(No Model.)

2 Sheets—Sheet 1.

G. P. MERRILL.

TRACTION INCREASER FOR LOCOMOTIVES.

No. 307,404. Patented Oct. 28, 1884.

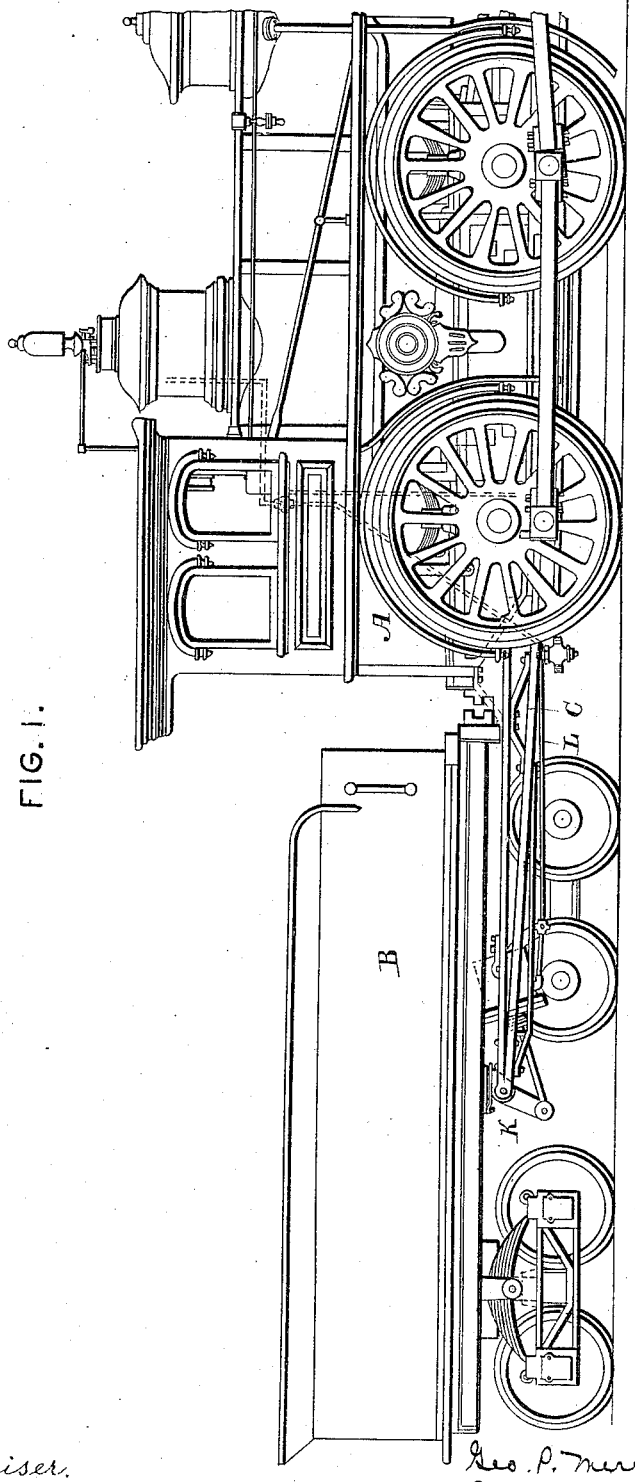

FIG. 1.

ATTEST.
J. Henry Kaiser.
Harry L. Amer.

INVENTOR.
Geo. P. Merrill
By David Mead

(No Model.) 2 Sheets—Sheet 2.

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FIG. 2.

