

(No Model.)

2 Sheets—Sheet 1.

F. E. CASE.  
BRAKE SHOE.

No. 575,789.

Patented Jan. 26, 1897.

FIG. 1.

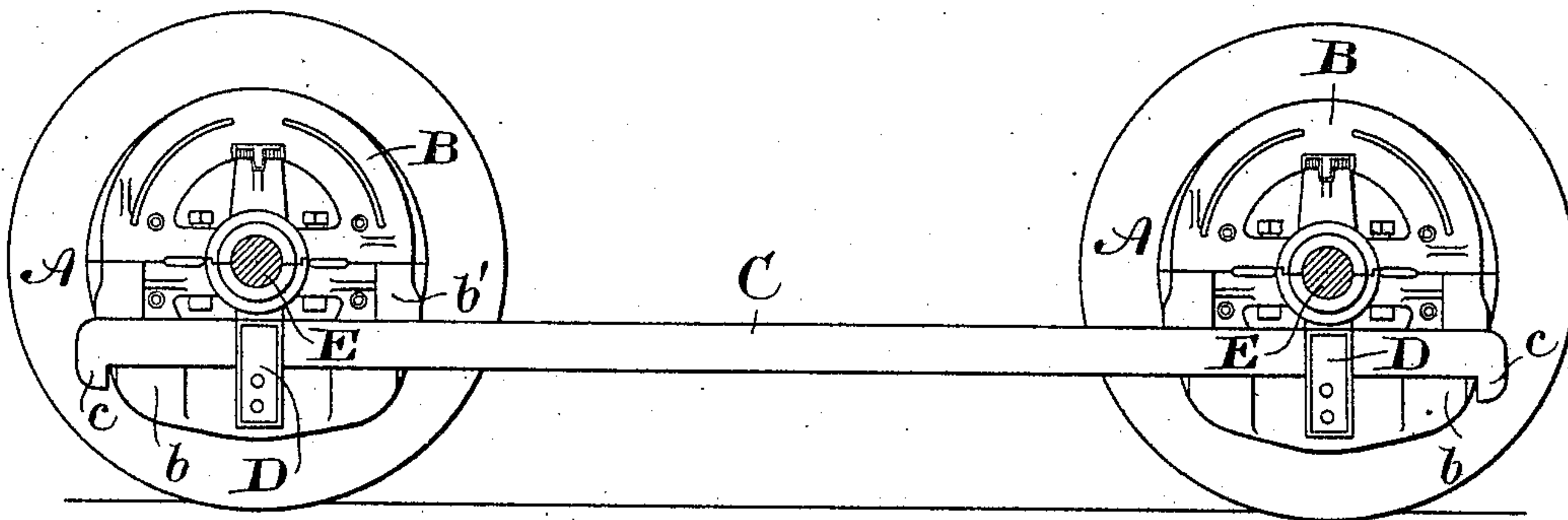
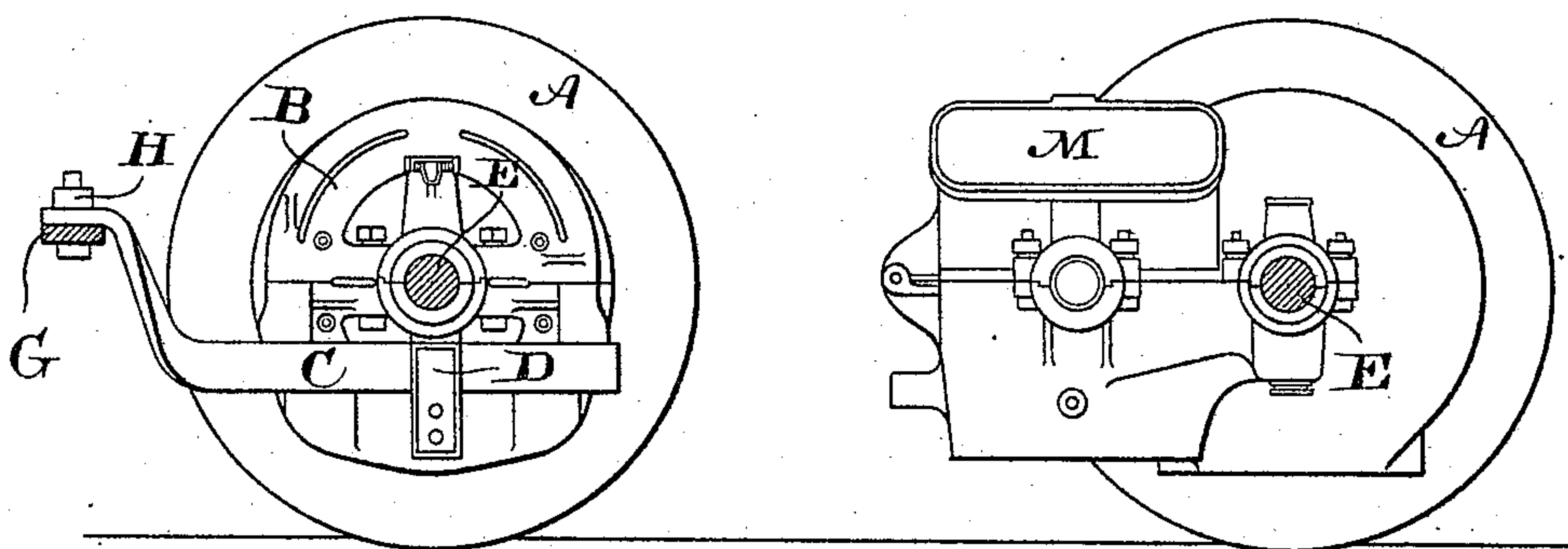


