

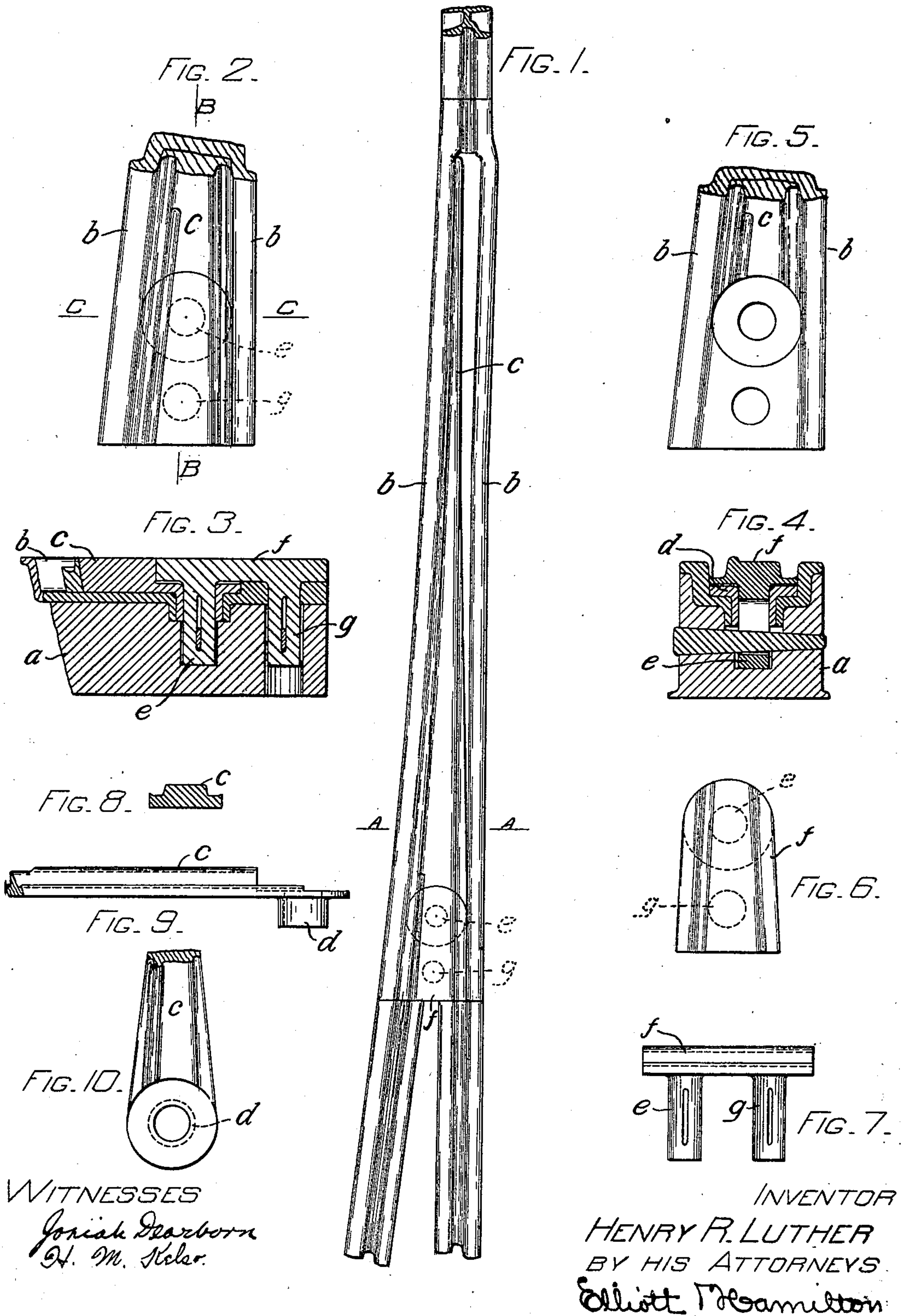
No. 689,402.

Patented Dec. 24, 1901.

H. R. LUTHER.
RAILWAY SWITCH.

(Application filed Mar. 19, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

HENRY R. LUTHER, OF NEWTON CENTER, MASSACHUSETTS.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 689,402, dated December 24, 1901.

Application filed March 19, 1901. Serial No. 51,950. (No model.)

To all whom it may concern:

Be it known that I, HENRY R. LUTHER, a citizen of the United States, residing at Newton Center, county of Middlesex, and State of Massachusetts, have invented a certain new and useful Improvement in Railway-Switches, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a top plan view of a railway-switch fitted with my new improvement. Fig. 2 is a top plan view of the rear portion of a railway-switch, on an enlarged scale, fitted with my new improvement. Fig. 3 is a longitudinal section on line B B, Fig. 2. Fig. 4 is a transverse sectional view on line C C, Fig. 2. Fig. 5 is a top plan view of railway-switch with cover-plate removed. Fig. 6 is a top plan view of the cover-plate. Fig. 7 is a side elevation of the cover-plate. Fig. 8 is a sectional view on line A A, Fig. 1. Fig. 9 is a side elevation of the rear portion of the tongue, and Fig. 10 is a top plan view of the rear portion of the tongue.

My invention relates to improvements in switches for street-railways and the like.

One object of my invention is to provide means which will prevent the tongue of a street-railway switch from being thrown inadvertently, so as to cause the trucks of the car to "straddle." It is found in practice that the forward trucks of the car are liable to strike the portion of the tongue in rear of its pivotal point, and thereby throw the tongue to the opposite side before the rear trucks of the car reach the point of the tongue. This causes the forward trucks to run down upon one rail and the rear trucks to run down toward the other rail, or, as it is called in practice, to "straddle" the switch.

