(No Model.)

# J. HOWARD.

## BRAKE BEAM.

No. 544,435. Patented Aug. 13, 1895.

Fig. 1.

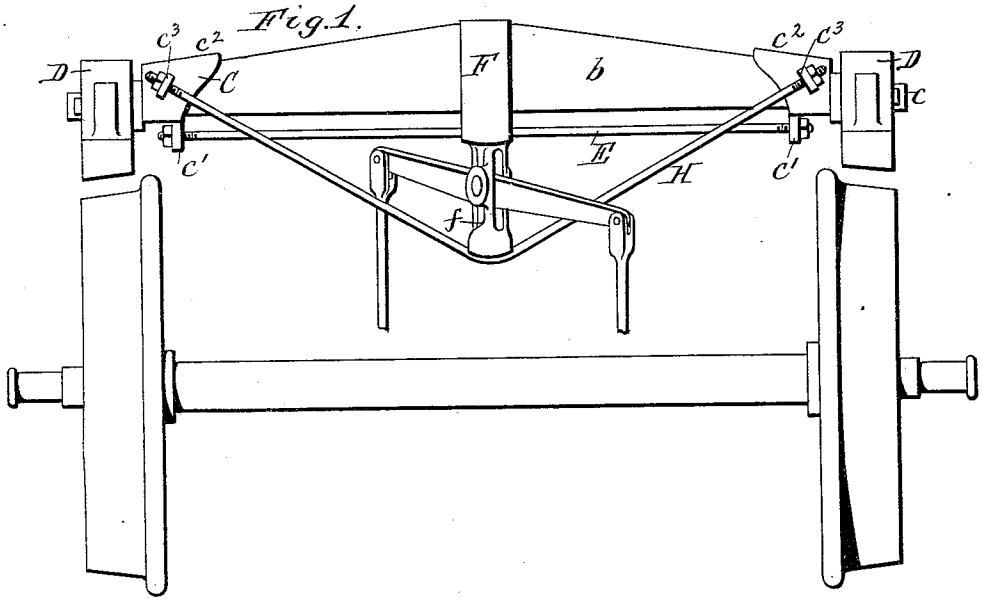



Fig. 2.

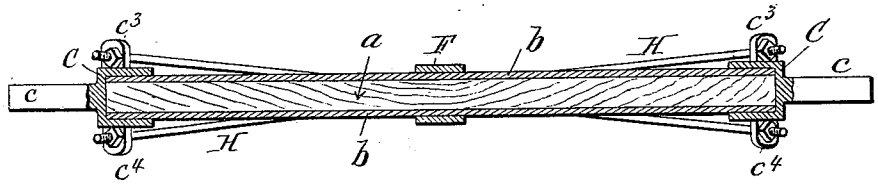
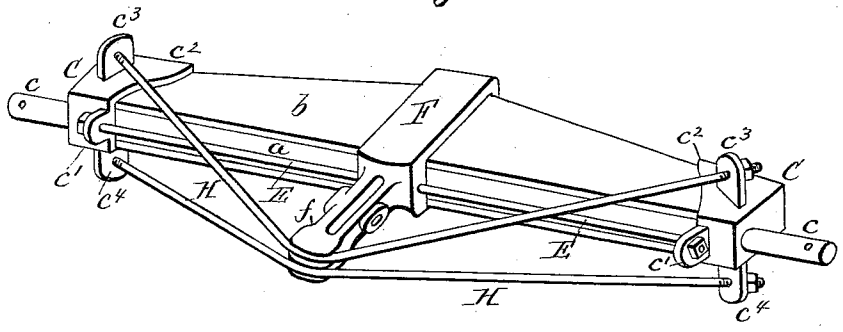



Fig. 3.




WITNESSES:

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# UNITED STATES PATENT OFFICE.

JAMES HOWARD, OF NEW YORK, N. Y.

## BRAKE-BEAM.

SPECIFICATION forming part of Letters Patent No. 544,435, dated August 13, 1895.

Application filed November 10, 1894. Serial No. 528,423. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES HOWARD, a citizen of the United States, residing at New York, in the county and State of New York, have invented a new and useful Improvement in Brake-Beams, of which the following is a specification.

This invention relates to the beams or supports which carry the brake-shoes of railway-cars. The end portions of these beams, which carry the brake-shoes, have a tendency to bend backward or at an angle to the beam under the strain to which they are subjected when the brakes are applied, and when this occurs the shoes bear against the car-wheel only at one edge, thus impairing their efficiency.

My invention has for its objects to produce a strong brake-beam which is free from bolts or similar fastenings that weaken the beam, and to reinforce the end portions of the beam by simple means, so as to prevent bending or deflection thereof, and which can be produced at comparatively small expense.

