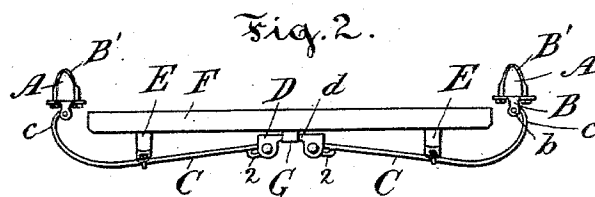
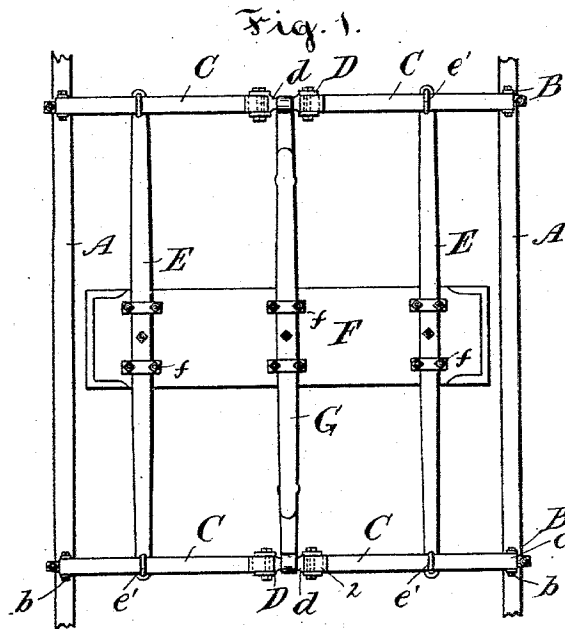


W. ATKINSON.
VEHICLE GEAR.

No. 571,589.

Patented Nov. 17. 1896.



Witnesses:

Chas. Raley.

B. Harvey.

William Atkinson
Inventor

By A. Harvey
his Attorney.

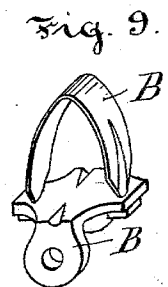
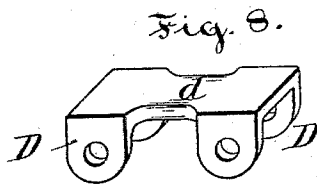
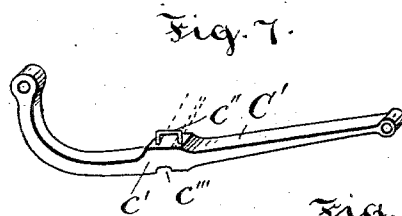
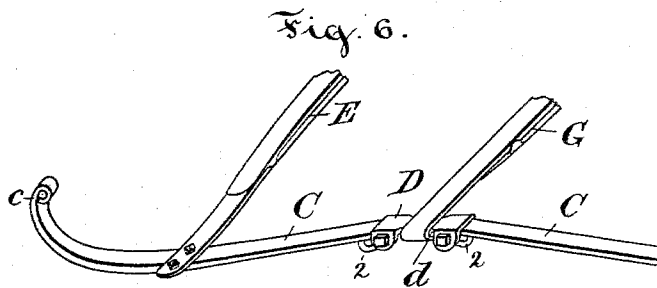
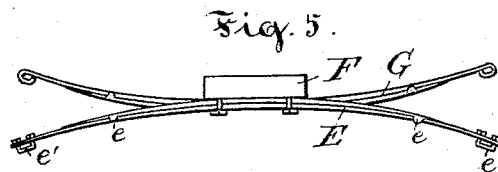
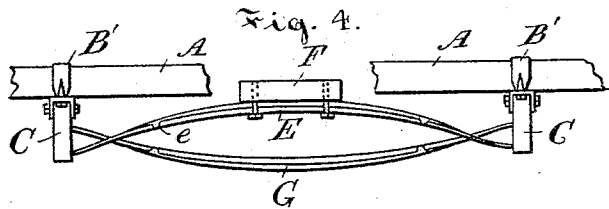
(No Model.)

2 Sheets—Sheet 2.

W. ATKINSON.
VEHICLE GEAR.

No. 571,589.

Patented Nov. 17, 1896.



Witnesses:
Chas. Raley.
B. Harvey.

William Atkinson
Inventor
by A. Harvey
his Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM ATKINSON, OF GRANBY, CANADA.

VEHICLE-GEAR.

SPECIFICATION forming part of Letters Patent No. 571,589, dated November 17, 1896.

Application filed May 4, 1896. Serial No. 590,245. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ATKINSON, of Granby, in the county of Shefford, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Vehicle-Gears; 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, forming a part hereof.

My invention, which will be hereinafter fully set forth and claimed, relates to gears for buggies and other carriages and vehicles.

The object of my invention is a gear that shall ride easy, not be subjected to the objectionable side or rocking motion, free from rattle, and that can be readily and cheaply manufactured.

