(No Model.) 3 Sheets—Sheet 1.

A. K. CAVERLY.

RUNNING GEAR FOR VEHICLES.

No. 314,222. Patented Mar. 24, 1885.

Fig. 1.

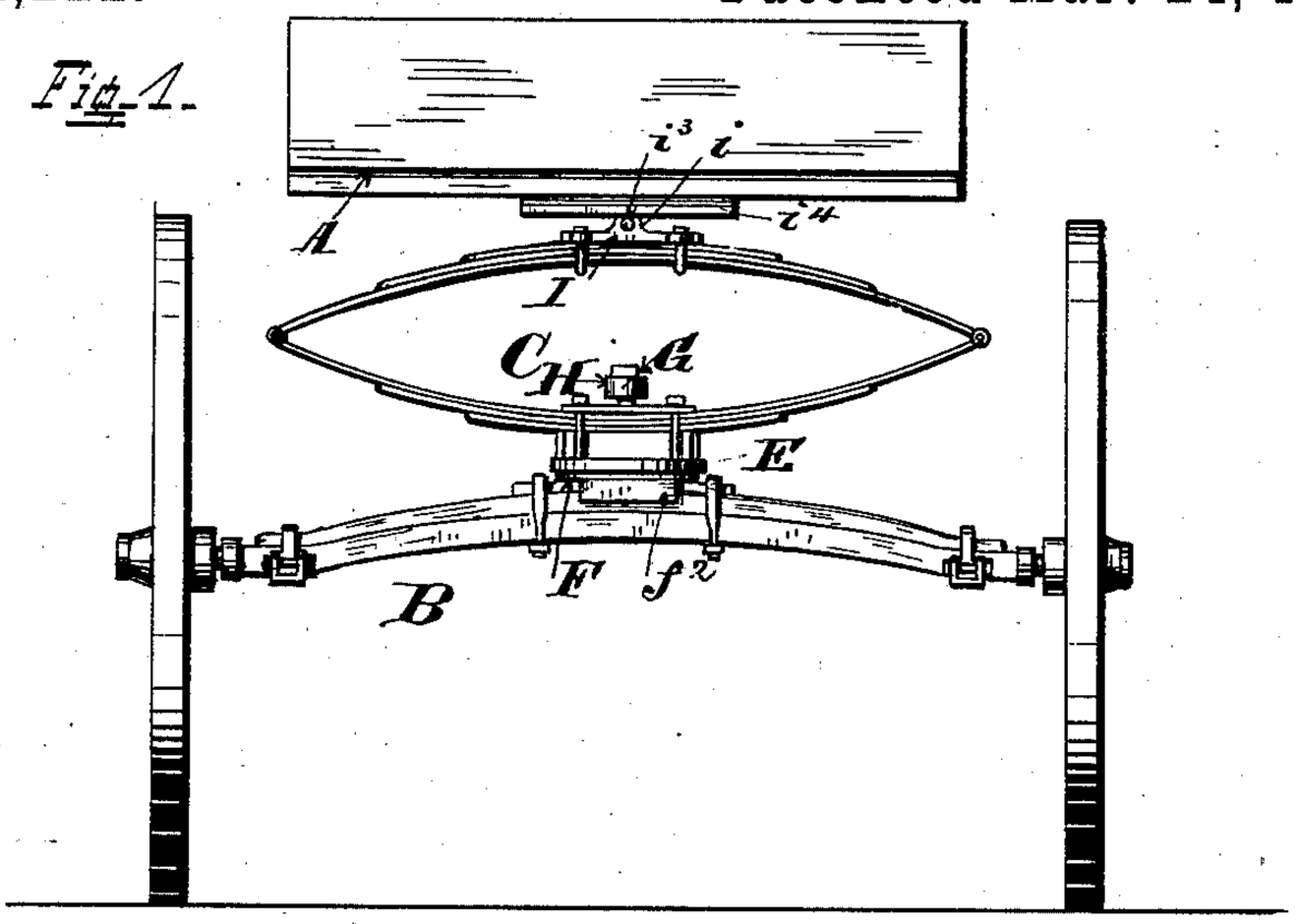

Fig. 2.

