

(No Model.)

W. E. POWERS.
VEHICLE SPRING.

No. 408,519.

Patented Aug. 6, 1889.

Fig. 1.

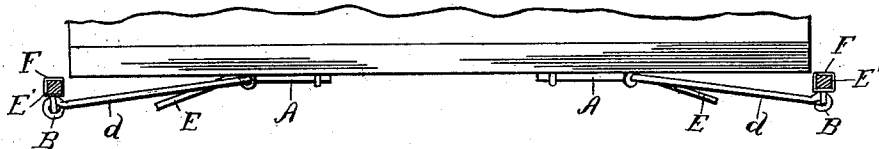


Fig. 2.

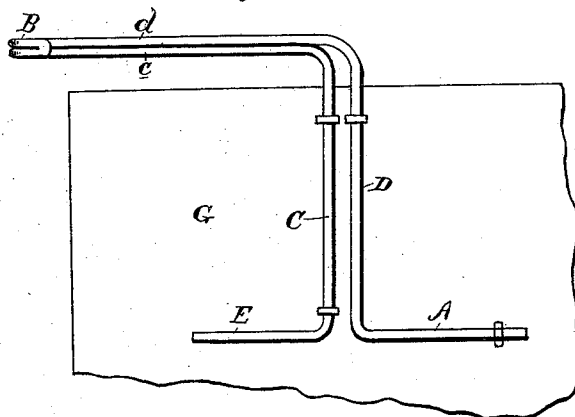
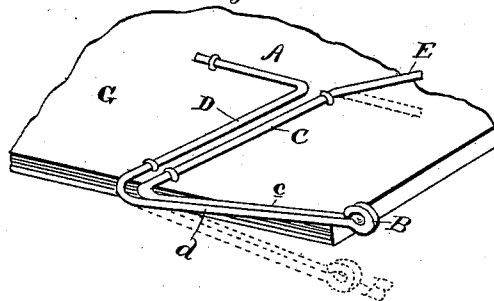


Fig. 3.



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WILLIAM E. POWERS, OF HASTINGS, MICHIGAN.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 408,519, dated August 6, 1889.

Application filed May 7, 1889. Serial No. 309,963. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. POWERS, a citizen of the United States, residing at Hastings, in the county of Barry and State of Michigan, have invented certain new and useful Improvements in Vehicle-Springs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

15 This invention relates to springs that are particularly designed for vehicles, and aims to provide a spring that will support a given load under a given tension, and which will be self-re-enforcing in the event of the given
20 load being exceeded or an abnormal strain coming on the spring.

The improvement consists of the novel features, which will be hereinafter more fully described and claimed, and which are shown
25 in the annexed drawings, in which—

Figure 1 is a side view of a vehicle-body, showing the application of my invention. Fig. 2 is a bottom plan view of my spring. Fig. 3 is a perspective view showing the operation of the spring by dotted lines.

30 The spring is composed of two members C and D, which have their inner ends bent in opposite directions to form the arms A and E, and which have their outer ends bent in the same direction to form the arms *c* and *d*, respectively. The arms *c* and *d* are connected at their outer ends in any desired manner, and are bent to form the hook B, which is connected by shackle E with the axle F or
35 other support. The arm E normally stands at an angle to the bottom G of the vehicle or other support to which the spring is secured. When the spring-arms *c* and *d* move a certain distance, the arm E is brought in contact
40 with the support G and increases the resistance to the further movement of the said spring-arms *c* and *d*—i. e., it re-enforces said

arms and increases their capabilities of sustaining a greater load.

It will be observed that the member D is
50 held to the support G by staples, and that said member is adapted to turn sufficiently to permit the arm E to come in contact with the said support G. The member D, with the arms *d* and E, may be separate from the member C, and its arms *c* and A being provided
55 to supplement or re-enforce the latter; but for economy of construction it has been found expedient to construct them of a single rod, which is bent substantially in the form shown.
60

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the spring composed of the member C and the arm *c*, of the
65 re-enforcing spring composed of the member D, the arm *d*, connected at its outer end with arm *c* and the arm E, the latter adapted to normally stand at an angle to the support to which the spring is secured, substantially
70 as and for the purpose described.

2. The combination, with the member C, having the spring-arm *c*, of the member D, having the arm *d*, which is connected with the arm *c*, and having the arm E, which
75 stands at an angle to the support to which the spring is secured, substantially as set forth.

3. The herein-described spring, composed of the parallel members C and D, the arms
80 *c* and *d* at the outer ends of the members C and D, respectively, extending in the same direction and connected together, and the arms A and E at the inner ends of said members, the arm E extending in an opposite di-
85 rection to the arm A and projecting up at an angle, substantially as described, for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM E. POWERS.

Witnesses:

C. H. VAN ARMAN,

ROBERT I. HENDERSHOTT.