

G. B. STOCK.
Railway Car-Brake.

No. 224,966.

Patented Feb. 24, 1880.

FIG. 1

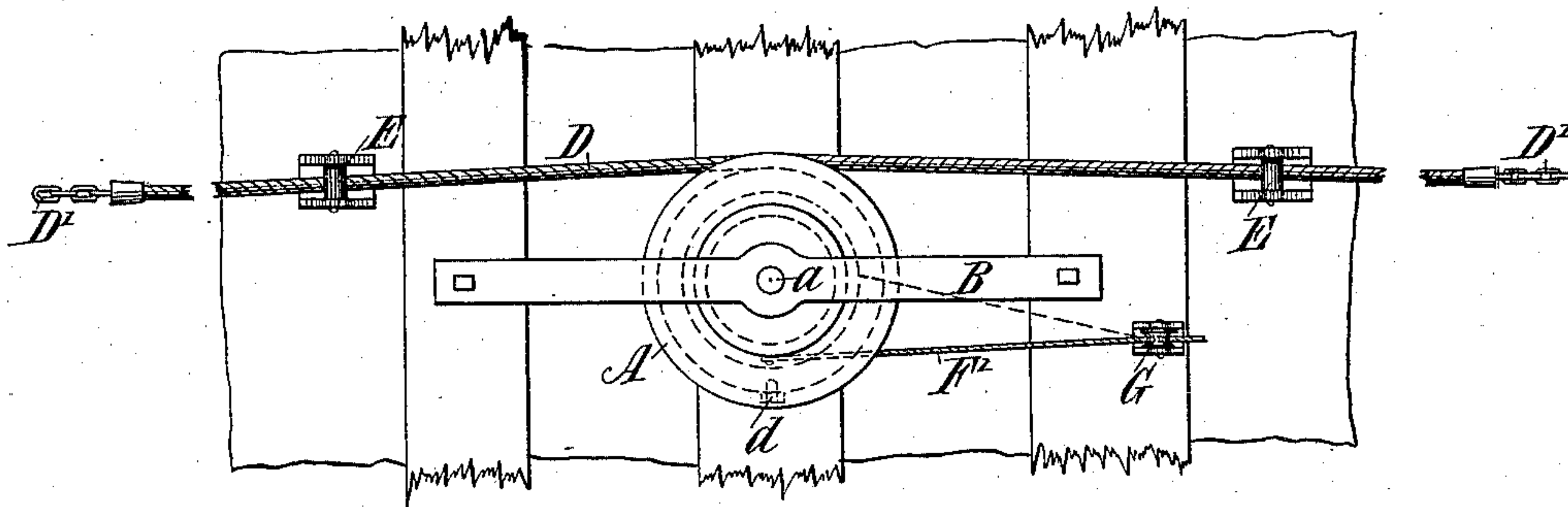


FIG. 2

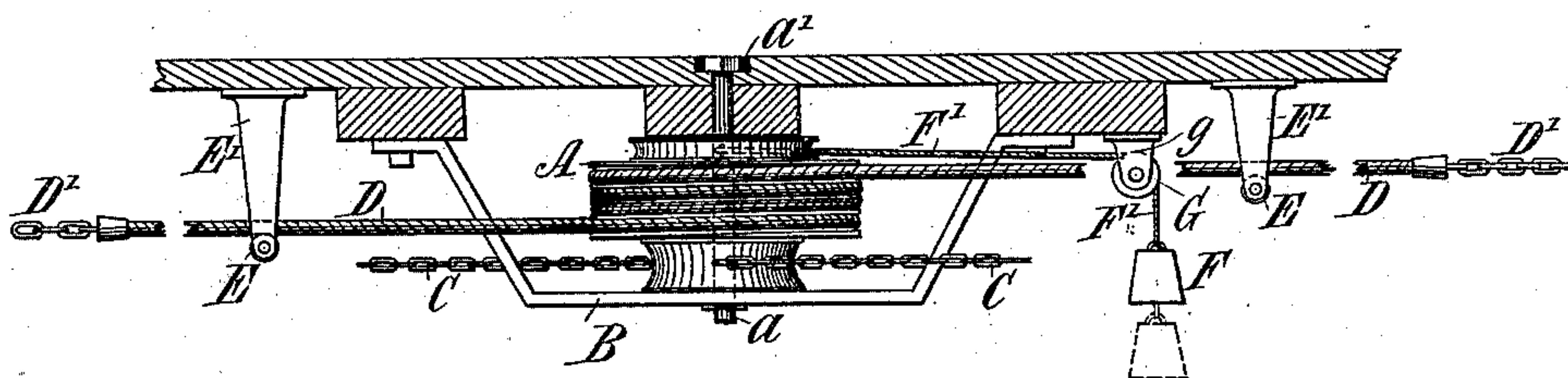
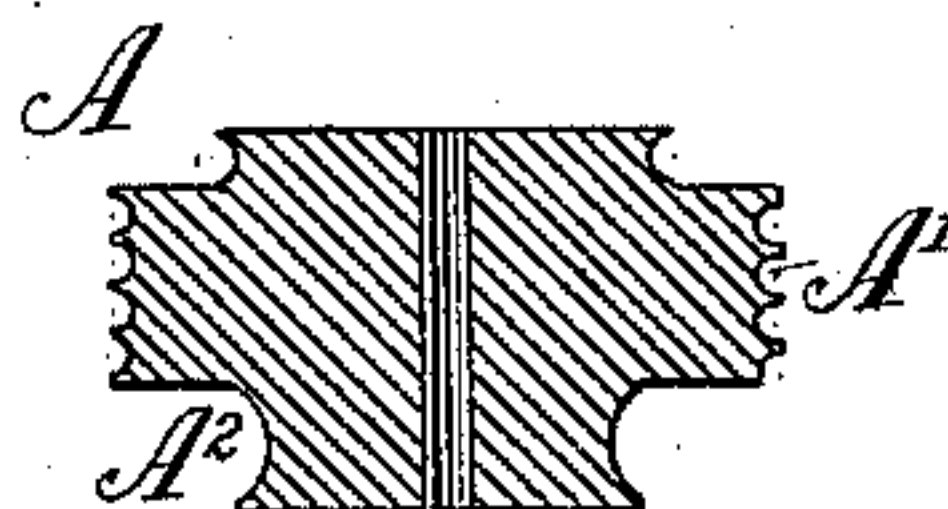


FIG. 3



—Witnesses:—

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—Inventor:—

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D. H. Keyhole

UNITED STATES PATENT OFFICE.

GEORGE B. STOCK, OF TORONTO, ONTARIO, ASSIGNOR TO THE INTERNATIONAL RAILWAY SUPPLY COMPANY, (LIMITED,) OF MONTREAL, CANADA.

RAILWAY-CAR BRAKE.

SPECIFICATION forming part of Letters Patent No. 224,966, dated February 24, 1880.

Application filed September 10, 1879.

To all whom it may concern:

Be it known that I, GEORGE BOKY STOCK, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented certain new and useful Improvements in Railway-Brakes; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention has reference to that class of brakes (placed under the control of the driver or other train-hand) which operate to apply the brake-shoes simultaneously to each car, and is intended to supply for that purpose a device which shall possess the attributes of being at once simple and inexpensive in construction, direct and instantaneous in its action, easily put in gear when the cars are coupled together, and not liable to get out of order.

My invention may be thus described: On the under side of each car I secure one or more sheaves having a spiral thread cut upon them, and carried with their spindles vertically in suitable hangers, around these sheaves being taken a chain or cable of wire, or any other material possessing great tensile strength, this being firmly secured to the sheave at any point or points