

J. P. PULSIFER.
RAILWAY SWITCH.

APPLICATION FILED MAY 23, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

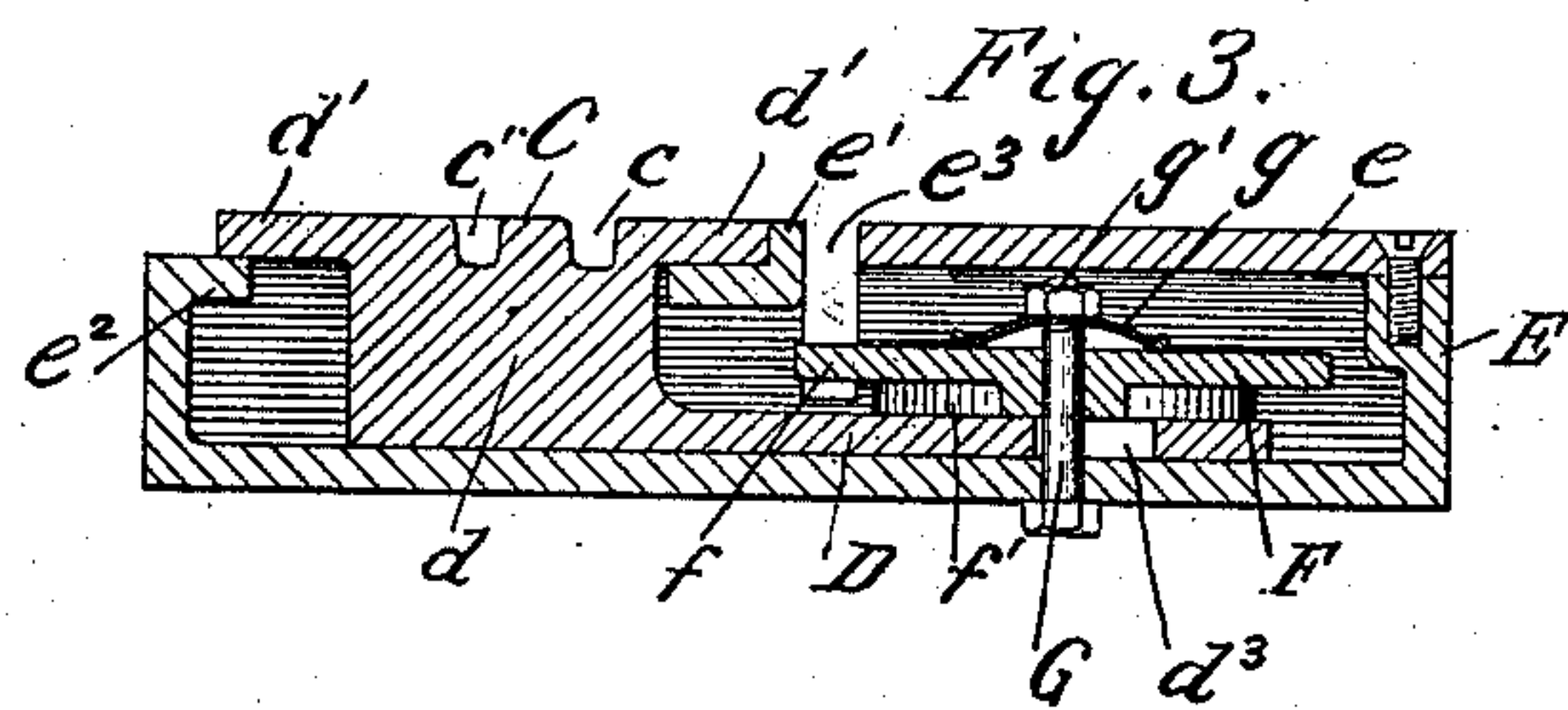
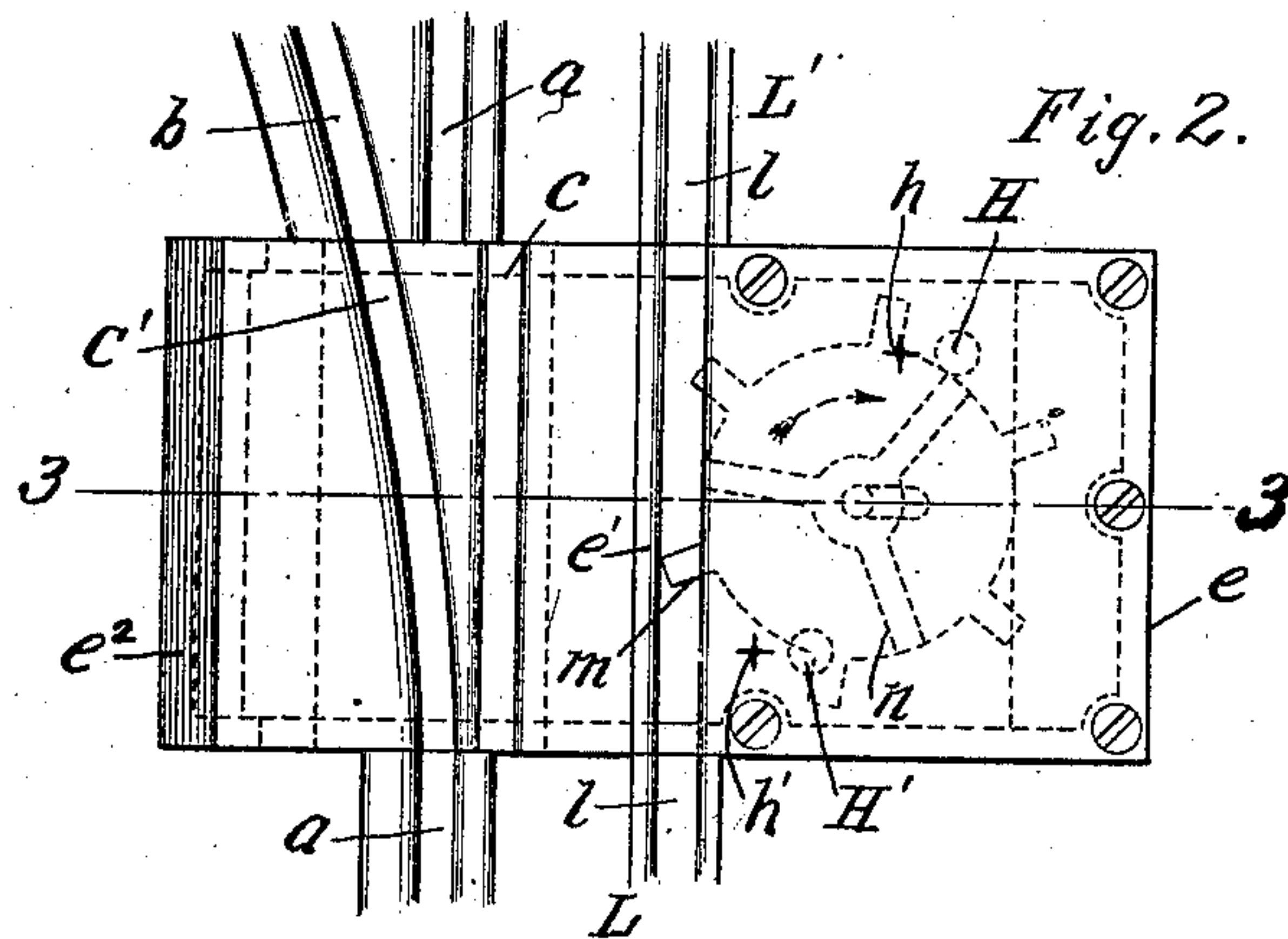


