No. 871,394. PATENTED NOV. 19, 1907.

J. D. GALLAGHER.

BRAKE SHOE.

APPLICATION FILED APR. 3, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

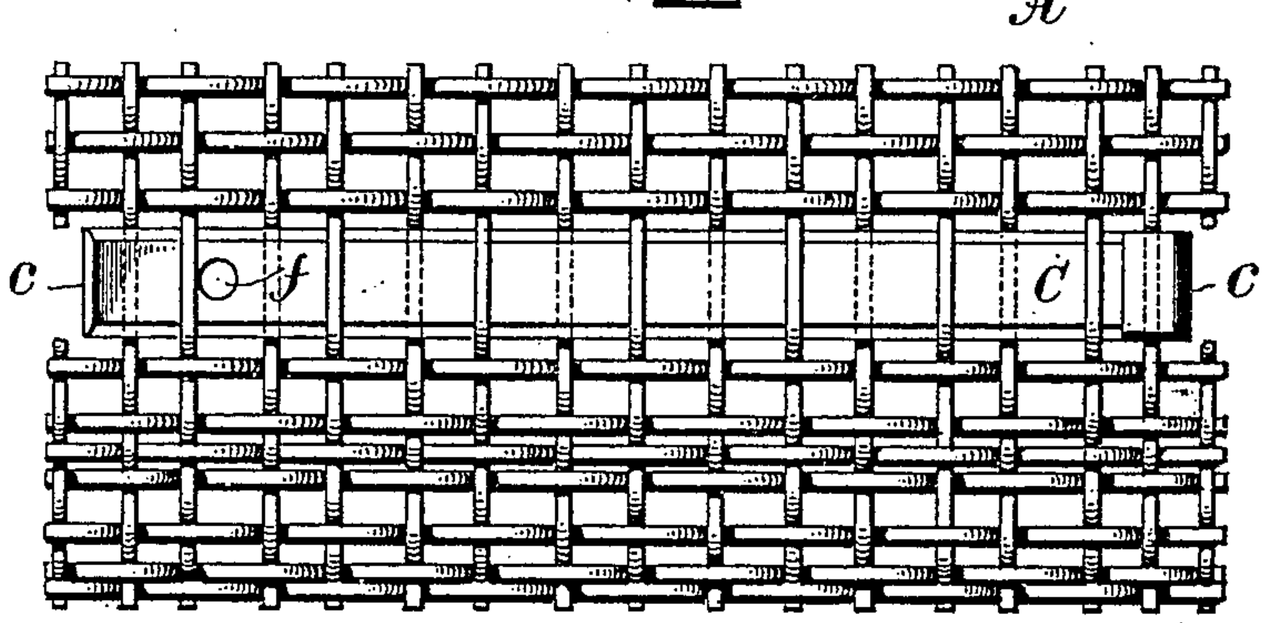



Fig. 2.

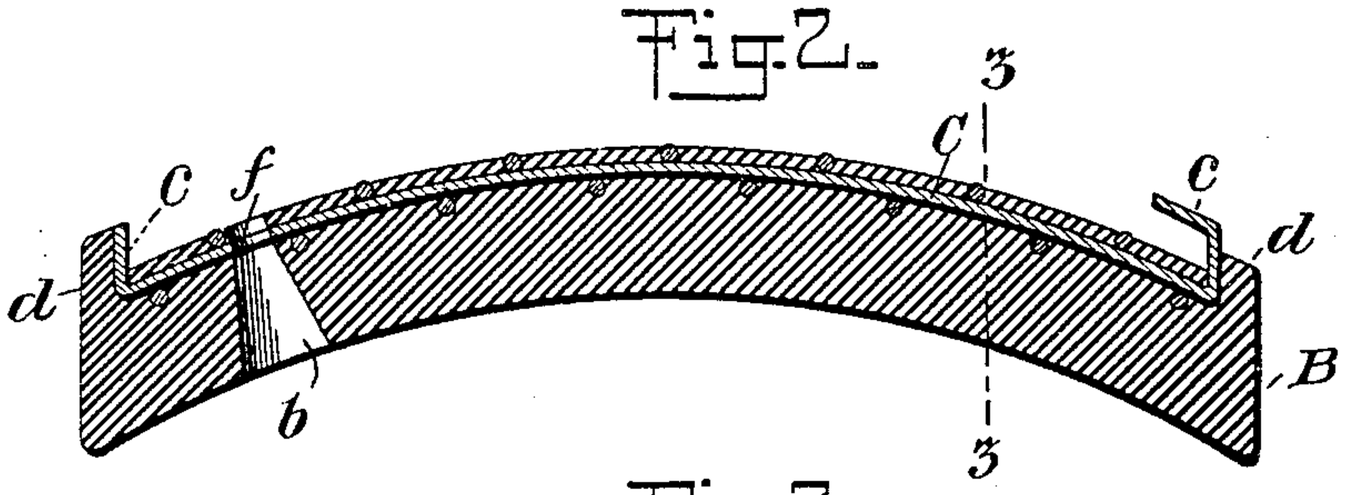



Fig. 3.

