(No Model.) 2 Sheets—Sheet 1.

J. DOUGLAS.

LOCOMOTIVE.

No. 306,231. Patented Oct. 7, 1884.

Fig. 1.

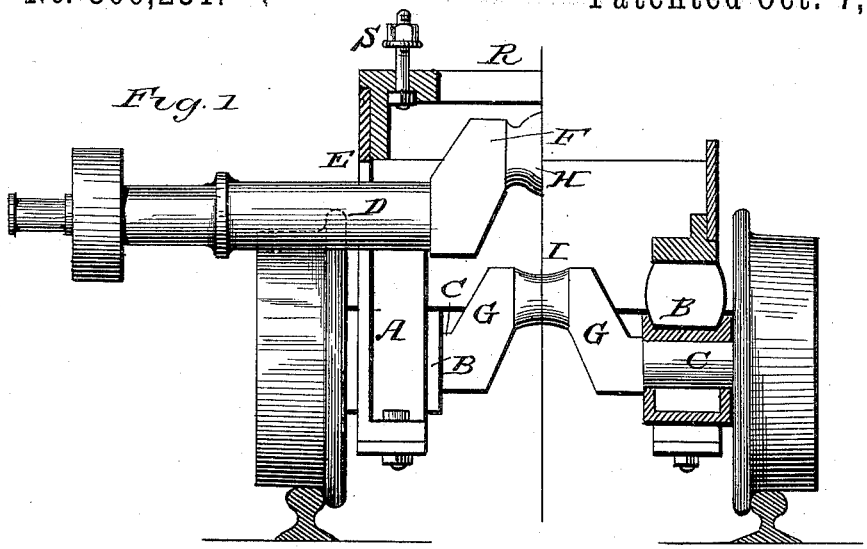


Fig. 2.

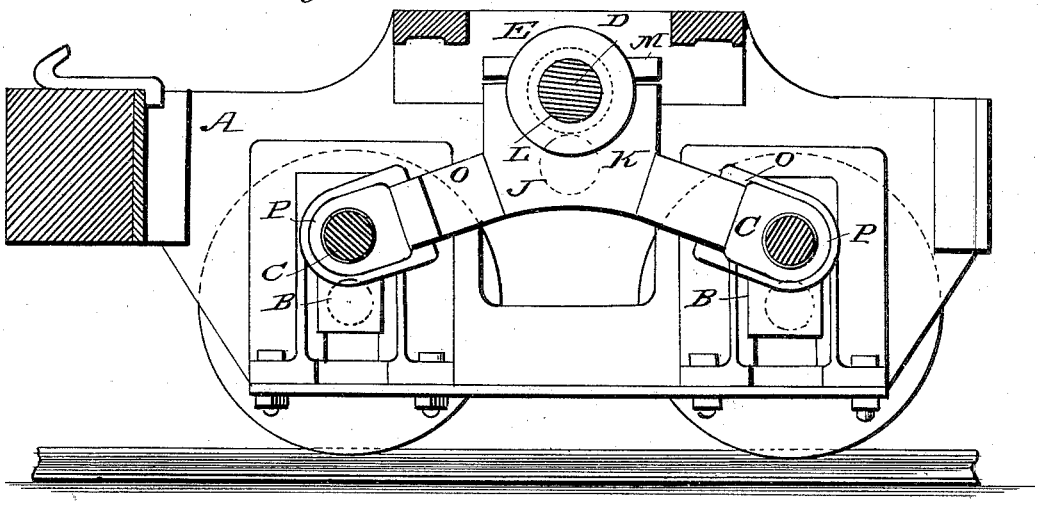
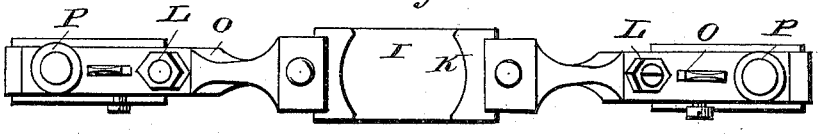


Fig. 5.



