No. 888,410. PATENTED MAY 19, 1908.

E. N. STROM.

SWITCH STAND.

APPLICATION FILED FEB. 1, 1908.

4 SHEETS—SHEET 1.

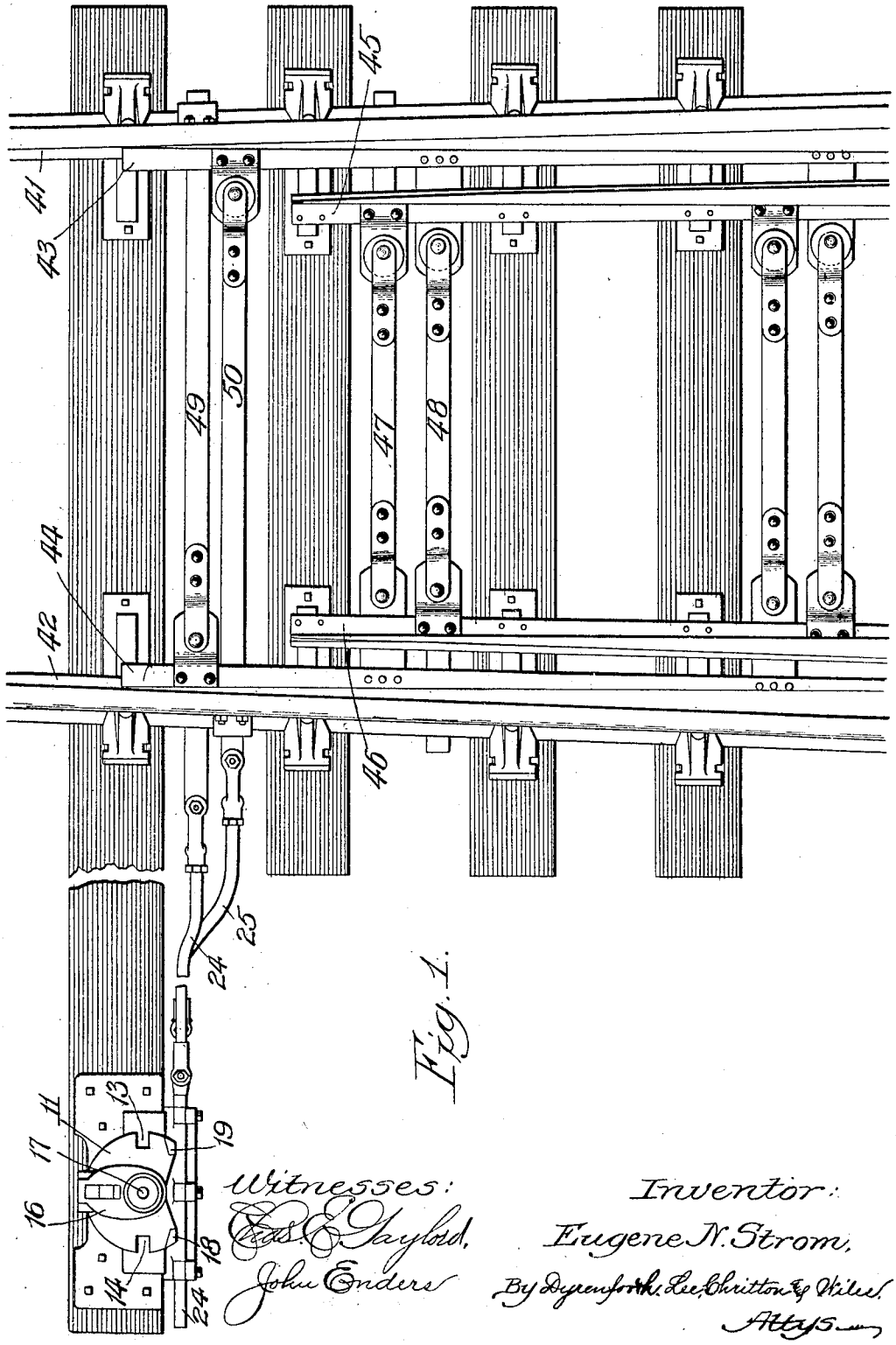


Fig. 1.