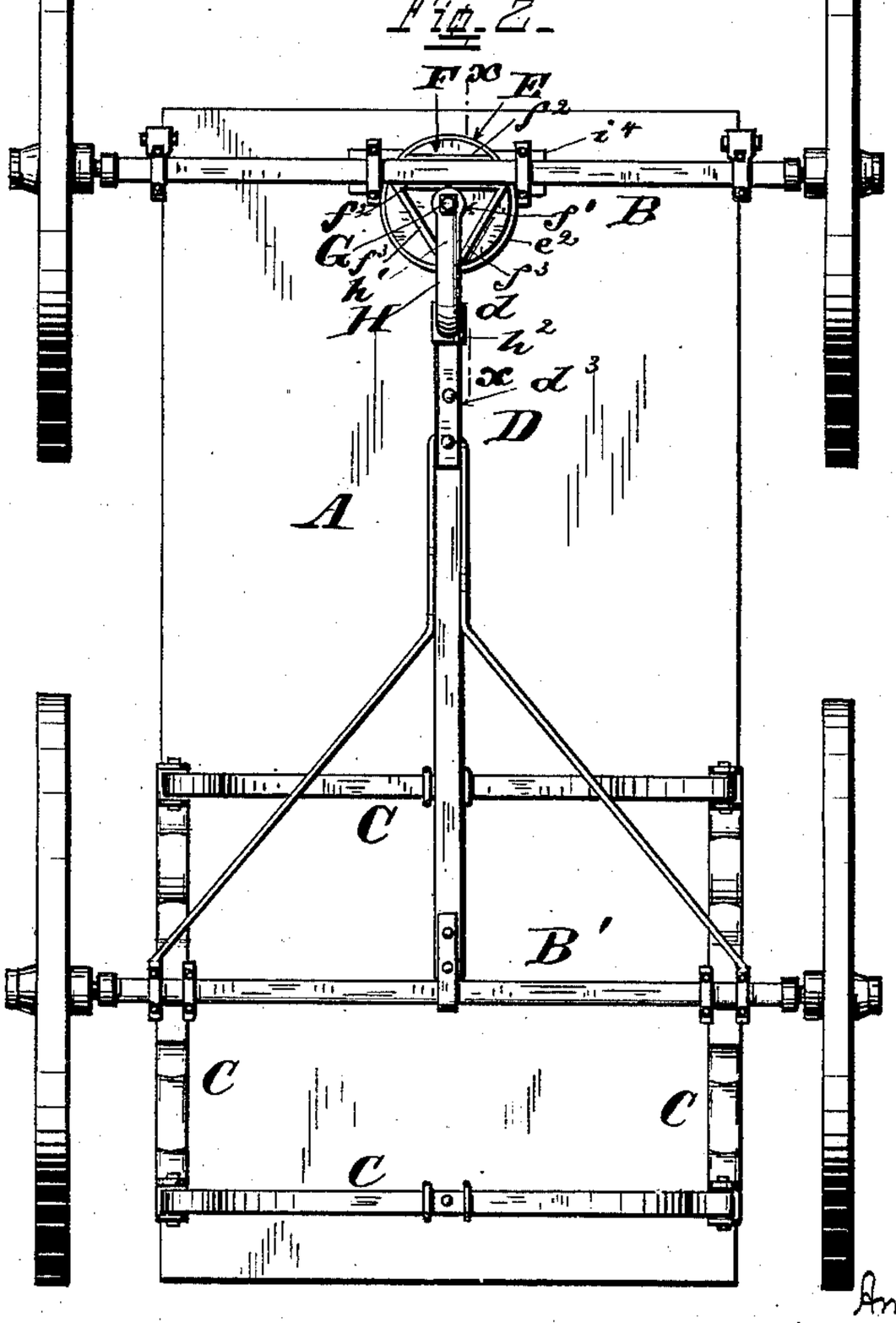

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Fig. 3.

