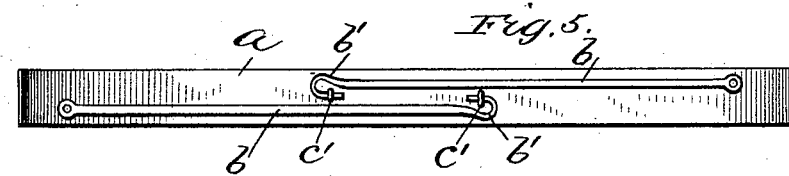
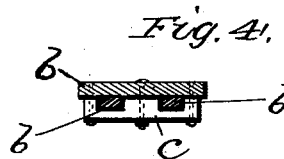
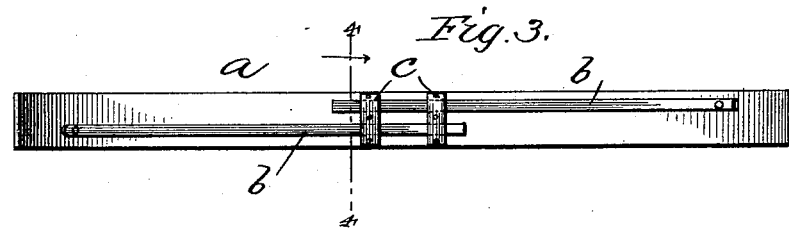
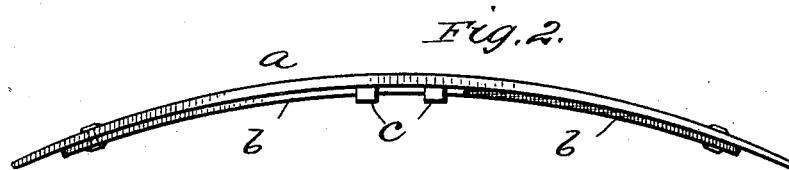
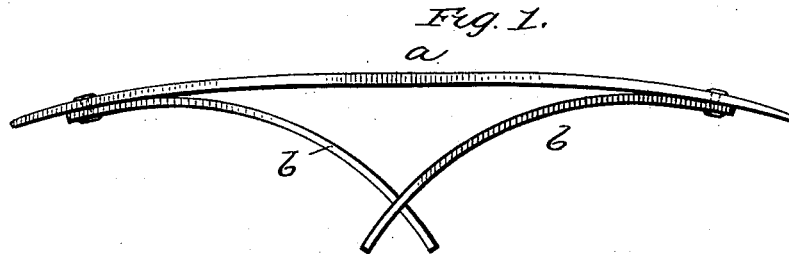


(No Model.)

W. G. MOWRY.  
VEHICLE SPRING.

No. 489,321.

Patented Jan. 3, 1893.



Witnesses  
C. Ashton Muzzy  
H. Harry Muzzy

Inventor  
William G. Mowry  
By Alexander Davis  
Attorneys

# UNITED STATES PATENT OFFICE.

WILLIAM G. MOWRY, OF GREENWICH, NEW YORK.

## VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 489,321, dated January 3, 1893.

Application filed September 21, 1892. Serial No. 446,449. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM G. MOWRY, a citizen of the United States, residing at Greenwich, in the county of Washington and State of New York, have invented certain new and useful Improvements in Vehicle-Springs, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a new and improved spring, and has reference, more particularly, to that class of flat or leaf-springs adapted for use on vehicles; and it has for its object to provide a spring of simple yet durable construction, which will have great wearing strength and resiliency, as will more fully hereinafter appear.

In the drawings: Figure 1 is a side elevation of my spring, the auxiliary springs being shown released from the main spring at their inner ends. Fig. 2 is a side elevation of a completed spring. Fig. 3 is a side view thereof, and Fig. 4 is a cross section on line 4-4 on Fig. 3. Fig. 5 is an underside view of a spring showing a modified form of device for securing the inner ends of the auxiliary springs.

Referring to the several parts by letter, *a* designates the main spring which is a flat spring approximately straight, being slightly curved longitudinally at its ends. To the underside of this main spring at or near its outer ends, are secured, by bolts passing through their outer ends, short curved springs *b b*. These short auxiliary springs are secured to the main spring so that their convex sides bear against the underside of said main spring as shown clearly in Fig. 1, and they are of such strength that when their inner ends are bent upwardly and brought in contact with underside of spring *a* they will arch said spring, as shown in Fig. 2. These springs *b b* are secured side by side and extend inwardly, their inner ends extending a suitable distance on either side of the center of the spring *a*, and keepers *c c* are secured to the underside of spring *a* in such position that the inner ends of both springs *b b* pass freely through them and slide therein when the

spring *a* is straightened by a weight or arched by the spring *b* when it is released from its load. These keepers *c c* consist of a bar secured to the underside of spring *a* and provided with two recesses in its upper edge through which the springs *b b* slide, and by means of which they are held against the underside of spring *a*. One of these keepers is secured on each side of the middle of spring *a*, in order that each spring *b* may have two retaining guides, and to more effectually secure the said springs to the spring *a*.

In Fig. 5 is shown a modified form of spring *b* and keeper. In this form a hook *b'* is formed at the inner end of each spring *b* and its end is passed through a staple *c'* secured to the spring *a* in place of the keepers *c*.

I wish it understood that I do not limit myself to the exact construction herein shown and described, as changes may be made without departing from the scope of the invention. For instance, the supplemental springs may be secured rigidly to the main spring at their inner ends and loosely at their outer ends instead of in the manner described.

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

1. A vehicle-spring consisting of a main leaf-spring and two supplemental springs secured on one of its sides, one end of each supplemental spring being secured rigidly to the main spring and its other end loosely thereto, the tension of the springs serving to arch them and make all of them conform approximately to the same curvature, substantially as described.

2. A vehicle spring consisting of a main leaf-spring and auxiliary or supplemental curved springs secured to one side of said main spring in such a manner as to arch the main spring against its tension, substantially as described.

3. A vehicle spring consisting of a main leaf-spring, auxiliary curved springs secured at their outer ends to said spring at its outer ends, the inner ends of each auxiliary spring extending beyond the middle of the main spring and keepers for loosely holding the in-

ner ends of said springs secure to said main spring, said auxiliary springs arching the main spring against its tension, substantially as described.

- 5 4. A vehicle spring consisting of a main leaf spring a supplemental spring secured at one of its ends to the main spring, its other end being held loosely against the main spring, said supplemental spring arching the main

spring against its tension, substantially as described.

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

WM. G. MOWRY.

Witnesses:

ALBERT C. WHITE,  
CHARLES C. VAN KIRK.