

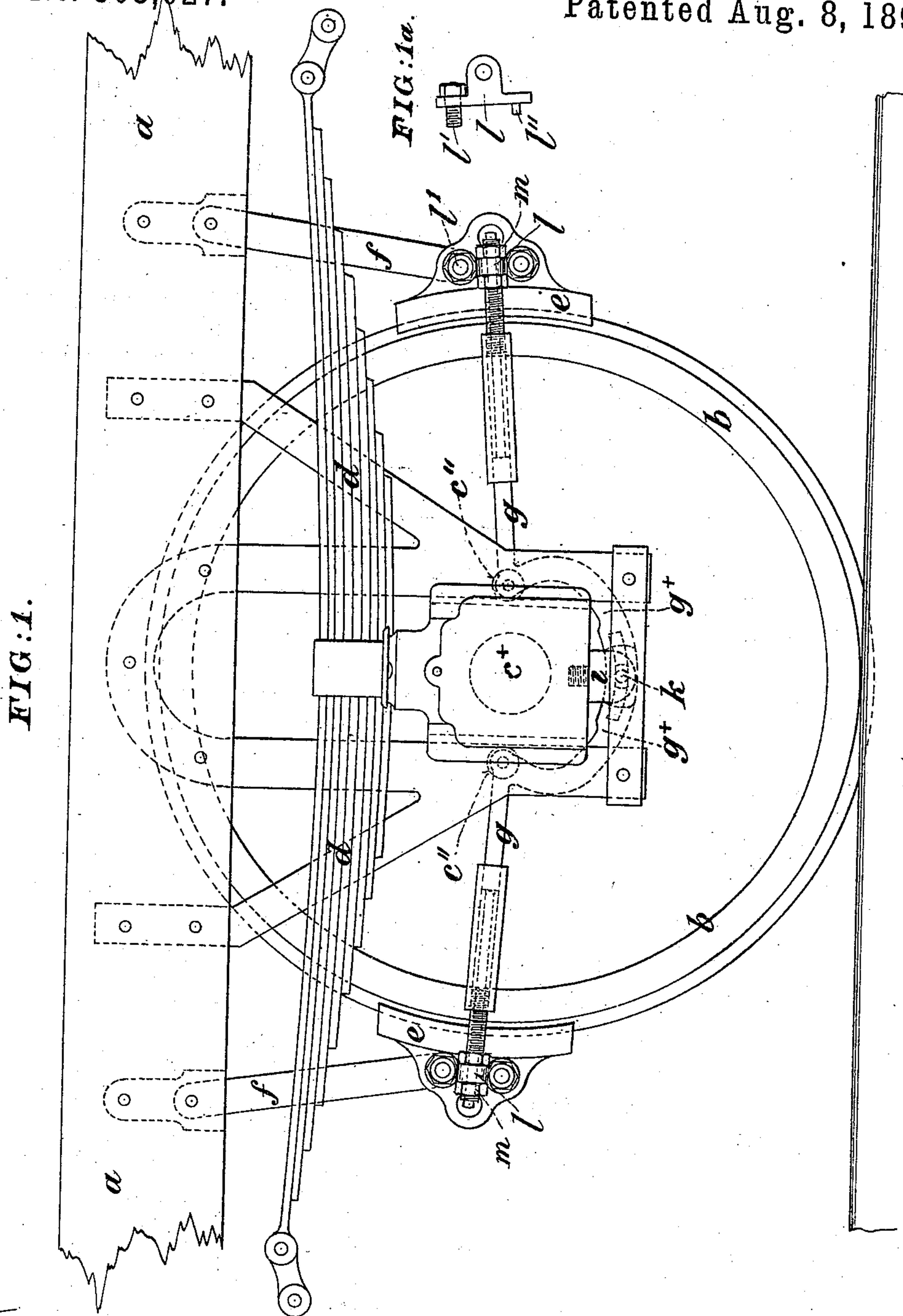
(No Model.)

T. A. AINSCOUGH.  
RAILWAY CAR BRAKE.

3 Sheets—Sheet 1.

No. 503,027.

Patented Aug. 8, 1893.



Witnesses  
George Baumann  
James Gracie

Inventor  
Thomas Atkinson Sinscough  
By his Attorneys  
Horsman and Horsman

(No Model.)