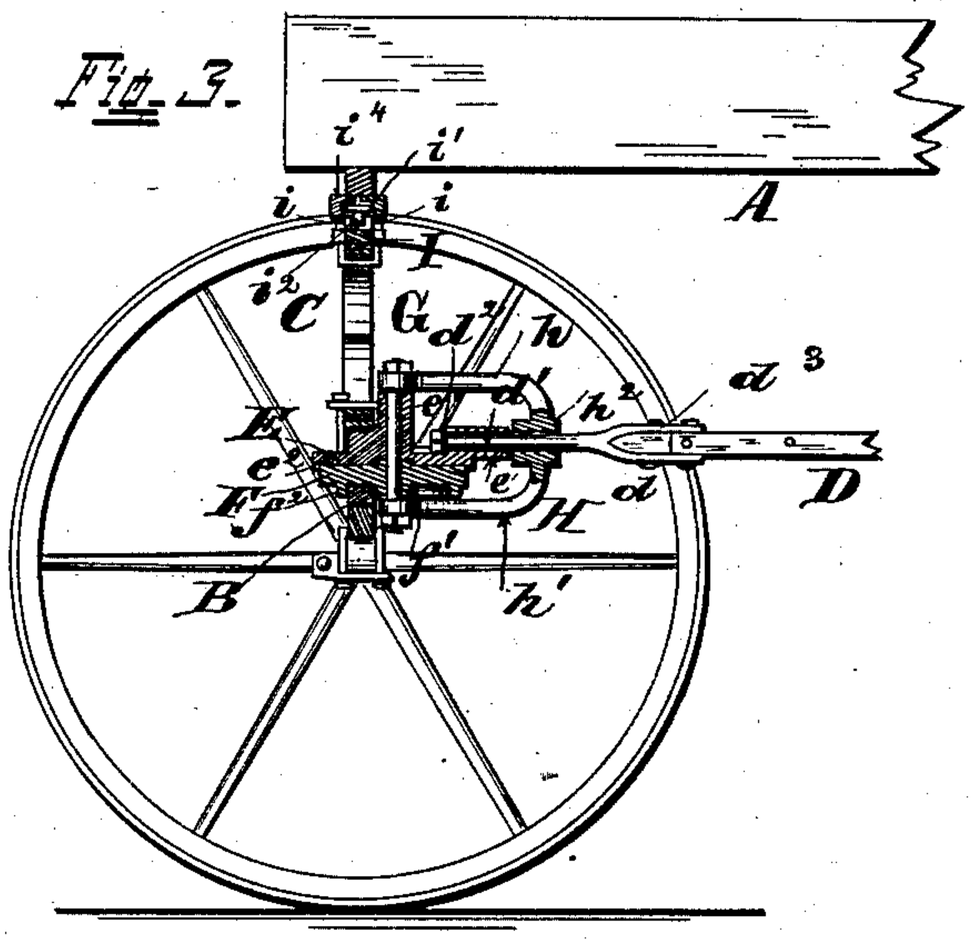
