

(No Model.)

R. D. CHATTERTON.

CAR BRAKE.

No. 245,938.

Patented Aug. 23, 1881.

Fig. 1.

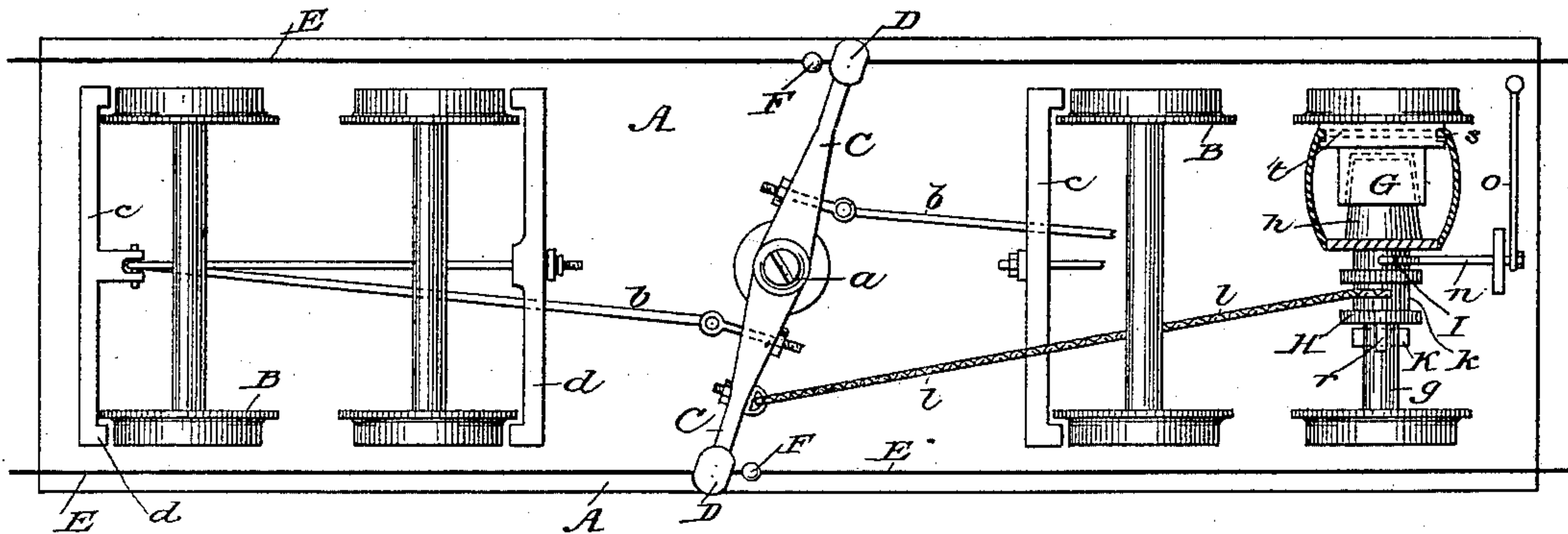


Fig. 2.

