R. N. ALLEN.

Brake-Shoe for Railway-Cars.

No. 202,772. Patented April 23, 1878.

Fig. 1.

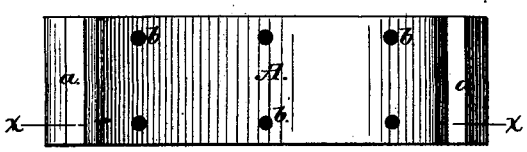



Fig. 2.

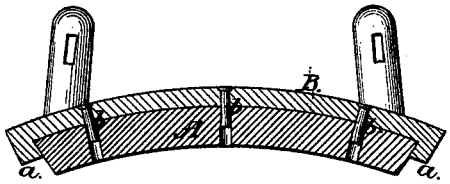



Fig. 3.

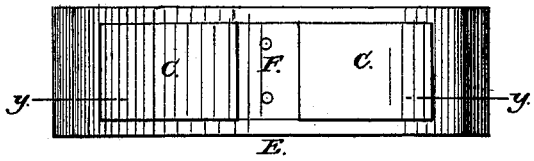



Fig. 4.

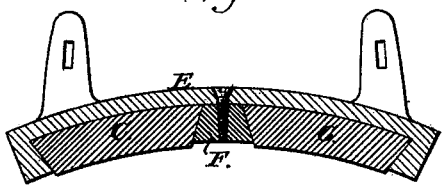
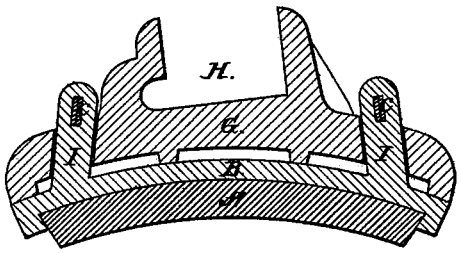



Fig. 5.




Attest,

Robert H. Duncan

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Inventor

Richard N Allen

# UNITED STATES PATENT OFFICE.

RICHARD N. ALLEN, OF HUDSON, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO JAMES C. BEACH, OF BLOOMFIELD, NEW JERSEY.

## IMPROVEMENT IN BRAKE-SHOES FOR RAILWAY-CARS.

Specification forming part of Letters Patent No. **202,772**, dated April 23, 1878; application filed January 18, 1878.

*To all whom it may concern:*

Be it known that I, RICHARD N. ALLEN, of Hudson, in the county of Columbia and State of New York, have invented a new and useful Improvement in Brake-Shoes for Cars and other Vehicles, of which the following is a specification:

This invention relates to brake-shoes designed especially for use upon railway-cars, but capable of advantageous application to other vehicles.

It consists in, first, a brake-shoe made of compressed paper; second, a brake-shoe made of compressed paper and metal; and, third, a brake-shoe made of two or more blocks of compressed paper, fitted into a recess of a metal frame, and secured in place by means of a wedge-shaped piece or pieces, substantially as shown and described.

A block of compressed paper may be so shaped and mounted that its face will constitute the only or the main frictional bearing-surface against the tread of the wheel; or the compressed paper may be combined with the metal frame in which it is mounted, so that both the paper and the metal will constitute the shoe and form the surface which bears against the wheel.

In the accompanying drawings, Figure 1 is a plan view of the bearing face or surface of a shoe of the first class above named, and Fig. 2 is a sectional view of the same along the line *x x* of Fig. 1.

A represents a block of compressed paper, which is curved to fit approximately the curve of the wheel; B, a correspondingly-curved seat, to which the block A is secured. The seat B should be of strong metal, preferably of wrought-iron. The paper block is fastened to its seat partly by the flanges *a a*, and by the pins *b b b b* passing through the paper and the seat, as seen in section in Fig. 2. These pins may be countersunk in the paper, so that they will have no bearing on the tread of the wheel until the paper is nearly worn out.

Fig. 3 is a plan view of the bearing face or surface of a shoe of the second class—a shoe whose bearing-surface is made of compressed paper and metal. Fig. 4 is a sectional view of the same along the line *y y* of Fig. 3.

C C represent blocks of compressed paper, which are curved to conform substantially to the curve of the wheel, and are shaped to fit into recesses formed in the frame E of the shoe. A wedge-shaped piece, F, is secured by means of screws to the frame, and can be readily removed. The blocks C C are inserted in the frame by removing the wedge F, bringing them into their position, and then securing the wedge in its place, as shown in Fig. 4 of the drawing.

The frame E is preferably to be made of cast-iron, as this is a cheap metal, and as it is designed that both the compressed paper and the metal of the frame form the bearing-surface of the shoe, and become worn out together by frictional contact upon the wheel.

Instead of the two blocks C C, a larger number may be used; and, if desired, more than one wedge be employed to keep them in place.

The two classes of shoes above described, and shown in the drawing, are only two of many convenient forms in which compressed paper, and compressed paper combined with metal, may be applied for the purpose designated; and it is not intended to confine the present invention to the forms referred to above, nor to any special forms, nor to any special arrangement of the compressed paper and the metal with each other, nor to any special mode of securing the blocks of compressed paper to the seat; but the invention is, broadly, for the use of compressed paper, and of compressed paper and metal, for the purpose of brake-shoes.

The shoes, when formed as above described, may be mounted in suitably-constructed seat blocks or holders, which can be readily connected with the brake-beam.

A convenient form of seat-block, with the shoe in place, is shown in section in Fig. 5, and consists in a curved plate of metal, G, provided with an opening, H, for the reception of one end of the brake-beam, and with central mortises for the projections I I on the seat or frame of the shoe to pass through. These projections are provided with holes *c c* near their ends, and the block and seat are locked together by the insertion of spring-pins in the holes.

Compressed paper adapted for the manu-

facture of brake-shoes may be formed from paper-pulp before or after it is made into sheets or layers, or from dry sheets of paper properly moistened. Whatever the condition of the paper-stock, however, it is to be subjected to heavy pressure, and it is desirable that it be reduced at least to a density of heavy wood, in which condition it can be readily cut and worked into any required shapes.

Brake-shoes having their bearing-faces of compressed paper, or of compressed paper combined with metal, possess decided advantages over those constructed entirely of wood, or of metal, or of wood and metal combined. They are more durable than wood—that is, will last longer as brakes—are less liable to take fire by frictional contact, and possess far greater frictional or holding capacity upon the wheels. As compared with metal brake-shoes, they cause comparatively slight wear and tear to the wheels, and are free from the disagreeable noise often caused by the use of metal brake-shoes.

What is claimed as new is—

1. A brake-shoe whose bearing face or surface is made of compressed paper, substantially as and for the purpose set forth.

2. A brake-shoe whose bearing face or surface is made of compressed paper and metal, substantially as and for the purpose set forth.

3. A brake-shoe made of one or more blocks of compressed paper, fitted into a metal frame, and secured in place by a wedge-shaped piece or pieces, substantially as and for the purpose set forth.

RICHARD N. ALLEN.

Witnesses:
ROBERT H. DUNCAN,
BENJ. A. SMITH.