

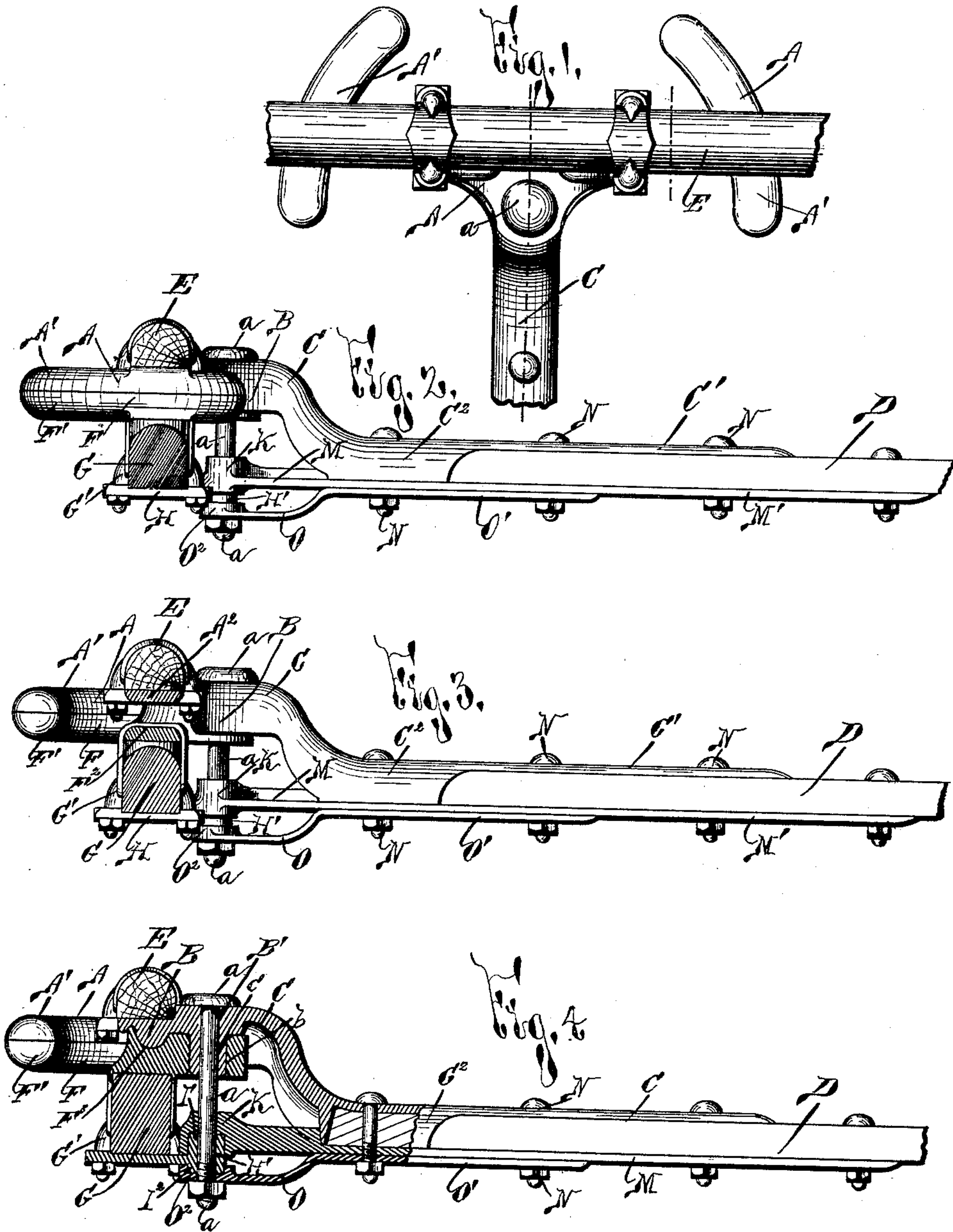
(No Model.)

4 Sheets—Sheet 1.

H. W. PELL.  
FIFTH WHEEL FOR VEHICLES.

No. 435,707.