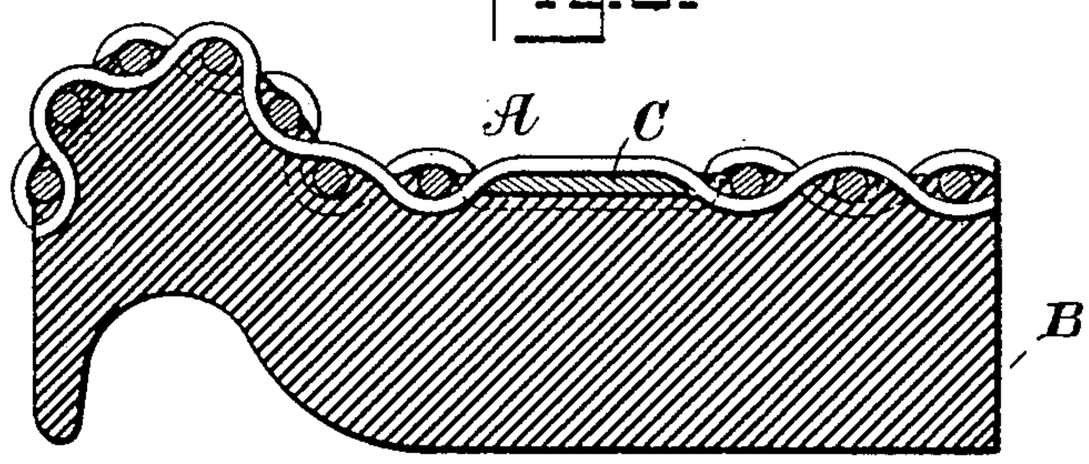
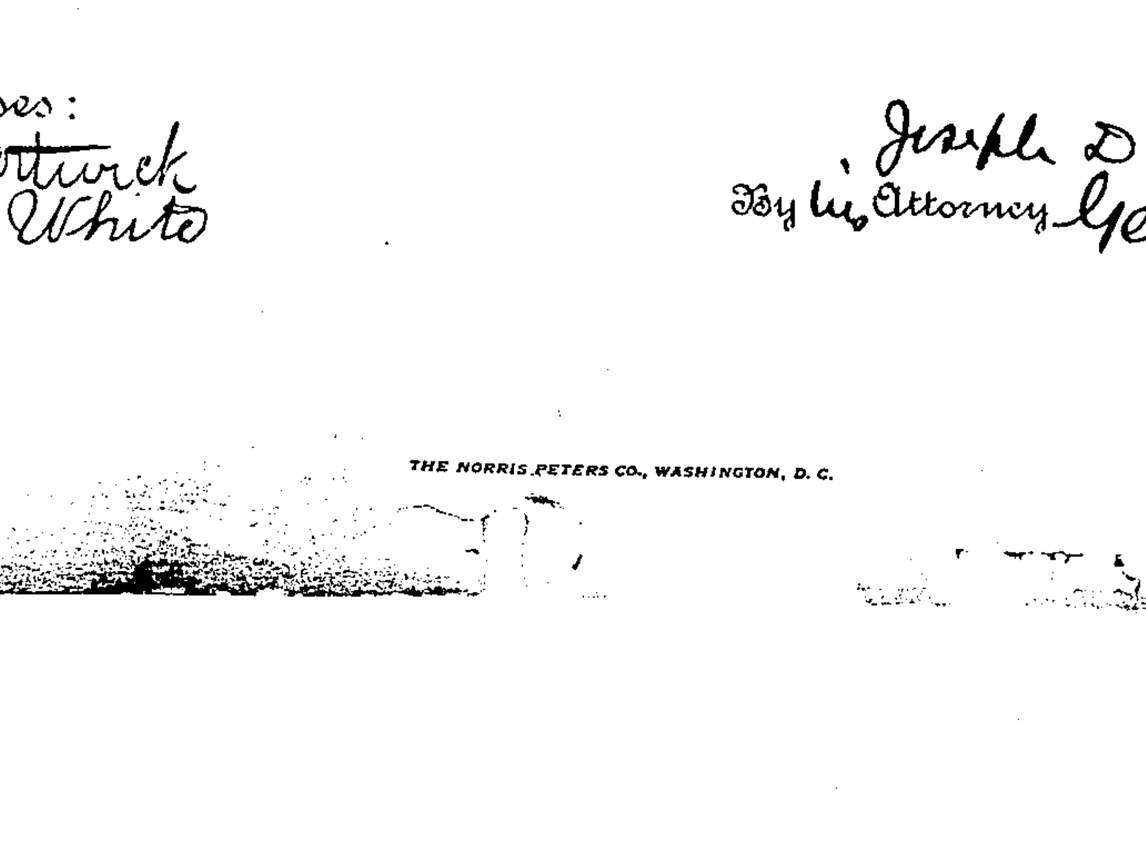



