

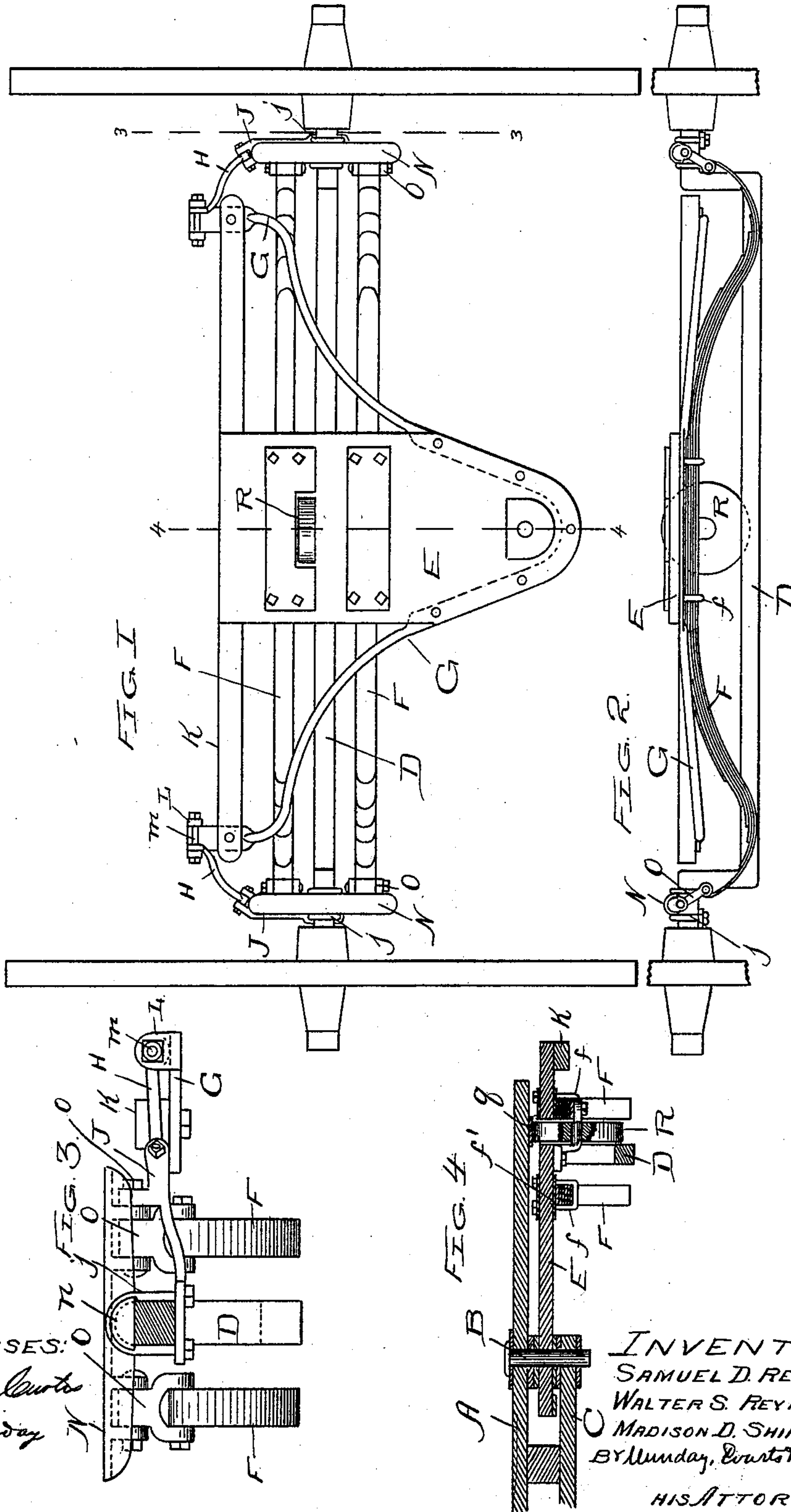
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2 Sheets—Sheet 1.

S. D. & W. S. REYNOLDS & M. D. SHIPMAN.  
SPRING WAGON GEAR.

No. 594,099.

Patented Nov. 23, 1897.