Witnesses:
Chas. E. Gaylord.
John Enders

Inventor:
Eugene N. Strom.
By Dyer, Tompkins, Lee, Christy & Wiles.
Attys.

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

No. 888,410. PATENTED MAY 19, 1908.

E. N. STROM.

SWITCH STAND.

APPLICATION FILED FEB. 1, 1908.

4 SHEETS—SHEET 2.

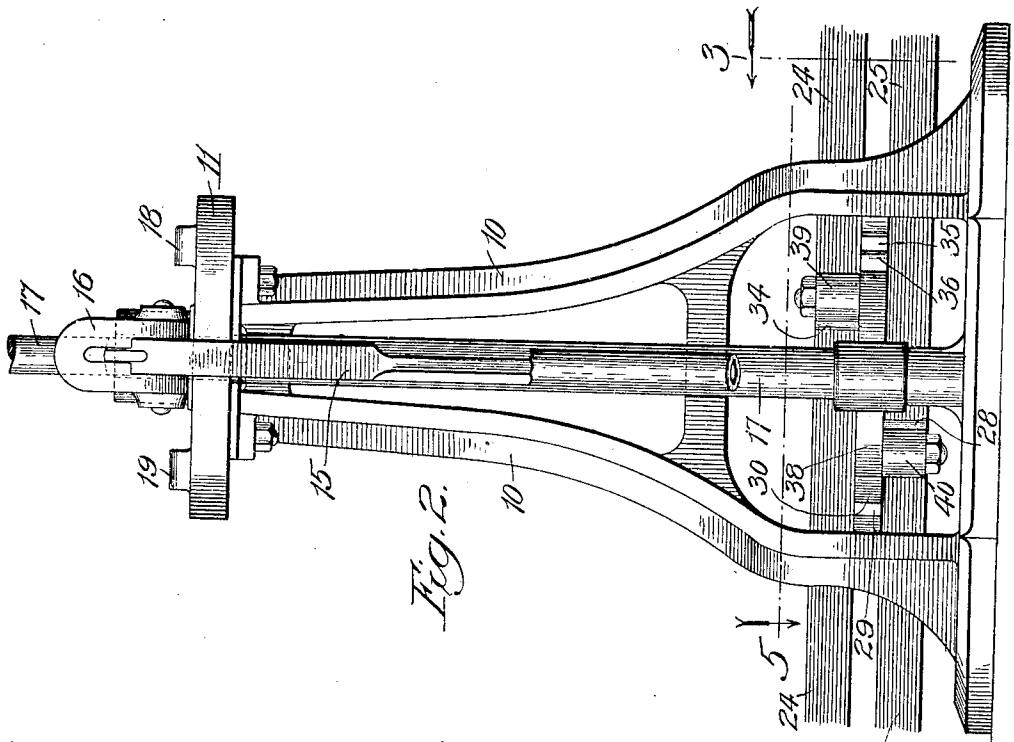


Fig. 2.

