T. T. V. SMITH.

Locomotive Engines.

No. 167,276. Patented Aug. 31, 1875.

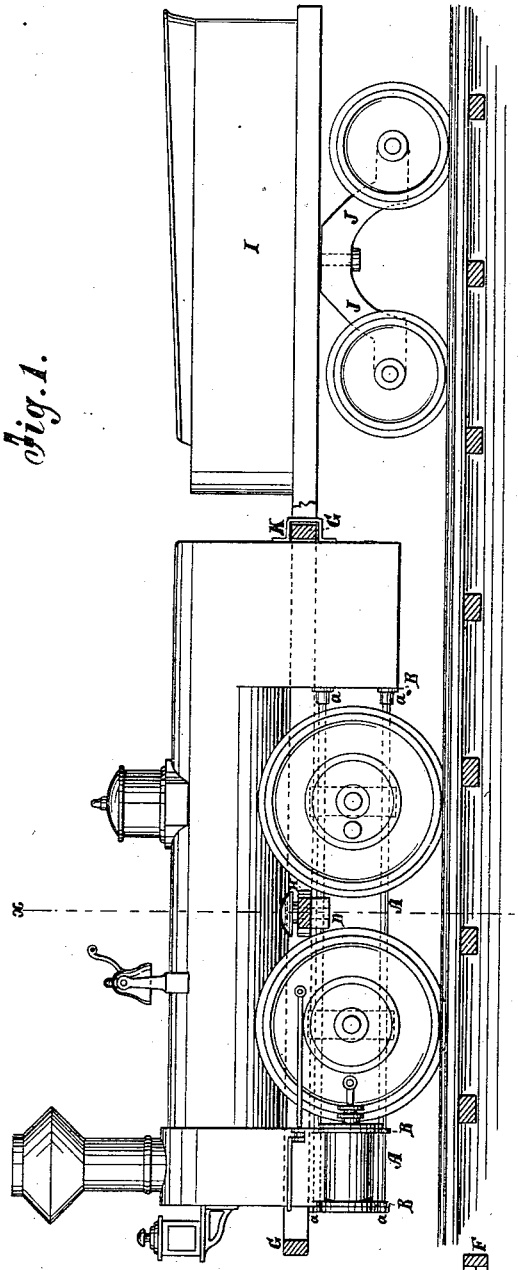

Fig. 1.

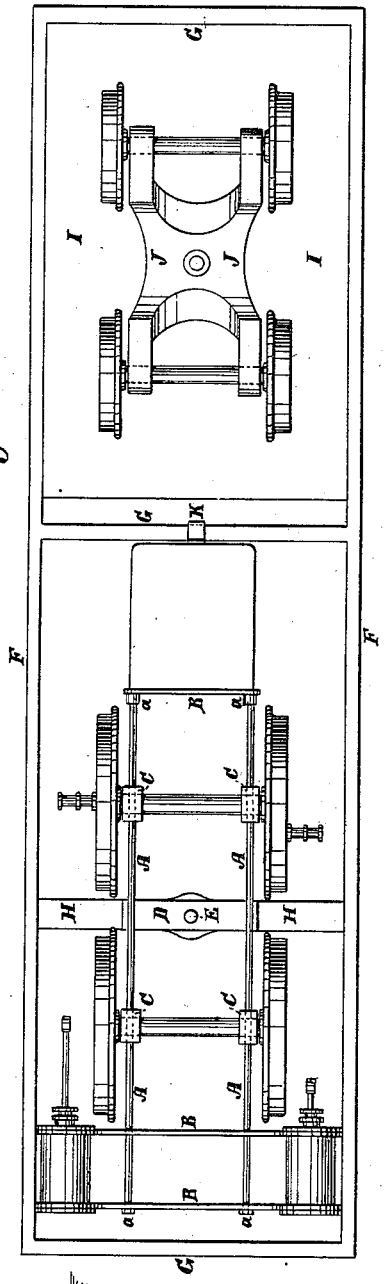

Fig. 2.