WITNESSES:

*Sec. C. Lewis*  
*H. W. Munday*

INVENTORS  
SAMUEL D. REYNOLDS  
WALTER S. REYNOLDS  
MADISON D. SHIPMAN  
BY *Munday, Lewis & Adcock*  
HIS ATTORNEYS

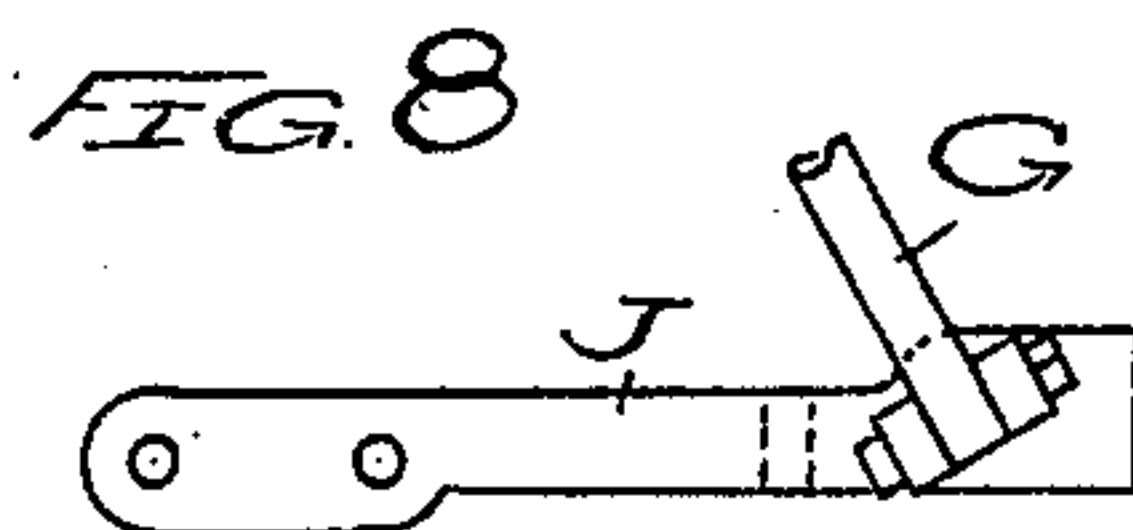
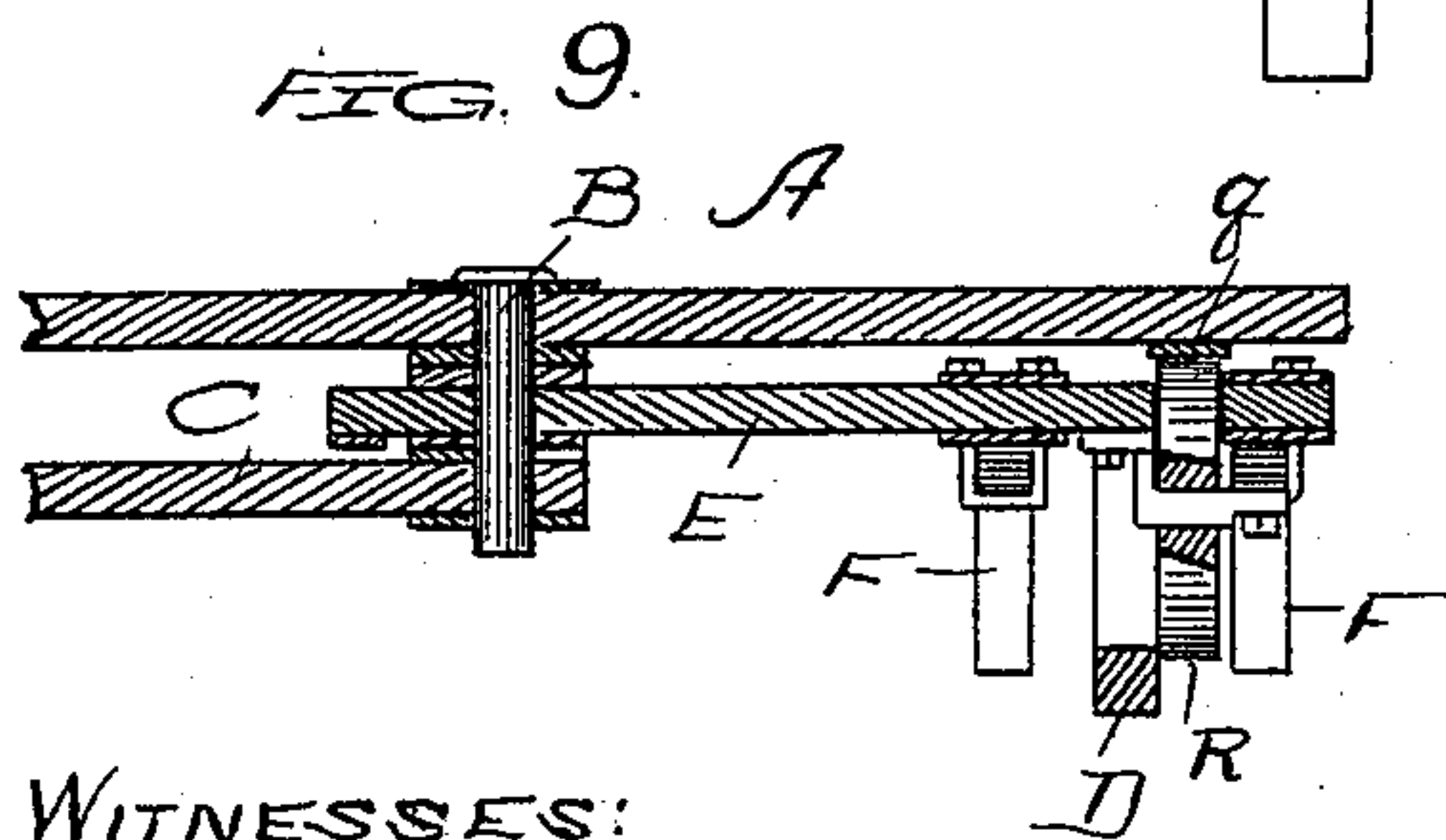