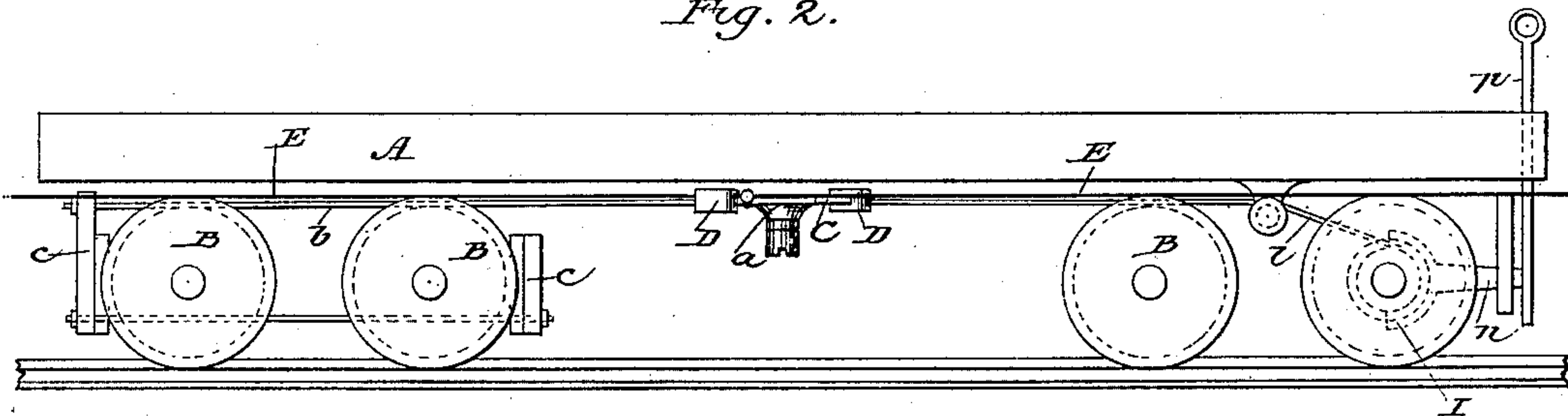


Fig. 3.