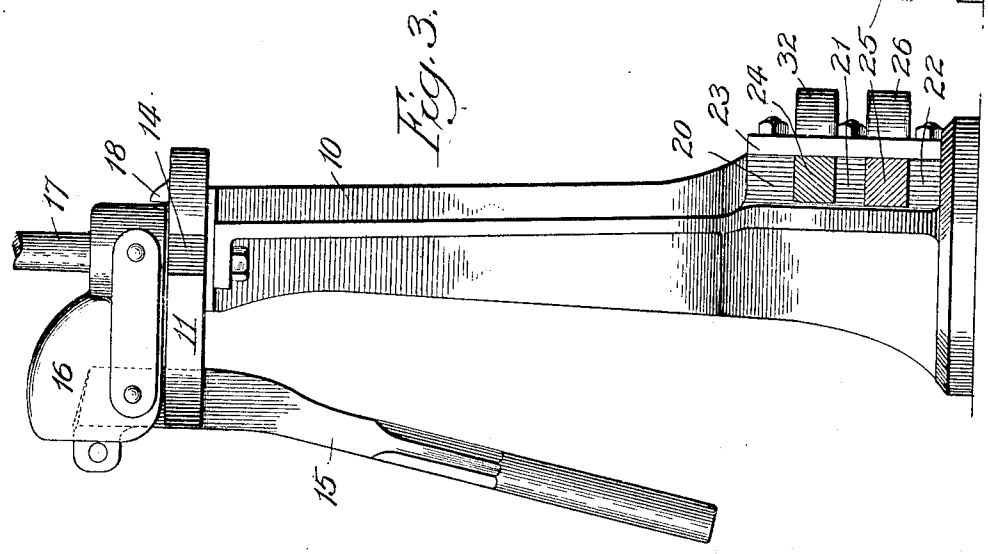


Fig. 3.

Witnesses:
Chas. E. Gaylord.
John Enders

Inventor:
Eugene N. Strom,
By Dyrenforth, Lee, Chritton & Hiles.
Attys.

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

No. 888,410. PATENTED MAY 19, 1908.

E. N. STROM.

SWITCH STAND.

APPLICATION FILED FEB. 1, 1908.

4 SHEETS—SHEET 3.

Fig. 4

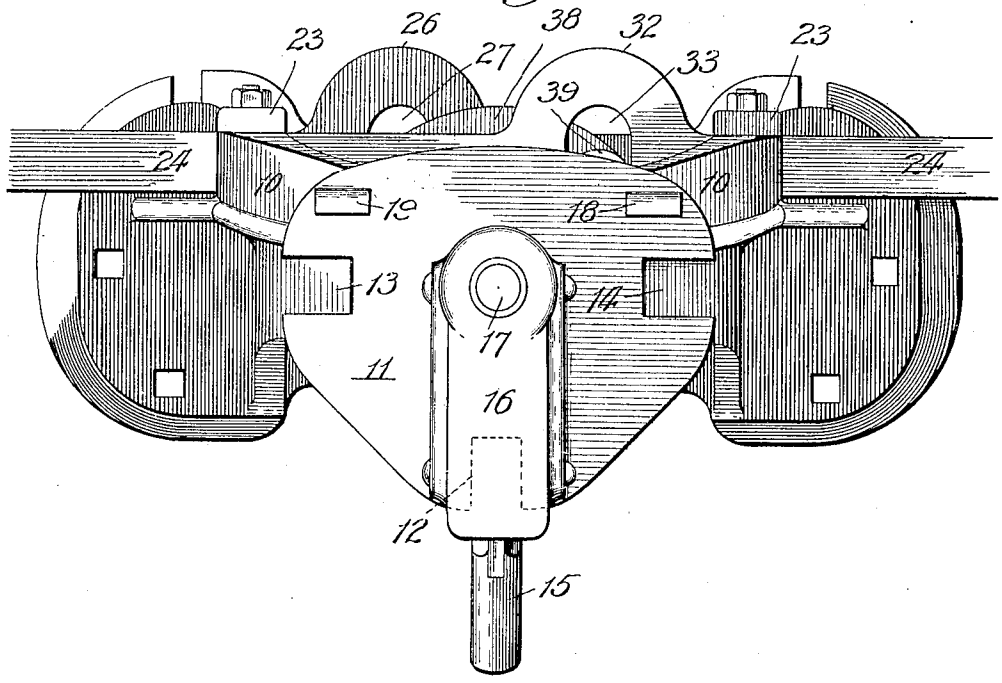
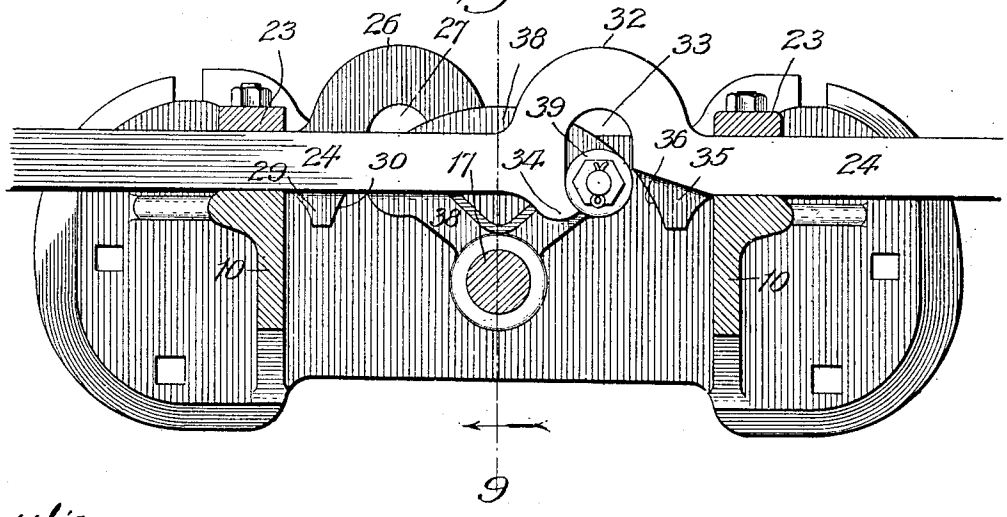