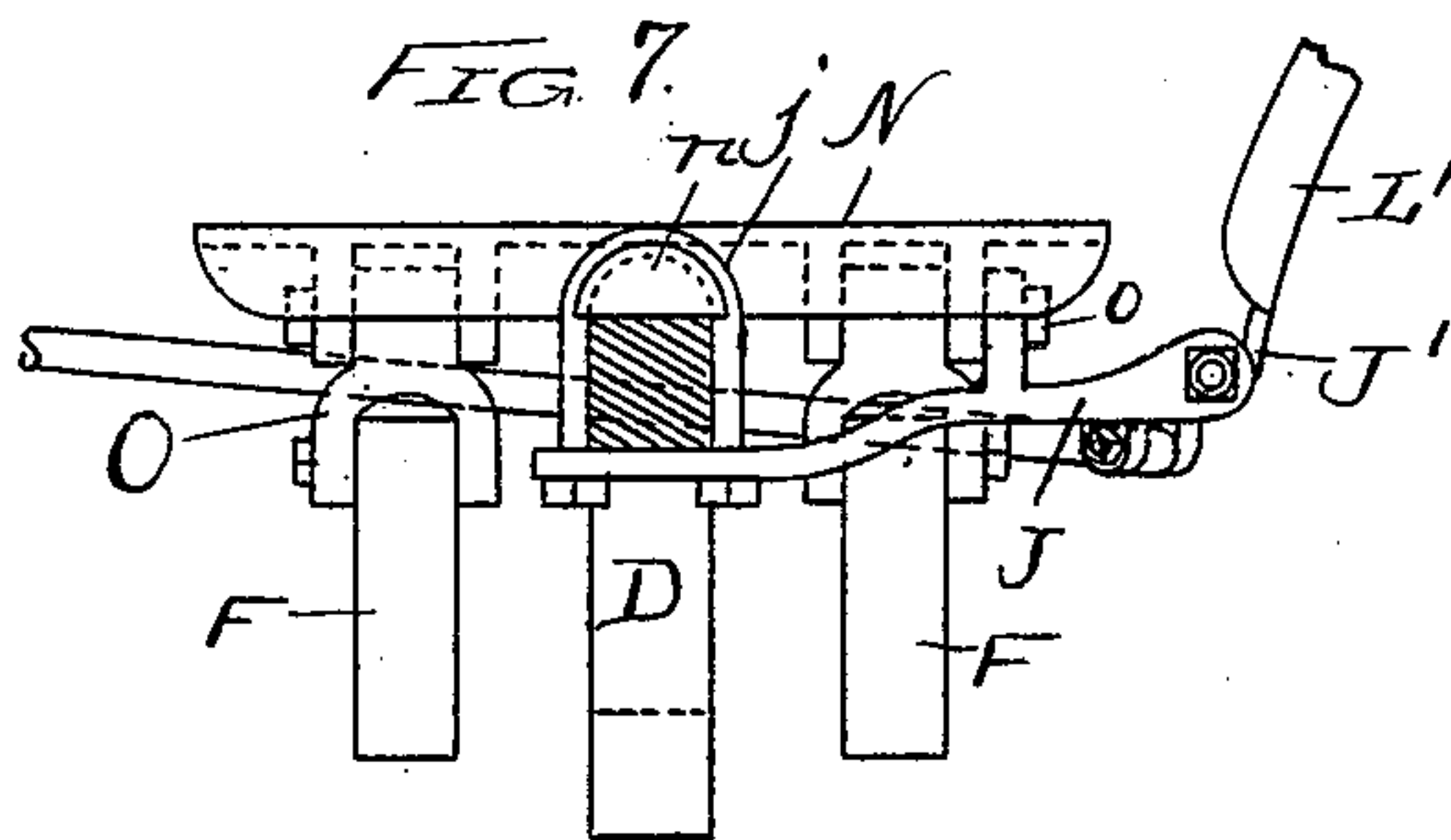
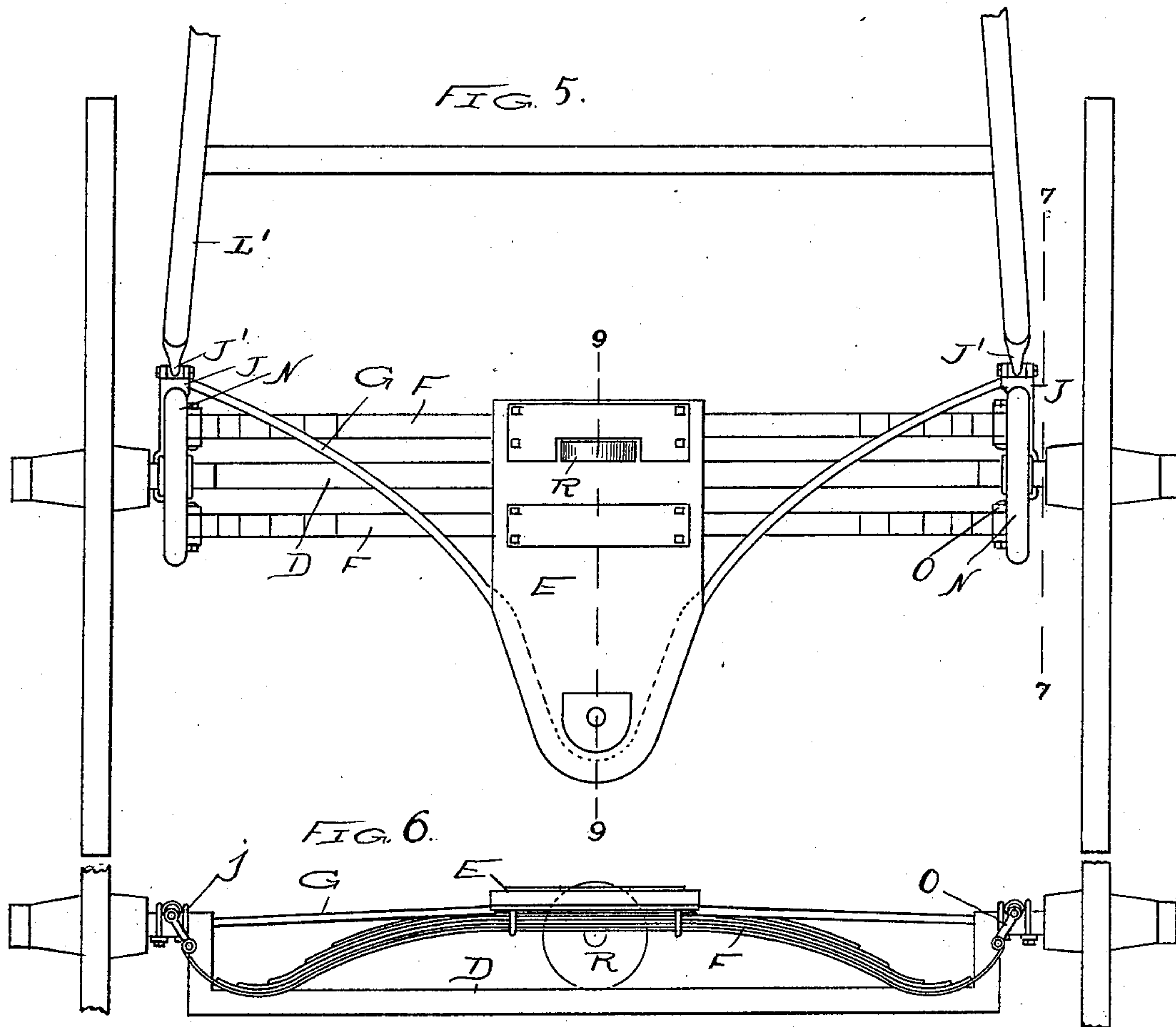
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WITNESSES:

Lew. C. Curtis  
 18th Monday

# INVENTORS!

SAMUEL D. REYNOLDS  
WALTER S. REYNOLDS  
MADISON D. SHIPMAN

BY Munday, Evans & Adcock  
THEIR ATTORNEYS.



# UNITED STATES PATENT OFFICE.

SAMUEL D. REYNOLDS, WALTER S. REYNOLDS, AND MADISON D. SHIPMAN,  
OF DE KALB, ILLINOIS, ASSIGNORS TO SAID SHIPMAN, CHARLES E. BRADT,  
AND SAMUEL E. BRADT, OF SAME PLACE.

## SPRING-WAGON GEAR.

SPECIFICATION forming part of Letters Patent No. 594,099, dated November 23, 1897.

Application filed June 4, 1895. Serial No. 551,609. (No model.)

*To all whom it may concern:*

Be it known that we, SAMUEL D. REYNOLDS, WALTER S. REYNOLDS, and MADISON D. SHIPMAN, citizens of the United States, residing in De Kalb, in the county of De Kalb and State of Illinois, have invented a new and useful Improvement in Spring-Wagon Gears, of which the following is a specification.

10 In a companion application to be filed by Samuel D. Reynolds as sole inventor a construction of wagon is shown and described wherein the king-bolt is located at some distance back of the front axle, in order that  
15 the wheels in the swiveling movements of the axle may travel in the arcs of a larger circle than they would if the king-bolt were located directly at the axle, thereby giving them a greater range of movement without bringing  
20 them against the wagon-body than would be possible with the ordinary construction, this feature being of special value in the case of low-down wagons. Said application also discloses the employment, in conjunction with  
25 the rearwardly-located king-bolt, of an anti-friction-roller borne by the axle and adapted to sustain the weight of the body and to transmit it in a direct line to the axle.

Our present invention is intended to adapt  
30 the two features described to use in spring-wagons, and its nature is fully disclosed in the description given below and in the accompanying drawings, in which—

Figure 1 is a plan of the front or swiveled  
35 axle, showing our invention applied thereto. Fig. 2 is a rear elevation of the parts shown in Fig. 1. Figs. 3 and 4 are sections on the lines 3 3 and 4 4, respectively, of Fig. 1. Figs. 5 and 6 are views similar to Figs. 1 and 2,  
40 showing a modified construction. Fig. 7 is a section on line 7 7 of Fig. 5. Fig. 8 is a detail plan of a portion of the modified construction. Fig. 9 is a section on the line 9 9 of Fig. 5.

45 In said drawings, A represents the floor of the wagon-body; B, the king-bolt passing through said floor and also through the bar or plank C, located below and attached to the floor.

