

(No Model.)

2 Sheets—Sheet 1.

E. VERSTRAETE.
ELECTRIC CAR BRAKE.

No. 465,034.

Patented Dec. 15, 1891.

Fig. I.

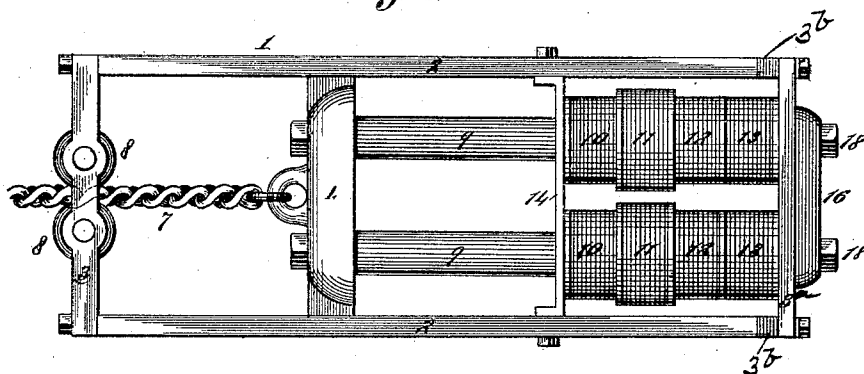


Fig. II

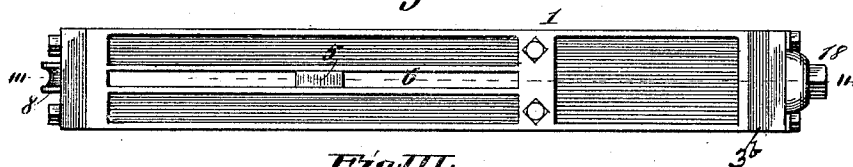


Fig. III.

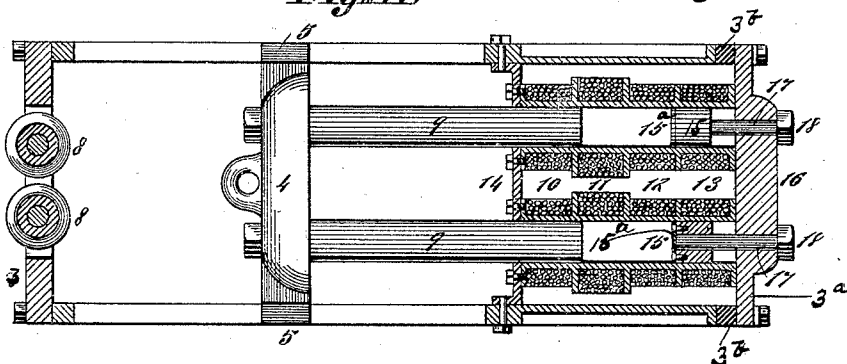


Fig. IV.

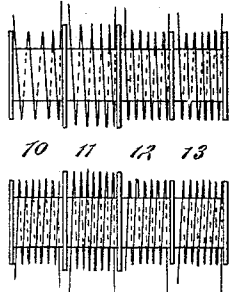
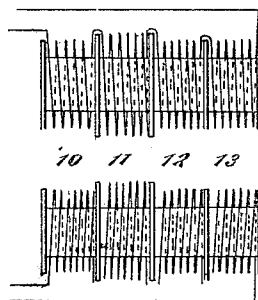


Fig. V.



Attest!

S. H. Knight
G. E. Case.

Inventory

Edmond Verstruete

By Knight Bros atty's

(No Model.)

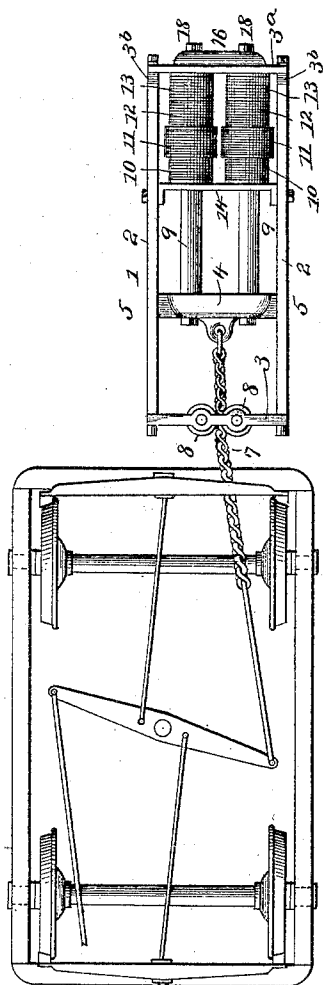
2 Sheets—Sheet 2.

