J. W. EVANS.

CAR SPRING.

No. 82,300. Patented Sept. 22, 1868.

Fig. 1.

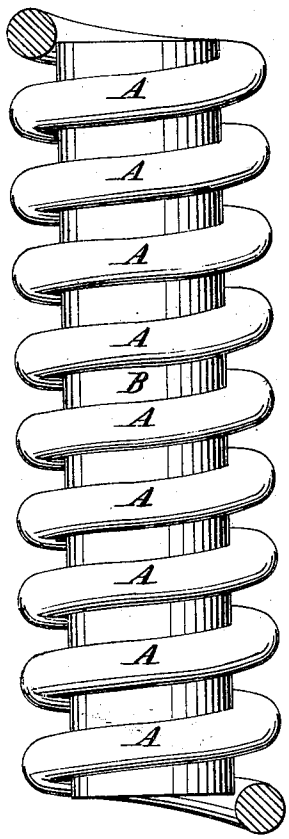
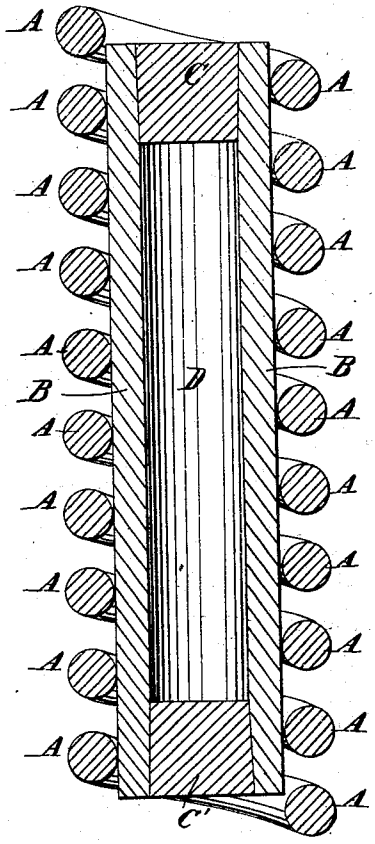


Fig. 2.



Witnesses:

C. Dinsmore

Jas Miller

Inventor:

J. W. Evans

By J. P. Teich his atty.

United States Patent Office.

JAMES W. EVANS, OF NEW YORK, N. Y.

Letters Patent No. 82,300, *dated September* 22, 1868.

IMPROVED CAR-SPRING.

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

Be it known that I, JAMES W. EVANS, of the city of New York, county and State of New York, have invented a new and useful Improvement in Car-Springs; and I declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, and the letters of reference marked thereon, which form a part of this specification, and of which—

Figure 1 is a side surface view of a spiral spring, containing within it a hollow column of elastic rubber, the said column intended to be closed at each end.

Figure 2 is a central sectional view of the same.

The same letters refer to similar parts.

A indicates the coils of a metal spring.

B is a column or tube of rubber, properly vulcanized to give it the requisite resistance and elasticity, corresponding in length with the spring A, and fitting snugly within it.

C C′ are plugs, of wood or any other suitable material, one being forced into each end of the tube B, forming air-tight stoppers, and thus enclosing in the tube a column of air, D.

It is evident that when a spring, composed of the parts specified, combined as represented, is compressed, there is brought into action the combined resistance of the metallic coil A, the rubber tube B, and the enclosed column of air, D. It is evident, also, that in proportion as the spring is compressed, and the enclosed air is condensed, the pressure of the air against the inner surface of the tube increases, tending to hold the walls of the tube straight, and to prevent their collapsing or bending inward, thus augmenting the resistance and elasticity of the rubber tube itself. Another effect of the outward pressure of the air against the walls of the tube, when the said walls are made sufficiently thin, is to force the rubber out between the coils in proportion as the spring is compressed, the confined air thus constituting a convenient and efficient means of interposing an elastic cushion between the coils of the spring at the moment when such a cushion is needed to prevent the coils from coming in contact with each other.

I do not, of course, confine myself to the use of wooden plugs to close the ends of the tube. Any other appropriate device may be employed, at the option of the manufacturer.

The spring, of the form and size represented by the drawings, is specially designed for cars, a number of them being put together in a cluster or nest, and held together and in position by a suitably-constructed box. But the combination of the spiral spring, the elastic tube, and the confined air in the closed air-chamber, is applicable to other purposes.

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

The spiral spring A, the elastic tube B, and the closed air-chamber confining the column of air D, constructed and combined, substantially as and for the purposes specified.

JAMES W. EVANS.

Witnesses:

J. P. FITCH,

C. DINSMORE.