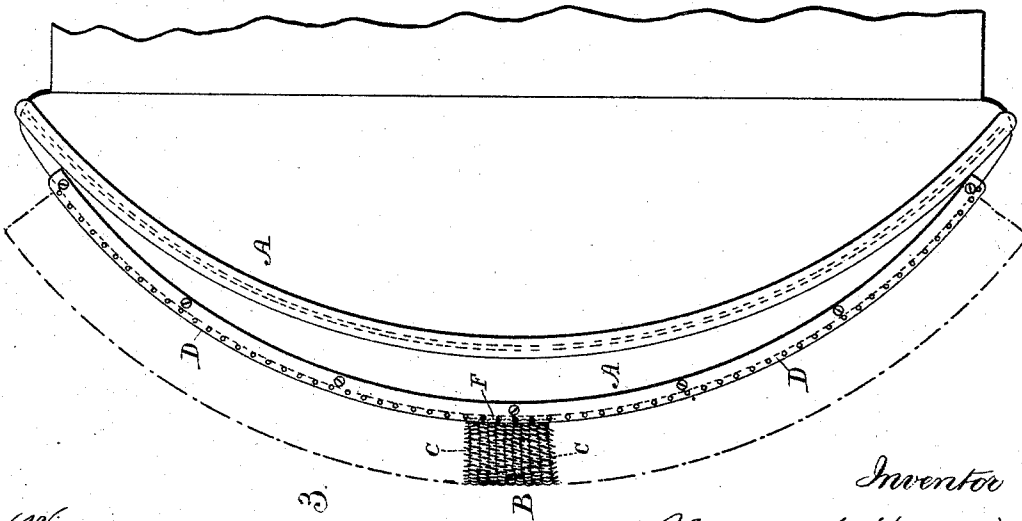
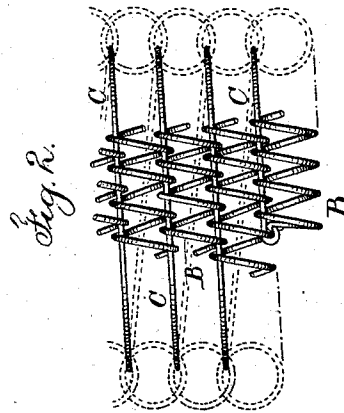
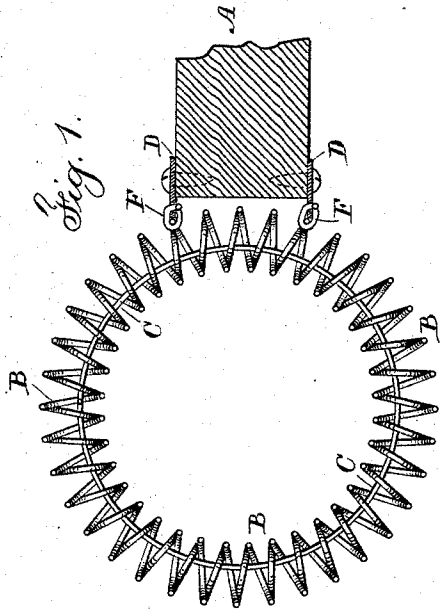


(No Model.)

H. A. HOWE.  
SPRING BUFFER FOR STREET CARS.

No. 527,203.

Patented Oct. 9, 1894.



Witnesses  
Charles Smith  
J. Staib

*Fig. 3.*

Inventor  
Henry A. Howe  
per Lemuel W. Ferrall  
Att'y.

# UNITED STATES PATENT OFFICE.

HENRY A. HOWE, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF, JOSEPH LIVINGSTON, AND ALBERT H. GROSS, OF SAME PLACE.

## SPRING-BUFFER FOR STREET-CARS.

**SPECIFICATION** forming part of Letters Patent No. 527,203, dated October 9, 1894.

Application filed July 2, 1894. Serial No. 516,252. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. HOWE, a citizen of the United States, residing in the city, county, and State of New York, have invented an Improvement in Spring-Buffers for Street-Cars, of which the following is a specification.