of its circumference. These sections of wire cable are of such length that, after passing round the sheave or sheaves, they will extend a certain distance at either end beyond the car under which they are attached, their ends being formed by short chains. These sections, when the cars are coupled up, can be fastened together by a hook, link, or any other suitable means, (sufficient allowance being made for the longitudinal play of the cars,) so as to form a continuous line the whole length of the train, the forward end of the section under the front car being secured to a similar cable arranged in like manner round a sheave under the tender, and having its end secured to a transverse shaft placed under the cab of the locomotive. The revolution of this shaft (by suitable means, worked either by hand or mechanical power and put in operation by the driver) will wind up on it the end of the wire cable, thereby drawing on it so as to rotate simultaneously all the sheaves round which it

passes and wind up all the brake-chains attached to them, so as to bring at once all the brake levers and shoes to bear on the several wheels. As soon as the transverse shaft is turned in the opposite direction, thus releasing the rope, a counterbalance-weight or other device attached to each sheave brings it back to its original position, thus throwing off the brakes, taking up the slack of the cable, and leaving the brake mechanism again ready for operation when required.

For full comprehension of the invention, reference must be had to the annexed drawings, in which similar letters indicate like parts, and where Figure 1 shows a plan of the invention. Fig. 2 shows a side view of same, and Fig. 3 shows a section of sheave.