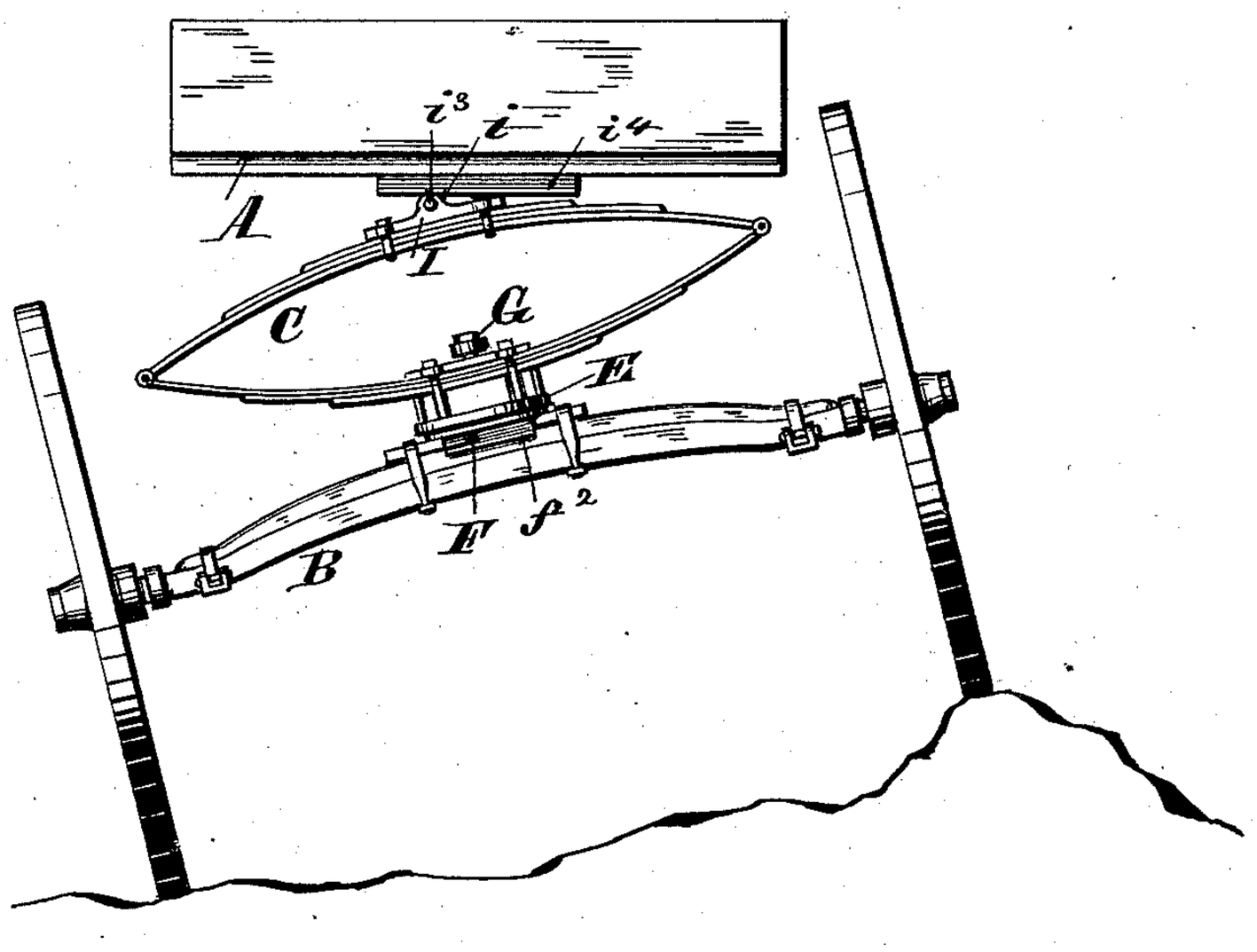


