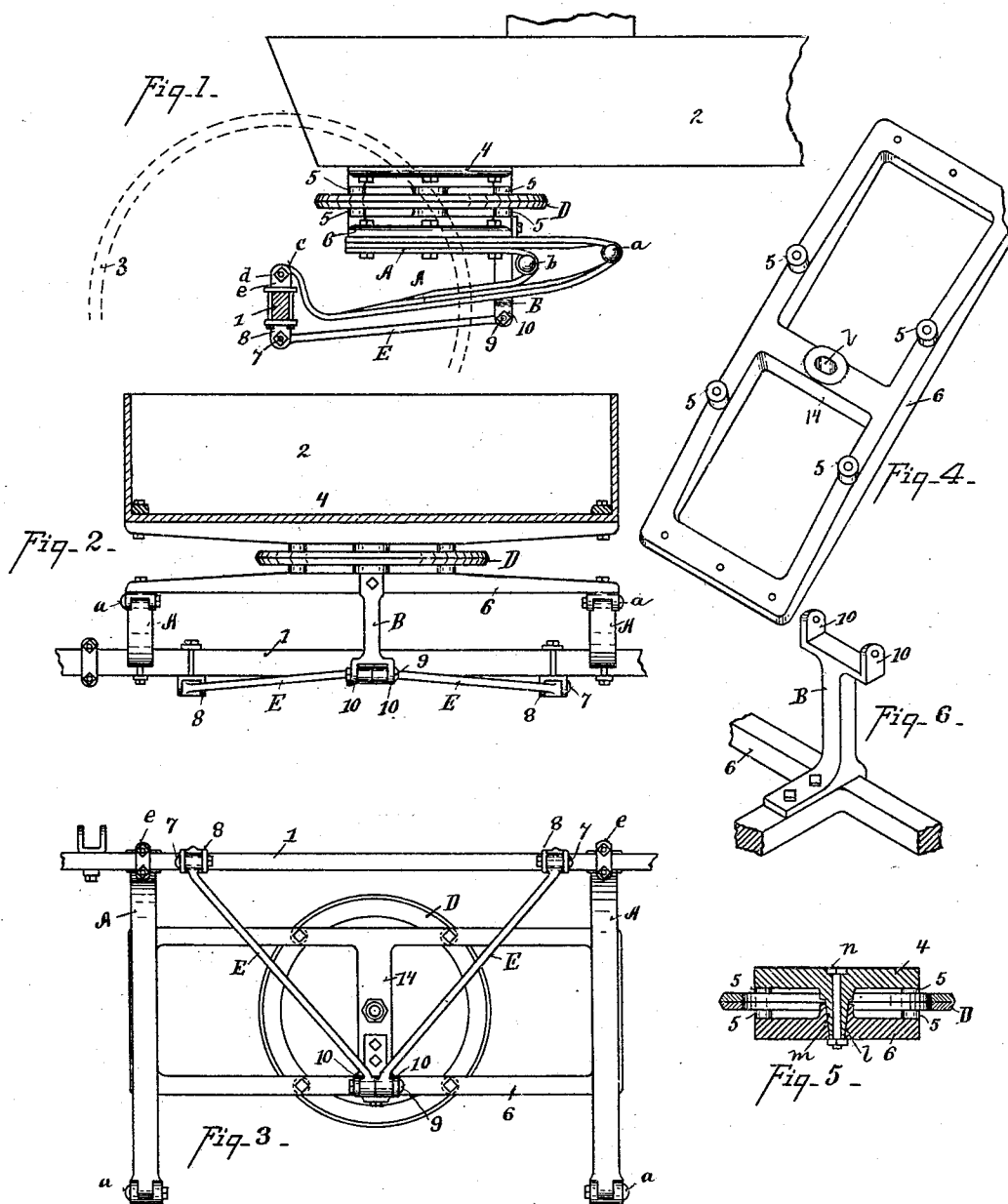


(No Model.)

C. A. BEHLEN.
VEHICLE RUNNING GEAR.

No. 487,599.

Patented Dec. 6, 1892.



Attest—
C. W. Miles
Notary Public

Inventor—
Charles A. Behlen
By Wood & Bond—attys

UNITED STATES PATENT OFFICE.

CHARLES A. BEHLEN, OF CINCINNATI, OHIO.

VEHICLE RUNNING-GEAR.

SPECIFICATION forming part of Letters Patent No. 487,599, dated December 6, 1892.

Application filed March 22, 1892. Serial No. 425,979. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. BEHLEN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Vehicle Running-Gear, of which the following is a specification.

One of the objects of my invention is to provide a front running-gear which couples the axle and the fifth-wheel and is so connected to the springs that the motion of the springs is at all times vertical independent of the position of the front axle, thereby avoiding tipping or side motion of the wagon-body.

Another object of my invention is to provide a short-turning wagon with the body hung low.

The various features of my invention are fully set forth in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation of my improvement attached to the body of the vehicle. Fig. 2 is a rear elevation. Fig. 3 is a bottom plan view of Fig. 1 with the body removed. Fig. 4 is a perspective view of one of the fifth-wheel supports. Fig. 5 is a section on line *x x*, Fig. 3. Fig. 6 is a perspective view of the bracket B.

