J. OLMSTED.

MAGNETIC CAR BRAKE.

No. 61,089. Patented Jan. 8, 1867.

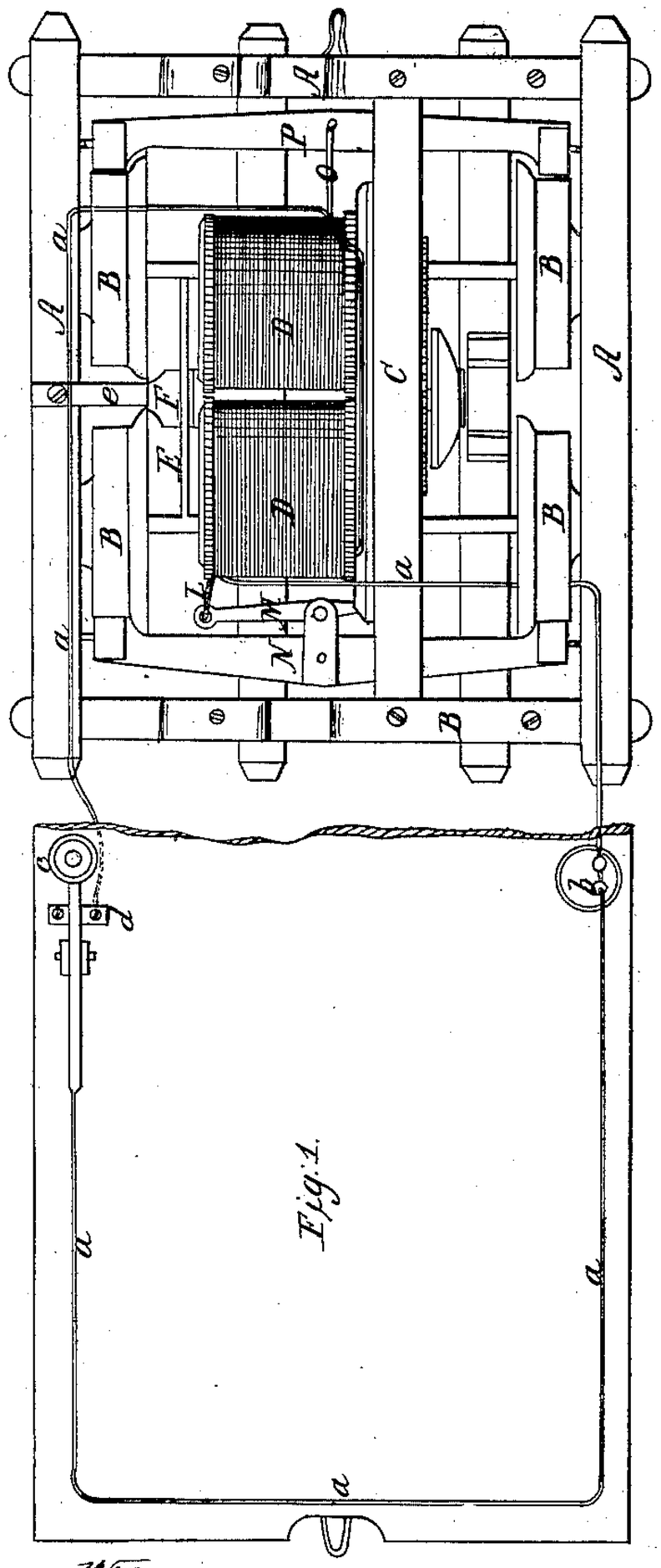

Fig. 1.