50 D is the axle, which is shown as bent, with

its central portion dropped below the axis of the wheels. The connection between the axle and king-bolt is formed by a flat plate or frame E, supported from the axle by the springs F and clipped to such springs by clips  
55 *f* and holding-plates *f'*. The plate E is braced by a continuous brace G, extending entirely around the rear end of the plate and having its forward ends joined to links H, which are in turn joined to arms J, stationarily clipped  
60 to the axle by clips *j*, as shown at Fig. 3. The forward ends of the brace are flattened and may be connected together by a cross-bar K. Their union to the links is by means of the bolts *m* of the thill-couplings L, such coup-  
65 lings being in the ordinary form and adapted to receive the thills L'.

The ends of the springs F at each side of the vehicle are joined to heads N by hangers O, pivoted both to the heads and to the  
70 springs, so as to permit free movement by the springs. The heads are also secured to the axle by clips *j*, already mentioned, such clips encircling studs *n*, projecting from the sides of the heads, and the arms J are not only  
75 clipped to the axle, but they are also bolted by bolts *o* to these heads N, as shown. By the construction thus detailed the power of the draft is transmitted directly both to the axle and the springs, and the springs are firmly  
80 held in their proper vertical plane. We prefer to employ two semielliptical springs located one at each side of the axle. The weight of the wagon box or body is sustained from the springs by a roller R, having a horizontal axis  
85 standing at right angles to the axle. This roller is sustained from the plate E by suitable hangers, and is preferably located as near the vertical plane of the axle as possible, so it may move below the level of the  
90 axle without interfering with or striking it. A slot in the plate allows the roller to project above it, and the bottom of the box has a metal track or way *q* immediately above the roller adapted to take the wear from the box.  
95 By this construction the plate E is free to rise and fall with the flexion of the springs, and at the same time the roller is permitted to relieve the friction in the swiveling movement of the axle.



In the modified construction the thill-couplings are formed upon the forward ends of the arms J, and the ends of the braces G are joined to said arms directly, as at J', instead  
 5 of being united thereto by links H. By this construction also we dispense with the cross-bar K. These modifications are clearly shown in Figs. 5 to 8, inclusive.

We claim—

10 1. The combination with the body of a spring-wagon, of the front axle, the springs attached to and supported by said axle, the rearwardly-located king-bolt, and a roller R supported by the springs and sustaining the  
 15 weight of the body, substantially as specified.

2. The combination with the body of a spring-wagon, of the front axle, the springs attached to and supported by said axle, the rearwardly-located king-bolt, the plate or  
 20 frame mounted upon the springs and connecting them to the bolt, and a roller R borne by said plate or frame and sustaining the weight of the body, substantially as specified.

3. The combination in a spring-wagon, of  
 25 the front axle and its spring, the rearwardly-located king-bolt, the roller located in proximity to the axle, the body supported by said roller, and a plate E attached to and resting upon the spring and serving both to connect  
 30 the axle to the bolt and to support said roller, substantially as specified.

4. The combination with the springs, the front axle swiveled upon a rearwardly-located king-bolt, and the roller supported upon the  
 35 springs, of the heads N rigid upon the axle, and joined to the springs by connections adapted to allow their flexure while retaining

them in their proper vertical planes, substantially as specified.

5. The combination with the springs, the  
 40 front axle swiveled upon a rearwardly-located king-bolt, and the roller supported upon the springs, of the heads N rigid upon the axle, and joined to the springs by connections adapted to allow their flexure while retaining  
 45 them in their proper vertical plane, and draft connections joined to said heads, substantially as specified.

6. The combination of the front axle, the springs, the rearwardly-located king-bolt, the  
 50 plate or frame, E, the brace G extending from the ends of the springs to the plate, the thills and the connections between the thills and axle, substantially as specified.

7. The combination with the wagon-body  
 55 of the front axle, the springs attached to said axle, and an antifriction-roller supporting the body and mounted upon the springs in a plane close to but not over the axle, whereby the periphery of the roller is permitted to  
 60 move below the top plane of the axle, substantially as specified.

8. The plate E mounted upon the springs, the rearwardly-located king-bolt, and a continuous brace G, extending from the plate to  
 65 the draft connections, in combination with the front axle, front springs and said draft connections, substantially as specified.

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Witnesses:

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 T. J. ADAMS.