

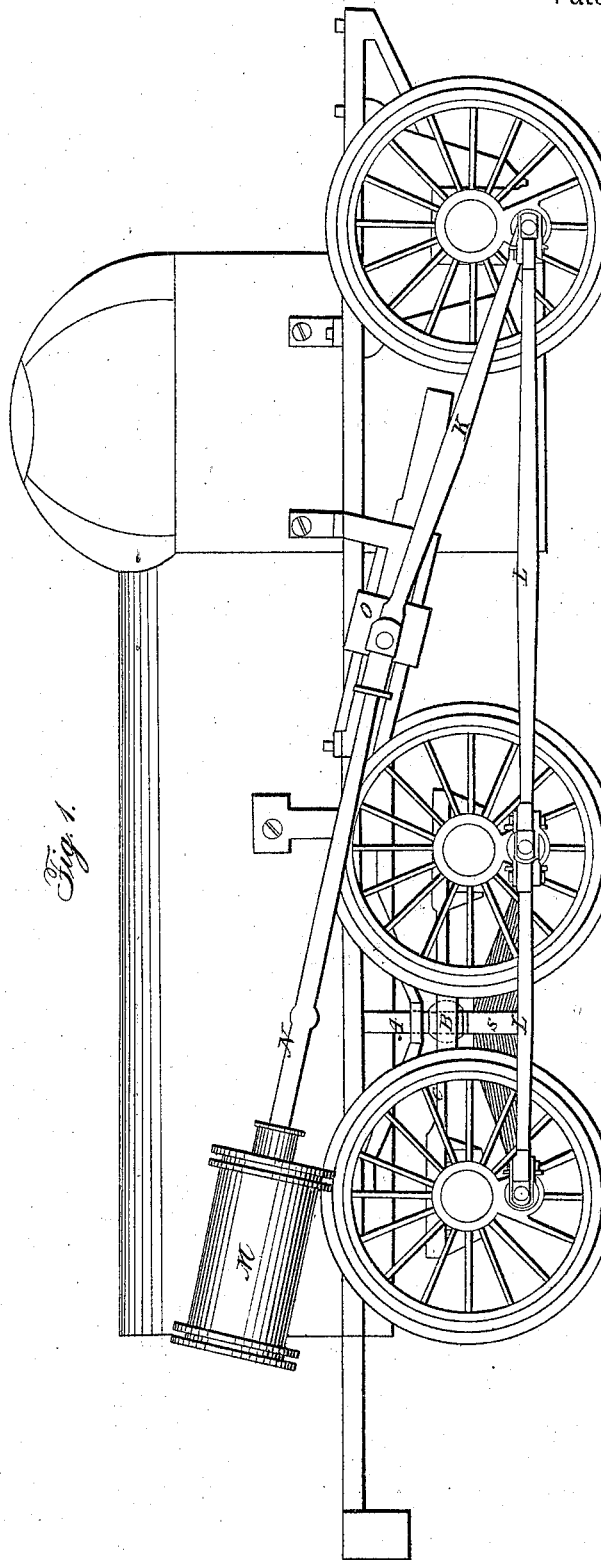
M. W. BALDWIN.

3 Sheets—Sheet 1.

Locomotive.

No. 2,759.

Patented Aug. 25, 1842.



