(No Model.) 2 Sheets—Sheet 1.

M. A. DEES.

LOCOMOTIVE BRAKE.

No. 342,585. Patented May 25, 1886.

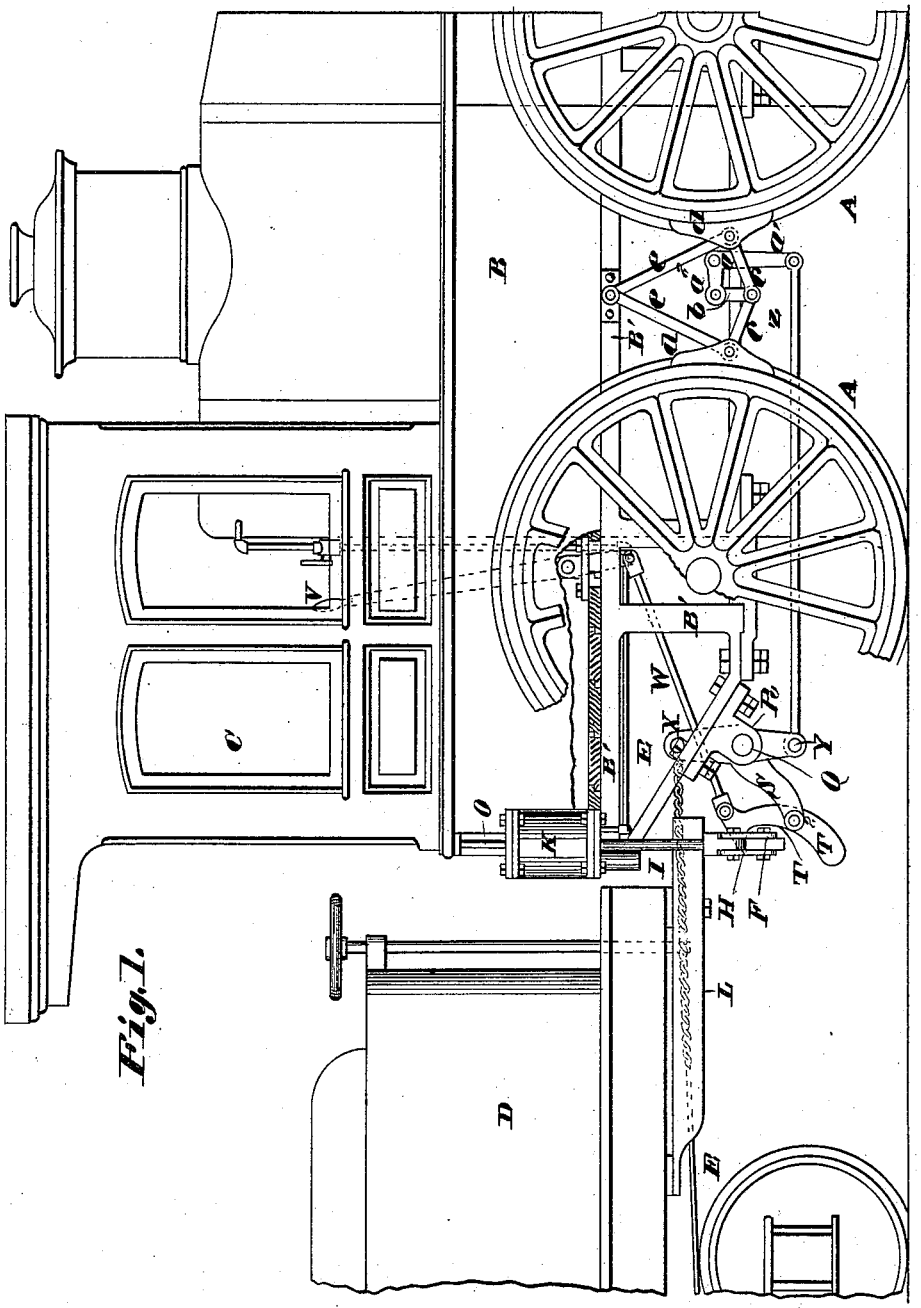

Fig. 1.