Fig. 4.



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RUNNING GEAR FOR VEHICLES.

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Fig. 5.

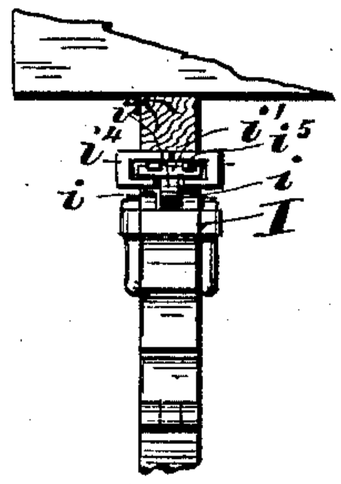


Fig. 6.

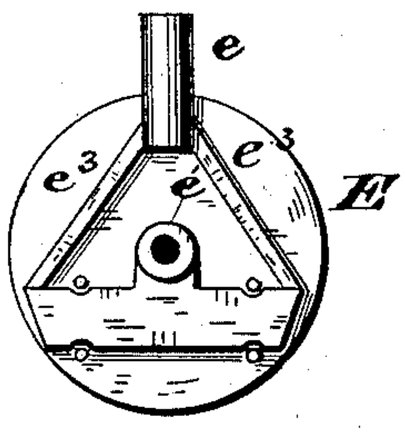


Fig. 7.

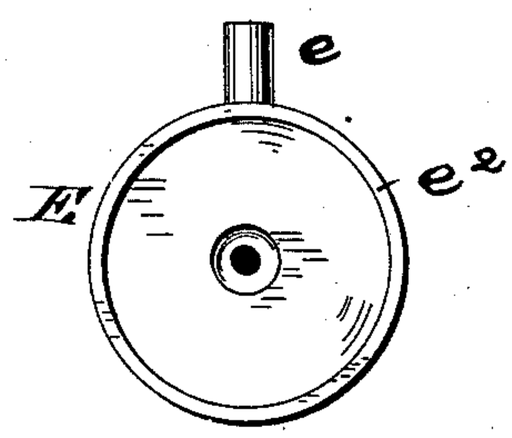


Fig. 8.

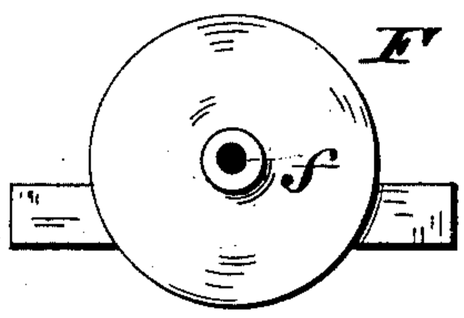
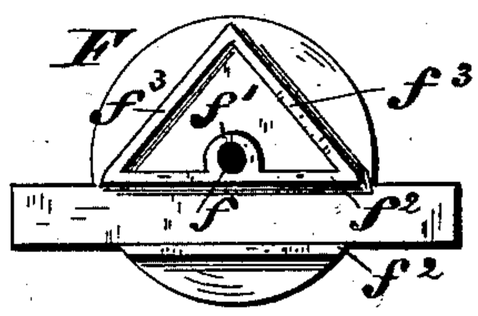


Fig. 9.



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UNITED STATES PATENT OFFICE.

AMOS K. CAVERLY, OF MOLINE, ILLINOIS, ASSIGNOR TO SARAH CAVERLY.

RUNNING-GEAR FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 314,222, dated March 24, 1885.

Application filed June 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, AMOS K. CAVERLY, of Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Running-Gears for Vehicles, of which the following is a specification.

My invention relates to improvements in running-gears for vehicles, of the class known to the trade as "oscillating gears," in which the vehicle is, by means of a jointed or swiveled reach and oscillating mechanism between the body and front spring or other oscillating devices, relieved from the strain of twisting the reach or body when the vehicle is passing over obstructions in the road or uneven and rough ground; and it consists in certain peculiarities in the construction of specific parts of the gear, and in various combinations and arrangements of such parts and others, whereby simplicity and cheapness in construction, as well as strength and durability and effectiveness in operation, are secured.

In the drawings, Figure 1 is a front view of my improved gear. Fig. 2 is a bottom view. Fig. 3 is a view in section on the line *x x* in Fig. 2. Fig. 4 is a front view showing position of oscillator when the left wheel is passing over an obstruction. Fig. 5 is an end view of oscillator and connections, and Figs. 6, 7, 8, and 9 are detail views of various parts.

A is the bottom of the vehicle or wagon bed. B is the front axle; B′, the rear axle, and C C the springs.

