

(No Model.)

P. BROWNLEY.

BRAKE SHOE.

No. 385,659.

Patented July 3, 1888.

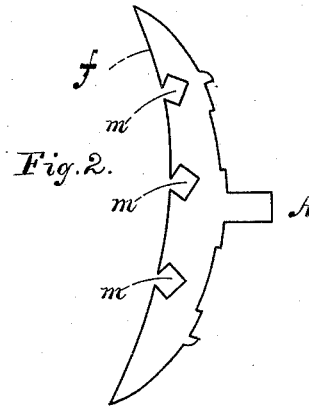
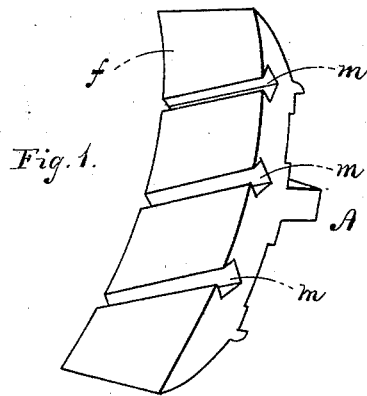
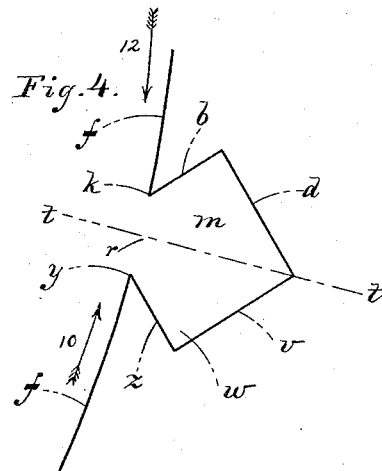
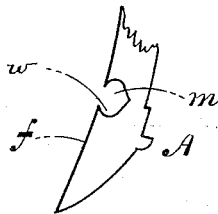


Fig. 3.



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UNITED STATES PATENT OFFICE.

PATRICK BROWNLEY, OF ST. JOHN, NEW BRUNSWICK, CANADA.

BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 385,659, dated July 3, 1888.

Application filed December 22, 1887. Serial No. 258,667. (No model.)

To all whom it may concern:

Be it known that I, PATRICK BROWNLEY, of St. John, in the Province of New Brunswick, Dominion of Canada, have invented a certain new and useful Improvement in Brake-Shoes, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an isometrical perspective view of my improved brake-shoe detached; Fig. 2, a side elevation of the same; Fig. 3, a view showing a modification of the invention, and Fig. 4 a diagram for explaining certain details of construction.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

It is well known that the brake-shoes of steam-cars, horse-cars, &c., as ordinarily constructed present smooth concave faces to the action of the wheels, and that when the peripheries of the wheels are wet or covered with ice or snow the shoes are very liable to slip and not perform their functions properly; also, that more or less sand, dust, and other detritus adheres to the working-surface of the wheels when in use, thereby interfering materially with the proper action of the brakes and causing the shoes to be rapidly worn out.

My invention is designed to obviate these and other objections and difficulties, and to that end I make use of means which will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the shoe detached from the brake head and beam, it not being deemed necessary to show those parts in order to illustrate my improvement. The shoe is provided in the usual manner with a concave working or bearing face, *f*, and is composed of metal, all of its parts being cast integral or formed in one piece. One or more inclined recesses or grooves, *m*, arranged in parallelism with each other, are formed in the face *f*, said grooves extending diagonally across the face of the shoe from side to side, as best seen in Fig. 1. In the present instance the

shoe is represented as provided with three grooves; but more or less may be employed, if preferred. In cross-section the groove is nearly square, being so constructed that its interior walls stand at or approximately at an angle of forty-five degrees to a right line drawn from the center of the opening through the face of the shoe to the rear of the groove, as best shown in Fig. 4, in which *r* represents the opening through the face of the shoe, *t* a right line drawn through the center of said opening and the rear of the groove, and *b d v z* the walls of the groove.

In the use of the improvement, when that portion of the wheel which is in contact with the face *f* of the shoe is moving in the direction of the arrow 12, the water, ice, gravel, &c., on the periphery of the wheel will be caught by the lower edge, *y*, of the groove and thrown against the wall *v* in a direct line, or nearly so, and from thence will fall into the gutter *w*, formed by the walls *v* and *z*, and be carried to the side of the shoe and discharged, and when it is moving in the direction of the arrow 10 the water, &c., will be caught by the upper edge, *k*, of the groove and thrown in like manner against the wall *d*, from whence it will fall into said gutter and be discharged, as described.

When the groove is constructed with but one rear wall, which stands approximately parallel with the face *f* of the shoe, the water, ice, gravel, &c., removed from the wheel and thrown against said wall will be deflected and a large portion of it returned to the wheel, to be again removed and precipitated against the wall; but by constructing the groove with two rear walls inclined in opposite directions, as shown at *b d*, the impingement of the detritus, &c., will be direct, thereby preventing it from being deflected and returned to the wheel to interfere with the proper action of the shoe thereon.

In Fig. 3 the gutter *w* is shown as semicircular in cross-section—a form which may be employed, if preferred.

It will be obvious that by inclining the groove to the longitudinal axial line of the shoe the substances removed from the wheel and falling into the gutter *w* will be carried by gravitation to the lower end thereof and discharged

onto the road-bed; also, that the friction between the shoe and wheel will be increased or the shoe have a better "grip" on the wheel than when the grooves are not employed.

5 I do not confine myself to inclining the walls $b z$ inwardly at any special angle to the face f , as said walls may stand at or nearly at right angles thereto without departing entirely from the spirit of my invention. Neither do I con-
10 fine myself to constructing the walls $v d$ at any special angle to the walls $b z$, as the same may be varied and yet perform their functions satisfactorily in some instances.

15 Having thus explained my invention, what I claim is—

1. A brake-shoe provided with a groove in its face, as m , the rear wall of said groove being inclined to the face of the shoe, substantially as and for the purpose described.

2. A brake-shoe having a groove or recess 20 in its face, the bottom of said groove being lower than its lower outer edge to form a gutter, as w , for receiving the substances removed from the wheel, substantially as set forth.

3. A brake-shoe provided with a diagonally- 25 arranged groove in its face, as m , said groove having rear walls, as $v d$, inclined to said face, substantially as described.

4. The brake-shoe A , provided with the groove m , having the walls $b d v z$, inclined to 30 the face f of said shoe, substantially as set forth.

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Witnesses:

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