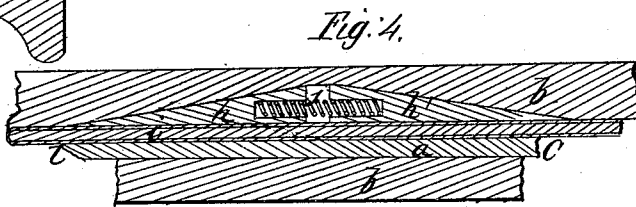
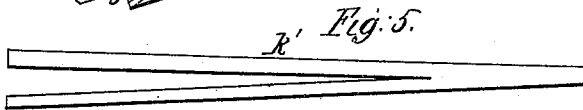
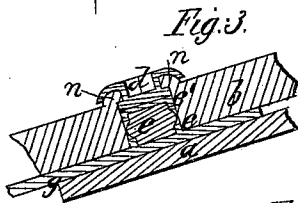
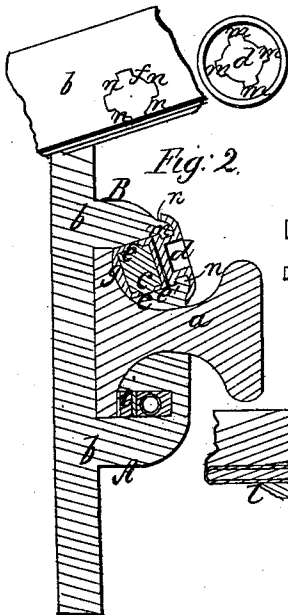
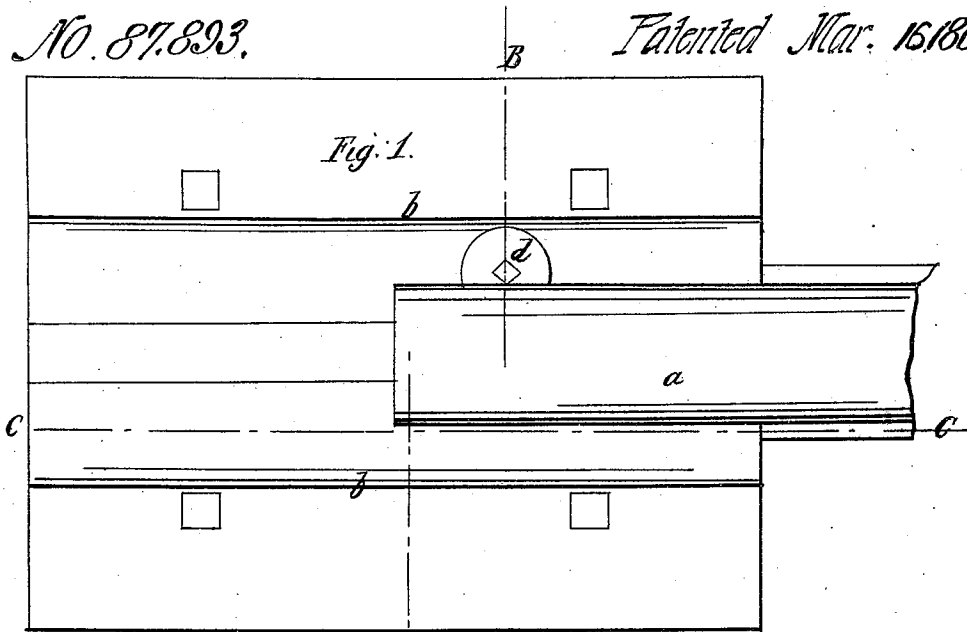


W. Wickersham,
Railroad Chair.

No. 87,893.

Patented Mar. 16, 1869.



Witnesses;
Joseph P. Rogers
Asst. Patent

Inventor;
William Wickersham

United States Patent Office.

WILLIAM WICKERSHAM, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 87,893, dated March 16, 1869.

IMPROVED RAILROAD-CHAIR

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM WICKERSHAM, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement on the Chair for the Rails of Railroads; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the figures and letters of reference marked thereon.

The nature of my invention consists in so constructing and arranging a chair for the ends of rails in railroads, that it shall secure the rails, and hold them firmly until they are worn out, by means of an elastic force or pressure on said rail.

The first feature of my invention consists in a spring, of India rubber, steel, or any sufficiently elastic substance, so arranged in the chair that its elastic force can be constantly exerted on the flange or other part of the rail, in such manner as to hold it thereby permanently in its place, and continues so to hold it as the rail wears.

The second feature of my invention relates to the method of securing said spring in its place, and consists in a piston, or key, which may be pressed on to the outer end of the spring until its elastic force is sufficient to secure the rail, and then locked in this position by turning.