D is my improved reach, its rear end clipped or otherwise rigidly secured to the rear axle, B′, its forward end, *d*, tapering and ending in a spindle, *d′*, which passes through an orifice in the reach-yoke H, and is journaled into a tubular projection, *e*, extending from the rear of the upper disk, E, of the fifth-wheel, beyond which it is secured by a nut, d^2. The spindle thereby forms a bearing around which the yoke and the fifth-wheel with its dependent parts oscillate, while the reach is held in longitudinal engagement with the fifth-wheel by the nut. This reach may be made of metal and in one piece. A combination of wood and metal, however, I have found very effective, and, for economy of construction, lightness, and durability, may be preferred. For instance, as in the drawings, the spindle and tapering portion of the reach may be made of steel or other suitable metal, and the metal at the taper divided or forked, as at d^3, to receive the forward end of the wooden portion of the reach. The two arms or branches of metal from this divide or fork, extending along and embracing the sides of the wooden portion of the reach for about half its length, and secured thereto by bolts, and then running to the outer ends of the back axle, to the under side of which they are secured by one of the rear spring-clips.

E is the upper disk of the fifth-wheel, clipped to the under side of the front spring, constructed with a central hollow vertical projection, e', upon which the upper end of the reach-yoke H rests and through which the king-bolt G passes, and with a flange, e^2, on its periphery projecting below its lower face, within which the lower disk of the fifth-wheel fits and rotates. At right angles to the vertical projection e', and with its main body beyond the periphery of the disk, is the horizontal hollow reach projection *e*, into which is journaled the spindle *d′* of the reach D, and in front of which the reach is secured to the disk by the nut d^2. This disk is clipped or otherwise secured to the bottom of the front spring, with the vertical projection e' behind such spring.

F is the lower disk of the fifth-wheel, having a central hole, *f*, for the reception of the king-bolt G, and a surrounding rib, *f′*, upon which the lower end of the reach-yoke H sits. This disk has two parallel flanges, f^2 f^2, at right angles to its lower face, in front of the central hole, *f*, forming a channel within which the front axle or axle-block is embraced, and to which the axle is clipped or otherwise secured. The diameter of the lower disk is slightly smaller than that of the upper one, and fits into and rotates within the peripheral flange e^2 of the latter, the two being held together by the king-bolt G. In order to add strength to these disks, it may be advisable to construct them, as shown in Figs. 6 and 9, with ribs e^3 f^3 running across their outer faces, and where they are made of malleable iron I prefer to re-enforce them in this manner.

H is the reach-yoke, its upper arm, *h*, with central hole resting upon the vertical projection e' of the upper disk, and its lower arm,

h', with like central hole resting upon the rib f' on the lower disk. The king-bolt G passes through the arm h, the disks, and arm h', below which it is secured by a nut. In the rear portion of this yoke there is an opening, h^2, through which the spindle d' from the reach D is received before being journaled into the projection e' of the upper disk.

I is the oscillator swivel-block, rigidly attached to the top of the front spring or front spring-block, with two vertical ears, i i, projecting from its sides. The slide-block, i', is constructed with a flat body and a lug, i^2, depending from the center of its lower face, which is received between the ears i i of the oscillator swivel-block, and is swiveled upon the latter by a pin, i^3, passing through said ears and lug. The slide-block runs in a slide, i^4, which is attached to the bottom of the vehicle-body, and the sides of which are curved around the sides of the block and extend slightly over its sides on its bottom face, thus keeping the block within the slide while permitting its free lateral movement. Its escape from the ends of the slide is prevented by a stop, i^5, on each end, or by other suitable means.

