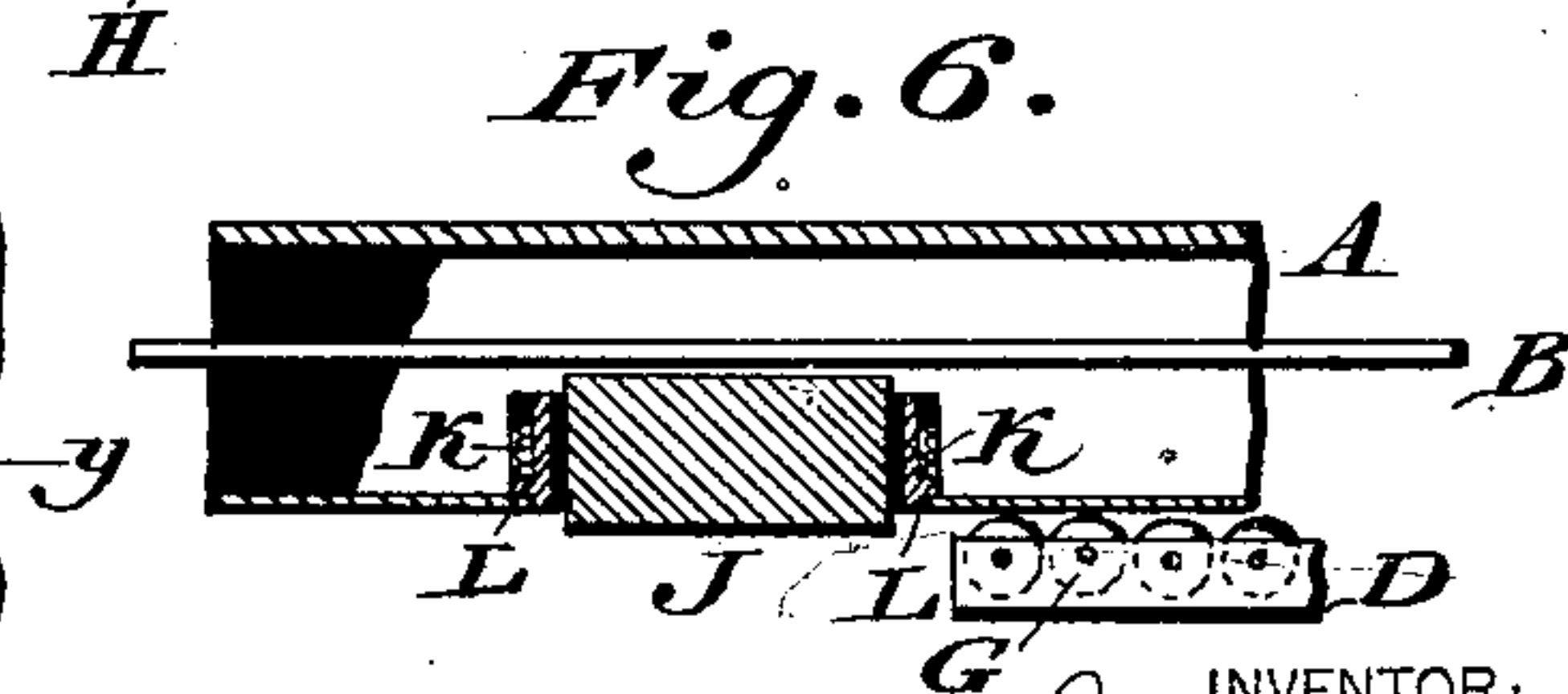
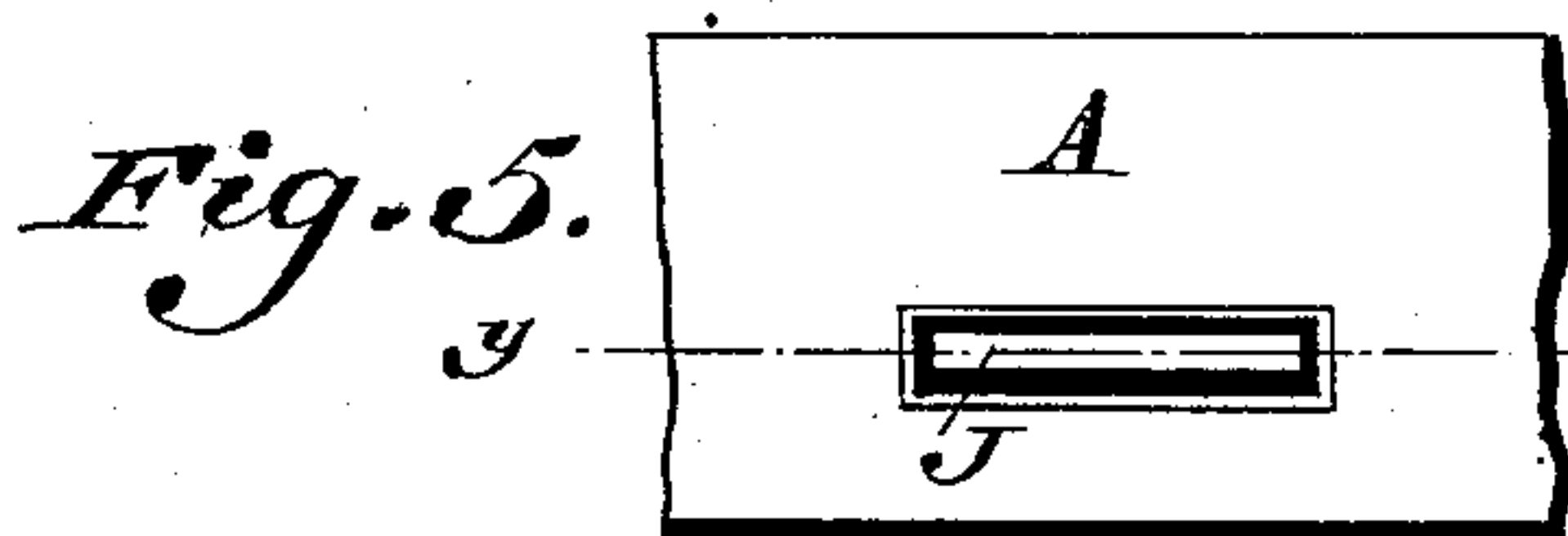