1 represents the front axle, 2 the wagon-body, and 3 the front wheel. 4 represents a yoke or frame-piece attached to the wagon-body and forming a base on which is supported the top of the fifth-wheel, which rests upon the bosses 5 and is bolted or secured thereto. 6 represents a similar frame or yoke attached to the top arm of the springs A and forming a base for the fifth-wheel D. It is provided with similar bosses to frame 4 and the fifth-wheel is securely fastened thereto. The springs A herein shown, which is the preferred form of construction, are provided with three eye-joints *a b c*. The lower arm of the spring is attached by the eye *c* to the pivot-bolt *d* of the clip *e*.

B represents a vertical bracket depending from frame 6, to which it is securely attached and is a vertical extension thereof.

E represents coupling-rods the front ends of which are pivoted to the journal-bolts 7 of the clips 8. The rear ends of said coupling-

rods are hinged upon the bolt 9, between the ears 10 of said bracket B. I prefer to have the coupling-rods E E inclined to the radii of the fifth-wheel, so as to serve as braces. A single coupling-rod attached to the center of the front axle and running back could be used as a substitute therefor, but would not be as strong.

In operation strain placed upon the wagon-body will depress the spring, the coupling-rods E will turn upon their pivot-points, and the bracket B will descend vertically no matter at which point the strain is applied to the wagon, and side tipping or rocking motion will be prevented by the fifth-wheel. The axle is held vertical by the opposing strains of the coupling-rods E E, and the arms of the spring thereby distributing the strains to the top and bottom of the axle equally and preventing all tendency of rolling of the axle. I believe I am the first to accomplish this by counteracting the strain of the spring by rods hinged to the opposite side of the axle.

In Fig. 4 I have shown a top plan view of the yoke 6, upon which the fifth-wheel is supported. 14 represents a central cross-bar, which is provided with the taper socket *l*, into which fits a taper tenon *m*, which projects from the top frame 4. *n* represents a fastening-bolt passing through said frames, so as to firmly fasten the journals in position. The office of king-bolt is performed by the tenon *m* and socket *l*. The bolt takes up lost motion, and it may be tightened from time to time to take up the wear, thus preventing any rattling or loosening of the king-bolt connection. This is the preferred form of king-bolt. The fifth-wheel is supported upon the bosses 5, and the top of the fifth-wheel is supported upon similar bosses on the top frame 4, which is the counterpart of frame 6, the frames and their bosses serving as a strong firm support for the fifth-wheel. The turning strains are mainly imposed upon the conical parts *l m*. The fifth-wheel is therefore large and prevents the tipping of the body under lateral strains, and as a consequence thereof, no matter at which position of the body the strain is applied, the springs will descend vertically without side tipping. The strain in turning is transferred from the axle through the coupling-rods E E to the frame supporting

the fifth-wheel and the springs are relieved from such side or lateral strains and are free to move vertically at all angles to which the front axle may be turned. The two spring-fulcrums *a b* assist in preventing a side or twisting motion of the leaves of the springs.

Having described my invention, what I claim is—

1. In a running-gear for a wagon, the combination of a frame 4, attached to the wagon-body, a frame 6, secured to the spring, a fifth-wheel secured to the frame 6 and the frame 4, and devices independent of the spring connecting the frame to the axle, substantially as described.

2. The combination of the frames 4 and 6 with the fifth-wheel and top, the springs A, connected to the frame of the fifth-wheel at one end and hinged to the axle at the front end, and one or more hinged coupling-rods E, hinged to the frame 6 and to the axle, substantially as specified.

3. In a running-gear, in combination with the axle, the springs A, having their free ends hinged to the top of the axle, and one or more coupling-rods E, hinged to the opposite side of the axle and to the frame supporting the fifth-wheel, whereby the strain is transmitted to the opposite sides of the axle, substantially as specified.

4. The combination of the frames 4 and 6 with the fifth-wheel and top attached, respectively, thereto, the springs A, rigidly secured to the fifth-wheel frame and provided with the three joints *a b c*, the latter hinged to the axle, and the coupling device hinged to the

axle and the frame of the fifth-wheel, substantially as specified.

5. The combination of the frame 4, secured to the wagon-body, a taper tenon *m*, formed on said frame, a frame 6, having a taper socket *l* to receive the taper tenon *m*, and a fifth-wheel located between said frames 4 and 6, and a bolt passing through said frames, substantially as described.

6. In a running-gear for a wagon, the combination of a frame 4, attached to the wagon-body and provided with bosses 5 and a cross-bar having a central taper tenon *m*, a frame 6, secured to the spring and provided with bosses 5 and a central taper socket *l* for the reception of the taper tenon *m*, a fifth-wheel secured to the frames 4 and 6 and bearing at top and bottom against the bosses 5, and devices independent of the spring connecting the frame 6 with the axle, substantially as described.

7. In combination with the fifth-wheel supported on the frame 6, which is rigidly connected to the arms of the springs A, with their front ends hinged to the top of the axle, the diagonal coupling-rods E E, with their front ends hinged at one end to the lower side of the axle opposite the front arms of springs A and their rear ends hinged to the extension B of frame 6, substantially as specified.

In testimony whereof I have hereunto set my hand.

CHARLES A. BEHLEN.

Witnesses:

T. SIMMONS,
C. W. MILES.