

(No Model.)

4 Sheets—Sheet 1.

C. H. SHERWOOD.
RAILWAY SWITCH.

No. 586,570.

Patented July 20, 1897.

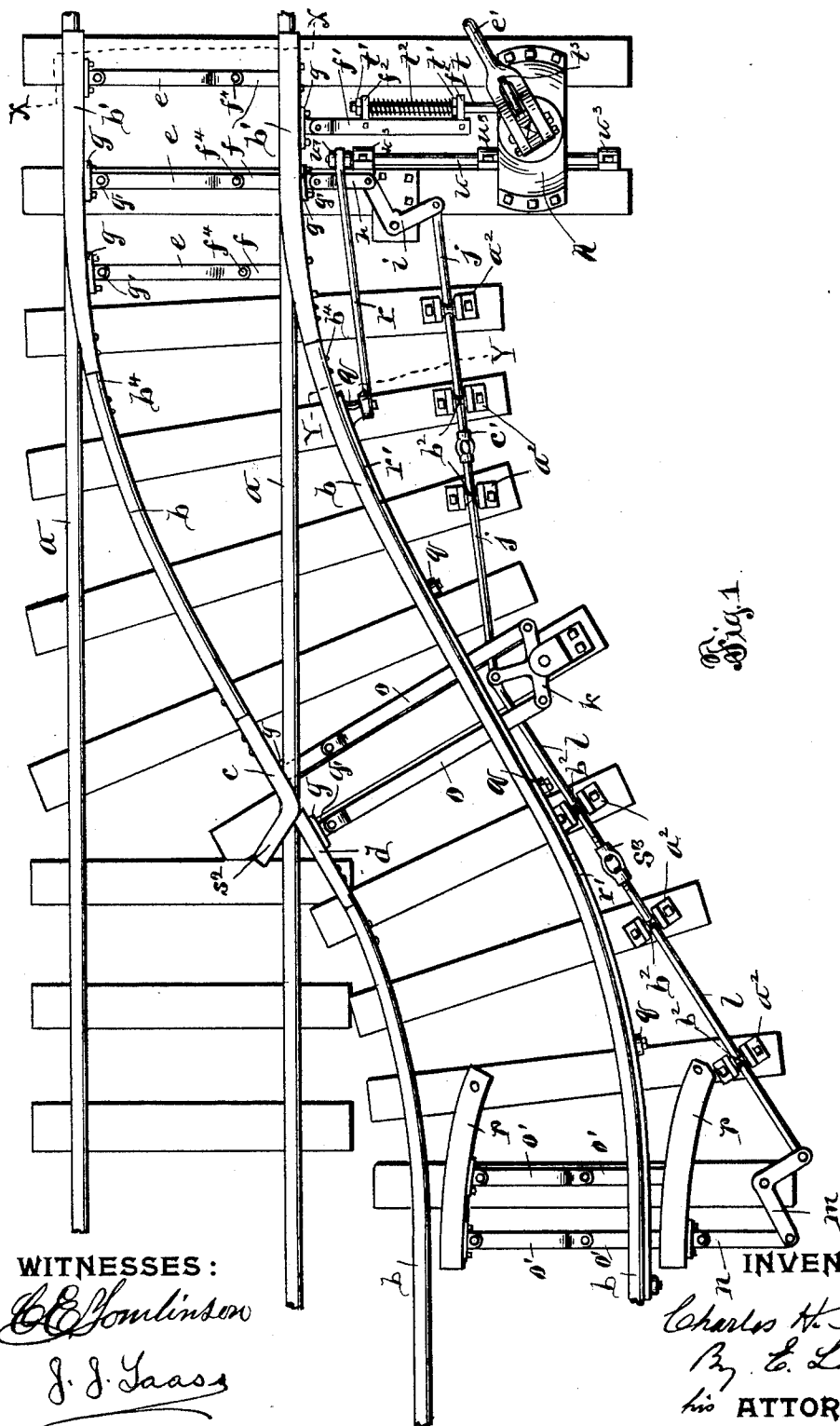


Fig. 1

WITNESSES:

C. E. Boulton
J. J. Laass

INVENTOR:

Charles H. Sherwood
By E. Lees
his ATTORNEY.