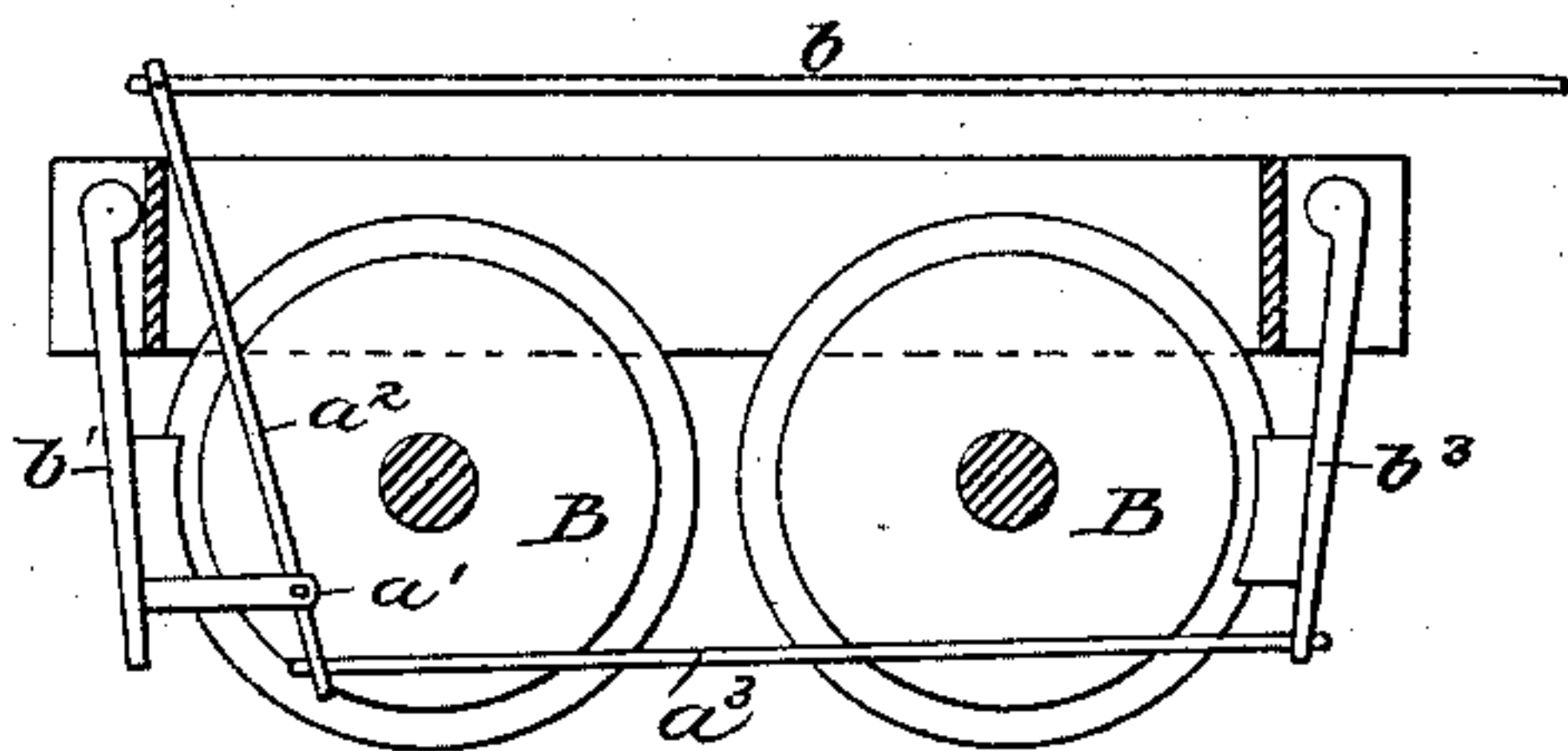
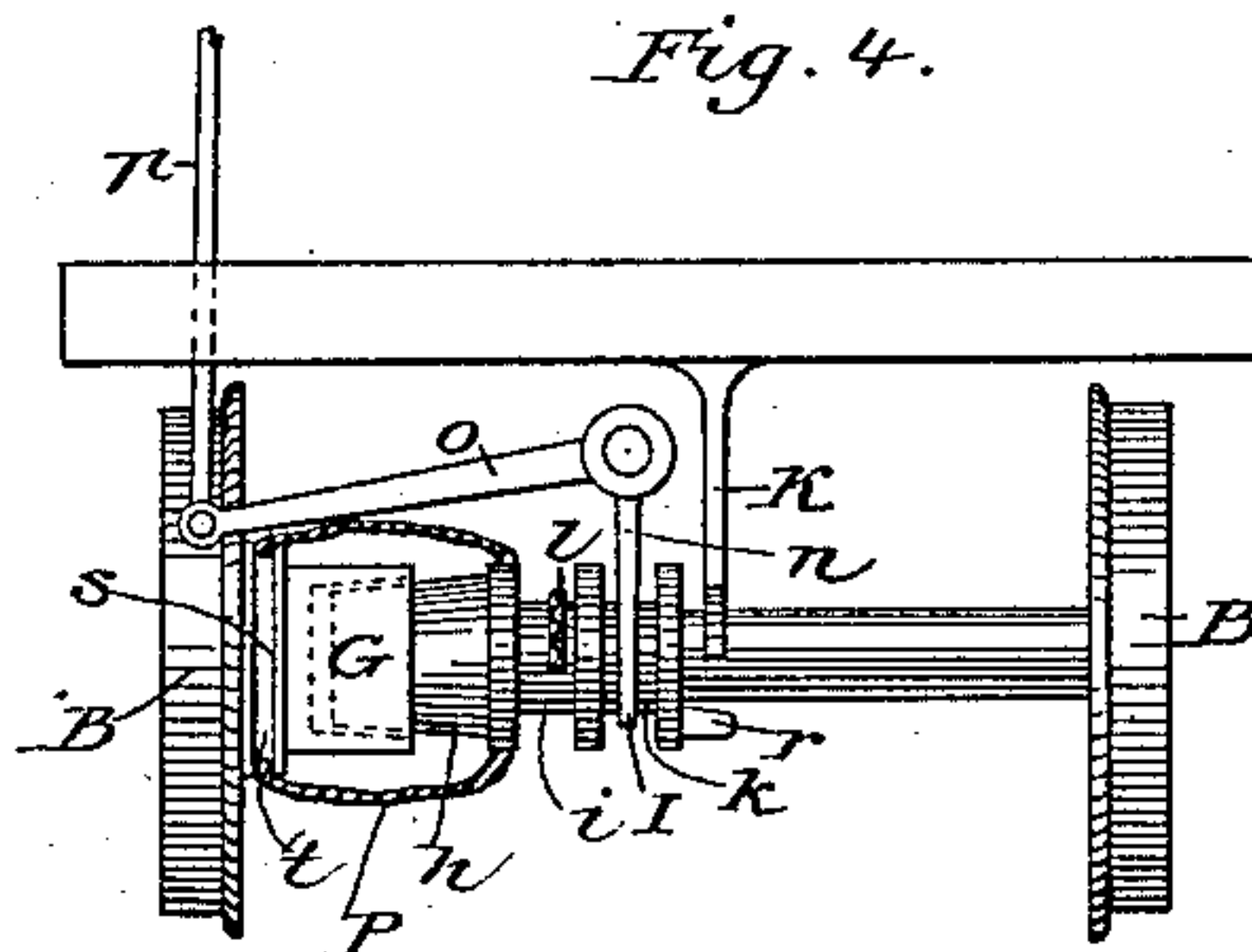


Fig. 4.



