

(No Model.)

2 Sheets—Sheet 1.

R. PEACOCK & H. L. LANGE.  
LOCOMOTIVE ENGINE.

No. 448,927.

Patented Mar. 24, 1891.

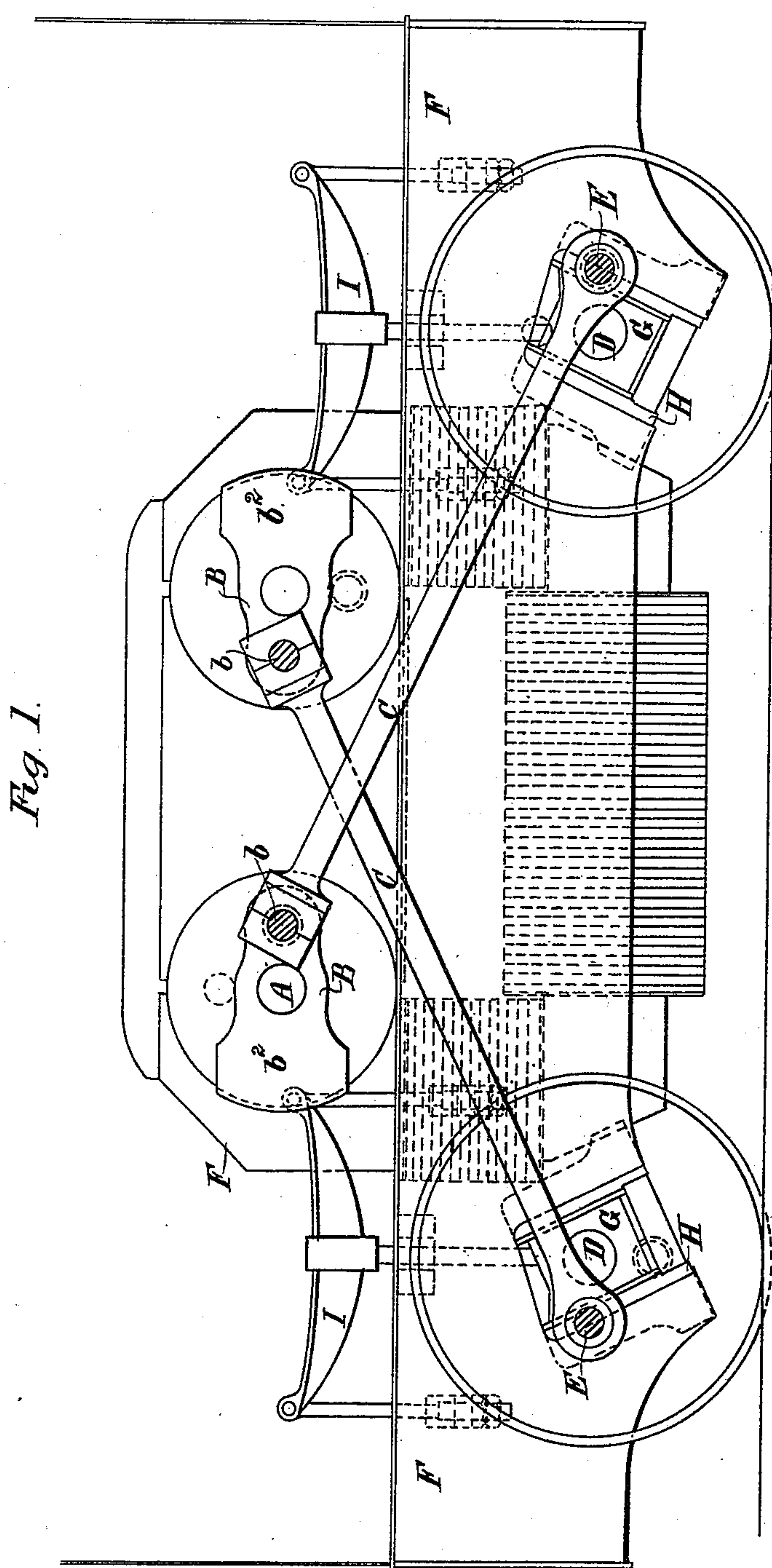


Fig. 1.

