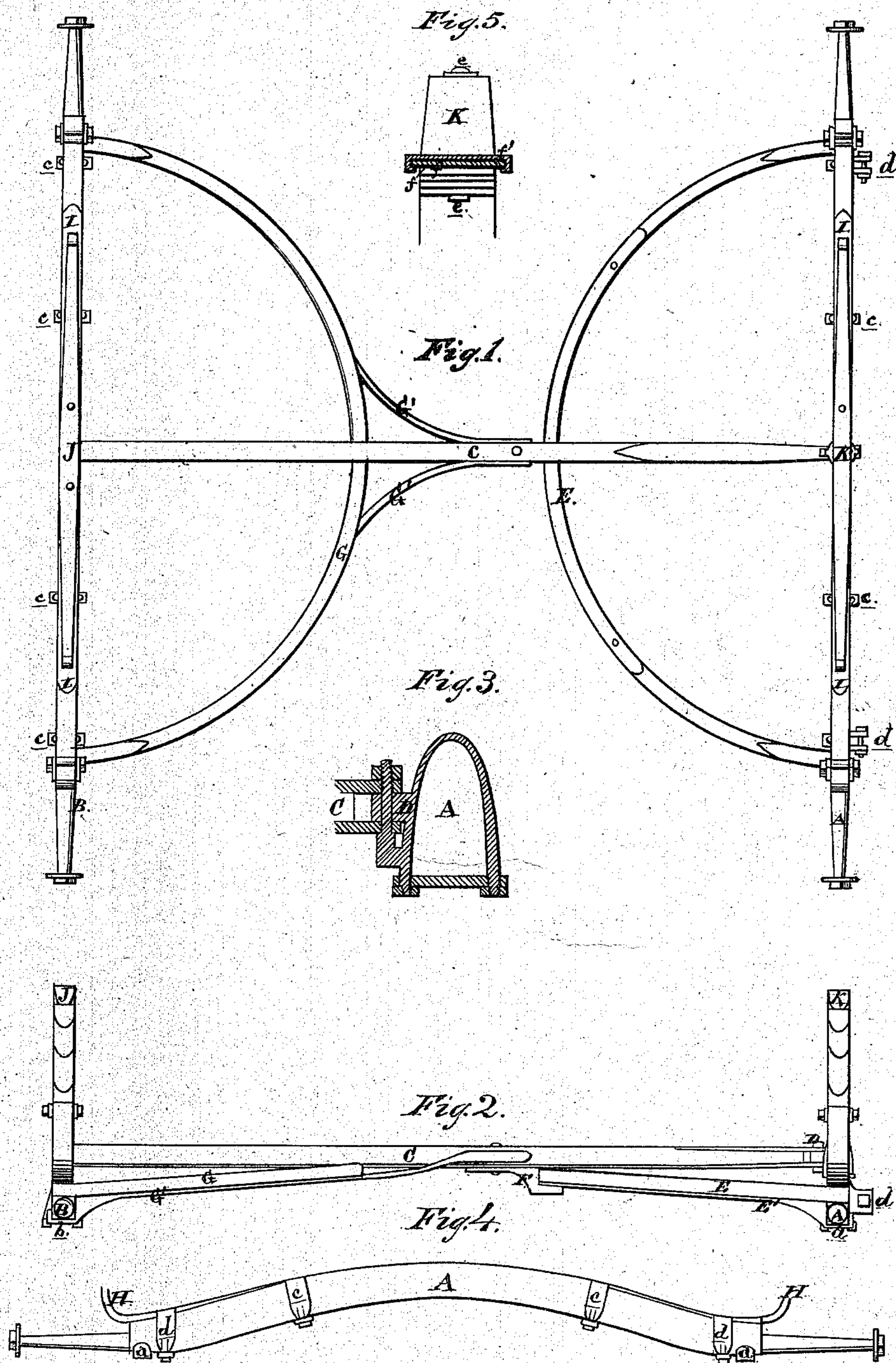


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Tho's O'Brien's PATENTED JUN 21 1870  
Running Gear for Wagons.



Attest.

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THOMAS O'BRIEN, OF QUINCY, MICHIGAN.

Letters Patent No. 104,634, dated June 21, 1870.