Patented Sept. 2, 1890.



WITNESSES:

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*A. H. Parsons*

INVENTOR

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BY  
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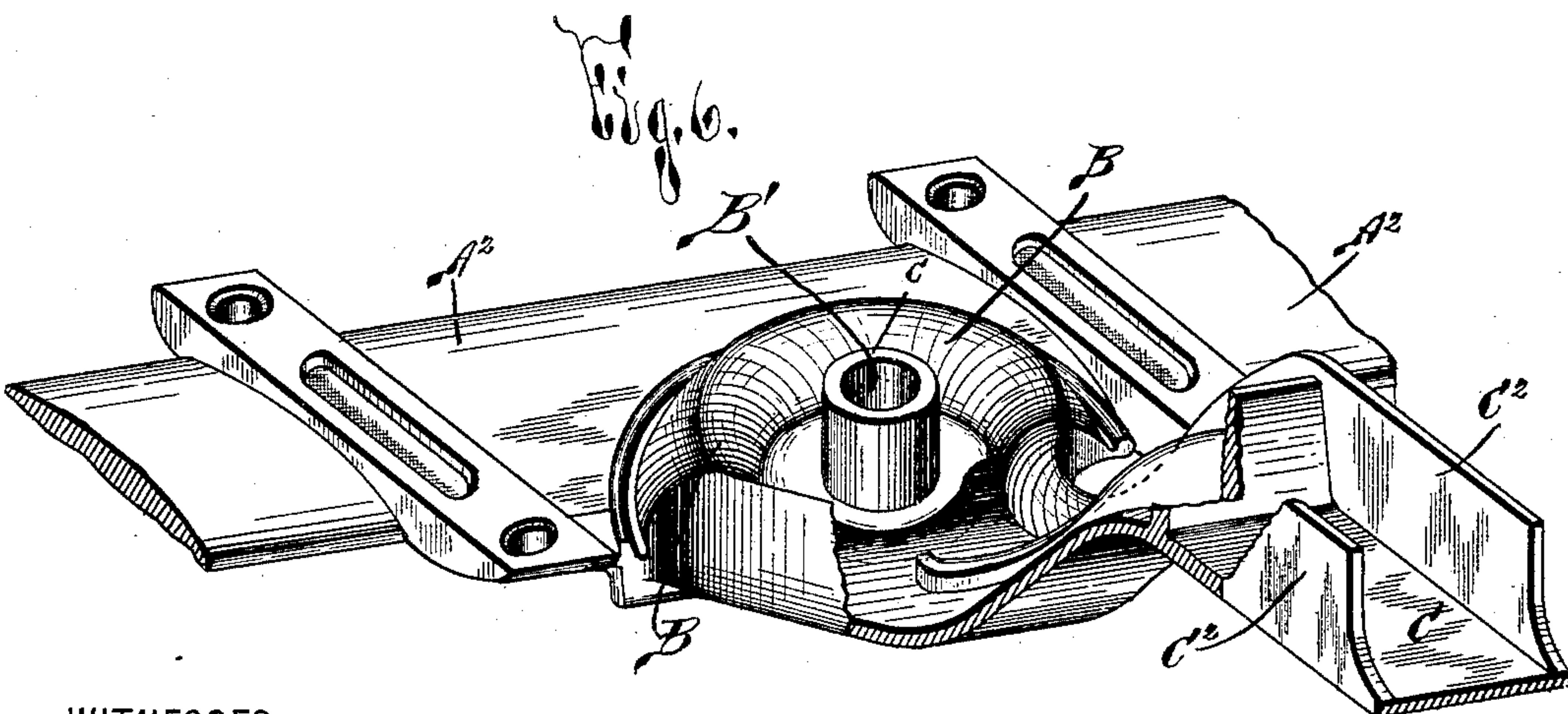
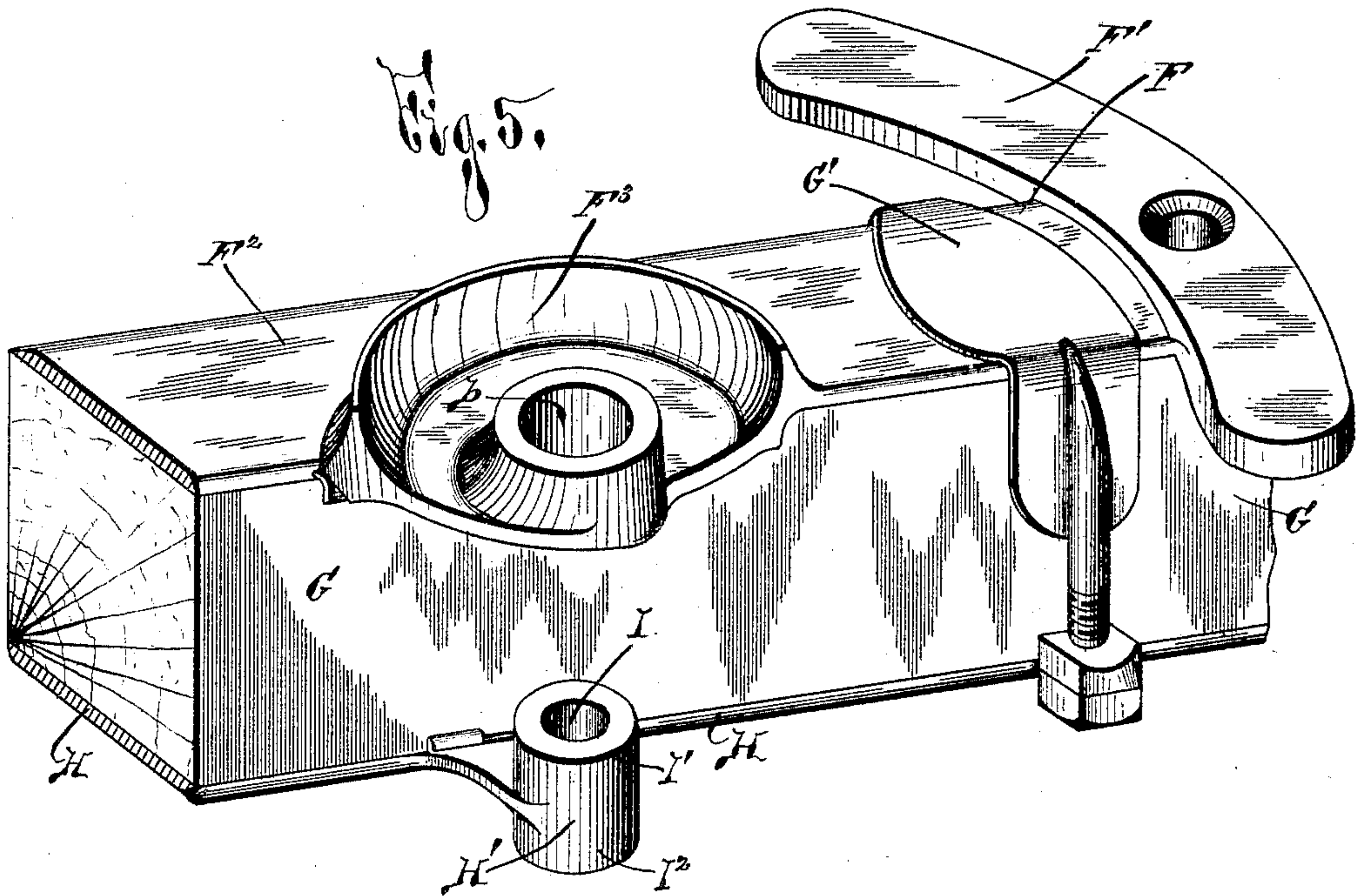
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4 Sheets—Sheet 2.