Witnesses

John Revell

George Baumann

# Inventors

Ralph Peacock <sup>2</sup>/<sub>4</sub>

Hermann L. Lange

By their Attys

Johnson and Johnson

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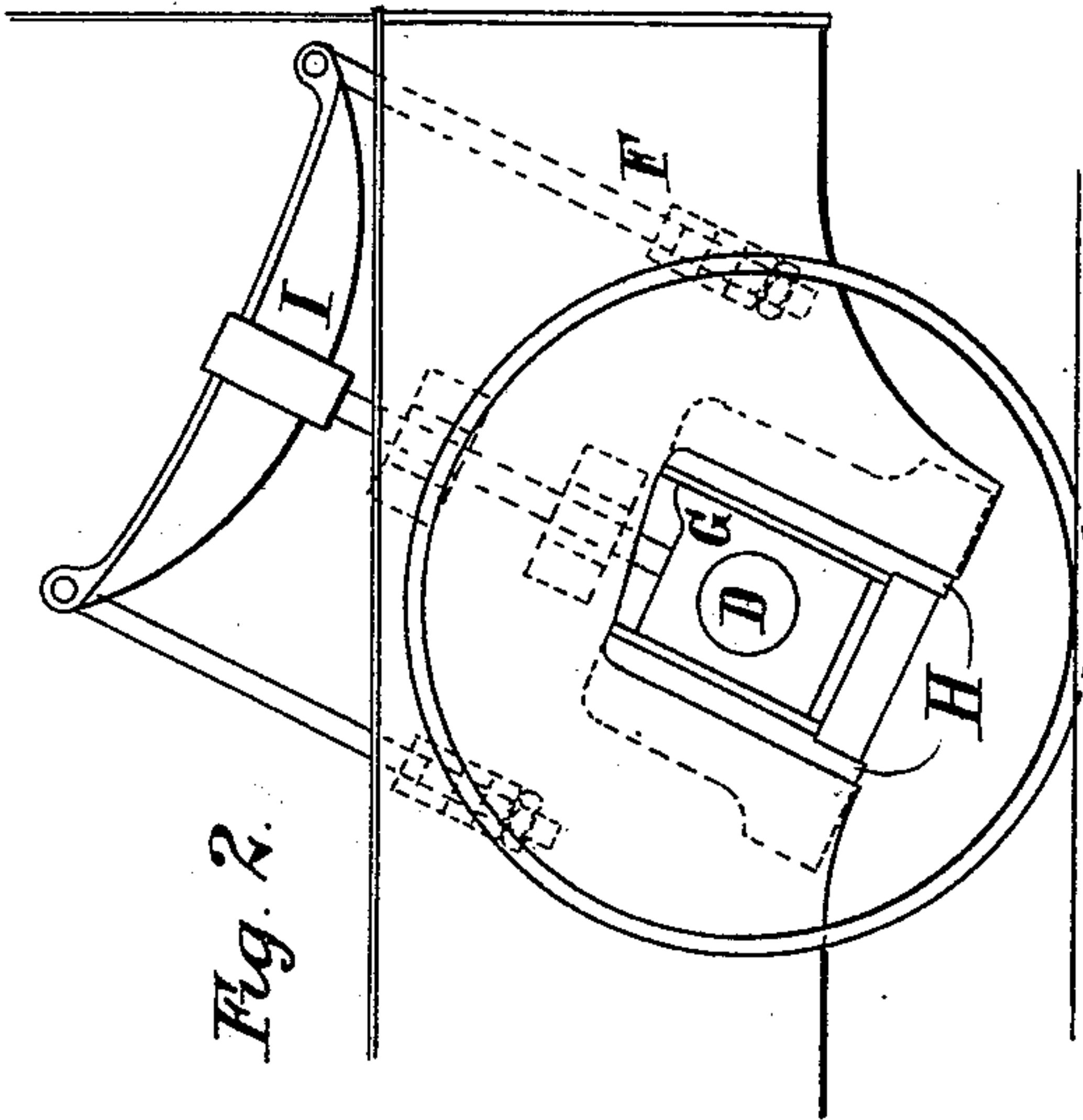


Fig. 2.

