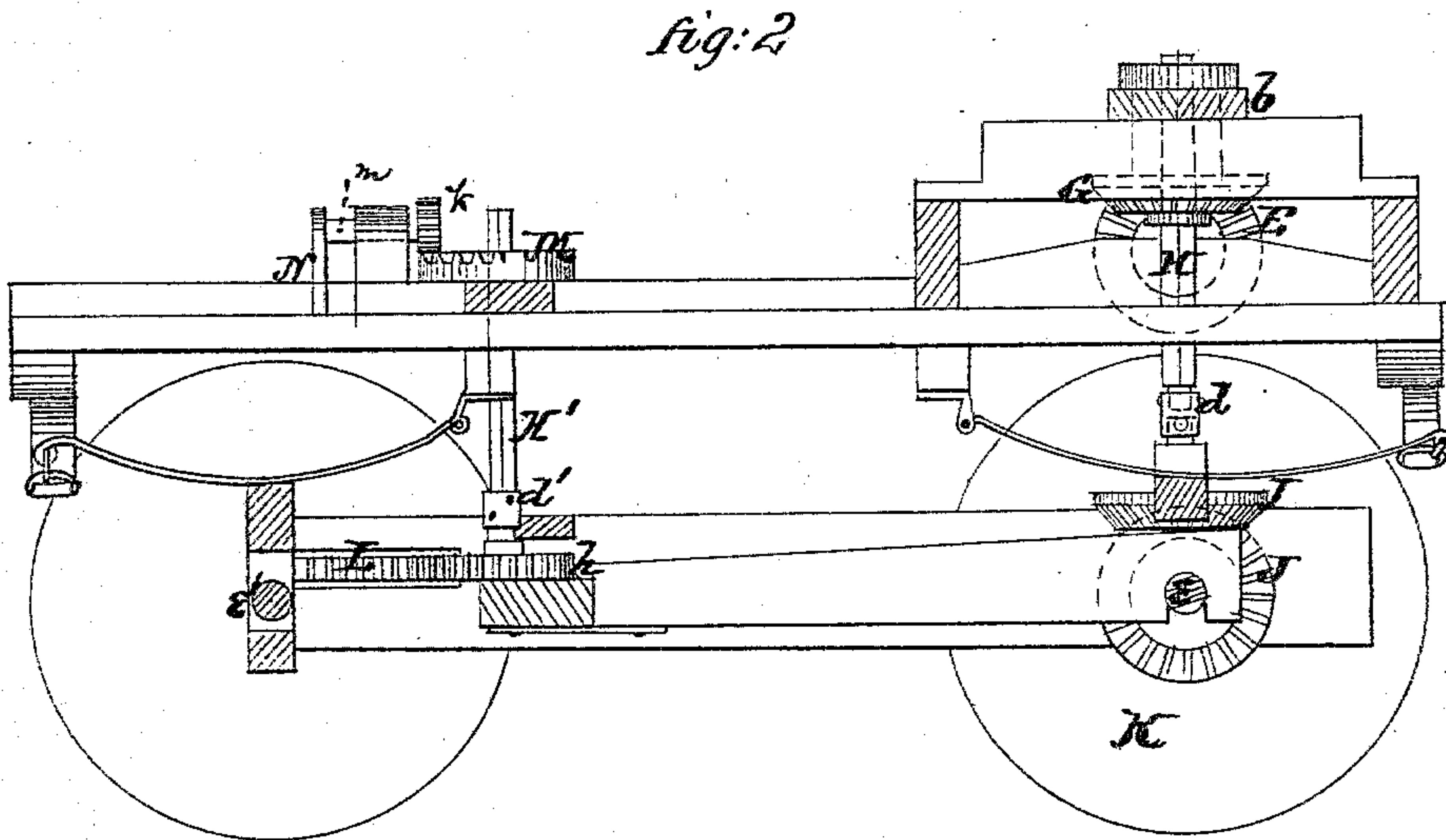
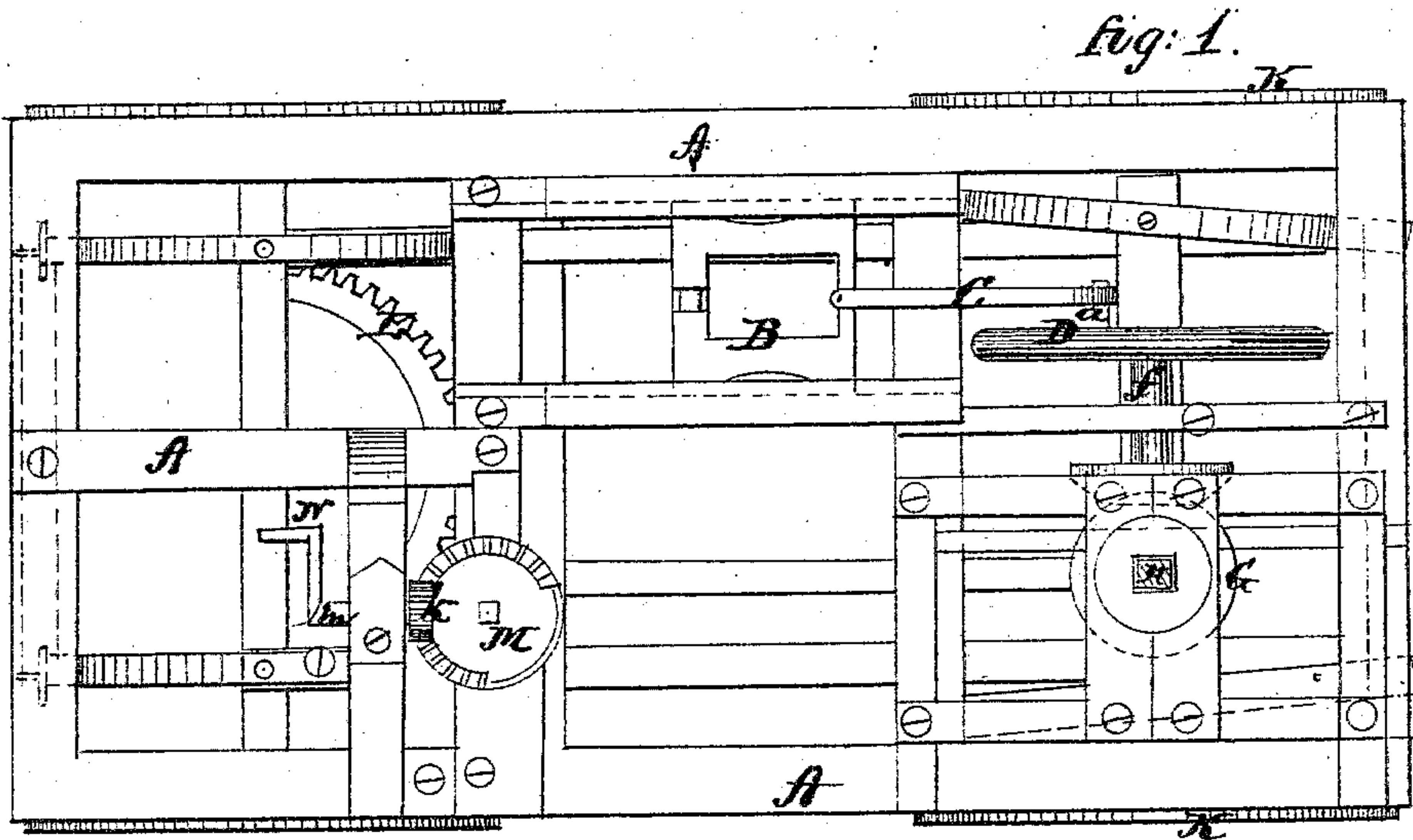