H. W. PELL.  
FIFTH WHEEL FOR VEHICLES.

No. 435,707.

Patented Sept. 2, 1890.



WITNESSES:

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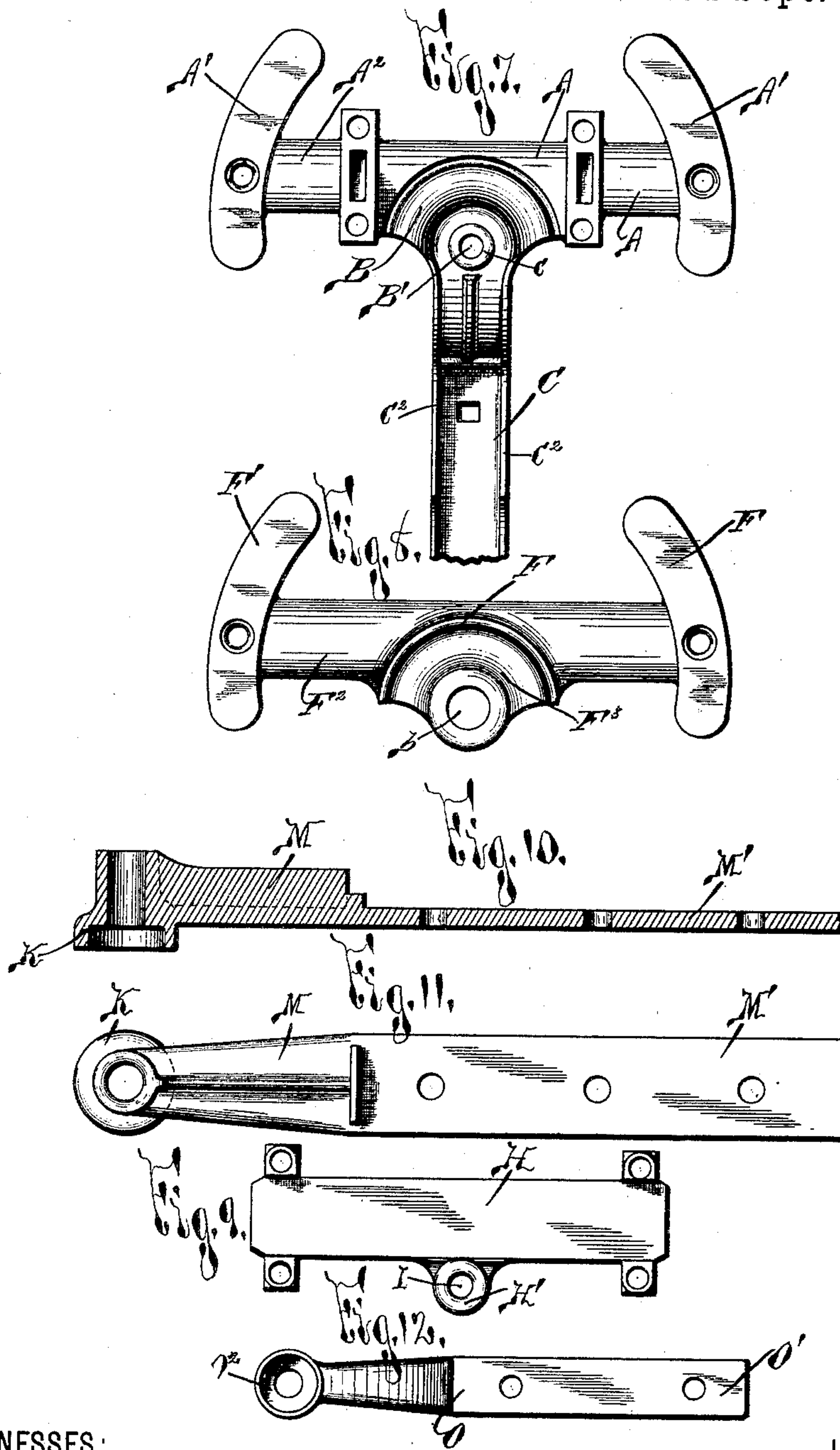
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4 Sheets—Sheet 3.

H. W. PELL.  
FIFTH WHEEL FOR VEHICLES.

No. 435,707.

Patented Sept. 2, 1890.



