

(No Model.)

2 Sheets—Sheet 1.

B. F. LOUGHMILLER.
RAILROAD SWITCH.

No. 529,126.

Patented Nov. 13, 1894.

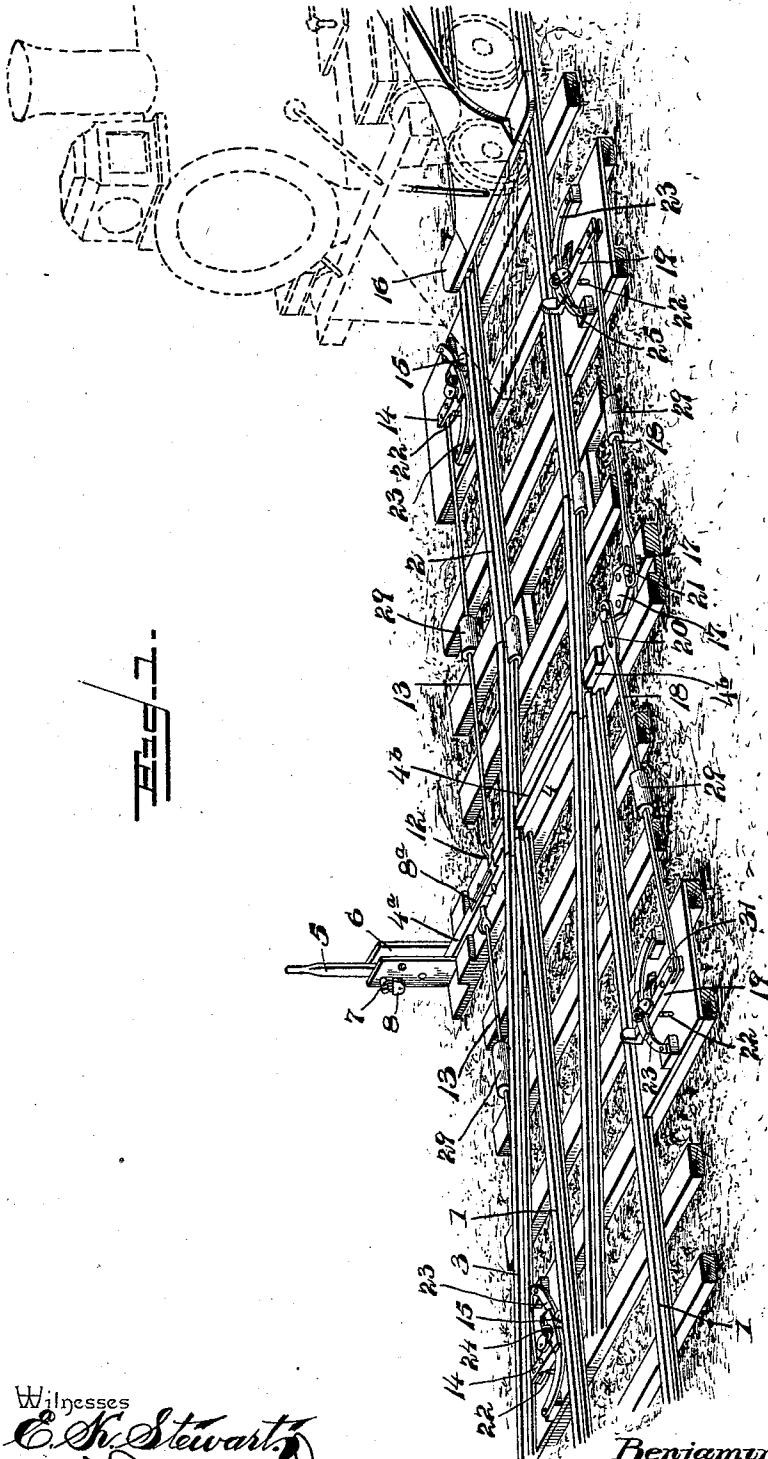


Fig. 1.

Inventor

Witnesses
C. H. Stewart
[Signature]

By his Attorneys

Benjamin F. Loughmiller
Cash & Co.