City railway cars propelled either by electricity or by cable are dangerous especially in crowded thoroughfares, and the front end of the platform or guard being of rigid material is liable to inflict injury upon a person falling against the same. To obviate or lessen this difficulty tubes of india rubber and helical springs have also been made use of in a variety of ways, but these are not found to present sufficient range of elasticity.

In my present invention I make a spring buffer or guard for the front end of the platform of a compound wound helix; that is to say, the wire helix is wound up in a screw form, the convolutions of the adjacent portions of the helices passing into each other and being held together in a cylindrical form by a wire helix of large diameter passing through the coils of the smaller helix and interlocking with the same so as to make a hollow cushion or buffer entirely of wire and so closely interwoven as to present a large bearing surface to a person who may fall against such buffer and at the same time the wires are so small and elastic as to yield very freely, and the hollow cylinder is of such a size that a large amount of movement of the wires in springing under the action of a body falling against the buffer, will reduce the risk of personal injury to a minimum.

In the drawings, Figure 1 is a cross section of the compound helix. Fig. 2 is a diagrammatic plan view illustrating the manner in which the wire helices are interlaced. Fig. 3 is a plan view indicating the manner in which the compound spring buffer is applied to the end of a car platform.

Let A represent the end of a car platform or guard of any desired character to which a yielding buffer is to be applied. Sometimes the end of the platform is straight or usually curved to a greater or less extent, as indicated in Fig. 3, and my improved spring buffer is

fastened to the front edge of this car platform 50 or guard and extends from side to side thereof, as indicated by dotted lines in Fig. 3.

In constructing the compound spring buffer, I take a long wire helix, say about three-quarters of an inch in diameter and with wires coiled sufficiently open, as indicated in Fig. 2, and this helix is laid up into a tubular form, say five or six inches in diameter more or less, the smaller helix being coiled so that the convolutions of the helix pass in between the convolutions of the next coil, so that the small helix is laid together similar to a screw thread, as indicated at B and the adjacent and interlocking wires of the small helix are held in position the one to the other by the wire of a helix C, which large helix is of a diameter slightly smaller than the external diameter of the small helix as coiled up into a cylindrical form. Hence the wire of the large helix passes inside each coil of the small helix and therefore unites the coils of the small helix as such coils lap past one another, as indicated in Fig. 2. Hence my improved spring buffer forms substantially a hollow wire cylinder, the coiled helices B of which are connected one to the other by the interlaced helix or wire coil C, and thereby a buffer of the desired diameter is formed which is very elastic and at the same time very strong, because it forms a complete spring that presents a large bearing surface to any individual or article falling against the same, and the extent of elasticity is very great because the wire cylinder can be substantially flattened against the spring of the respective wires without the parts receiving injury or losing their elasticity.

The cylindrical buffer formed of the compound wire helices as aforesaid, can be fastened upon the end of the car in any desired manner, but I prefer to make use of the plates D, D, perforated at suitable distances apart along near their edges and bolted or screwed to the platform or guard of the car, and wires F interlaced through the holes in the plates D and around the wires of the helices form a convenient means for fastening the elastic buffer in position and at the same time for

allowing the wires of such buffer to yield or spring freely under pressure from a body falling against them.

I claim as my invention—

5 1. A spring buffer for street railway cars formed of a long wire helix coiled into a cylindrical form and the adjacent interlocking portions of the small helices held together by an interlaced larger helix, substantially as  
10 set forth.

2. A spring buffer for street railway cars formed of a long wire helix coiled into a cylindrical form and the adjacent interlocking

portions of the small helices held together by an interlaced larger helix, in combination 15 with plates having holes fastened to the platform or guard of the car, and wire laced through the holes and around the wires of the helices for securing the spring buffer in position, substantially as set forth. 20

Signed by me this 28th day of June, 1894.

HENRY A. HOWE.

Witnesses:

GEO. T. PINCKNEY,  
A. M. OLIVER.