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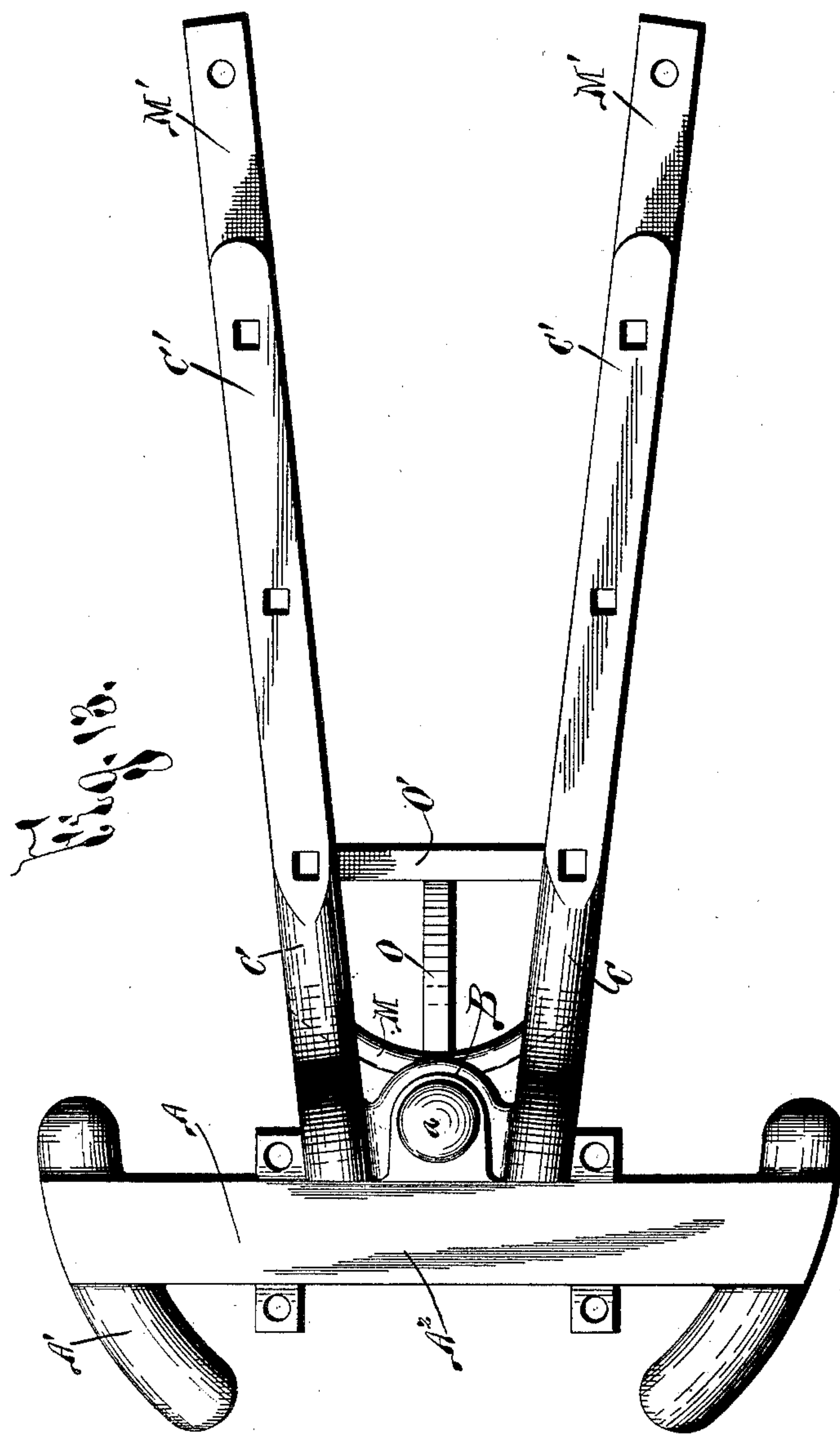
(No Model.)

4 Sheets—Sheet 4.

H. W. PELL.  
FIFTH WHEEL FOR VEHICLES.

No. 435,707.

Patented Sept. 2, 1890.