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Fig. II.



Witnesses:

Harry D. Rohrer
f. A. Hopkins

Inventor:

Edmond Verstraete

By Knight Bros.
Attorneys.

UNITED STATES PATENT OFFICE.

EDMOND VERSTRAETE, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
PETER M. KLING, OF SAME PLACE.

ELECTRIC CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 465,034, dated December 15, 1891.

Application filed February 5, 1891. Serial No. 380,344. (No model.)

To all whom it may concern:

Be it known that I, EDMOND VERSTRAETE, of St. Louis, Missouri, have invented a certain new and useful Improvement in Electric Car-Brakes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My present invention relates to the solenoid class of electric brakes intended more particularly for use on street-cars; and my invention consists in features of novelty herein-after fully described, and pointed out in the claims.

Figure I is a top or plan view illustrative of my invention. Fig. II is a side view. Fig. III is a section taken on line III III, Fig. II. Figs. IV and V are diagrams illustrating the manner of wrapping the solenoids referred to. Fig. VI is a bottom view illustrating the application of my invention to a car-brake.

Referring to the drawings, 1 represents a cast-iron rectangular frame composed of sides 2 and ends 3^a.

4 represents a cross-head fitting within the frame and having tenons or shoulders 5 fitting in slots 6 of the sides 2.

7 represents a chain connecting the cross-head 4 to the brake-levers, and this chain passes between grooved rollers 8, journaled in the end 3 of the frame, the rollers serving to guide the chain and keeping the magnets always under a straight pull. Between the end piece 3^a and the sides of the frame are brass blocks 3^b, which, with the brass cross-piece 14, constitute non-magnetic connections.

9 represents the magnets secured to the cross-head 4 and which enter the solenoids, as shown in Fig. III. The solenoids are composed of a number of different sections 10, 11, 12, and 13, arranged within the frame and supported at the outer end by the end piece 3^a of the frame 1 and at the inner end by a brass cross-piece 14, as shown clearly in Figs. I and III. The sections of the solenoids are wound separately, so as to enable me to make any desired combination of sections, the ends of the wires of the different sections being brought out, as shown in Figs. IV and V, so that any desired two may be connected together. The sections 11 are larger than the

other sections, so as to cause a quick and strong movement of the magnets when they first commence to move.

15 represents the pole-pieces of a small horseshoe-magnet, having pole-connecting piece 16 formed in one part with the end 3^a of the frame 1. The pole-pieces have stems 17 with heads 18 on their outer ends, the stems 17 fitting loosely in openings or perforations in the piece 16, so as to permit the pole-pieces to move in the solenoids.

The operation is as follows: When the current is put on, the solenoids draw the magnets 9 inward, and the pole-pieces or magnets 15 also tend to draw the magnets 9 inwardly. The magnets 9 will finally come in contact with the pole-pieces 15, when the magnets and pole-pieces will move together until the pole-pieces come against the end 3. In the reverse movement of the magnets 9 the pole-pieces will be drawn back until the heads 18 of the stems 17 come against the part 16, and then the magnets 9 will leave the pole-pieces and move to the position shown in Fig. III. The pole-pieces have rubber or other suitable facings 15^a to prevent too much adhesion between the pole-pieces and the magnets.

A brake thus constructed is more powerful than any solenoid-brake I have ever seen.

I claim as my invention—

1. In an electric car-brake, the combination of the frame, a sliding cross-head, a magnet secured to the cross-head, and a sectional solenoid, one of said sections being larger than the others, substantially as and for the purpose set forth.

2. In an electric car-brake, the combination of a frame, a sliding cross-head, magnets secured to the cross-head, sectional solenoids, and pole-pieces 15, and the pole-connecting piece 16, substantially as and for the purpose set forth.

3. In an electric car-brake, the combination of a frame, a sliding cross-head, magnets secured to the cross-head, sectional solenoids, pole-pieces 15, and pole-connecting piece 16, the pole-pieces having stems 17 fitting in perforations in the piece 16, and having heads 18, substantially as and for the purpose set forth.

4. In an electric car-brake, the combination of the frame, a sliding cross-head, magnets se-

cured to the cross-head, sectional solenoids, and pole-pieces 15, one of the sections of each solenoid being larger than its other sections, substantially as and for the purpose set forth.

- 5 5. In an electric car-brake, in combination with the frame, magnets, and solenoids, the brass cross-piece 14, and brass blocks 3^b, as set forth.

6. In an electric car-brake, the combination of the frame, solenoids, magnets, and pole-pieces, said pole-pieces having facings 15^a, as set forth.

EDMOND VERSTRAETE.

In presence of—

E. S. KNIGHT,
A. M. EBERSOLE.