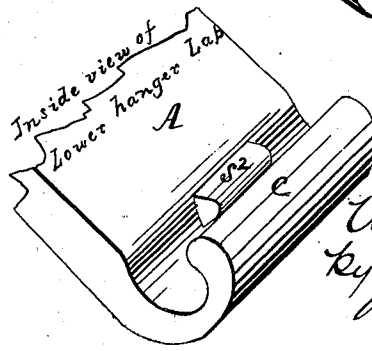
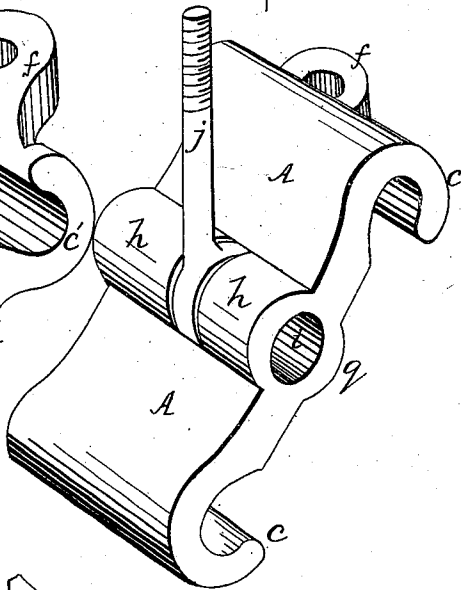
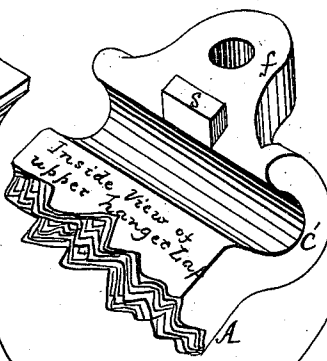
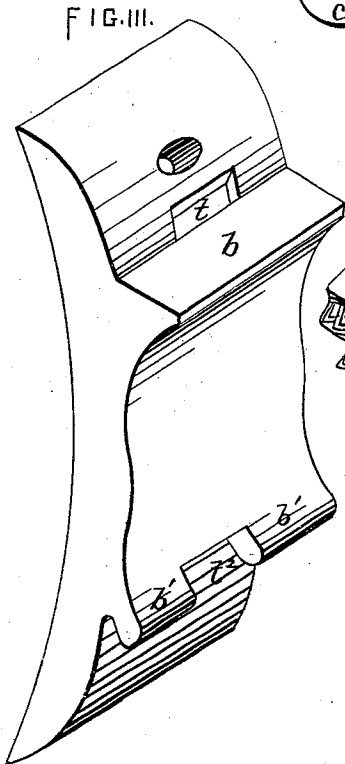
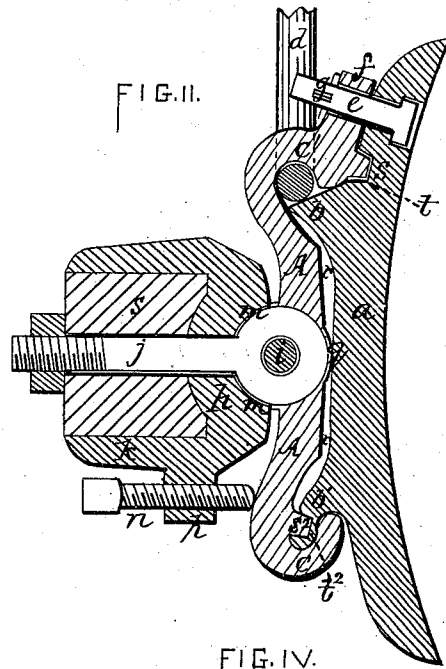
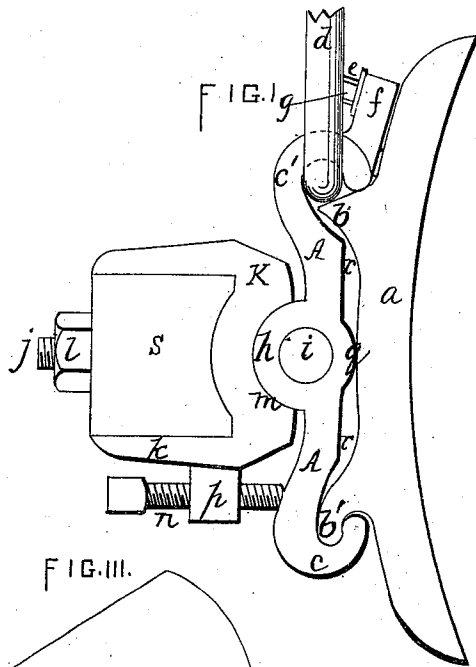


