

L. RARCHAERT.
LOCOMOTIVE ENGINE.

No. 65,008.

Patented May 21, 1867.

Fig: 2

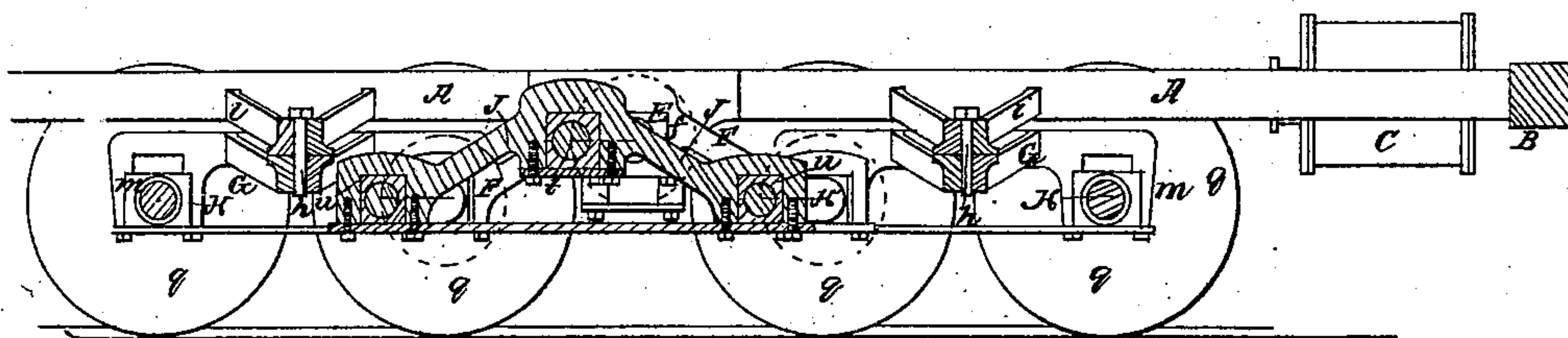


Fig: 3

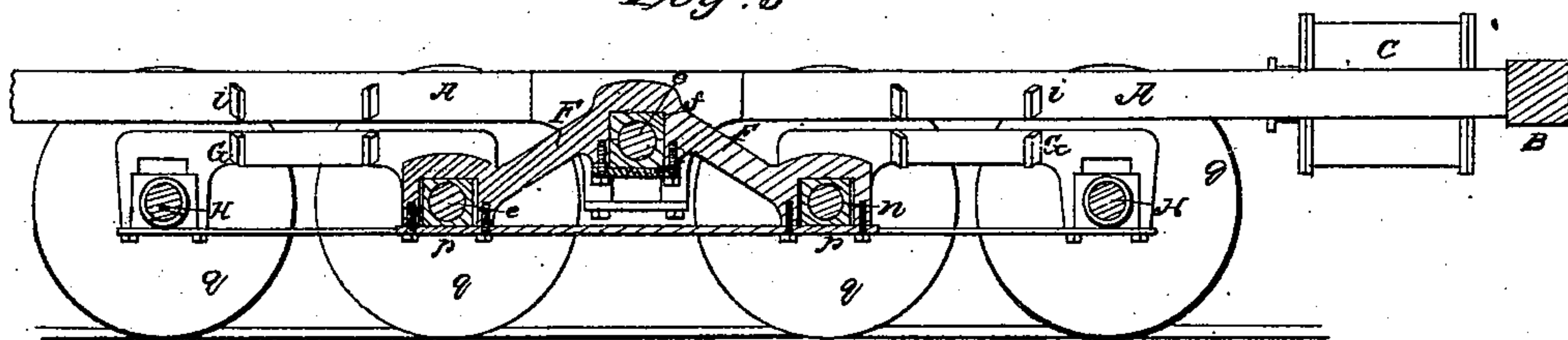
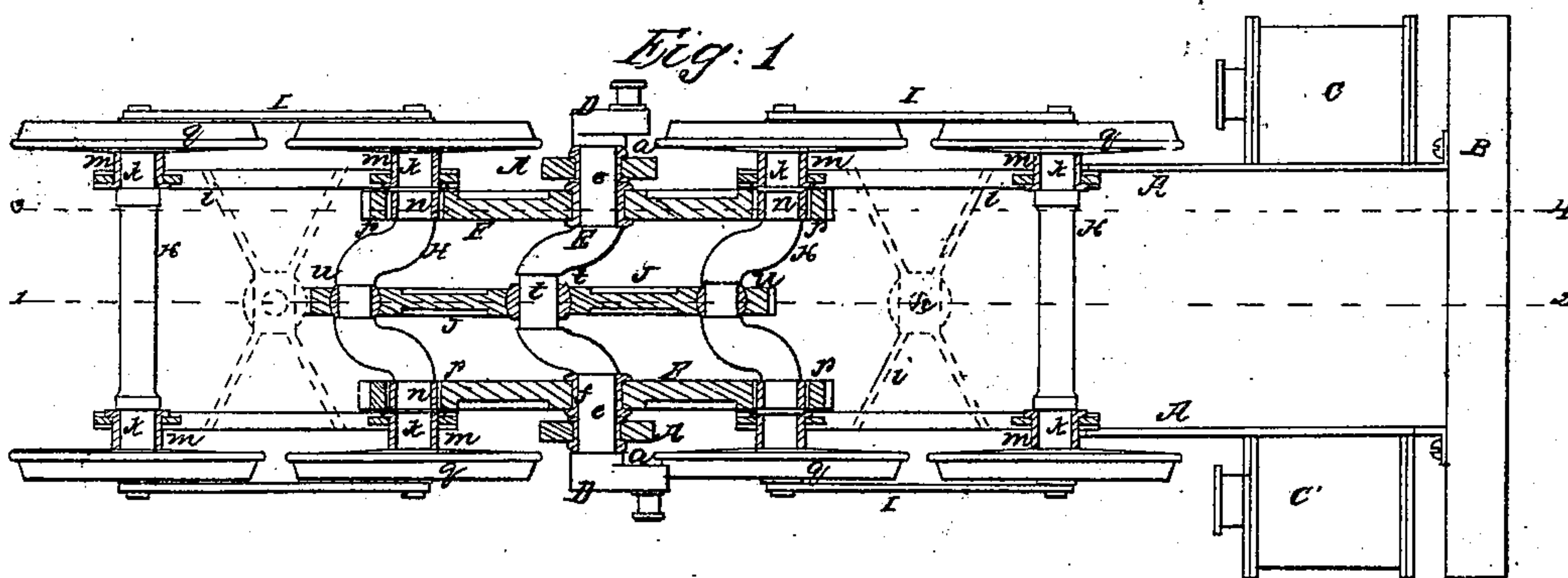


Fig: 1



Witnesses:

John Parker.
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Inventor:
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By his Atty
H. Housman

United States Patent Office.

LUCIEN RARCHAERT, OF PARIS, FRANCE, ASSIGNOR TO RICHARD AND HENRY L. NORRIS, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 65,008, dated May 21, 1867.

IMPROVEMENT IN LOCOMOTIVE ENGINES.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that I, LUCIEN RARCHAERT, of Paris, in the Empire of France, have invented certain improvements in Locomotive Engines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention consists of a locomotive engine having a central cranked driving-shaft, turning in fixed bearings secured to the frame, and situated between two trucks, each of which has a cranked axle coupled to the said main driving-shaft, all substantially as described hereafter. My invention further consists in the combination and arrangement of the said cranked driving-shaft, cranked axles of the two trucks, and a coupling-frame, also of certain frames constructed and adapted to the main driving-shaft and cranked axles of the trucks, substantially as described hereafter.

The object of my invention is to construct a locomotive which, while possessing great power of traction, will readily accommodate itself to abrupt curves on railroads, and traverse such curves with less friction on the flanges of driving-wheels, and less wear and tear generally than ordinary locomotives. My improved locomotive possesses other advantages referred to hereafter.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a plan view (partly in section) representing my improvements in locomotive engines.

