

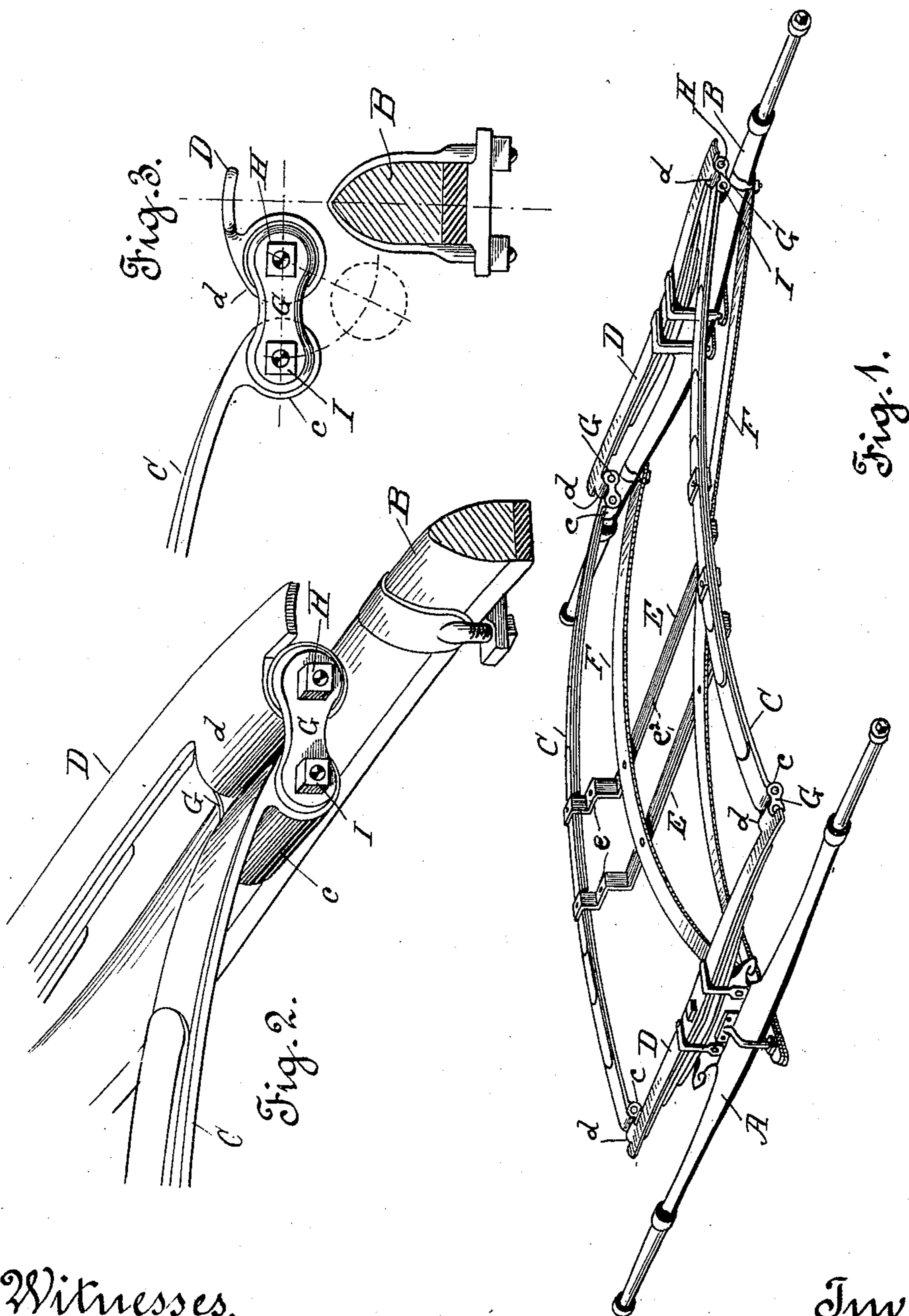
No. 616,135.

Patented Dec. 20, 1898.

J. M. O'BRIEN.
SPRING GEAR FOR VEHICLES.

(Application filed June 2, 1898.)

(No Model.)



Witnesses.

W. H. Monteverde.
Walter F. Lane.

Inventor.

Joseph M. O'Brien,
by Wm. F. Booth,
his Attorney.

UNITED STATES PATENT OFFICE.

JOSEPH M. O'BRIEN, OF SAN FRANCISCO, CALIFORNIA.

SPRING-GEAR FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 616,135, dated December 20, 1898.

Application filed June 2, 1898. Serial No. 682,344. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH M. O'BRIEN, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Spring-Gears for Vehicles; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to spring-gears for vehicles, including the arrangement of the springs and their connections.

My invention is particularly applicable to springs of the platform pattern, and my improvements are intended to remedy many of the disadvantages of the platform-springs by making a better-riding wagon, doing away with a great many unnecessary parts, preventing that canting over or tilting of the body when a single person is riding on one side, and tending to hold the wagon steadier and more on the level.

My improvements also result in enabling me to hang the wagon lower, to improve its appearance by making the springs less arching, and to dispense with many parts which rattle, get loose, break, &c.

