

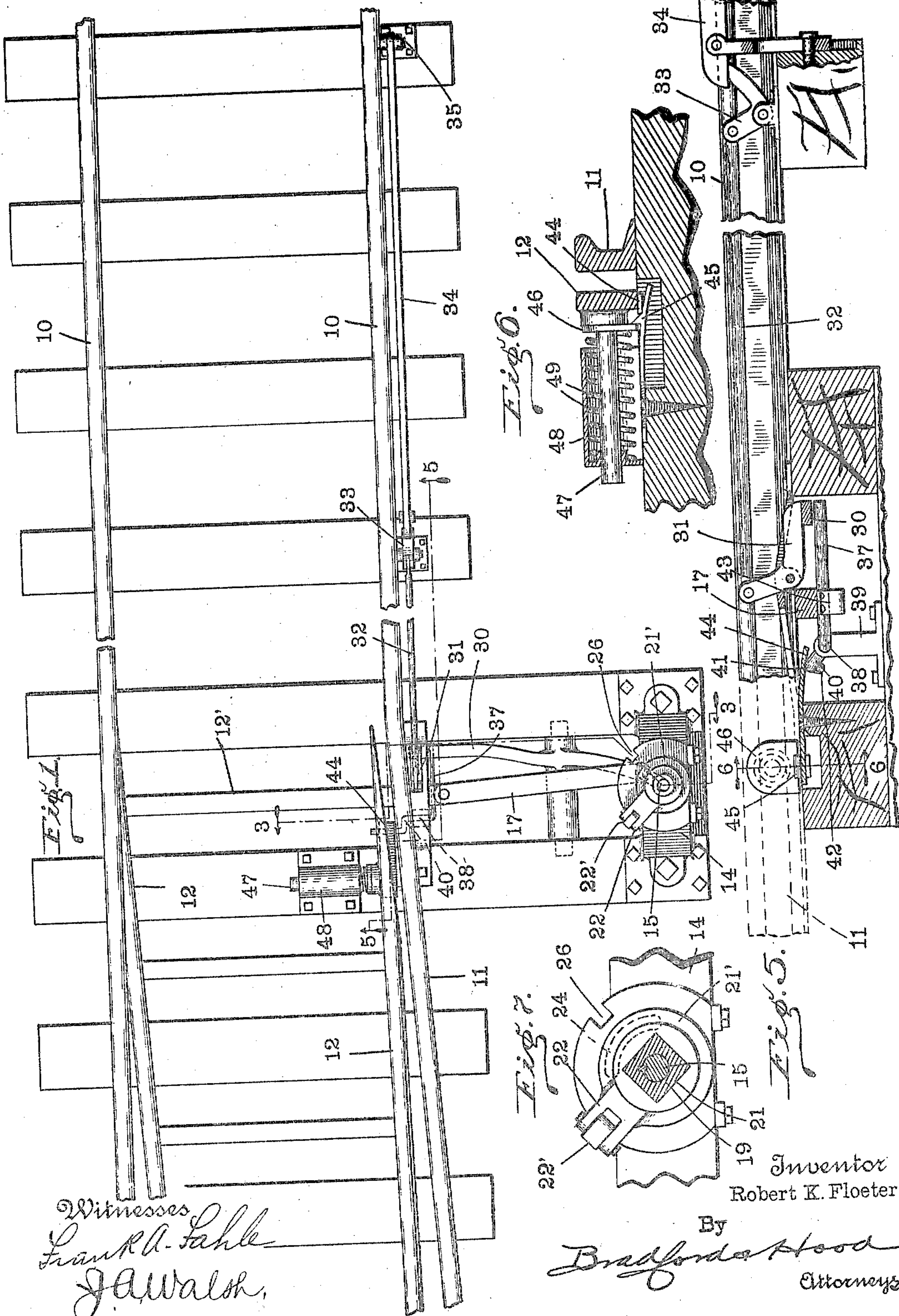
No. 811,627.

PATENTED FEB. 6, 1906.

R. K. FLOETER.
AUTOMATIC RAILROAD SWITCH.

APPLICATION FILED APR. 10, 1905.