## IMPROVEMENT IN RUNNING-GEAR FOR CARRIAGES.

The Schedule referred to in these Letters Patent and making part of the same

### To whom it may concern:

Be it known that I, THOMAS O'BRIEN, of Quincy, in the county of Branch and State of Michigan, have invented a new and useful Improvement in the Construction of the Running-Gear for Carriages; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the Letters of reference marked thereon, and being part of this specification, in which—

Figure 1 is a plan of my improved running-gear;

Figure 2 is a side elevation of the same;

Figure 3 is an enlarged cross-section through the center of the fore axle, showing the manner of connecting the reach therewith;

Figure 4 is a front elevation of the fore axle; and

Figure 5 is an enlarged cross-section through the middle of the front bolster and spring, to show the construction and operation of their truck-plates.

Similar letters of reference indicate corresponding parts in each figure.

The nature of this invention relates to an improved construction of the running-gear of carriages and wagons, and consists in a novel and peculiar method of connecting the reach with the fore axle by means of a clip embracing its center, to which clip the reach is pivoted; in the peculiar construction and arrangement of the truck-plates in connection with the spring-bar and the front spring, and the method of connecting them securely together; and in the construction and arrangement of the several parts of my device.

In the drawing—

A represents the fore, and B the rear axle of a vehicle, connected by the reach C, the rear end of which is rigidly secured to the rear axle, while the front end is pivoted to a clip, D, which embraces the middle of the fore axle, dispensing with the ordinary king-bolt passing through the axle, to its great detriment.

E is the circle, so called, but which is a semicircle-segment, having its ends halved or tenoned in the ends of the wooden bed-piece of the front axle, while its body moves in and is supported by a clip, F, on the under side of the reach.

By extending the ends of the circle to the shoulders of the fore axle, the latter is rendered less liable to fracture from a sudden strain at the center, for under such circumstances the axle will give a trifle, when the strain is transferred to the clip F and reach, through the circle, relieving the center clip on the axle.

E' is the circle-iron, on the under side thereof. The ends of the iron are extended beyond the wooden circle in the form of a box, a, in which the square shoulder of the axle rests.

G is the crotch, in form similar to the circle E, with

its ends in like manner secured to the ends of the bed-piece of the rear axle, while its body is secured to the under side of the reach.

G' are the crotch-irons, their rear ends forming boxes b, embracing the shoulders of the rear axle, while their front ends are secured to the reach. This arrangement of the crotch and its irons brings the strain of the draft on the axle at the point where it is needed, and where the axle is best able to bear it, i. e., as near the wheels as possible, while the boxes a b of the irons resist the tendency of the axles to roll or wrench from their seats in sinking into holes on a rough road.

H are the spring-perches, in whose upper ends are suspended the semi-elliptic springs I. The bases of the perches lie along the top of the bed-pieces, each being secured thereto by a clip, c, at the end, and a draft-clip, d, near the shoulder of the axle, to which the pole or thills are attached, a plain clip replacing the latter in the rear axle. A lateral projection of the perch-body overlaps the ends of the circles, to which it is secured by proper bolts.

J is the rear spring-bar, rigidly secured to its spring, and

K is the front spring-bar, pivoted by a bolt, e, through the front spring.

Secured to a block on top of the front spring is a circular truck-plate, f, and to the lower side of the spring-bar a corresponding plate, f', through both of which the bolt e passes.

The plate f' has a front and rear clip, overlapping and hooking under the edge of the lower plate, which effectually prevents the bolt e from being bent, or the bar from being wrenched off by a sudden jolt of the vehicle.

It will readily be seen that the construction, as above described, of the running-gear, greatly increases its strength and durability, while the weight and cost are correspondingly diminished.

I claim—

1. The pivot-clip D, for connecting the reach C with the front axle, as described.

2. The construction and arrangement of the pivot-clip D, circle E, circle-iron E', and boxes a, crotch G, crotch-irons G', and boxes b, perches H, and clips c d, truck-plates f f', and bolt e, with the spring-bars K J, springs I, axles A B, reach C, and clip F, substantially as described, for the purposes specified.

THOMAS O'BRIEN.

Witnesses:

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