

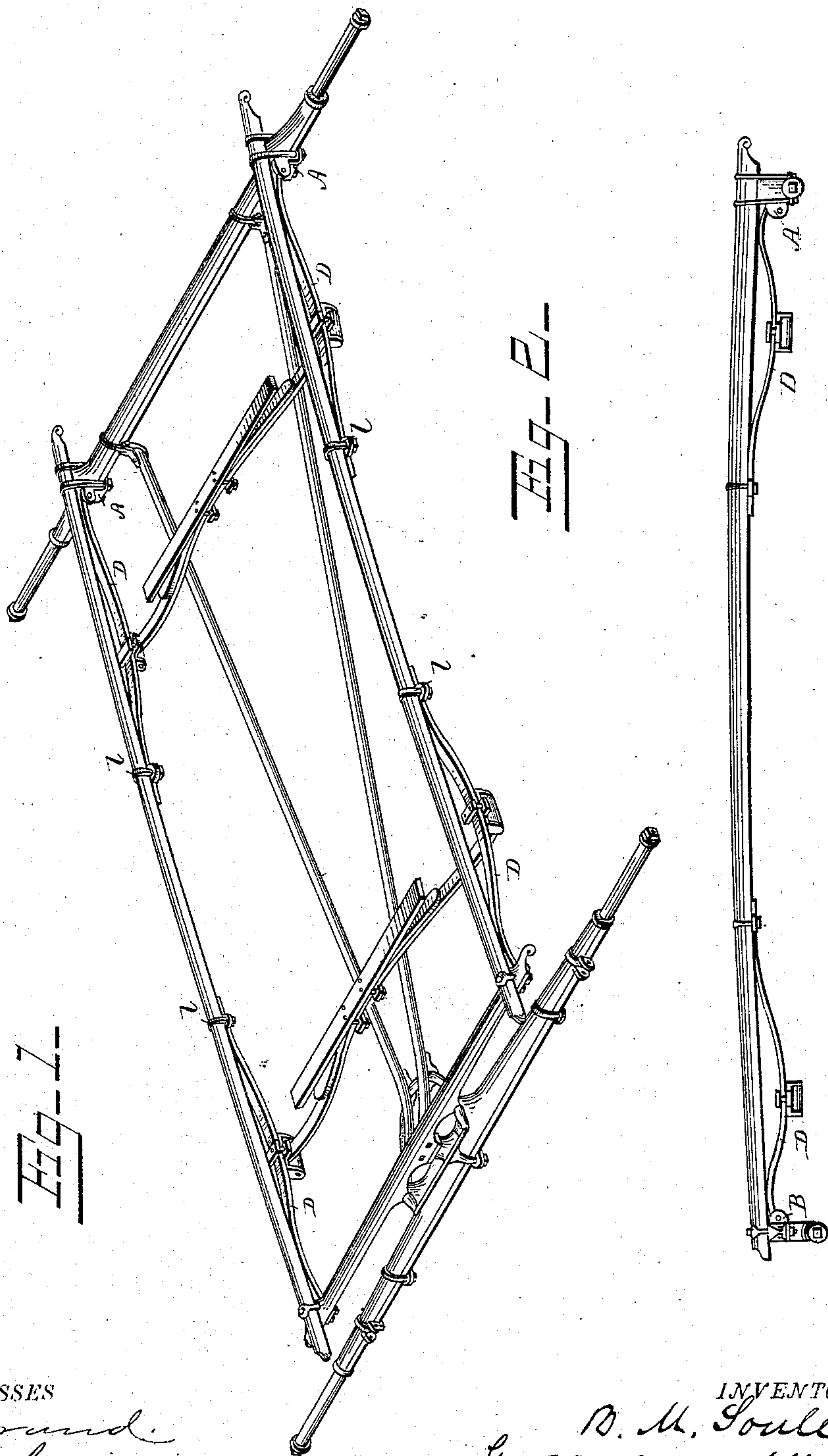
(No Model.)

2 Sheets—Sheet 1.

B. M. SOULE.
RUNNING GEAR FOR VEHICLES.

No. 283,293.

Patented Aug. 14, 1883.



WITNESSES

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2 Sheets—Sheet 2.