A is the sheave, to be presently more particularly described, carried on the under side of the car, the spindle *a* passing up, preferably, through one of the transoms, and having its upper end preferably carried in suitable bushing *a'*, and its lower end, as shown, by a hanger, B, securely attached to the bottom of the car in any usual way. If desired, it may in some cases be found best to arrange this sheave with the spindles carried horizontally in the hangers.

Upon the sheave A is cut a spiral concave thread, *A'*, of two, three, or four turns, according as the brake is required for freight or passenger trains, and the amount which it may be rotated varying in proportion to the number of turns of the spiral, from a quarter-turn to the full revolution. The lower part of this sheave A is preferably formed as a drum, *A*², and has secured to it the ends of the brake chain or chains C, which, by the rotation of the sheave, are wound up thereon and act directly upon the brake levers and shoes, to which they are connected in the usual way.

D is the cable, made of steel wire or any other suitable material, and of such section as to give the necessary tensile strength, made in separate sections for each car, carried round each sheave and secured thereto by any usual device, such as a rivet, *d*, either at one or more points. These cables are taken from the sheave or sheaves to the ends of the car through

any desired number of grooved pulleys E, (in suitable hangers, E', secured to the floor of the car,) and preferably arranged to be brought out under the draw-bars, D' D' being chains or links forming the end of each section, and
 5 any suitable means, such as a double hook, union, &c., being provided for coupling together the several car-sections of the cable, forming of them one continuous cord or cable
 10 when the train is made up.

To each of the sheaves is connected, by a chain or cord, F', preferably attached to the sheave at right angles to the rivet d, and in the longitudinal axis of the car, a weight, F,
 15 passing over a pulley or pulleys, G, carried in hangers g.

The operation of my invention will be so clearly understood from the foregoing and from the drawings that it is only necessary to
 20 say that the rotation of the transverse shaft under the locomotive-cab brings by direct action—i. e., the draft on the cable—the brake-shoes to instantly and simultaneously bear upon the wheels with any degree of pressure de-
 25 sired, the amount being shown to the driver, under whose control such action is, by any suitable indicator placed in the cab, and varying from that sufficient to steady a train running down an incline to what is required
 30 to bring a train to a dead stand in the shortest distance, the power of the brake being only limited by the tensile strength of the rope.

The counterbalance-weights or other devices, such as a spring and weight arranged for the
 35 purpose, turn the sheaves in the opposite direction directly the strain of the draft of the cable is taken off them, thus unwinding the brake-chains, and, as mentioned, throwing off the brakes and taking up the slack of the ca-
 40 ble, thus rendering the brake mechanism always ready for use.

This mechanism can be used equally well and will give the same result with cars of different sizes and construction, and coupled
 45 either closely together or any ordinary distance apart, and running with either end forward, and from the extreme simplicity of its construction requires but little looking to to insure its always being in working order.

50 This brake will also be found of great ad-

vantage in the case of yard-engines for shunting, for which, as yet, no brake under the control of the driver has been devised, and will operate equally well with either end of the locomotive running forward.

The use of this brake will also go far to obviate the accidents (now so common) which happen from a car or cars breaking loose from a train, as, should the coupling break or be-
 55 come unfastened, the car thus detached draws on the cable, thus putting on the brakes not only on its own wheels, but those of all the other cars, and bringing the train to a standstill.

Although this invention is specially adapted
 65 for railway-cars, it may be used on tramways, and in all cases when it is desired to retard or stop the movement of any number of vehicles coupled together, and may even be found a desirable means of arresting the motion of a
 70 single car.

I am aware that a continuous rope has been used to operate simultaneously all the brakes of a train; but this has been in connection with a supplementary rope or chain wound
 75 around the drum and connected with the continuous chain, and the drum has been formed with a fusee, on which is wound a supplemental chain connected with the brake-chain.

Having thus described my invention, what
 80 I claim is as follows:

1. A continuous railway-brake composed of the following elements, viz: a sheave or drum carried under each car, rotated in either direc-
 85 tion by the tension of a continuous rope wound directly around said drum and made up of separate sections, said drum winding up on itself each set of brake-chains and simultaneously applying all the brakes.

2. The spiral sheave A, rotated in either di-
 90 rection by the cable D, and restored to its normal position by counterbalance-weight F or other equivalent device, all substantially as herein described, and for the purposes set forth.

GEO. B. STOCK.

Witnesses:

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 P. R. MILLER.