No. 838,430. PATENTED DEC. 11, 1906.

G. W. LONG.

RAILWAY SWITCH.

APPLICATION FILED APR. 3, 1906.

2 SHEETS—SHEET 1.

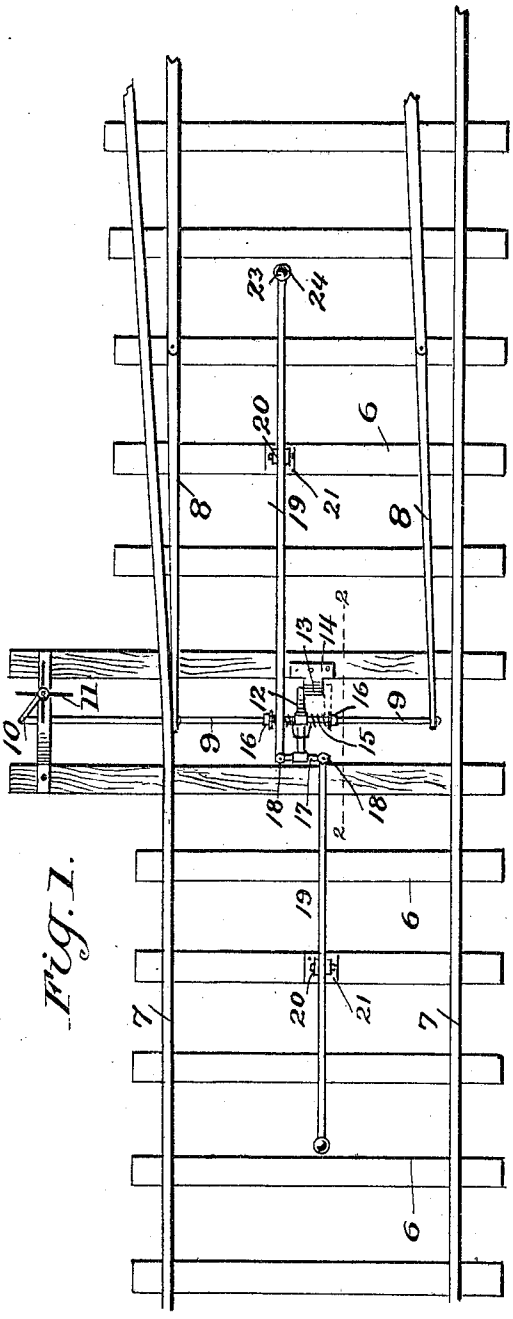

Fig. 1.

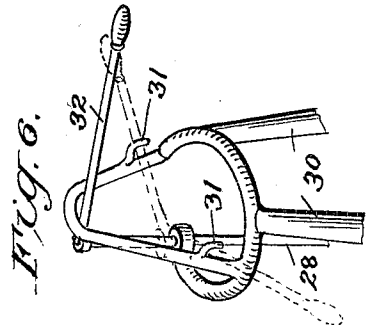

Fig. 6.

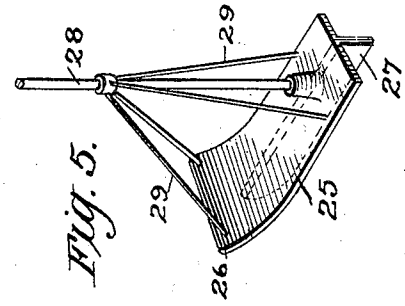

Fig. 5.

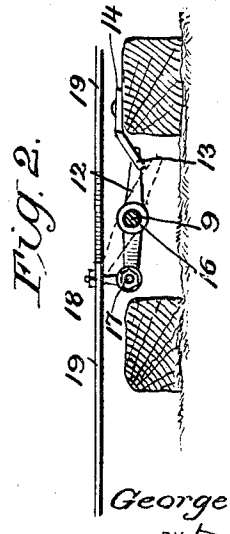

Fig. 2.

