses:

F. R. KINGMAN,

F. A. ALLWARDT.