2 SHEETS—SHEET 1.



Witnesses
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Fig. 7.

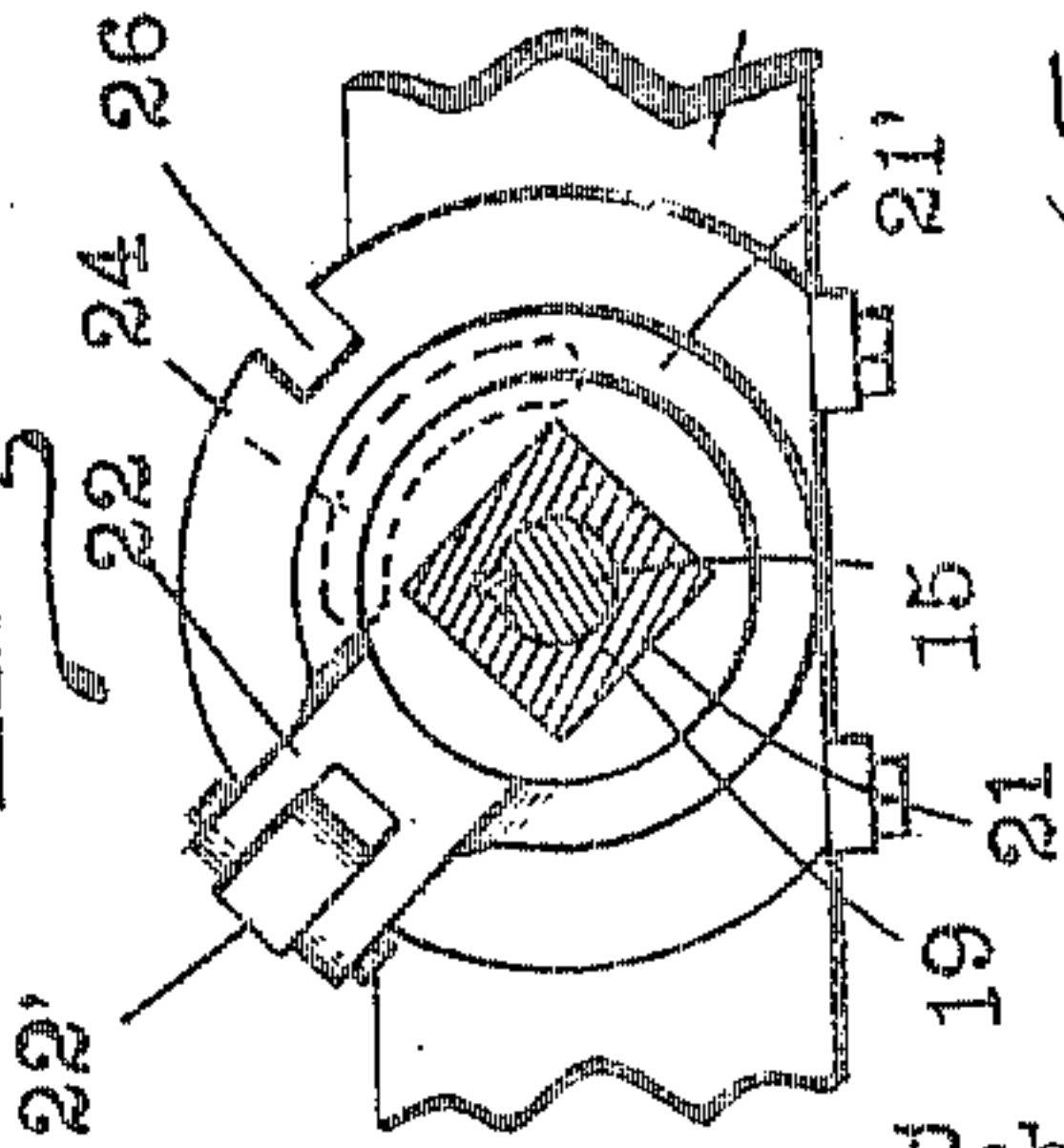


Fig. 8.

