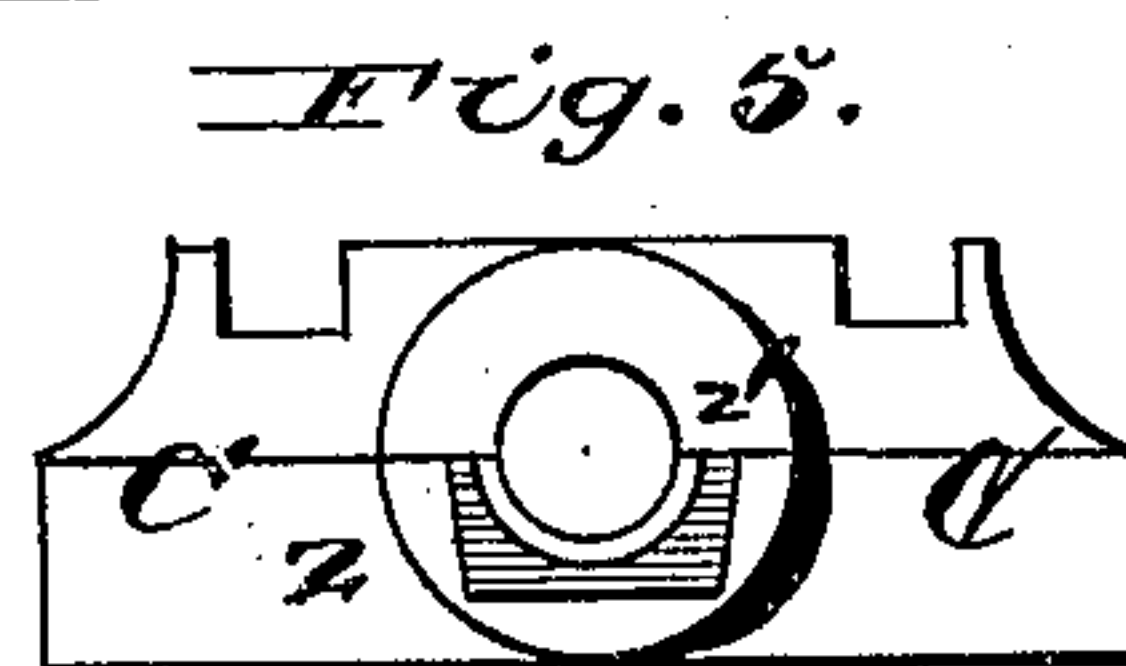
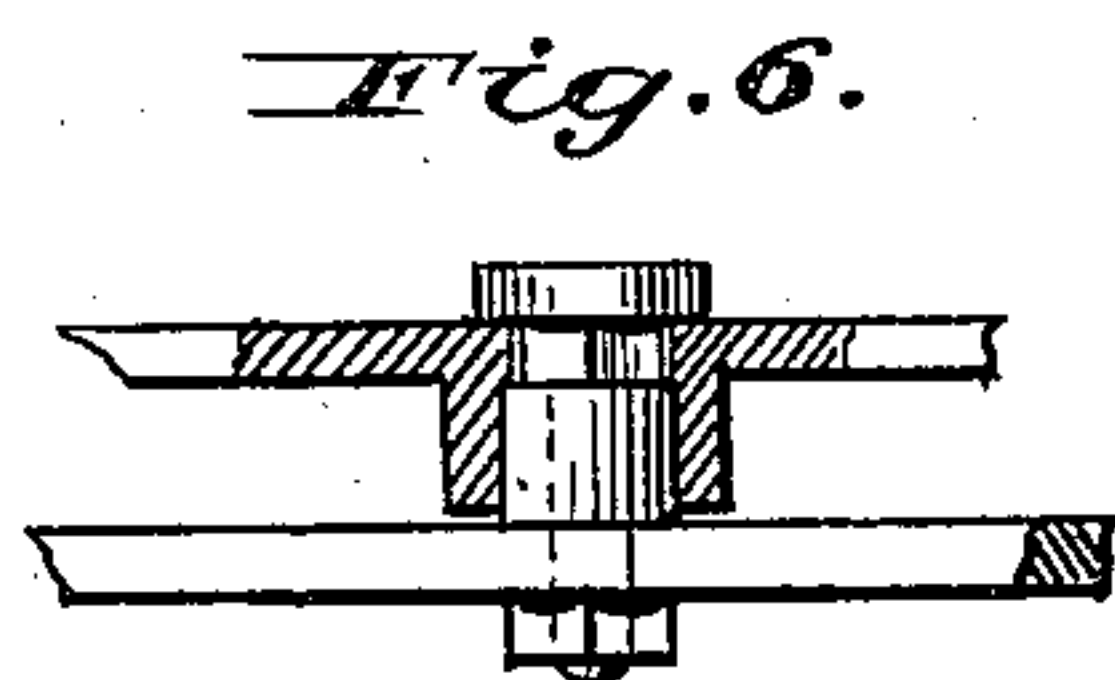
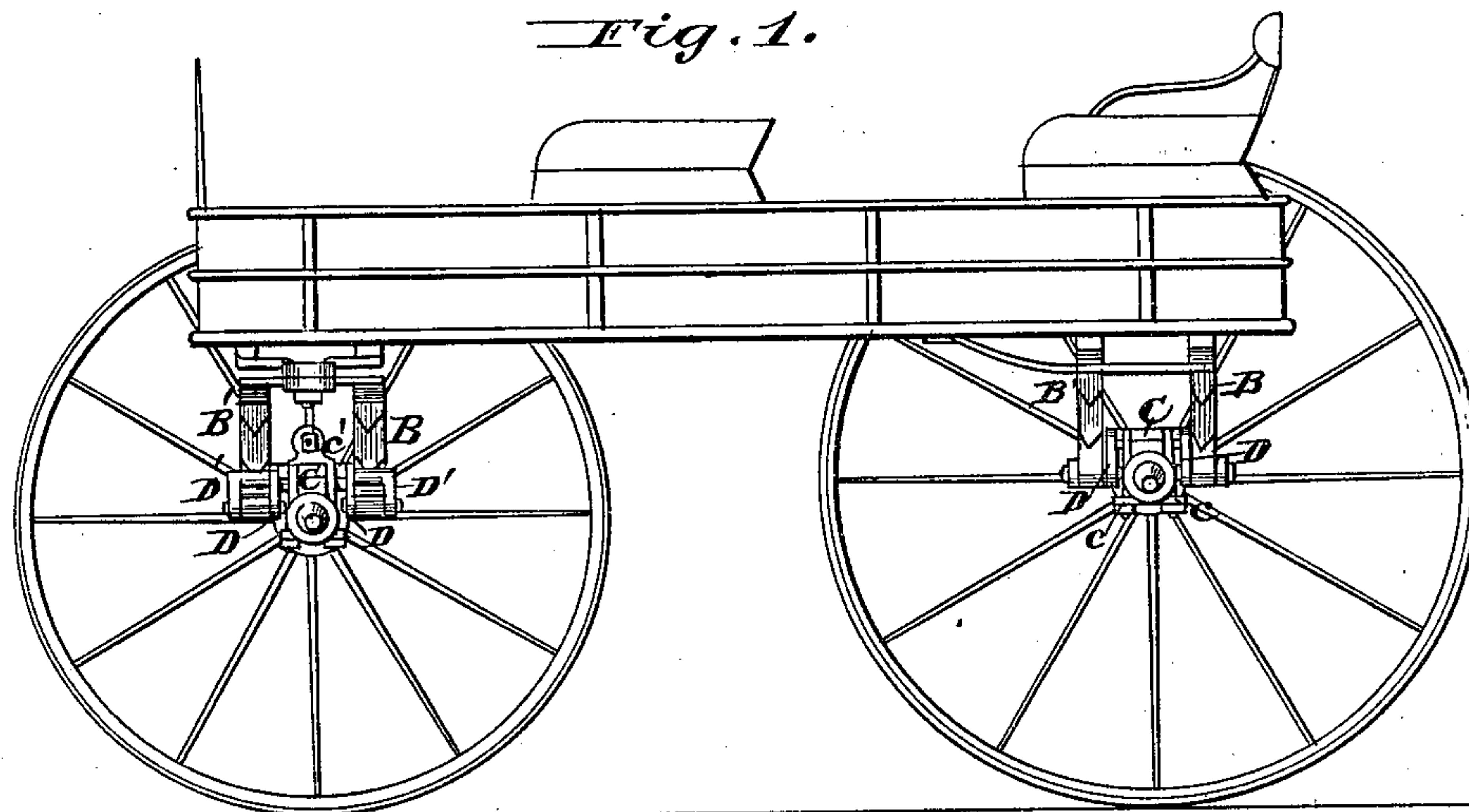