Witnesses:

E. G. Ward;

E. Mamel;

Inventor:

Richard D. Chatterton  
By A. L. Anderson  
Atty.



# UNITED STATES PATENT OFFICE.

RICHARD D. CHATTERTON, OF COBOURG, ONTARIO, CANADA, ASSIGNOR  
OF TWO-THIRDS TO JOHN S. HULIN, OF NEW YORK, N. Y.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 245,938, dated August 23, 1881.

Application filed February 15, 1881. (No model.)

*To all whom it may concern :*

Be it known that I, RICHARD D. CHATTERTON, of the town of Cobourg, in the united counties of Northumberland and Durham, in the Province of Ontario and Dominion of Canada, have invented a new and useful Improvement in Car-Brakes, of which the following is a specification.

This invention relates to sundry improvements upon the system of automatic friction power-brakes for which a patent was issued to me on March 11, 1879, being numbered 213,171.

The present invention consists, mainly, in certain methods of operating the brake mechanism of an entire train of cars from the engine or from any car in the train; in an improved method of the application and controlling of a friction-power clutch mechanism attached to one of the axles of either engine or cars, or to all of them; in the means of applying such power to the brakes of an entire train, even though "foreign cars," or cars unprovided with the apparatus, may intervene and make a part of the train; and, also, in an improved method of constructing the brake mechanism, all of which will be hereinafter fully pointed out and described.

In the drawings, which form an essential part of this specification, Figure 1 is a plan view of the under side of a car to which my invention is applied. Fig. 2 is a longitudinal elevation of the same. Fig. 3 is a detached view of the brake mechanism, and Fig. 4 is a detached end view, showing the method of operating and controlling the friction-clutch.

The same letters of reference marked on the various figures of the drawings will locate and designate corresponding parts.

A represents the bottom of a car-body of the usual construction.

B are the car-wheels, which are mounted in any approved form of trucks, my invention not involving any change therein.

C is a lever, arranged as the operating medium for applying the brakes, and it may, in connection with my invention, be operated by the ordinary means employed; which, being well understood, are not shown in the drawings, not being essential to the proper under-

standing of my invention. This operating-lever C is mounted upon a fulcrum pivot or shaft, *a*, depending from the body of the car A, and is connected by means of wire ropes, rods, or chains *b* to the brake-beams *c*, which may be of the usual form, and arranged to apply the brake-shoes *d* simultaneously to all the wheels of each truck. This brake-lever C is elongated, as shown in Fig. 1, and both extremes are provided with a slot, D, through which are passed longitudinal wire ropes or rods E, which reach to the ends of the car on both sides, as shown. Such ropes or rods may be mounted and play in suitable guides attached to the car-body, and the ends thereof provided with hooks or other means by which they may be attached to similar rods or chains attached in a similar manner to the preceding and following cars. Such means of attachment, being ordinary mechanical devices, need no description here.

Near the slots D, in which the rods or ropes E play, stop-blocks F are attached to such rods, against which the ends of lever C will press whenever the lever is moved, causing the rods or chains to which the stop F is attached to draw to the right or left, according to the direction in which the lever C is moved.

