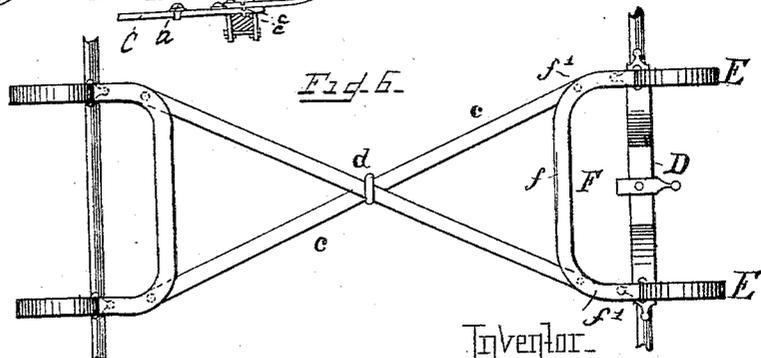
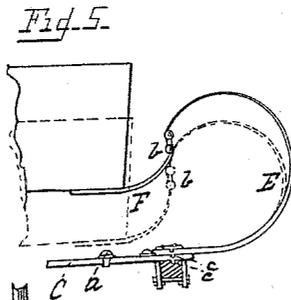
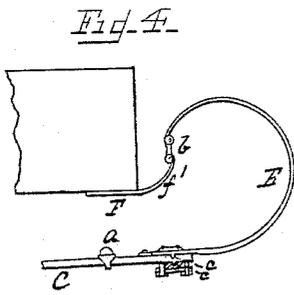
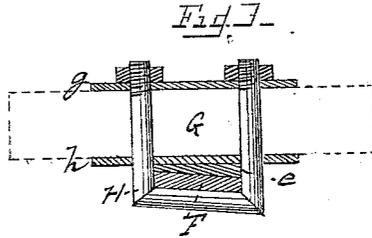
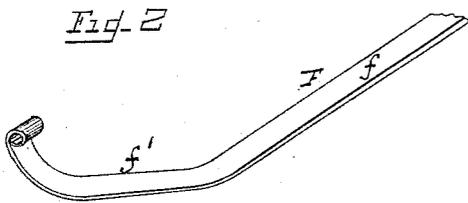
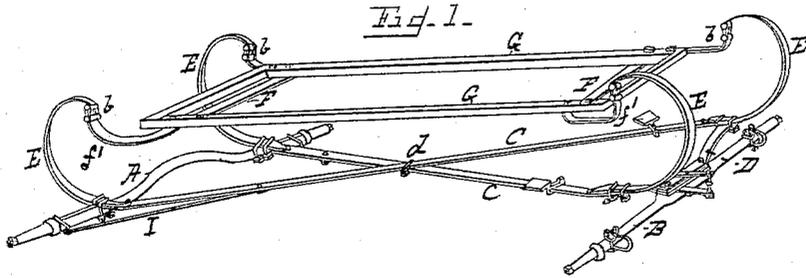


(No Model.)

J. B. ARMSTRONG.
VEHICLE RUNNING GEAR.

No. 319,049.

Patented June 2, 1885.



Witnesses—

E. A. Dauberschmitt.
D. P. Cowl

Inventor—

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by F. W. Ritter Jr
Atty

UNITED STATES PATENT OFFICE.

JOHN BELMER ARMSTRONG, OF GUELPH, ONTARIO, CANADA.

VEHICLE RUNNING-GEAR.

SPECIFICATION forming part of Letters Patent No. 319,049, dated June 2, 1885.

Application filed October 18, 1884. (No model.) Patented in Canada September 4, 1884, No. 20,133.

To all whom it may concern:

Be it known that I, JOHN BELMER ARMSTRONG, a subject of the Queen of Great Britain, residing at Guelph, in the county of Wellington, Province of Ontario, Canada, have invented certain new and useful Improvements in Running-Gear for Vehicles; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, wherein—

Figure 1 is a general perspective view. Fig. 2 is a section of the spring body-loop. Fig. 3 is a sectional view showing the method of attaching the spring body-loops to the sills of the body. Fig. 4 shows the head-plate, front ends of the perch, and the C-springs. Fig. 5 shows the compensating position that the C-springs and the spring body-loops assume when laden with the receiving-cushions on the perches, connections of back axle to the perches, C-springs, &c. Fig. 6 is a plan or top view of the gearing, the vehicle-body and sills removed.

Like letters refer to like parts wherever they occur.

I will now proceed to describe my invention, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A indicates the rear axle; B, the front axle; D, the head-plate, and C the steel perches.

As the object is to obtain lightness, strength, and simplicity in the construction, wooden bed-pieces, &c., are dispensed with and steel alone is employed for axle, perches, and wherever the parts are connected, indentations and teats or projections are provided to prevent movement of the parts one upon another, as will hereinafter be more specifically pointed out.