WITNESSES

Jos. A. Ryan

Chas. A. Pettit

INVENTOR

George W. Long.

BY Munn & Co

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

No. 838,430. PATENTED DEC. 11, 1906.

G. W. LONG.

RAILWAY SWITCH.

APPLICATION FILED APR. 3, 1906.

2 SHEETS—SHEET 2.

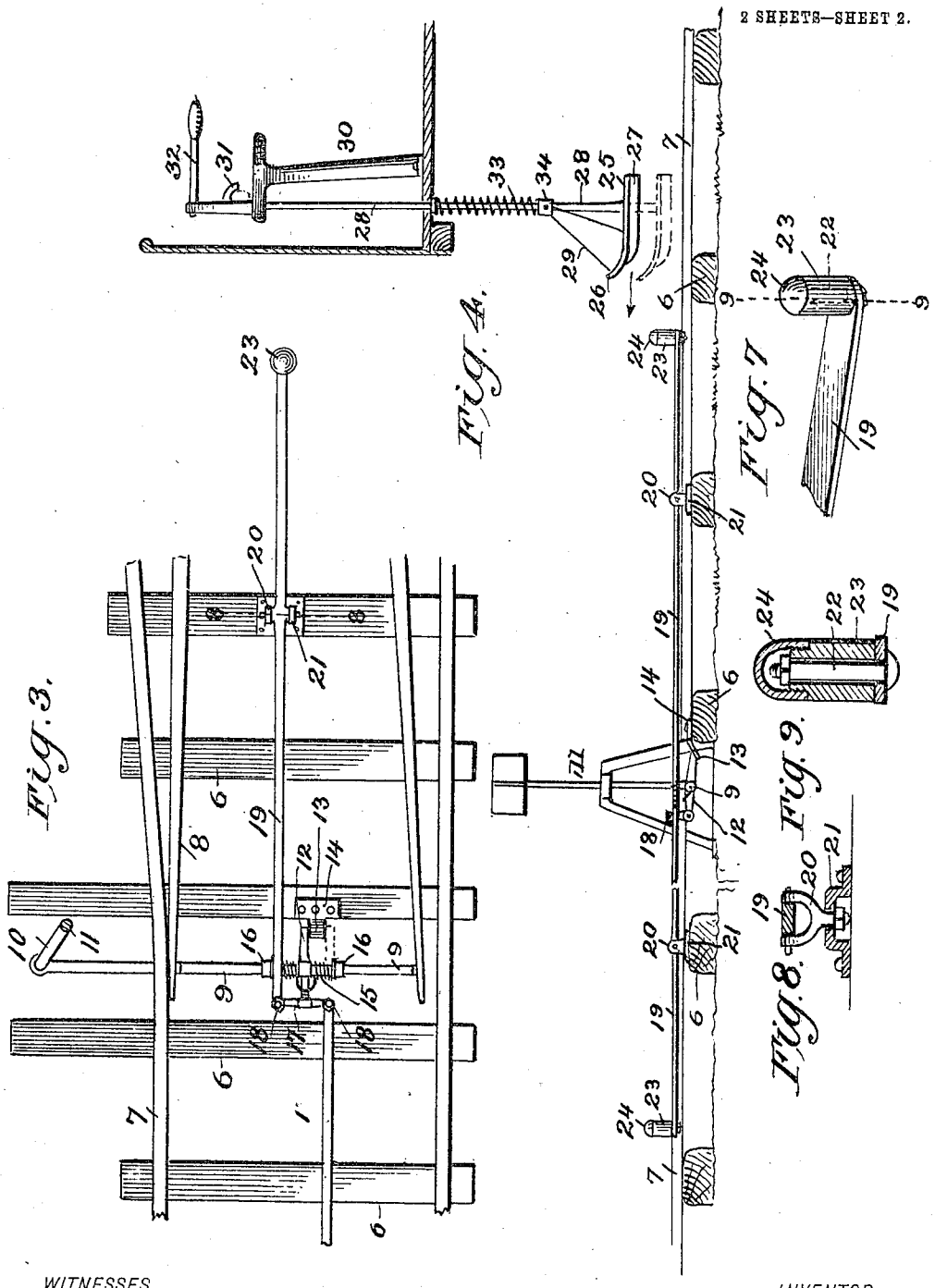

Fig. 3.

