

(No Model.)

R. S. BATTLES.
TRAMWAY LOCOMOTIVE.

No. 421,894.

Patented Feb. 25, 1890.

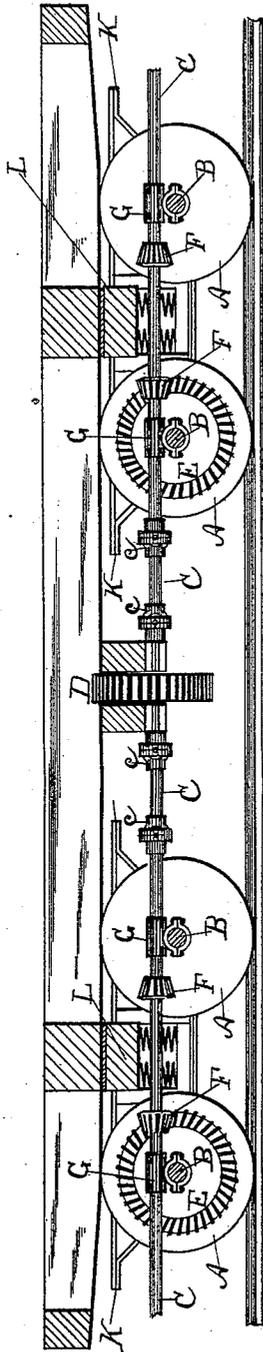


FIG. 1

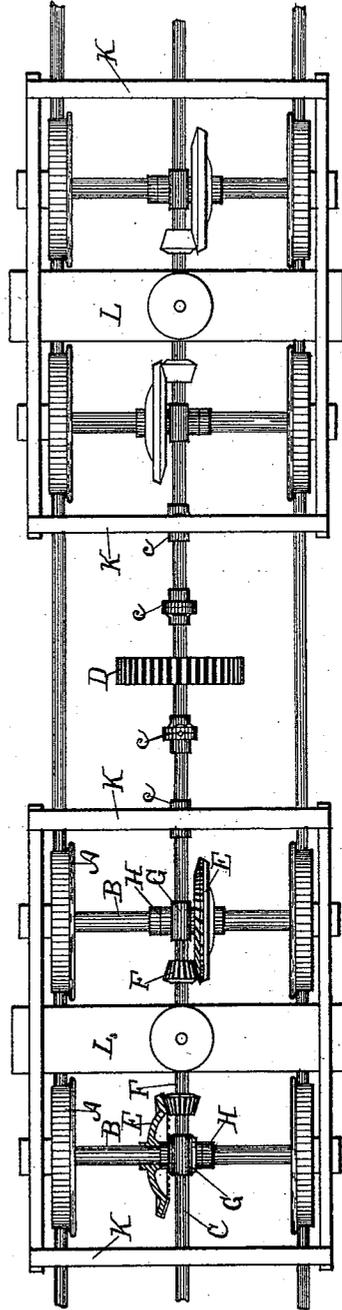


FIG. 2

Witnesses

S. D. Robbins,
Henry C. Fick

Inventor

Russ S. Battles

By His Attys. *Hallock & Halluck*

UNITED STATES PATENT OFFICE.

RUSH S. BATTLES, OF GIRARD, PENNSYLVANIA.

TRAMWAY-LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 421,894, dated February 25, 1890.

Application filed November 1, 1889. Serial No. 328,891. (No model.)

To all whom it may concern:

Be it known that I, RUSH S. BATTLES, a citizen of the United States, residing at Girard, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Tramway-Locomotives; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of locomotives in which the wheels are driven by a longitudinal shaft, which is driven by the engine; and it consists in certain improvements therein, as will be hereinafter fully set forth, and pointed out in the claim.

The invention is illustrated in the accompanying drawings, as follows:

Figure 1 is a longitudinal sectional view showing only the platform of the locomotive and running-gear, the engine and upper works being omitted, as their construction forms no part of my present invention. Fig. 2 is a top or plan view of the running-gear.

Letters of reference indicate corresponding parts in each figure, as follows:

A marks the wheels; B, the axles; C, the longitudinal propelling-shaft; *c c c c*, universal joint in the shaft C; D, the main driving-gear on the shaft C; E, beveled skew-cut gears on the axles B; F, beveled skew-cut pinions on the shaft C; G, double journal-boxes, which support the shaft C on top of the axles; H, collars on the axles; K, the truck-frames, and L the truck-bolsters.

Other parts shown will be recognized without reference by letter.

Power is communicated to the shaft C from any desirable motor through the main driving-gear D, or its equivalent, and from the shaft C to the axles B, through the skew-cut pinions F and gears E. Such an arrangement of parts for the purposes named is not new and will not be claimed as my invention. (See, for example, patents to Gilbert, No. 393,896, of December 4, 1888, and No. 413,505, of October 22, 1889.) Heretofore in such constructions the longitudinal shaft C has been supported by hangers attached to the truck-frames. In my construction I support the shaft C wholly

on the axles, connecting it in no way with the truck-frames. To accomplish this it is necessary to place a collar H on the axles at the opposite side of the boxes G from the skew-gears E to hold the shaft against lateral movement.

This class of locomotives are used generally on very imperfect, rough, and uneven tracks, which are put down for temporary use, and the truck-frames are or should be made so as to possess a good deal of flexibility of action, so that the wheels will not at any time be lifted from the tracks while running over uneven places. The result of this is that there is often considerable variation of distance between the horizontal plane of the axles and that of the truck-frame bars K, and it is therefore very desirable that the shaft C be entirely disconnected from the truck-frames, so as to allow the truck-frame to move vertically independent of the shaft C and axles B. The shaft C at the point where the driving-gear is located is supported firmly from the platform of the locomotive, and the two universal joints *c c* are put into the shaft C between the last-named support and the trucks, and the shaft C is then wholly supported by the double or cross-boxes *g g* on the axles and is held against lateral thrust from the skew-gears by the collars H on the axles.

What I claim as new is—

In a tramway-locomotive, the combination of a truck at each end of a platform, skew-gears on the axles of said trucks, a driving-shaft supported at its middle section from said platform and at its end sections in cross-boxes G on said axles, skew-pinions F on said driving-shaft, engaging with said skew-gears, collars H on said axles for holding said cross-boxes against longitudinal movement on said axles, and universal joints *c c*, connecting the end section of said shaft C with the middle section, said end section of the shaft C being free from the frame-work of said truck.

In testimony whereof I affix my signature in presence of two witnesses.

RUSH S. BATTLES.

Witnesses:

JNO. K. HALLOCK,

WM. P. HAYES.