Fig. 4.

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By his Attorney George Cook

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2 SHEETS—SHEET 2.

Fig. 5.

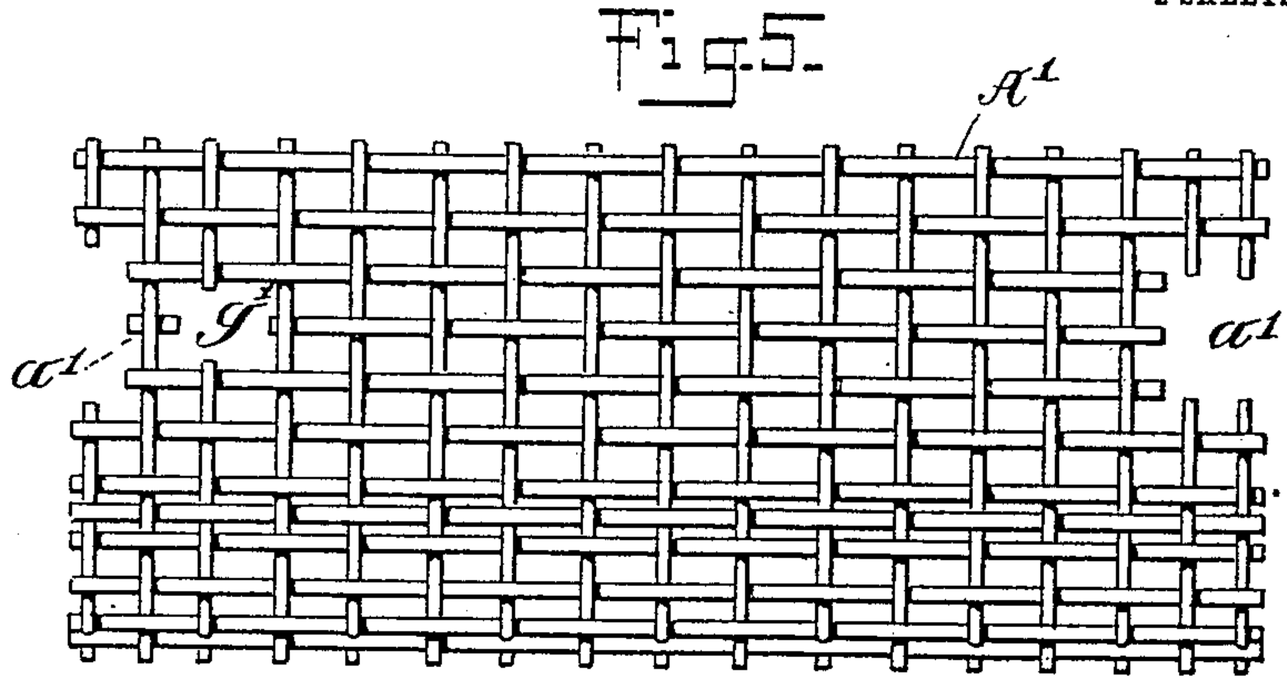



Fig. 6.

