

(No Model.)

2 Sheets—Sheet 1.

H. C. BENAGH.
RAILWAY SWITCH.

No. 546,635.

Patented Sept. 17, 1895.

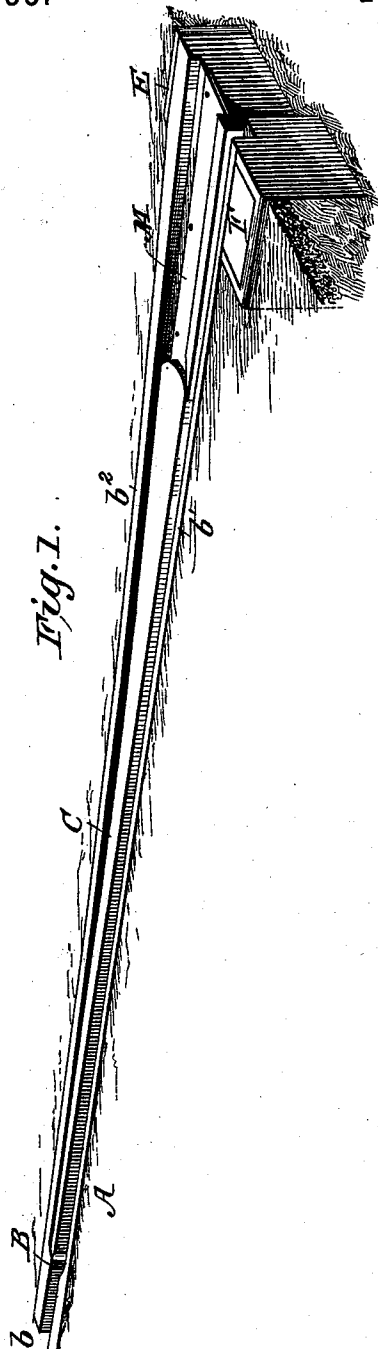


Fig. 1.

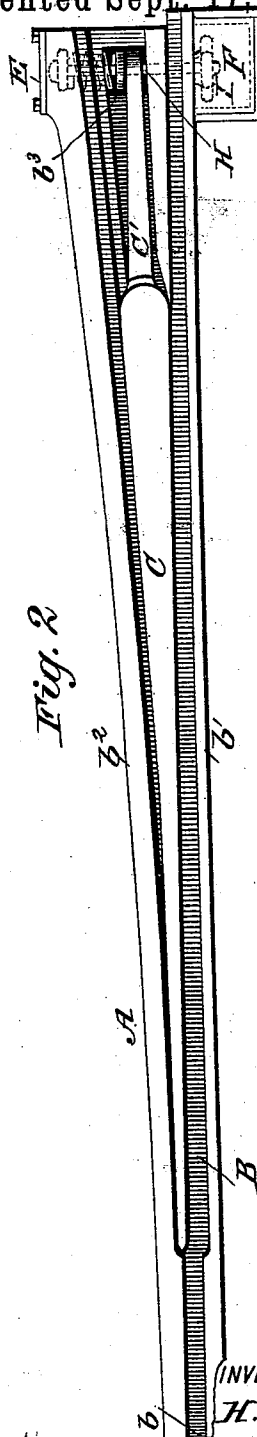


Fig. 2.

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(No Model.)

2 Sheets—Sheet 2.

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RAILWAY SWITCH.

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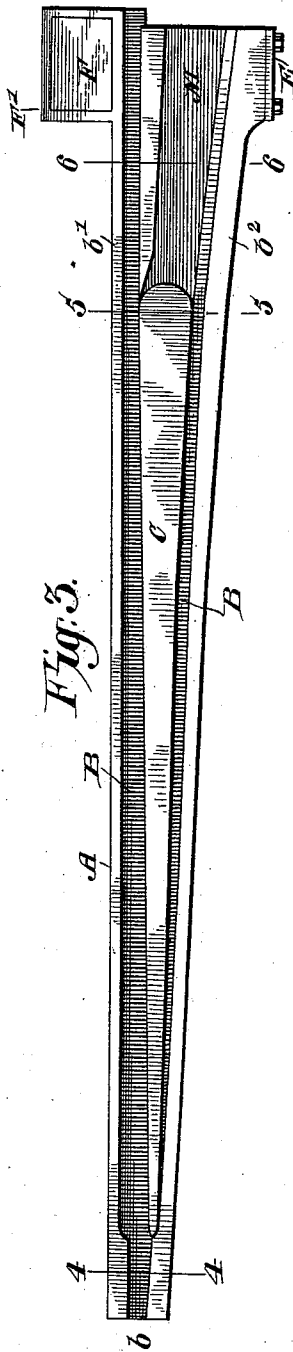


Fig. 3.