W. H. WARD.  
CAR-BRAKE SHOES.

No. 172,837.

Patented Feb. 1, 1876.



WITNESSES.

F. B. Townsend  
J. H. Rutherford

INVENTOR.

William H. Ward,  
by Johnson & Johnson,  
his Attorneys

# UNITED STATES PATENT OFFICE.

WILLIAM H. WARD, OF ALEXANDRIA, VIRGINIA.

## IMPROVEMENT IN CAR-BRAKE SHOES.

Specification forming part of Letters Patent No. **172,837**, dated February 1, 1876; application filed June 9, 1875.

### *To all whom it may concern:*

Be it known that I, WILLIAM H. WARD, formerly of Auburn, N. Y., now of Alexandria, in the county of Alexandria and State of Virginia, have invented certain new and useful Improvements in Shoe-Hangers for Railroad Brakes; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My object is to provide a simple and effective means for locking the brake-shoe to its hanger, and for accomplishing a durable connection of the brake-beam with such hanger, and its proper adjustment to accommodate the shoe to the tread of the wheel.

The shoe is locked to its hanger at two points by lug projections of the shoe and laps of the hanger, and these parts thus interlocked are secured by a single bolt passing through the upper end of the shoe and keyed to a lug projection from the upper hanger-lap. The shoe is also interlocked with the hanger, so as to prevent lateral displacement.

An eyed bolt is secured in a central socket at the back of the hanger and confined by a strong bolt passing through said eye and lugs of the hanger, and this bolt holds the carriage for the brake-beam in such manner that the shoe and its hanger have an accommodating function upon the carriage, in order that the shoe may be always concentric with the wheel, and thereby prevent any rubbing and wearing action upon the shoe.

An adjusting-screw on the beam-carriage determines the proper adjustment of the shoe.

In connection with the interlocking points of bearing of the hanger upon the shoe, the hanger has also a central bearing upon the back of the shoe, to obtain thereby intermediate free spaces through which the air passes to prevent the undue heating of the parts—and especially the communication of great heat to the wooden brake-beam.

The shoe-hanger is suspended from the truck-frame by the ordinary link-connection.

The features of invention will be specifically

embraced in the claims, and thereby distinguish what is new from that which is found in other brake-shoes.

In the accompanying drawings, Figure 1 represents an elevation of my improved brake-shoe hanger. Fig. 2 is a vertical section through the same. Fig. 3 is a rear view of the shoe, and Fig. 4 is a detached perspective view of the shoe-hanger with the brake-beam removed to expose the central hinged bolt.

The metallic shoe *a* may be of the ordinary construction. On its back there are two lug projections, *b b'*, the lower one of which, *b'*, forms a horn, curving downward to coincide with the lower upwardly-curved lap *c* of the hanger *A*, while the upper one, *b*, extends into the upper hanger-lap *c'*, which also receives the link *d*, by which the brake-shoe is suspended.

By this connection the shoe and hanger are joined, while these parts are secured to each other by means of a bolt, *e*, passing through the upper end of the shoe, with its head countersunk in the friction-face of the latter, and extending through an ear or projection, *f*, from the upper lap *c'* of the hanger *A*, to which it is secured by a split key, *g*, driven through the bolt against the outside of said locking-ear.