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# UNITED STATES PATENT OFFICE.

HENRY W. PELL, OF ROME, NEW YORK, ASSIGNOR TO ADELLE M. PELL, OF  
SAME PLACE.

## FIFTH-WHEEL FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 435,707, dated September 2, 1890.

Application filed December 24, 1888. Serial No. 294,491. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY W. PELL, of Rome, in the county of Oneida, in the State of New York, have invented new and useful  
5 Improvements in a Combined Fifth-Wheel and Perch-Iron, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in  
10 the running-gear of vehicles, and has for its object a simple, effective, and easily-manufactured construction of the fifth-wheel and perch-irons; and to this end it consists, essentially, in a fifth-wheel of novel and peculiar construction, one circle of which is provided with a rearwardly-extending brace or  
15 braces or combined perch iron or irons secured to the perch in any desirable manner, and the other circle is provided with a rearwardly-extending hub pivoted in a novel manner and secured by any desirable means  
20 to the axle of the vehicle, which is provided on its under side with a saddle of novel construction pivoted in braces or perch-irons also secured to the perch.

It furthermore consists in the detail construction and arrangement of the parts, all as hereinafter more fully described, and pointed out in the claims.

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

Figure 1 is a top plan of the detached central portion of an axle and the forward extremity of a perch with my improved fifth-wheel and perch-irons secured thereto. Fig. 2 is a side elevation of Fig. 1, further illustrating the construction and arrangement of the parts. Fig. 3 is a longitudinal section  
40 taken on line *xx*, Fig. 1. Fig. 4 is a like section taken on line *yy*, Fig. 1, still further illustrating the construction and arrangement of my invention. Fig. 5 is an isometric perspective of the axle with the adjacent circle of the fifth-wheel and the saddle on the under side of the axle shown secured thereto, illustrating the detail construction and arrangement of the parts. Fig. 6 is an inverted enlarged detached view of the oppo-  
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site circle of the fifth-wheel, illustrating particularly the central convex segment adapted to register with the cup-shaped cavity formed on the opposite fifth-wheel circle. Fig. 7 is an inverted plan view of the upper segment of the fifth-wheel with the perch-iron, which is preferably formed integral therewith. Fig. 8 is a top plan of the lower circle of the fifth-wheel. Fig. 9 is a top plan view of the saddle provided on the underneath  
55 side of the axle and secured thereto, illustrating the construction of the same. Fig. 10 is a longitudinal vertical section of the lower perch-iron provided with a socket to receive the rearwardly-projecting hub formed on the saddle secured to the axle. Fig. 11 is a top plan view of Fig. 10. Fig. 12 is a top plan view of the perch-iron, in which is socketed the lower projecting face of the rearwardly-extending hub formed on the saddle secured  
60 to the under side of the axle; and Fig. 13 is a top plan view of the construction of my combined fifth-wheel and perch-irons when the same are connected or attached to two perches.

A represents the upper circle of the fifth-wheel, secured in any desirable manner to the usual head-block E, to which any suitable or desirable form or construction of springs may be attached in any suitable manner. This  
65 upper circle A is formed with oppositely-arranged circles or segments A', rigidly secured together by a saddle A<sup>2</sup>, provided with a central convex segment B, projecting rearwardly from the fifth-wheel and formed with an opening B' for the pivotal bolt *a* and a depending  
70 hub *c*, encircling the journal-opening B' and also provided with a rearwardly-extending brace or braces C, secured at its rear extremity C' to the perch or perches D. This rearwardly-extending brace or combined  
75 perch-iron C is preferably concave in cross-section between its points of attachment to the fifth-wheel and the perch and is provided with downwardly-extending sides or lugs C<sup>2</sup>, increasing the forward extremity of the perch and preferably provided between its points of attachment with depending strengthening-ribs, one of which extends transversely across the brace C at the forward extremity of the  
80  
85  
90  
95  
100



depending sides  $C^2$  and forms an abutment for the forward end of the perch. The lower circle  $F$  of the fifth-wheel, formed of a like circle or segments  $F'$  to those of the upper circle connected together by a saddle  $F^2$ , which is secured to the axle  $G$  by suitable clips  $G'$  or other desirable means of attachment, is provided with a segment  $F^3$  of a concaved or cup-shaped annular socket, registering with the convex segment provided on the upper fifth-wheel circle, extending rearwardly from the saddle  $F^2$ , and provided with a journal-opening  $b$  for the depending hub  $c$  of the upper fifth-wheel circle.