My improvements lie both in the general combination of the springs and in the shackle connections of the springs forming the platform system. In the first regard my invention consists, in combination with the platform-springs, of two springs located and connected in a novel manner and forming the reaches or perches connecting the axles, wholly dispensing with the usual wooden reaches. In the second regard my invention consists in a novel shackle connection for the platform-springs. In uniting springs of this type various forms of hinges and shackles are used. It is now generally conceded that a connection involving and comprising parallel eyes or sockets on the adjacent spring ends and side pieces with end bolts or cross-bars pivotally seated in said eyes or sockets is a practical one in obtaining that degree of freedom consistent with strength and durability. However, in forms heretofore used the construction has been such that while differing in minor details the connection in some part or portion has occupied a position so near the vertical plane of the axle that unless the

springs were unduly elevated said connection or some part or portion thereof would under the weight of the occupant and the jars and jolts to which the vehicle was subjected come down into contact with and mar the axle, injure the bed, and produce a disagreeable jar. This is a serious matter in fine buggies and carriages, for with such a thing likely to happen a prospective purchaser would hesitate to buy, even though he were otherwise satisfied with the vehicle. To obviate this, it was necessary to elevate the springs sufficiently to avoid the contact of the shackle connection with the axle; but in doing this another serious difficulty has arisen—namely, the elevation of the body of the vehicle, rendering it undesirable to many people who either in themselves or by reason of the frequency of alighting and reëntering find it difficult or fatiguing to get in or out. To remedy this objection, it will not do to make the wheels smaller in diameter with a view to lowering the body, for the demand is for high wheels, and so the requirements may be concisely stated to be platform-springs with shackle connections of approved type, low-hanging body, and high wheels. It is the object of one portion of my invention to secure these requirements.

Referring to the accompanying drawings, Figure 1 is a perspective view of my spring-gear. Fig. 2 is a perspective detail showing the shackle connection for the platform-springs. Fig. 3 is an end view of same to show the relative position of the shackle connection and axle.

A is the front axle, and B the rear axle. C are the side springs of the platform system, and D are the end springs. E are the cross body-bars, having seats e , on which the body rests and is secured, and between these seats a depressed or vertically-lowered portion e^2 . There may be one or more of these. For illustration I have here shown two.

F are springs which serve as reaches or perches. They are secured at suitable points on the rear axle, and thence converge forwardly to a suitable king-bolt connection with the front axle. In their course they are secured to the portions e^2 of the cross body-bars, which are dropped to receive them. The connections of these spring-reaches with

the axles may be of any suitable character—as, for example, either a rigid one by clips or bolts to both axles or by a swivel-jack under or on the front side of the hind axle.

5 These spring-reaches thus secured and directed enter into the platform system in such manner that all the springs rise and fall in unison and are of such material assistance that the side springs of the platform may
10 safely be made straighter—that is, less arching—and the body may be hung lower. The wagon rides easier and the body is steadier, having little, if any, tendency to cant over to one side, but hanging nearly level under
15 any disposition of the weight.

Upon spring D is an eye or socket *d*, and upon spring C is an eye or socket *c*. It will be seen that the eye or socket *d* is on the edge of spring D well to one side of the vertical
20 plane of the axle. The eye or socket *d* and the eye or socket *c* may be forged integral with the springs or they may be attached thereto in any manner. A suitable clevis pivotally mounted in said eyes or sockets connects the springs. This clevis may be a single four-sided piece, its ends forming the pin-
25 tles in the sockets, or it may consist, as here shown, of side bars G, pivotally connected by the bolts H and I passing through them
30 and through the eyes or sockets *d* and *c*, respectively. The eye *d*, being thus located, removes as far as possible the eye *c* from the axle, so that when the springs are pressed down the eye *c*, which usually swings down-
35 wardly toward and in contact with the axle, will not now do so, as it is too far away.

Now although no part of the shackle connection is liable or likely to come in contact with the axle it is still possible, where the ordinary upwardly-curved axle is used, for the
40 connection, swinging under the lengthening of the side spring, to strike said axle; but by reversing the curve of the axle and making it bend downwardly, as I have shown with
45 axle B in Fig. 1, instead of upwardly the ends of said axle are sufficiently lowered to avoid, in connection with the location of the shackle, any contact therewith.

My improved gear connection may be used

at the four corners of the platform, if desired; but in practice, on account of the head-block elevating the front springs sufficiently to avoid interference of the connection with the axle, its use at the front corners is not so essential; but at the rear corners it is of importance, for the parts there are close and snug.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A spring-gear for vehicles comprising a platform system, comprising suitably-connected side springs, and end springs, a cross-bar provided with body-seats and an intermediate depressed portion, and two springs serving as reaches or perches, each connected at its rear end to the hind axle one on each side of the middle thereof, and thence extending forwardly and converging to a connection with the front axle, said spring-reaches being connected to the depressed portions of the cross-bar, substantially as described.

2. In a spring-gear for vehicles having platform-springs, the combination of cross-springs adapted to be secured to the axles of the vehicle, side springs connecting the cross-springs and being the only connection between the cross-springs, the connections between the side and cross springs being such that they are at all times, to one side of the vertical plane of the axle beneath the cross-springs, substantially as described.

3. In a spring-gear for vehicles, having platform-springs the combination of cross-springs adapted to be secured to the axles of the vehicle, eyes on said cross-springs to one side of the vertical plane of the underlying axle, connections pivoted to said eyes, side springs pivotally connected to said connections and forming therewith the only connection between the cross-springs, substantially as described.

In witness whereof I have hereunto set my hand.

JOSEPH M. O'BRIEN.

Witnesses:

WALTER F. VANE,
D. B. RICHARDS.