FIG. 2.



WITNESSES.

A. H. Abell.

A. MacDonald.

INVENTOR,  
Frank E. Case, by  
Geo. R. Blodgett,  
Att'y.

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2 Sheets—Sheet 2.

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BRAKE SHOE.

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FIG. 3.

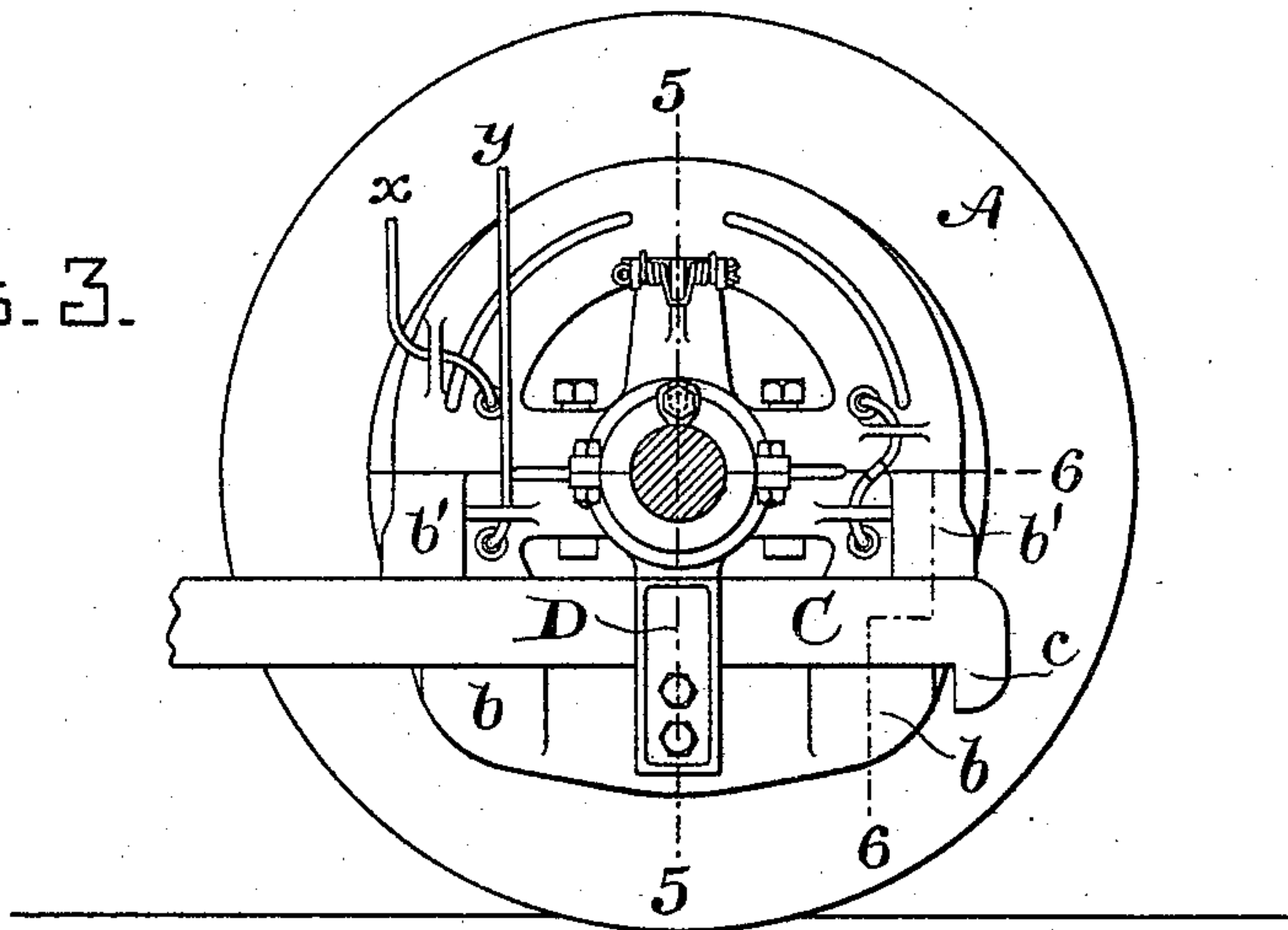


FIG. 4.