Fig. 4.

Fig. 7.

Fig. 9.

Fig. 8.

WITNESSES

Jos. A. Ryan

Chas. A. Patten

INVENTOR

George W. Long

BY Munn & Co.

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GEORGE W. LONG, OF LINDSAY, INDIAN TERRITORY, ASSIGNOR OF ONE-HALF TO R. G. SPALDING, OF LINDSAY, INDIAN TERRITORY.

RAILWAY-SWITCH.

No. 838,430. Specification of Letters Patent. Patented Dec. 11, 1906.

Application filed April 3, 1906. Serial No. 309,593.

To all whom it may concern:

Be it known that I, GEORGE W. LONG, a citizen of the United States, residing at Lindsay, District 17, Indian Territory, have invented a new and useful Improvement in Railway-Switches, of which the following is a specification.

This invention is a railway-switch of that class which may be operated by a man on the car without having to stop the car. The switch can be thrown from either position by a car coming in either direction, and the track mechanism, except the trips which are struck by the shoe on the car, can all be located if desired, under the ties to prevent interference by horses and vehicles. However, it is here shown and described in position on top of the ties and provided with connections to a switch-signal, which may, however, be omitted, if desired.

The track mechanism includes a rod connected to the switch-points and horizontal levers operatively connected to the rods and provided with a lock which is released by vertical vibration of the levers before the levers are swung to throw the switch. The car is provided with a shoe for producing the vertical vibration referred to and having a rib for effecting the horizontal swing.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of the track mechanism. Fig. 2 is a vertical section of the track on the line 2 2 of Fig. 1. Fig. 3 is an enlarged detail in plan of the connections between the operating-levers and the switch-rod. Fig. 4 is a side elevation showing the shoe on the car and its operating devices. Fig. 5 is a detail in perspective of the shoe. Fig. 6 is a similar detail showing the means for setting and holding the rod which operates the shoe. Fig. 7 is an enlarged detail and perspective showing the trip-post mounted on the end of the operating-lever and the roller and cap on said post. Fig. 8 is a section on the line 8 8 of Fig. 3. Fig. 9 is a section on the line 9 9 of Fig. 7.

Referring particularly to the drawings, 6 indicates the ties, and 7 the rails thereon with switch, the movable switch-points 8 being connected by a switch-rod 9, which is extended at one side of the track to connection with the crank 10 at lower end of signal-standard 11, so that the signal will be turned accordingly.

At or about the middle of the rod 9 is a lock-lever 12, which is sleeved and fulcrumed on the rod and is adapted to engage at its free end on one side or the other of the downwardly-projecting lug 13, projecting from the edge of the plate 14, which is secured to one of the ties 6. The width of the lug is substantially equal to the movement or throw of the switch-points, so that the end of the lever will lift to one side or the other of the lug when the switch is opened or closed.

At 15 is indicated a spring the ends of which are coiled around the switch-rod 9 on opposite sides of the lever and held by collars 16, to which the ends of the spring are fixed, and the intermediate portion of the spring is crossed over and presses upon the lever 12, tending to lift the free end of the lever to engage the lug, and thereby lock the rod and switch-points against unintentional movement. The other end of the lever 12 has a cross-bar 17, which is connected by eyebolts 18 to the inner ends of the main levers 19. These main levers are fulcrumed upon forked pivots 20, set in plates 21 on the ties, and vibrate vertically upon the pivots and also horizontally by turn of the pivots in the plates. The outer or free ends of the levers have upright pins 22, on which are roller-sleeves 23, and the upper ends of the pins are covered by rounded caps 24, screwed thereon, to give an easy slide of the shoe over said pins.