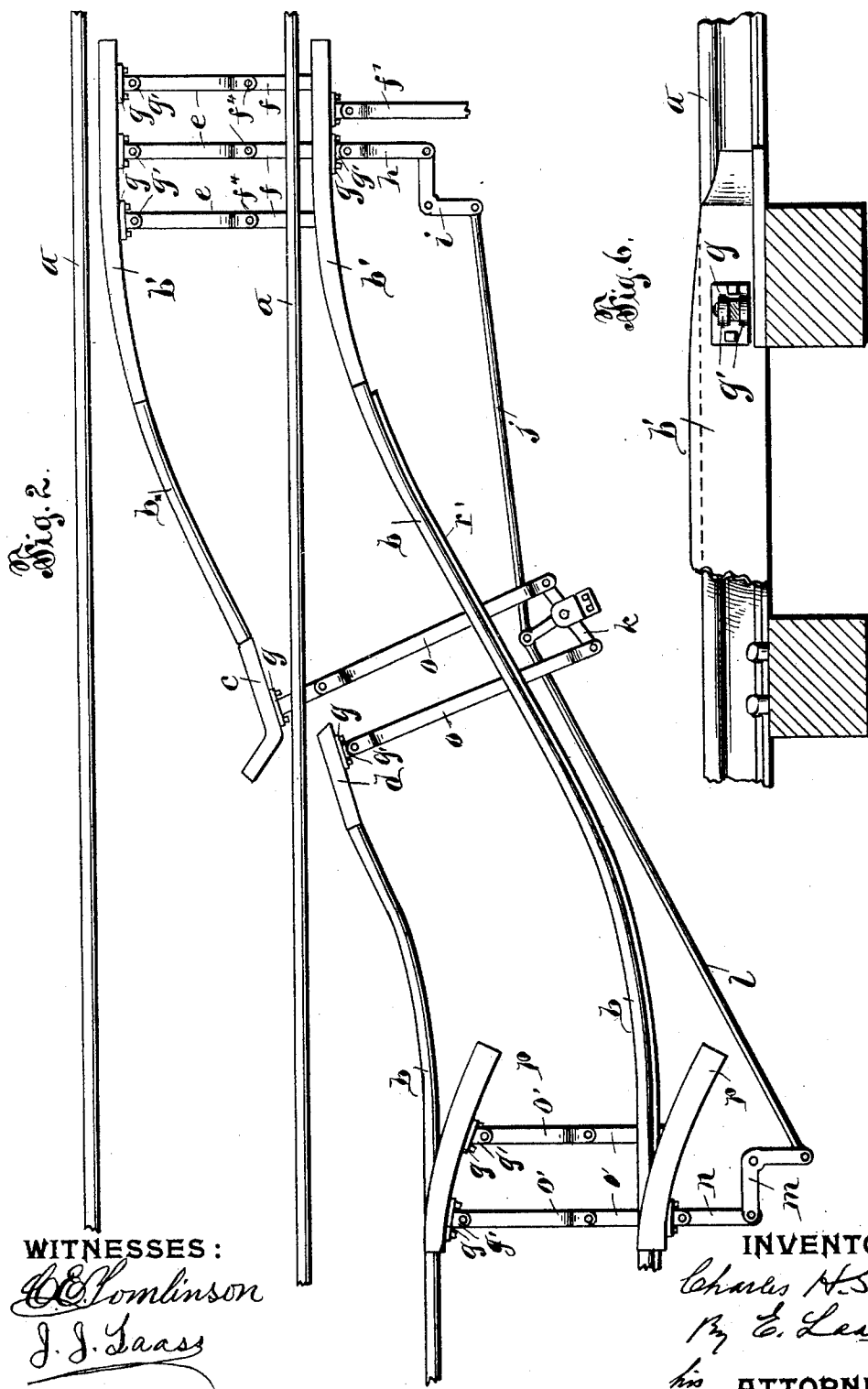
(No Model.)

4 Sheets—Sheet 2.

C. H. SHERWOOD.
RAILWAY SWITCH.

No. 586,570.