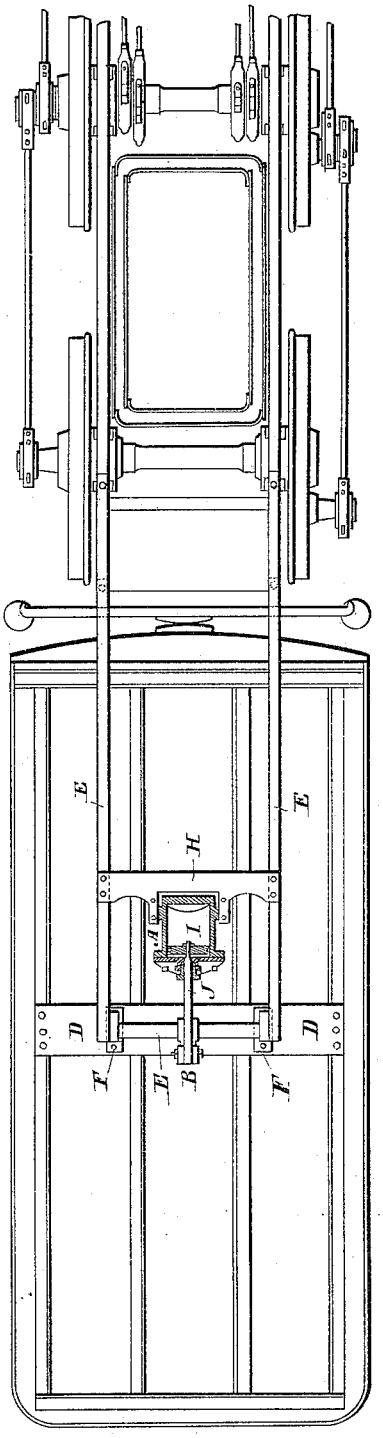
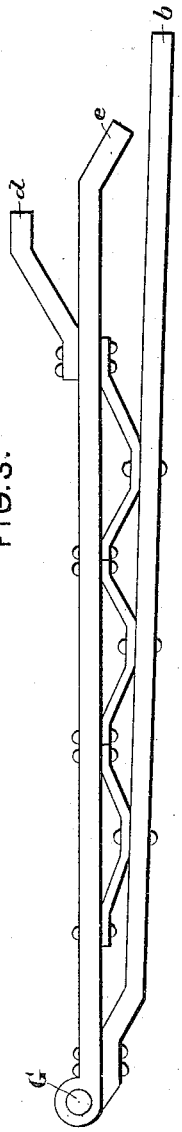


FIG. 3.



ATTEST.
J. Henry Kaiser
Harry Amer

INVENTOR.
Geo. P. Merrill
By David Homes
Atty.

UNITED STATES PATENT OFFICE.

GEORGE PROCTOR MERRILL, OF TOLEDO, OHIO, ASSIGNOR TO MARY E. MERRILL, OF SAME PLACE.

TRACTION-INCREASER FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 307,404, dated October 28, 1884.

Application filed September 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEO. P. MERRILL, a citizen of the United States, residing at Toledo, Ohio, have invented new and useful Improvements in Traction-Increasers, of which the following is a specification.

My invention relates to certain new and useful improvements in locomotive-engines, the object of which is to produce a means whereby the traction of the drive-wheels of the engine may be increased at the will of the engineer by transferring a portion of the weight of the tender to those wheels. Heretofore in devices of this kind the mechanism which has accomplished this shifting of the weight has been attached to the tender in such a manner that the whole strain exerted when the tender is elevated has come upon a small part of the tender-platform, usually the extreme forward end.

With a view to obviating this defect, my invention consists of a rigid frame secured to the tender and extending rearward, and provided with a device for bringing a portion of the weight of the tender upon said frame, and consequently upon the driving-wheels.

In order that those skilled in the art may know how to make and use my invention, I will now proceed to describe what I consider the best means of carrying it out, in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a locomotive with my invention in operative position. Fig. 2 is an inverted plan view of the same; and Fig. 3 is a side elevation of the side pieces forming the frame which supports the cam and its operating-cylinder.

In these drawings, A represents the cab of an ordinary locomotive, and B represents the tender.

The means by which the shifting of the tender and the transfer of a part of its weight to the drive-wheels is accomplished will now be described.

