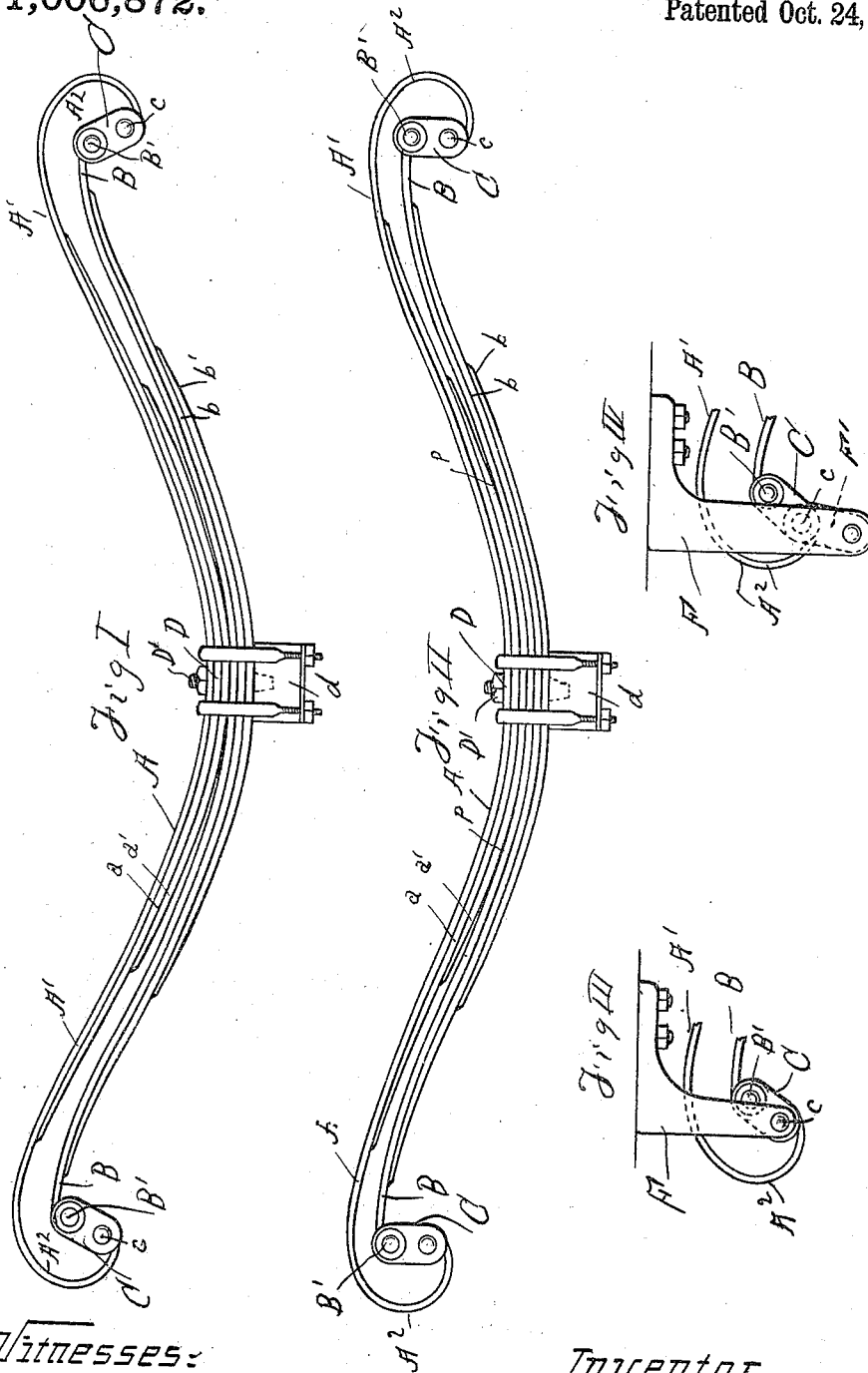


J. A. PERRY.
 SPRING FOR VEHICLES.
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Witnesses:
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UNITED STATES PATENT OFFICE.

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SPRING FOR VEHICLES.

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To all whom it may concern:

Be it known that I, JOHN A. PERRY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Springs for Vehicles; and I do hereby 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 pertains to make and use the same.

My invention relates to vehicle springs, more especially adapted for use in connection with heavy bodies, such as automobile structures.

The objects of my invention are to provide a supporting spring which while yieldingly sustaining the body, will allow the same to swing back and forth in the direction of the transit.

Another object of my invention is to provide a spring which increases in strength and resistance to the load as the load is increased without detracting from its cushioning effect.

Still another object of my invention is the uniting of the sections of the spring in relation to each other in such a manner that as the load is increased and the spring lengthened thereby a resistance is given or applied with the lengthening of the upper portion of the spring and this upper portion or section is cushioned during its resistance to the strain, bringing into action evenly along the length of the several leaves, a resisting force which is not thus located or applied at any particular portion of the spring, thus rendering fracture or crystallization impossible.

My invention consists in features of construction of the spring which will be hereinafter fully set forth and claimed.

I have found that in springs where they have been applied to sustain heavy loads that unless the shock incidentally due to riding over rough places or encountering obstacles is sustained by the addition of resilient interposed mechanism, that it oftentimes happened that the spring is bent at its most resilient portion, or its weakest portion, and that subsequently this bent portion becomes crystallized and breaks.