Patented July 20, 1897.



WITNESSES:

W. C. Tomlinson
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INVENTOR:

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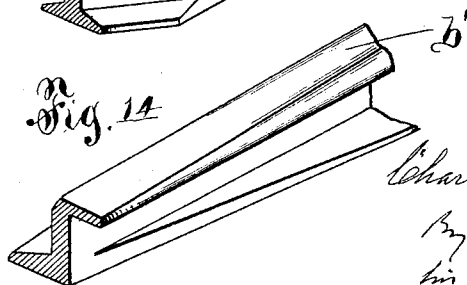
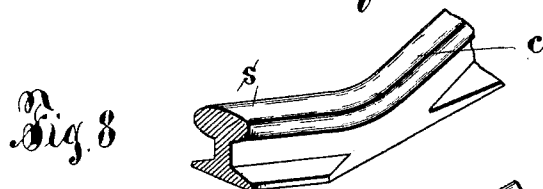
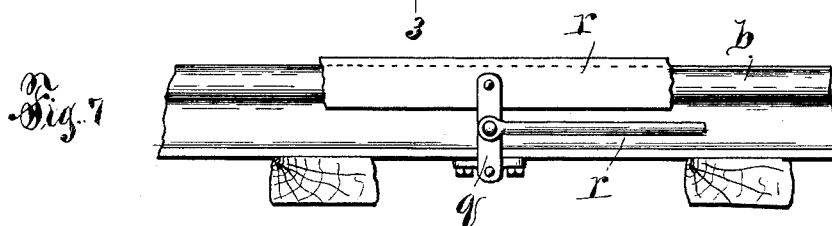
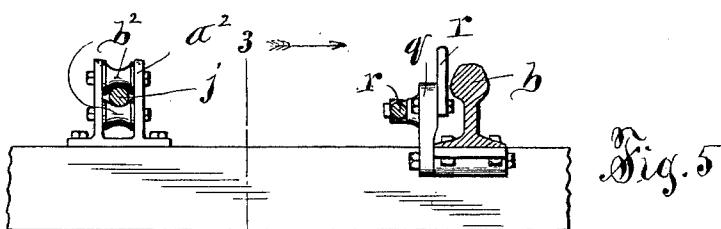
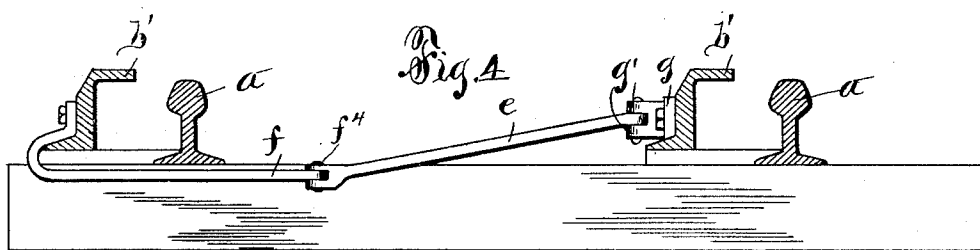
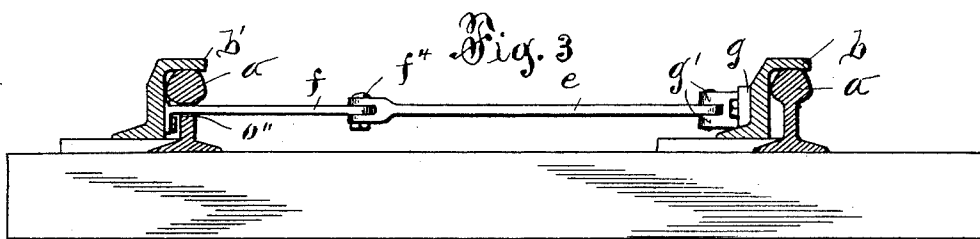
(No Model.)

4 Sheets—Sheet 3.

C. H. SHERWOOD.
RAILWAY SWITCH.

No. 586,570.

Patented July 20, 1897.