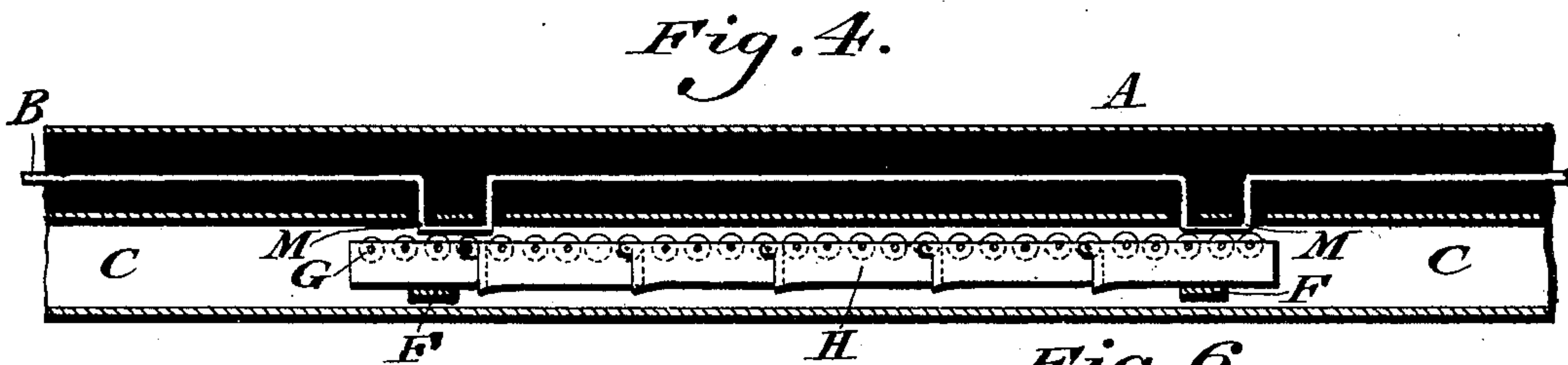
