

(No Model.)

J. DIEHL.
VEHICLE SPRING.

No. 476,921.

Patented June 14, 1892.

Fig. 1.

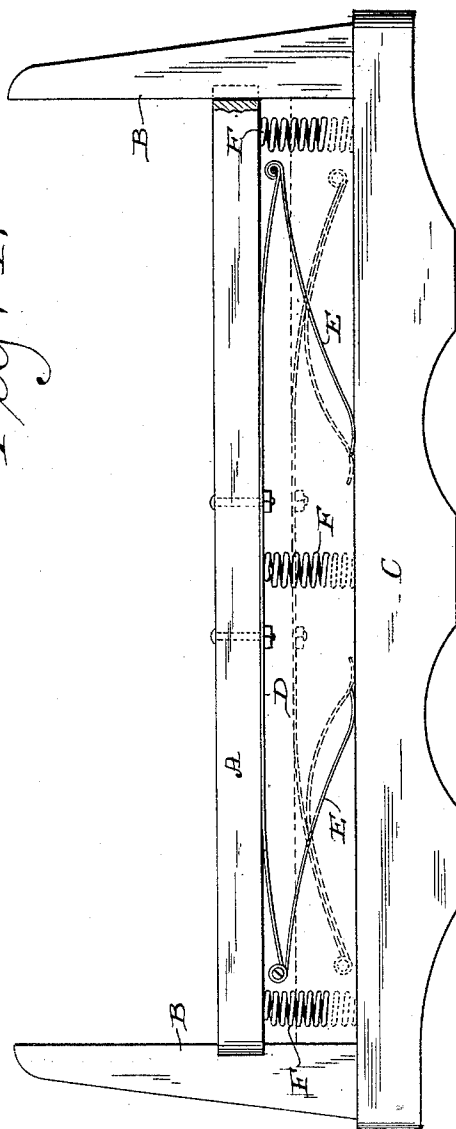
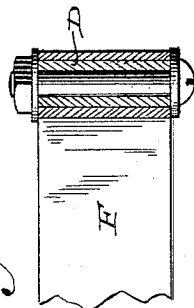


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN DIEHL, OF RACINE, WISCONSIN, ASSIGNOR OF ONE-HALF TO JOHN F. BICKEL, OF SAME PLACE.

VEHICLE-SPRING.

SPECIFICATION forming part of Letters Patent No. 476,921, dated June 14, 1892.

Application filed February 16, 1891. Serial No. 381,683. (No model.)

To all whom it may concern:

Be it known that I, JOHN DIEHL, a citizen of the United States, and a resident of Racine, in the county of Racine, and in the State of Wisconsin, have invented certain new and useful Improvements in Vehicle-Springs; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention consists in certain peculiarities of construction and combination of parts to be hereinafter described with reference to the accompanying drawings, and subsequently claimed.

In the drawings, Figure 1 represents an elevation of a vehicle-spring constructed according to my invention, and Fig 2 a detail view of a portion of the same, partly in horizontal section.

Referring by letter to the drawings, A represents a bar recessed at its ends to engage standards B on a bolster C, as is usual in the art to which my invention relates. Bolted to the under side of the bar is the central portion of a spring-plate D, and clipped to the ends of this spring-plate are the outer ends of other spring-plates E, the inner ends only of the latter being normally in contact with the bolster.

Depending from the center and ends of the bar A are spiral springs F of such length as not to come into contact with the bolster C until the resistance of the spring-plate D has been overcome. The spiral springs F are not absolutely essential at all times and therefore they may be omitted at will, especially when the resistance of the spring-plate D is greater than any load that is likely to come thereon.

In practice the load is resisted by the spring-plates D E, the ends of the former plate bowing toward the center of the bolster as the other plates move thereon toward each other, as shown by dotted lines, Fig. 1. The spring-plate D resists the load up to the time the bar is moved down as far as the horizontal dotted line in Fig. 1. At this time the ends of the spring-plate D will be in contact with the bolster C, and consequently said spring-plate will begin to straighten out and thereby lose

its resistance; but as the spiral springs F are now in contact with said bolster their resistance compensates for the loss of that by the aforesaid spring-plate. As previously stated, only the inner ends of the spring-plates E are normally in contact with the bolster, and consequently these spring-plates do not begin to flatten out until the one D, to which they are attached, has bowed enough to bow the others and bring their outer ends into contact with said bolster, it requiring considerable load to effect this operation. At this time the spring-plate D begins to lose its resistance; but there is yet sufficient resistance in the spring-plates E to more than compensate for such loss, and this latter resistance is maintained until the latter spring-plates are flattened out. While in many instances (especially in connection with vehicles for heavy loads) it is preferable to employ the spiral springs F to compensate for the loss of resistance of the spring-plate D, and thereby prevent the entire load from coming on the spring-plates E when the latter have been bowed sufficient to bring both ends of each into contact with the bolster, still for light vehicles—such as buggies and carriages—said spiral springs may be omitted without departure from the principal feature of my invention.

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

1. A vehicle-spring comprising a bar, a curved spring-plate having its central portion secured to the underside of the bar, but having its ends normally at some distance from an opposing bolster, and other spring-plates having their outer ends secured to the ends of the first, whereby only their inner ends normally rest upon said bolster, their outer ends being only in contact with the same when the resistance of said first spring-plate is overcome, substantially as set forth.

2. A vehicle-spring comprising a bar, a curved spring-plate having its central portion secured to the under side of the bar, but having its ends normally at some distance from an opposing bolster, other spring-plates

having their outer ends joined to the ends of
the first, whereby only their inner ends nor-
mally rest upon said bolster, and spiral springs
depending from said bar to come into play
5 when the resistance of said first spring-plate
has been overcome, substantially as set forth.
In testimony that I claim the foregoing I

have hereunto set my hand, at Racine, in the
county of Racine and State of Wisconsin, in
the presence of two witnesses.

JOHN DIEHL.

Witnesses:

GEO. A. CRANE,
C. A. DIEHL.