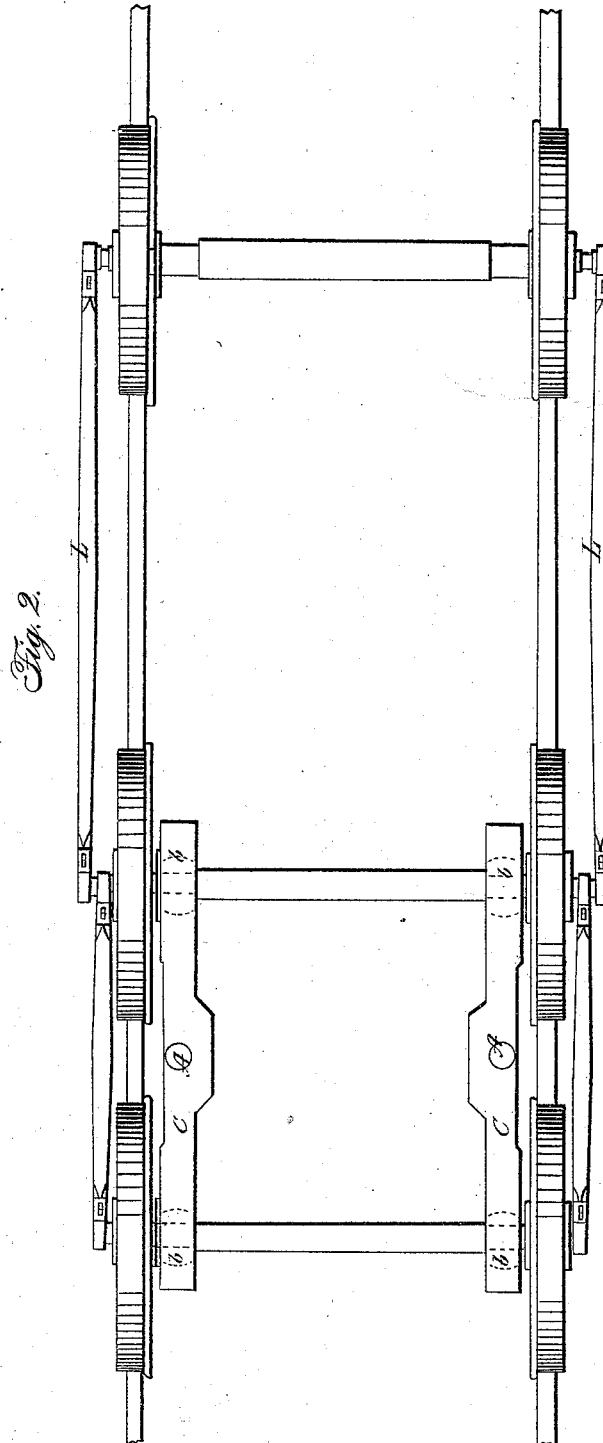
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3 Sheets—Sheet 2.

Locomotive.

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3 Sheets—Sheet 3.

Locomotive.

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Fig. 4.

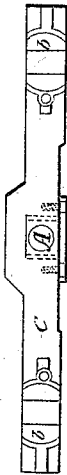


Fig. 3.