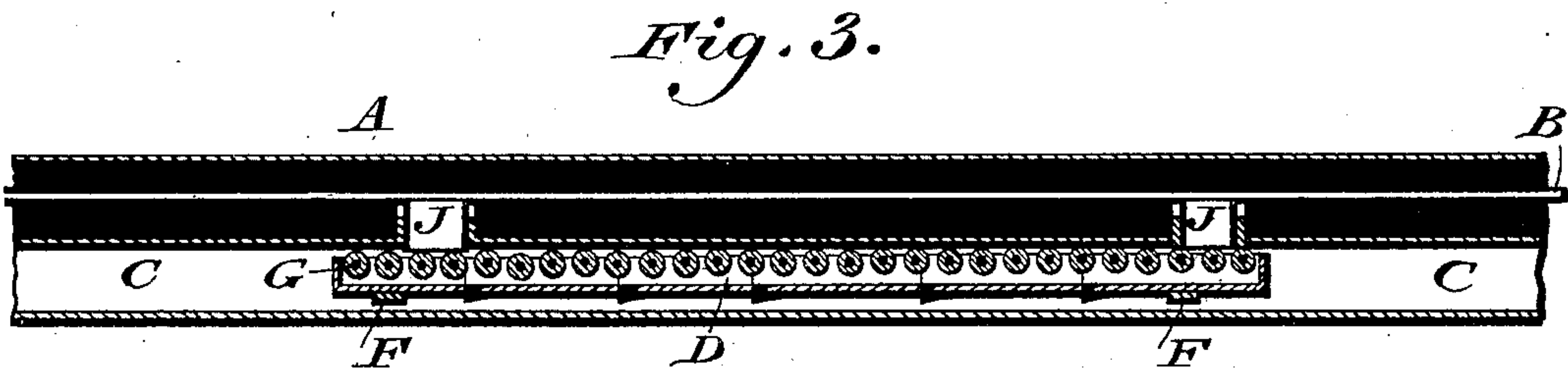
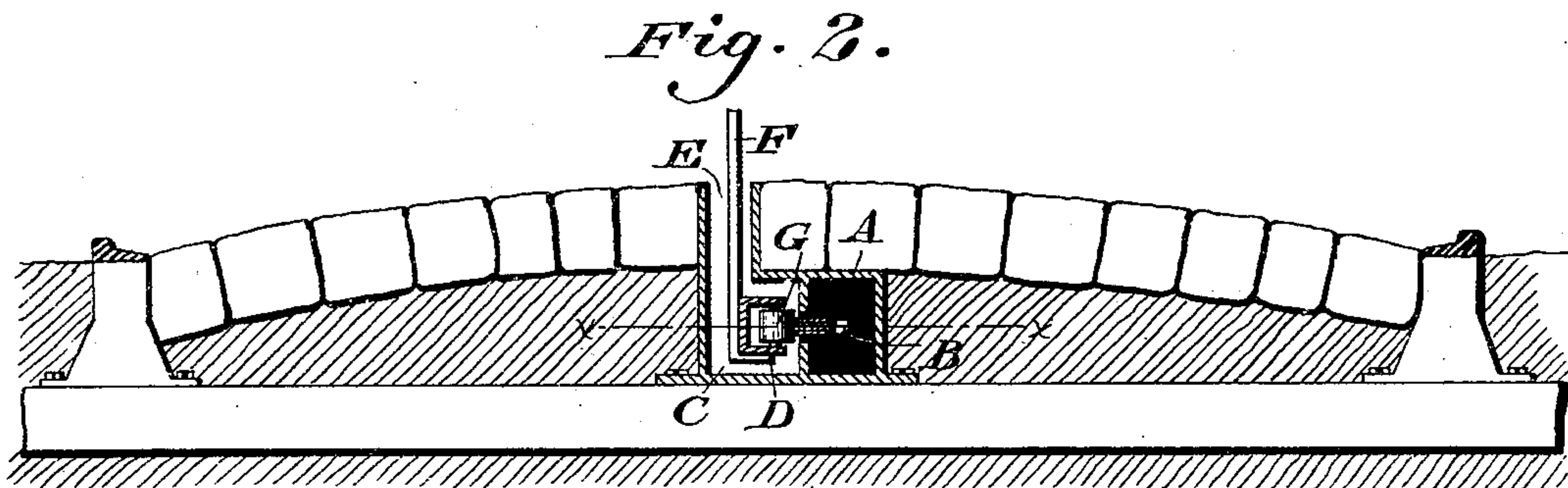