To one of the axles of the engine or car there is firmly secured a frictional winding-clutch, by means of which and a chain connected to the brake-lever C the brakes are applied and operated. This clutch consists, essentially, of an annular shoe, G, firmly attached to the axle *g* by any approved means, the interior of such shoe being turned out in taper form, substantially as is indicated by the dotted lines in Figs. 1 and 4. Upon the same axle a revolving reciprocating slide, H, is affixed, the inner end, *h*, thereof being tapered, or partaking of the form of a truncated cone, and arranged to enter and fit the tapering recess in the annular shoe G. This revolving reciprocating slide H is provided with two annular recesses, *i* and *k*, in one of which is secured one end of the chain *l*, the other end thereof being attached to the brake-lever C. Into the other recess is introduced the forked lever I, which is moved to the right or left by means of operating-levers



*n*, *o*, and *p*. It is obvious that in case lever *p* is raised the action of the connecting-levers *n* and *o* will cause the forked lever *I* to move to the left, driving the cone-shaped end *h* into the tapered recess in the annular shoe *G* until it binds therein, and that, if such shoe is revolving, the motion thereof will be imparted to the reciprocating slide *H*, causing the chain *l* to be wound up in the recess *i*, and that this action will draw the brake-lever *C* and set the brakes.

In order to prevent too great a strain and to limit and control the operation of these frictional devices, I have applied a "stopper," which can be set to arrest the winding action of the slide *H* at any portion of a revolution. It consists of the depending stop *K* and a pin, *r*, projecting from the outer end of the reciprocating slide *H*. The location of this pin will determine the point during a single revolution at which the slide is to strike the stop *K* and arrest its movement and its winding action upon the chain *l*, which draws the brake-lever *C*.

In order to protect the working parts of this friction device from the deteriorating effects of dust, &c., a collapsible yielding cap or cover is employed, substantially as shown in the drawings, one end thereof being attached to a revolving ring, *s*, playing in an annular groove, *t*, in the shoe *G*, the other end being affixed to the periphery of the reciprocating revolving slide *H*, or vice versa, as may be deemed best. It is obvious that this protecting-cap will give way and rotate in unison with the movements of the slide *H*.

In connection with my invention I have devised a double compound-lever arrangement for manipulating and setting the brake-beams. This will be seen best in Fig. 3. It consists of the horizontal support *a'*, projecting from the base of the brake-beam *b'*, a vertical lever, *a<sup>2</sup>*, being pivoted thereto, its base projecting below the fulcrum-point, its upper end being attached to the operating-lever *b*. At the base of this lever *a<sup>2</sup>* a rod, *a<sup>3</sup>*, is attached and connected to the base of the opposite brake-beam, *b<sup>3</sup>*. The drawing of the lever *a<sup>2</sup>* causes the brake-beam *b'* to apply its shoes to the wheels, while the base of the lever *a<sup>2</sup>* draws in an opposite direction, causing the rod *a<sup>3</sup>* to apply

brake-beam *b<sup>3</sup>* and its shoes to other wheels. I prefer this form of brake mechanism; but my system of applying power thereto is equally applicable to the old and well-known form of braking apparatus.

The operation of my invention is substantially as follows: By raising the lever *p* its connections attached to the forked lever *n* will cause it to move to the left, forcing the slide *H* in the same direction, its cone-shaped end entering the tapered recess in the shoe *G*, which is revolving with the axle to which it is secured. As soon as the cone end binds in the shoe its motion is imparted to the slide *H*, which, in revolving, winds the chain *l* into the annular recess *i* until the pin *r* strikes the stop-lever *K*, at which point it ceases to rotate, the cone end of the slide *H* slipping in the tapered seat in the shoe *G*, the operator of the lever *p* raising or lowering it to ease or apply the power, as circumstances demand. The winding of the chain *l* draws the brake-lever *C* and operates the brakes, as before described. It is immaterial which way the train is moving, as the apparatus operates the same in either case.

It is obvious that by means of the connecting rods or ropes *E* the power applied from any axle (provided with the apparatus) on any car in the train or from the engine will be applied to every car in the train.

What I claim as my invention is—

1. The combination of the axle *g*, the clutch-shoe *G*, revolving reciprocating slide *H*, operating-lever *n*, stop *K*, chain *l*, swinging brake-lever *C*, provided at each end with stop-slots *D*, and operating-rods *E*, all arranged, applied, and operating substantially as and for the purposes as herein shown and set forth.

2. The combination, with a frictional brake-clutch mechanism applied to the axle of a railway-car as a permanent attachment, of a revolving flexible cap or cover applied thereto, substantially as and for the purposes as herein shown and set forth.

RICHARD D. CHATTERTON.

Witnesses:

ROE BUCK,  
R. D. BENSON.