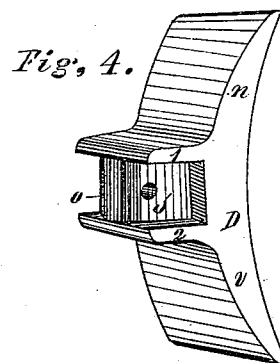
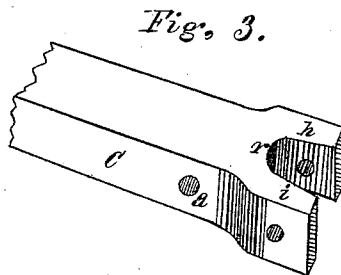
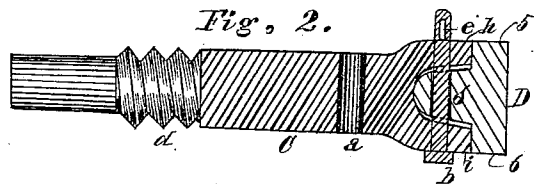
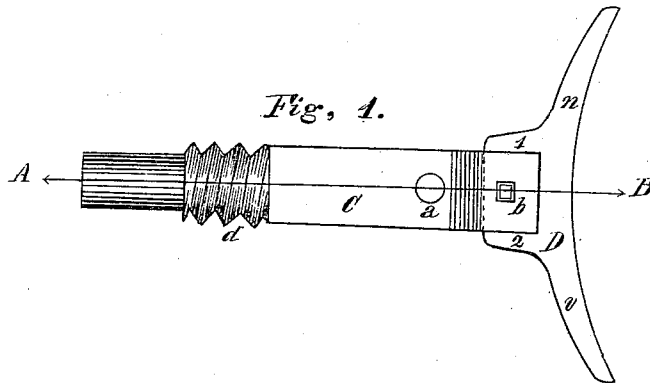


M. MADDEN.
Car-Brake Shoes.

No. 167,616.

Patented Sept. 14, 1875.



Witnesses.

Geo. H. Irwin.
Eugene Snyder

Inventor.

Michael Madden

UNITED STATES PATENT OFFICE.

MICHAEL MADDEN, OF HARRISBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO WILLIAM C. McFADDEN, OF SAME PLACE.

IMPROVEMENT IN CAR-BRAKE SHOES.

Specification forming part of Letters Patent No. **167,616**, dated September 14, 1875; application filed February 6, 1875.

To all whom it may concern:

Be it known that I, MICHAEL MADDEN, of the city of Harrisburg, county of Dauphin and State of Pennsylvania, have invented a new and Improved Car-Brake Shoe; and hereby declare the following to be a full, clear, and exact description of the same, and its manner of operation, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in combination of peculiarly-constructed brake-shoes with the plunger-bars shown in my improved car-brake mechanism, patented January 5, 1875, and numbered 158,426, said shoes being intended to perfect and further improve said patent.

In the drawings, Figure 1 is a side elevation of the shoe and plunger-bar, to which it is attached. Fig. 2 is a longitudinal section of the shoe and a portion of the plunger-bar, taken on the line A B. (See Fig. 1.) Fig. 3 is a perspective representation of the front end of the plunger-bar. Fig. 4 is a perspective view of the improved form of brake-shoe.

Like letters and figures in the following description represent like parts wherever they occur in the several figures of the drawing.

The front end of the plunger-bar C (see Figs. 2 and 3) is bifurcated, the space intervening between the vertical walls *h i* being widened toward their free ends, as is shown. The object of this method of construction is to facilitate the insertion of the tongue *s*, that is formed upon the shoe D. Said shoe D is made with two parallel walls, 1 2, projecting from its rear face about the center of the same. Said walls are intended to embrace the top and lower sides of the vertical walls *h i* of the plunger-bar C. At an equal distance from the side faces 5 6 of the shoe D (see Fig. 2) the tongue *s* is formed. It projects toward the rear of the shoe D, and is located between the walls 1 2, as is shown in Fig. 4. The forked portion of the plunger-bar C is rounded at the junction of the walls *h i*. (See Fig. 3, at *r*.) The tongue *s* of shoe D is also rounded where it bears against the curved portion of the plunger-bar C. The space between the walls *h i* of said bar is

made somewhat wider than the thickness of the tongue *s*. This provision is made to permit a limited amount of lateral motion between said parts, so as to insure the full bearing of the face of the shoe against the tread of the car-wheel, and also avoid the contingency of breaking the jaws *h i* of the pusher-bar C.

The shoe D is retained in place by a bolt, *b*, that is inserted in a hole drilled through the jaws of the bar C, and also through the tongue *s* of the shoe D. The hole in the tongue *s* should be slightly larger than those in the walls, to permit lateral play of the shoe. The bolt *b* is secured in place by a split key, the same as is now in common use.

It will be observed that this method of constructing car-brake shoes secures the advantage of a reversible shoe. The securing-bolt *b* being entered from the outside face is very readily inserted, and removed with equal ease.

It will be observed that by the peculiar construction of my improved brake-shoe, and its manner of connection with the plunger-rod C, the perforation of the body of the shoe *n* through the center of its rubbing-face is avoided. This being the ordinary method of securing brake-shoe liners in their holders, frequent breakage results from the weakening of the center of the shoe by making holes in the face of the same. Again, the insertion of the securing-bolt through the face of a brake-shoe necessitates the hanging of the same, so that the space intervening between the face of the shoe and the car-wheel will be sufficient to permit the entire length of bolt to be introduced. This sacrifice of valuable space is avoided by the transverse position of the bolt *b*, as shown in my drawings. The plunger-rod C is substantially the same in construction as is shown in my car-brake mechanism already patented. I therefore disclaim the construction of the piece *c* in this application.

I am aware that a patent was granted to W. P. Blades July 14, 1868, for a brake-shoe suspended by links or hangers, and sustained in connection therewith by a bolt passing laterally through the rear portion of said shoe. I therefore disclaim said device.

Having given a full, clear, and exact description of my invention, and shown its advantages, what I claim as new, of my invention, and desire to secure by Letters Patent of the United States, is—

The combination of the shoe *n*, provided with the flanges 1 and 2 and perforated tongue *s*, with the plunger-rod *C*, having perforated

lips *h* and *i*, bolt *b*, perforated at *e*, and cross-fastening pin or split key passing through said perforation *e*, substantially as and for the purpose set forth.

MICHAEL MADDEN. [L. S.]

Witnesses:

EUGENE SNYDER,
WM. P. PATTON.