The third feature of my invention relates to the method of securing said spring against injury, and consists in a cup for the lower end of the spring to rest in, attached to a strip of metal, which is in contact with the rail; also, a cup for the upper end of the spring, to prevent the key from injuring it.

The fourth feature of my invention relates to a device to prevent the liability of breakage of the chair by the sudden jarring or motion of the rail, when metallic wedges or screw-cylinders are used, and consists in placing between the wedge or screw-cylinder and rail, a plate, strip, or bar, which is, in part, or altogether made of some substance more elastic than metal, to check and weaken the violent concussive force of the sudden motion of the rail when the train is passing rapidly over it.

Referring to my drawings—

Figure 1 is a plan view of my rail-chair.

Figure 2 is a cross-section through the red lines A and B; it also shows the aperture through which the key passes in pressing on to the spring; also shows the key bottom upward.

Figure 3 shows a longitudinal section through the spring, key, cups, each end of the spring, bar below the spring, and a portion of the rail below the spring and bar.

Figure 4 is a longitudinal section in the red line C, through the wedges, the spring which presses them apart, the compound elastic bar, the flange of the rail, and a portion of the chair below.

Figure 5 shows a form of metallic spring, which may be substituted for a rubber spring.

a is the rail.

b is the chair.

c is the rubber spring.

d is the key which holds the spring on to the rail.

e e' are the two cups securing each end of the spring.
f is the space or aperture in the chair for the key to enter.

g is the strip of metal between the spring and rail, to which the cup *e* is attached.

h h' are the two wedges.

i is the elastic bar, or strip between the wedges and the flange of the rail.

j is the spiral spring, to move the two wedges apart, thereby pressing them on to the flanges of the rail.

k is a metallic spring, coiled ready for use.

k' is a strip of metal for the same, before coiling.

Having described the parts, I will now describe the application of my invention.

After having all parts made as shown in the drawings, I place the spring *c*, with the upper cup *e'*, on it, then I put the bar *g*, with its cup *e*, in its place, then put the wedges *h h'* and the elastic strip *i* in their groove. This being done, I insert the rail *a*, as shown in figs. 1 and 2. I then place the key *d* on to the aperture *f*, which has a similar form in the upper part to the lower end of the key. I then press the key down until its flanges *m m m m* will turn round under the flanges of the aperture *n n n n*. I then turn the key one eighth round, which locks it, thereby causing the spring *c* to press down on to the rail with the same force by which the key was pressed on to it.

The elasticity of the rubber spring will insure a constant pressure on the rail, holding it firmly in its place, though its thickness may be somewhat reduced by wearing.

A steel spring, *k*, may be made, of any desirable power and elasticity, and substituted for the spring *c*. If at any time the spring should be found of insufficient elastic force, the key may be taken out, and a washer may be placed on the top of the spring, and the key restored to its place again, making the compression of the spring greater by the thickness of the washer.

When the key is in its position for use, it may be held there by a screw, or, what is perhaps better, by small indentations on the upper surface of the flanges *m m m m*, and corresponding projections on the under side of the flanges *n n n n*.

It will be noticed, in fig. 4, that under the wedges *h h'* is a strip, or bar *i*, which has a thin metallic strap on its upper and lower sides. I make this bar *i* of rubber, wood, leather, raw hide, or anything which has sufficient elasticity for the purpose of checking or modifying the concussive force of the vibrations of the rail when the train runs over it, as this vibratory force has been found to make too great a strain on the chair, in some cases, for the strength of the iron, when the chair is firmly bound to the rail by metal alone. I, therefore, substitute this elastic strip *i* for the metal-

lic strips *i i*, patented by me, June 2, 1868, in connection with the screw-cylinder, and as an improvement on the same, the metallic strip, together with the screw-cylinder or wedge, being too rigid and unyielding.

Having thus described my invention,

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

1. In the rail-chair for railroads, a spring, *c*, formed and arranged as described, in combination with the key *d* and the chair, constructed and arranged substantially in the manner and for the purpose set forth.

2. The key *d*, in combination with the aperture *f*, formed substantially as described, and for the purpose set forth.

3. The cup *e*, in combination with the slide *g* and the spring *c* or *k*, substantially as described, and for the purpose set forth.

4. The strip *i*, formed of two thin metallic strips, combined with and enclosing a non-metallic strip between them, as described, and for the purpose set forth.

5. The strip *i*, combined with the two wedges *h* and *k*, arranged and operating conjointly, in the manner described, and for the purpose set forth.

WILLIAM WICKERSHAM.

Witnesses:

A. D. PARKER,

JOSEPH P. ROGERS.