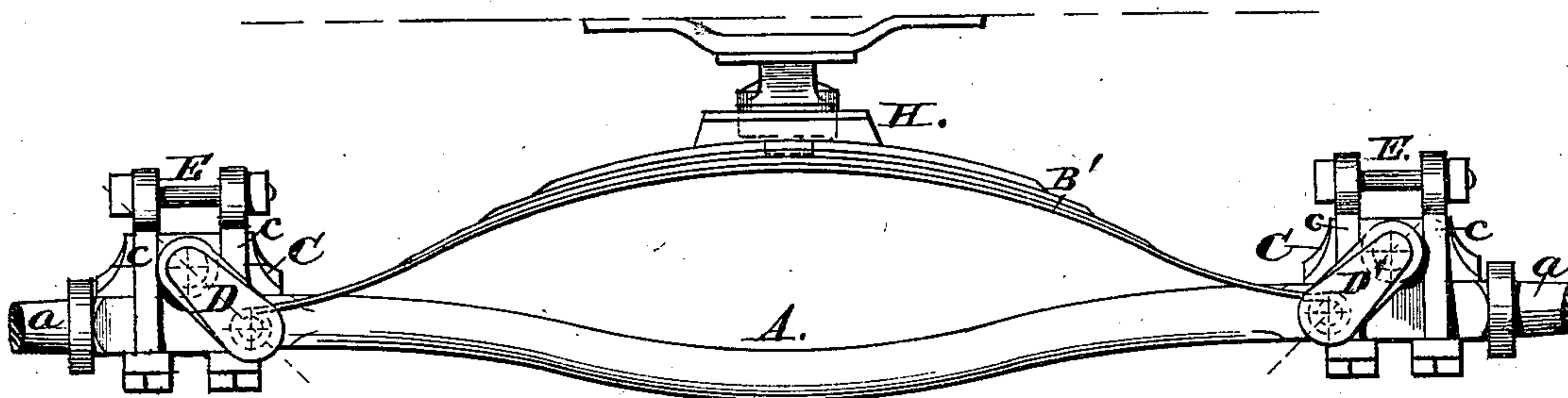
G. JUDD.  
Vehicle-Spring.