C. F. THOMAS, A. J. CRAIG, J. A. CRAIG, & J. W. HATHAWAY.

Improvement in Steam Road-Wagons.

No. 115,786.

Patented June 6, 1871.



Witnesses.

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# UNITED STATES PATENT OFFICE.

CHARLES FRANKLIN THOMAS, ANDREW JAMES CRAIG, AND JAMES A. CRAIG,  
OF JASPER, AND JEROME W. HATHAWAY, OF WOODHULL, N. Y.

## IMPROVEMENT IN STEAM ROAD-WAGONS.

Specification forming part of Letters Patent No. 115,786, dated June 6, 1871.

*To all whom it may concern:*

Be it known that we, CHARLES FRANKLIN THOMAS, ANDREW JAMES CRAIG, and JAMES A. CRAIG, of Jasper, and JEROME W. HATHAWAY, of Woodhull, in the county of Steuben and in the State of New York, have invented certain new and useful Improvements in Steam Road-Wagons; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of our invention consists in the construction and arrangement of a steam road-wagon, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a plan view, and Fig. 2 a longitudinal vertical section.

A represents the wagon-bed supported upon suitable springs in any convenient manner. B is a cross-head provided with a pitman, C, which is attached to a wrist-pin, *a*, on the balance-wheel D. This balance-wheel is attached to a shaft, *f*, upon which is also a bevel-wheel, E, which gears with another bevel-wheel, G. This latter wheel is provided with a hub or hollow collar, *b*, which has its bearing in a suitable bar or beam on the carriage-bed A. The hole or aperture through the hub *b* is square, and through the same passes the upper square end of an upright shaft, H, which is provided with a universal joint, *d*. By means of this joint and the capability of the wheel G to move up and down on the shaft H, this mechanism accommodates itself to the rock and spring of the carriage. On the lower connection of the shaft H is another bevel-wheel, I, which gears with a bevel-wheel, J, attached to the axle-tree *e*, that two of the wheels K are placed upon. By the movement of the engines this carriage can be driven backward and forward by the bevel-gears. We contemplate using two engines and two balance-wheels and gears, one opposite the other, and so arranged that both of the wrist or

crank pins will not be on the dead-center at the same time, and, furthermore, so arranged that it can be started or stopped the same as a locomotive. The boilers and water-tank will be placed in any convenient place on the carriage. On the circumference of the wheels K we propose to have teeth, lugs, or other suitable projections to prevent the wheels from slipping. The rear axle-tree *e'* is provided with a cogged semicircle, L, which gears with a pinion, *h*, upon the lower end of another upright shaft, H', which is also provided with a universal joint, *d'*. This shaft passes up through the hub of a wheel, M, which is cogged on its upper side for about one-half its circumference, and which cogs gear with a pinion, *k*, on the end of a horizontal shaft, *m*, the other end of which is provided with a crank, N. By this means the hind axle-tree can be swung around either to the right or left, as desired, to steer the carriage.

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

1. A carriage or wagon bed supported upon springs and carrying a boiler and engine, or boilers and engines, connected, by springs and upright shafts and other mechanism, with the axle, when said shafts are provided with universal joints, and allow one of the gear-wheels connected to the bed to slide up and down thereon, substantially as and for the purposes herein set forth.

2. In a steam road-wagon, a steering apparatus, in which one of the shafts connecting the wagon-bed with the axle is provided with a universal joint, and allows one of the gear-wheels connected to the bed to slide up and down thereon, substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 20th day of February, 1871.

CHARLES FRANKLIN THOMAS.  
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JEROME W. HATHAWAY.

Witnesses:

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