Attest;
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

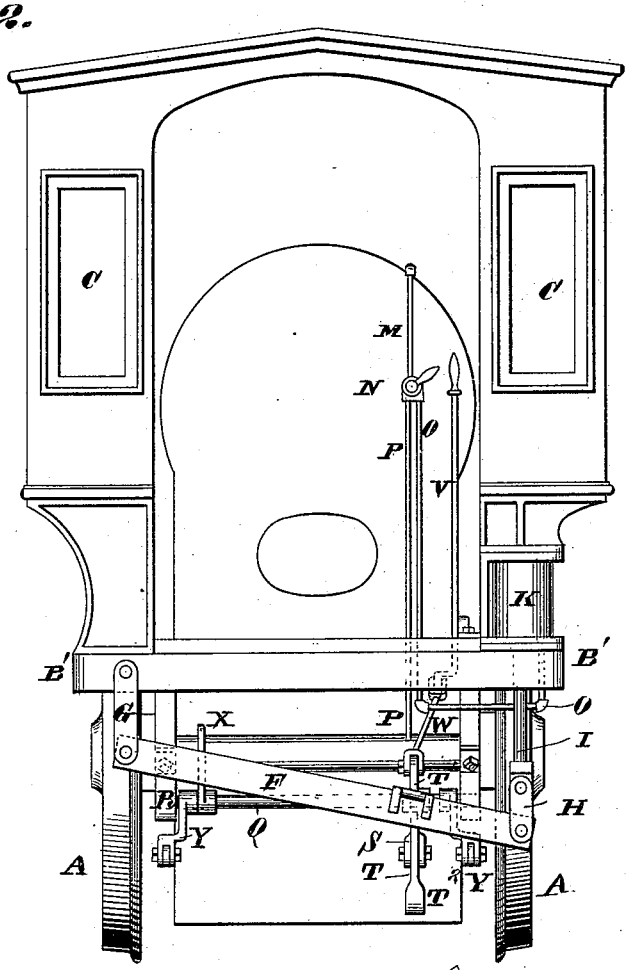


Fig. 4.

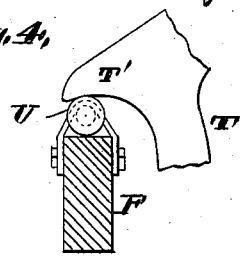
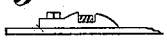


Fig. 3.



Attest:

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UNITED STATES PATENT OFFICE.

MARK A. DEES, OF MOSS POINT, MISSISSIPPI.

LOCOMOTIVE-BRAKE.

SPECIFICATION forming part of Letters Patent No. 342,585, dated May 25, 1886.

Application filed April 27, 1883. Serial No. 93,120. (No model.)

To all whom it may concern:

Be it known that I, MARK A. DEES, of Moss Point, Jackson county, Mississippi, have invented a certain new and useful Improvement in Locomotive and Tender Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention consists in the construction and arrangement of the mechanical appliances as hereinafter specified.

In the accompanying drawings, Figure 1 shows portions of a locomotive and tender in side elevation with parts broken away, the improvement being seen in side elevation. Fig. 2 is an elevation of the cab end of the locomotive and brake. Figs. 3 and 4 show details hereinafter described, the latter figure being on an enlarged scale.

Similar letters of reference indicate similar parts in the respective figures.

A A are the traction-wheels. B is the body of the locomotive. C is the cab. D is the tender, and E a rod and chain connected to the brake mechanism of the tender, said mechanism being of any usual or suitable construction, and for which no novelty is claimed.

My improvement is shown in connection with a particular device for transferring a part of the weight of the tender from its own wheels to the traction-wheels of the locomotive; but this device (which I will now describe) may be modified without essentially changing the principle of the invention.

F is a lever, one end of which is supported upon links G, whose upper ends are connected to the frame B′ of the locomotive. The lever is placed transversely of the locomotive, and its other end is supported by means of links H upon the end of the piston-rod I. The piston-rod works in a stuffing-box at the lower end of a steam-cylinder, K. While I describe the use of steam with the cylinder K, the moving agent may be steam, air, or other elastic medium. The construction is such that when the steam enters the lower part of the cylinder the piston-rod and free end of the lever F are drawn upward.

L is a rigid arm or bar extending centrally from the end of the tender over the lever F. The arrangement is such that the upward movement of the lever brings it in contact with the arm, L, whereby a part of the weight of the tender is transferred to the traction-wheels of the locomotive, thus increasing their hold upon the rails.

M is a live-steam pipe, extending to a three-way cock, N, and connected by a pipe, O, with the lower end of the cylinder K, the pipe O being brought into connection with the exhaust-pipe P in a certain position of the cock N for the exhaustion of steam from the cylinder K.

Q is a rock-shaft having bearing in boxes R, secured to the frame of the locomotive. This rock-shaft has rigidly secured to it the locomotive-brake arm S, the tender-brake arm X, and the arms Y, which connect with the locomotive-brake mechanism. Upon the outer end of the arm S is hung a weighted link or latch, T, having a horn, T′, which, when the latch T is in the position shown in Figs. 1 and 4, engages the lever F in its ascent, so that the rock-shaft Q is turned in its bearings, and the brakes are applied to the locomotive and tender.

To lessen the friction of the parts, I secure to the top of the lever F a friction-roller, U, Fig. 4, upon which the horn T′ bears. The hinge-connection between the latch-link and arm S allows the upper end to be moved away from the lever F, so that the horn T′ will not engage the roller U on the ascent of the lever, and when the latch-link is in this position the ascent of the lever does not cause the setting of the brakes. The gravity of the weighted lower end, T², of the latch-link always tends to keep the same in the position shown in Figs. 1 and 4.

The horn T′ is drawn out of connection with the roller U by means of a hand-lever, V, whose lower end is connected to the upper end of the latch-link by a rod, W, so that when the upper end of the hand-lever is drawn toward the tender the horn is drawn back from the roller U. The hand-lever is held in the position last described by entering a notch in a catch. (See Fig. 3.)