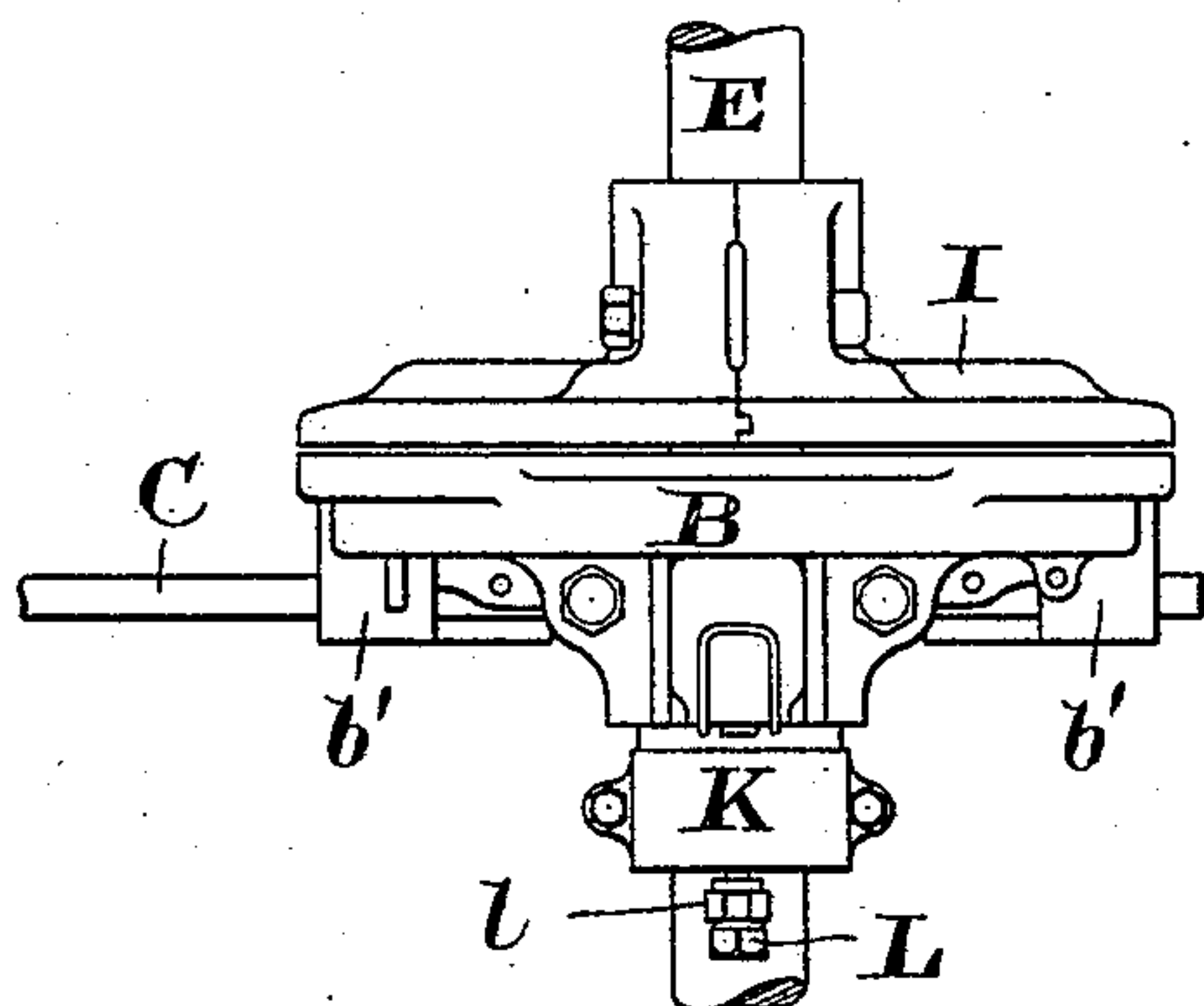


FIG. 5.