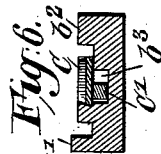


Fig. 6.

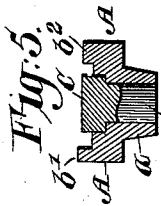


Fig. 5.

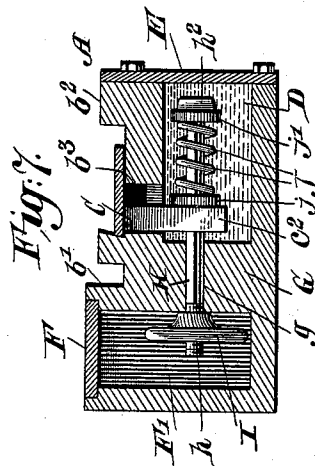


Fig. 1.



Fig. 4.

Fig. 9.

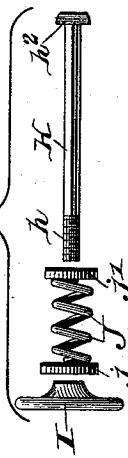
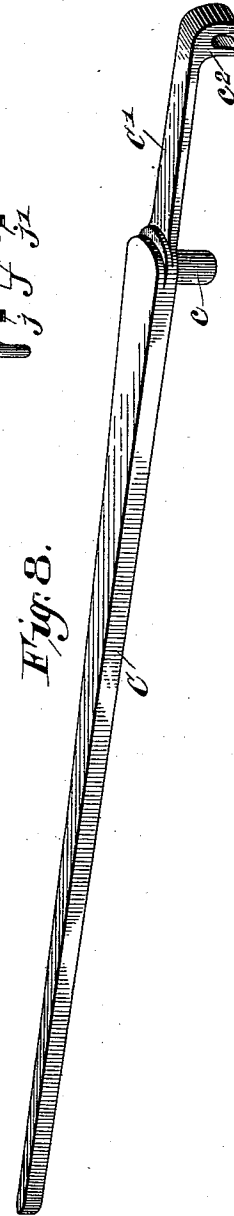


Fig. 8.



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UNITED STATES PATENT OFFICE.

HENRY C. BENAGH, OF NASHVILLE, TENNESSEE.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 546,635, dated September 17, 1895.

Application filed May 9, 1895. Serial No. 548,790. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. BENAGH, residing at Nashville in the county of Davidson and State of Tennessee, have invented a new and Improved Railway-Switch; of which the following is a specification.

My invention relates more particularly to improvements in street-railway switches, and it primarily has for its object to provide a switch mechanism of this character of a very simple, inexpensive, and effective construction, in which the spring devices are so arranged that they will not become clogged or rendered ineffective by dirt or other substances.

The invention also has for its object to provide a spring-switch having the switch devices connected with the rear or heel portion thereof, and connected with the said tongue in such manner that the tongue and spring devices can be quickly and conveniently adjusted so that the tongue can be set to work at either side.

Furthermore, my invention provides a simple arrangement of spring devices and housings therefor, having removable cap-plates so arranged as to provide a receptacle for holding a lubricating material, in which the spring devices seat, which will thereby keep such parts in a proper working condition and will positively prevent dirt or grit settling on such devices, the removable cap-plates providing a convenient means for gaining access to the spring-holding compartment. The spring-switches now in general use on street-railways have the spring connected with the center of the tongue, the lug on the tongue working in a slot in the rail-base. This slot soon fills up with dirt, and the cars as they run over the switch press the lug back and frequently break it off, on account of the slot filling and clogging up.

These objectionable features I positively overcome by my invention, which consists in the novel arrangement and peculiar combination of parts, which will be first described in detail and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved street-railway switch. Fig. 2 is a top

plan view thereof, with the head-plate removed. Fig. 3 is a similar view showing the switch-tongue and the spring devices adjusted to operate the tongue in a direction opposite that shown in Fig. 2. Figs. 4, 5, and 6 are cross-sectional views taken respectively on the lines 4 4, 5 5, and 6 6 of Fig. 3. Fig. 7 is a transverse section taken on the line 7 7 of Fig. 2, through the spring-box or compartment. Fig. 8 is a perspective view of the switch-tongue detached; and Fig. 9 is a view illustrating several of the parts detached.

Referring to the accompanying drawings, A indicates the switch base or block, formed of a single casting, having the usual tongue seat or pocket B which terminates at the front end in the rail portion *b*, (see Fig. 3,) and at the rear end it terminates in a widened portion the sides of which form the separate rail members *b'* *b''*, (see Fig. 7,) such pocket at the rear end being sufficiently wide to admit of the free lateral movement of the rear extension *C'* of the tongue C, it being also provided with a slotway *b³*, for a purpose presently explained.