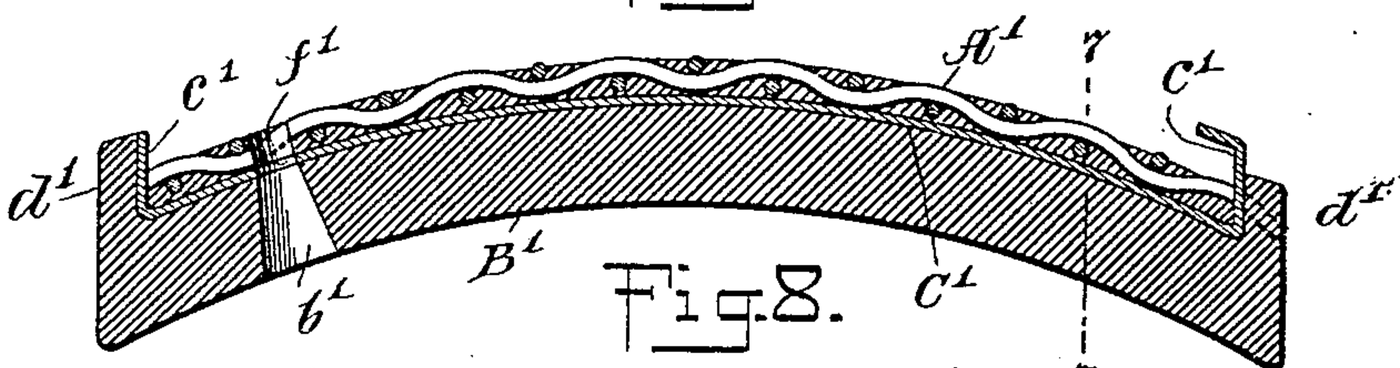



Fig. 8.

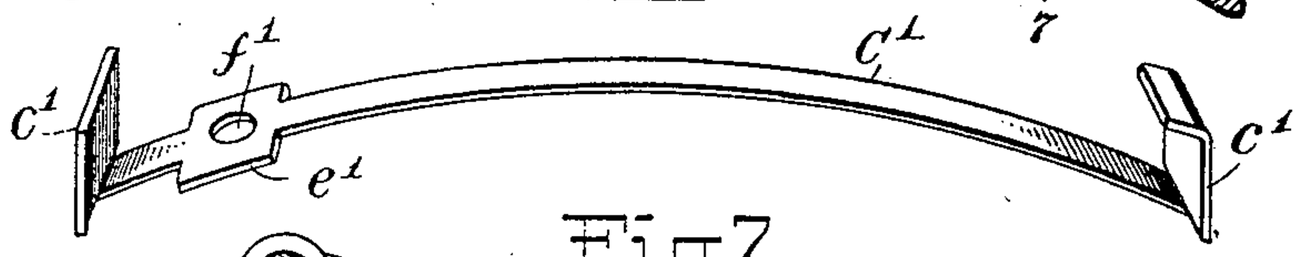



Fig. 7.

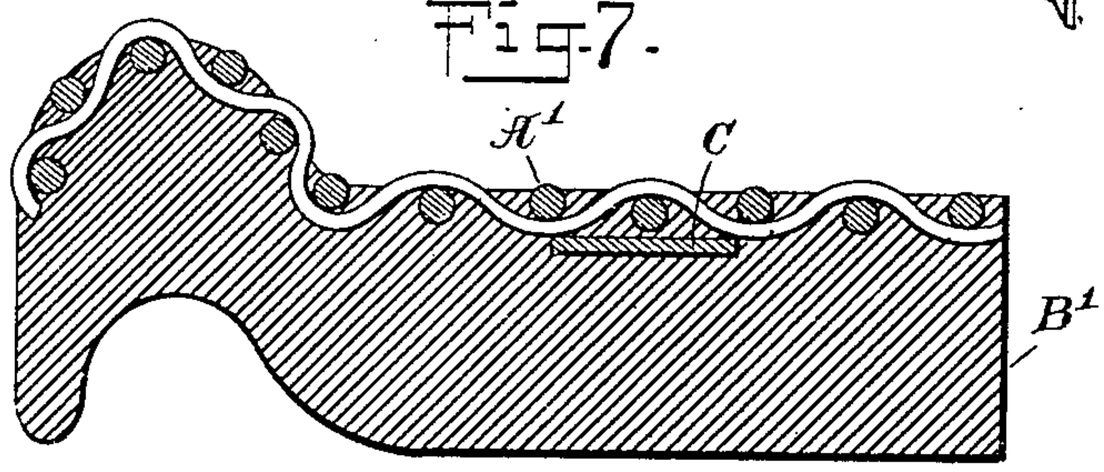
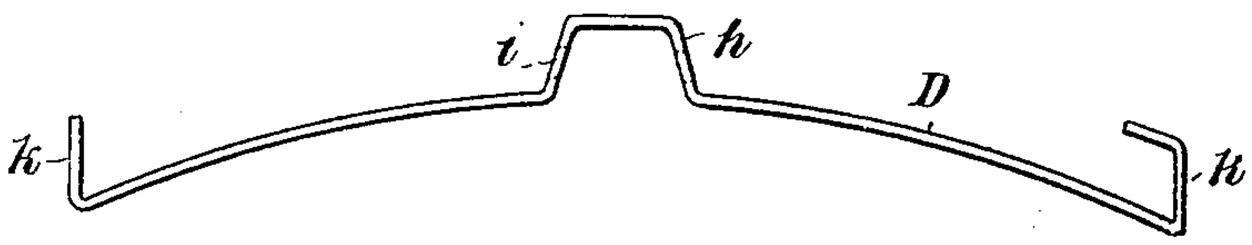