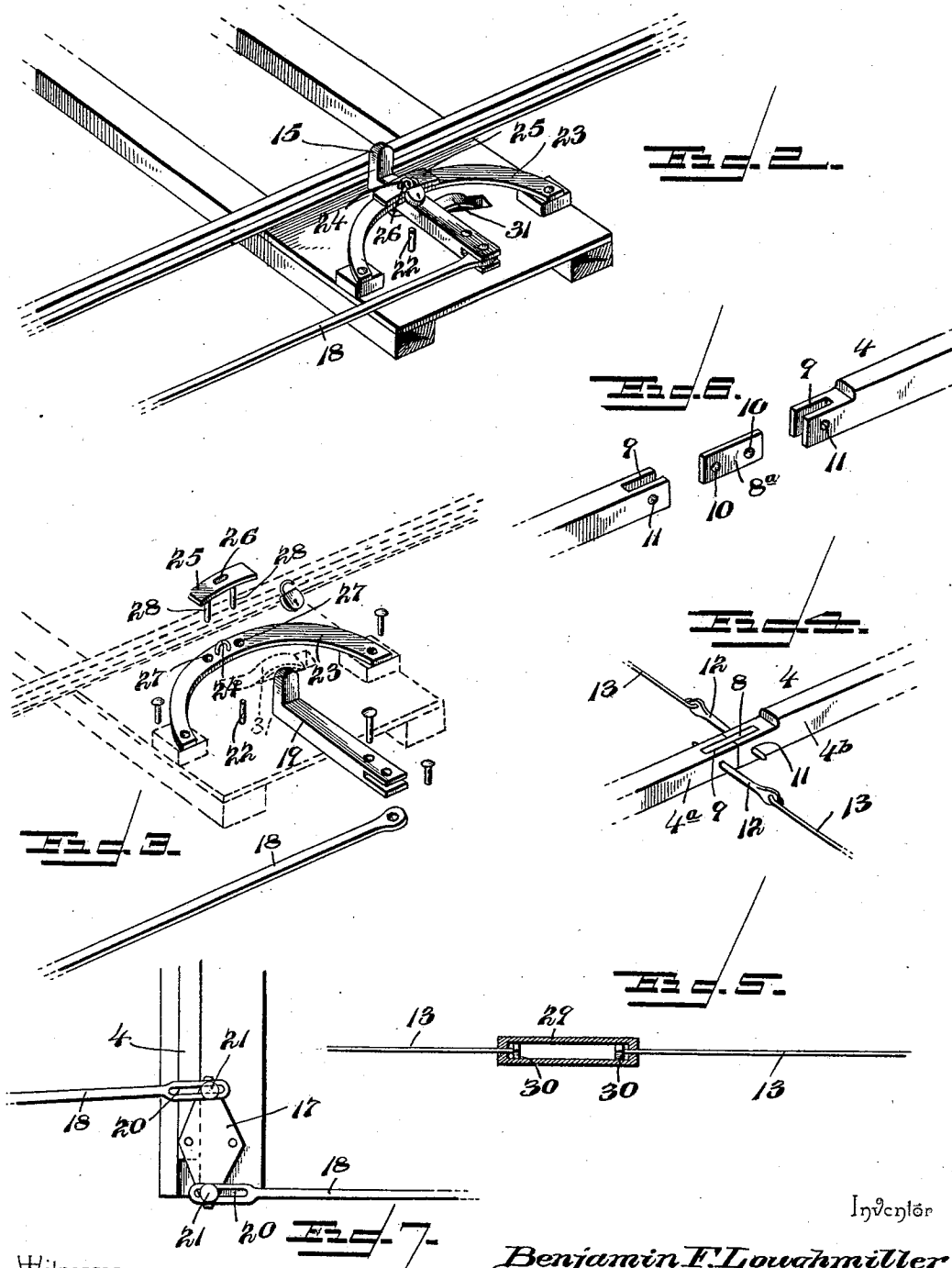
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2 Sheets—Sheet 2.

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Inventor

Benjamin F. Loughmiller

By his Attorneys.

Witnesses
C. H. Stewart
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UNITED STATES PATENT OFFICE.

BENJAMIN F. LOUGHMILLER, OF ASPEN, COLORADO, ASSIGNOR OF ONE-HALF
TO A. S. LAMB AND A. J. ROBINSON, OF SAME PLACE.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 529,126, dated November 13, 1894.

Application filed May 16, 1894. Serial No. 511,469. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. LOUGHMILLER, a citizen of the United States, residing at Aspen, in the county of Pitkin and State of Colorado, have invented a new and useful Railroad-Switch, of which the following is a specification.

