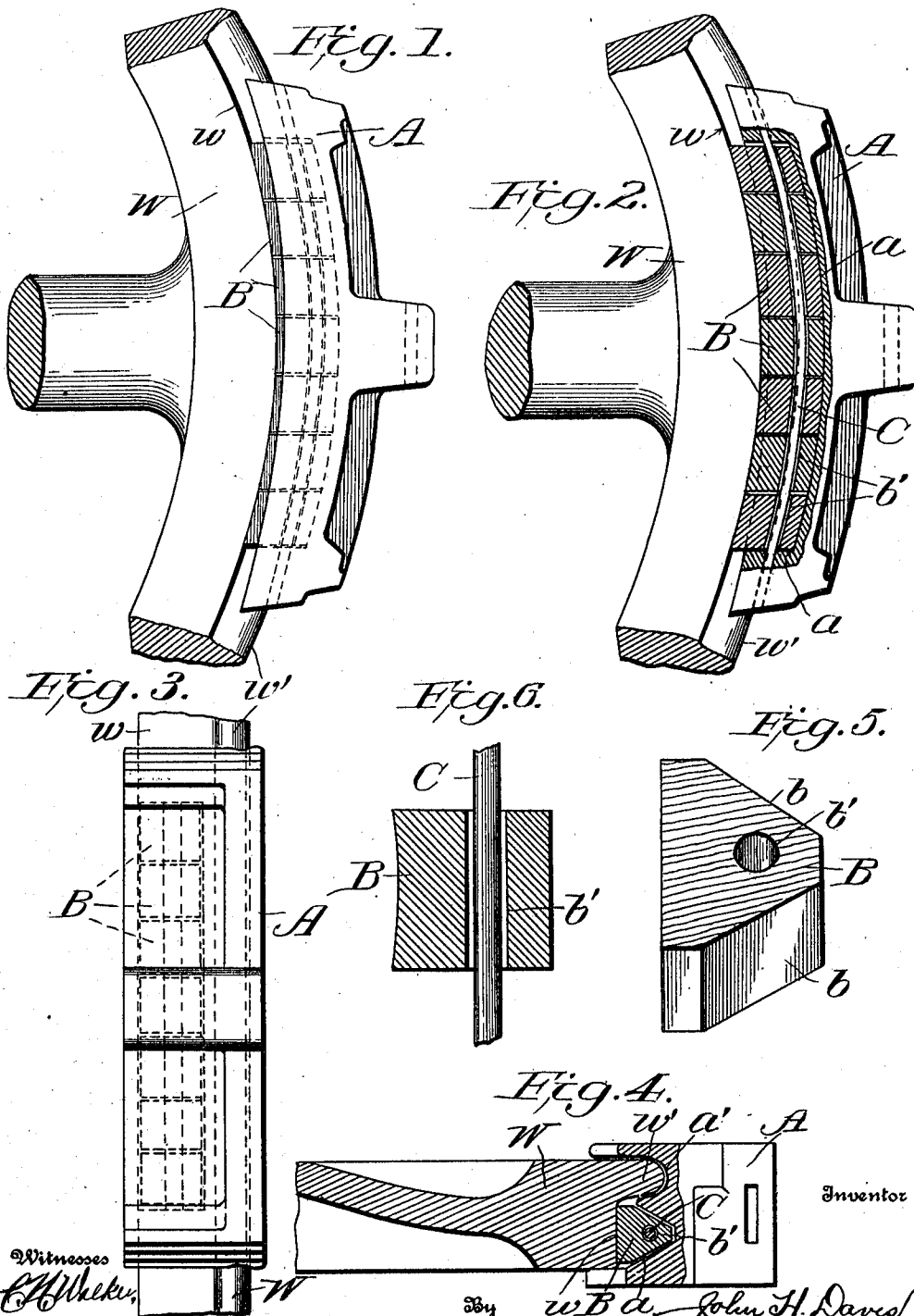


J. H. DAVIS.  
BRAKE SHOE.  
APPLICATION FILED MAR. 3, 1910.

974,243.

Patented Nov. 1, 1910.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## BRAKE-SHOE.

974,243.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed March 3, 1910. Serial No. 547,079.

