E. L. Miller.
Car Propeller
Patented Jan. 19, 1864.
Ezra L. Miller of Charleston, South Carolina,

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same contain-
ing a description of the mode of increasing the adhesion of the driving wheels of the locomotive Steam Engine.

To all to whom these presents shall come

Told it known that Ezra L. Miller of the city and District of Charleston, State of South Carolina, have invented, novel and useful mode of increasing the adhesion of the driving wheels of the locomotive Steam Engine on Rail Roads by using the tenders or cars next the Engine for the purpose of adding weight to the driving wheels of the Engine at such times only as a greater adhesion is required. Then the weight would give which it would be practicable to carry as a fixed weight on those wheels without injury to the road. At the points of starting and on the ascent where increased adhesion is required. Attach part of the weight of the locomotive or tender which is next the engine to the end of the frame or the locomotive near the driving wheels which may be done by means of a hook, screw, wedge or gallows, and detach it again when the increased adhesion is no longer necessary.

The mode which I have invented and found to work perfectly in practice is simply to connect the car or tender next the engine with a strong iron bar or beam, one end of which is bolted to the tender side of a timber, in the frame of the locomotive, in line back of the tender, and which beam extends under the frame of the tender to the end of the frame of the engine and into the iron which together with the drawing bolt serves to the engine.

Transversely to this beam I attach to the end of the tender next the engine two levers, so that their fulcrums shall be six to eight inches on each side of the main beam, or drawing beam. These levers have a few or points passing one inch in length directly over the main beam and should be about 1½ feet in length. When the increased adhesion is wanted the engine being only to place his foot upon the ends of these levers and press them in to a hook or groove for that purpose on the inner part of the tender and a portion of the weight of the car or tender next the engine is then thrown from the driving wheels of the engine, and when the increased adhesion
is no longer wanted. The weight is detached by simply leaving the mid of the

lives. What I claim by my invention is the making use of the branch
tender and the Engine for the purpose of increasing the admission of the

long stroke of the Improved Steam Engine at those points where more

adhesion is required than the weight would give, which in eligliable can

by a fixed weight or from which it can be affected in the

made abroad similar in any other which attains the same end.

Walter Blake

Ezra P Miller

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