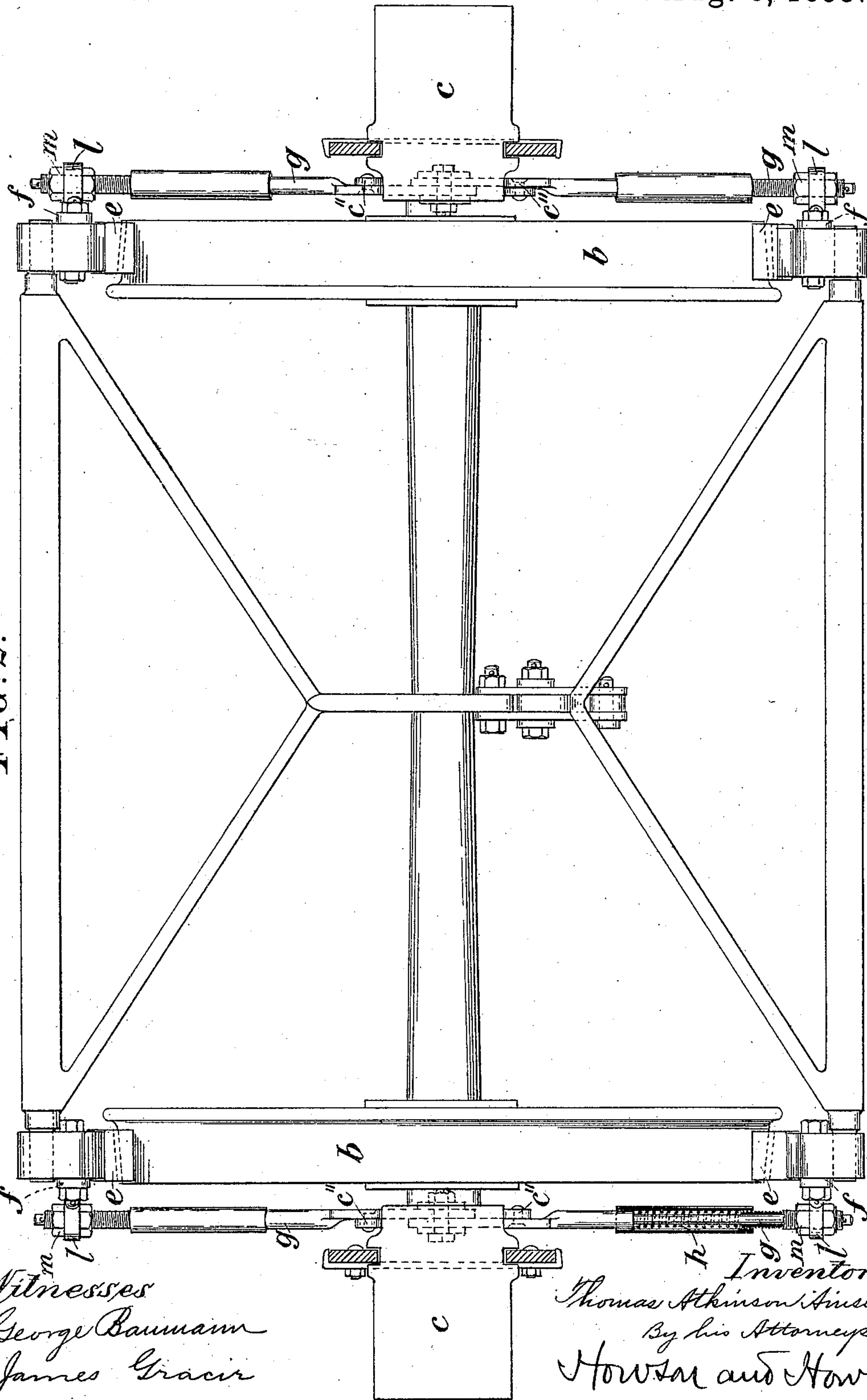
3 Sheets—Sheet 2.

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FIG: 2.



(No Model.)

3 Sheets—Sheet 3.

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FIG: 4.