Fig. 4.

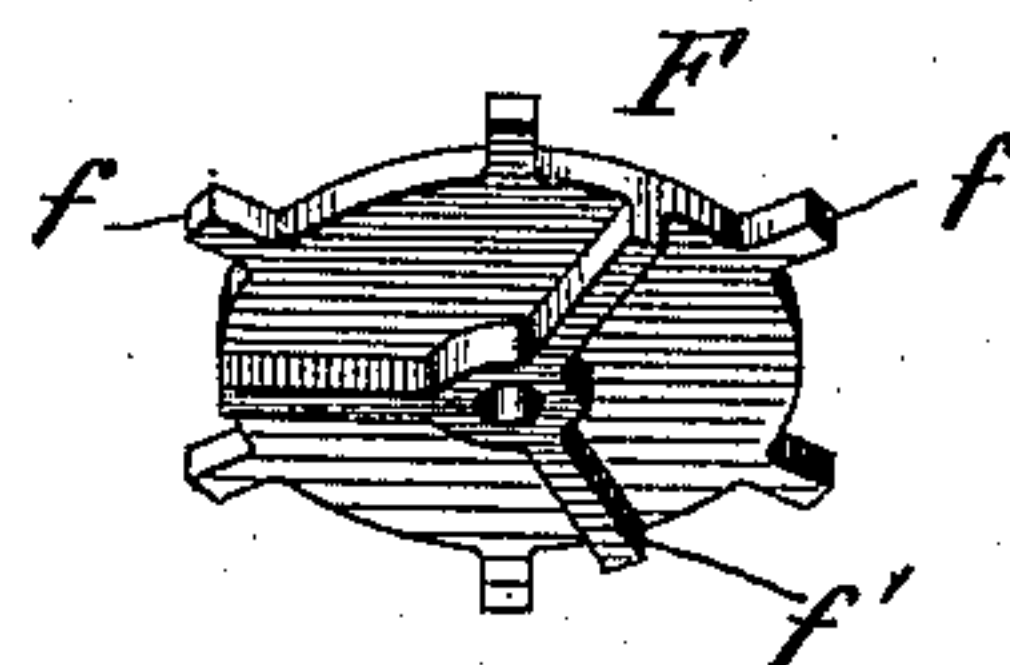


Fig. 5.