John Douglas,

INVENTOR.

WITNESSES:

Fred. L. Dieterich.

Wm. Bagger

by: Louis Bagger & Co.

ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

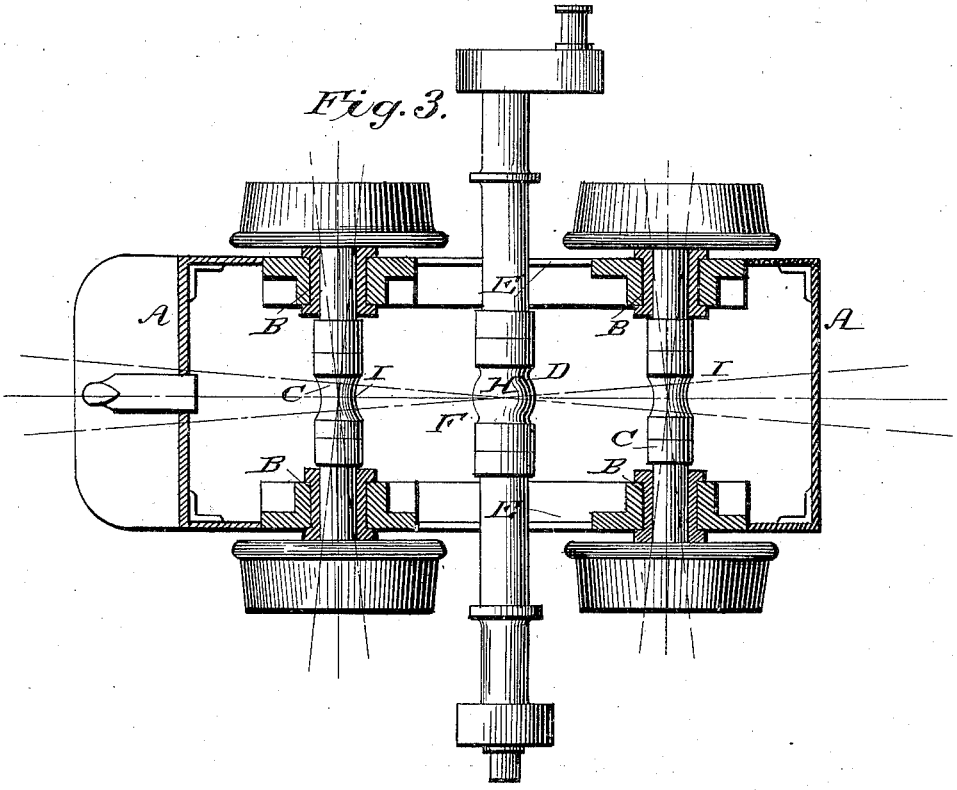
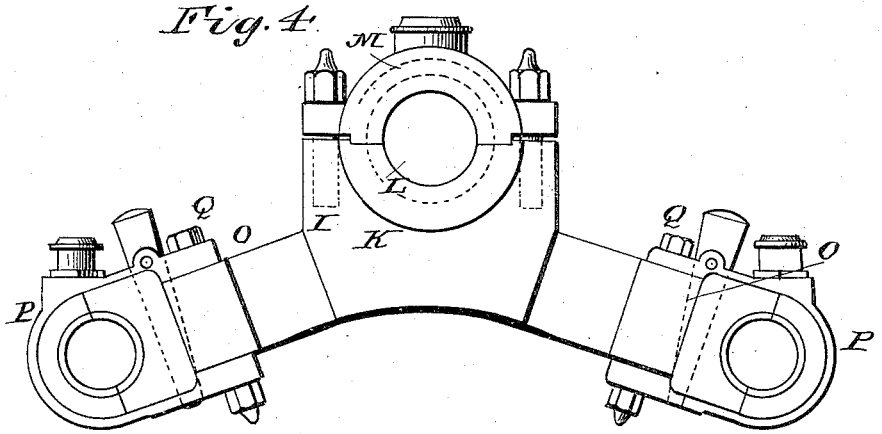


Fig. 4.



