

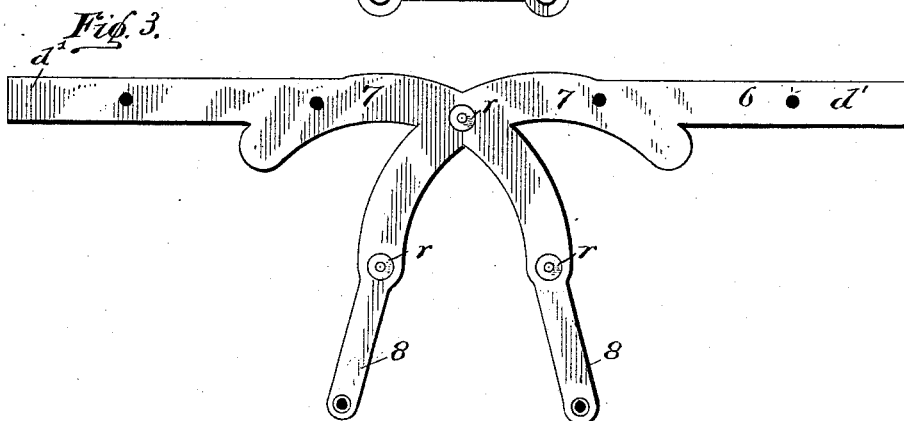
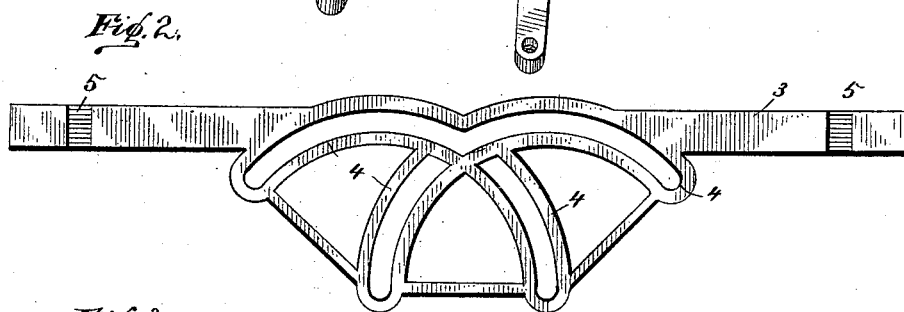
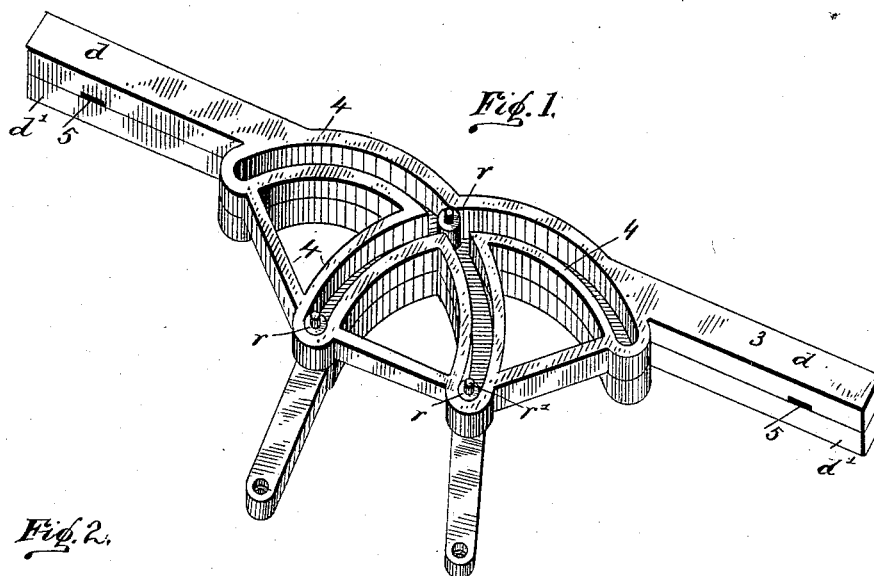
(No Model.)