WITNESSES:

C. Robinson
J. J. Laas

INVENTOR

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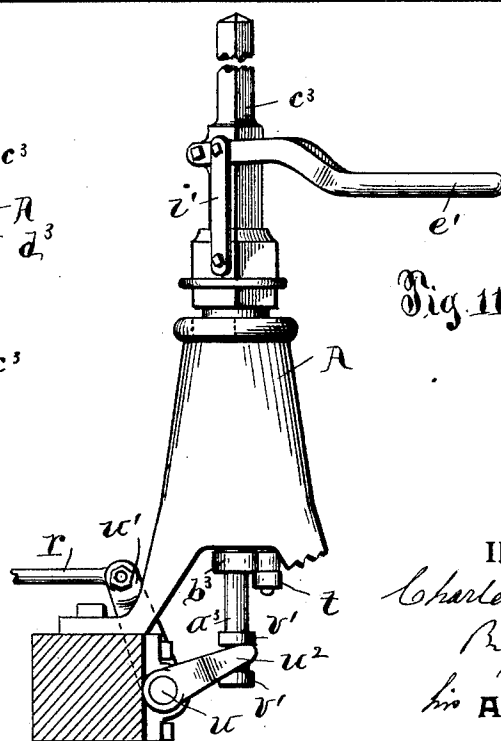
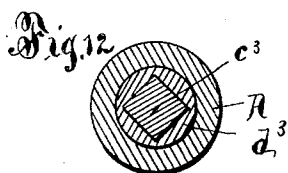
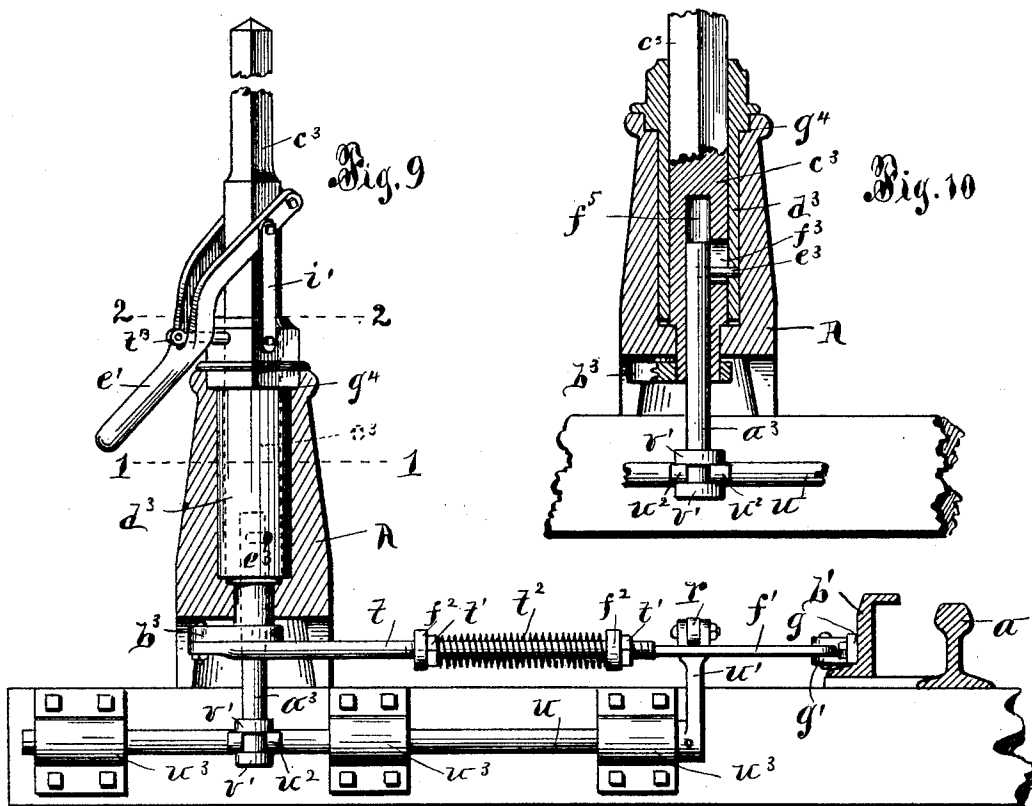
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4 Sheets—Sheet 4.