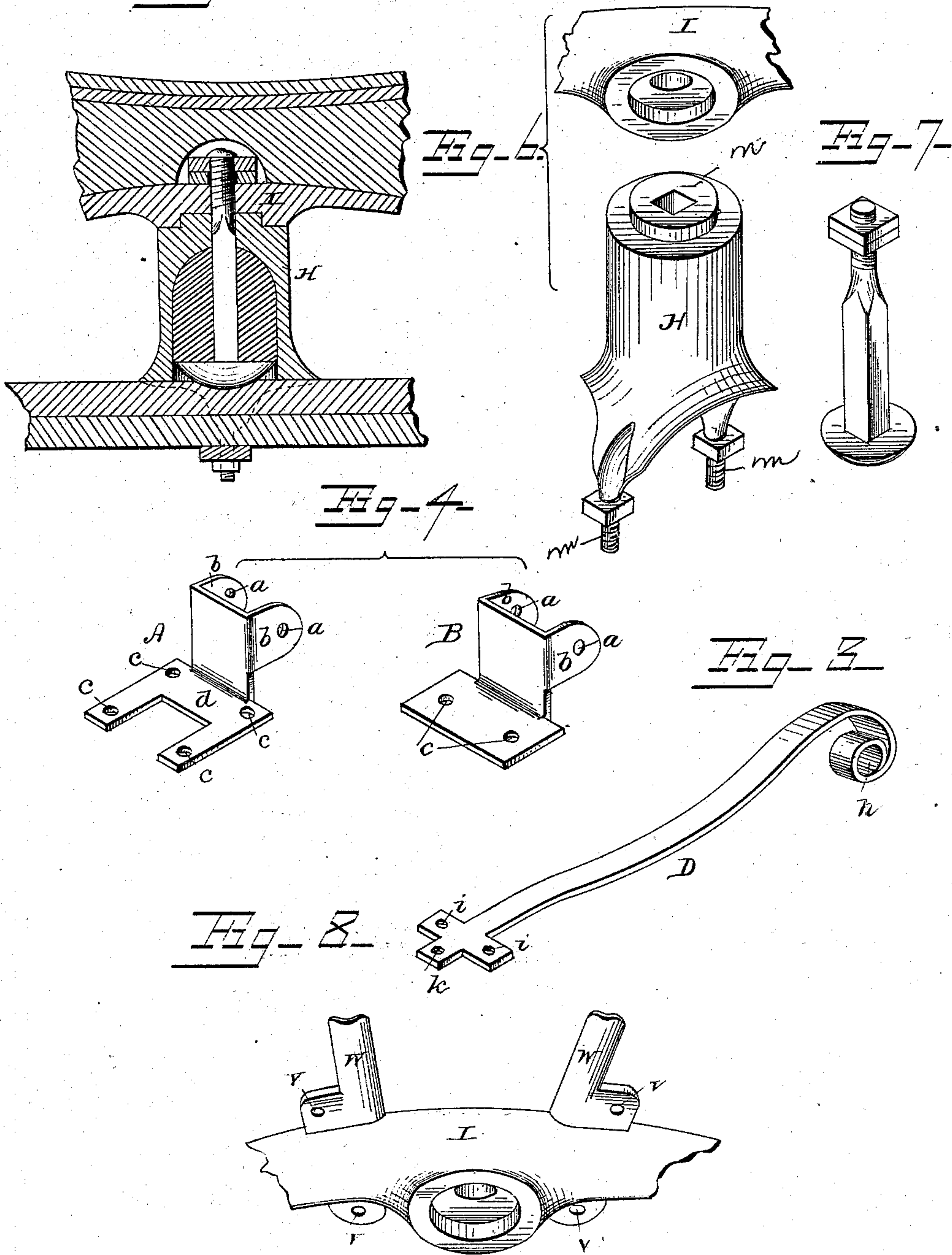
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Fig. 5.



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UNITED STATES PATENT OFFICE.

BUREN M. SOULE, OF CEDAR RAPIDS, IOWA.

RUNNING-GEAR FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 283,293, dated August 14, 1883.

Application filed February 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, BUREN M. SOULE, a citizen of the United States of America, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Running-Gear 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 appertains to make and use the same.

This present invention relates to certain improvements in running-gear for buggies and similar vehicles; and it has for its main object to improve the structure of vehicles.

My improvement consists in the novel construction and combination of parts, as will be hereinafter more fully set forth.

