

No. 618,162.

Patented Jan. 24, 1899.

W. M. BROWN.  
MAGNETIC CLOSER FOR ELECTRIC RAILWAYS.

(Application filed Aug. 27, 1898.)

(No Model.)

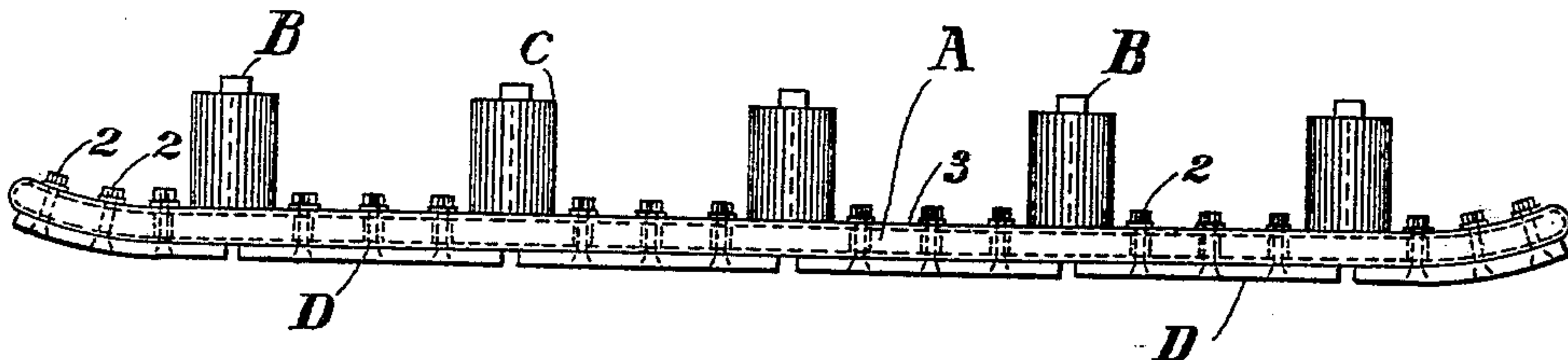


Fig. 1.