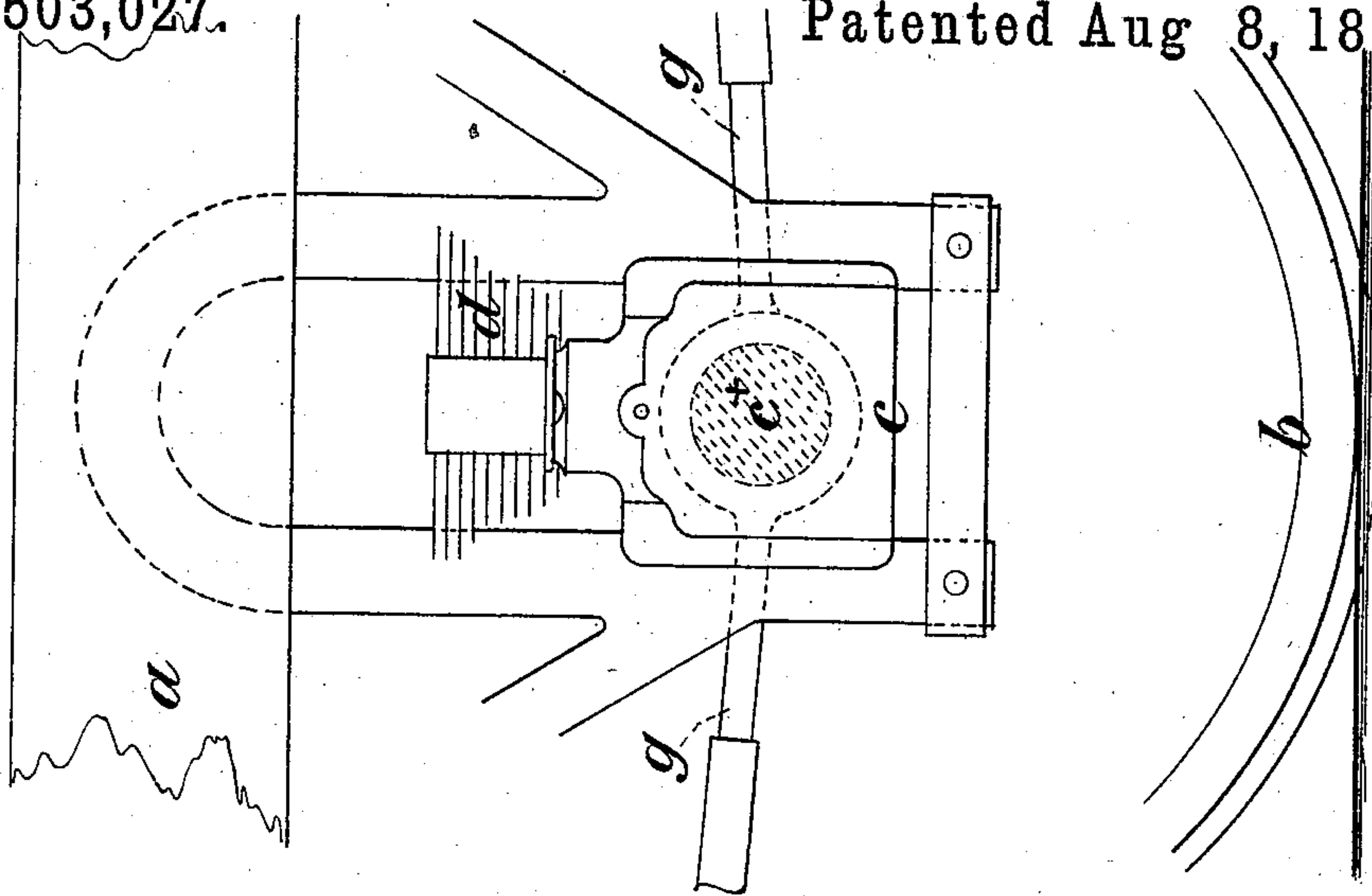
