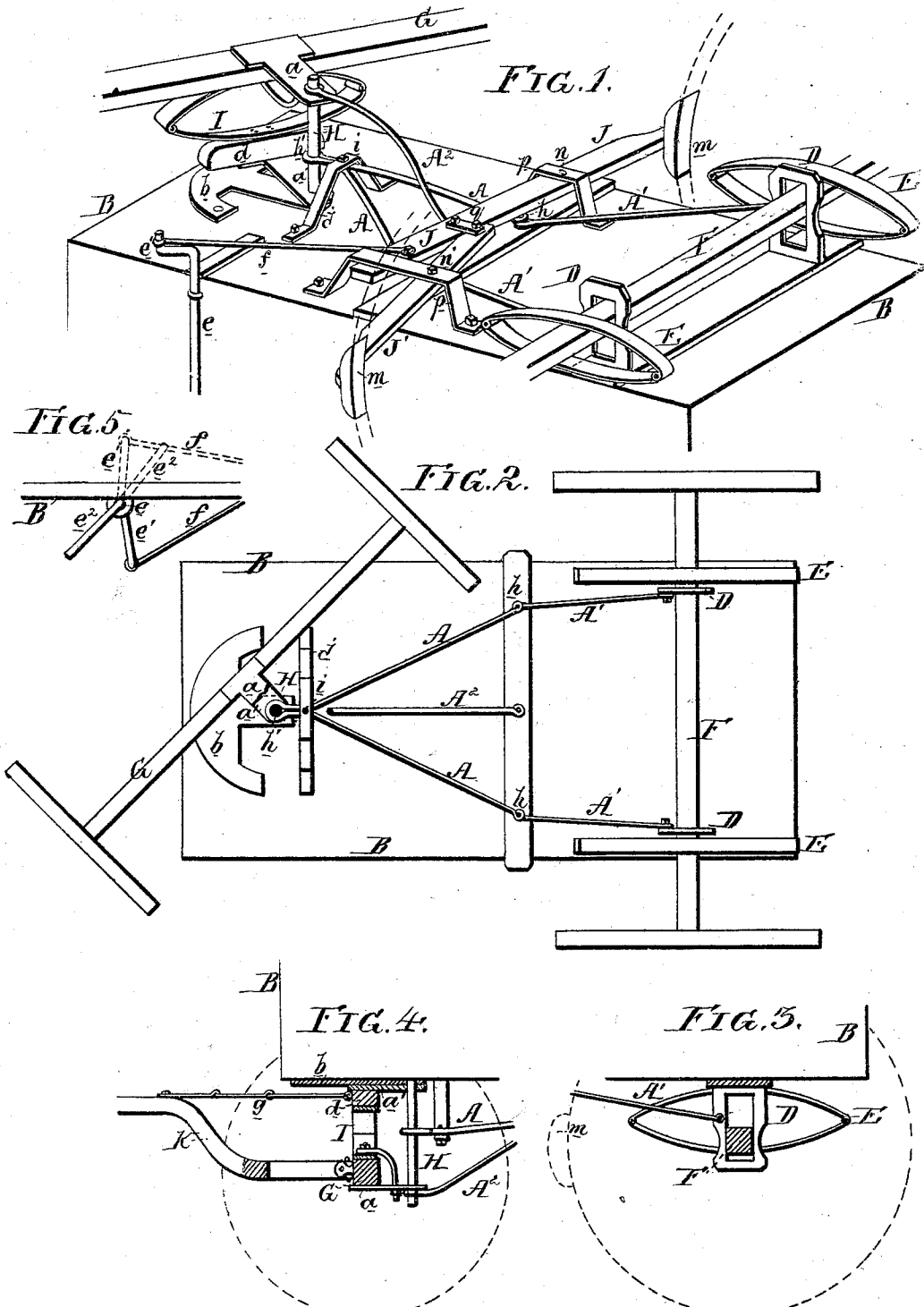


P. B. CUNNINGHAM.

Running-Gears for Wagons.

No. 147,375.

Patented Feb. 10, 1874.



Witnesses, John K. Rupertus.
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UNITED STATES PATENT OFFICE.

PETER B. CUNNINGHAM, OF FREEHOLD, PENNSYLVANIA.

IMPROVEMENT IN RUNNING-GEARS FOR WAGONS.

Specification forming part of Letters Patent No. **147,375**, dated February 10, 1874; application filed July 25, 1873.

To all whom it may concern:

Be it known that I, PETER B. CUNNINGHAM, of Freehold, Luzerne county, State of Pennsylvania, have invented Improvements in Vehicles, of which the following is a specification:

The objects of my invention are, to thoroughly brace and prevent swaying or rocking of the parts of a vehicle; to reduce the wear and tear of the running-gear; to enable the body of the vehicle to be set lower down than usual; to facilitate short turning, and the rapid and positive braking of the hind wheels, and to support the weight of the tongue or pole.