Fig. 9.




Witnesses:
M. Van Nortwick
John B. White

Joseph D. Gallagher Inventor
By his Attorney George Cook

# UNITED STATES PATENT OFFICE.

JOSEPH D. GALLAGHER, OF GLENRIDGE, NEW JERSEY, ASSIGNOR TO EDWARD H. FALLOWS, TRUSTEE, OF NEW YORK, N. Y.

## BRAKE-SHOE.

No. 871,394. Specification of Letters Patent. Patented Nov. 19, 1907.

Application filed April 3, 1907. Serial No. 366,227.

*To all whom it may concern:*

Be it known that I, JOSEPH D. GALLAGHER, a citizen of the United States, and a resident of Glenridge, in the county of Essex and State of New Jersey, have made and invented certain new and useful Improvements in Brake-Shoes, of which the following is a specification.

My invention relates to an improvement in brake shoes, such as those shown in my former application filed by me on the 24th day of November, 1905, Serial Number 288,836, and particularly relates to those employed upon locomotives and railroad and railway cars, and generally made of cast iron. Shoes of this character have good retarding power and are admirably adapted for service with lower powered brakes, but owing to their crystalline structure, are frangible and unsafe to use with the quick acting brakes now in common use upon trains attaining high rates of speed. It has become customary, therefore, to provide means by which shoes of this class are bound together, so that even if the frangible cast iron of the shoe be broken, the shoe will still hold together and remain in service. In some cases these means have consisted of steel backs or plates anchored in the body of the shoe at or adjacent to the back thereof; in other instances of bars or rods of steel anchored to the body of the shoe at its back, and in other cases, of a back or backing of wire mesh, as described in Letters Patent granted to me on the 30th day of January, 1900, No. 642,318, these means engaging the whole body of the shoe so that should the latter become fractured or broken after being worn down by friction, the sections will be prevented from falling apart.

In my present invention the binding means consists of a back or backing of wire mesh and a metal plate, strap or rod provided with an opening or loop therein for the passage of the key-bolt, which will closely fit the back and take its strain, thus preventing the bolt from coming in contact with the cast iron part of the shoe, and cracking or breaking the shoe at that point, as is liable to occur when the bolt is allowed to impinge directly on the cast iron or wearing body of the shoe.

With these and other ends in view, the invention consists in certain novel features of construction, as will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of the wire mesh back combined with one form of the metal strap. Fig. 2 is a longitudinal sectional view of a brake shoe constructed in accordance with my invention. Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2. Fig. 4 is a view in perspective of one form of the detached metal strap. Fig. 5 is a plan view of a modified form of the wire mesh, and Fig. 6 is a longitudinal sectional view of a shoe wherein said modified form of mesh is employed. Fig. 7 is a sectional view taken on the line 7—7 of Fig. 6, and Fig. 8 is a perspective view of the metal strap employed with the form of wire mesh illustrated in Fig. 5. Fig. 9 is a side view of another form of the metal strap.

In practice I employ a back or backing A of wire mesh, made of wire of suitable size, and of such length and width as to nearly or completely cover the back of the shoe B, said wire mesh being bent or shaped to conform to the curvature of the shoe. Through this mesh extends a metal strap or strip C, the strands of wire passing over and under the same and securely locking the strap in the wire mesh back, this strip or strap C being preferably inserted in place during the operation of weaving or forming the wire mesh.