On the underneath side of the axle  $G$ , which may be of any desirable form or material, I provide the saddle  $H$ , secured thereto in any suitable manner and provided with a rearward hub  $H'$ , having a journal-opening  $I$  registering with the like openings in the circles of the fifth-wheel. This hub  $H'$  is projected upward and downward on either side of the saddle  $H$ , and is journaled at its upper portion  $I'$  in the socket  $K$ , provided on the forwardly-extending perch-iron  $M$ , which is also provided with a journal-opening for the pivotal bolt  $a$ , and is secured to the under side of the perch  $D$  at its rearwardly-extending portion  $M'$  by bolts or other suitable means  $N$ , which also secure the brace  $O$  at its rearwardly-extending portion  $O'$ , placed directly beneath the portion  $M'$  of the lower perch-iron  $M$ . The forward extremity of the lower brace  $O$  is provided with a socket  $O^2$ , fitting around the lower extending portion  $I^2$  of the hub  $H$ , and is also provided with a journal-opening for the pivotal bolt  $a$ .

It will be observed that when the parts are assembled in their relative positions in the running-gear of the vehicle, and the vehicle is cramped to one side, the axle  $G$  will be oscillated or rocked by the socket  $b$ , provided in the lower fifth-wheel circle, turning or swinging on the lower projecting hub  $C$  of the upper fifth-wheel, and also by the engagement of the portion  $I'$  and  $I^2$  of the hub  $H'$ , formed on the saddle  $H$ , secured to the axle  $G$ . It will be particularly noticed that this movement will occur independently of the pivotal bolt  $a$ , if the separate perch irons or braces have been properly secured upon the perch, as illustrated in Fig. 4, and that the only office of the pivotal bolt  $a$  is to render the cramping action more effective by reason of the parts being held closely together. This peculiar construction is especially valuable, because no weakening of the axle and other parts occurs by reason of the insertion of the usual king-bolt, which must be of sufficient diameter to sustain the strain placed thereon, while in this construction there is substantially no strain at all upon the pivotal bolt, and, by reason of some unforeseen flaw should the bolt become broken, it will be readily seen that the action of the combined fifth-wheel and perch-irons will not be at all affected or the parts separated, and when the vehicle is

looked over for repairs a new bolt may be inserted.

It will be noted by reference to Figs. 5, 6, 7, and 8 that the concavo-convex central socket or auxiliary fifth-wheel is constructed of an upper and lower segment. If these parts were constructed of complete circles, a fine fit would be necessitated, and it would be almost, if not quite, impossible to cast or drop-forge them; but by their peculiar construction the circles of the central auxiliary fifth-wheel are easily constructed of cast metal or drop-forged with a press and suitable dies, a perfect fit readily obtained, and any outside matter—as dust, &c.—which would tend to accumulate therein may be forced outward by the cramping of the vehicle. The peculiar construction and formation of the parts presents the greatest strength at the point needed, forming a simple and effective device, the operation and advantages of which will be readily perceived from the foregoing.

When, instead of a single perch, a vehicle is provided with two or more perches, my peculiarly-constructed fifth-wheel may be attached thereto by either forming on the fifth-wheel corresponding perch-irons or slightly altering the construction of the perch-iron.

It will be understood that without departing from the spirit of my invention considerable change may be made in the relative arrangement and detail construction of the parts, and, if desired, according to my previous patent, a suitable truss or bridge may be secured or provided on the upper fifth-wheel saddle and the springs attached directly thereto without the use of the head-block, as herein described.