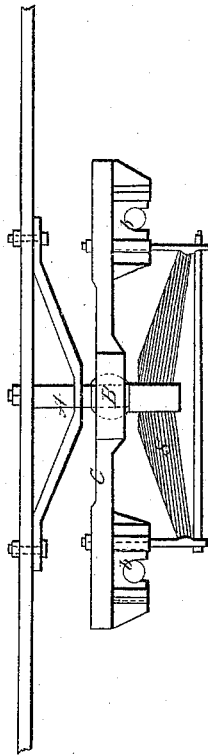
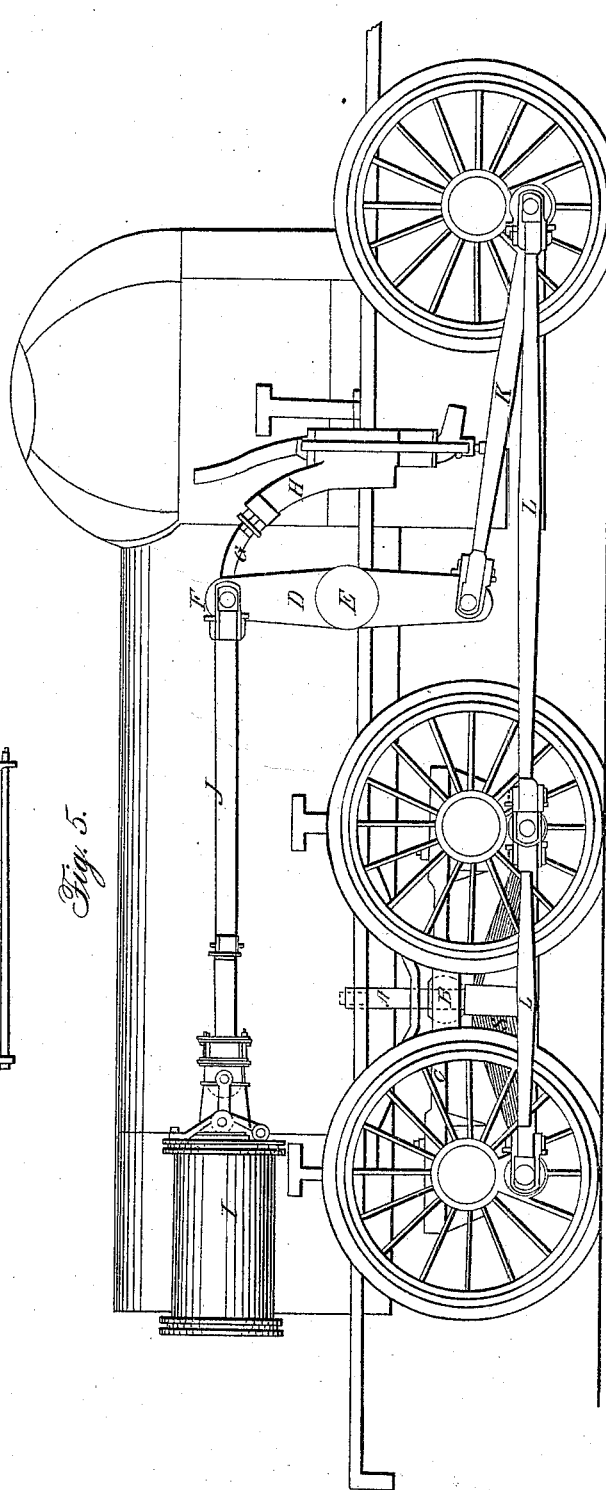


Fig. 5.



UNITED STATES PATENT OFFICE.

MATTHIAS W. BALDWIN, OF PHILADELPHIA, PENNSYLVANIA.

MANNER OF CONSTRUCTING LOCOMOTIVE STEAM-ENGINES BY WHICH THEY ADAPT THEMSELVES TO THE CURVES AND UNDULATIONS OF THE ROAD.

Specification of Letters Patent No. 2,759, dated August 25, 1842.

To all whom it may concern:

Be it known that I, MATTHIAS W. BALDWIN, of the city of Philadelphia, in the State of Pennsylvania, have invented certain Improvements in the Manner of Constructing Locomotive Steam-Engines, by which improvements they are better adapted to the turning or running upon curved portions of a railroad and more perfectly adapt themselves to any vertical inequalities of the rails than upon the plans heretofore adopted, while the wheels either of six-wheeled or eight-wheeled engines may be all rendered driving-wheels; and I do hereby declare that the following is a full and exact description thereof.

In the accompanying drawing; Figure 1, is a side view of my locomotive engine, and Fig. 2, a top view of a part of the framework thereof, with the angles, wheels and connecting rods, as applied to a six-wheel engine. Figs. 3, and 4, show detached parts thereof to be presently described.