In the accompanying drawings, Figure 1 is a top plan view of my improved brake-beam in connection with a pair of car-wheels. Fig. 2 is a sectional elevation of the beam. Fig. 3 is a perspective view thereof.

Like letters of reference refer to like parts in the several figures.

The body of the beam is preferably of a composite or laminated structure. In the construction shown in the drawings it consists of a central member or layer *a*, of wood, and metallic outer layers or face-plates *b b*, applied to opposite sides of the wooden layer. The body is preferably tapered toward its ends, as shown.

C represents caps applied to opposite ends of the composite beam and serving to unite the end portions of its members. Each of these caps is preferably provided at its outer end with a projecting horizontal arm or journal *c*, upon which the carrying-head D of the adjacent brake-shoe is mounted; or the caps may be formed with the brake-head, if preferred. The caps are preferably driven upon the tapering ends of the beam to form a tight fit, and they are for this purpose made somewhat smaller than the end portions of the beam.

E is a tie-rod which connects the caps C on the front side of the beam, and which is secured at its ends to lugs *c'* projecting from the front sides of the caps. This tie-rod firmly holds the caps upon the ends of the beam and resists backward bending or deflection of the caps when the brakes are applied. In order to still further counteract the tendency of the caps to bend in this manner the rear side or wall of each cap is extended inwardly beyond the opposite edge of the front side of the cap, as shown at $c^2$, thus increasing the resisting leverage which the cap offers to strains tending to bend it by the application of the brakes.

F is a sleeve, strap, or loop which embraces the middle portion of the composite brake-beam, and whereby the members or layers of the beam are firmly united between the end caps. This sleeve is provided with a forwardly-extending strut *f*.

H represents longitudinal truss-rods which connect the end caps of the beam and which bear with their bent central portions against the front end of the strut, which latter is formed in its end with grooves or depressions in which the truss-rods are seated, as shown in the drawings. The end portions of one of these truss-rods are secured to lugs $c^3$, arranged on the upper side of the end caps, while the end portions of the other truss-rods are secured to similar lugs $c^4$, arranged on the under side of the caps. These truss-rods stiffen the brake-beam and also aid in tying the caps to the beam. They also hold the sleeve F against lateral displacement on the beam without the use of bolts or other fastenings. The tie-rod E preferably passes through an opening formed in the front portion of the sleeve F, as shown.

I is the usual brake-lever, which is pivoted to the strut *f*, and which is connected with the usual brake mechanism.

In my improved brake-beam no bolts or other fastenings which penetrate the beam are employed; but the members or layers of the beam are firmly secured together solely by the end caps and the middle sleeve, and the latter parts are in turn held in place by the tie and truss rods, thus wholly avoiding the use of fastenings which weaken the beam.

By providing the caps with extensions $c^2$

and tying the caps together at their front sides by the rod E and at their sides by the angular truss-rods H, the tendency of the caps to bend backward at an angle to the beam is effectually prevented and the expense of repairing and renewing these parts is saved.

I claim as my invention—

1. In a brake beam, the combination with a composite body, of caps embracing the ends of said body, a sleeve or strap embracing the body between said caps and having a strut, and a tie rod secured at its ends to said caps and bearing against said strut, substantially as set forth.

2. In a brake beam, the combination with the body thereof, of caps applied to the ends of the body and provided on the front side of the beam with lugs or ears, and a tie rod arranged in front of said body and secured at its ends to said lugs or ears, substantially as set forth.

3. In a brake beam, the combination with the body of the beam, of caps applied to the ends of the body and each provided with outwardly projecting journals and with lugs, and a tie rod connecting said caps and secured to the lugs thereof, substantially as set forth.

4. In a brake beam, the combination with the body of the beam, of caps applied to the ends of the body and each provided on its front side with a lug and on its rear side with an extension projecting inwardly beyond the front side of the cap and a tie rod arranged on the front side of the body and secured at its ends to the lugs of the cap, substantially as set forth.

5. In a brake beam, the combination with a composite body, of caps inclosing opposite ends of the body and each provided on its upper side with a lug, on its front side with a lug and on its rear side with an extension projecting inwardly beyond the front side of the cap, a sleeve or strap embracing the middle of the body and having a strut, a tie rod arranged on the front side of the body and secured at its ends to the front lugs of said caps, and a truss rod secured at its ends to the upper lugs of said caps and bearing against said strut, substantially as set forth.

Witness my hand this 2d day of November, 1894.

JAMES HOWARD.

Witnesses:
JNO. J. BONNER,
ELLA R. DEAN.