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AUTOMATIC RAILROAD-SWITCH.

No. 811,627.

Specification of Letters Patent.

Patented Feb. 6, 1906.

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To all whom it may concern:

Be it known that I, ROBERT K. FLOETER, a citizen of the United States, residing at Lima, in the county of Allen and State of Ohio, have
5 invented certain new and useful Improvements in Automatic Railroad-Switches, of which the following is a specification.

In the use of sidings of railway-tracks the switching crew sometimes carelessly fails to
10 reset the switch so as to clear the main line.

The object of my invention is to provide automatic means operated by the passage of a train on main line for resetting the switch-points so as to clear the main line.

15 The accompanying drawings illustrate my invention.

Figure 1 is a plan of a short section of track and siding equipped with my invention; Fig. 2, a side elevation thereof; Fig. 3, an enlarged
20 sectional detail on line 3 3 of Fig. 1; Fig. 4, a detail of part of the structure shown in Fig. 3; Fig. 5, an enlarged section on line 5 5 of Fig. 1; Fig. 6, a vertical sectional detail on line 6 6 of Fig. 5, and Fig. 7 a section on line
25 7 7 of Fig. 3.

In the drawings, 10 10 indicate the main-line rails, 11 one of the siding-rails, and 12 the movable switch-points, one of which forms a part of the main line and the other
30 of which forms a part of the siding. These two switch-points 12 are connected together in any usual and well-known manner.

Located adjacent the switch-points is a switch-stand 14, in which is journaled a vertical shaft 15, provided at its lower end with a cranked portion 16. Connecting the cranked
35 portion 16 with the cross-bar 12' of the switch-points is a link 17.

Thus far the construction described may
40 be of any standard or desired construction. Instead of making the shaft 15 vertically fixed, as has been heretofore customary, said shaft is movable vertically through the switch-stand and is held normally down by means of
45 a spring 18, (or by its own weight.) Above the top of the switch-stand shaft 18 is provided with a square or polygonal collar 19, which is shielded by an overhanging flange 20. The collar 19 fits within a squared or poly-
50 gonal opening 21, formed in a hand-lever 22, which is reciprocable upon the top plate of the switch-stand about the axis of the shaft 15. The hand-lever 22 is held in position by means of a headed pin 23, which
55 passes upward through a segmental slot 24, (see Fig. 3,) formed in the upper plate of the

switch-stand. Hand-lever 22 consists in part of a swinging member 22', which is adapted to enter either one of a pair of usual notches 26, one of which is shown. The member 22
60 is provided with an annular flange 21', which surrounds the polygonal opening 21, and this flange fits within a groove 20', formed in the under surface of the overhanging flange 20, thus forming an effective shield for the por-
65 tion 19 and its receiving-opening 21.

Pivoted beneath link 17 so as to swing upon a horizontal axis is a lever 30, one end of said lever being cam-shaped, as at 30', so as to permit the lower end of the crank 16 to
70 engage it and ride upon it when the shaft 15 is turned to throw the switch-points to the position shown in full lines in Fig. 1. The opposite end of lever 30 lies beneath a vertical lever 31, which is parallel with the track
75 and is connected by a link 32 to a sufficiently-distant bell-crank lever 33, also parallel with the track. One arm of the lever 33 lies in position to be engaged by the vertically-mov-
80 able end of a track-lever 34, pivoted at 35 alongside of one of the main-line rails 10 in position to be engaged by any suitable operating member carried by the locomotive. The lever 30 also lies immediately above the
85 arm 37 of a rock-shaft 38, which lies beneath the track adjacent the switch-points and is journaled in a bracket 39, so as to swing upon a horizontal axis.