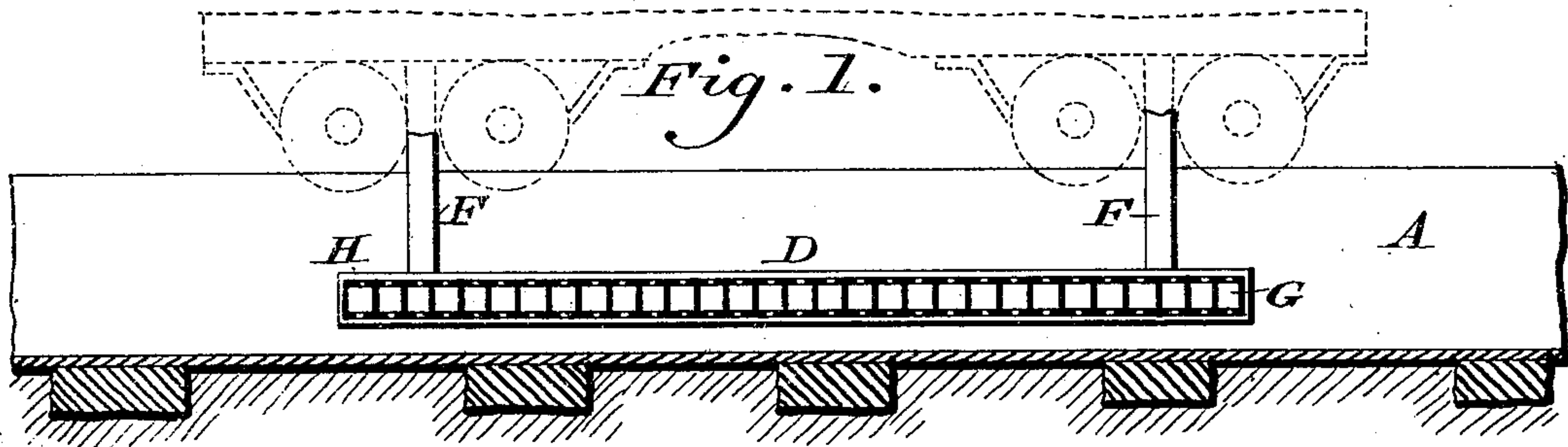