It is the above mentioned defects and difficulties that this invention is intended to obviate.

In the drawings Figure I is a view in side elevation of a spring embodying my invention, illustrating the same in normal or released position. Fig. II is a view in side elevation representing the spring depressed or in position sustaining a load. Figs. III and IV illustrate different methods of hanging the spring.

In the drawings A represents the upper portion of the spring which is preferably provided with two or more leaves such as a, a^1 , the main leaf A^1 being curved downwardly and inwardly at its ends A^2, A^2 . B represents the lower section which may also be formed with two or more leaves, b, b^1 . The length of the upper section or leaf of the lower spring is shorter than the upper leaf of the section A, and is attached at its outer ends as at B^1, B^1 , to a shackle or link connection C, C, which in turn is attached to the inturned end of the leaf A^1 of the upper section A, the connection between the leaves A^1, B being a pivotal one and allowing of the necessary play or movement between the parts or sections A, B, at their ends. At the central portions, as at D the two sections are united, either by the necessary clips, to attach them to the axle, as d, d or by means of a bolt D^1 , or by both means if found necessary. This keeps the central portion as at D firmly together and the resiliency of both sections extends from this point outward toward both ends of the spring. The hangers are secured in any suitable manner at the outer ends of the spring, as illustrated in Fig. III or in Fig. IV, one end of the spring being necessarily attached as illustrated in Fig. IV, which allows for the elongation of the sections as they are depressed. In these figures F represents the hangers and in Fig. III the shackle or link C is shown as connected at its lower end, both to the hanger and to the curved portion of the upper section of the spring, the upper section being shown as pivotally attached as at c . In Fig. IV the hanger F is connected to the spring by means of an independent link F^1 upon which the spring rocks, the upper end of the link F^1 being secured to the link C and to the curved portion of the spring A, and its lower end being pivotally secured to the hanger F. This allows of both sections A and B lengthening out as the spring is depressed with the load.

It will be seen by a construction of spring when formed according to my invention that the downward pressure or load is brought to bear directly at the ends of both sections A and B, and that as the spring is forced downward the upper section A comes into contact as at *p* whence it is supported by the lower section B. It will also be noted that the downward pressure in case of a load or in case of sudden shock, is first transmitted through the hangers *F* to the point where both sections A B are connected, is then taken up at this point, cushioned and transmitted to the heavier or stronger portions of the spring as at *p* thereby increasing the power of the spring and bringing into action conjointly both sections A and B. The curvatures A^2 , A^2 , also act through the links C C to sustain the section B at the ends against sudden shocks which would be liable to bend or break them. By my construction of spring I attain greater resiliency, better cushioning effect and greater strength to sustain shocks or loads and a spring in which one section co-acts with the other in all directions and cushion one the other in their spring action.

In setting forth this invention I have shown certain details and assemblages of parts as I consider them best adapted for the purpose intended and to attain the object of the invention. But I do not hence wish to be limited to these exact details or assemblages, as they will be and can be modified to a great extent without departing from my invention.

What I claim is:

1. A spring comprising a superposed upper and lower section, the upper section embodying a plurality of leaves superposed one on the other and increasing in length from the lowermost to the uppermost leaf, with the uppermost leaf having its ends extended considerably beyond the other leaves of said section, and curved downwardly and inwardly to a point below the extreme ends of the uppermost leaf of the lower section, the lower section of said spring embodying a plurality of superposed leaves increasing in length from the lowermost to the uppermost leaf, with the ends of the uppermost leaf of said lower section extended some distance beyond the ends of the adjacent leaf of said section, and links pivotally connected to the downwardly and inwardly curved with the lowermost leaf of the upper sec-

tion and to the extended ends of the uppermost leaf of the lower section, said links being free to move on both of their pivotal points, and said sections of the spring being secured together centrally of their ends, with the lowermost leaf of the upper section resting upon the uppermost leaf of the lower section at the point of connection.

2. A double vehicle spring, comprising an upper and a lower section connected at their central portions to a vehicle axle and arranged in separated relation at opposite sides of said axle, the ends of one section extending around and substantially embracing the ends of the other section, the ends of the sections supported to permit a relative longitudinal movement as and for the purpose described.

3. The combination with a vehicle, of two superposed leaf spring sections clamped together upon the axle about their middle, the upper section having a downwardly-curved scroll ending below the end of the lower section, and flexible connections between the ends of the sections and between said ends and the vehicle body.

4. A double vehicle spring comprising an upper and a lower spring member operatively connected together at their body portions and each continuous throughout its length and arranged in separated relation at opposite sides of such point of connection, the ends of one member extending around and substantially embracing the ends of the other member, the ends of the members being connected to permit a relative longitudinal movement therebetween.

5. A double vehicle spring comprising an upper and a lower spring member, each of said members being operatively connected together intermediate of their ends at their body portions, one of said members having a scroll end extending around the corresponding end of the other member, and a swinging link or shackle flexibly connecting said ends, the spring member having the scroll end being free between the points of connection with the other spring member.

Signed at Cleveland in the county of Cuyahoga and State of Ohio, this 26 day of April 1904.

JOHN A. PERRY.

Witnesses:

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