C C represent two brackets, which are provided at their front ends with projections *d e f*, for securing them to the engine in a manner to adapt them to support a great weight. The rear ends of these brackets or frames extend rearward to about the center of the tender, at which point they are connected by means of a cross-bar, E, which passes through eyes in the ends of each, and is firmly secured in that position by keying or otherwise.

D represents a cross-piece extending completely across the under side of the tender, to which are secured the hangers F, which receive the connecting-bar E. The openings in these hangers, through which the rod E passes, are of a length to allow the necessary vertical play of the said rod when the tender is elevated.

The cam, which is capable of being operated to elevate the tender, is formed at the upper end of an arm, J, which is mounted upon the cross-bar E, in the center thereof. The lower end of this arm is connected to the piston-rod of the cylinder I, situated upon the supporting-frame a suitable distance in advance of the point at which the cross-bar E is mounted. In order to secure this cylinder in such a manner that it shall be free to vibrate during the operation of the device, I provide the shell thereof with two nibs or projections, which are journaled in bearings secured to a cross-piece, H, fastened to the brackets C. This cross-piece has an indentation for the reception of the cylinder, and upon each side of this indentation is a bearing for one of the projections from the side of the cylinder.

The steam necessary for the operation of the cylinder is supplied by a pipe, which connects it with the steam-chest or any other desired or convenient point, which pipe is provided with a cock at any convenient point in its passage through the cab, whereby the supply of steam to the cylinder is controlled by the engineer.

In the operation of the device steam is admitted into the cylinder through the pipe which connects it to the steam-chest in advance of the piston, which is thereby thrown back, carrying with it the lower end of the lever K. This forces the cam upon the upper face of the said lever against the cross-piece secured to the under side of the frame, and raises the tender and transfers a portion of its weight from the springs to the frame, and consequently to the drive-wheels.

Although I have particularly described the rigid frame employed as extending beneath the tender, it may obviously be arranged by slight modification to occupy a position above

or central to said tender, the gist of the invention being a rigid frame or bar connected to the engine, extending rearward, and provided with means for transferring a portion of the weight-tender to said rigid frame, and consequently to the drive-wheels, whereby their traction is increased.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. As a means for transferring a portion of the weight of a tender of a locomotive-engine to the drive-wheels, a rigid frame secured to the engine and extending rearward, and provided with suitable means for transferring a portion of the weight of the tender to said frame.

2. As a means for transferring a portion of the weight of the tender of a locomotive-engine to the drive-wheels, a rigid frame secured to the engine and extending back under the tender, where it is provided with a cam or the like for raising the tender and transferring the weight thereof to the frame, and means for operating the said cam.

3. As a means for increasing the traction of the drive-wheels of locomotives, a rigid frame secured to the engine and extending back underneath the tender to about the center thereof, where it is provided with a cam for raising the tender and transferring a portion of its weight to the frame, and a steam-cylinder suitably connected to said cam, whereby the said cam is operated when steam is admitted to the said cylinder.

4. As a means for transferring a portion of the weight of a tender to the drive-wheels of an engine for the purpose of increasing the traction thereof, a supporting-frame consisting of the pieces C, connected by the cross-bar E and cross-piece H, the former carrying the lever provided with the cam and the latter carrying the cylinder which operates the said lever when steam is admitted thereto.

5. The combination of the rigid frame connected by the cross-bar E, the cross-piece secured to the under side of the tender, and provided with the hangers having elongated slots, a cam mounted upon said cross-bar E, and means for operating the same.

6. The combination of the rigid frames connected by the cross-bar E, the cam mounted upon the said cross-bar, the cylinder having its piston-rod connected to said cam, having the projections upon the shell thereof, and the cross-piece H, having the indentation for the reception of the cylinder, and having bearing upon each side of said indentation for the reception of the projection from the cylinder-shell.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE PROCTOR MERRILL.

Witnesses:
JOHN COMPTON,
EUGENE MAY.