

(No Model.)

L. S. COLBURN.

CAR BRAKE SHOE.

No. 347,419.

Patented Aug. 17, 1886.

Fig. 1.

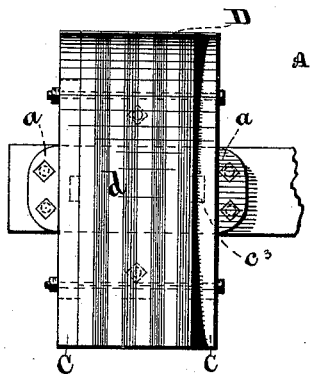


Fig. 2.

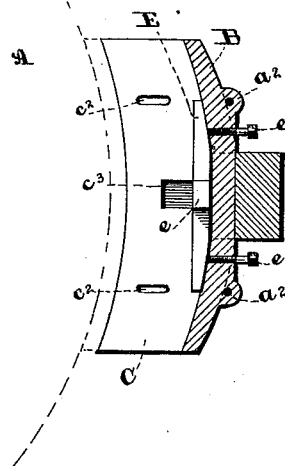


Fig. 3.

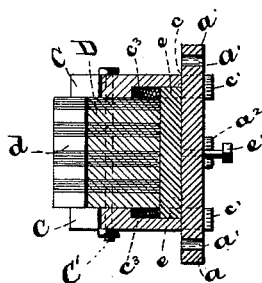
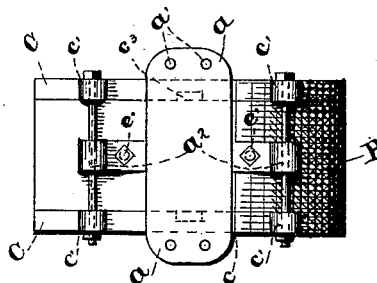


Fig. 4.



Witnesses:
H. S. Ametity.
Geo. E. Hall.

Inventor.
L. S. Colburn
By Thos. P. Hall
Atty

UNITED STATES PATENT OFFICE.

LYMAN S. COLBURN, OF OBERLIN, OHIO.

CAR-BRAKE SHOE.

SPECIFICATION forming part of Letters Patent No. 347,419, dated August 17, 1886.

Application filed March 20, 1885. Serial No. 159,524. (No model.)

To all whom it may concern:

Be it known that I, LYMAN S. COLBURN, a citizen of the United States, and residing in the village of Oberlin, county of Lorain, and State of Ohio, have invented certain new and useful Improvements in Friction Brake-Shoes and Brake-Shoe Holders, to be used on the wheels of railroad-cars or elsewhere; and I do hereby declare the following to be a description of the same, and of the manner of constructing and using the invention in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it appertains to construct and use the same, reference being had to the accompanying drawings, which form a part of this specification.

The object of my invention is to construct and produce a brake-shoe that will be more durable and much more efficient in bringing railway-cars or other moving bodies requiring a friction-brake to a stop than anything heretofore known or used for that purpose, without adding much, if any, to the cost of production, and thereby to greatly reduce the danger in railway travel. To attain these objects I take thin boards or veneers of wood about one-eighth of an inch in thickness and corresponding sheets of compressed paper of about the same thickness, and cement or compact them together in alternate or intervening layers into blocks of a suitable thickness to form the face or wearing-surface of the brake-shoe, after which I cut them into the desired shape to fit the wheels or other bodies to which they are to be applied, always being careful and sure to so cut and place them that the end grains or growths of the wood layers will be presented to the wheel and form a part of the wearing-surface of said shoe. To more thoroughly protect them and provide against the possibility of the several wood and paper layers becoming separated by moisture, heat, or the extreme pressure to which they are exposed when in use, I place them between two clamping-cheeks, said cheeks forming the sides of a sectional brake head or holder which I use in combination with my wood-and-paper brake-shoe, and which is constructed as follows, reference also being had to the accompanying drawings.

Referring to the drawings, Figure 1 is a front elevation of the entire device. Fig. 2

is a detail view representing the brake-head in longitudinal central section. Fig. 3 is a central transverse section of the entire device, and Fig. 4 is a rear elevation of the brake-head.

A is the brake-head. B is the rear portion or back of said head. C are side pieces or cheeks fitted to said back. Said back is provided with ears *a*, laterally projecting through which the head is secured to the brake-beam by means of bolts fitted in bolt-holes *a'*. Said back has also the rearwardly-projecting lugs *a''*, whose use is hereinafter mentioned. The side pieces or cheeks, C, are fitted, respectively, to the side edges of the brake-head, and are provided with the open mortise *c*, fitting over the ears *a*. Said cheeks are also provided with the laterally-projecting lugs *c'*. Through said lugs and through lugs *a''* on back B pass rods *C*, to bind the oppositely-located cheeks to the brake-head. Said cheeks are also provided with oblong slots *c''*, and with the oblong guideway *c'''*, formed on the inside faces, respectively, of said cheeks.

