(No Model.)

D. S. RANDOLPH.

TENDER AND OTHER BRAKES.

No. 253,312. Patented Feb. 7, 1882.

FIG. I.

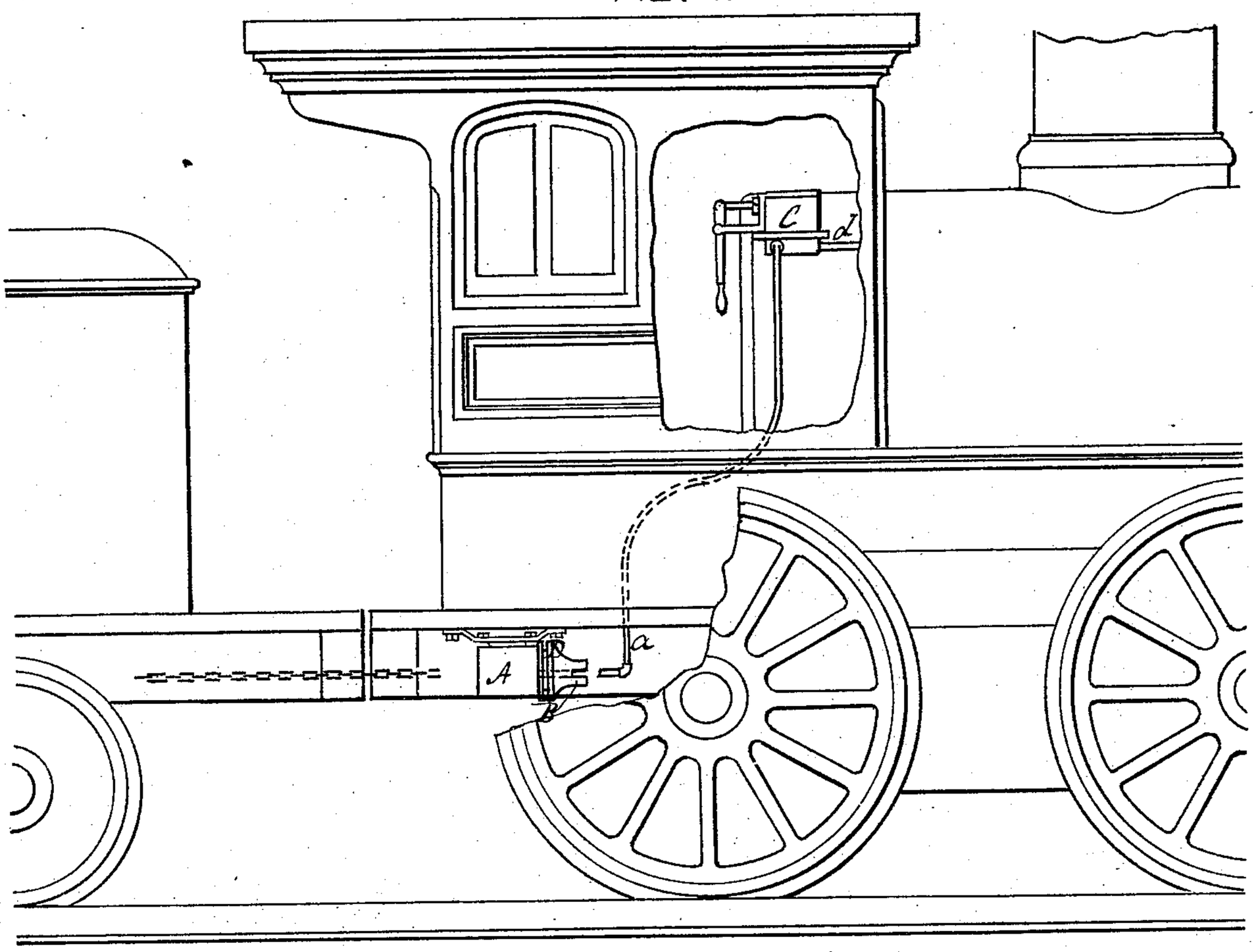


FIG. II.