In the annexed drawings, Figure 1 is a perspective view of the axles, bolster, and side bars with my improvements attached. Fig. 2 is a side view of the same. Fig. 3 is a perspective view of the horizontal spring; Fig. 4, perspective views of the shackles for the bolster and rear axle. Fig. 5 is a vertical sectional view of the king-bolt; Fig. 6, exterior views of the king-bolt casing and cap-plate of the bolster. Fig. 7 is a perspective view of the bolt, and Fig. 8 is a perspective view of the bolster-plate.

The letter A represents the shackles attached to the rear axle by means of suitable clips arranged on opposite sides of the axle. These shackles are made, preferably, of sheet metal through the agency of a power-press with sets of dies of the desired shape, and these dies give the desired configuration and finish to the shackles. In the process of forming or shaping the shackles the perforations *a* are made in the side ears, *b*, for the passage of a connecting-bolt, and the perforations *c* in the base-plate *d* for the passage of the clip-bolts. The shackles B (see Fig. 4) for the bolster are substantially like those for the rear axle, except that only one set of holes is used in the base-plate for the clip-bolts. The shackles B, it will be noticed, are secured to the under side of the bolster C by the clips *e*, in such a manner that the vertical wall to which the ears are attached will fit closely to the bolster A, and bolt *f* is passed through each clip, bolster, and shackle, and made secure either by rivet-

ing or a nut, to secure additional strength and firmness. The base portions *d* of the shackles serve the office of clip-ties.

The letter D (see Fig. 3) represents a horizontal spring formed at one end with a scroll and bolt-eye, *h*, and at the other end with lateral lugs or extensions *i*, which, as well as the end of the spring, are perforated for the reception and passage of fastening means. This spring is bowed or curved downward at its middle and made, of course, rounding at the scroll end, substantially as shown. The scroll ends of the horizontal springs are attached to the shackles of the bolster and rear axle, respectively, by means of bolts passing transversely through the side ears of the shackles and the eyes of the springs, and the bolts secured in position by means of nuts. The other or opposite ends of the springs are firmly fastened to the side bars, E, by means of rivets, screws, or bolts passed through the perforations *k* and side bars and clips *l*, substantially as indicated in Figs. 1 and 2 of the drawings. The cross or transverse springs F are connected to the horizontal springs D in any well-known manner, preference, however, being made to a mode of attachment that will secure, when pressed down, a vertical and longitudinal movement caused by the lengthening and shortening of the spring. By constructing and attaching the horizontal springs in the manner as herein described and shown a compound motion—to wit, vertical and longitudinal—is gained when in use.

Arranged between the front axle and the bolster is the king-bolt and its casing, which consists of the casing H, formed at its lower end with the oppositely-arranged clip-bolts *m*, to make connection with the axle, and at its upper end with the circular bearing *n*, to fit and work in the circular recess *p* in the bolster-plate I, as better seen in Figs. 5 and 6 of the drawings.

Within the chamber of the casing H is arranged the perforated rubber filling or block *r*, or a coiled spring, with the bolt *s* passed through the same and the bolster-plate. The bolt is secured to its seat by a brass washer, *t*, nut *u*, and riveting down the end of the bolt. The bolster is formed with a recess to receive the end of the bolt, nut, and washer, as seen in Fig. 5 of the drawings, and the bolster is

connected to the bolster-plate by clips or other fastening means. By thus arranging and enclosing the king-bolt the rattling or drumming noise and the breaking of the bolt are avoided, 5 since the rubber or elastic cushion takes up all the wear, and in sudden concussions it gives sufficiently to prevent a break. The bolster-plate (see Fig. 8) is formed or provided with forward and rearward perforated extensions *v*, for the passage of the clip-bolts, and 10 the rearward extensions *w*, for the attachment of the reaches or coupling-poles.

I reserve the right to vary the construction of parts without departing from the spirit of 15 the invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A horizontal spring for a vehicle, having its middle portion bowed or curved downward, 20 and its respective ends provided or formed with a bolt-eye and lateral lugs, substantially as shown and described.

2. The combination, in a vehicle, of a front axle, a king-bolt casing clipped to the axle and formed with a chamber for an elastic cushion, 25 with a central opening for the passage of a bolt, a bolster-plate secured to the said casing, and a bolster, substantially as described.

3. The combination of a horizontal spring having one of its ends firmly attached to the 30 side bar by means of a clip, and the other end connected to a shackle attached to the said side bar or axles, and provided with an intermediate shackle and a transverse semi-elliptical spring, substantially as described. 35

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

BUREN M. SOULE.

Witnesses:

I. N. WHITTAM,
JAMES J. CHILD.