Figure 2 a sectional elevation on the line 1-2, fig. 1; and

Figure 3 the same on the line 3-4, fig. 1.

Similar letters refer to similar parts throughout the several views.

A and A' are the two longitudinal side frames of the locomotive, and are connected together at their opposite ends by the usual bumper-beams B. C and C' are the two steam cylinders, the pistons of which are connected by the usual rods to the pins of the cranks D D of the main central driving-shaft E, which is situated midway or thereabouts between the opposite ends of the frame. The journals *e e* of this shaft turn in permanent or fixed bearings *a a*, secured to the frames A and A', and in bearings *f f* of the two bars F and F', which will be referred to hereafter. The locomotive has two trucks G and G', situated at equal distances from and on opposite sides of the main central driving-shaft E, each truck being arranged to turn freely on a king-bolt, *h*, passing through the cross-frame *i*, which serves to connect together or forms a part of the opposite side frames A and A'. Each truck is furnished with the usual sliding-boxes *m m* for the journals *k k* of the two axles H and H', the latter axle, which is cranked, having additional journals *n n*, adapted to boxes or bearings *p p*, one of which is fitted to each of the bars F and F' in the manner described hereafter. The axles are furnished with the usual flanged wheels *q q*, two wheels on each side of each truck being coupled together by rods I I, as seen in fig. 1. The main driving-shaft is cranked in the middle, its crank-pin *t* being adapted to bearings *t'* fitted to the central coupling-bar J, near one end of which are fitted bearings *u*, adapted to the crank of the axle H' of one truck, there being near the opposite end of the said coupling-bar similar bearings adapted to the cranked axle of the other truck, as seen in fig. 1, the cranked axles of the two trucks being thus coupled to the cranked shaft E, and the whole of the flanged wheels being consequently coupled together. It will be observed on reference to fig. 1, that the bearings *u u* and *t'* are so rounded on the edges, and so fitted to the coupling-bar J, that they can turn horizontally therein, that the bearing *t'* can slide to and fro to a limited extent on the cranked portion *t* of the central driving-shaft E, and that the bearings *p* for the journals *n* of the cranked axles H and H' of the trucks are so fitted to the bars F and F' that they can move therein to a limited extent in a horizontal direction only. The position of the several cranks in respect to each other will be best understood by reference to the red lines, fig. 2. It will be evident that a locomotive having two trucks arranged in the manner described will readily accommodate itself to the abrupt curves of railroads, and can traverse such curves at a greater speed and with less friction on the flanges of the wheels and less wear and tear generally than locomotives of the usual construction. While the bars F and F' permit the cranked axles of the trucks

to move laterally on traversing curves, they serve to maintain the three cranked axles in line horizontally with each other.

In addition to the above advantages attained by my invention, may be enumerated the following: first, an independent driving axle having none of the engine's weight to sustain, and permitting the use of long cylinders and a great length of stroke; second, a favorable length of connecting-rods in engines having eight wheels; third, great flexibility as well as stability in the engine; fourth, the ease with which the engine can traverse as well backwards as forwards; fifth, the distribution of the weight of the locomotive over a great number of wheels; sixth, the exertion of the driving power at the centre of gravity of the engines.

I claim as my invention, and desire to secure by Letters Patent—

1. A locomotive engine having a main driving-shaft, with a crank formed in the same, turning in fixed bearings secured to the frame, and situated between two trucks each of which has a cranked axle coupled to the said main driving shaft, all substantially as and for the purpose herein set forth.

2. The combination of the said main driving-shaft E, the cranked axles of the trucks, and coupling-bar J, the several shafts and their cranks being arranged substantially as described.

3. The bars F and F' constructed and adapted to the main driving-shaft and cranked axles of the trucks, substantially as and for the purpose herein set forth.

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

LUCIEN RARCHAERT.

Witnesses:

E. RICHARD,
JAMES HAND.