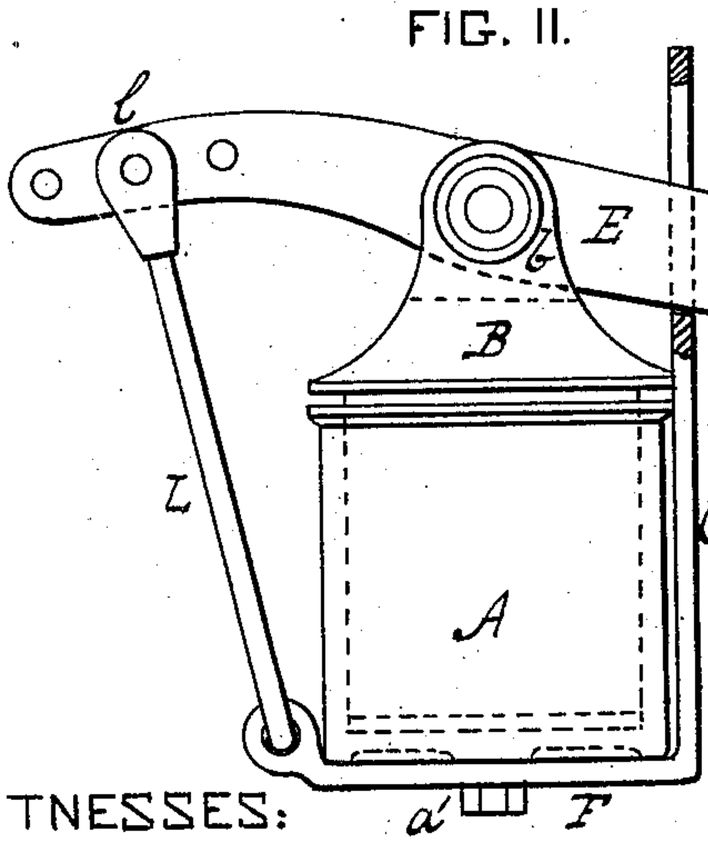
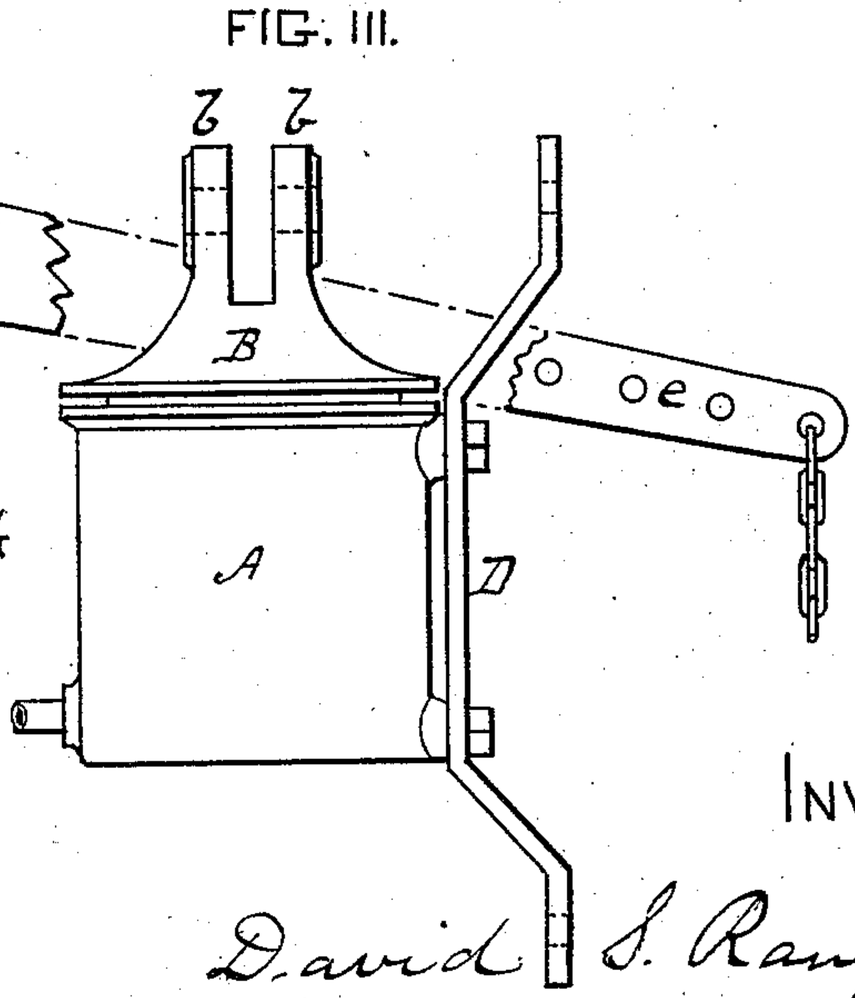


FIG. III.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

DAVID S. RANDOLPH, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE AMERICAN BRAKE COMPANY, OF SAME PLACE.

TENDER AND OTHER BRAKES.

SPECIFICATION forming part of Letters Patent No. 253,312, dated February 7, 1882.

Application filed July 18, 1881. (No model.)

To all whom it may concern:

Be it known that I, DAVID S. RANDOLPH, a citizen of the United States, residing at the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Tender and other Brakes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure I is an elevation showing devices embodying my invention attached to the foot-board of a locomotive-cab for operating the tender-brakes. Fig. II is an elevation partly in section of the devices attached. Fig. III is a similar view, the devices having been turned one-quarter.

Like letters refer to like parts wherever they occur.

My invention relates to the construction and manner of supporting the cylinder and its appurtenances which operate the brake mechanism, and is applicable to steam, air, and similarly-operated brakes.