Fig. 5



9

Witnesses:
Carl L. Taybold.
John Enders.

Inventor:
Eugene N. Strom,
By Dyrenforth, Lee, Chritton & Wiles,
Attys.

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

No. 888,410. PATENTED MAY 19, 1908.

E. N. STROM.

SWITCH STAND.

APPLICATION FILED FEB. 1, 1908.

4 SHEETS—SHEET 4.

Fig. 6.

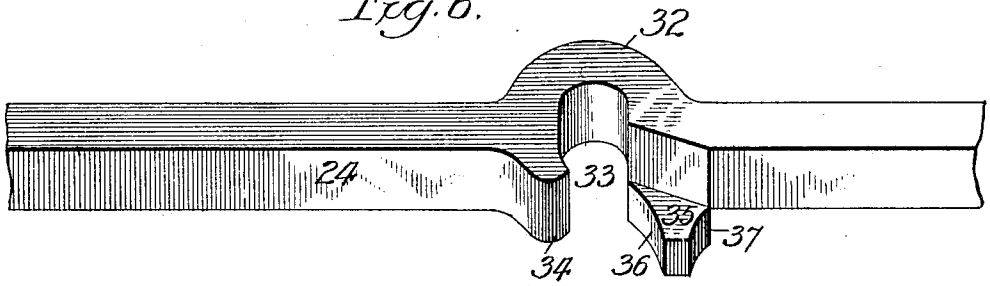


Fig. 7.

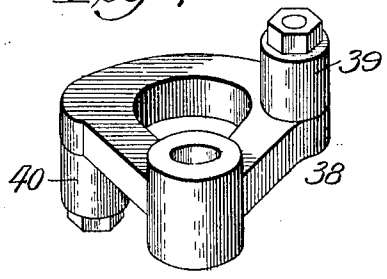


Fig. 8.