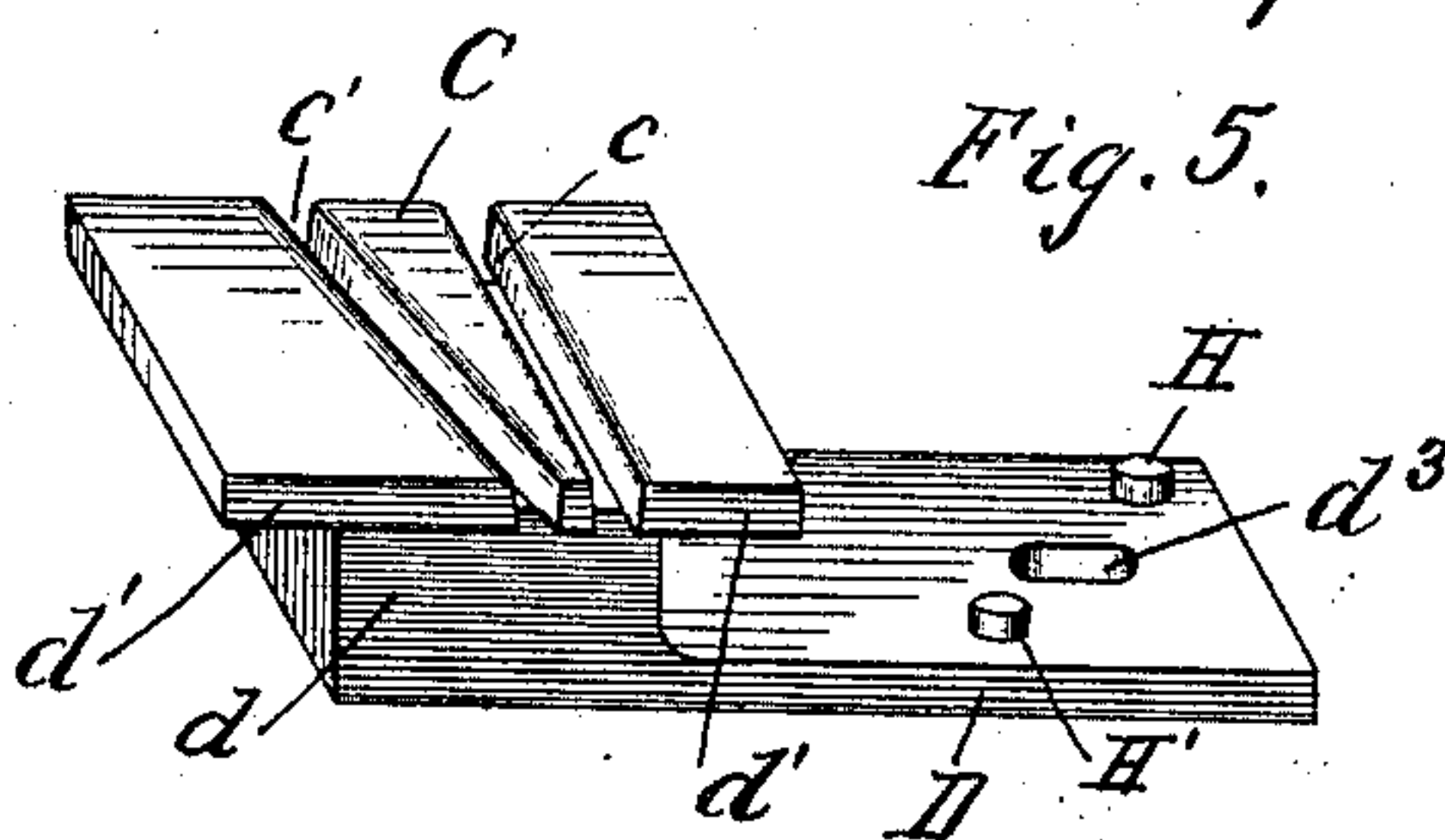