The shoe is provided centrally on its outer side with a horizontal cross-opening, formed in two bearing-lugs, *h h*, through which a strong bolt, *i*, passes to confine a strong central bolt, *j*, upon which the cross-beam carriage *k* is mounted. The central bolt *j*, for this purpose, has an eye on its inner end, and is secured within the space formed between the said bearing-lugs *h*, so that it can be adjusted upon the cross-bolt *i*, which serves as a hinge to the central bolt, the two bolts occupying positions at right angles to each other. The outer end of the latter is provided with a nut, *l*, by which the beam and its carriage *k* is clamped to the hanger. This hanger has a central cross semi-cylindrical concavity, *m*, which fits and has its bearings upon the corresponding lugs *h*, through which the central bolt *i* passes, whereby the beam-carriage *k* may have an adjustment determined by an adjusting-screw, *n*, passing through a lug, *p*, on the lower side of said beam-carriage in position to bear upon the rear side of the

hanger, in order that the shoe and the hanger may be set to conform to the radius of the wheel, and thereby prevent any undue friction and wear upon either end of the shoe.

I have described the shoe as having a lower and an upper interlocking lug-bearing,  $b\ b'$ , and in addition to these a central bearing,  $g$ , is formed upon the inner side of the hanger, which bears upon the rear side of the shoe, to give strength and solidity to the latter intermediate between its points of suspension, and leave open spaces  $r$  between the contiguous parts of the shoe and its hanger, to prevent any undue heating of these parts, and to lessen the danger of the heat of the metal extending to the wooden cross-beam  $s$ , the whole device forming a very durable shoe-hanger of simple construction, whereby the shoe may be replaced when worn out by the removal of the split key from its confining-bolt.

I have described a single shoe and its hanging device; but it is obvious that the same construction is applied to each end of the cross-beam.

The inner side of each beam-carriage  $k$  is made convex on each side of its concave socket-bearing  $m$  upon the bolt-lugs  $h$ , to give freedom for the adjustment of said carriage by the adjusting-screw  $n$ ; and the carriage itself is a single casting, with sockets to receive the ends of the cross-beam.

The double locking-lugs  $b\ b'$  of the shoe and the horns  $c\ c'$  of the hanger serve to support the shoe wholly, and the single fastening-bolt  $e$  simply holds these parts together without any strain, either from the shoe or hanger, whereby the bolt can be easily removed and replaced with the parts when desired.

This lug-connection affords a vertical support only to the shoe, while it is interlocked with the hanger, so as to prevent all side displacement, by means of projections  $s\ s^2$  on the inner face of the hanger fitting into recesses  $t\ t^2$  in the back of the shoe, the lower lug pro-

jection  $b'$  being divided, as shown in Fig. 3 to receive the projection  $s^2$  in the hollow of the lap  $c$ .

The interlocking of the shoe and its hanger is, by this construction, made at four points to hold the shoe secure and admit of its removal and replacement with the least possible trouble.

The following is claimed as new in shoe devices for railway-car brakes, namely:

1. The combination, in a brake-shoe, of the separate hanger-plate  $A$  and the separate beam-carriage  $k$ , united to each other by the joint-bolts  $i$  and  $j$ , and to the shoe by the lug-projections  $b\ b'\ c\ c'$  and the bolt  $e$ , passing through the shoe and the hanger projection, all constructed substantially as herein set forth.

2. The hanger  $A$ , provided with the central bearing-lugs  $h\ h'$ , in combination with the bolts  $i$  and  $j$  and the cross-beam carriage  $k$ , the carriage-bolt  $j$  being secured at right angles to the hanger-bolt, between the said bearing-lugs, substantially as and for the purposes herein set forth.

3. The combination, with the brake-shoe hanger  $A$  and the cross-beam carriage  $k$ , having a hinged or accommodating connection with each other, of the adjusting-screw  $n$  carried by said carriage for adjustment in relation to the hanger, for the purpose stated.

4. The combination, with the lug projection  $b\ b'$  of the shoe, and the horns  $c\ c'$  of the hanger, of the interlocking lugs  $s\ s^2$  and their recesses  $t\ t^2$ , whereby the shoe is secured against lateral displacement and without side strain on the bolt, as described.

In testimony that I claim the foregoing have affixed my signature in presence of two witnesses.

WILLIAM H. WARD.

Witnesses:

A. E. H. JOHNSON,  
J. W. HAMILTON JOHNSON.