My invention relates to railroad switches, and has for its object to provide a simple, efficient, and durable device, whereby an engineer may adjust the switch rails to the main-track, or close the switch, without reducing the speed of the train; to provide means for maintaining all of the parts of the switch in a locked condition, to prevent tampering with the same; and to provide means for releasing the parts when engaged by a bar or projection carried by the engine.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a perspective view of a switch-mechanism embodying my invention, applied in the operative position to a railway track. Fig. 2 is a detail view of one of the train-operated switch-levers, and connections. Fig. 3 is a similar view showing the means for locking said lever, detached. Fig. 4 is a detail view of a portion of the switch-bar, to show the joint between the sections thereof. Fig. 5 is a detail view showing the expansion and contraction coupling between parts of the connecting-rods. Fig. 6 is a detached view of the switch-bar joint. Fig. 7 is a detail view of the switch-plate and connections.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates the main-track rails; 2, the pivotal switch-rails, and 3 the siding-track rails; and 4 represents the switch bar which extends beneath and is connected to the free ends of the switch-rails. This switch-bar is formed in two parts or sections, 4^a and 4^b, of which the latter is arranged under the switch-rails and extends beyond the line of the track upon both sides; and of which the former is connected to one end of the latter and is in

turn connected to the lower end of the hand-operated switch-lever 5, fulcrumed to the switch-stand 6. This operating-lever 5 is adapted to be locked, with the switch-rails in their open position, or in alignment with the siding track rails by means of the locking-pin 7, held in place by a pad-lock 8, or other similar device, as shown in Fig. 1. The connection or coupling between the parts or sections of the switch-bar consists of a coupling-plate 8^a, fitting at its ends, respectively, in bifurcations or slots 9 in the adjacent ends of said parts or sections, the plate being provided with perforations 10 to register with corresponding perforations 11 in the members of the switch-bar, whereby the securing-pins 12 may be arranged therein to normally hold the parts of the bar connected, as shown in Fig. 1. It is obvious that upon the withdrawal of either of the securing-pins the parts of the bar are disconnected, and the part which is attached directly to the switch-rails may be moved independently of the other.

Connected to the securing-pins 12 by means of the rods 13 are the unlocking-levers 14, having upturned inner ends 15 arranged close to the line of one of the rails of the main-track, said end or terminal 15 extending slightly above the plane of the tread of the rail in position to be engaged by one end of an operating-bar 16 carried in a transverse position by the engine, and shown in Fig. 1. Any suitable means, (not shown) may be provided for raising and lowering this operating-bar, such means being under the control of the engineer.

Located upon the opposite side of the line of the track from the switch-stand, above described, is a pivotal switch-plate 17, preferably of diamond shape, as shown, said plate being pivoted adjacent to one of its obtuse angles to a tie or other stationary part of the structure and being similarly connected adjacent to the opposite obtuse angle to the adjacent end of the switch-bar. Connected by means of rods 18 to the acute angled portions of the switch-plate are the train-operated switch-levers 19, located respectively opposite the unlocking levers 14 and constructed similar thereto. The connecting-rods 18 are pro-

vided adjacent to the switch-plate with longitudinal slots 20 which engage pins 21 on the said plate, whereby the plate may be moved independently of the levers 19, or the latter independently of the plate, when not otherwise affected.

Stop-pins 22 are provided to limit the movements of both the levers 19 and 14 in one direction, namely, outward or from the switch-rails, and in addition thereto I have provided means for locking these levers independently of the above-described means for locking the switch-bar. As the means for locking these levers is the same for each, the description of the devices connected with one will be sufficient.

Spanning each lever is a segmental guide-bar 23, under which the lever operates to prevent vertical deflection, and secured to or formed integral with the bar at a point directly over the lever when the latter is in its normal position is an eye 24. A yoke 25 is provided with a slot 26 to engage or fit over this eye, and depending from the ends of the yoke and through perforations 27 formed in the guide-bar are locking pins or studs 28 which are arranged to depend upon opposite sides of the lever, whereby the latter is held from swinging upon its pivotal point. This yoke is held in place by means of a pad-lock engaging the eye 24 above the yoke. The strength of these locking pins or studs carried by the yoke is sufficient to resist ordinary efforts to operate the lever, but when the operating bar of an engine engages the terminal of the lever the pin or stud which is in the path of the lever is broken, thus releasing the lever and allowing it to perform its function.