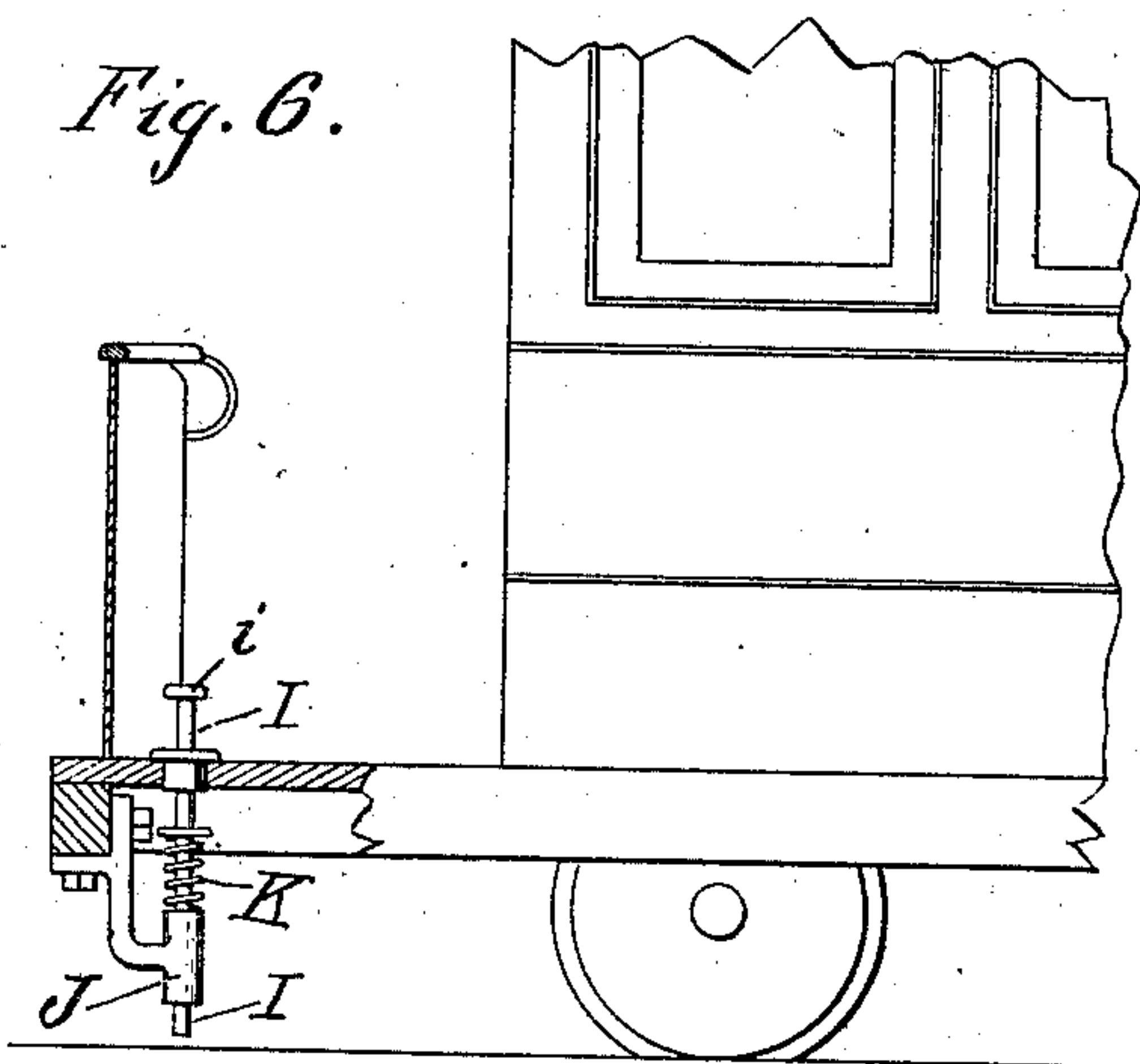


Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

JAMES P. PULSIFER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF TWO-THIRDS TO FRANK J. JOHNS AND JOHN NELSON GARRETT, OF SCRANTON, PENNSYLVANIA.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 746,644, dated December 8, 1903.

Application filed May 23, 1903. Serial No. 158,486. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. PULSIFER, a citizen of the United States, residing in Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification.

My invention relates to railway-switches of the class in which a car may be automatically shifted from a main track to a siding or branch track by means of devices carried by the car and under the control of the driver or motorman.

The object of my invention is to improve mechanism of this class in such manner as to render it more reliable in operation, less liable to be clogged by the presence of dust, snow, &c., and more easily accessible for inspection and repair.

In carrying out my invention I form a switch-point in the raised or enlarged portion of a plate which is mounted to slide in a closely-fitting box or case in such manner as to cause the switch-point to register with a rail of either the main track or a branch track. A wheel having radial teeth on its periphery is mounted within the box and is formed on its under face with radial ribs adapted to engage lugs projecting upwardly from the plate. The arrangement is such that when the wheel is turned through a portion of a revolution a rib thereon will engage one of the lugs and cause the plate to be shifted, thus changing the position of the switch-point relatively to the main and branch tracks. The lugs on the wheel are so disposed that when a car shifts the switch-point to one position the next car traveling in the same direction may, if desired, automatically shift the switch-point to the first position. Each car is equipped with a vertically-moving rod normally held elevated by a spring, but which when depressed is adapted to engage the teeth on the wheel and to cause it to revolve as the car passes over it, thereby bringing one of its ribs into engagement with a lug on the plate and effecting the shifting of the plate to change the position of the switch.

In the accompanying drawings, Figure 1 is a diagram showing a portion of a main track

and a switch or branch track with my improvements applied. I have also shown a portion of a street-car and have indicated by dotted lines the position of the rod which operates the switch. Fig. 2 is a detail top plan view, on an enlarged scale, of my improved switch. Fig. 3 shows a transverse section on the line 3 3 of Fig. 2. Fig. 4 is a perspective view of the toothed and ribbed wheel. Fig. 5 is a perspective view of the plate carrying the switch-point. Fig. 6 shows a portion of a street-car with the vertically-moving rod for operating the switch.

The main track A is joined to a branch track B in the usual way, except as hereinafter indicated. The rails shown are of the ordinary grooved type, and the joint at *x* and *y* may be of any approved form. The switch-point C is formed on the raised or enlarged portion *d* of a plate D, which is mounted to slide within a box or case E.

Grooves *c c'* on opposite sides of the point are adapted to register, respectively, with the grooves *a* and *b* of the rails A and B on one side of the tracks.

The box or case E has closed sides and ends and a removable top plate *e*, which covers about half of the box. The box is formed with a flanged cross-piece *e'*, and one end piece of the box is formed with a horizontal inwardly-projecting flange *e''*. The two opposite sides of the box are formed with slots or openings *e'''* between the top plate *e* and the cross-piece *e'* for a purpose hereinafter specified.