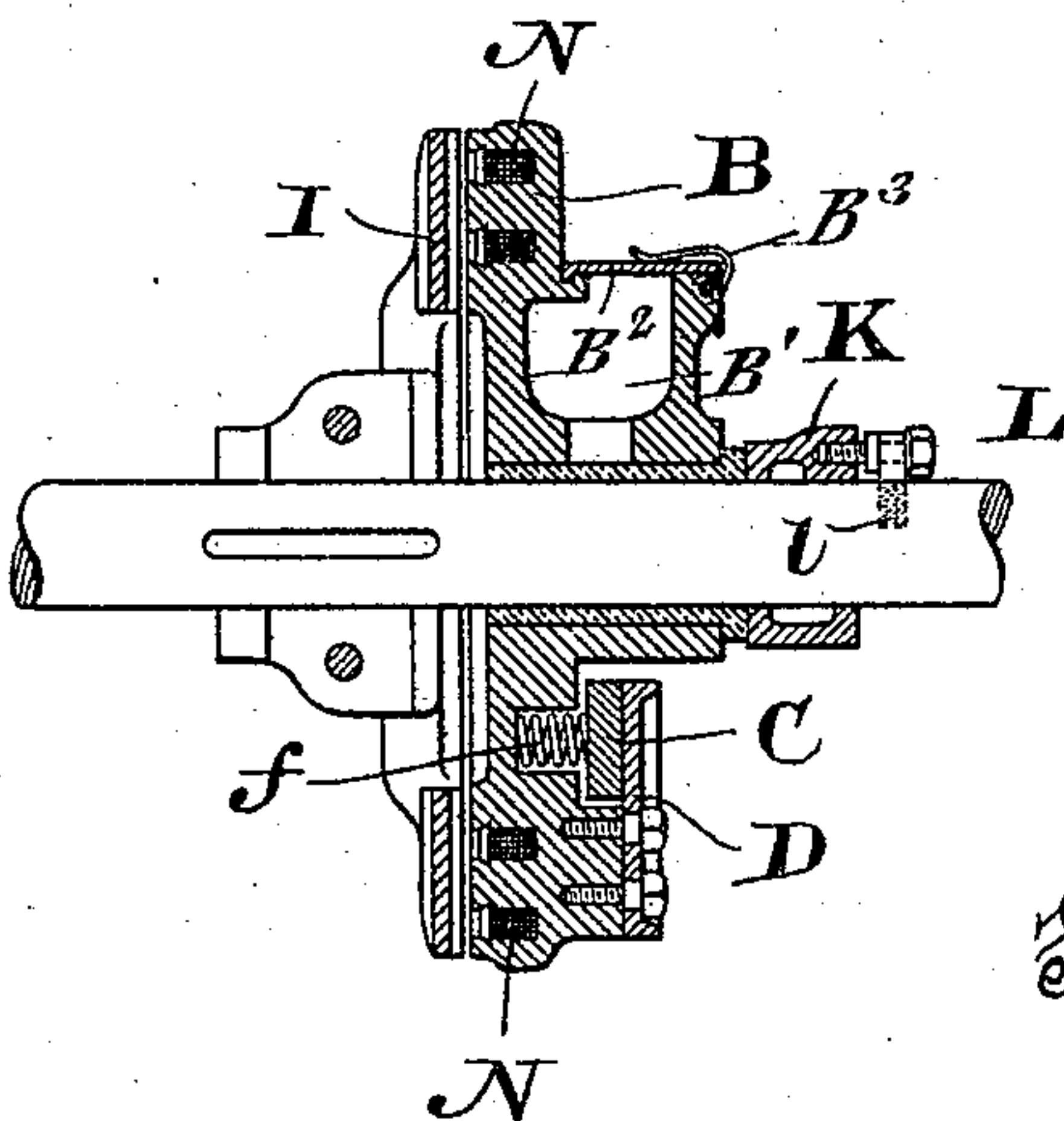
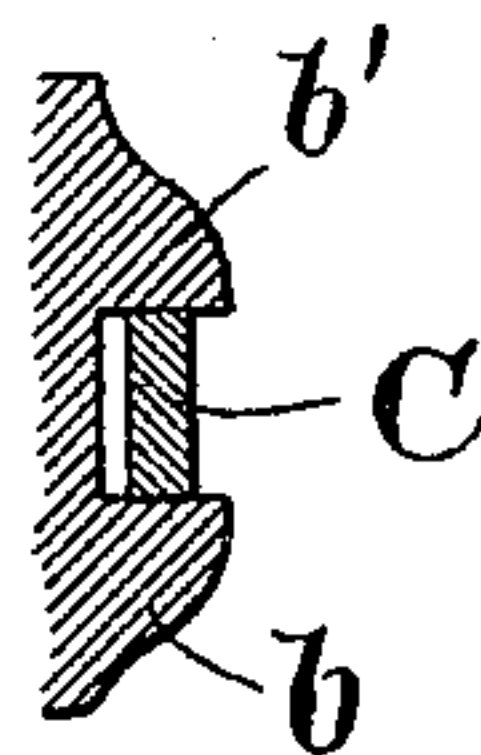


FIG. 6.



WITNESSES.

A. H. Abell,

A. MacDonald.

INVENTOR.  
Frank E. Case, by  
Geo. R. Blodgett,  
Atty.



# UNITED STATES PATENT OFFICE.

FRANK E. CASE, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE  
GENERAL ELECTRIC COMPANY, OF NEW YORK.

## BRAKE-SHOE.

SPECIFICATION forming part of Letters Patent No. 575,789, dated January 26, 1897.

Application filed May 13, 1896. Serial No. 591,366. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK E. CASE, a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Brake-Shoes, (Case No. 391,) of which the following is a specification.

My invention relates to brake-shoes for electric braking apparatus and their mounting, and has for its object to provide a form of shoe and a mounting therefor which may be adapted not only to original installations, but also to old cars of any type.

It consists, briefly, of a special form of shoe which is best adapted to my invention, although the invention is not confined entirely to its use, and a means of preventing the rotation of this shoe, which shall be in a measure independent of the truck and capable of application to all existing apparatus with which I am familiar.