C. H. SHERWOOD.
RAILWAY SWITCH.

No. 586,570.

Patented July 20, 1897.



WITNESSES:

C. E. Tomlinson

J. J. Laess

INVENTOR:

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By C. Laess

ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES H. SHERWOOD, OF UTICA, NEW YORK, ASSIGNOR OF ONE-HALF
TO HENRY C. LYMAN, OF SHERBURNE, NEW YORK.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 586,570, dated July 20, 1897.

Application filed August 12, 1895. Renewed December 21, 1896. Serial No. 616,520. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. SHERWOOD, of Utica, in the county of Oneida, in the State of New York, have invented new and useful Improvements in Railway-Switches, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to a new and improved construction in railway-switches.

The object is to arrange a branch or switch extending from a main track in such a manner as not to disturb the main track and at the same time provide a simple, efficient, and reliable construction; and to that end the invention consists in the novel organization and combination of the component parts, as hereinafter fully described, and set forth in the claims.

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

Figure 1 is a plan view of a section of railway-track equipped with my improved switch and mechanism for operating the same, showing said switch closed or lying on the main-track rails. Fig. 2 is a similar view showing the switch open to the main track. Fig. 3 is an enlarged sectional view on line X X in Fig. 1. Fig. 4 is a similar view showing a slight modification of the arrangement of one of the cross-bars which connect the switch-rails. Fig. 5 is an enlarged sectional view on line Y Y in Fig. 1. Fig. 6 is an enlarged detail side view of the end portion of the end rail of the switch and adjacent portion of the main-track rail. Fig. 7 is a sectional view on line 3 3 in Fig. 5, looking in the direction of the arrow. Fig. 8 is a perspective view of one of the shifting rails or frog-sections of the branch or side track at its intersection with the main track. Fig. 9 is an enlarged detail view of the switch-stand, shown partly in section, and showing the switch-lever and its connection with the track-rail. Fig. 10 is a vertical transverse section of the switch-stand, showing more clearly the construction of the mechanism within the same. Fig. 11 is a view of another side of the switch-stand, showing in detail its connection with a portion of the mechanism connected to the aforesaid locking-rail.

Fig. 12 is a horizontal transverse section on line 1 1 in Fig. 9. Fig. 13 is a view on line 2 2 in Fig. 9, and Fig. 14 is a perspective view of a portion of one of the shifting switch-rails.

Similar letters of reference indicate corresponding parts.

a a represent two stationary rails of a section of the main track, and extending therefrom is a branch track consisting of the stationary rails *b b* and the laterally-shifting end rails *b' b'*, secured at one end to the rails *b b* by means of a flexible fish-plate *b'''*.

The bases of the end rails *b' b'* adjacent to the main rails are beveled off toward the end in order to allow said rails to lie on the main rails when shifted toward the same. The heads of said rails are also beveled on top toward the free ends and also on the inside toward to the ends, as clearly shown in Fig. 16 of the drawings. To the adjacent sides of said end rails are secured plates *g g*, having formed thereon ears *g'*. Said rails are connected by cross-bars *e e* and *f f*, extending, respectively, from the inner and outer rails and connected together by a bolt *f''''*. The main rail *a*, nearest the switch-stand, is provided with slots *o' o'*, through which the bars *f f* pass, as shown in Fig. 3 of the drawings, or said bars may be brought under the rail *a* and fastened to the outside of the outer rail *b'*, as shown in Fig. 4 of the drawings.

At the intersection of the branch track with the main track the branch is formed of two laterally-shifting rails or frog-sections *c* and *d*, secured to the rails *b* in the same manner as the end rails *b'*.

The base of the rail *c* adjacent to the rail *a* is cut off, and the free end portion of said rail is bent away from the rail *a*, as shown at *s''*, for the purpose hereinafter described.

To the inside of each of the rails *c* and *d* are also secured plates *g g*, having ears *g'* formed thereon similar to the plates on the end rails *b'*. From each of said ears, extending across the track, is a cross-bar *o* and pivoted at its opposite end to one of the arms of a T-shaped lever *k*.