WITNESSES:

Fred. G. Dieterich,

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John Douglas,
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UNITED STATES PATENT OFFICE.

JOHN DOUGLAS, OF PENSACOLA, FLORIDA.

LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 306,231, dated October 7, 1884.

Application filed June 6, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN DOUGLAS, a citizen of the United States, and a resident of Pensacola, in the county of Escambia and State of Florida, have invented certain new and useful Improvements in Locomotive Driving-Trucks; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a transverse sectional view of my improved driving-truck for locomotive-engines. Fig. 2 is a longitudinal vertical sectional view of the same. Fig. 3 is a plan view showing the swivel-cap and its bearings removed. Fig. 4 is a side view of the connecting-rod, and Fig. 5 is a plan view of the latter, the cap having been removed from the same.

The same letters refer to the same parts in all the figures.

This invention relates to driving-trucks for locomotive-engines; and it has for its object to provide a truck especially adapted for that class of engines which are used upon rough and uneven branch roads, and which, while they must be cheaply constructed, must be strong and durable and possessed of such a degree of elasticity or flexibility that they shall be able to turn and work successfully upon curves of the shortest radius which it is possible to construct.

With these ends in view my invention consists in the improved construction and arrangement of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings, A designates the frame of my improved truck, which is provided with boxes B for the driving-axles C C.

D is an additional shaft or axle, mounted in boxes or bearings E E centrally and transversely in the truck-frame some distance above the bearings of the driving-axles C C. The shaft or axle D is provided with a central crank, F, which has a throw equal to that of the cranks G G, formed upon the driving-axles. The crank F is provided with a central ball-joint, H, and the axles C C are formed with concave connecting-joints I I.

J is a connecting-rod, which consists of a central portion, K, which is constructed with a concave socket, L, adapted to receive the spherical connecting-joint of the center shaft, D, which is secured in the said socket by means of a cap or cover, M, which may be constructed with a suitable lubricator, N, as shown in Fig. 4 of the drawings. The lower side of the central section, K, of the connecting-rod is provided with arms O O, to the ends of which boxes P P are secured or attached by means of vertical bolts Q. The latter are provided with convex bearings for the concave joints I of the driving-axles, and detachable caps as well as suitable lubricating devices are, of course, provided. Upon the upper side of the truck is mounted a swiveled cap, R, which is suitably connected to the under side of the engine, which is thereby supported. Bolts S S, working in slots in the said pivoted cap, will serve to limit the swinging motion of the truck to any desired extent.

In operation, when a curve is reached, the driving-wheels and the shafts or axles will be permitted by the construction herein described to assume an angular position with relation to each other, substantially as indicated by the dotted lines X X and Y Y in Fig. 3 of the drawings, thus enabling the engine to turn or travel upon curves of the smallest radius which it is possible to construct with any degree of success, and in all cases without endangering the engine. This is made possible principally by the peculiar construction of the connecting-rod J, which is flexibly connected, by ball-and-socket joints or their equivalents, not only to the center shaft upon which it is mounted, but also to the driving-shaft of the engine.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a driving-truck for locomotive-engines, the combination, with a suitably-constructed truck-frame, of the driving-axles having cranks provided with concave bearings, a cen-

tral shaft having a crank the throw of which is equal to the cranks of the driving-axles, and provided with a convex or spherical bearing, and a suitable connecting-rod, substantially as herein set forth.

2. The combination, in a driving-truck for locomotives, of a swiveled truck-frame, a central axle having a central crank formed with a convex bearing, driving-axles having central cranks provided with concave bearings, the said cranks having a throw equal to the throw of the crank of the central shaft, and a connecting-rod having a concave bearing or box at its middle fitting upon the crank of the central axle, and convex boxes at its ends fitting upon the cranks of the driving-axles, as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

JOHN DOUGLAS.

Witnesses:

F. R. MERTINS,

FRANK. STRAMBY.