Figure 1 is a bottom view of my improved gear. Fig. 2 is an end view of the same. Fig. 3 is a side view of the same. Fig. 4 is a corresponding side view, partly in section, with the cross-bar supporting the bed released from the center spring and the action of all the springs exaggerated to show action and initial strain of springs. Fig. 5 is a corresponding side view, the end springs or supports being removed and all the springs secured to the cross-bar and the action of the springs exaggerated to show action and initial strain of springs, being the counterpart of the preceding figure. Fig. 6 is a perspective view of part of one end, showing attachment of springs. Fig. 7 is a perspective view of a modified end spring or support adapted to replace it. Fig. 8 is a perspective view of the end-spring coupling. Fig. 9 is a perspective view of the clip and shackle by which the end supports are suspended from the side-bars.

A A are the side-bars, the ends of which are supported in any suitable manner, either by transverse springs or in some other desired way. Shackles B, Fig. 9, held on the side-bars by clips B', form the pivotal support of two pairs of transverse springs or end supports C, each suspended at its pintle end c upon a pin or bolt b, curved downwardly and inwardly from said pintle and then extending approximately straight and horizontally toward the center, where each pair is pivotally coupled by a coupling or shackle D. (Shown in Fig. 8.) Said coupling or shackle

consists of two downwardly-projecting double lug-heads, adapted to receive the inner pintles or heads 2 of the springs or supports C slidingly, the latter being slotted for the purpose. These are connected by a neck d to adapt it for attachment to a spring, being preferably round to form a journal-bearing for the end of the spring, but may be flat for bolting, riveting, &c. A quadruple-jointed transverse connection is thus provided for the side bars both fore and aft, and these connections form the bearers for the longitudinal springs.

Near and parallel to each side bar is placed a spring E, the ends of which are supported upon the end supports C, to which they are secured by clips e', or in some other suitable manner. These springs carry the bed and are made to resist a downward pressure in the center, where the cross-bar F is attached at the top by means of clips f, or in some other convenient manner. Said springs are preferably curved downward from the center and provided with a leaf at the top, which is kept in place by kitten-ears e near the ends.

For the support of the inner ends of the springs or supports C a central spring G, parallel to the said springs and secured to the cross-bar F, is provided, its ends being journaled or otherwise attached to the necks of the shackles or couplings D. This spring, from the nature of its work, is adapted to resist a downward pressure at the ends, or, what is the same thing, an upward pressure in the center, and therefore, if provided with a leaf, as shown, it is on the lower face.

It will be seen that the action of the springs E and G is contrary to each other. While the side springs E are supported upon the end supports C at the ends and carry the load in the center, the center spring G is carried in the center and carries the centers of the end supports at the ends. In mounting, both are subjected to an initial strain in opposite directions, as shown in Figs. 3, 4, and 5, to make tight joints and prevent rattle.

The end supports are not necessarily springs, but may be more or less rigid structures, as shown in Fig. 7. In this, C' is the equivalent of the spring C. (Shown in Figs. 2 and 6.) It is provided with an enlargement c' to compensate for the loss of strength

occasioned by holes provided for the reception of bolts or clip-shanks c'' , adapted to hold the side springs in position without passing through them. A notch c''' may be provided below to afford a convenient resting-place for a clip-bar if the plan shown in Figs. 1, 2, and 6 is adopted. The slotted eyes in the inner heads 2 of the supports C provide for variation in the length of the latter owing to vertical movement and other causes.

I claim as my invention—

1. In a vehicle-gear, the combination of side-bars suitably supported, transverse or end supports pivoted to said side-bars fore and aft and each flexibly and slidingly joined in the center, side springs parallel to the side-bars supported at their ends upon the transverse or end supports and adapted to resist a downward pressure in the center, the cross-bar secured to and carried upon said side springs and a center spring secured to said cross-bar adapted to resist a downward pressure at the ends and having its ends connected to the couplings of the end supports, substantially as set forth.

2. In a vehicle-gear, the combination of side-bars suitably supported, clips and shac-

kles fore and aft on said side-bars adapted to support transverse or end supports pivotally, two transverse or end supports each in two parts flexibly and slidingly joined in the center and pivotally supported in said shackles at the outer ends, and a coupling connecting the inner ends flexibly and slidingly, substantially as set forth.

3. In a vehicle-gear, the combination of side-bars suitably supported, transverse or end supports secured to said side-bars fore and aft, a longitudinal spring near each side-bar having its ends carried upon the transverse or end supports and adapted to resist a downward pressure, a cross-bar secured upon said springs and a spring between said side springs and parallel to them secured to said cross-bar and supporting at its ends the transverse or end supports, substantially as set forth.

In testimony whereof I have signed in the presence of the undersigned witnesses.

WILLIAM ATKINSON.

Witnesses:

A. HARVEY,
B. HARVEY.