In arranging and combining the four front wheels, and sometimes, also, the four back wheels, of my locomotive so as to admit of their having the required vibration in all directions, I attach a pivot, or pin, A, permanently, to the frame, on each side of my engine; but in such manner as that it may be raised, or depressed, by means of screw nuts, or otherwise. These pins, or pivots, extend vertically downward, and at B, they pass through a vibrating bar C, by which they are sustained, and with which they are connected by means of boxes formed in said bars, and in such a manner as to allow the bars to vibrate vertically. The lower end of this pivot, or pin, has a curved face, and bears upon a spring S, in a manner that will be well understood by an examination of the drawing. The ends of these springs are received within pockets, or are otherwise connected with the boxes *b, b*, in which the axles of the front, or front and hind, wheels run. The boxes *b, b*, are made so that they may swivel in the plumber blocks which receive them, being fitted thereto in the manner secured to me by Letter's Patent of the United States, dated the 24th day of August, in the year 1835.

In Fig. 4, the under side of one of the vibrating bars C, is represented with the

boxes *b, b*, shown as fitted into the plumber blocks by boring cylindrical recesses in the latter, and by making the ends of the former segments of cylinders. It will be evident that the wheels and axles will, under this arrangement, be left free to vibrate in such manner as to accommodate themselves to the curves and undulations of the road, while the parallelism of the axles, and the consequent regular action of the connecting rods will be undisturbed. By using four springs instead of two, they may, if preferred, be placed over the journals of the wheels.

The respective wheels I convert into driving wheels by means of coupling rods, and crank pins on said wheels, in a manner well known, and shown in Fig. 1, where M, is a steam cylinder; N, a piston rod; O, a slide, and K, a connecting rod leading from said slide to the hind wheel of the locomotive, from which the rods L, L, extend to the two fore wheels.

I intend sometimes, in combination with the foregoing, to arrange and combine the cylinder, the piston rod, and the apparatus by which it is connected with the driving wheels, and with the supply pump, in the manner represented in Fig. 5, of the accompanying drawings. I place the cylinder in the manner shown at I; that is, horizontally, or nearly so, and connect the piston rods J, to the upper ends F, of levers D, which vibrate on their fulcrums at E, said fulcrums being firmly attached to the boiler, or to the frame of the locomotive at their lower ends the levers D, carry connecting rods K, which are received on to the crank pins of the hind wheels, and these, by means of the connecting rods L, L, convert all the wheels into driving wheels, as under the above-described arrangement. For the purpose of working the supply pumps, I attach to the upper ends of the levers D, curved piston rods G, which carry pistons working in curved chambers in the supply pumps H; the centers of the fulcrums E, of the levers being the centers of curvature of the rods and pump chambers, and the pumps being constructed, in other respects, like those ordinarily employed. In order to compensate, under this arrangement, for the vibrations of the piston rods in the cylinder, I intend in general to apply the vibrating stuffing box, for the con-

struction of which I obtained Letters Patent of the United States, dated on the seventeenth day of December 1840.

It will be obvious that under the arrangement herein described, the same general plan of connecting and operating the respective parts, may be applied to an eight-wheeled, as well as to a six-wheeled locomotive; all that will be necessary in this case being the connecting of the four back, or hind, wheels with each other in the same manner in which the four front wheels are shown in the accompanying drawing as connected; the pin, or pivot, A,—the box, or gudgeon, at B,—the vibrating bar C, being similar to those shown as connected with the fore wheels; the whole eight wheels will in this way be converted into driving wheels.

Having thus fully described the nature of my improvements in the locomotive steam engine, and shown the manner in which the same are carried into operation, what I

claim as new, and desire to secure by Letters Patent, is, principally—

The manner in which I connect the four truck wheels with each other, so as to enable them to vibrate, and to adapt themselves to the curves and undulations of the road, by the combined action of the pins, or pivots, A, the vibrating bars C, with the box B, and the boxes and plumber blocks of the axles, with their cylindrical fittings, the whole being constructed, combined, and arranged substantially in the manner herein set forth, the respective parts coöperating with each other, upon the principle, or in the manner, above made known and described.

I do not intend to claim, nor do I claim, either of the parts above described, taken separately and individually.

M. W. BALDWIN.

Witnesses:

THOMAS BARTON ZANKEYS,
JAMES GRAHAM.