By my improved gear the disadvantage of twisting the reach, on the one hand, by the use of a single straight reach connected directly with the front axle, and the tendency to get out of order on the other—the usual result of the continued use of a jointed reach—are obviated, for my reach, though not jointed, permits flexion of either of the axles or fifth-wheel without twisting the reach. The king-bolt being immediately behind the axle, and not through it or removed to any considerable distance behind it, is a decided improvement. It not only preserves the front axle intact and permits its whole body to be opposed to the weight of the load, but relieves it also from any strain which the reach if connected to it would cause, all the strain of the reach being upon the upper disk of the fifth-wheel, which being solid and preferably reenforced is better able to sustain it. The reach-yoke forms a valuable support to the forward end of the reach, and also the fifth-wheel. In light vehicles this yoke may be omitted, though I prefer this or a similar support in all classes of vehicles.

By the peculiar construction of the oscillating mechanism on top of the front spring, the tendency to twist the vehicle-body or throw it out of line with the reach when traversing rough and uneven ground is very slight. The swiveling action of the oscillator swivel-block, aided by the sliding of the slide-block in the same direction as that in which the obstruction tends to disturb the alignment of the vehicle-body, serves to compensate for and overcome any twisting or straining that might otherwise ensue, and imparts to the body generally an equilibrium undisturbed, or disturbed to but a slight extent, by the character of the road. The construction of the oscillating mechanism, moreover, is such that the oscillator will remain in alignment with the center of the body, whatever be the manner of loading the vehicle, and will only be actuated by contact by the wheels with obstructions—that is, though all the weight of the load being carried be placed in one of the front corners of the vehicle, the body will remain on a line with the oscillator, and will not shift to the opposite side, while if one of the wheels meets with an obstruction, however slight, the oscillator will depart from its line while passing over it.

I am aware that it ts not new to swivel the forward end of the reach in the fifth-wheel, and to pivot the vehicle-body to the upper side of the front spring, and I do not wish to be understood as claiming these ideas, broadly. I am not aware, however, that any one has ever before provided a sliding connection between the spring and body, as herein shown and described.

I claim—

1. The combination, in a vehicle, of a straight reach attached rigidly to the rear axle and swiveled in the fifth-wheel at its forward end, a spring attached to said fifth-wheel, carrying at its upper side a shouldered block, and a guiding-plate secured to the body of the vehicle, and adapted to receive and guide the shouldered block of the spring, substantially as set forth.

2. In a vehicle, the combination of the swiveled reach, constructed substantially as described and shown, the fifth-wheel, the front spring attached to the fifth-wheel, and carrying at its upper end a block adapted to slide within a block upon the under side of the vehicle-body, the vehicle-block being provided with stops to limit the movement of the spring-block, as and for the purpose described.

3. A straight reach rigidly attached to the rear axle, its forward end journaled into a projection from the rear of the upper disk of the fifth-wheel, its forward portion behind the fifth-wheel supported by a yoke whose arms are swiveled by the king-bolt to the disks of the fifth-wheel.

4. A straight reach rigidly attached to the rear axle, its forward end journaled into a projection from the rear of the upper disk of the fifth-wheel, its forward portion behind the fifth-wheel supported by a yoke embracing such forward portion through a hole in its rear, and its arms swiveled to the disks of the fifth-wheel, immediately behind the front axle, by the king-bolt.

5. A fifth-wheel for vehicles, consisting of an upper disk with central hollow vertical projection above, horizontal hollow projection in the rear of and at right angles to such vertical projection, peripheral flange extending below its bottom face and secured to the front spring immediately in front of such vertical projection, and a lower disk with like central hole and parallel flanges in front of such hole adapted to fit over and around the front axle

and secured thereto or to the axle-block, with its diameter slightly smaller than that of the upper disk to fit and rotate within the flange on the periphery of the upper disk, and the king-bolt.

6. The herein-described running-gear for vehicles, consisting of the rear and front axles, a fifth-wheel mounted upon the latter, a reach rigidly attached to the rear axle and swiveled in the fifth-wheel, a spring mounted upon the fifth-wheel, the body, and a sliding connection between the body and the spring.

AMOS K. CAVERLY.

Witnesses:
H. D. BLAKEMORE,
GEO. L. MCMASTER.