It consists mainly in supporting the brake-lever and its fulcrum from the cylinder by whose piston the brake-lever is operated, whereby a compact mechanism and one readily attached and detached is obtained, and, secondarily, in the combination of the brake-lever, its fulcrum, link, and swiveling fulcrum-frame, whereby the power and position of the brake-lever may be adjusted at will to suit varying brake mechanisms and platforms.

I will now proceed to describe my invention more fully, in order that those skilled in the art to which it appertains may apply the same.

In the drawings, A indicates the cylinder, and B the piston, operated by air, steam, or fluid, as the case may be. In the present instance the cylinder is shown as attached to the foot-board of a locomotive-cab and supplied with steam through a pipe, *a*, controlled by a valve, *c*, from which a steam-pipe, *d*, may lead to the cylinder for operating the locomotive-brakes; but the location, &c., is immaterial, and the foregoing is given for the purposes of illustration and not for limitation. The cylinder A is attached to the foot-board or other support by an intermediate single bracket, D, bolted directly to the cylinder, as at *c c*, and this bracket may be of any shape which the peculiar construction of the engine or equivalent point of attachment demands.

At the outer end of piston B are jaws *b*, between which is pivoted the brake-lever E, so as to be operated by the piston. This brake-lever has in its long arm a series of holes, *e*, or equivalent means for adjusting its connection with the brake-chain or equivalent mechanism nearer to or farther from the source of power or piston, and at its opposite end a second series of holes for adjusting the fulcrum nearer to or farther from the power. By this means the power applied to the brakes may be regulated at will or as necessity dictates.

F indicates a frame or bar pivoted at the axis of the cylinder A by a bolt, *a'*, and capable of a turning movement. When adjusted the frame or bar may be fixed or clamped by a suitable nut or its equivalent. The bar terminates at one end or affords attachment for a guide, G, which is preferably formed at its extremity into a loop, which, in case of the rupture of the brake-chain, will limit the movement of the lever E, and at its opposite end is pivoted a link, L, adjustably pivoted to the brake-lever E, as at *l*, to form the fulcrum of the lever. To accommodate the connection at *l* this extremity of lever E is preferably curved, as shown.

In applying to use devices embodying my invention the bracket D, having been formed of the required shape to support the cylinder in the position it is to occupy, is bolted or otherwise firmly secured directly to the cylinder and to the foot-board of the locomotive-cab or other point of attachment. The nut is loosened and the bar or frame F is turned, carrying with it the fulcrum-link L, guide G, and brake-lever E, and rotating the piston until the lever E has assumed the angle required to make a straight connection with the brake mechanism, after which the nut may be tightened to clamp and hold the bar or frame F. By this means the position of the lever E may be varied to give it varying inclinations to adapt the devices to the varying height of cab-platforms met with on different locomotives. The slack of the brake-chain may then be taken up and the power of the lever regulated by shifting the connec-

tions between the chain and lever and between the lever and fulcrum-link, as hereinbefore specified.

The operation of the devices will be as follows: Steam, air, or fluid, being admitted to cylinder A, will force out piston B, causing the movement of the long arm of lever E, and through the medium of the brake-chain will apply the brakes. Should the brake-chain rupture, the continued outward movement of the lever E will be prevented by the loop of the guide G, and any material injury to the devices will be avoided.

These devices will not interfere with the use of the hand-brake.

The material advantages of my invention are the ability to vary the set or inclination of the brake-lever to suit varying heights of cab-platforms, the ability to obtain a straight connection between the brake-lever and brake mechanism, the ability to vary the power with which the brakes are applied, and the protection afforded the devices in case the brake-chain ruptures.

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

1. In a tender or like brake, the combination, with the horizontally-arranged brake-cylinder and its piston, of a brake-lever having its fulcrum supported by the brake-cylinder, said lever being pivotally connected directly to the piston of the brake-cylinder, substantially as and for the purpose specified.

2. In a tender or like brake, the combination, with the horizontally-arranged brake-cylinder and its piston, of a swiveling fulcrum-frame pivoted on the axis of the cylinder, a brake-lever pivotally connected to the piston, and a fulcrum-link pivotally connected to the swiveling fulcrum-frame and to the brake-lever, substantially as and for the purpose specified.

3. The combination, in a tender or like brake mechanism, of the horizontally-arranged brake-cylinder and its piston with the fulcrum-frame pivoted on the axis of the cylinder, the brake-lever pivotally connected to the piston and having a series of holes at its ends for the adjustment of the connections with the brakes and fulcrum-link, and the fulcrum-link pivotally connected with the fulcrum-frame and the brake-lever, substantially as and for the purpose specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 14th day of July, 1881.

DAVID S. RANDOLPH.

Witnesses:

MILLARD F. WATTS,

WM. A. MORRIS.