On the outside of the end rail *b'* nearest the switch-stand are secured two of the plates *g*, having the ears *g'*, and from one of

said plates extends a bar *h*, pivoted at its opposite end to one of the arms of a bell-crank lever *i*. From the other arm of said lever to the third arm of the T-shaped lever extend rods *j, j*, adjustably connected by means of a turnbuckle *c'*.

At a suitable portion of the branch track are arranged two derailing-rails *p p*, which are suitably pivoted at one end and have the free end portion movable laterally on and off the rails *b b* and are formed similar to the end rails *b' b'*. Said rails *p p* are connected by cross-bars *o' o'* in the same manner as the aforesaid end rails, and from the outer of said rails extends a bar *n*, pivoted at its opposite end to one of the arms of a suitably-supported bell-crank lever *m*, and from the other arm of said lever to the aforesaid third arm of the T-shaped lever extend two rods *l l*, also adjustable by a turn buckle *s'''*. All of said rods run in guides or bearings, consisting of a support or bracket *a''*, having two rollers *b'' b''* journaled therein, between which said rods slide, as clearly shown in Fig. 5 of the drawings.

At a suitable distance from the end rails *b' b'* is arranged the mechanism for shifting said rails, which is constructed as follows: Within the hollow case *A* is journaled a sleeve *d'''*, resting in the seat *g'''* at the top of the case, and within said sleeve is a post *c'''*. Said post is provided with a vertical socket or guide *f''*, in which is located the vertically-sliding rod *a'''*. Said rod and sleeve are connected by means of a pin *e'''*, which passes through a vertical slot *f'''*, formed in the post. On the lower end of said post is secured a laterally-swinging lever *b'''*, having pivoted at its free end a horizontal rod *t*, extending part way toward the rail way-track. Extending from the other of the aforesaid plates *g* on the outside of the end rail *b'* nearest the switch-stand and part way toward the switch-stand is a bar *f'*. Said bar is adjacent and parallel to the rod *t*. On both the rod and bar are arranged, respectively, stops *t'* and *f''*, and on said rod and interposed between said stops is a spring *t''*.

To the upper portion of the post *c'''* is secured a lever *e'*, connected to the sleeve *d'''* by two vertical arms *v'*. Said mechanism is clearly shown in Figs. 1 and 2 of the drawings.

The operation of the herein-described mechanism is as follows: The lever *e'* being raised thereby draws up the sleeve *d'''* out of its seat *g'''* and the rod *a'''*, connected thereto by the pin *e'''*, as aforesaid. The lever *e'* is then swung either to the right or left, carrying with it the post *c'''*, and by means of the lever *b'''*, the lower end of said post *c'''* and the rod *t* and bar *f'*, the rails *b' b'* are shifted on and off the rails *a a*. Said lever is swung quarter-way around and then pushed down, thereby forcing the sleeve back into its seat to lock the same.

The lever *e'* is preferably locked in its normal position by means of a pin *t'''* in the side

of the post *c'''* and having an eye for the reception of a lock, as shown in Fig. 9 of the drawings.

From beneath the switch-stand and extending toward the railway-track is a rock-shaft *u*, mounted in suitable bearings *u'''* and having secured on one end adjacent to the track a vertical arm *u'* and near the other end portion a horizontal arm *u''* of the form of a fork to receive the lower end portion of the vertical rod *a'''* of the aforesaid switch mechanism, and which is held between two collars *v' v'*, formed on said rod, as shown in Figs. 9, 10, and 11 of the drawings.

Along the outside of the branch rail *b* nearest the switch-stand extends a rail *r'*, mounted on vertical arms *q q*, movably pivoted to the rail *b*, as clearly shown in Fig. 5 of the drawings, and from the aforesaid vertical arm *u'* on the rock-shaft *u* to the adjacent arm *q* extends a rod *r*. The purpose of the rail *r'*, rod *r*, the rock-shaft *u*, and its connection to the aforesaid rod *a'''* of the switch mechanism is to prevent lifting of the lever *e'*, connected thereto, as shown in Fig. 10 of the drawings, to operate said mechanism to shift the end rails off from the main rails *a* when that portion of the branch track along which the rail *r'* extends is occupied by a car or engine, at which time the rail *r'* is prevented by the wheels of said car or engine from rising.