The opposite arm 40 of the rock-shaft 38 carries a wrist-pin composed of two parts 41
90 and 42, the outer portion 42 being at a less distance from the center of the rock-shaft than part 41. The rock-shaft is slidable as a whole through the bracket 39, and the sliding is automatically produced by means of a
95 yoke 43, attached to the under side of the bar 12' and embracing the arm 37 of the rock-shaft. Arranged over the wrist-pin 42 43 is one end of a pivoted lever 44, the other end of which lies above the free end of a catch 45.
100 Catch 45 is adapted to engage and normally retain the head 46 of a plunger 47, mounted in a suitable casing 48, the action of the catch 45 opposing a spring 49, mounted within the casing 48 and tending to urge the head 46
105 transversely of the line of track. Head 46 is adapted to engage one of the switch-points 12, so as to urge the same to main-line-closing position.

In operation the switch-point may be
110 moved by rocking the shaft 15 in the usual manner. The head 46 is normally engaged

by the catch 45, and the spring 49 is thus held against operation. When the switch-points are thrown into close relation with the head 46 and the rock-shaft 40 is shifted to the position shown in full lines in Fig. 3, where the portion 41 of the wrist-pin lies beneath the lever 44, if the operator properly returns the switch-points by an operation of the shaft 15 line 17 will serve to retract the rock-shaft 38 to the position shown in full lines in Fig. 4, thus withdrawing the portion 41 of the wrist-pin from beneath the lever 44, but having no effect upon the catch 45, so that when a train approaches the siding and the switch-points are in proper position to complete the main line the operating member carried by the locomotive for depressing the lever 34 will, even though it depresses said lever, have no effect upon the catch 45, for the reason that the portion 42 of the wrist-pin is not far enough from the center of the rock-shaft 38 to operate it. On the other hand, if the switchman has failed to return the switch-points to main-line position the operating member carried by the locomotive will engage the track-lever 34 and depress it, so as to operate through lever 33, link 32, lever 31, and lever 30, to swing rock-shaft 38, thus bringing the portion 41 of the wrist-pin into engagement with the lever 34, and thus retract catch 45 from head 46. At the same time the depression of lever 30 swings it to the position indicated in dotted lines in Fig. 3, thus lifting shaft 15 so as to throw the polygonal head 19 out of the opening 21, so that the switch-points are free to be moved to main-line-closing position by the spring 49. When such an automatic action has occurred, the switch-stand is locked against further operation, and in order to swing the switch-points again to open the siding it is necessary for the switchman to grasp the shaft 15 and lift it vertically, so as to withdraw collar 19 from the opening 21 and then swing the operating member 20 22' back to normal, whereupon the shaft 15 may be permitted to descend, so as to again engage the operating member and permit further usual operation of the switch-points.

I claim as my invention—

1. The combination, with the main-line and siding rails; of switch-points adapted to connect one with the other; switch-throwing means consisting of a cranked shaft, connections between the crank thereof and the switch-points, and a separable polygonal connection between the shaft and operating member; a spring for returning the switch-points to normal, a lever arranged adjacent the track to be engaged by a passing train, and intermediate connections between said lever and the shaft for producing axial separation of the polygonal connection between the said shaft and the operating member.

2. The combination, with the main-line

and siding rails and the movable switch-points for connecting one with the other, of a switch-stand, a vertical cranked shaft journaled in said switch-stand and axially movable therein, an operating member mounted on the switch-stand, a polygonal axially-separable connection between said operating member and the shaft, a connection between the crank of said shaft and the switch-points, a lever adapted to engage said shaft and shift the same axially, a lever arranged adjacent the track for engagement by a train, and intermediate connections between said lever and the shaft-shifting lever, whereby operation of said last-mentioned lever will shift the switch-stand shaft axially to separate the connection between said shaft and the switch-stand-operating member.

3. The combination, with the main-line and siding rails and the movable switch-points connecting one with the other, of a switch-stand, a vertical cranked shaft journaled in said switch-stand and axially movable therein, an operating member movable on the switch-stand, a polygonal axially-separable connection between said operating member and the shaft, a connection between the crank of said shaft and the switch-points, a lever adapted to engage said shaft and shift the same axially, a lever arranged adjacent the track for engagement by a train, intermediate connections between said lever and the shaft-shifting lever whereby operation of said last-mentioned lever will shift the switch-stand shaft axially to separate the connection between said shaft and the operating member, a catch for normally retaining the spring from action upon the switch-points, and intermediate connections between said catch and the track-lever for automatically withdrawing the catch.