Another object of my invention is to give the cover-plate an independent bearing which raises it from the tongue, and thereby permits the free movement of the tongue. Again, this construction prevents the excessive wear of the heel of the tongue, for the cover-plate transmits through the lug *e* to the base *a* the shocks and stresses to which the tongue of an ordinary switch is subjected.

Another object of my invention is so to construct the cover-plate as to cause it to project only a slight distance over the pivotal

point of the tongue. This construction prevents the burring of the metal of the cover-plate near the joint between the cover-plate and the tongue, for it is evident that where the cover-plate extends some distance beyond the pivotal point of the tongue the metal of the cover-plate will project beyond the longitudinal edge of the tongue when the tongue is moved to the opposite side. The result will be a burring of the metal of the cover-plate near the joint and a consequent sticking of the tongue at that point. Where the cover-plate extends only a short distance beyond the pivotal point of the tongue, there is but little relative movement between the tongue and the cover-plate when the tongue is moved. Consequently the metal of the cover-plate does not project, and so is not liable to be burred by the wheel striking it.

Another advantage that results from minimizing the distance that the cover-plate projects over the pivotal point of the tongue is the practical prevention of the accumulation of dirt under the cover-plate between the side of the structure and the edge of the tongue. Where the cover-plate projects some distance beyond the pivotal point of the tongue, a large space under the cover-plate intervenes between the side of the structure and the edge of the tongue near the forward end of the cover-plate. This space furnishes a lodging-place for the accumulation of dirt, which, because of the cover-plate, it is impossible to reach and remove by ordinary means. The result is that free movement of the tongue is prevented by the accumulation of dirt. In my new structure no such lodging-place for dirt is found under the cover-plate, and the free movement of the tongue to the side of the structure is preserved.

Another object of my invention is to minimize the number of joints in the railway-switch. To accomplish this purpose, the cover-plate is placed within the sides of the switch and there is no joint between the sides of the switch and the cover-plate that breaks the continuity of the tread portion of the switch.

Another object of my invention is to provide means for keying the cover-plate securely in place.

In the drawings illustrating the principle of my invention and the best mode in which

I have contemplated applying that principle, *a* is the base, which supports the top *b*. The tongue *c* is provided with an annular pivot *d*, through which passes the lug *e* of the cover-plate *f*. This cover-plate *f* is formed on its upper surfaces with grooves adapted to receive the flange of the wheel and to carry the wheel over the pivotal point of the tongue. The cover-plate is formed with a second lug *g*, which passes through an aperture in the base and is susceptible of being drawn down by a key solidly upon the rear portion of the switch. The front edge of the cover-plate is circular in form, as is plainly shown in Fig. 6, and is thereby adapted to cooperate with the rear edge of the tongue shown in Fig. 10.

The lug *e*, as is shown in Fig. 3, takes a solid bearing on the base *a* of the switch, and is thereby supported free from the tongue. This permits the easy swinging movement of the tongue from side to side. The rear lug *g*, however, passes through an aperture in the base of the switch, and is therefore adapted to be drawn down solidly upon the top of the switch and so held firmly in place.

As is well known, joints in switch structures are a great detriment, since they greatly weaken the switch, and constant pounding of the trucks inevitably loosens the parts at the joints. I avoid joints by placing the cover-plate within the sides of the top of the switch. Again, as is plainly shown in Fig. 3, the forward edge of the cover-plate is located but a short distance beyond the pivotal point of the tongue. Consequently there can be no burring of the metal of the cover-plate, and consequently the free movement of the tongue is preserved. Again, no space is left under the cover-plate between the side of the top and the edges of the tongue for the accumulation of dirt.

What I claim is—

1. As a new article of manufacture, a cover-plate for railway structures formed on its upper face with tracks and provided on its lower

face with lugs adapted to secure the cover-plate to the railway structure.

2. In a railway structure, the combination of a base; a tongue; a top; and a cover-plate adapted to shield the pivotal point of the tongue from the car-wheels; said cover-plate being within or bounded by the sides of said top to insure freedom from joints therein, and being formed with grooves and track-surfaces on its upper surface.

3. In a railway structure, the combination of a base; a top; a tongue; and a cover-plate adapted to shield the pivotal point of the tongue from the car-wheels; said cover-plate being provided with a lug that bears upon the base and thereby maintains the cover-plate free from the tongue, permits the free movement of the tongue, and preserves said tongue from excessive wear.

4. In a railway structure, the combination of a base; a top; a tongue; a cover-plate adapted to shield the pivotal point of the tongue from the car-wheels; said cover-plate being provided with a lug which enters an aperture in said base; and means for locking said cover-plate firmly upon said top in rear of said tongue.

5. In a railway structure, the combination of a base; a top; a tongue provided with an annular pivot; a cover-plate provided with a lug that passes through said annular pivot and bears upon said base to raise the cover-plate from the tongue and thereby preserve said tongue from excessive wear, and permit its free movement; and means for locking the cover-plate securely to the top.

In testimony whereof I have, this 16th day of March, A. D. 1901, signed my name, in the presence of two subscribing witnesses, at Boston, Massachusetts.

HENRY R. LUTHER.

Witnesses:

JAMES HAMILTON,
H. M. KELSO.