*To all whom it may concern:*

Be it known that I, JOHN H. DAVIS, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Brake-Shoes; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in car brakes for railway trains and has particular reference to the construction of the brake shoes, and its object is to provide such shoes with removable and replaceable wearing surfaces, the sections of which are preferably formed of wooden blocks arranged with the grain perpendicular to that portion of the tread of the wheel to which they are brought in contact;—said blocks being loosely confined in the shoe but being bound tightly therein by friction, as and when the brakes are applied, in such manner as to obtain a most efficient grip upon the wheel and have great wear resisting powers. The blocks or sections of which the wearing surfaces are composed are preferably independently loosely retained in the shoe so that each section is measurably capable of self-adjustment independently of the others, thereby insuring the greatest efficiency in action in that each section separately adjusts itself, and is not directly affected by the pressure on other sections.

The brake shoe is particularly adapted for use with flanged wheels and is so constructed that all the wear sections are directly exposed to and contact with the face of the tread of the wheel; and the shoe is preferably constructed so as to partially embrace the flange of the wheel and thus prevent lateral displacement of the sections relative to the tread during the application of the brakes. In general the wearing sections are set loosely in a wedge-like recess in the face of the shoe and are retained in said recess by reason of the juxtaposition of the shoe to the tread of the wheel, even when the brakes are released; but if desired the sections may be loosely confined to the shoe, in any suitably manner, to positively insure their retention in the recess.

I will now describe the invention with ref-

erence to the accompanying drawings in which—

Figure 1 is a side elevation of one of my improved shoes in operative position. Fig. 2 is a vertical section thereof. Fig. 3 is a rear or outer view of the shoe indicating the position of the blocks therein, in dotted lines. Fig. 4 is a transverse section of the shoe. Fig. 5 is an enlarged perspective view of one of the friction sections detached. Fig. 6 is an enlarged detail section of one of the sections on a stringer-rod.

The brake shoe A is of metal, and provided with the usual means for attaching it to the brake rigging, not shown; it is provided on its inner face with a recess *a*, opposite the tread *w* of the wheel W; said recess *a* extending practically the length of the shoe but being closed at its ends as shown; and recess *a* is approximately V-shaped in cross section, its sides converging inwardly, as shown. The shoe also has a deep circular recess *a'*, beside the recess *a*, to accommodate the flange *w'* of the wheel W, and deep enough to allow the brake to be powerfully applied without the flange *w'* binding in the groove *a'*.

Loosely mounted in the recess *a* are a series of friction sections B which are approximately V-shaped, being beveled on their sides, as shown at *b*, corresponding with the beveled sides of the recess *a*, in which the beveled portions of the sections B are seated. The beveled portions of the sections B are shorter than the depth of recess *a*, so that the sections will bind between the sides of the recess before they reach the bottom thereof.

The brake sections *b* are formed preferably of wood, with the grain running longitudinally of the sections, so that the grain will be perpendicular to the face of that part of the tread *w* of the wheel W with which the sections contact. And the sections project sufficiently beyond the inner face of the shoe, as shown in Figs. 2 and 4, to insure their wedging in the groove *a* and bearing forcibly against the tread *w* before the bottom of groove *a'* can possibly contact with the flange *w'* of the wheel.

As the sections B are loose in the recess *a* of the shoe they are free to independently

adjust themselves against the tread  $w$  and thus to bear with equal pressure against the face of the tread, so that the pressure of the shoe against the tread of the wheel will be distributed evenly to the several sections. The number of sections in each shoe are not intended to entirely fill the length of recess  $a$  so that when the brake is applied the sections can independently adjust themselves before the shoe becomes locked to the wheel.

The beveled sides of the sections wedging against the beveled sides of the slot exert a powerful lateral compression upon the sections and will compress the latter with great force when made of wood or fiber, so that the tendency of wooden sections to disrupt or expand laterally under pressure is resisted and the fibers are practically compressed laterally each time that they are subjected to lineal pressure by contact with the tread of the wheel.