4. The combination, with the main-line and siding rails; of switch-points adapted to connect one with the other; switch-throwing means consisting of a cranked shaft, connections between the crank thereof and the switch-points, and a separable polygonal connection between the shaft and operating member; a spring for returning the switch-points to normal, means for normally preventing the action of said spring upon the automatic operation of the switch-points, a lever arranged adjacent the track to be engaged by a passing train, and intermediate connections between said lever and the shaft for producing axial separation of the polygonal connection between the said shaft and the operating member.

5. The combination, with the main-line and siding rails and the movable switch-points connecting one with the other, of a switch-stand, a vertical cranked shaft journaled in said switch-stand and axially movable therein, an operating member movable on the switch-stand, a polygonal axially-sep-

arable connection between said operating member and the shaft, a connection between the crank of said shaft and the switch-points, a lever adapted to engage said shaft and shift the same axially, a lever arranged adjacent the track for engagement by a train, intermediate connections between said lever and the shaft-shifting lever whereby operation of said last-mentioned lever will shift the switch-stand shaft axially to separate the connection between said shaft and the operating member, a catch for normally retaining the spring from action upon the switch-points, and intermediate separable connections between said catch and the track-lever for automatically withdrawing the catch only when the switch-points are left open.

6. In an automatic switch-throwing apparatus, the combination, with the main-line and siding rails and the movable switch-points connecting one with the other, of an independent spring adapted to urge the switch-points to main-line-closing position, means for normally preventing the action of said spring on said switch-points, and means operated by the passage of a train to withdraw said preventing means only when the switch-points are out of main-line-closing position.

7. In an automatic switch-throwing apparatus, the combination, with the main-line and siding rails and the movable switch-points connecting one with the other, of a switch-stand, means operated by said switch-stand for manually throwing said switch-points from one position to the other, an independent spring for automatically throwing said switch-points to main-line-closing position, a catch arranged to normally prevent said action of said spring, an operating member arranged to withdraw said catch, and means automatically operated by the switch-stand for preventing the action of said operating member on the catch when the switch-points are in main-line position.

8. The combination, with the main-line and siding rails, of switch-points adapted to connect one with the other; switch-throwing means consisting of a cranked shaft, connections between the crank thereof and the switch-points, and a separable polygonal connection between the shaft and operating member; a spring for returning the switch-points to normal, a catch arranged to nor-

mally prevent said action of said spring, an operating member arranged to withdraw said catch, and intermediate connections between the switch-stand and said operating member for automatically preventing the action of said operating member on the catch when the switch-points are in main-line position.

9. In an automatic switch-throwing apparatus, the combination, with the main-line and siding rails and the movable switch-points connecting one with the other, of a switch-stand, means operated by said switch-stand for manually throwing said switch-points from one position to the other, a spring for automatically throwing said switch-points to main-line-closing position, a catch arranged to normally prevent said action of said spring, a rock-shaft, intermediate connections between said rock-shaft and said catch, train-operated means for operating said rock-shaft, and switch-stand-operated means for operating said rock-shaft into and out of catch-operating position when the switch-points are thrown out of and into main-line-closing position, respectively.

10. The combination, with the main-line and siding rails, of switch-points adapted to connect one with the other, switch-throwing means consisting of a cranked shaft, connections between the crank thereof and the switch-points, and a separable polygonal connection between the shaft and operating member, a spring for returning the switch-points to normal, a lever arranged adjacent the track to be engaged by a passing train, intermediate connections between said lever and the shaft for producing axial separation of the polygonal connection between the said shaft and the operating member, a catch arranged to normally prevent said action of said spring, a rock-shaft, intermediate connections between said rock-shaft and said catch, and switch-stand-operated means for shifting said rock-shaft into and out of catch-operating position when the switch-points are thrown out of and into main-line-closing position, respectively.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 3d day of April, A. D. 1905.

ROBERT K. FLOETER. [L. S.]

Witnesses:

ARTHUR M. HOOD,
JAMES A. WALSH.