D is the brake-shoe, preferably composed of alternate layers of wood and paper, as in that form of the latter called "mill-board." Said alternate layers are cemented or compacted together so as to make one solid body, and is preferably used with the layers of wood endwise to the wheel. Said endwise application of the wood to the wheel affords a much greater durability and efficacy than when the side grain of the wood impinges upon the wheel. Said shoe has its working-face *d* scooped or hollowed, thereby causing it to fit down closely upon the convex face of the wheel.

E is a movable or adjusting plate located over the face of the brake-head back and between the two cheeks thereof. Upon said plate the shoe is located. Said plate has trunnions *e*, adapted to work in guideways *c''*. Through the back of the brake-head and from the exterior face of said back pass set-screws *e'*, reaching plate E, and adapted to push said plate forward and away from the back of the head and toward the wheel, as the wear of the shoe demands. When the shoe is seated on plate E and between cheeks C, it is tightly clamped between the latter by bolts *C*, passing through it and also through slots *c''*, formed in said cheeks. Said binding-bolts, in

addition to clamping the shoe between the cheeks, also tend to keep the component layers of the shoe from separating or spreading away from each other. The slots c' are made oblong, to permit the tie-bolts that pass through them to move laterally therein, as plate E is moved.

My combined brake-shoe and brake-head thus described has some decided advantages over all others in common use. One of these points of advantage is the simplicity and inexpensiveness of the arrangement by which the wear of the shoe is taken up. A simple turning of the set-screws that move the plate E after the shoe is loosened between the cheeks answers the ends sought.

Another advantage arises from the peculiar composition of the shoe. My intermixture of wood and paper lessens the cost of the shoe below that of one of iron. Its weight, also, is much less; also, it is comparatively noiseless in its impingement upon the wheel. Neither does it wear the tread of the wheel like metal shoes, and the toughness of the paper protects the wood from a rapid wear or splitting by the heat caused by friction, as would invariably be the case if used endwise to the wheel and without the intervening paper layers.

I am well aware that a paper brake-shoe has been tested; but the disadvantage of an all-paper shoe is, that when dry it has too much friction on the wheel, thereby tending to cause the latter to slide on the rail, while in wet weather it becomes slippery and does not hold strong on the wheel.

The advantage of the compound material constituting my improved brake-shoe is, that by reason of the wood layers neutralizing the characteristics of the paper layers, the shoe is maintained even and constant in its properties and characteristics both in dry and wet weather. The cost of the shoe is also largely reduced.

In this description and in the following claims I use the expression "paper" and "paper layers" as signifying paper in its general sense, and thus including compressed paper, mill-board, and all other species of paper. I use the expression "thin boards or veneers of wood" in its general sense, and thus include all varieties of wood that might be adapted to this purpose. Neither do I wish to confine myself to any special thickness of

either the wood or paper layers, but to use such thicknesses as will produce the best results and greatest economy. Neither do I wish to absolutely confine myself to using the wood layers endwise to the wheel.

Having thus fully described my improved brake-shoe and brake head or holder, now, therefore, what I claim as my invention, and desire to secure by Letters Patent, is—

1. A friction brake-shoe composed of thin boards or veneers of wood and corresponding sheets of compressed paper cemented or compacted together in alternate or intervening layers into blocks of a suitable thickness to form the face or wearing-surface of said brake-shoe, the wood layers of said shoe having their end grains or growths exposed to the wearing-surface, substantially as described, and for the purposes set forth.

2. A friction brake-shoe composed of a plurality of wood layers and a plurality of paper layers or its equivalent, to be used on the wheels of railway-cars or elsewhere, as described, and for the purposes set forth.

3. In combination with a friction brake-shoe composed of layers of wood and paper, a sectional brake head or holder having one principal back plate provided with suitable lugs, by means of which it is fastened to the brake-beam, also two side plates or clamping-cheeks provided with mortises for the reception and lateral movement of tie-bolts and slotted recesses or guideways on the inner side of said cheeks, also one adjusting-plate having trunnions or guide-pins fitted to work in said guideways, all constructed and arranged substantially as described, and for the purposes set forth in the foregoing specification.

4. In a sectional brake-shoe holder, the lugs a' on back B, the open mortises c , the lugs c' , the oblong slots c' , and the oblong guideways c' in cheeks C, and the trunnions or guide-pins e or their equivalent on adjusting-plate D, all arranged substantially as described, and for the purposes set forth.

In testimony that I claim the foregoing to be my invention I have hereunto set my hand this 13th day of March, A. D. 1885.

LYMAN S. COLBURN.

Witnesses:

GEO. B. SOLDERS,
THOS. B. HALL.