The hereinbefore-described derailing-rails *p p* are for the purpose of throwing off a car moving over the branch track toward the main track when the end rails *b' b'* and rails *c d* are off from the main track, as shown in Fig. 2 of the drawings. To prevent said car from blocking the main track, said derailing-rails are shifted on the stationary branch rails when the other shifting rails are shifted off from the main-track rails, and vice versa, as shown in Figs. 1 and 2 of the drawings.

When a train moves over the main track from the left when the switch is in the position shown in Fig. 1 of the drawings, the flanges of the wheels strike the bent rear end portions of the rail *c* and throw the same off from rail *a*, and by means of the cross-bars *o o* and lever *k* shifts the rail *d*, and when the flanges of the car-wheel strike the end rail *b'* farthest from the switch-stand said rail and the corresponding end rail are thrown off from the main rails *a a*, said end rails being connected, as aforesaid, by the cross-bars *e f*. Said shifted rails are all forced to their normal positions by means of the spring *t''*, bearing against the stops *t'* and *f''*, respectively, on the rod *t* and bar *f'*, secured to the outer end rail, all as hereinbefore described.

What I claim as my invention is—

1. In combination with the switch-operating mechanism and supplemental section of track, a vertically-movable locking-rail parallel to and outside of one of the rails of said section, a rock-shaft mounted in suitable bearings connected with the aforesaid switch-operating mechanism and extending toward

the track, an arm on the outer end of said shaft and a rod connecting said locking-rail and said arm for the purpose described and shown.

2. In combination with the vertically-movable and revoluble rod a''' of the switch-operating mechanism and supplemental section of track b , vertically-pivoted arms g secured to the side of the outsidetrails of said section, a locking-rail r' secured to said arms, collars $v' v'$ formed on the lower portion of the rod a''' , a rock-shaft u extending from beneath the switch-stand toward the track, an arm u'' secured on its end adjacent to said stand and loosely between the collars $v' v'$, an arm u' on the opposite end of said rock-shaft, and a rod r connecting the latter arm to one of the aforesaid arms g secured on the rail b as described and shown.

3. In combination with the revoluble post c''' at the switch-stand, of a horizontal lever b''' secured on said post, a rod pivoted at one end to said lever and extending part way toward the adjacent laterally-shifting switch-rail b' , plates g secured to the inner face of one switch-rail and having ears g' formed thereon, cross-bars ee and ff secured to said ears connecting said rails, a plate g on the outside of the outer rail having ears g' formed thereon, a bar f' pivoted to said ears and extending part way toward the switch-stand, parallel and in proximity to the rod t , adjacent collars or stops $t' t'$ and $f'' f''$ respectively on the rod t and bar f' and a spring t'' on said rod and interposed between said stops as described and shown.

4. In combination with the main-track rails $a a$, laterally-shifting switch-rails $b' b'$ movable on and off said main rails, plates $g g$ secured to the inside of one of said switch-rails having ears $g' g'$ formed thereon, cross-bars e and f extending from said ears and respectively from the inner and outer rails and pivoted together, a longitudinal slot e' formed in the web of the rail a for the reception of the bar f and means to shift the switch-rails as described and shown.

5. The combination with the main-track rails, of switch-rails and frog-sections movable simultaneously on and off said main rails, mechanism for moving the same, a rock-shaft operated by said mechanism, a locking-rail along the side of one of the rails of the siding, and a rod connecting said latter rail and rock-shaft as set forth and shown.

6. The combination with the main-track rails $a a$, the rail nearest the switch-stand having its web provided with slots $o'' o''$, of switch-rails $b' b'$ connected by cross-bars ee and ff pivoted together, the bars ff passing through the aforesaid slots in the main-track rail, mechanism holding the said switch-rails on the main-track rails, the frog-sections c and d at the intersection with the main-track rail and movable on and off the same, connections between said frog-sections and the switch-rails $b' b'$, a spring t'' in the switch

mechanism forcing the switch-rails back on the main-track rails when moved off by a moving train, a rail r' movable vertically along the side of the side-track rails $b b$, and connections between the rail r' and switch-operating mechanism to prevent the operation of said mechanism when the side-track is occupied by a train or engine as described and shown.