The tongue C, the construction of which is best seen in Fig. 8, in the main is of the ordinary construction, it having a pendent pivot member *c* at the heel end, which seats in a socket-bearing *a*, formed in the switch-block, as clearly shown in Fig. 5. The tongue, it will be noticed, has a rearwardly-extending member *C'*, the end of which terminates in a pendent forked member *c²*, which projects down through and has movement in the slot *b³*.

By referring now more particularly to Fig. 7, it will be seen that the slotway *b³* is formed in the top of a compartment D formed on and extended transversely under the rear end of the block, one end of which (the spring end) is open and is held tightly covered by a removable end plate E, while the other end is extended laterally of the base or block A proper and has a removable top plate F, which covers a supplemental box portion F', which is separated from the compartment D by the apertured partition G, through the polygonal-shaped aperture *g* of which passes the spring-adjusting bolt H, polygonal in cross-section, to fit the aperture *g*. This bolt H has its threaded end *h* extended into the box F', on

which end is fitted the hand-nut I, while the shank of said bolt passes into the compartment D and passes through the forked end c^2 of the tongue C.

5 J indicates a stout coil-spring which is disposed about the bolt H between washers j and j' , which bear, respectively, against the member c^2 and the head h^2 of the bolt, as most clearly shown in Fig. 7.

10 By arranging the switch devices in the manner shown it will be readily seen that the tongue can be almost instantly fitted in and removed from position, its forked end slipping over the bolt, and as the said bolt is held
15 from turning in the partition it follows that when it is necessary to adjust the tension of the spring J access can be had to the nut I for this purpose by lifting off the cap-plate F.

In practice, a suitable lubricant (oil or
20 grease) is placed in the compartment D, which compartment, it should be stated, is protected against the entrance of dirt or other substances entering it by the removable head-plate M, which fits over the entire rear end or
25 extension C' of the tongue and that part of the block over which it operates.

From the foregoing, taken in connection with the accompanying drawings, it will be readily seen that, as the extension C' operates
30 at a point between the rail portions of the block A, the flanges of the wheels can never engage said extension, thereby making it impossible to break the same by contact with such wheels. Furthermore, as the pocket in
35 which the tongue proper swings is free from slots or depressions, it follows that the switch will work more freely and be less liable to clog. It will also be obvious, as the tongue has practically no fixed connection with the spring-
40 bolt, that it can be quickly fitted to work from either side, as the parts are so few and of such a simple nature that they can be quickly assembled, and when connected form a positive and effective switch mechanism.

45 Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A railway switch, a movable tongue comprising the tongue proper and integral stud
50 and a rear extension, said stud being arranged at the junction of the tongue proper and rear extension which rear extension is in a plane below the tongue proper whereby when said movable tongue is in operative position the
55 rear extension will rest below grade and thus be safe from breakage, and means connected with such extension for operating the tongue substantially as shown and described.

2. In a railway switch a tongue having a
60 rear extension below the plane of the said tongue, a spring throwing device connected with said extension, and a plate for covering

the said extension and mechanism substantially as shown and described.

3. In a railway switch, the combination with
65 a block, having a compartment or chamber adapted to contain oil or a lubricant of a tongue, pivoted upon said box and the operating devices located within said box, and connected with the tongue substantially as shown
70 and described.

4. In a railway switch the combination with a block having a box or chamber, of a tongue pivoted upon the block and having an extension projecting into said box, said extension
75 having a bifurcated end, a bolt fixed in the box and resting in said bifurcated end of extension and a spring carried by said bolt and adapted to bear upon said extension substantially as shown and described.

5. In a railway tongue switch, the combination with the block having a transverse lubricant-holding compartment at the rear end, a throw switch device held therein, a tongue
85 having a rear extension having a member projected into such compartment to engage the spring devices, and a detachable head plate fitted over the said extension and compartment, all arranged substantially as shown and described.

6. In a railway tongue switch, a block or base member having a transverse spring-holding compartment having a slot-way in the top, and having a non-circular opening in one end
95 thereof, of the spring bolt, having a non-circular portion fitted in the aforesaid opening, and a threaded extension, a hand nut fitted on such extension, the pivoted tongue member having a pendent portion projected over the said bolt and the spring held on the bolt,
100 all arranged substantially as shown and described.

7. In a spring switch mechanism, a switch base or block having at one end a transverse compartment for the spring having a removable end, and a supplemental box portion for the adjusting devices for the spring connected therewith having a removable top, substantially as shown and described.

8. In a railway tongue switch, a movable
110 tongue having a portion extended rearward from its pivotal point, formed with a pendent bifurcated end, in combination with the spring throw devices, having a bolt adapted to pass between the said bifurcated end, all
115 arranged substantially as shown and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY C. BENAGH.

Witnesses:

R. F. JACKSON,
N. P. YEATMAN.