My invention is best understood by reference to the drawings, in which—

Figure 1 is a side elevation of the two shoes applied to the axles of a trailer-car without motors. Fig. 2 is a modified form to be applied to a motor-car. Fig. 3 is an enlarged detail view of the shoe in side elevation. Fig. 4 is a plan of the parts shown in Fig. 3. Fig. 5 is a section upon the line 5 5 of Fig. 3. Fig. 6 is a sectional detail upon the line 6 6 of Fig. 3.

In Fig. 1, A A are the car-wheels; B B, the shoes, which are duplicates. C is a connecting-bar independent of the truck-frame, having lugs *c c* upon its ends to prevent its displacement. D D are retaining-plates secured by bolts to the brake-shoe.

The special construction of the shoe and bar is best shown in Fig. 3. In that figure *b b'* are lugs which are formed upon the shoe, as shown particularly in Fig. 6. Between the lugs the bar C is placed, its action being to prevent the rotation of the brake-shoe. It makes with the lugs a slightly loose fit, so as not to cramp in turning corners or in minor motions of the axle. The same parts are shown in Fig. 4, E being the car-axle, and K being the collar, keeping the shoe in proper place on the axle E. The lug *l* is threaded

into the axle, and the set-screw L engages with the collar to take up any play that may arise from wear of the parts. This is best shown in Fig. 5, which also best illustrates the retaining-plate D. As will be seen from comparison of Figs. 3 and 5, this plate is intermediate between the sets of lugs *b b'* on each side of the center, and it is secured by bolts to the body of the brake-shoe. Opposite the plate is a coil-spring *f*, bearing against the bar C and preventing any rattling of the bar and shoe. The spring *f* should be just sufficiently stiff for this. The bar C is made a slightly loose fit in the recess formed by the plate D and the shoe, so that the bar will not cramp in vibrations of the axle.

Each of the brake-shoes B is provided at its upper portion with an oil-cup B', having a hinged cover B<sup>2</sup>, held in closed position by means of a spring-hinge B<sup>3</sup>, all as clearly shown in Fig. 5 of the drawings.

N N are the coils embedded in the brake-shoe, their use being well understood.

I is the coöperating disk secured to the axle and forming a friction-surface for the shoe.

Referring now to Fig. 2, I show how a single shoe may be mounted upon an idle-axle of the truck and embody my invention. In this case G is a cross-bar or other convenient portion of the truck, which is not illustrated as a whole, and H is a pin. The bar C is in this figure shown as bent, so as to engage with the cross-bar G, and is held in place by the pin H.

In Fig. 3 the electric connections are indicated at *x y*; but these form no special part of the present invention, being well known in the art.

The construction described is one well adapted to the idle-axles of electric cars or other vehicles, the ordinary forms of brake-shoe being intended only for application to motor-driven axles, and being therefore arranged to be supported upon a part of the motor. As ordinarily arranged these shoes are inconvenient of application to idle-axles and require, when so adapted, to be secured at some point to the truck-frame, so that their rotation may be prevented. In many forms of equipment the truck-frame is not sufficiently strong to provide for this, and to such

apparatus the form of my invention shown in Fig. 1 is well adapted, as it brings no additional strain upon the truck; but in motor-driven cars the trucks are ordinarily amply strong, so that the brake-shoe may be used as shown in Fig. 2.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A disk electromagnetic brake-shoe, having  
10 a disk mounted on a car-axle, and provided on its face with sets of lugs and a retaining-plate intermediate of said lugs; in combination with a locking-bar located in said lugs and held in position by said plate, the bar  
15 being secured to prevent rotation of the shoe, as herein set forth.

2. A pair of disk electromagnetic brake-shoes, each mounted on a separate car-axle and each having lugs and a retaining-plate, in combination with a locking-bar engaging 20 said lugs on both shoes.

3. In combination, a brake-shoe provided with lugs having a recess between them, a bar in the recess, a plate for retaining the bar in position, and a spring for taking up the play 25 of the parts.

In witness whereof I have hereunto set my hand this 12th day of May, 1896.

FRANK E. CASE.

Witnesses:

B. B. HULL,

A. F. MACDONALD.