

UNITED STATES PATENT OFFICE.

CHARLES L. HEISLER, OF DUNKIRK, NEW YORK.

LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 482,828, dated September 20, 1892.

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To all whom it may concern:

Be it known that I, CHARLES L. HEISLER, a citizen of the United States, residing at Dunkirk, Chautauqua county, State of New York, have invented certain new and useful Improvements in Locomotives, of which the following is a specification.

My invention relates to locomotive-engines, and while it may be applicable to locomotive-engines for use on railroads generally it is intended more particularly for use in connection with tramways where there are more or less curves and liable to be unevenness in the track and where heavy grades are common.

The object of the invention is to provide an improved construction embodying features which render the locomotive specially applicable in overcoming the ordinary difficulties in this class of work; and my invention consists in the features of construction and arrangement, substantially as more particularly hereinafter pointed out.

Referring to the accompanying drawings, Figure 1 is a side view of a locomotive embodying my invention. Fig. 2 is a vertical cross-section at the rear of the cab, parts being in section on a line slightly forward thereof. Fig. 3 is a vertical cross-section in front of the dome, looking rearward. Fig. 4 is a plan view of one of the trucks and attachments. Fig. 5 is a longitudinal section of the truck. Fig. 6 is a vertical section thereof. Fig. 7 is a perspective view showing the back frame of the locomotive and the engine frame, and Fig. 8 is a perspective view showing the arrangement of the brakes.

The locomotive may be variously constructed, according to the necessities of any particular case, and I have shown herein one embodiment which I have found practicable, and in which—

A is the bed-frame, having a boiler A' secured thereto and together forming the main frame of a locomotive. The boiler may be of any desired type, but preferably what is commonly known as the "Ramsbottom" boiler, in which the fire-box and ash-pan are both located within the shell.

The driving-engines B B' are preferably located beneath the boiler and in front of the cab of the locomotive and are supported upon an engine-frame B², which is attached to the

under side of the boiler and connected to the back frame A² of the locomotive, as best seen in Fig. 7. These engines are arranged at an angle with relation to each other, as I find this arrangement the most economical, as far as space is concerned, and well adapted to the other parts of the locomotive, it being understood that both engines operate upon a single central longitudinal propelling-shaft C, arranged at the apex of the angle, and having, preferably a single crank to which the pitmen of both engines are connected. It will thus be seen that the driving-engines are well balanced on the locomotive, occupying a small space, and can exert their force directly upon the shaft. The eccentrics *b b'* of both engines are located on one side of the crank or end of the crank-shaft, and the tumbling-arm *b²* is located on the fixed pivot *b³* just above the apex of the angle of the engines and is connected by a link *b⁴* with the lever *b⁵* in the cab, this lever being pivoted on the engine-frame at *b⁶*, and I am enabled thereby to secure a direct action on the tumbling-arm without interfering in any way with the operation of the other parts of the locomotive and can shift the valve motions of the driving-engines without difficulty. This arrangement I find not only economizes space, but offers numerous mechanical advantages in the way of simplifying the construction and arrangement of the parts, which will all be obvious to those skilled in the art.

The locomotive is provided with two truck-frames D D', each having two axles carrying wheels mounted in any usual and desired manner, and connected to the truck, as by means of the king-bolt *a*, is the frame A³, having the curved support *a'* for the boiler in one instance and in the other instance having the usual bearing *a³* for the rear portion A² of the frame, thus providing the locomotive with pivoted trucks at each end. This is a great desideratum in this class of locomotives, enabling the locomotive to accommodate itself to sharper curves and steeper grades than when the trucks are fixed with relation to the frame, as is often the case.

As this locomotive is intended to be driven by a single longitudinal central shaft C, which is rigidly mounted in bearings C', connected to the engine-frame B², some means must be

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