The raised portion *d* of the plate D is formed with flanges *d'*, which rest on the cross-piece *e'*, the flanges *e''*, and the top edges of the sides of the box and are guided thereby as the plate slides, the movement of the plate being limited by said flange and cross-piece and the arrangement being such that when the plate is at the limit of its movement in one direction the groove *c* will register with the groove *a* and when at the limit of its movement in the opposite direction the groove *c'* will register with the groove *b*.

Beneath the top plate within the box is a wheel F, having on its periphery a series of radially-projecting teeth *f* and on its under

side a series of radial ribs f' . This wheel is adapted to turn about a bolt G, passing through the bottom of the box, a slot d^3 in the plate, and through a hole in the wheel F.

- 5 A spring g , interposed between the nut g' and the wheel, holds the parts in proper relative positions.

As shown in Fig. 5, the plate D is provided with two upwardly-projecting lugs or studs 10 H H'. These are adapted to engage the ribs f' on the wheel in the manner indicated in Fig. 2. These studs are arranged on diagonally-opposite sides of the axis of the wheel F, the arrangement being such that while the 15 wheel may be turned in the same direction the plate is moved alternately in opposite directions.

Each car is provided with a vertically-moving rod I, guided by a bracket J and normally held elevated by a spring K. The driver 20 or motorman may depress the rod by placing his foot on the head i of the rod.

On opposite sides of the switch are guide-rails L L' for the rod I. The grooves l of these 25 rails are in line with the slots e^3 of the box E, and when the rod I is depressed it may pass into the groove l of one guide-rail through the slots e^3 and into the groove l of the other rail L'.

30 As shown in Figs. 1, 2, and 3, the teeth f are adapted to project across the path of the rod I in passing through the switch, the arrangement being such that there will always be one such tooth in a line with the slots e^3 .

35 In Fig. 1 the switch is so set that the main line is open and the cars may pass across the switch and keep on the main line, if desired; but if it is desired to pass onto the branch track the motorman or driver by depressing 40 the rod I will cause it to engage one of the teeth f and the wheel F to be given a partial revolution, resulting in the lateral movement of the plate D from the position shown in Fig. 1 to that shown in Fig. 2.

45 In Fig. 2 h h' indicate the positions of the lugs H H'. (Shown in Fig. 1.) If the switch is set, as indicated in Fig. 2, and the next car is to go onto the branch track, the driver or motorman does not depress the rod I; but if 50 the car is to take the main track the rod I is depressed and engages the tooth at m . This will cause the wheel F to be turned in the di-

rection indicated by the arrow, and the rod at n will engage the lug H' and cause the plate D to be moved to the left until the 55 groove c registers with the groove a . The switch may thus be shifted to the desired position by means of the rod I on the car. It is not necessary to stop the car to operate it, the operation being entirely automatic after 60 the rod I is depressed.

It will be observed that the point C is not pivoted, but is made rigid with the raised portion d of the plate D, which slides back and forth in a closely-fitting case, from which 65 dust, snow, &c., are excluded. The box or case is only open to a sufficient extent to allow the rod I to pass through it, and such foreign material as may enter the box through such opening may be readily removed after the 70 top plate e has been taken off.

I claim as my invention—

1. An automatic railway-switch, comprising a sliding plate carrying a switch-point, a box or case for said plate in which it is guided, 75 and mechanism within the box actuated from a passing car for reciprocating the plate.

2. An automatic railway-switch, comprising a sliding plate carrying a switch-point, a box or case in which said plate is guided, lugs 80 projecting from said plate, a toothed wheel within the box, and ribs on the wheel engaging the lugs on the plate.

3. An automatic railway-switch comprising a box or case, a toothed wheel therein having radial ribs, a plate guided by the box and carrying a switch-point, and lugs projecting from the plate on opposite sides of the axis of the wheel, and adapted to engage the ribs 90 on the wheel.

4. An automatic railway-switch comprising a sliding plate, a box or case within which the major portion of the plate is inclosed, and by which it is guided, a removable top plate for the box, a toothed, ribbed wheel within 95 the box beneath the top plate, and lugs on the sliding plate adapted to engage the ribs on the wheel.

In testimony whereof I have hereunto subscribed my name.

JAMES P. PULSIFER.

Witnesses:

M. H. HOOD,

MARY E. LOPEZ.