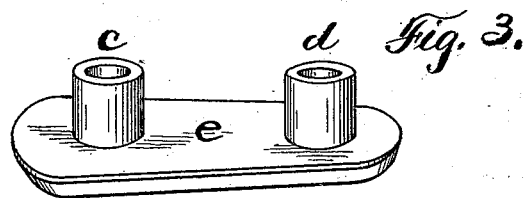
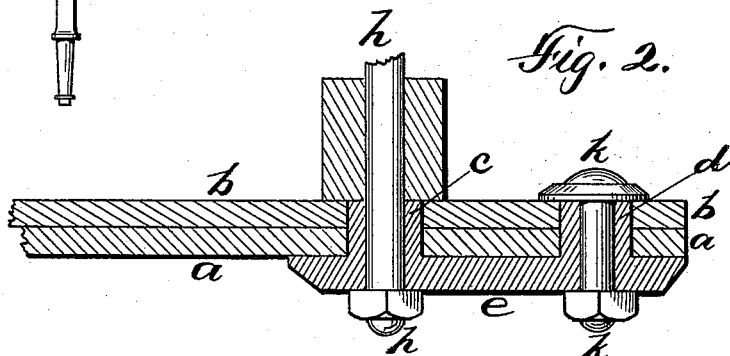
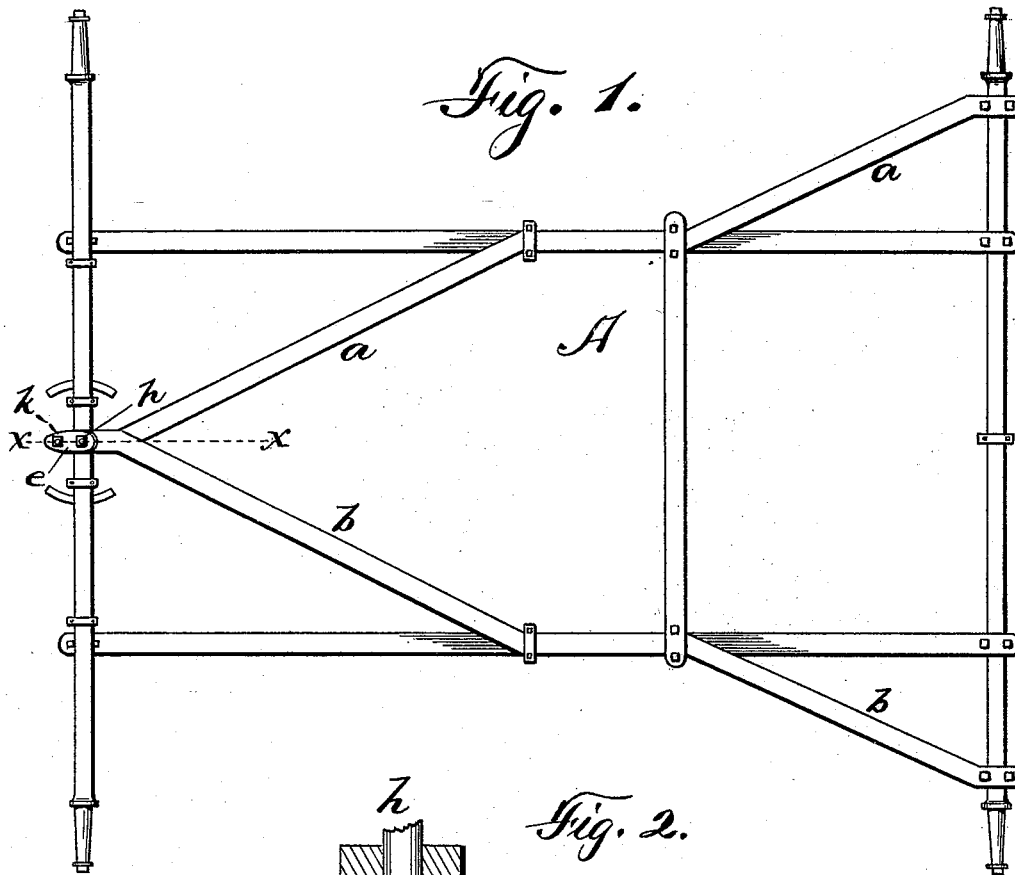


(No Model.)

J. S. CLELAND.  
RUNNING GEAR FOR VEHICLES.

No. 494,095.

Patented Mar. 21, 1893.



WITNESSES:

*H. A. Carhart,*  
*C. B. Kime*

INVENTOR

*John S. Cleland*  
*by Smith & Devison*  
*his*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

JOHN S. CLELAND, OF BINGHAMTON, NEW YORK, ASSIGNOR TO THE  
BINGHAMTON WAGON COMPANY, OF SAME PLACE.

## RUNNING-GEAR FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 494,095, dated March 21, 1893.

Application filed December 10, 1892. Serial No. 454,744. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN S. CLELAND, of Binghamton, in the county of Broome, in the State of New York, have invented new and  
5 useful Improvements in Anti-Shearing Connections for Vehicle-Braces, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

10 My invention relates to vehicle gears, and particularly to the connections between the reach, and the front axle, and particularly to such reach connection in a gear constructed with a sectional spring reach like that shown  
15 in the Letters Patent granted to Harvey A. Moyer, January 15, 1889, No. 396,223, for a spring vehicle.

My object is to provide means whereby the shearing action of the superimposed reach sections, upon the bolt securing them together,  
20 and upon the king-bolt passing through them, is avoided, and the breakage or cutting off of said bolts or either of them, is wholly prevented, such shearing being caused by the  
25 vibratory play of one reach section with reference to the other, and the leverage of one section bearing upon one of said bolts as a fulcrum, and exerting its force upon the other bolt; my device comprises means for protecting  
30 said bolts against such shearing action.

My invention consists in the several novel features of construction and operation hereinafter described and which are specifically set forth in the claims hereunto annexed. It  
35 is constructed as follows, reference being had to the accompanying drawings, in which—

Figure 1, is a plan view of a gear to which my reach connection is applied. Fig. 2, is a vertical section of the connection, on line *xx*,  
40 in Fig. 1, enlarged. Fig. 3, is a plan perspective of the protecting plate, detached.

A—, is a gear, constructed like unto that

covered by the patent before mentioned, in which *a, b*, are the reach-sections, the front ends of which lie one upon the other. These  
45 sections are provided with perforations, adapted to coincide in pairs, and to receive the tubular studs *c, d*, projecting from the face of the plate —*e*—, said plate being also perforated in line with the bore of each of said  
50 studs. The king-bolt —*h*— passes through the stud —*c*—, and the securing bolt —*k*— through the stud —*d*—, and said plate is drawn up closely against the reach section by the nuts thereon.

The plate —*e*— may be in separate pieces,  
55 each carrying a tubular stud, though it is probably better to have said plate in one piece, as also it is probably better to have said studs integral with the plate.

By this device all of the shearing action of the reach sections is borne by said studs, and the bolts are accordingly protected therefrom,  
60 and the danger of accident is absolutely prevented.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a vehicle gear, the combination with the reach sections lying one upon the other, of a plate having tubular studs inserted  
70 through them, and a king-bolt and a securing bolt inserted through said studs and plate.

2. In a vehicle gear, the combination with the reach sections lying one above the other, and having coinciding perforations, of tubular bushings inserted through said perforations and the king-bolt and the securing bolt  
75 inserted through said bushings.

In witness whereof I have hereunto set my hand this 5th day of December, 1892.

JOHN S. CLELAND.

In presence of—

GEORGE F. LYON,  
C. H. HITCHCOCK.