

C. J. COGGIN.
 SPRING AXLE.

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1,064,613.

Patented June 10, 1913.

Fig. 1.

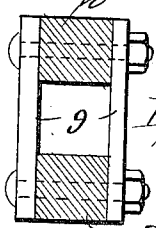
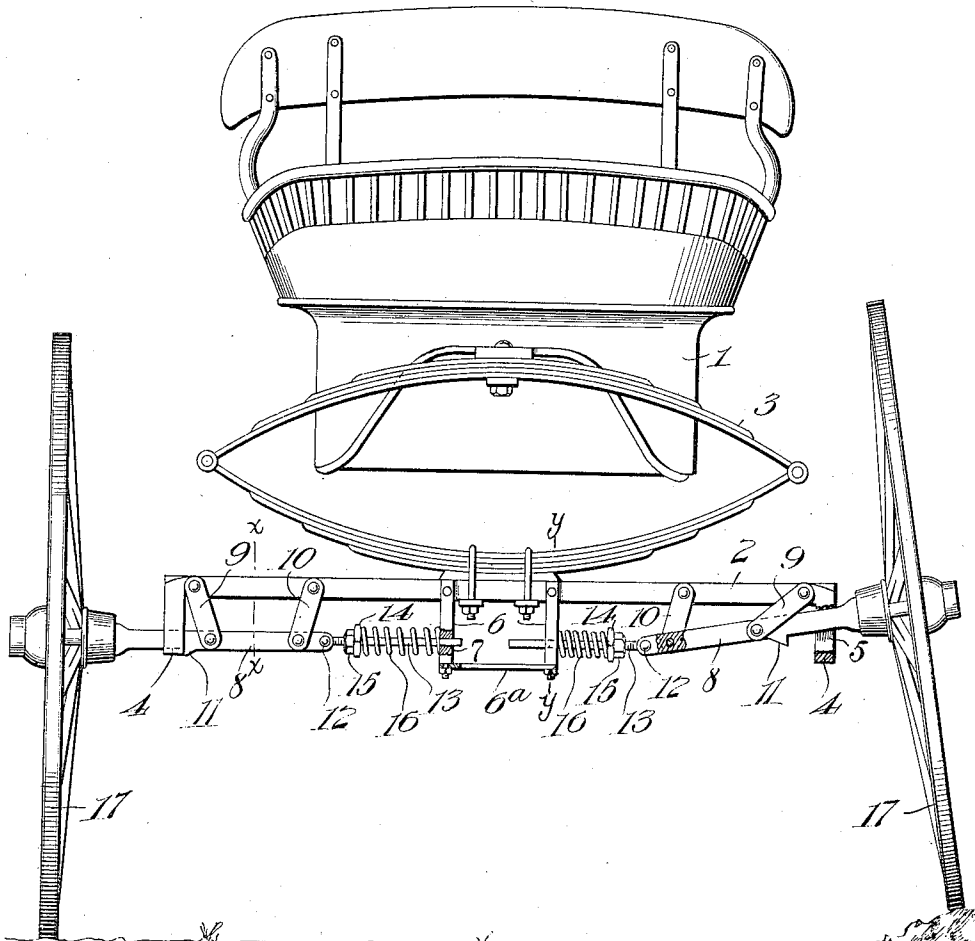


Fig. 3.

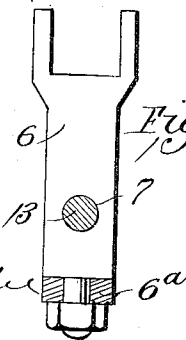


Fig. 4.

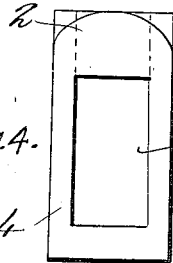


Fig. 2.

Witnesses
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SPRING-AXLE.

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To all whom it may concern:

Be it known that I, CHARLEY J. COGGIN, a citizen of the United States, residing at San Angelo, in the county of Tom Green and State of Texas, have invented new and useful Improvements in Spring-Axles, of which the following is a specification.

The present invention provides an axle of novel form particularly designed for road vehicles such as buggies, coupés, and the like, the purpose being to make provision for movement of the wheels whereby they may automatically adapt themselves to irregularities in the surface of the road thereby avoiding shock and jar with the result that riding is rendered comparatively easy and comfortable, while at the same time both the wheel and its mountings are relieved from the greater part of the strain when the wheel drops into a rut or meets with an obstruction such as a stone or other projection on the surface of the road.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawings, and pointed out in the appended claims.

Referring to the drawings, forming a part of the specification,—Figure 1 is a rear view of a vehicle provided with an axle embodying the invention, one of the wheels being shown in the position which it will occupy when passing over an obstruction. Fig. 2 is an end view of the stringer showing the pendant portion through which the axle passes. Fig. 3 is a section on the line $x-x$ of Fig. 1. Fig. 4 is a section on the line $y-y$ of Fig. 1.

Corresponding and like parts are referred to in the following description and indicated in all views of the drawing by the same reference characters.