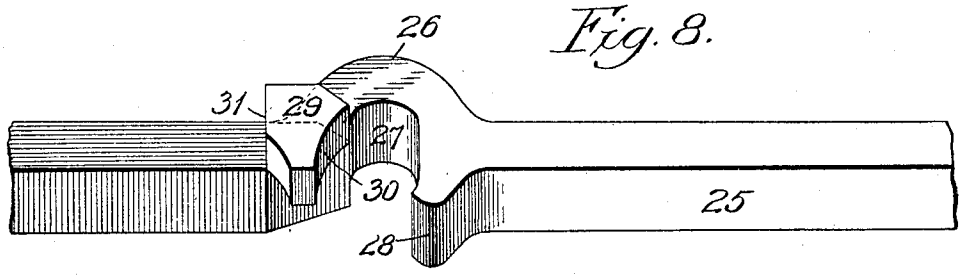
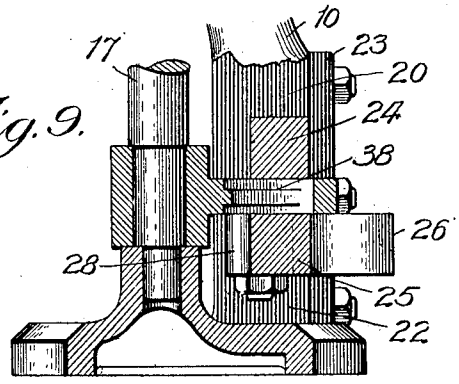


Fig. 9.



Witnesses:

Chas. E. Gaylord.

John Enders

Inventor:

Eugene N. Strom,

By Dyrenforth, Lee, Chritton & Wilcox.

Attys.

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

UNITED STATES PATENT OFFICE.

EUGENE N. STROM, OF AUSTIN, ILLINOIS, ASSIGNOR TO PETTIBONE, MULLIKEN & CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SWITCH-STAND.

No. 888,410. Specification of Letters Patent. Patented May 19, 1908.

Application filed February 1, 1908. Serial No. 413,824.

To all whom it may concern:

Be it known that I, EUGENE N. STROM, a citizen of the United States, residing at Austin, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Switch-Stands, of which the following is a specification.

The present invention is in the nature of an improvement upon the construction of switch-stand shown and described in Letters Patent of the United States No. 714,060, granted to me November 18, 1902; said construction being adapted for operating the three-throw and other multiple-throw variety of railway-switch, and involving the use of two longitudinally-reciprocable rack-bars for connection with the switch to throw it by turning an oscillating shaft with which the bars are engaged through the medium of mutilated pinions.

The primary object of my present improvement is to provide a novel construction of the switch-operating mechanism which shall dispense with gears, with the advantages of simplifying the construction and rendering it more durable and easier to operate and enabling the device to be embodied in an ordinary form of upright switch-stand.

Referring to the accompanying drawings, Figure 1 is a plan view, partly broken, showing a three-throw railway-switch equipped with my improved switch-stand; Fig. 2, a view in elevation of the switch-stand regarded from the top side of Fig. 1, with the ends of the reciprocating bars broken away; Fig. 3, a view in elevation of the switch-stand showing the reciprocating bars by a section taken at the line 3 on Fig. 2 and regarded in the direction of the arrow; Fig. 4, a plan view of the switch-stand on a larger scale than that observed in the representation thereof in Fig. 1; Fig. 5, a section taken at the line 5 on Fig. 2 and viewed in the direction of the arrow; Figs. 6, 7 and 8 are perspective views of the upper reciprocable bar, the bar-actuating head and the lower reciprocable bar, respectively, showing them unassembled but in the relative positions they occupy in the switch-stand; and Fig. 9 is a section taken at the line 9 on Fig. 5 and viewed in the direction of the arrow.

The switch-stand frame represented at 10 is one of an ordinary type in common use involving legs rising from a base at which it is adapted to be fastened in operative position, with a table 11 surmounting the frame and containing in its edge the notches 12, 13 and 14 at equal distances apart to receive and retain the operating lever 15 in its different positions, the lever being fulcrumed at one end on a yoke 16 secured above the table upon the rotatable switch-spindle or target-shaft 17 journaled in a bearing on the base and passing through a central opening in the table, which is provided with stops 18 and 19 at the ends of the throw of the lever.