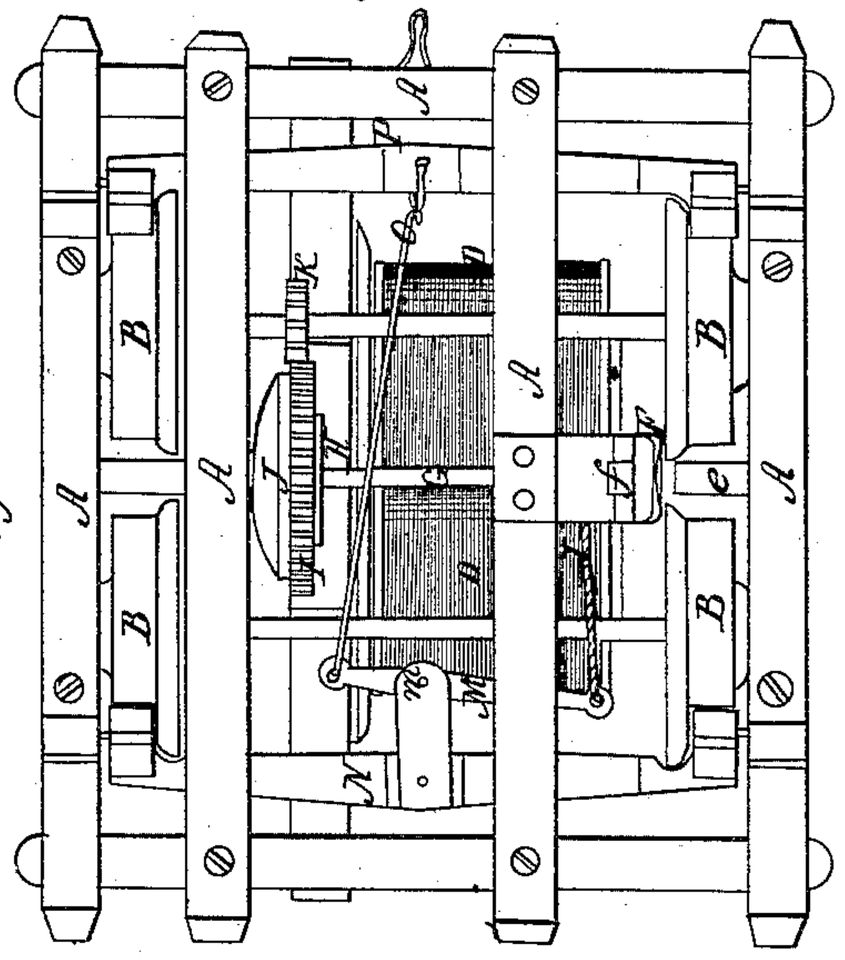

Fig. 3.

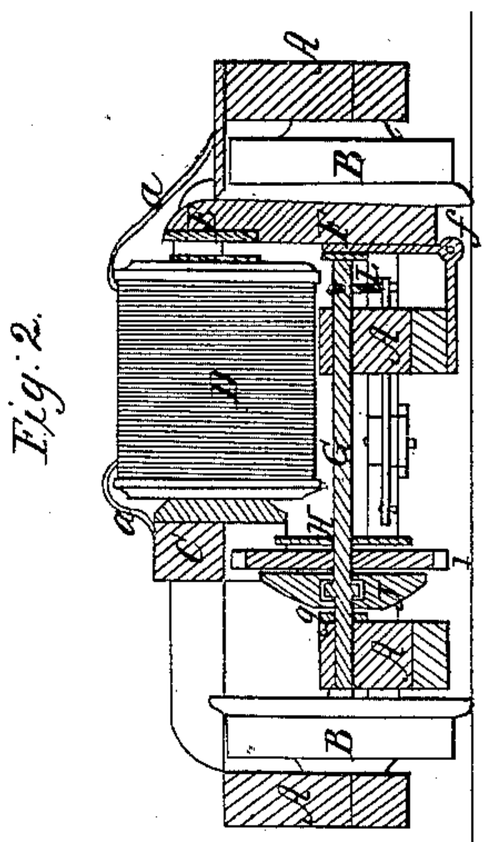

Fig. 2.

Witnesses

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JOSEPH OLMSTED, OF KNOXVILLE, ILLINOIS.

*Letters Patent No.* 61,089, *dated January* 8, 1867.

## IMPROVEMENT IN MAGNETIC BRAKES FOR CARS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOSEPH OLMSTED, of Knoxville, in the county of Knox, and State of Illinois, have invented and discovered a new and useful Improvement in Operating Brakes upon Railroad Cars; and I do hereby declare and make known that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and the letters and figures marked thereon, which form part of this specification.

My said invention consists in a novel arrangement, upon a train of cars, of magnets and an electric circuit extending through the train, which is opened and closed by a key, in connection with certain mechanical devices connected with the brakes, whereby the movements of the armatures of the said magnets, caused by the opening or closing of said circuit at the key, shall instantaneously and simultaneously operate the brakes upon all the cars, both to apply and to release them.