This construction of brake shoe has demonstrated great wearing qualities and most efficient frictional action and is superior to all-metal shoes. The sections will last indefinitely, and should one become worn or disrupted it can be easily removed or replaced by a new section with very little expense; as it is not necessary to substitute entirely new shoes if a brake shoe becomes worn; but only to renew the wearing sections; and it is obvious that this is much less expensive than replacing the entire shoe. If the wearing sections are made of wood the expense becomes nominal; and as a matter of fact wooden or fibrous surfaces do not wear as rapidly as metal surfaces under ordinary conditions.

When properly adjusted the sections do not have to be fastened in the shoe as the recess  $a$  is sufficiently deep to retain the sections even when the brakes are released, as the shoes do not move far enough away from the tread of the wheel when the brakes are off to allow the blocks to escape from the recess,—in other words the blocks will be retained in the recess by the tread of the wheel against which they lie without pressure when the brakes are off. However, if desired, the sections may be loosely retained in the slot  $a$  by any suitable means; I have indicated one means in the drawings consisting of a rod  $C$  extending longitudinally through recess  $a$  and confined at its ends in holes in the ends of the shoe, or in other suitable manner; and the sections  $B$  are shown as provided with holes  $b'$  by which they are strung on the rod  $C$ , the holes  $b'$  being of sufficiently large diameter to permit the sections to have the desired freedom of movement in the recess and relative to each other without binding on the rod at any time.

While I preferably make the sections  $B$

of wood as explained above, they might be of other material or mineral substance, while retaining the features and capabilities above explained.

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

1. A friction brake shoe for railway cars having a longitudinal wedge-shaped recess opposite the tread of the shoe, and a series of removable replaceable friction sections loosely fitted in said slot.

2. In a friction brake shoe for railway cars the combination of a shoe having a longitudinal wedge-shaped recess, and removable beveled wooden sections loosely confined in said slot.

3. A brake shoe having a longitudinal recess opposite the tread of the wheel, said recess being approximately V-shaped in cross section; with movable friction sections loosely mounted in said recess and beveled to engage the beveled sides of the recess.

4. In combination a brake shoe having a longitudinal recess opposite the tread of the wheel, said recess being beveled on its sides, a series of removable wooden sections loosely mounted in said recess, and beveled on their sides to engage the beveled sides of the recess.

5. A brake shoe for flanged wheels, having a groove on its face to accommodate the flange of the wheel, and a recess in its face opposite the tread of the wheel wedge-shaped in cross section; with loose wearing sections in said recess having beveled sides engaging the beveled sides of the recess.

6. In a friction brake shoe for railway cars the combination of a shoe having a longitudinal recess wedge-shaped in cross section, and a series of removable friction sections loosely fitted in said slot, and means for loosely confining said sections in the recess.

7. In combination a brake shoe for flanged wheels having a groove on its face to accommodate the flange of the wheel, and a recess on its face opposite the tread of the wheel wedge-shaped in cross section; with a series of loose wooden friction sections in said recess having beveled sides engaging the beveled sides of the recess.

8. In combination a brake shoe having a longitudinal recess opposite the tread of the wheel, said recess being double beveled or V-shaped in cross section, a series of removable sections loosely mounted in said recess and beveled on their rear sides to engage the sides of the recess, and means for loosely confining said sections in the recess.

9. In combination a brake shoe having a recess in its face opposite the tread of the wheel having beveled sides; with a series of loose friction sections in said recess having

beveled sides engaging the beveled sides of the recess, and means for loosely confining said sections in the recess.

5 10. In combination a brake shoe for flanged wheels having a groove on its face to accommodate the flange of the wheel, and a recess in its face opposite the tread of the wheel wedge-shaped in cross section; with a series of loose friction sections in said recess  
10 having beveled sides engaging the beveled sides of the recess, and means for loosely confining said sections in the recess.

11. In combination a brake shoe for flanged wheels having a groove on its face  
15 to accommodate the flange of the wheel, and

a recess in its face opposite the tread of the wheel wedge-shaped in cross section; with a series of loose wooden sections in said recess having beveled sides engaging the beveled sides of the recess, the grain of the wood lying perpendicular to the tread of the wheel, and means for loosely confining said sections in the recess. 20

In testimony that I claim the foregoing as my own, I affix my signature in presence of  
25 two witnesses.

JOHN H. DAVIS.

Witnesses:

FRANCIS W. CAMERON,  
G. S. SMITH.