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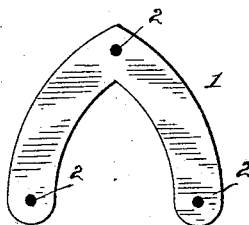
F. LINES.  
FIFTH WHEEL.

No. 384,632.

Patented June 19, 1888.



*Fig. 4.*



WITNESSES:

*G. W. H. Brown.*  
*M. Parsons.*

INVENTOR

*Fred Lines*  
BY *Heywood*  
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(No Model.)

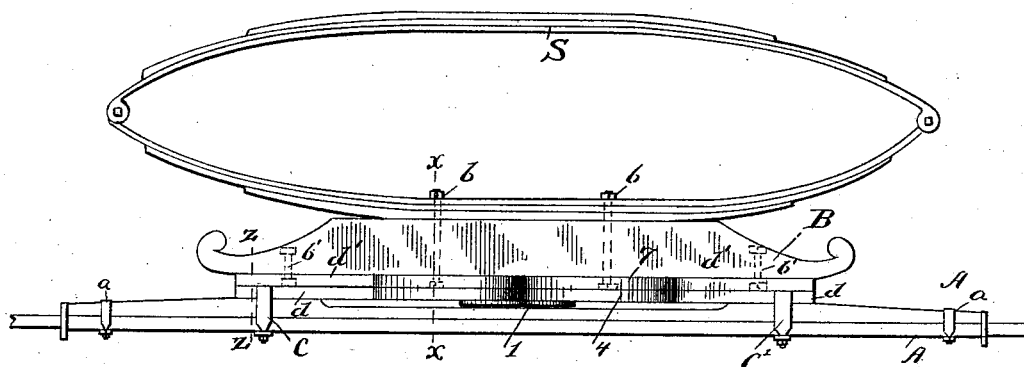
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F. LINES.  
FIFTH WHEEL.

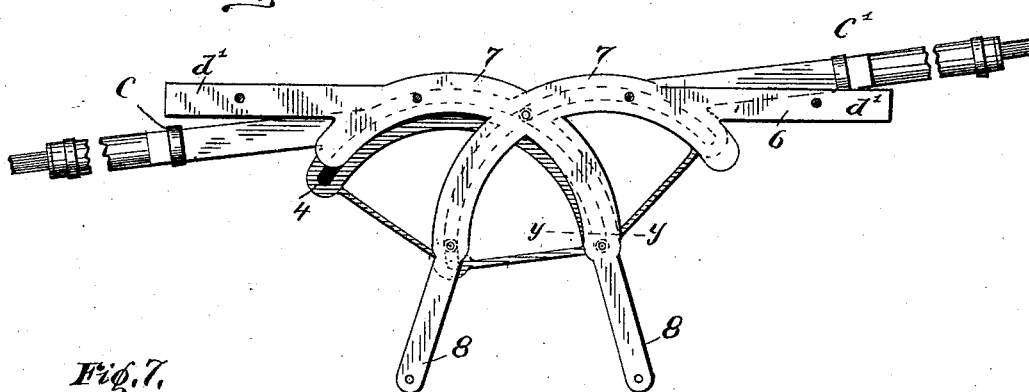
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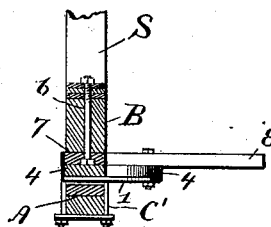
*Fig. 5.*



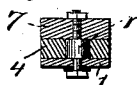
*Fig. 6.*



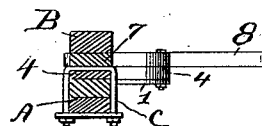
*Fig. 7.*



*Fig. 8.*



*Fig. 9.*



WITNESSES:

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INVENTOR

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# UNITED STATES PATENT OFFICE.