To enable those skilled in the art to understand how to construct and use my invention, I will proceed to describe the same with particularity, making reference in so doing to the aforesaid drawings, in which—

Figure 1 represents a plan or top view of my invention.

Figure 2 is a vertical section taken at the line *x* in figs. 1 and 3; and

Figure 3 is a bottom view of one truck of car with my invention applied thereto.

The same letters of reference in different figures indicate like parts of my invention; and in fig. 1 part of the floor of the car is broken away, so as to show the arrangement thereof beneath.

A represents the truck frame, which is constructed substantially in the usual manner, and B represents the wheels thereof. C represents a strong bar or beam, upon which is supported an ordinary electro-magnetic spool, marked D, of suitable size and strength for the purposes hereinafter specified. E represents a soft iron bar or armature, arranged in the proper position with respect to the poles of said electro-magnet, D, upon the upper end of the lever or arm F, which is hinged in some suitable manner at its lower end, at *f*, so as to permit a motion of the armature E towards and from the magnet D, as desired, being prevented from receding so far as to be beyond the attractive influence of said magnet, by a stop *e*, as shown. G represents a horizontal shaft, supported in suitable bearings, one end thereof being arranged contiguous to the arm F, said shaft having a longitudinal reciprocating movement in its aforesaid bearings. Upon said shaft is fixed rigidly a circular plate, marked H, and it is also provided with another circular block or plate, marked J, which is so arranged as to revolve with the shaft when said shaft is revolved, but allows said shaft to have its aforesaid longitudinal motion, independent from said wheel or plate J, said plate resting against a suitable washer, *g*, between it and the bearing of the shaft, as shown. Between the said plates H and J there is a cog-wheel, marked I, which revolves freely upon said shaft, except as hereinafter specified. The said wheel I gears into or with a spur-wheel, marked K, fixed upon the axle of one pair of the wheels, and revolves therewith. L is a cord or chain, one end of which is secured to the said shaft G, and the other is attached to the lever M, which is connected with the brake N at the point *m*, and to the brake P by the cord or chain *o*, as shown. *a a* represent the electric circuit passing around the spools D and through a battery of suitable power, *b*, one pole terminating in the plate *d*, and the other in a key, *c*, by which said circuit may be closed when desired, it being open when the brakes are not in operation.

When it is desired to break up the train, the engineer, or person whose duty it may be to attend to the matter, closes the circuit by simply pressing the key *c* down upon the plate holding it in this position as long as the brakes are required to operate. As the circuit is closed the current of electricity passing around the spools of the magnet D develops their magnetic force and attracts the armature E thereto and holds it firmly upon the magnet. This movement of the armature gives a corresponding motion to the lever F, which presses upon the end of the shaft G, sliding it along, as aforesaid, and forcing the plate H against the gear-wheel I, which, being firmly held between the clutches H and J, revolves the shaft G, winds the chain L upon the same, thus applying the brakes N P to the wheels, as desired. To release the brakes, the key *c* is released, thus opening the circuit and destroying the attractive power of the magnets, when the armature recedes, the clutches H J relax, and the brakes are released.

Instead of having the magnet stationary, and the armature movable, the magnet may be movable and the

armature stationary; in which case the lever F would be attached to the magnet, instead of the armature. The battery should be arranged in sections, so that by the employment of suitable switches or cut-offs the circuit may be made to pass through any desired number of cups, thus producing any desired degree of power in the application of the brakes. There is to be a magnet arranged upon each truck, as shown. Suitable couplings should be made in the circuit to connect the same between the different cars, which may be so constructed as to close automatically and complete the circuit, when one or more cars may be detached from the train. The key for closing and opening the circuit may be arranged upon the engine, or in any other part of the train, as desired or found expedient.

But having described the nature and operation of my invention, and one mode whereby the same may be applied, I will now specify what I claim, and desire to secure by Letters Patent:

1. I claim the arrangement of the magnet D, armature E, lever F, with the shaft G, clutches H J, and gear-wheel I, operating substantially as and for the purposes described.

2. I claim the combination and arrangement of the shaft G, clutches H J, gear-wheel I, and spur-wheel K, with the axle, substantially as shown and described.

JOSEPH OLMSTED.

Witnesses:
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