Bearings 20, 21 and 22 project horizontally from a corresponding side of each frame-leg near its lower end and each set thereof is covered by a plate 23 bolted to the bearings, which form between them guide-ways for the two horizontally reciprocable bars 24 and 25. The lower bar, 25, contains between its ends a section 26 expanded toward one side of the bar at a transverse recess 27 extending into the bar from its opposite side, with a lip 28 projecting at one side of the recess and a bearing-lug 29 provided on the top of the bar at the opposite side of the recess, where the face of the lug is shown at 30 to be concavely curved, the back of the lug presenting a stop-shoulder 31 for the purpose hereinafter explained. The upper bar 24 is the same as the lower bar with its enlargement 32, recess 33, lip 34 and bearing-lug 35 having the concavely-curved face 36 and stop-shoulder 37 arranged correspondingly to their arrangement on the lower bar. The bar 25 is reciprocably supported in the space between the bearings 21 and 22 and the bar 24 is similarly supported between the bearings 20 and 21, these bars being confined to move on their bearings by the plates 23. The upper bar slides on the top-face of the bearing-lug 29 on the bar 25, and the lower bar slides against the bottom-face of the bearing-lug 35 depending from the upper bar. On the spindle 17, in the plane between the two reciprocable bars, is secured to turn with it the hub of a head 38, preferably in the form shown of a segment, provided on one end with an upwardly-projecting stud 39, in the preferred form, as represented, of an anti-friction roller, in position to engage with the recess 33 in the upper bar; and a similar stud 40 depends from the opposite end of the head in position to engage with the recess 27 in the under bar.

The three-throw railway-switch in connection with which my improved switch-stand

is shown in Fig. 1 to be operatively applied presents no feature of novelty.

The divergent stock-rails are represented at 41 and 42, the longer point-rails at 43 and 44, and the shorter point-rails at 45 and 46. The point-rail 45 is connected in a usual manner by a head-rod 47 with the point-rail 44, and the point-rail 46 is similarly connected by a head-rod 48 with the point-rail 43. The point-rail 44 is pivotally connected through the medium of a switch-rod 49 with the adjacent end of the upper bar 24 and the point-rail 43 is similarly connected with the adjacent end of the lower bar 25 through the medium of a switch-rod 50. As will therefore be understood when with the rails in the relative positions for the main track in which they are shown the point-rail 44 is thrown in the direction away from the rail 42 into contact with the point-rail 46, it throws the point-rail 45 through the medium of the head-rod 47 into contact with the point-rail 43, and with the rails in the illustrative relative positions when the point-rail 43 is thrown in the direction away from the rail 41 into contact with the point-rail 45 it throws the point-rail 46 through the medium of the head-rod 48 into contact with the point-rail 44.

The described throwing of the switch-rails is produced by turning the operating lever 15 as follows: As shown, the lever is depending and confined in the central notch 12 to lock the switch with the rails set for the main track. In that condition of the switch-stand the bars 24 and 25 occupy the relative positions in which they are represented in Fig. 5 with the studs 39 and 40 at the open ends of the recesses 33 and 27, respectively, and the stop-shoulders 37 and 31 abutting against the adjacent inner sides of the frame-legs, to properly limit the outward movement of the bars. To throw the switch-rails 43, 46 the lever is raised out of the notch 12 to a horizontal position and turned toward the notch 13 until it is arrested by the stop 19, (thus toward the left) to rotate the spindle 17 and head 38 through an arc of ninety degrees until the lever registers with that notch and is dropped into it for locking the switch in the position to which it is thrown by the resultant entry of the stud 40 into and its engagement with the recess 27 to move the bar 25 and head-rod 50 correspondingly. Meantime the stud 39 turns out of the recess 33 and the convex edge of the head 38, which conforms to the concave face of the lug 35, engages the latter to lock the bar 24 against movement. At the end of this throw the section 26 coincides vertically with the section 32. By turning the lever back to the central notch 12 the rails 43 and 46 are thrown to their initial positions, and the bar 25 is thereby returned, under the reverse engagement of the stud 40 with the recess 27, to the position in which it is represented in Fig. 5. To throw the switch-rails 44, 45 the lever is turned toward the notch 14 to the position where it is arrested by the stop 18 (thus toward the right) until the lever registers with that notch and is dropped into it for locking the switch in the position to which it is then thrown by the resultant entry of the stud 39 into and its engagement with the recess 33 to move the bar 24 and the head-bar 49 correspondingly. Meantime the stud 40 turns out of the recess 27 and the convex edge of the head 38, which conforms to the concave face 30 of the lug 29, engages the latter to lock the bar 25 against movement. At the end of this throw the section 32 coincides vertically with the section 26. By reversing the throw of the lever to restore it to its central position the switch-rails 44, 45 are returned to the position in which they are represented in Fig. 1 to re-set them for the main track and the bars 24 and 25 are restored to their initial positions, in which each is in readiness to be engaged by the head 38 in the manner described for moving it by turning the operating-lever from its normal position toward the right or left.