FRED LINES, OF SYRACUSE, NEW YORK, ASSIGNOR OF TWO-THIRDS TO  
FRANK HISLEY AND MARTIN J. HOGAN, OF SAME PLACE.

## FIFTH-WHEEL.

SPECIFICATION forming part of Letters Patent No. 384,632, dated June 19, 1888.

Application filed October 19, 1887. Serial No. 252,785. (No model.)

*To all whom it may concern:*

Be it known that I, FRED LINES, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful  
5 Improvements in Fifth-Wheels for Vehicles, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to the part of a vehicle  
10 termed "fifth-wheel," and the object is to provide a fifth-wheel which is connected to the head-block, so as to dispense with the king-bolt and at the same time secure an easy movement in cramping and turning the vehicle to which it  
15 is applied; and to this end the invention consists, essentially, in a fifth-wheel composed of two parts, one of which has segmental ways, and the other part is provided with friction-rollers running freely in the segmental ways,  
20 and the two parts of the fifth-wheel are connected, respectively, to the axle and head-block, all as hereinafter more fully described, and pointed out in the claims.

In specifying my invention reference is had  
25 to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is an isometric inverted view of my improved fifth-wheel detached from a vehicle  
30 and illustrating the general features of construction. Fig. 2 shows a detached view of the part of the fifth-wheel having the segmental ways. Fig. 3 is a like view of the corresponding part provided with friction-rollers which  
35 run in the segmental ways of the other part. Fig. 4 is a detached view of the cap, the parts shown in Figs. 2, 3, and 4 representing all of the parts of the improved fifth-wheel detached from each other. Fig. 5 is an elevation of a  
40 vehicle axle, spring, and head-block with my improved fifth-wheel applied thereto. Fig. 6 shows a top plan of the same with the spring and head-block removed for the purposes of illustration. Fig. 7 is a transverse section  
45 taken on the line *x x*, Fig. 5. Fig. 8 is a section taken on line *y y*, Fig. 6; and Fig. 9 is a section taken on line *z z* of Fig. 5, these last three views illustrating the detail construction and devices for connecting the parts together.

50 A denotes a vehicle-axle of any suitable

construction. B is the head-block mounted on the axle and connected to my improved fifth-wheel by bolts *b b*.

S is the vehicle-spring, of any desirable construction, the bolts *b b* passing through the  
55 said spring, and the head-block B secures the spring to the head-block.

My improved fifth-wheel is composed of the parts 1, Fig. 4; 3, Figs. 1 and 2; and 6, Fig. 3. The part 3, Figs. 1 and 2, consists of seg-  
60 mental guideways 4 4, and bars *d d*, projecting in a straight line on each side of the segmental guideways 4 4. The segmental guideways 4 4 and their bars *d d* rest upon a correspondingly-  
65 shaped piece, 6, Fig. 3, provided with segmental plates 7 7, coinciding in contour and dimension with the segmental guideways 4 4, and with rectilinear bars *d' d'*, coinciding with the bars *d d* of the part 3.

The segmental plates 7 7 are provided with  
70 the friction-rollers *r r r*, located, respectively, as shown in Figs. 1 and 3, the said friction-rollers being adapted to fit closely in the segmental links or guideways 4 4, and to roll  
75 therein as the vehicle is cramped or turned.

It will be observed that the friction-rollers  
75 *r r* at the extremities of the segmental plate 7 in Fig. 3 constitute pivots upon which the segmental guide-links 4 4 turn as the vehicle is cramped either to the right or left, while the  
80 central friction-roller *r* serves as a guide-roller, which steadies the movement of the parts.

In order to afford a bearing for the friction-roller spindles *r' r'* on the under side of the  
85 device, I provide the cap-piece 1, Fig. 4, and insert the spindles *r'* of the friction-rollers *r r* in the holes 2, bored in the cap-piece 1, and the same form bearings for the roller-spindles and at the same time serve to secure the parts  
90 in operative position.