The numeral 1 designates the body of a vehicle which may be of any construction, make or design. A stringer 2 is connected with the vehicle body in any manner and as illustrated, a spring 3 of the elliptical type is interposed between said stringer and the vehicle body, said spring being arranged transversely. The stringer 2 consists of a bar which is provided at its ends with pendant portions 4 in which are formed vertical slots 5. The pendant portions 4 are integral parts of the bar and consist of terminal

portions of said bar bent out at a right angle.

Vertical bars 5 are connected at their upper ends to the stringer 2 and their lower ends are united by means of a yoke 6 which is fitted to reduced terminal threaded portions of the bars 5. Each of the bars 5 has an opening 7 near its lower end and said bars are transversely spaced. An axle 8 is had for each end portion of the stringer and its outer part passes through the slot 5 of the hanger 4, and is prevented from movement in the length of the vehicle, but is free to play vertically in the slot 5. Links 9 and 10 pivotally connect the inner portion of each axle with the stringer 2, said links 10 being oppositely inclined with the result that a longitudinal movement of the axle will cause both ends thereof to move in opposite directions, that is while the inner end lowers, the outer end rises, and vice versa. Each axle has a limited longitudinal movement, the outer movement of said axles being limited by means of a stop 11 provided upon the axle, and adapted to engage the hanger 4. The inner end of the axle is forked, the forked members being transversely pierced to receive a fastening 12 by means of which a rod 13 is pivotally connected to the axle, the inner end of the rod passing through the opening 7 of the proximo bar 5. The outer end of the rod 13 is pierced to receive a fastening 12, and is threaded to receive a set nut 14, and a jam nut 15. A helical spring 16 of the expansible type is mounted upon the inner portion of the rod 13 and is confined between the said nut 14 and the bar 6 through which the rod 13 passes. The spring 16 normally exerts an outward pressure upon the rod 13, and serves to hold the stop 11 in contact with the hanger 4. Any inward movement of the axle 8 tends to compress the spring 16 and when the axle is relieved of such inward pressure, the spring 16 serves to return it to normal position. The tension of the spring 16 may be varied by means of the set nut 14.

Under normal conditions, the wheels 17 fitted to the spindles of the axles 8 occupy an approximately vertical position, and in the event of one or the other of the wheels meeting with an obstruction, or drop into a rut or other depression in the surface of the road, the lateral stress to which the wheel is

subjected will cause the same to move and to press the axle 8 inwardly with the result that the inner link 10 approaches the vertical, whereas the outer link 9 is caused to incline from the vertical to a greater extent. This movement depresses the inner end of the axle and admits of the outer end of the axle rising, so that the wheel may adapt itself to the lateral stress without producing any unpleasant shock or jar to detract from the comfort of the occupant of the vehicle. After the wheel has cleared the obstruction, or passed out of the rut or depression, the spring 16 regaining itself returns the axle and wheel to the normal position.

It will be understood from the foregoing, taken in connection with the accompanying drawings, that the invention provides an axle for the road vehicles which will admit of the wheels automatically adapting themselves to any unevenness of the surface of the road so as to compensate for shock or jar, with the result that riding is rendered both comfortable and easy and the running gear is comparatively free from the ordinary wear and tear incident to strain resulting from the vehicle passing over rough and uneven surfaces.

What I claim is new is:—

1. An axle, a stringer, links supporting the axle and pivotally connected thereto at different points in its length, the points of suspension and connection of the links with the axle being disaligned vertically so that upward movement of one end of the axle produces downward movement of the opposite end of the axle and vice versa.

2. In combination, a stringer forming a support, an axle mounted to have a limited vertical and longitudinal play, oppositely inclined links connecting the axle with the said support, and a spring normally exerting an endwise pressure upon the axle.

3. In combination, a stringer forming a

support, an axle mounted upon the support and having a limited longitudinal and vertical play, link connections between the axle and support, a rod having pivotal connection at one end with the axle and sliding connection at its opposite end with the said support, and a spring exerting an endwise pressure upon said rod and serving to normally hold the axle in a given position.

4. A stringer having a vertical slotted hanger at its outer end, a bar pendant from the stringer and having an opening, an axle passing through the slot of said hanger, oppositely inclined links connecting the axle with the stringer, a rod pivotally connected at one end with the axle and having its opposite end portion slidably arranged in the opening of the beforementioned bar, a helical spring mounted upon said rod and exerting an endwise pressure thereon, and means for varying the tension of said spring.

5. In combination, an approximately horizontal support, hangers arranged on the outer ends of said support, each having a vertically disposed slot, bars pendant from the support each having an opening, axles passing through the slots of said hangers, oppositely inclined links pivotally connecting the axles to the support, threaded rods having pivotal connection at their outer ends with the inner ends of the axles and having their inner ends passing loosely through the openings of the beforementioned bars, helical springs mounted on said rod and exerting an endwise pressure thereon, and means for varying the tension of said springs.

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

CHARLEY J. COGGIN.

Witnesses:

REX LEWIS,

JESSE T. COUCH.