Assuming, as shown in Fig. 1, that the parts of the switch are arranged in the "open" position, in alignment with the siding track rails and that the hand-operated lever and the train-operated levers are locked by the means provided for that purpose to prevent change by unauthorized persons, it will be seen that an approaching train by means of its operating-bar engages the terminal of an unlocking lever and immediately thereafter the terminal of the adjacent operating-lever 19, breaking the locking-pins or studs 28 in both cases and moving the levers. The movement of the unlocking lever withdraws the connected securing-pin from the coupling between the parts of the switch-bar, thereby freeing the part which is secured to the switch-rails and hence freeing the switch-rails, and the movement of the lever 19 swings the switch-plate and adjusts the switch-rails, as hereinbefore described. In passing over the set of levers at the other side of the switch, if the operating-bar is not elevated, the locking-pins or studs will be broken as above described, without affecting the progress of the train or causing any injury to any of the parts of the mechanism. The unlocking-levers are arranged at greater distances from the switch than the levers 19, whereby the parts of the

switch-bar may be disconnected before movement is imparted to the said bar.

To provide for expansion and contraction of the connecting rods, due to changes of temperature, I employ a tube 29 in which are fitted the heads 30 on the extremities of separate parts of the rod, said heads being preferably formed of nuts, as shown, and the bore of the tube being reduced slightly at its ends to prevent the displacement of said heads. As the strain upon these rods in operation is tensile this connection does not affect their operativeness.

It will be understood that in practice various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention. I also provide retaining springs 31 for holding the train-operated switch-levers in place after having been adjusted to the closed position or in alignment with the main track rails, to prevent vibration and displacement of the switch-rails.

Having thus described my invention, I claim—

1. In a railroad switch, the combination with the movable switch-rails, of a sectional switch-bar, one section of which is attached to the switch-rails, a hand-operated switch-lever connected to the other section of the switch-bar, means for locking said switch-lever, a coupling between the sections of the switch-bar consisting of a plate and securing-pins engaging perforations in said plate and the adjacent ends of the sections of the switch-bar, a switch-plate connected to the switch-bar, train-operated switch-levers connected respectively to opposite ends of the switch-plate, unlocking-levers connected respectively to the securing-pins, and means for locking the train-operated switch-levers and the unlocking-levers, substantially as specified.

2. In a railroad switch, the combination with movable switch-rails, of a sectional switch-bar one member of which is secured to the switch-rails, a switch-plate connected to said member of the switch-bar, a hand-operated switch-lever connected to the other member of the switch-bar, means for locking said switch-lever, a coupling connecting the members of the switch-bar, unlocking-levers connected to said coupling, train-operated switch-levers connected to the switch-plate, and locking devices for the unlocking and train-operated switch levers, consisting of guide-bars, yokes provided with pins or studs arranged upon opposite sides of said levers, the yokes being supported by the guide-bars, and means for locking the yokes in place, substantially as specified.

3. In a railroad switch, the combination with switch rails, a switch-bar, a switch-plate connected to the switch-bar, and switch-levers connected to said switch-plate, of locking devices for said levers having yokes provided

with depending pins or studs arranged in the path of the levers, and means for supporting the yokes, substantially as specified.

4. In a railroad switch, the combination
5 with switch rails, a switch-bar, a switch-plate
connected to the switch-bar, and switch-levers
connected to the switch-plate, of locking de-
vices for the levers consisting of guide-bars
extending over the levers, eyes fixed to the
10 said bars, yokes provided with slots to receive
said eyes and depending pins or studs fitting
in perforations in the guide-bars and arranged
in the paths of the levers, and a lock engag-
ing the eyes to prevent detachment of the
15 yokes, substantially as specified.

5. In a railroad switch, the combination
with switch rails, a switch-bar, a switch-plate
connected to the switch-bar, switch levers and
means for locking the same in their adjusted
20 positions, of rods interposed between the lev-

ers and the switch-plates, said rods being
sectional, and compensating couplings be-
tween the sections of the rods, substantially
as specified.

6. In a railroad switch, the combination 25
with switch rails, a switch-bar, a switch-plate
connected to the switch-bar, and switch-levers
connected to said switch-plate, of locking de-
vices for said levers having pins depending
in the path of the levers, and retaining springs 30
arranged to hold the levers in their adjusted
positions from vibration, substantially as
specified.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in 35
the presence of two witnesses.

BENJAMIN F. LOUGHMILLER.

Witnesses:

JOSIAH BROWN,

H. R. JOHNSON.