What I claim as new and desire to secure by Letters Patent is—

1. In a switch-stand, the combination with its rotatory spindle carrying the operating lever, of a pair of bars each containing a recess and supported on the stand-frame to be independently reciprocated longitudinally, said bars being adapted to be connected with point-rails in a railway-switch, and a head on said spindle carrying studs in position to engage a stud with the recess in one or the other of said bars by turning the spindle toward the right or left, for the purpose set forth.

2. In a switch-stand, the combination with its rotatory spindle carrying the operating-lever, of a pair of bars, each containing a recess and supported one above the other on the stand-frame to be independently reciprocated longitudinally, said bars being adapted to be connected with point-rails in a railway-switch, and a head on said spindle carrying an upwardly projecting and a depending stud in position to engage, respectively, with the recess in the upper bar and that in the lower bar by turning the spindle in opposite directions, for the purpose set forth.

3. In a switch-stand, the combination with its rotatory spindle carrying the operating lever, of a pair of bars each provided with a laterally expanded section containing a recess and a bearing at the outer side of the open end of each recess, said bars being supported one above the other on the stand-frame to be independently reciprocated longitudinally and being adapted to be connected with point-rails in a railway-switch, and a bar-moving-and-locking head on said spindle carrying an upwardly-projecting and a de-

pending stud in position to engage, respectively, with the recess in the upper bar and that in the lower bar by turning the spindle in opposite directions to engage the head with one or the other of said bearings, for the purpose set forth.

4. In a switch-stand, the combination with its rotatory spindle carrying the operating-lever, of a pair of bars each provided with a laterally-expanded section containing a recess, and a concavely-faced bearing at the outer side of the open end of each recess, said bars being supported one above the other on the stand-frame to be independently reciprocated longitudinally and being adapted to be connected with point-rails in a railway-switch, and a segmental head on said spindle carrying an upwardly-projecting and a depending stud in position to engage, respectively, with the recess in the upper bar and that in the lower bar by turning the spindle in opposite directions to engage the convex edge of said head with the concave face of one or the other of said bearings, for the purpose set forth.

5. A switch-stand comprising, in combination, a frame provided with guide-bearings near its base and surmounted by a notched table, a spindle journaled in said frame and passing through the table, a yoke on the spindle above the table and an operating lever fulcrumed on the yoke to engage with the table-notches, bars supported one above the other in said bearings to be independently reciprocated longitudinally, and adapted to be connected with point-rails in a railway-switch, said bars being formed with laterally-expanded sections containing recesses and stop-bearings at the outer sides of the recesses, and a segmental head secured on the spindle to work between said bars and carrying on its opposite ends anti-friction studs in position to engage said recesses for moving the bars by turning the spindle, substantially as and for the purpose set forth.

EUGENE N. STROM.

In presence of—
A. U. THORIEN,
R. A. SCHAEFER.