In the operation of casting the shoe, the wire mesh back A, with its contained metal strap, is so placed in the mold that the cast metal will flow through the opening in the wire mesh, and embed therein the major portion of the wires of which the mesh is formed, and also the edges of the metal strap which are preferably beveled, securely anchoring said wires and strap at or adjacent to the back of the shoe and overcoming all danger of the accidental disengagement thereof from the cast iron or wearing body of the shoe.

As clearly illustrated in Figs. 2 and 4, the metal strap C is preferably provided with the upturned or bent ends *c*, for the purpose of reinforcing the cast metal lugs *d* at the ends of the shoe, against which the brake head rests.

As in shoes of ordinary construction, an opening *b* is formed in the body of the shoe for the passage of a key bolt (not shown), whereby to attach the brake head. As is well known, the formation of this hole or opening materially weakens the shoe at this place, and the shoe is liable to be broken or

fractured should the key-bolt become loosened and allowed to jar or vibrate therein. As the wire mesh back itself affords little or no protection against this vibration, I form the strip or strap C with a hole or opening *f*, registering with the opening *b* in the body of the shoe, but of a little less diameter, said hole or opening *f* being preferably formed after the shoe has been cast, in order that the same may be properly located with relation to the opening *b*, and of a size to nicely receive the key-bolt, the result being that the latter will impinge against the strap which takes the strain thereof, and thereby prevent any liability of the shoe breaking, as sometimes occurs when the key-bolt is allowed to impinge directly on the cast iron or wearing body of the shoe.

Instead of weaving the strands of wire around the metal strap, as above described, I may form the wire mesh as illustrated in Fig. 5, this back or backing $A^1$ being formed with the cut out portions $a^1$ for the reception of the upturned ends $c^1$ of the strap $C^1$, the latter in the finished shoe $B^1$, being located directly under or below the wire mesh $A^1$, as illustrated in Figs. 6 and 7, said strap $C^1$ in this instance being formed with the widened portion $e^1$ provided with the opening $f^1$ for a key-bolt, and registering with the opening $b^1$ in the shoe and with the cut-out portion $g^1$ in the wire mesh $A^1$, the ends $c^1$ of said strap $C^1$, being also somewhat widened and upturned or bent, in order to reinforce the lugs $d^1$ of the finished shoe.

Should the shoe be made of the form commonly known and referred to as the "Christy" type of shoe, the strip or strap D is preferably made of the shape as illustrated in Fig. 9, that is, with the upwardly extending central key lug *h*, provided with the key opening *i*, the ends *k*, however, being bent upwardly as described in the first instance.

It will of course be understood by those skilled in the art, without further description or illustration, that instead of locating the strap between the strands of the wire, forming the wire mesh back, or locating it below the wire mesh back, it may be located above, and instead of employing one metal strip or strap, as described, a plurality thereof may be used; in fact the number of strips and the location of the several parts may be changed or altered in various ways without departing from the spirit or scope of my invention, the gist thereof lying in the employment of a wire mesh at or adjacent to the back of the wearing body, and a metal strap or strip to take the strain of the key-bolt and other longitudinal strains, from the cast iron or metal of the wearing body.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A brake shoe comprising a wearing body and having at or adjacent to the back thereof a wire mesh and metal strap, substantially as described.

2. A brake shoe comprising a wearing body, a wire mesh at or adjacent to the back thereof, and a metal strap located between the strands of said wire mesh, substantially as described.

3. A brake shoe comprising a wearing body, a wire mesh back, and a metal strap provided with an opening therein for the passage of a key-bolt, substantially as described.

4. A brake shoe comprising a wearing body, a wire mesh back, and a metal strap having upturned or bent ends, substantially as described.

5. A brake shoe comprising a wearing body, wire mesh at or adjacent to the back thereof, and a metal strap having beveled edges, substantially as described.

6. A brake shoe comprising a wearing body, a back of wire mesh, and a metal strap formed with upturned ends and provided with a hole or opening therein for the passage of a key-bolt, substantially as described.

7. A brake shoe comprising a wearing body, a back of wire mesh, and a metal strap formed with an enlarged portion provided with a hole for the passage of a key-bolt, substantially as described.

8. A brake shoe comprising a wearing body, wire mesh at or adjacent to the back thereof, and a metal strap located between the strands of said wire mesh having an opening therein, said strap being formed with upturned ends, substantially as described.

Signed at New York, borough of Manhattan, in the county of New York, and State of New York, this 21st day of March, A. D. 1907.

JOSEPH D. GALLAGHER.

Witnesses:
M. VAN NORTWICK,
JOHN B. WHITE.