It will be seen that the steel-plate perches C are arranged to cross each other, and are secured together at the point of intersection by the clip *d*, the diverging ends to the rear of this point being secured to the hind axle and the rear C-springs, the diverging ends to the front of clip *d* being secured to the ends of the head-plate D and the front C-springs. If desired, the rear ends of the steel perches may be further secured by braces, I, which extend from the perches to points on the rear axle, A.

The head-plate D is of tempered spring-steel,

pivoted directly in the center of front axle, B, and having its ends curved up to form spring-supports for the front ends of perches C. The ends of the steel-plate perches C are bent, as shown in Fig. 6, so as to sit at right angles to the back axle and head-plate, and are parallel to each other.

E indicates the C-springs, which are clipped to the perches so as to extend longitudinally inward in parallel lines and form points of attachment for the diverging torsion-arms *f'* of spring body-loops F.

In order to prevent any play between the parts, the C-springs E, and perches C are provided with projections or retaining-teats *e*, and the perches C, axle A, and head-plate D with corresponding depressions, the several parts being held by a single clip at each point, as shown in Fig. 1.

If desired, the sills G, or bed, may be hung directly from the converging free ends of the C-springs E by means of rigid brackets and shackle-hangers, or any equivalent and well-known devices, and the benefits arising from the combined cross-spring perches and C-springs will be obtained; but I prefer the following means of suspending the sills from the C-springs as the better adapted to prevent any irregular motion of the bed and produce uniform spring-action when the bed is unequally loaded. For this purpose I employ spring body-loops F having a straight central portion, *f*, for the bed to rest on, and having its ends *f'* curved outward and upward in the direction of the free ends of the C-springs E. These body-loops are secured to the sills G by clips H, which pass through metal bearing-plates *g* and *h* on the sills G, and in case it is found necessary to raise or lower either end of the body the adjusting-wedges *e* may be inserted between the body-loop F and the sill G, the thickness and position of said wedges being adjusted to suit any required level.

When the spring body-loop F is in position and strained, it will act in several ways—viz., first, the longitudinal portions or those in line with the body will have the usual motion arising from pressure on a flat plate, while the transverse portion will have a torsional action up to the point of connection with the body.

Consequently this torsional movement can be carried still farther along the spring body-loop F by shifting its connection with the body, or by making each loop separate and allowing the transverse ends to be rigidly fastened between the sills or on opposite sides of the body. This formation would require four separate spring-loops instead of having two combined in one solid plate. Therefore I preferably make them as shown, though I do not confine myself thereto.

a indicates spring-cushions of any suitable character, preferably rubber, secured to the upper surface of the perches C, directly beneath the spring body-loop F, to cushion and coat with the same when the body is too heavily laden or there is excessive vibration.

The advantages of the construction herein set forth are: First, the arrangement of the perch allows the vehicle to turn very short without the wheel striking the perches, especially when the body is narrow, and as the perches act as double braces the gear is kept in square and a very light strong rig is obtained; secondly, as the perches are clipped or united at the crossing-point and the body-loops have torsional extensions which project toward and are shackled to the C-springs, the force is applied over the point of support; consequently the action of the springs must be more uniform, the strain on the springs more equally distributed, and lighter springs than commonly employed become available; thirdly, the spring body-loops form flexible as well as torsional springs and suspension-straps, so that an easy vertical as well as lateral motion results, and the stock from which they are formed is not liable to be overstrained; finally, the spring-cushions placed on the perches will not only support the spring body-loops when the body is overloaded, but will prevent noise and chafing.

Having thus described the nature and advantages of my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a vehicle-gear, the combination of C-spring supports and a spring body-loop, substantially as and for the purposes specified.

2. In a vehicle-gear, the combination of a spring head-plate, C-spring supports, and a spring body-loop, substantially as and for the purposes specified.

3. In a vehicle-gear, the combination of C-spring supports, a spring body-loop, and swinging shackles, substantially as and for the purposes specified.

4. In a vehicle-gear, the combination of C-spring supports, a spring body-loop, and spring-cushions arranged on the perch below and in line with the spring body-loop, substantially as and for the purposes specified.

5. In a vehicle-gear, the combination of taper single-plate C-spring supports, taper spring body-loop, swinging shackles for connecting the same, and spring-cushions arranged on the perches below and in line with the spring body-loop, substantially as and for the purposes specified.

6. The combination, with the vehicle-body, of the transverse spring body-loop having its ends curved upwardly and outwardly and C-spring supports, substantially as and for the purposes specified.

7. The combination of the body-sills G, provided with metal bearing-plates *h* and *g*, the body-loop F, and the clips H, substantially as and for the purposes specified.

8. In combination with the sill, body-loop, and its clip, the interposed metal wedges *e*, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 11th day of October, 1884.

JOHN BELMER ARMSTRONG.

Witnesses:

WM. E. SLAKER,
R. L. TORRANCE.