No. 207,423.

Patented Aug. 27, 1878.

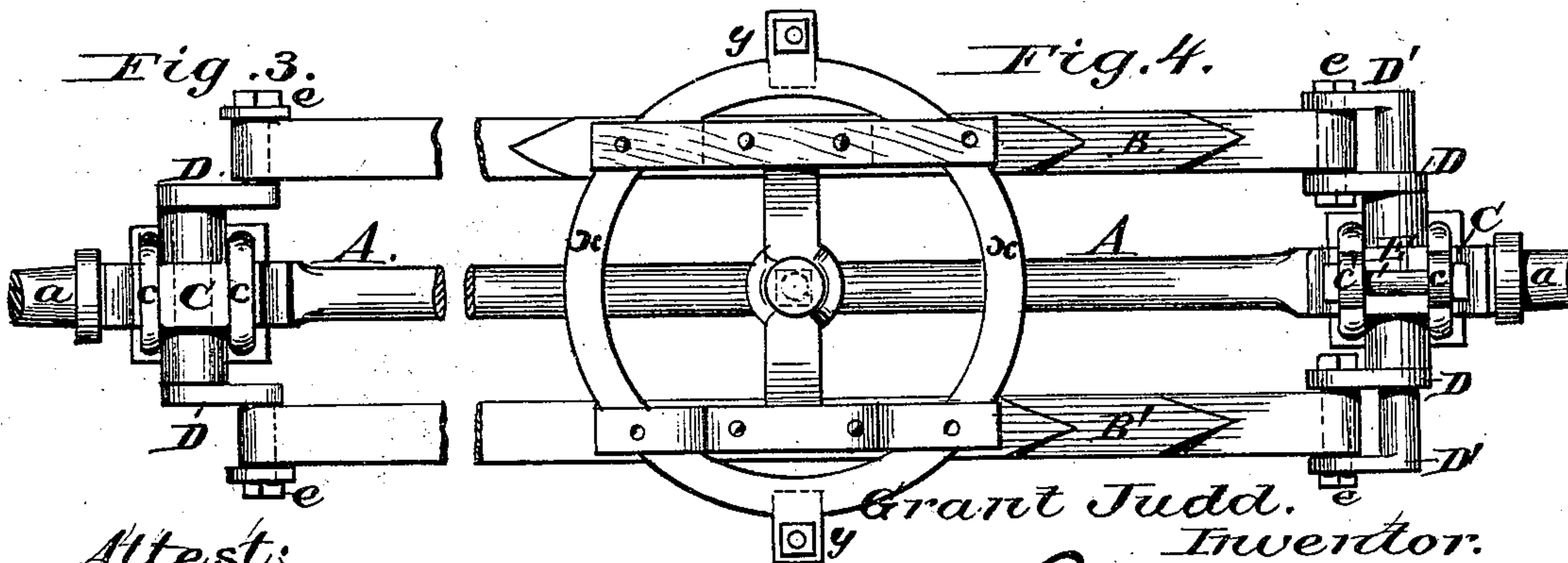


*Fig. 2.*



*Fig. 3.*

*Fig. 4.*



Attest:  
H. S. Berine  
J. H. Parks.