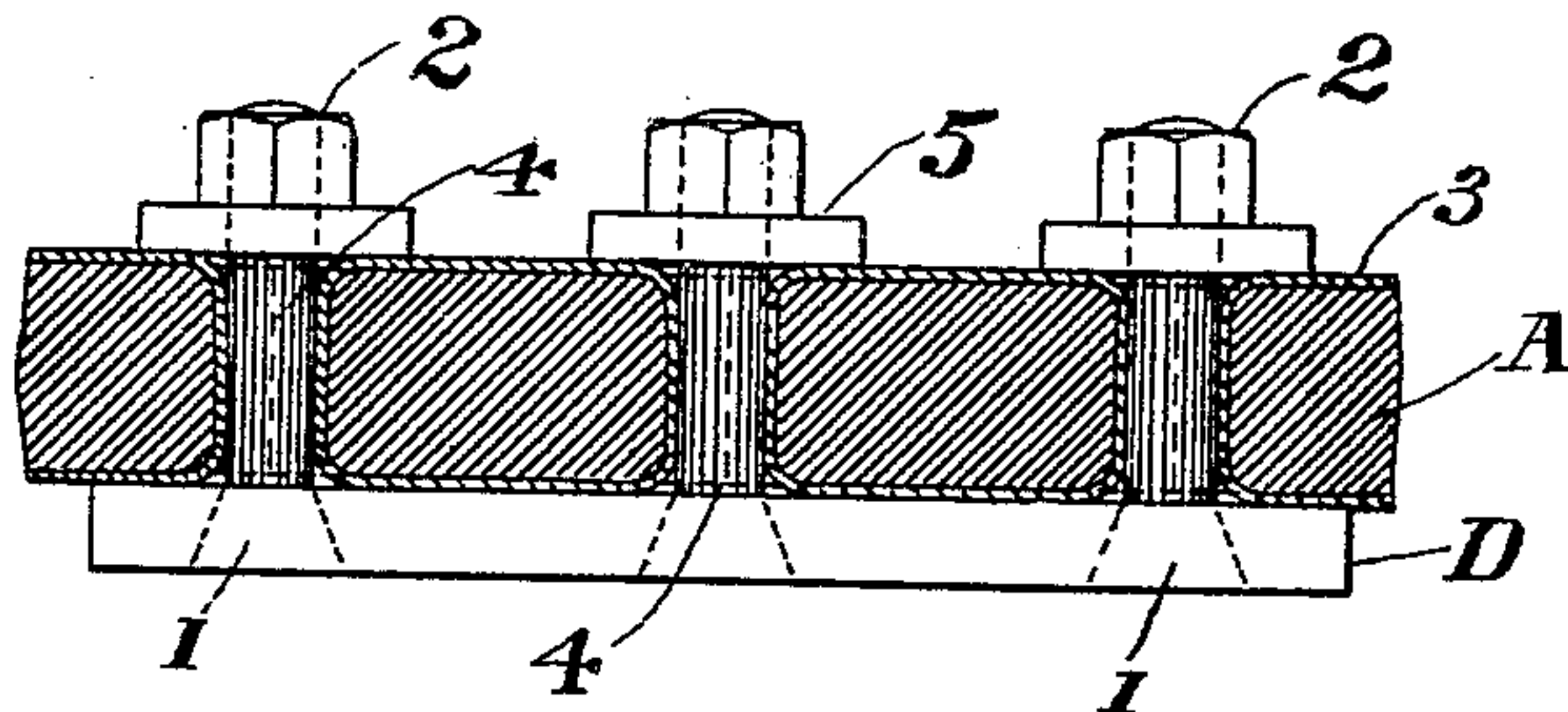


Fig. 2.

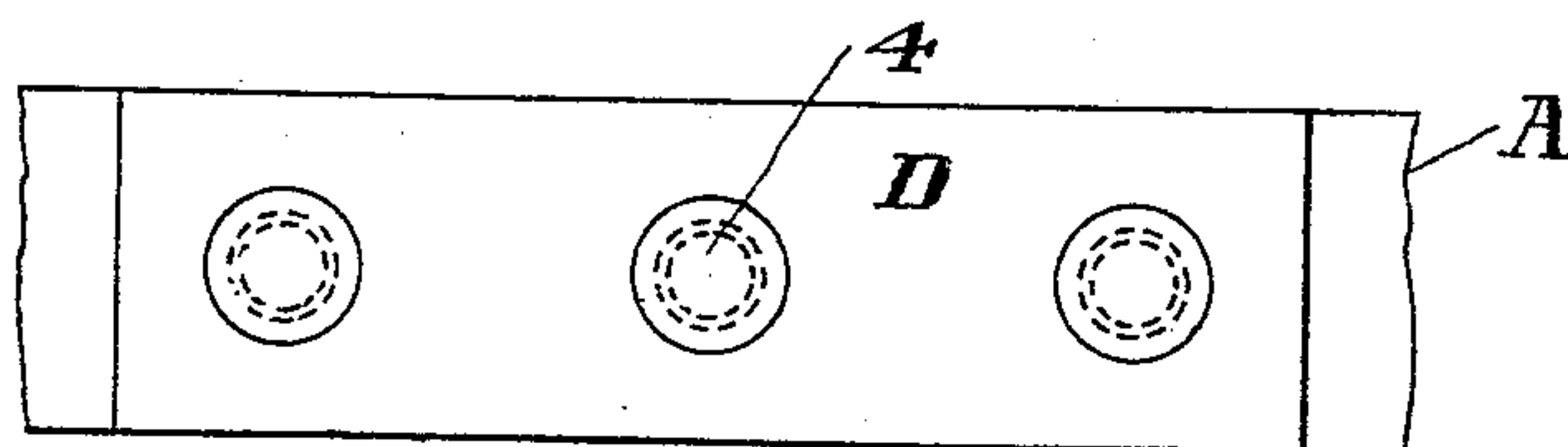


Fig. 3.