7. The combination with the switch-rails $b' b'$, of mechanism for moving the same on and off the main-track rails $a a$ consisting of a case A suitably supported near the switch, a sleeve d''' journaled therein and resting in the seat g'''' at the top of the case, a post c''' within the said sleeve provided with a vertical guide f'''' , a vertically-sliding rod a''' in said guide, a vertical slot f''' formed in said post, a pin e''' passing through said slot to connect said rod and sleeve so as to turn together, a lever e' pivoted to the upper portion of the post and connected to the upper portion of the sleeve by means of vertical arms $i i$ by which to raise said sleeve from its seat to turn the same, a laterally-swinging lever b''' secured on the lower end of the post, a horizontal rod t pivoted at one end to said lever and extending part way toward the railway-track, a bar f' extending from the switch-rail nearest the switch-stand part way toward said stand, stops $t' t'$ and $f'' f''$ respectively on said rod and bar, and a spring t'' on said rod and interposed between said stops as described and shown.

8. The combination with the switch-rails $b' b'$ movable on and off the main-track rails $a a$ and connected by the cross-bars e and f , a switch-stand consisting of a hollow case A formed with a seat g'''' in its upper portion, the sleeve g''' within the said casing and resting in the said seat, post c''' within the said sleeve, formed with the vertical guide f'''' , a rod a''' movable in said guide, a pin e''' passing through a slot f''' formed in the post and connecting said rod and sleeve, a lever pivoted to the upper portion of the post to turn the same, vertical arms $i' i'$ connecting said lever to the upper portion of the sleeve by which to raise the same, a laterally-swinging lever b''' secured on the lower end of said post, a horizontal rod t extending from said lever part way toward the switch-rails and provided with stops $t' t'$, a horizontal bar f' extending from the switch-rail part way toward the switch-stand parallel and adjacent to the aforesaid rod and provided with stops $f'' f''$, a spring t'' on the rod and interposed between one of the stops on said rod and the other stop on the bar, collars $v' v'$ formed on the lower end of the rod a''' , a rock-shaft u having secured on the end adjacent to the track a vertical arm u' , an arm u'' extending horizontally from the other end portion of the form of a fork to receive the lower end portion of the vertical rod a''' , said arm being held between the collars $v' v'$ on said rod, a locking-rail r' extending along the side of one

of the side-track rails *b*, and a horizontal rod *r* connecting said locking-rail to the vertical arm *w* secured to the aforesaid rock-shaft as described and shown.

- 5 9. In combination with the main-track rails *a a* and side-track rails *b b*, the switch-rails *b' b'* secured at one end to the side-track rails by flexible plates *b''' b'''* secured to the sides of both rails, said switch-rails having their
 10 free end portion movable on and off the main-track rails, cross-bars *e e* and *f f* extending respectively from the switch-rail farthest set from the switch-stand and switch-rail nearest the switch-stand, said bars being pivoted to-
 15 gether and the bars *f f* passing through slots *o'' o''* formed in the main rail *a* nearest the switch-stand, the frog-sections *c* and *d* secured at one end to the side-track rails *b b* also by flexible plates and having their free

end portion movable on and off the main-track 20 rail nearest the switch-stand, cross-bars *o o* extending from said frog-sections, one passing through the slot *o''* of the side rail and the other cross-bar passing through both the side-track rail and intersecting main-track 25 rail *a*, a lever *k* connecting the cross-bars, rods *j* extending from the said lever and connected at the opposite end to a lever *i* near the switch-rail *b'* nearest the switch-stand, a bar *h* connecting said rail and the lever *i*, and 30 mechanism to operate all of said parts as described and shown.

In testimony whereof I have hereunto signed my name this 20th day of April, 1895.

CHARLES H. SHERWOOD. [L. S.]

Witnesses:

DELOS L. ATKYNS,
 R. P. KUTSCHBACH.