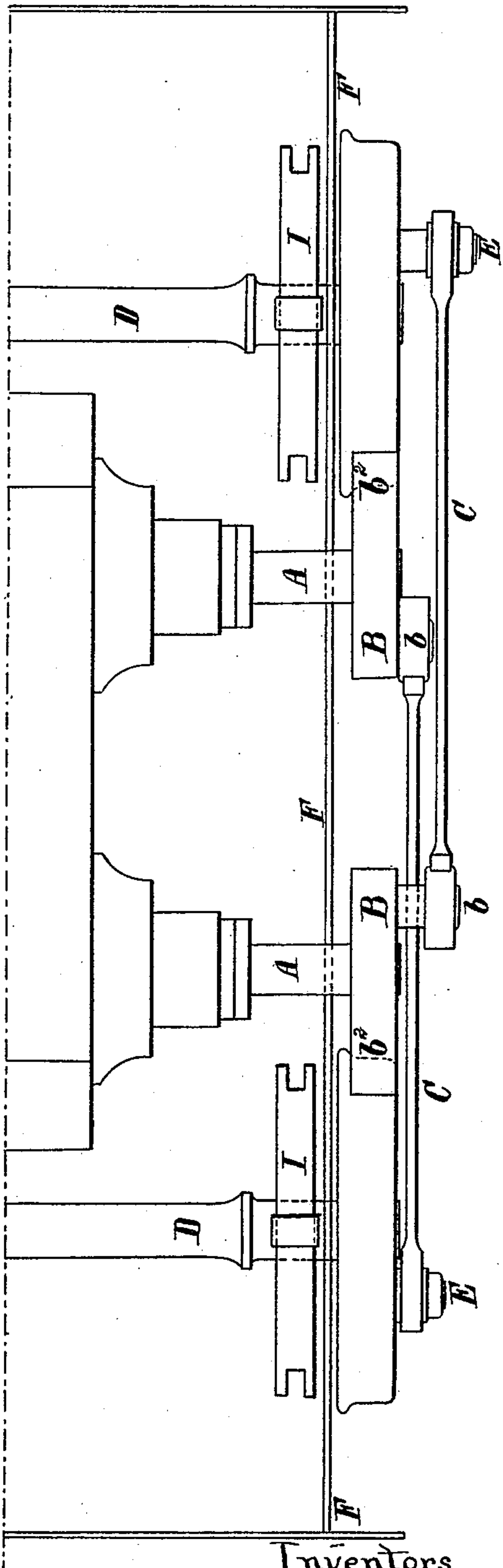


Fig. 3.

Witnesses

John Revell  
George Baumann

Inventors

Ralph Peacock and  
Hermann L. Lange  
By their Attys.  
Howson and Howson



# UNITED STATES PATENT OFFICE.

RALPH PEACOCK AND HERMANN L. LANGE, OF MANCHESTER, ENGLAND.

## LOCOMOTIVE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 448,927, dated March 24, 1891.

Application filed September 20, 1890. Serial No. 365,603. (No model.) Patented in England January 13, 1890, No. 607.

*To all whom it may concern:*

Be it known that we, RALPH PEACOCK and HERMANN LUDWIG LANGE, engineers, subjects of the Queen of Great Britain and Ireland, and both residing at Gorton Foundry, Manchester, in the county of Lancaster, England, have invented certain Improvements in or Connected with Locomotive-Engines or Vehicles Driven by Electric Motors, (for which we have applied for a patent in Great Britain, No. 607, dated January 13, 1890,) of which the following is a specification.

This invention relates to locomotive or road engines, or vehicles driven by electric motors, and has for its object to effect the connection and transmission of the motive power, as required, without the intervention of toothed, rope, chain, friction, or other gearing; and it consists in connecting the shaft of the armature or shafts of the armatures of the motor to the driven axle or axles by means of cranks and connecting-rods, the axle-box guides being so placed as to permit the movement of the axle-boxes of the driven axle or axles to be at right angles to the central line of the armature shaft or shafts and the driven axle or axles; and in order that this invention may be well understood we will now proceed to describe the system, mode, or manner in or under which the same may be carried into effect, reference being had to the accompanying drawings, whereon the same letters of reference are employed to denote the same parts in all the figures.

Figure 1 is a side elevation, and Fig. 3 a half-plan, of so much of a locomotive or road engine as is necessary to illustrate the application of our invention thereto, with the axles of the armature and of the driven or carrying wheels supported in the same frame. Fig. 2 shows an axle-box inclined as hereinbefore described and as shown in Fig. 1, but with the bearing-spring also inclined. It will be understood that the parts shown in Fig. 3 are duplicated in the half not shown.

A are the armature-shafts, and B are the cranks on the said shafts, to the pins *b* of which cranks one of the ends of each of the connecting-rods C is connected, the other ends of the said connecting-rods being connected to the crank-pins E of the wheels on

the driven axles D or to crank-pins or cranks secured to the said axles. F is the main frame, which, in the arrangement shown in Figs. 1 and 3, carries the axles A and D.

G are the axle-boxes working in the axle-box guides or horns H, these being arranged, as shown, so that they are in the inclined position as and for the purpose hereinbefore mentioned.

I I are the bearing-springs, which may be arranged either as shown in Fig. 1 or at an angle corresponding to that of the axle-boxes, as shown in Fig. 2.

It is preferred that the cranks B shall be counterweighted, as shown at *b*<sup>2</sup>.

In the arrangement according to our invention there may be any desired number of motors and driven or carrying axles. For instance, there may be two sets of motors and driven axles—that is, four motors and four carrying-axles—in which case, where the vehicle is to run round curves, one set of the motors and driven axles may be supported in a bogie connected to the main frame, so that the said set can turn independently of the main frame to meet the necessities of such curves, or each set of motors and driven axles may be mounted on a bogie connected to the main frame.

We claim as our invention—

In vehicles driven by electric motors, the combination of the shaft or shafts of the armature or armatures of the motor and the driven axle or axles of the vehicle with cranks and diagonally-disposed connecting-rods connecting the said shaft or shafts with the said axle or axles, and axle-boxes and guides in an inclined position, substantially as and for the purposes set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

RALPH PEACOCK.  
HERMANN L. LANGE.

Witnesses:

W. J. HUNT,  
30 Brown Street, Manchester, Solicitor's Clerk.  
W. WARDLE,  
Clerk with E. Butler Rowley, Notary, Manchester.