It will be observed, also, that the movement of the two parts of my improved fifth-wheel is in the arc of a circle described on either one or the other of the friction-rollers *r r* at the  
95 extremities of the segmental plate 7, according as the vehicle is cramped or turned to the right or left; and since the friction-rollers *r r* fit snugly within the segmental guideways or limbs 4 4, the movement is substantially with-  
100

out friction and the clamping or turning of the vehicle is effected with the expenditure of very little force or power, and consequently all rack or strain on the running-gear is avoided 5 and the durability of the vehicle thereby greatly enhanced.

In order to provide a simple and efficient connection for the reaches of the vehicle, I provide the limbs 8 8 on the extremities of the 10 segmental plates 7 7 of the part 6 of my improved fifth-wheel, and the reaches are connected to the said limbs in the usual manner. This form of connection serves to dispense with the necessity of continuing the reach up 15 to the draw-head of the vehicle and the mortising necessary to make the connection therewith.

At Fig. 5 I have shown my improved fifth-wheel connected to an elliptic spring and head-block, B, together with my preferred plan of connecting the fifth-wheel to the axle A of the vehicle.

It will be observed that I place the arms *d d* of the part 3 on the axle, and in the scores 5 5 25 I pass the clips C C', Fig. 5, and secure the same firmly to the axle A.

The scores 5 5 in the arms *d d* serve to allow the arms *d d* to come flush with each other when the clips C C' are secured in position, as shown in Fig. 5, while the arms *d'* are secured 30 to the head-block B by bolts *b'*, passing through the arms *d'*, and the bolts *b b*, passing through the segmental plates 7 7, through the head-block and spring S. I do not, however, restrict my invention to the particular method 35 of securing the same to the head-block, axle, or vehicle-spring S, since any particular manner of attaching the same may be resorted to without departing from the principle of my 40 invention, the essential characteristic of the attachment depending simply on leaving the part 6, carrying the segmental plates 7 7, free to turn in the segmental guideways 4 4, as shown in Fig. 6. Neither do I restrict my invention 45 to the specific construction of the parts as illustrated herein, which constitutes the preferred example of my invention.

The segmental guide-slots 4 4 may be constructed as shown in Fig. 2, where one set of 50 the guide-slots are cut off from the other set. The object of doing this is simply to limit the throw or movement of the segmental links on the friction-rollers *r r*, and to overcome any

tendency of the upper friction-roller to strike on the corners of the guideways in turning, 55 and thereby bind or interfere with the free movement of the part 6.

The operation of my invention is as stated hereinbefore, and the same affords a very efficient and strong device for the purpose and 60 dispenses with the king-bolt in the construction of vehicles.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is— 65

1. A fifth-wheel composed of two parts having two pivotal centers, substantially as and for the purpose set forth.

2. A fifth-wheel composed of intersecting segmental guide-links having ways for friction- 70 rollers, and friction-rollers running in said ways when the vehicle is cramped or turned, substantially as and for the purpose set forth.

3. A fifth-wheel having a guideway composed of segmental links and moving pivot-centers, 75 substantially as and for the purpose set forth.

4. A fifth-wheel composed of two segmental guide-links bisecting each other and two corresponding segment-plates having friction- 80 rollers engaging the guide-links, the said friction-rollers being arranged at the angles of an equilateral triangle in relation to each other, substantially as and for the purpose set forth.

5. The combination of the part 3, having bars *d d*, segmental guide-links 4 4, and the 85 part 6, having segmental plates 7 7, friction-rollers *r r r*, and caps 1, substantially as and for the purpose set forth.

6. The part 6, having segmental plates 7, rollers *r*, and limbs 8, in combination with the 90 segmental guide-links 4, substantially as and for the purpose set forth.

7. The combination, with a vehicle-axle, of the two-part segmental fifth-wheel having moving pivot-centers and a head-block, substan- 95 tially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 15th day of 100 October, 1887.

FRED LINES.

Witnesses:

FREDERICK H. GIBBS,  
E. C. CANNON.