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# UNITED STATES PATENT OFFICE.

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## MAGNETIC CLOSER FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 618,162, dated January 24, 1899.

Application filed August 27, 1898. Serial No. 689,655. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM MILT. BROWN, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Magnetic Closers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain improvements in magnetic closers of the type now employed in certain electric-railway systems to actuate underground circuit-closers. In devices used for this purpose at the present time the magnetic closer generally has one or more poles extending longitudinally under the car, such poles being ordinarily in the form of a continuous metallic member. The objection to this form of construction is that there is danger of a short circuit when crossing the rails of another track. This may occur because of the magnet picking up from the street some magnetizable article, such as a nail, or it may occur through poor adjustment of the position of the magnet or of the contact-spots, or both, thereby providing a path for the electric current directly through the magnet-pole. It has been proposed to remedy this difficulty by constructing the magnet-poles of a plurality of parts which are insulated from each other, so that a magnet-pole is provided which has a substantially continuous magnetic field throughout its length, but has not a continuous electric path. My invention relates to this latter class of magnets, and has for its object the provision of a magnet having the advantages of the single-pole magnet—viz., high magnetic efficiency and staunch construction—while also having the advantages of the sectional-pole type; and my invention consists, broadly, in providing a continuous metallic member coated with insulating material, preferably enamel.

My invention also consists in forming bolt-holes in the continuous metallic member prior to enameling it and securing disconnected plates to the lower face by means of bolts passing through the said holes. By this construction the plates protect the enamel and continue the magnetic path. At the same

time the enamel electrically separates the plates from the continuous metallic member.

Referring now to the figures in the annexed drawings, which constitute part of this specification, by which I shall more specifically describe my invention, Figure 1 is a side view of a magnetic closer embodying my invention. Fig. 2 is a longitudinal enlarged sectional view of a portion of the magnet-pole, and Fig. 3 an inverted plan view of a portion of the magnet-pole.

A metal pole A is perforated with a number of holes 1 and 1, coated with an insulating medium 3, preferably enamel, either by immersion or any manner which shall thoroughly cover the walls of the perforations. Metal plates D are then secured to the lower surface of the pole A by means of the countersunk bolts 4, which pass through the perforations 1 and are then secured by the nuts 2, which bear against washers 5. The cores B are fastened to the pole A in a suitable manner, as by threaded ends which screw into the magnetic pole.

Care energizing-coils surrounding the cores B. The metal plates D serve the purpose of being a protection to the enamel or other insulating compound and also help to complete the magnetic path.

If now the magnet-pole should in operation become electrically connected with both sides of the circuit, no evil consequences would result, as owing to the enamel between the pole A and the plates D and between the perforations in the pole and the bolts 4 no electric current can pass.

The precise form and construction of this device may differ from this description without departing outside the scope of the appended claims.

Having thus described my invention, what I claim, and desire to protect by Letters Patent, is—

1. A magnetic closer comprising the combination of a plurality of cores and energizing-coils for the same, a single continuous metallic pole-piece provided with perforations and coated throughout with insulating material connecting said cores, a series of disconnected metallic plates, and bolts passing through said perforations and securing said



plates against the under side of the coated pole-piece.

2. A magnetic closer comprising the combination of a plurality of cores and energizing-coils for the same, a single continuous  
5 metallic pole-piece provided with perforations and coated throughout with enamel connecting said cores, a series of disconnected metallic plates, and bolts passing through

said perforations and securing said plates to against the under side of the coated pole-piece.

In testimony whereof I have affixed my signature in presence of two witnesses.

W. MILT. BROWN.

Witnesses:

RICHARD EYRE,

H. W. SMITH.