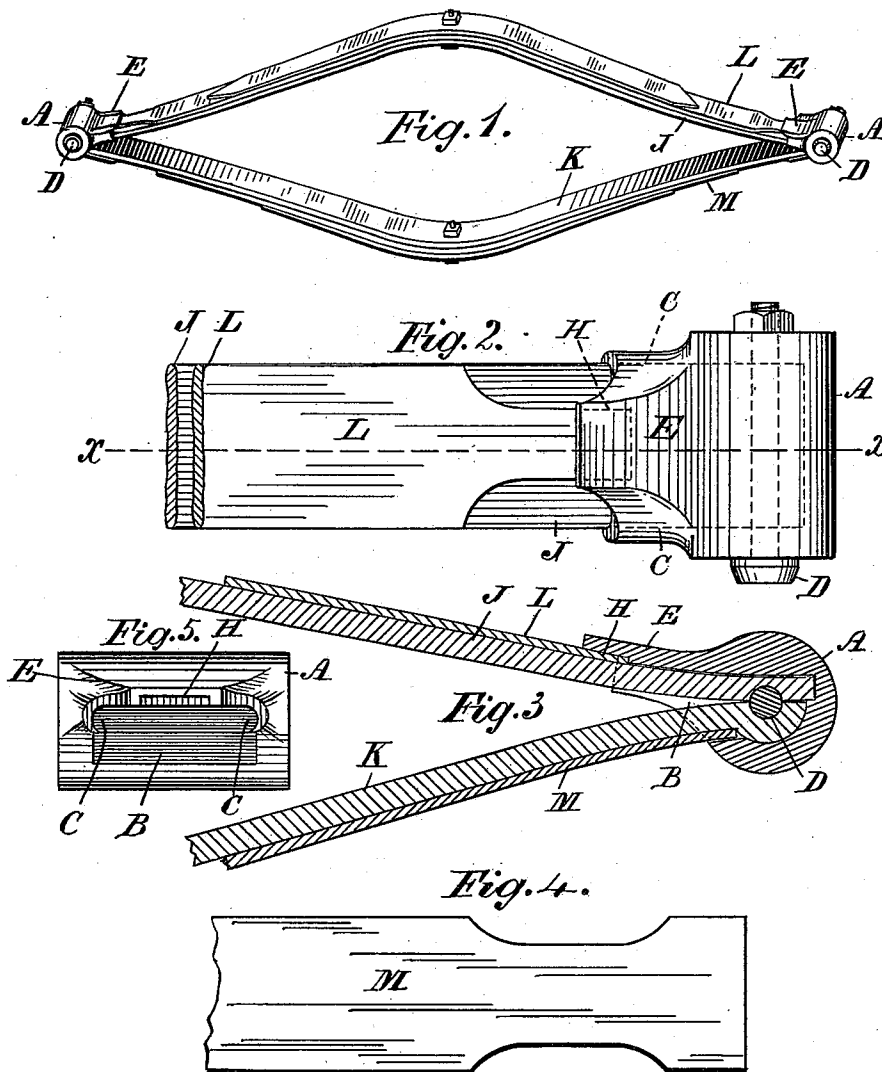


(No Model.)

T. B. DOWSLEY.
CARRIAGE SPRING.

No. 533,057.

Patented Jan. 29, 1895.



Witnesses:
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UNITED STATES PATENT OFFICE.

THOMAS BURCHILL DOWSLEY, OF OWEN SOUND, CANADA.

CARRIAGE-SPRING.

SPECIFICATION forming part of Letters Patent No. 533,057, dated January 29, 1895.

Application filed October 5, 1893. Serial No. 487,205. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BURCHILL DOWSLEY, of Owen Sound, in the Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements in Elliptic Carriage-Springs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—
10 Figure 1, is a perspective view of my improved elliptic carriage-spring. Fig. 2, is a top view of a portion of one end of the spring, enlarged. Fig. 3, is a section on line *x x* Fig. 2. Fig. 4, is a diagram of one end of the supplemental plates of the spring, and Fig. 5, is a front view of the head detached from the spring to show the grooves in the cavity.

My invention relates to the construction of elliptic carriage-springs of that class in which
20 the ends of the upper and lower spring-plates are movably joined in a cast metal head, and my invention has for its object to improve the construction so that the upper and lower spring-plates are rigidly connected to the head
25 and at the ends bear against one another, whereby the spring-plates mutually reinforce and stiffen each other when the elliptic spring begins to collapse.