Grant Judd.  
Inventor.

By C. M. Parks Atty.



# UNITED STATES PATENT OFFICE.

GRANT JUDD, OF STAMFORD, CONNECTICUT.

## IMPROVEMENT IN VEHICLE-SPRINGS.

Specification forming part of Letters Patent No. 207,423, dated August 27, 1878; application filed November 16, 1877.

*To all whom it may concern:*

Be it known that I, GRANT JUDD, of Stamford, Fairfield county, Connecticut, have invented an Improvement in Gear for Express and other Wagons; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side view of a wagon having my gear. Fig. 2 is a front view of a front axle, showing my invention. Fig. 3 is a top view of a rear axle. Fig. 4 is a top view of a front axle, all showing my improved gear. Fig. 5 is a view of a box into which the hangers for the springs bear, showing the yielding cushion; and Fig. 6 shows the king-bolt connecting the fifth-wheel.

My invention relates to the gearing of a business, express, or other platform wagon, and may also be applied to a pleasure-wagon or even a carriage.

My invention consists in employing two half-elliptic springs, one on either side of and parallel to the axle, said springs being hung in yielding double-crank hangers located upon the axle near the hubs, the fifth-wheel resting upon both springs, and provided with a locking safety device, which will hereinafter be fully described.

It also consists in applying to the bearings for the springs elastic seats, to modify the jar and jolt of the vehicle in rough places.

In the drawings, A represents the axle, and B B' the springs on either side of the axle a suitable distance apart. Upon the axles A, near the arms *a*, are the Babbitt or other metal boxes C, clipped to the axle by means of the double clips *c* or *c'*. The forward clips, *c'*, are provided with the shaft-jack clips E upon them, thus doing away with the necessity of any other shaft-clips, and allowing the shaft-rubber to be placed directly under the end of the shaft.

Revolving or rocking in the boxes C are the shafts of the double-crank hangers D, upon the outer ends of which are the crank-pins *e*. The crank-hangers D' have outside braces strengthening the hanger. Hanging upon the crank-pins *e* are the ends of the springs B and B', and upon the top of the center of said springs B and B' are bearing-blocks H,

leveling up the spring to admit the fifth-wheel or a cross-bar uniting the springs.

The front springs support the fifth-wheel *x* or its equivalent, while the back springs are attached directly to the body of the vehicle.

The fifth-wheel *x* is constructed in the usual manner, except that upon two or more sides are lugs *y*, preventing the wheels from separating, and upon the center of one wheel is a centering-boss, embraced by a collar upon the other, through which the king-bolt passes, so that in case the king-bolt should break, the boss and collar being kept intact by the lugs *y*, the gear would be kept together, and no accident occur.

In the boxes C are rubber or other elastic cushions *z*, protected by a metal plate or casing, *z'*, upon the top, upon which the axle of the hangers D rests, and by which the jolting, jar, and noise of the movements of the vehicle are greatly lessened.

The principal advantage, among others, of my invention is that the double-crank hangers equalize the pressure upon the two half-springs and greatly reduce the liability to be broken by a sudden jar or jolt.

Having thus fully described my invention, I claim and desire to secure by Letters Patent—

1. In combination with two half-springs hung in crank-hangers each side of a wagon-axle, a fifth-wheel supported upon both springs and provided with safety-lugs, substantially as described.

2. The boxes C, forming bearings for the double-crank hangers D D', in combination with the elastic cushion *z* and protecting-casings *z'*, substantially as described.

3. Two half-elliptic springs of a wagon, hung in crank-hangers D D' each side of the axle of the wagon, in combination with yielding boxes secured upon said axles near the hub, substantially as described.

The above specification of my said invention signed and witnessed, at Stamford, Connecticut, this 12th day of November, A. D. 1877.

GRANT JUDD.

Witnesses:

WM. H. JUDD,

A. R. TURKINGTON.