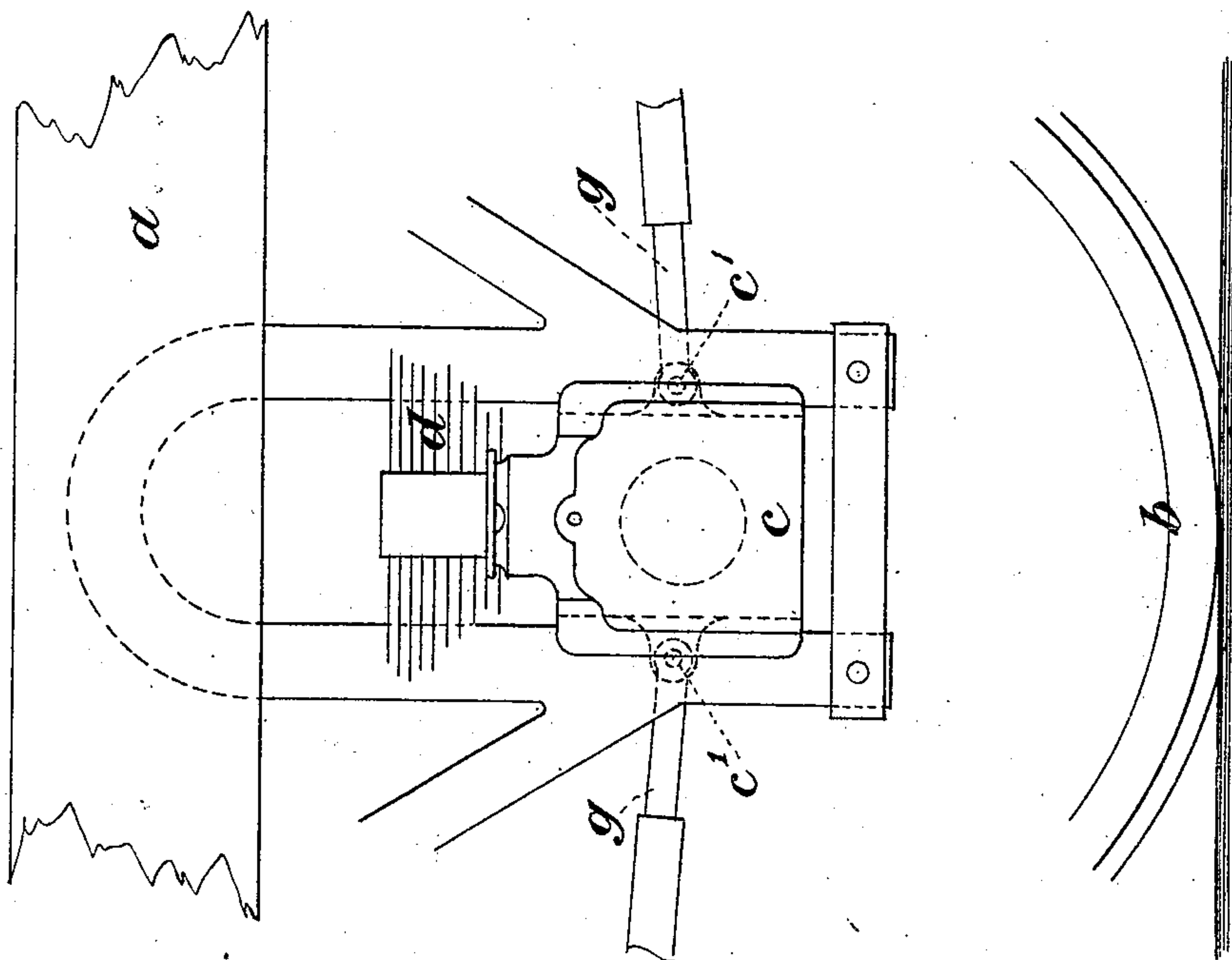


