

E. M. VAN VALKENBURG.  
VEHICLE SPRING.

Patented Oct. 14, 1890.



**Inventor.**

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# UNITED STATES PATENT OFFICE.

ELLIS M. VAN VALKENBURG, OF UNION GROVE, WISCONSIN.

## VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 438,207, dated October 14, 1890.

Application filed March 3, 1890. Serial No. 342,403. (No model.)

*To all whom it may concern:*

Be it known that I, ELLIS M. VAN VALKENBURG, of Union Grove, in the county of Racine and State of Wisconsin, have invented  
5 new and useful Improvements in Vehicle-Springs; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters of  
10 reference marked thereon, which form a part of this specification.

The device to which my invention pertains is adapted especially for use with farm or  
15 lumber wagons, though by a slight modification in the construction it could be arranged for use with carriages, buggies, or other similar vehicles.

In the drawings, Figure 1 is a side elevation of my improved device shown in its normal position. Fig. 2 is a side elevation of the  
20 same device shown in a partly-depressed position. Fig. 3 is a top or plan view of the coupling device, by which the sections of the springs are united. Fig. 4 is a detail of a  
25 bolster-guide plate.

A represents the bolster of a wagon, and B B are posts fixed rigidly therein.

C is a false bolster, supported movably above the bolster A between the posts B B.

30 D D are guide-plates, secured adjustably to the ends of the false bolster C by bolts E E passing through longitudinal slots in the guide-plates and through the false bolster C, the slots in the guide-plates being so arranged  
35 as to permit of the endwise adjustment of the guide-plates on the bolster. The guide-plates are provided with lugs F F, extending on each side of the posts B B, whereby the false bolster is held in place and guided in its vertical  
40 movements.

The false bolster C is supported on the bolster A yieldingly by metal springs G. These springs are formed in two sections H H, and these sections are each constructed in a lower  
45 and upper part I and I', respectively. These springs are constructed of flat strap steel. The upper parts I' of the spring are secured near their outer ends to the under side of the false bolster C, and the lower springs I I at  
50 their outer ends bear movably on the upper surface of the bolster A, while the springs I

and I' of each section H H are brought together at their inner ends, and are there secured fixedly in pairs in head-pieces K K, the springs of each section H having a separate  
55 head-piece, which head-pieces are located at a little distance apart near the center of the bolsters A and C.

The head-pieces K K are provided with flanges L L, extending upwardly at their  
60 sides, between which the springs are received and fitted, and the springs are secured to the head-pieces by bolts M M passing through the ends of the springs and head-pieces.

The head-pieces are each provided with  
65 tongues N and N', which project inwardly from the head-pieces toward each other.

The tongue N on one of the head-pieces is provided with a slot O, through which a T-head P on the free end of the other tongue  
70 N' is adapted to pass when turned sidewise for that purpose, which head being so passed through the slot O is adapted to bear against the under side of the tongue N, and hold the  
75 tongue N' in position therewith, while permitting a longitudinal motion of the two tongues on each other. The tongue N is also preferably provided with upwardly-extending flanges R R alongside the slot O and extending to the end of the tongue, so formed  
80 and arranged as to receive the tongue N' between them and to still further guide and control the tongue N' in its relations to the tongue N.

The tongues N and N' are each provided  
85 with bearings S S to strike and move on the bolster A. The springs I and I' are also provided with one or more re-enforcing leaves T T, being here shown with one leaf only, though  
90 more can be used, if desired. These re-enforcing leaves are secured at their inner ends in the head-pieces K K in the same manner as and with the springs I and I'.

The springs are so formed and constructed that in their normal position the upper parts  
95 I' will lie nearly flat against the under surface of the false bolster, while the lower springs I are preferably formed on a curve the true segment of a circle. When a load is placed on the false bolster, the springs will  
100 be depressed centrally in the manner shown in Fig. 2, particularly if the upper springs



are made somewhat lighter or no heavier than the lower springs, as they should be, and the bearing parts S S will strike against the lower bolster, the tongues N and N' will slide past  
 5 each other, and the weight, if sufficient, will carry the springs down still farther until the upper and lower parts of the springs are brought nearly or quite together at their outer ends. The peculiar form of these springs  
 10 while supporting the bolster at its extreme ends, where the load usually comes on the bolster, is such as to give a very gentle and easy yielding movement at first, and afterward, when the bearings S S are upon the  
 15 lower bolster, to give a stronger and more unyielding support to the false bolster.

The guide-plates D D are so constructed that the parts thereof that are about the ends of the false bolster have somewhat the form  
 20 of double-channel irons—that is, there is a transverse web V, which fits against the under side of the false bolster, and there are vertical sides W W, which extend above and below the web, those parts of the sides that  
 25 extend above the web forming channels in which the ends of the false bolster are received, and those parts which project below the web forming channels in which the outer extremities of the upper leaves I' I' are re-  
 30 ceived. These upper leaves I' I' of the springs are commonly as wide as the false bolster, and fit nicely into the channels in the under side of the guides D D, and are thereby held against lateral movement, and these leaves  
 35 may be constructed to bear so strongly against the under sides of the webs of the plates as to clamp them firmly to the false bolster and thereby dispense with the bolts E E.

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

1. A vehicle-spring consisting of two separate sets or sections of springs, one set en-

tirely on each side of the middle of the supporting-bolster, each set or section having an upper and a lower part, which parts are each  
 45 connected rigidly together at their inner ends, being normally separated at their outer ends, the upper part of each section being secured near its outer end to the false bolster and be-  
 50 ing so formed as normally to be nearly straight along on the under side of the false bolster, the lower part being curved downwardly from its inner end, its outer end being free to slide on the bolster, and the inner ends of the sec-  
 55 tions being connected movably together, substantially as described.

2. In a vehicle-spring constructed in two sections, each section being composed of two parts which at their outer extremities are normally at a distance from each other, head-  
 60 pieces to which the inner ends of each section are rigidly secured, which head-pieces are provided with tongues, one of which has a slot through which the other tongue passes movably, being secured therein by a cross-  
 65 head, substantially as described.

3. The combination, with a movable false bolster, of guide-plates secured adjustably to the false bolster, one at each end, each plate being formed with an upper and a lower lon-  
 70 gitudinal channel, the upper channel receiving therein the end of the false bolster and the lower channel receiving therein the end of a spring, which spring is thereby held in place against lateral movement and clamps  
 75 the guide-plate adjustably to the bolster, substantially as described.

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

ELLIS M. VAN VALKENBURG.

Witnesses:

C. T. BENEDICT,  
 ANNA FAUST.