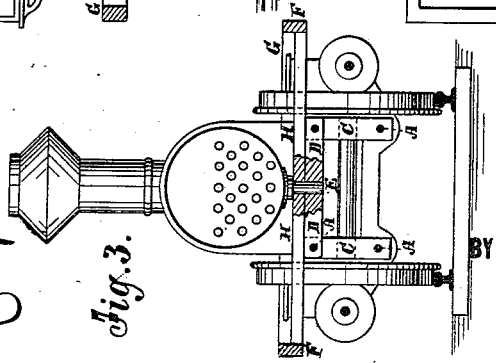

Fig. 3.

WITNESSES:

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THOMAS T. V. SMITH, OF YARMOUTH, NOVA SCOTIA.

IMPROVEMENT IN LOCOMOTIVE-ENGINES.

Specification forming part of Letters Patent No. **167,276**, dated August 31, 1875; application filed January 18, 1875.

To all whom it may concern:

Be it known that I, T. T. V. SMITH, of Yarmouth, Nova Scotia, have invented a new and useful Improvement in Locomotives, of which the following is a specification:

The object of my invention is to provide a modification of the present ordinary locomotive, so as to admit the use of a wider fire-box, to enable broad-gage boilers with wide fireboxes to be readily and cheaply altered to the narrow gage, and to admit the use of large locomotives on much narrower gages and cheaper railroads than is now practicable. To do this I propose to do away with the ordinary truck in front, supporting the engine by the driving-wheels, which are placed so far forward as to clear the fire-box, and to introduce a second outside frame running back to the rear of the tender, resting in front on the inner frame, and working upon it with a truck-center, the whole being, in fact, a composite carriage, of which the engine forms the front truck and the tender the hind truck. Instead of a tender, a second engine may be arranged to carry the outside frame and the tender between them, as the boiler is carried in Fairlie's patent engine; but one feature in the invention is that the overhanging weight of the fire-box rests on the outside frame, being free to work horizontally, to allow for the lateral play in passing curves.

In Fairlie's patent the outside frame supports a boiler between two engines, involving steam-tight working-joints between the boiler and cylinders, or the tender may take the place of one of the engines. In mine the engine, boiler, and inner frame are all bolted together, as in ordinary locomotives, the play or motion being taken entirely between the two frames.

In the drawing, Figure 1 is partly a side elevation and partly a longitudinal section of my improved engine. Fig. 2 is a plan of the engine inverted, and Fig. 3 is a transverse section on the line *x x* of Fig. 1.

Similar letters of reference indicate corresponding parts.

The inside frame consists of the longitudinal bars A, transverse bars B B, vertical pieces C, and the bolster D, the rods benig attached at one end to the front end of the fire-box, and to the transverse bars B, or the engine's cylinders at the other end, passing through the vertical pieces C, in which are the truck axle-bearings, and fastened by nuts *a*. The transverse bars B are made together with or part of the engine's cases, and connect them together and to the inner frame. The boiler is connected to the bolster of this truck by the pivot E. The outside frame consists of the longitudinal bars F, transverse bars G, and the bolster H, and it is connected to the inside frame by the bolster H and the pivot E, the bolster H being arranged between the boiler and the bolster D, so as to turn freely on the pivot. In this example the tender I is mounted on the rear portion of the outside frame, and the said portion of the frame and the tender are mounted on a truck, J; but it may form the frame of a car, or be connected to the inner frame of another engine. K represents a stay connecting the fire-box at the rear, and with one of the transverse bars of the outer frame, so that it is supported, and at the same time slides with a free lateral motion.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An inside frame connecting fire-box and cylinders, as described, and provided with a bolster, D, in combination with an outside frame and pivoted bolster, H, substantially as described.

2. The inner frame composed of longitudinal bars bolted to rear overhanging fire-box, and connecting it with the cylinders and transverse bars in front, substantially as set forth.

3. The combination, with inner and outer swiveling frames, boiler, and overhanging fire-box, of the sliding stays, whereby the weight of overhanging fire-box is suspended on outer frame, while it is free to swivel or move in a horizontal plane, as specified.

THOMAS TIMMIS VERNON SMITH.

Witnesses:

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