(No Model.)

F. A. ISHAM.

VEHICLE SPRING.

No. 304,328. Patented Sept. 2, 1884.

Fig. 1.

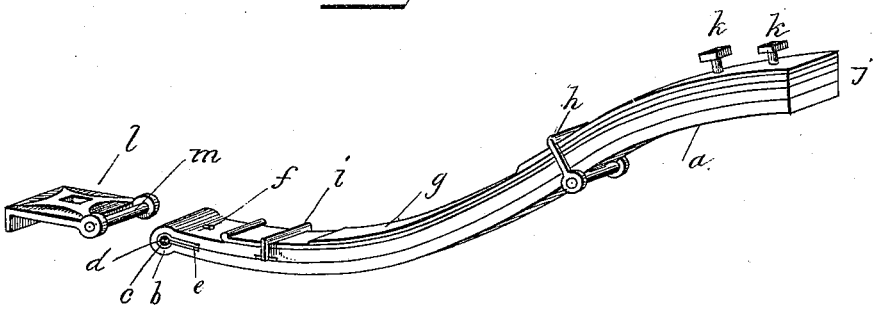


Fig. 2.

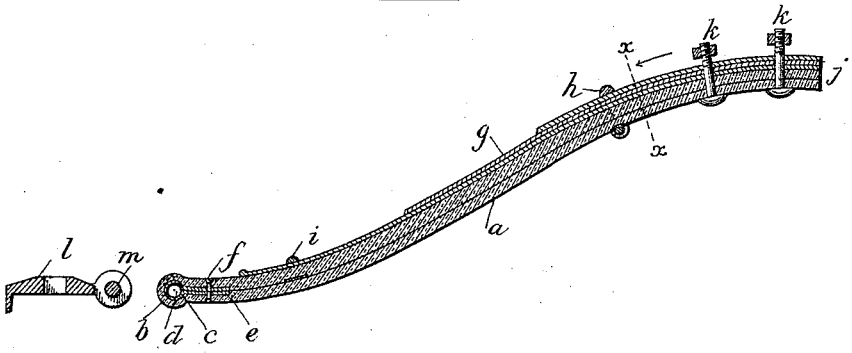
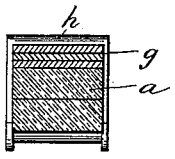


Fig. 3.



WITNESSES

F. L. Ourand.

E. A. Finckel.

INVENTOR:

Frederick A. Isham,

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UNITED STATES PATENT OFFICE.

FREDERICK A. ISHAM, OF PLATTSBURG, NEW YORK.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 304,328, dated September 2, 1884.

Application filed December 17, 1883. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. ISHAM, a citizen of the United States, residing at Plattsburg, in the county of Clinton and State of New York, have invented certain new and useful Improvements in Vehicle-Springs, of which the following is a full, clear, and exact description.

This invention is in the nature of improvements in the quarter-elliptical springs and the couplings therefor, of the class represented in United States Reissued Letters Patent No. 9,827, dated August 2, 1881.

My improvements are designed to afford a comparatively inexpensive, light, but strong and durable spring and coupling in which the necessity for take-up mechanism and shackles is obviated, and whereby side motion of the vehicle-body is overcome.

My invention consists of a spring of combined rubber—such as compound rubber and canvas belting—and steel, a metal coupling-shield or bushing therefor, and a one-bar fixed coupling for attaching the spring to the gearing, combined substantially as hereinafter particularly set forth and claimed.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a perspective view of my spring and coupling; Fig. 2, a longitudinal section thereof; and Fig. 3 is a cross-section thereof in the plane of the line *x x*, Fig. 2, looking in the direction of the arrow.

In the patent referred to provision was necessarily made for taking up the slack of the spring; but in this my invention I obviate this necessity by making my spring of a foundation of rubber, preferably composite rubber, and cloth belting *a*, doubled upon itself and forming a loop, *b*, at its end, to be connected by a coupling to the running-gear. This foundation is of quite stout and strong material, and of very slight, if any, longitudinal elasticity or stretch. In the loop *b* is arranged a metal shield or bushing or eye-piece, *c*, having the tubular portion or eye *d* to receive the bolt or bar of the coupling, and parallel wings or lips *e*, extending in between the folded or doubled rubber, and perforated to admit the passage of a fastening pin, bolt, or screw, *f*, through it and the rubber to hold it firmly in place. To this foundation is secured, preferably on top of it, a metallic spring, *g*, of one or more leaves, the two being united and held against lateral displacement by clips or clamps *h i* embracing them, the metal leaf or leaves being preferably of spring-steel and imparting the necessary stiffness and elasticity to the spring. The metal spring is held to the foundation in such manner as to permit its requisite longitudinal movement. The spring is secured at its end *j* to the vehicle-body by suitable bolts, *k*, substantially in the manner indicated in the patent referred to, or in other suitable arrangement, and the bolts or fastenings *k*, when the the spring is applied, serve also to securely and immovably bind the foundation *a* to the metal part *g*, thus obviating a take-up mechanism, and, in fact, no take-up is necessary, since the foundation does not stretch. At its loop end the foundation is connected to a rigid coupling member, *l*, by the engagement of its eye-piece *c* with the bar or bolt *m* of the said coupling. This coupling is rigidly affixed to the running-gear, and hence there is no sidewise play of the spring at its coupling, thus obviating the sidewise motion of the vehicle-body, and throwing the entire burden of such body directly upon the spring in a substantially vertical direction.

The bar *m* of the coupling may be a removable bolt, or it may be rigidly and permanently secured thereto and secured in the spring in the manufacture of such spring.

The eye-piece or shield *c*, being of metal, reenforces or stiffens the rubber foundation and prevents its being readily worn through.

A spring constructed in accordance with this invention is very soft, light, and flexible, and of small first cost, besides does away with the other mechanism and its disadvantages hereinbefore stated.

What I claim is—

1. The combination of the rubber-belting foundation doubled upon itself and forming an attaching-loop, the spring-metal leaf or leaves, and connecting clips and bolts, substantially as described.

2. The combination of the rubber foundation doubled upon itself and forming a loop,

the re-enforcing metal eye-piece or shield in said loop, and a connected spring-metal leaf or leaves, substantially as described.

3. The combination of the foundation of composite rubber belting, doubled upon itself to form a loop, the re-enforcing metal eye-piece in said loop, the spring-metal leaf or leaves, and connecting clips and bolts with the rigid coupling, substantially as shown and described.

In testimony whereof I have hereunto set my hand this 14th day of December, A. D. 1883.

FREDERICK A. ISHAM.

Witnesses:
H. L. ISHAM,
H. S. ISHAM.