The shoe consists of a plate 25, turned up at the front end, as at 26. This shoe has on its under side a longitudinal fin 27 and is carried at the lower end of a rod 28, which extends up through the platform of the car. The shoe is braced by rods 29, connected to a collar on the rod and to the front corners and the sides of the shoe. The upper end of the rod 28 is supported and guided by a stand on the platform, having spaced legs 30, each of which has a downwardly-presented hooked lug 31, adapted to engage a hand-lever 32 at the top of the rod. The rod may be turned and pushed down by means of the handle. It is normally raised by a coiled spring 33 in compression between a collar 34 on the rod and the base of the stand.

In operation to throw the switch the han-

dle 32 is pushed down and turned one way or the other, according to the way the switch is to be thrown. This lowers the shoe and inclines its fin with respect to the line of the track. The advancing car causes the toe of the shoe to strike the cap 24 and depress that end of the lever 19 which raises the other end and turns the lever 12, disengaging its end from the lug 13. The fin 27 then strikes the roller 23 and swings the lever 19 horizontally, which through its connections with the rod 9 shifts said rod lengthwise and throws the switch-points accordingly. The spring 15, between the lever 12 and the collar 16, cushions the stroke. When the shoe rides off the pin 22, the spring 15 swings the free end of the lever 12 to engagement on the other side of the lug 13 and also restores the lever 19 to its original position. The handle 32 is then unhooked from the lug 31, and the shoe and rod 28 are raised to upper position by the spring 33. The shoe and its fin may be turned either way to throw the switch either way. The switch remains locked in last position until the next operation. The track mechanism may be boxed or inclosed or located under instead of above the ties, with no projecting portions except the pins 22.

I claim—

1. The combination with a switch-point and locking means therefor, of means for moving the point comprising a lever mounted for horizontal and vertical swinging movement, means carried by the car for first swinging said lever vertically and afterward swinging it horizontally, and a connection between the lever and the locking means whereby the vertical swinging movement of the lever may release the locking means.

2. The combination with a switch-point, of a lever having horizontal and vertical vibration and connected to the said point, means actuated by the vertical vibration of the lever to lock and unlock the lever, and means carried by the car to vibrate the lever horizontally and vertically, to unlock the same and throw the switch-point.

3. The combination with switch-points and a cross-rod connecting the same, of a lock-lever fulcrumed on the rod, a fixed projection engageable on one side or the other by the said lever, an operating-lever connected at one end to the lock-lever and to the cross-rod and having vertical vibration to disengage the lock-lever from the projection, and also having horizontal vibration to shift the rod and the points, and means carried by the car to vibrate the lever horizontally and vertically.

4. The combination with a switch-point, of a lever connected thereto and having horizontal and vertical vibration, a lock device connected to the lever and actuated by the vertical vibration thereof, an upright strike-pin on the lever, and a vertically-movable shoe carried by the car and having an upwardly-inclined toe and a depending longitudinal fin, the toe being arranged to strike the pin and depress the same to vibrate the lever vertically, and the fin being arranged to strike the side of the pin and vibrate the lever horizontally.

5. In a device of the kind stated, the combination of a vertically-movable turning rod supported in upright position on the car, a shoe at the lower end of said rod, tilted up in front and having a depending longitudinal fin, and track mechanism connected to the switch-points and having a lock, and also having means actuated by contact with said shoe and fin to release the lock and throw the switch.

6. The combination with switch-points and a cross-rod connecting the same, of a lock-lever fulcrumed on the rod, a fixed lug with which one end of the lever engages, a spring coiled around the rod on opposite sides of the lever and having a cross portion bearing on the lever and tending to engage the same with the lug, a vertically and horizontally vibrating lever connected to the lock-lever at one end, and means carried by the car to vibrate the lever both ways, to release the lock and shift the rod.

GEO. W. LONG.

Witnesses:
HARRY PRICE,
J. P. BULLARD.