My concavo-convex open-sided central fifth-wheel may also be used to great advantage in the ordinary construction of a fifth-wheel by the use of a king-bolt, and accordingly I do not restrict the same to this my preferred construction of a fifth-wheel.

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

1. A fifth-wheel having an inner or auxiliary wheel, one of the divisions of which is provided with a cut-out opening to the outside of said inner or auxiliary wheel for allowing the same to clear itself, substantially as and for the purpose specified.

2. A fifth-wheel, the upper and lower circles of which are provided with a concentric inner or auxiliary wheel-circle having a cut-out on their peripheries, substantially as and for the purpose set forth.

3. The combination of a forwardly-extending perch-iron secured at one point to the perch and at the other to a division of the fifth-wheel, and a division of an inner or auxiliary wheel formed upon said fifth-wheel division and provided with a cut-out in its periphery, with an axle, the opposite division of the fifth-wheel circle mounted thereon, and the opposite division of the inner or auxiliary



wheel formed upon said fifth-wheel division secured to the axle, substantially as and for the purpose described.

4. The combination of a forwardly-extending perch-iron secured at one extremity to the perch and provided at the other with a division of the fifth-wheel and a central pivotal segment B, with an axle having secured thereto the opposite division of the fifth-wheel, and a segment of a concave socket F<sup>3</sup>, provided upon the latter fifth-wheel division, substantially as and for the purpose described.

5. A fifth-wheel for vehicles, composed of two parts, one of said parts having oppositely arranged segments on its extremities and a cup-shaped open-sided central socket, and the other having corresponding segments and a central bearing turning in the cup-shaped socket and a connection to the perch-iron, substantially as and for the purpose specified.

6. A drop-perch having a brace formed concave in cross-section and provided at its extremity with one division of a fifth-wheel and a projecting central bearing B, in combination with an axle, the opposite division of the fifth-wheel mounted upon said axle, and the open-sided socket F<sup>3</sup>, also mounted upon said axle, substantially as and for the purpose described.

7. The fifth-wheel circles of a vehicle provided with a cut-out on their peripheries and formed with inner auxiliary circles, also provided with a cut-out on their peripheries, one of which auxiliary circles is formed with a rearwardly-extending brace secured to the perch, substantially as and for the purpose specified.

8. A fifth-wheel composed of overlying circles or divisions, an open-sided central socket or auxiliary wheel concavo-convex in cross-section formed upon one division, and a central bearing provided upon the opposite division and pivotally bearing upon said socket, substantially as and for the purpose specified.

9. The combination of a fifth-wheel composed of circles, one of which is mounted on the axle and provided with a socket F<sup>3</sup>, hav-

ing a portion of its side wall cut out and the other being secured to the perch-iron and provided with a central bearing riding in the socket F<sup>3</sup>, substantially as and for the purpose specified.

10. In combination, one division of the fifth-wheel secured to the axle and provided with a central open-sided socket, the other division of the fifth-wheel secured upon a perch-iron and provided with a central bearing pivoting in the open-sided socket, with a saddle secured to said axle and provided with a hub at the rear of the axle, and a perch-iron embracing said hub, substantially as and for the purpose specified.

11. The combination of the fifth-wheel circle A, provided with a rearwardly-extending brace C, secured to the perch of a vehicle, a hub c, depending from said circle, a like fifth-wheel circle F, having a journal-opening b to receive the depending hub c, with a saddle H, having a rearwardly-projecting hub H', and braces socketed or capped over said hub H' and secured to the perch, substantially as and for the purpose described.

12. The combination of the fifth-wheel circle A, provided with a rearwardly-extending brace C, secured to the perch of a vehicle, the hub c, depending from said circle, a like fifth-wheel circle F, having a journal-opening b for receiving the depending hub c, with a saddle H, having a rearward hub H', a brace socketed or capped over said hub H' and secured to the perch, a journal-opening extending through said perch-iron, a hub H', a like journal-opening in the hub c, and a pivotal bolt a for securing said parts, substantially as and for the purpose specified.

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 27th day of October, 1888.

HENRY W. PELL.

Witnesses:

CLARK H. NORTON,  
A. E. PARSONS.