My invention has the further object to prevent the spring suddenly flying up or expanding when the vehicle is traveling on rough roads, by reinforcing the spring-plates by additional spring-plates having reduced ends inserted into the head above the top and below
30 the bottom spring-plates.

My invention has the further object to keep the edges of the spring plates uniformly even without slotting and beading said plates.

My invention consists in the construction
40 and combination of the parts composing the ends of the elliptic spring, as hereinafter set forth and claimed.

A, is a malleable cast metal head having a cavity B, into which the ends of the spring-plates J, K, are inserted and said cavity has
45 grooves C, to receive and firmly hold the upper spring-plate J, and both plates are held stationary in the cavity of said head by a bolt D, passing through the ends of said head and
50 between the spring-plates, a groove or channel being formed in said spring-plates to admit the bolt. The lower spring-plate K, is

curved at the ends to be caught by the insertion of said bolt D, and the ends of the upper spring-plate J, are approximately straight and
55 notched transversely as aforesaid whereby the bolt D, when inserted holds said spring-plates in the cavity in said head. The straight end of the upper spring-plate is first inserted in said cavity and afterward the curved end of
60 the lower spring-plate is slitted into said cavity, both plates filling the cavity, the bolt holding both plates fixedly therein. The upper spring-plate is held immovably in the grooves C, in the cavity in the head A, and
65 the lower spring-plate is held immovably by both spring-plates filling the cavity, and both plates converge in the cavity and diverge therefrom, and are flatwise together at the ends, so that when the spring collapses, the
70 spring-plates J, K, come together and mutually support one another under the imposed strain or superposed load.

The head A, has an upper extended arm E, which projects from the mouth of the cavity,
75 and said arm or projection E, is provided with a flat recess H, which receives the end of a supplementary spring-plate L, superposed on the upper spring-plate J, and said spring-plate L, is gradually thinned at the ends and
80 diminished in width if desired, and fits into the recess H, in the head A. The plate L, stiffens the elliptic spring and prevents the plates flying up when driving over rough roads.

M, is a spring-plate gradually thinned at the ends and placed against the under side of the spring-plate K, the ends abutting the curve of said spring-plate K, and said ends of plate M,
85 bear in the head at the entrance to the cavity, the mouth of said cavity being suitably shaped to receive and hold the thinned end of the spring-plate K, firmly and snugly.

My improvement does away with slotting and beading the spring-plates L, and M, and
90 J, and K, to keep the edges of said spring-plates uniformly even at the edges.

I claim as my invention—

1. The combination, in a vehicle spring, of a hollow head having an opening at one side
100 and formed with a groove at each end of said opening, the upper main spring plate adapted to fit edgewise in said grooves, the lower plate fitting in said head, and means for securing

said plates rigidly in said head, substantially as described.

2. The combination, in a vehicle spring, of a hollow head having an opening at one side thereof and formed with a groove at each end of said opening, the upper main plate having a channel at its end and adapted to fit edgewise in said end grooves, the lower main plate having a curved end adapted to fit in said head and a bolt for securing said head and plates rigidly together, substantially as described.

3. The combination, in a vehicle spring, of a hollow head having an opening at one side, a groove at each end of said opening and an arm projecting from the edge of said opening and formed with a recess, the upper main plate adapted to fit said grooves, edgewise, the upper supplementary spring having its end resting in said recess, the lower main spring fitting in said head, the lower supplementary spring fitting in the mouth of the opening, and means for rigidly securing said main plates in said head, substantially as described.

4. The combination, in a vehicle spring, of a hollow head having an opening at one side and a groove at each end of said opening, the upper main plate having a straight end adapted to fit said grooves, the lower main plate having a curved end adapted to fit in said hol-

low head and bear against the upper main plate, a bolt for rigidly securing said plates in place, and supplementary spring plates having reduced ends, said supplementary springs being secured to the outer sides of said main plates and their reduced ends being secured between said main plates and the edges of the mouth of the opening, substantially as described.

5. The combination of the head A, cast in one piece, and having a cavity provided with an internal groove C, at opposite sides, and having an arm E, extending from the mouth of said cavity and provided with a recess H, a stiffening-plate L, inserted in said recess, a spring-plate J, having a plain end provided with a transverse groove and fitting into said cavity, a spring-plate K, having a curved end and fitting into said cavity to fill the same, a stiffening-plate M, inserted into the mouth of said cavity, and a bolt D, passing through the ends of said head A, and through the grooves or channels in the spring-plates J, K, for locking them in said head A, as set forth.

THOMAS BURCHILL DOWSLEY.

Witnesses:

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