X is an arm upon the rock-shaft Q, to which the chain E of the tender-brake is directly connected. The movement of the arm X with the rock-shaft Q applies the tender-brake.

Y Y are arms upon the rock-shaft, connected by rods Z to the arms a' of bell-crank levers a, having fulcrum-bearings upon the frame of the locomotive. The horizontal arm a^2 of each bell-crank lever is connected by a depending link, b, to two toggle-arms, c c, whose other ends are hinged to the brake-blocks d d. The construction and arrangement is such that when the link b is drawn upward the brake-blocks d are forced apart against the wheels.

The brake-blocks are supported on links e e, whose upper ends are connected to the frame in such a position that the weight of the brake-blocks will tend to draw them from the wheels.

The operation is as follows: When it is desired to set the brakes and increase the traction simultaneously, steam is let into the cylinder K. This draws up the free end of the lever F against the bar or arm L and the roller U against the horn T'. It will be seen that the efficiency of the brake is increased by the increased hold of the wheels upon the rails, as the wheels are thus prevented from slipping. Another advantage is thus gained—namely, the avoidance of the formation of flat places in the tread of the wheels, which is the result of the slipping of the wheels from the hand application of the brakes. When it is desired to increase the hold of the traction-wheels upon the rails without setting the brakes, the horn T' is drawn back by means of the hand-lever V. The brakes may be released even while the increased traction is in force, for the purchase of the lever V is sufficient to draw the horn from the roller U while the lever F is in its elevated position.

I have described a certain link or latch, T, with a hook or horn, T', by which connection is made between the lever F and the rock-shaft Q. I wish it to be distinctly understood that I do not confine myself to this exact means of connection, for the same might be modified by a mechanic in various ways.

I disclaim as a part of my present invention the invention for increasing the traction of the driving-wheels of locomotive-engines described in an application for Letters Patent filed by me November 16, 1883, Serial No. 111,954; but

I claim—

1. A locomotive, a tender, and means for transferring a portion of the weight of the tender upon the locomotive-wheels for increasing their traction, combined with a brake for the locomotive-wheels, and means connecting the brake with the traction-increasing devices, whereby as the traction is increased the brake is applied, substantially as set forth.

2. A locomotive, a tender, and means for transferring a portion of the weight of the tender upon the locomotive-wheels for increasing their traction, combined with a brake for the locomotive-wheels, and a brake for the tender-wheels, and means for connecting the brakes with the traction-increasing devices, whereby as the traction is increased the locomotive and tender brakes are applied, substantially as as set forth.

3. A steam or air engine or its equivalent attached to a locomotive, a lifting-lever operated thereby, a latch-link engaging said lever, a rock-shaft, an arm connecting said rock-shaft and latch-link, and locomotive-brake arms secured to the rock-shaft, combined with a locomotive-brake mechanism, substantially as set forth.

4. A steam or air engine or its equivalent attached to a locomotive, a lifting-lever operated thereby, a latch-link engaging said lever, a rock-shaft, an arm connecting said rock-shaft and latch-link, and locomotive and tender brake arms secured to the rock-shaft, combined with locomotive and tender brake mechanisms, substantially as set forth.

5. A steam or air engine or its equivalent attached to a locomotive, a lifting-lever operated thereby, a latch-link engaging said lever and capable of disengagement therefrom, a rock-shaft, an arm connecting said rock-shaft and latch-link, and to which the latter is pivoted, and locomotive-brake arms secured to the rock-shaft, combined with a locomotive-brake mechanism, substantially as set forth.

6. A steam or air engine or its equivalent attached to a locomotive, a lifting-lever operated thereby, a latch-link engaging said lever and capable of disengagement therefrom, a rock-shaft, an arm connecting said rock-shaft and latch-link, and to which the latter is pivoted, and locomotive and tender brake arms secured to the rock-shaft, combined with locomotive and tender brake mechanism, substantially as set forth.

7. The combination, in a locomotive and tender brake mechanism, of an engine attached to the locomotive, a lifting-lever operated thereby, and a pivoted and weighted latch-link capable of engagement with and disengagement from said lever for rendering operative or inoperative the brake mechanisms, substantially as set forth.

8. The combination, in a device for increasing the traction of locomotive-wheels, of an engine attached to the locomotive, a bar projecting from the tender, a lifting-lever operated by the engine to raise the tender, and a pivoted and weighted latch-link capable of engagement with and disengagement from said lever for rendering operative or inoperative the traction-increasing devices, substantially as set forth.

9. The combination of an engine secured to the locomotive, a lifting-lever operated thereby, a latch-link attachable to and detachable from said lever, a rock-shaft, an arm connect-

ing the latch-link and rock-shaft, and locomotive-brake arms secured to the rock-shaft, combined with toggle-jointed locomotive-brake blocks having bell-crank and rod-connections, substantially as set forth.

10. The combination of the rock-shaft Q, arm S, latch-link T, rod W, and lever V, substantially as set forth.

11. The pivoted latch-link T, having the horn T′, combined with the lever F, having the friction-roller U, substantially as set forth.

MARK A. DEES.

Witnesses:
SAML. KNIGHT,
GEO. H. KNIGHT.