FIG: 3.



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# UNITED STATES PATENT OFFICE.

THOMAS ATKINSON AINSCOUGH, OF MANCHESTER, ENGLAND, ASSIGNOR OF TWO-THIRDS TO CHARLES NAPIER AINSCOUGH AND JAMES AINSCOUGH, OF SAME PLACE.

## RAILWAY-CAR BRAKE.

SPECIFICATION forming part of Letters Patent No. 503,027, dated August 8, 1893.

Application filed April 25, 1893. Serial No. 471,783. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS ATKINSON AINSCOUGH, a subject of the Queen of Great Britain and Ireland, residing at Newton Heath, near Manchester, in the county of Lancaster, England, have invented Improvements in Railway-Brakes, of which the following is a specification.

This invention relates to the means for carrying, regulating and applying the brake blocks which are used in connection with the wheels of railway engines, carriages, and trucks, the principal objects of the invention being to prevent unnecessary wear of such brake blocks due to the rising and falling of the body or frame of the carriage upon the springs (which motion is vertical) from drawing the lower or upper edges of the brake block against the periphery of the wheel, thereby not only unnecessarily wearing away the blocks, but also materially increasing the draft owing to the friction.

The nature of the said invention and the manner in which the same is to be performed or carried into practical effect will be readily understood on reference to the three sheets of drawings hereunto annexed and the following explanation thereof.

Figure 1 on the drawings is a side elevation of part of the frame, wheel, and axle box of a railway carriage showing the application of the invention thereto, and Fig. 2 is a plan view of the same as seen from beneath. Figs. 1<sup>a</sup>, 3 and 4 illustrate modifications hereinafter described.

*a* is part of the wooden frame of the carriage or truck, *b* the wheel, *c* the axle box, *d* the spring, and *e* the brake blocks.

For the purposes of my invention I not only support each brake block *e* by the usual hanger *f* suspended from the body of the carriage, but I also connect it by a radius arm *g* to the axle box *c* so that as the brake block *e* rises and falls with the carriage, instead of moving in a perpendicular direction, as heretofore, it rises and falls in a curved direction corresponding with the circumference of the wheel, so that no part of its surface is brought

into contact with the wheel by the ordinary spring motion of the carriage. This radius arm *g* is not rigid, or it would not allow of the brakes being "put on" when required, but is made in two parts sliding telescopically, and provided with a coiled spring *h* (see Fig. 2) so as to allow of the arm *g* being shortened when the brakes are applied in the usual manner, and returning it to its original length when the brakes are released.

One end of each radius arm *g* may be pivoted to each side of the axle box, at the points *c'* (see diagram Fig. 3) or they may both be pivoted at the central point *c<sup>x</sup>* (see diagram Fig. 4) so that their action will be that of a radius moving round the center or axis *c<sup>x</sup>* of the wheel, but in applying the same to carriages or trucks already in use I prefer to obtain this radial action in the manner shown at Fig. 1 on the drawings, so that it is only necessary to drill and tap one hole in the bottom of the axle box for attaching the fixing *i* thereto. This fixing *i* carries a pin *k* working in a curved slot in each of the cranked pieces *g<sup>x</sup>* attached to or forming part of the radial arms *g*, and the action of these curved slots on the fixed pin *k* will give the arms *g* the same radial action as though they were pivoted on the axis *c<sup>x</sup>*, the crank of each arm at *c''* being fitted with a bowl which works up and down vertically in contact with the side of the axle box.

The outer end of each arm *g* is attached to a fixing *l* bolted to the brake block *e* one of the bolts *l'* acting as the stud or pin which connects the hanger *f* to the brake block *e*, so that the latter cannot rock or swing upon the connecting pin or bolt but is kept quite firm, and compelled to rise and fall in a curve corresponding with the rim of the wheel, and at a definite distance therefrom. Instead of connecting the fixing *l* by two bolts it may be connected by one bolt only at the top (as shown on detached side view Fig. 1<sup>a</sup>) and be provided with a steady-pin or stud *l''* which takes into a hole made in the brake block for that purpose.

The outer end of each radius arm *g* is screwed, and adjusting nuts *m* are provided



to set the block *e* nearer to the circumference of the wheel *b* as either (or both) may become worn away.

The advantages of this radial arm brake regulator are as follows:—(First.) It prevents the brake rigging from swinging to and fro on the pivots and centers, thus saving all the studs, bolts, pins, and holes from unnecessary wear. (Second.) It prevents the brake block from rocking on its centers, thus keeping the upper and lower edges from bearing against the wheels, and keeps the block always square and at a definite distance from the wheel under all circumstances. (Third.) It thus greatly reduces the unnecessary friction and minimizes the draft thereby saving wear and tear, steam and fuel, to a very considerable extent. (Fourth.) With the vacuum, air or steam brake it also allows of a very close but free adjustment of the block to the wheel and hence reduces the distance which the piston is required to travel in putting on the brake, and thus effects a great saving in the time required

to apply the brake effectively, and stops the train in a much shorter distance.

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I claim—

The combination with the brake block, of an arm so arranged that it works in a radial direction on the axis of the wheel as a center, thereby causing the brake block to move always in a curve parallel to and equidistant from the circumference of the wheel or nearly so, the said arm being provided with means for contraction and extension in the direction of its length to allow of the application and withdrawal of the block to and from the periphery of the wheel, substantially as and for the purposes hereinbefore set forth.

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In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS ATKINSON AINSCOUGH.

Witnesses:

GEORGE DAVIES,  
JNO. HUGHES.