I attain these objects by constructing the vehicle in the manner best observed in the inverted perspective view, Figure 1, of the accompanying drawing, a system of longitudinal braces, A, connecting the body B of the vehicle with the connections of the front and rear axles G and F, and effectually preventing rocking or swaying of the parts, without interfering with or being themselves affected by the action of the springs, the rear ends of the said braces being connected to slotted hangers or guides D, which permit the rear axle to have a vertical movement only, and enable the same to resist the pressure of the brakes J J', thus reducing the strain upon the springs E, the said rear axle also passing through instead of beneath the springs, which enables the rear portion of the body of the vehicle to be lowered somewhat, it being also lowered at the front by the arrangement of the parts connected with the front axle, the latter being situated at some little distance outward from instead of directly over the king-bolt H, with which it is connected by arms *a a'*, which arrangement facilitates short turning, and gives a solid bearing upon the fifth-wheel or segment *b*. A powerful double-lever brake, J J', capable of being operated from either the inside or outside of the wagon by a crank-rod, *e*, is employed, and the weight of the tongue K (see sectional view, Fig. 4) is sustained by a chain, *g*, connected to the bearing-block *d*, which moves with the said tongue and front axle.

The longitudinal bracing may consist of one continuous bent rod; but I prefer to arrange it as shown in the drawing, where a rod, A, secured at its rear ends, by bolts *h h*, to the body of the wagon, (see plan view, Fig. 2,) is

bent at its front end to form an eye, *h'*, which embraces the king-bolt H, the latter being secured to the body and further supported at its outer end by a brace, A². The rod A is bolted at *i*, adjacent to the king-bolt, to a loop, *j*, secured to the body of the wagon, this effectually preventing lateral swaying of the said king-bolt. The rear portion of the longitudinal bracing consists of two rods, A A¹, secured at the front ends by the same bolts *h*, which serve to retain the rod A, and at their rear ends to slotted hangers or guides D D, through which the rear axle F passes, the said guides being secured to the body B, and restricting the axle to a vertical movement only, to the extent permitted by the springs E, the tendency to wrench and strain and throw up the ends of the latter, usually caused by the swaying of the axle, being thus avoided. (See sectional view, Fig. 3.) The said slotted guides also prevent the axle from yielding to the pressure of the brakes, and thus prevent the straining of the springs by the sudden application of the latter, while at the same time, owing to their resistance, they facilitate the operation of the said brakes. The braces A A¹ A² form a positive and rigid medium of connection between the body of the vehicle and front and rear axles, without interfering with or being themselves affected by the action of the springs, for the rear axle slides freely in its guides D, to which the rear ends of the said braces are connected, while the connection *a* of the front axle slides as freely upon the king-bolt between the braces A and A². The fifth-wheel or segment *b* is secured directly to the bottom of the wagon-body, and immediately beneath the same are the bearing-block *d*, front axle G, and spring I, interposed between the said axle and bearing-block, and moving with the same, the whole being connected by two arms, *a* and *a'*, to the pivot or king-bolt H. This method of connection enables the front axle to be brought directly beneath the point of bearing on the fifth-wheel or segment, thus considerably reducing the strain and preventing swaying, and enabling the body, also, owing to the disposition of the parts, to be brought lower down than usual. The usual necessity of weakening the axle by boring holes through it for the passage of the king-bolt is also avoided; and by setting

the axle outward from the said king-bolt or pivot, instead of arranging it directly over the same, a very short turn can be made, as will be readily understood by referring to the plan view, Fig. 2.

For trucks and heavy vehicles I prefer to interpose the spring I between the front axle and bearing-block, so that it may move with the same, as above described; but for buggies and light carriages I propose to secure the spring to the body and the segment to its under side, the other parts being the same.

The rear portion of the body B is lowered considerably by passing the rear axle through and securing it to the inner instead of the outer sides of the springs E, as shown in Figs. 1 and 3.

The arrangement of the double-lever brake will be best observed on reference to Figs. 1 and 5. The brake consists of two levers, J and J', to the outer extremities of which the shoes *m* are attached, the lever J being hung at *n* to a loop, *p*, secured to the wagon-body, and the lever J', which is connected to the former by a link, *q*, having its fulcrum at *n'* on a loop, *p'*. Both levers are operated simultaneously by a rod, *f*, connected to the extremity of the long arm of the lever J, and to the crank *c*¹ of the rod or spindle *e*, adapted to bearings on the side of the wagon-body, and provided at its upper end with a crank or handle, *c*². It will be observed, on reference to Fig. 5, that the parts of this brake are so arranged that it can be operated with equal facility from either the inside or outside of the wagon.

For the purpose of sustaining the weight of the tongue or pole K, Fig. 4, in any position

to which it may be adjusted with the front axle, in order to prevent it from galling the draft-animals, I connect the said tongue, by a chain, *g*, to the bearing-block *d*, which moves with the said axle and tongue.

As a modification of my invention, I may suggest that the rear bracing-rods A¹ might, in some instances, be used in connection with the rear axle and its guides D, independently of the rods A, the latter being either dispensed with, or else attached separately to the wagon-body. The guides D, also, instead of being in the form of slotted plates, might each consist of a single rod, extending down at one side of or through the axle, and connected at or near its outer end to the brace-rod A¹.

I claim as my invention—

1. The combination of the body of the vehicle, king-bolt H, axle F, and braces A A¹, connecting the king-bolt and axle, substantially as and for the purpose set forth.

2. The combination, with the axle, wheels, and brakes of a vehicle, of guides D, braced to resist the pressure of the brakes upon the wheels, as set forth.

3. The bearing-block *d*, spring I, and axle G, hung to the bolt H, in combination with the pole K, hung directly to the axle and connected to the bearing-block, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PETER B. CUNNINGHAM.

Witnesses:

J. SHERBORNE SINGER,
WM. A. STEEL.