(No Model.)

A. GORTON.  
ELECTRIC RAILWAY.

No. 434,827.

Patented Aug. 19, 1890.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ADELOS GORTON, OF CAMDEN, NEW JERSEY.

## ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 434,827, dated August 19, 1890.

Application filed November 7, 1889. Serial No. 329,530. (No model.)

*To all whom it may concern:*

Be it known that I, ADELOS GORTON, a citizen of the United States, residing in the city and county of Camden, State of New Jersey, have invented a new and useful Improvement in Electrical Railways, which improvement is fully set forth in the following specification and accompanying drawings.

My invention consists of an electrical railway embodying improvements as follows: A brush formed of a series of parallel rollers, which are mounted on a frame or carrier, which latter is attachable to a car, said rollers being arranged in regular succession, so as to engage with exposed distant contacting part of an insulated electrical conductor, so that before one roller leaves the contacting parts the adjacent roller engages with the same, thus always maintaining the electrical connection in a regular, uniform, and reliable manner.

Figure 1 represents a longitudinal vertical section of portion of an electrical railway embodying my invention. Fig. 2 represents a transverse vertical section thereof. Fig. 3 represents a longitudinal horizontal section thereof on line *xx*, Fig. 2. Fig. 4 represents a longitudinal horizontal section of a modification. Fig. 5 represents a side elevation of a portion on an enlarged scale. Fig. 6 represents a section on line *yy*, Fig. 5.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, A designates a conduit formed of suitable material and located in the ground or elsewhere beneath a car-track and containing an electrical conductor B, which is properly inclosed in insulating material, which is closely packed or in contact with said conductor. At the side of the conduit is a chamber C, forming at top what is known as the "slot" E, said chamber receiving the brush D, which is connected with a carrier F, the latter passing through the slot and attached to a car in any desirable manner. The brush D consists of a series of rollers G, which have vertical axes on a frame H, which is secured to the carrier F, said rollers being adapted to come in contact with sliding or movable plugs J, fitted at intervals in the side wall of the conduit A, the inner ends of said plugs being normally held disengaged from the conductor B by means of

springs K, which are located in proper portions of the side walls of the conduit and bear outwardly against shoulders or projections L on the plugs, as most clearly shown in Fig. 6, it being seen that as the car advances the rollers G reach the plugs J and force the same inwardly, whereby they contact with the conductor B, thus forming electrical connection between the conductor and motor on the car. It will be seen that the plugs are separated such distance and the brush D is of such length that the brush is always in contact with one or more plugs, whereby the electrical connection is always maintained. The rollers G are placed parallel side by side in regular succession and sufficiently close together, so that before one roller leaves one of the plugs another roller comes in contact with said plug, by which provision the continuity of the electrical connection is maintained in a uniform and unbroken manner. In Fig. 4 the plugs are dispensed with and in lieu thereof the conductor is deflected or bent laterally, forming loops M, which, while insulated from the side wall of the conduit, are exposed or bared, so that the rollers of the brush may contact with the same, thus causing an electrical connection, the operation of which is similar to that hereinbefore described.

In order to allow free motions of the brush, especially at curves and turn-outs, the frame of the same is formed in sections or links pivoted or jointed to the frame at the axes of the relative rollers, as will be seen in Figs. 3 and 4, the distance between the rollers thus remaining the same, while the brush describes its curved motions, whereby the continuity of the electrical connection is preserved. The plugs or loops being located at distant intervals along the conduit present but small exposed surfaces and reduce to a fraction the chances of loss of the electrical current as compared with the former systems of electric railways, in which the entire length of the conductor is bared or exposed.

The brush by its succession of rollers provides, in addition to an unbroken electrical connection, means for pressing and passing the connecting or contact places with but little friction, thereby obviating the wear of parts within the conduit and saving repairing beneath or disturbing the road-bed.



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

1. In an electric railway, a conductor having its entire surface covered with insulating material except at distant intervals, a brush with rollers, and plugs or transmitters, each of the said plugs or transmitters furnishing seats or contacts at the same time for two of the rollers, and the brush being of such length as to span two of the said plugs, and its rollers so close together that one will contact with a plug before the advance roller leaves the same plug, said parts being combined substantially as described.

2. In an electric railway, a conduit with an electrical conductor therein, the same being inclosed in insulating material and having openings in its sides for uncovered portions of the conductor, movable plugs located coincident with said uncovered portions of the conductor, and a brush formed of a series of rollers carried in a jointed frame and

adapted to bring said plugs in contact with the uncovered portions of the conductor, said parts being combined substantially as described.

3. In an electric railway, a conduit with an electrical conductor therein, the same being inclosed in insulating material and having openings in its sides for uncovered portions of said conductor, a brush consisting of a series of rollers adapted to contact with the uncovered portions of said conductor, a jointed frame composed of sections or links in which the rollers are mounted, the axes of which are disposed vertically, and movable plugs located coincident with said uncovered portions of the conductor and having springs in engagement therewith, combined substantially as described.

ADELOS GORTON.

Witnesses:

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